



Design & Access Statement

E04759

APPENDIX D Pt 2 of 2

Energy Statement

Sustainability Statement

BREEAM Pre Assessment

RANIKHET PRIMARY ACADEMY

BREEAM NEW CONSTRUCTION 2018: PRE-ASSESSMENT REPORT



BOE12065
RANIKHET ACADEMY
READING
09 February 2021

Energy (Ene)

Ene 01 Reduction of energy use and carbon emissions

To minimise operational energy demand, primary energy consumption and CO₂ emissions.

Energy performance

Country :	England
Can a .inp file be uploaded? :	No
Without the .inp file being uploaded only the standard methodology can be used. This may impact the number of credits that can be awarded. :	
Energy Production by Technology :	
Energy & CO ₂ Emissions Summary :	
Actual building energy demand :	9.25 MJ/m ² yr
Notional building energy demand :	32.29 MJ/m ² yr
Actual building primary energy consumption :	69.16 kWh/m ² yr
Notional building primary energy consumption :	69.29 kWh/m ² yr
Actual building CO ₂ -eq emissions (BER) :	10.5 KgCO ₂ -eq/m ² yr
Notional building CO ₂ -eq emissions (TER) :	13.2 KgCO ₂ -eq/m ² yr

Energy performance - Building score

Total BREEAM credits achieved :	5.0
Heating and cooling demand energy performance ratio (EPRdem) :	0.312
Primary consumption energy performance ratio (EPRpc) :	0.051
CO ₂ -eq energy performance ratio (EPRco2-eq) :	0.145
Overall building energy performance ratio (EPRnc) :	0.507
% improvement BER/TER :	20.5 %

Towards carbon negative (exemplary credits)

Zero net CO₂-eq emissions :

Prediction of operational energy consumption

Has a design workshop focusing on operational energy performance been carried out? : Yes

Additional energy modelling to generate predicted operational energy consumption figures carried out? : Yes

Predicted energy consumption targets by end use, design assumptions and input data reported? : Yes

Risk assessment to highlight any significant design, technical, and process risks? : Yes

Post-occupancy stage (exemplary credits)

Maximum credits achieved in Ene 02 Energy monitoring? : Yes

The client or building occupier commits funds to pay for the post-occupancy stage? :

The energy model is submitted to BRE and retained by the building owner? :

Credits awarded : 9

Comments :

Up to nine credits available for energy performance, 5 credits achieved: Data from the BRUKL dated 15/12/20 has been entered into the Ene 01 calculator which confirms that an Energy Performance Ratio of 0.507 has been achieved with a 20.5% improvement of the Building Emission Rate over the Target Emission Rate.

Four credits targeted for prediction of operational energy consumption. Requirements are as follows:

- Involve relevant members of the design team in an energy design workshop focusing on operational energy performance.
- Undertake additional energy modelling during the design and post-construction stage to generate predicted operational energy consumption figures.
- Report predicted energy consumption targets by end use, design assumptions and input data (with justifications).
- Carry out a risk assessment to highlight any significant design, technical, and process risks that should be monitored and managed throughout the construction and commissioning process.

Ene 02 Energy monitoring

To encourage the installation of energy sub-metering that facilitates the monitoring of operational energy consumption. To enable managers and consultants post-handover to compare actual performance with targets in order to inform ongoing management and help in reducing the performance gap.

Assessment criteria

Sub-metering of end use categories : Yes

Sub-metering of high energy load and tenancy areas :

Yes

Credits awarded : 2

Comments :

Sub metering of end use categories credit targeted. Requires energy metering systems to be installed so that at least 90% of the estimated annual energy consumption of each fuel is assigned to the end-use categories. This can be via an energy monitoring and management system or separate accessible energy sub-meters with pulsed or other open protocol communication outputs, for future connection to an energy monitoring and management system.

Sub metering of high energy load or sub metering by department credit targeted.

Section 1.2 of the MEP Stage 1 report confirms that the energy strategy for the school will ensure that all primary energy is metered fully. Section 1.7 states that a dedicated BMS automatic control systems will be installed to meet the requirements the following:
Heat and power generating plant, gas safety, pumps, pressurisation, energy meters, fiscal meters, heating and DHW requirements and all associated equipment, Cat 5 booster, NVHR units (classroom Co2 and temperature sensors)

Ene 03 External lighting

To reduce energy consumption through the specification of energy efficient light fittings for external areas of the development.

Assessment criteria

External lighting has been designed out? :

No

Is external lighting specified in accordance with the relevant criteria? :

Yes

Credits awarded : 1

Comments :

Credit targeted. Requires external light fittings within the construction zone to have:
Average initial luminous efficacy of not less than 70 luminaire lumens per circuit Watt
Automatic control to prevent operation during daylight hours
Presence detection in areas of intermittent pedestrian traffic.

Section 2.6 of the Stage 1 MEP report confirms that new external lighting shall be developed with the proposed landscape layout, designed to be compliant with the Dark Skies Initiative and comply with BS5266 emergency lighting. The new external lighting shall be controlled via 24/7 digital programmable timers and hold off daylight sensors.

Ene 04 Low carbon design

To encourage the adoption of design measures, which reduce building energy consumption and associated carbon emissions and minimise reliance on active building services systems.

Assessment criteria

Has the first credit within Hea 04 been achieved? :	Yes
Passive design analysis :	Yes
Free cooling :	Yes
Low and zero carbon technologies :	Yes

KPI

Total on-site and/or near-site LZC energy generation :

Expected energy demand and CO₂-eq emissions reduction resulting from passive design measures :

Expected energy demand and CO₂-eq emissions reduction resulting from passive design measures as a percentage :

Expected reduction in CO₂-eq emissions resulting from the LZC technologies :

Expected reduction in CO₂-eq emissions resulting from the LZC technologies as a percentage :

Credits awarded

: 3

Comments :

One credit - Passive design analysis. Credit targeted. Requirements are that the project team analyses the proposed building design and development during Concept Design to identify opportunities for the implementation of passive design measures:

1. Site location
2. Site weather
3. Microclimate
4. Building layout
5. Building orientation
6. Building form
7. Building fabric
8. Thermal mass or other fabric thermal storage
9. Building occupancy type
10. Daylighting strategy
11. Ventilation strategy
12. Adaptation to climate change.

Implement passive design measures to reduce the total heating, cooling, mechanical ventilation, lighting loads and energy consumption in line with the passive design analysis findings.

RPS have been appointed to undertake a BREEAM compliant Passive Design Analysis at concept design stage.

One credit. Free cooling credit targeted. Requirements are that a free cooling analysis is undertaken demonstrating consideration of the following technologies:

1. Night time cooling (which could include the use of a high exposed thermal mass)
2. Ground coupled air cooling
3. Displacement ventilation (not linked to any active cooling system)
4. Ground water cooling
5. Surface water cooling
6. Evaporative cooling, direct or indirect
7. Desiccant dehumidification and evaporative cooling, using waste heat
8. Absorption cooling, using waste heat.

One credit - Low and zero carbon feasibility study credit targeted. Requirements are that an energy specialist is required to complete a feasibility study by the end of Concept Design. RPS have been appointed to undertake a LZC Feasibility at concept design stage to establish the most appropriate recognised local (on-site or near-site) low and zero carbon (LZC) energy sources for the building or development, based on the feasibility study. Specify local LZC technologies for the building or development in line with the feasibility study recommendations. Quantify the reduced regulated carbon dioxide emissions resulting from the feasibility study.

Section 1.2 of the MEP Stage 1 report confirms that the design of the MEP services will follow the fabric first principles and target the school to be carbon neutral where practical.

Any grid electrical energy shall be purchased from green/renewable energy sources and will be supplemented with onsite renewable energy PV, ASHP and wind turbine etc where practical.

Ene 05 Energy efficient cold storage

To encourage the installation of energy efficient refrigeration systems, in order to reduce operational greenhouse gas emissions resulting from the system's energy use.

Assessment criteria - N/A

Ene 06 Energy efficient transportation systems

To encourage the specification of energy efficient transport systems within buildings.

Assessment criteria

Energy consumption :

Energy efficient features - Lifts :

Credits awarded : 0

Comments :

Energy consumption credit not targeted. The design team have indicated that a lift traffic analysis will not be undertaken. Requirement is to analyse the transportation demand and usage patterns for the building to determine the optimum number and size of lifts.

Energy efficient features credit not targeted. Requires specification of the following three energy efficient features for each lift:

- A standby condition for off-peak periods
- The lift car lighting and display lighting provides an average luminous efficacy across all fittings in the car of more than 70 luminaire lumens per circuit Watt
- Use of a drive controller capable of variable speed, variable-voltage, and variable-frequency (VVVF) control of the drive motor.

Whilst the specified lifts may incorporate energy efficient features this credit is not achievable unless the first credit has been achieved.

Ene 07 Energy efficient laboratory systems

To encourage laboratory areas that are designed to minimise their operational energy consumption and associated CO2 emission

Assessment criteria - N/A

Ene 08 Energy efficient equipment

To encourage installation of energy efficient equipment to ensure optimum performance and energy savings in operation

Assessment criteria

Swimming pool present? :	No
Laundry facilities with commercial-sized appliances present? :	No
Data centre present? :	No
IT-intensive operating areas present? :	Yes
Major impact? :	Yes
Domestic scale appliances (individual and communal facilities) present? :	Yes
Major impact? :	Yes
Healthcare equipment present? :	No

Kitchen and catering facilities present? :	Yes
Major impact? :	Yes
Other contributors :	
Significant majority contributors BREEAM compliant :	Yes

Credits awarded : 2

Comments :

Credits targeted. If the following white goods are provided they must achieve the following ratings (or better) under the EU Energy Efficiency Labelling Scheme:

1. Fridges, fridge-freezers: A+ rating
2. Washing machines: A++ rating
3. Dishwashers: A+ rating
4. Washer-dryers: A rating
5. Tumble dryers: A rating

Kitchen and catering facilities to incorporate at least two-thirds of the energy efficiency measures outlined in the 'section summary' boxes of each of the following sections of CIBSE Guide TM50:

1. Section 8 - Drainage and kitchen waste removal
2. Section 9 - Energy controls - specifically controls relevant to appliances
3. Section 11 - Appliance specification - excluding fabrication or utensil specifications
4. Section 12 - Refrigeration
5. Section 13 - Warewashing: dishwashers and glasswashers
6. Section 14 - Cooking appliance selection
7. Section 15 - Water temperatures, taps, faucets and water-saving controls

Transport (Tra)

Tra 01 Transport assessment and travel plan

To reward awareness of existing local transport and identify improvements to make it more sustainable.

Assessment criteria

Travel plan : Yes

Credits awarded : 2

Comments :

Credits targeted. Requirements are that no later than Concept Design stage, a site-specific transport assessment and draft travel plan is undertaken, which can demonstrably be used to influence the site layout and built form.

The site-specific travel assessment (or statement) shall cover as a minimum:

- If relevant, travel patterns and attitudes of existing building or site users towards cycling, walking and public transport, to identify relevant constraints and opportunities.
- Predicted travel patterns and transport impact of future building or site users.
- Current local environment for pedestrians and cyclists, accounting for any age-related requirements of occupants and visitors.
- Reporting of the number and type of existing accessible amenities, see Table 7.1 below, within 500m of the site.
- Disabled access accounting for varying levels and types of disability, including visual impairment.
- Calculation of the existing public transport Accessibility Index (AI).
- Current facilities for cyclists.

Travel Plan dated January 2021 has been provided.

Tra 02 Sustainable transport measures

To maximise the potential for local public, private and active transport through provision of sustainable transport measures appropriate to the site.

Assessment criteria

Prerequisite : Yes

Location type (based on existing AI) : AI <25

Number of points achieved overall : 5

Credits awarded : 5

Comments :

1 credit targeted based upon the sites accessibility index.

1 credit targeted for providing sufficient secure and covered cycle storage. Requirement is 1 space per form in year group based upon 1 year group not all year groups, therefore a 2 form entry school requires 10 secure and covered cycle spaces. Page 7 of the Travel Plan states that following the rebuild, the cycle storage will increase so that it can accommodate 30 cycle parking spaces for pupils and 10 cycle spaces for staff, to meet Reading Borough Council cycle standards.

1 credit targeted for providing at least two compliant cyclists' facilities for the building users (Staff) from the following list:

Showers

Changing facilities

Lockers

Drying spaces.

1 credit targeted for provision of a public transport information system in a publicly accessible area, to allow building users access to up-to-date information on the available public transport and transport infrastructure. This may include signposting to public transport, cycling, walking infrastructure or local amenities.

1 credit targeted for providing electric recharging stations of a minimum of 3kW for at least 10% of the total car parking capacity for the development.

Section 1.10 of the MEP Stage 1 report states that the school will have a minimum of two electrical Vehicle charging Points (EVCP) built into the Electrical Infrastructure.

Water (Wat)

Wat 01 Water consumption

To reduce the consumption of potable water for sanitary use in new buildings through the use of water efficient components and water recycling systems.

Assessment criteria

Please select the calculation procedure used : Standard approach

Credits awarded : 1

Exemplary performance :

Key Performance Indicators

Standard approach data: :

Water Consumption from building micro-components :

Water demand met via greywater/rainwater sources :

Total net water consumption :

Improvement on baseline performance :

Key Performance Indicator - use of freshwater resource: :

Total net Water Consumption :

Default building occupancy :

Credits awarded : 1

Comments :

1 credit targeted. Section 1.5 of the MEP Stage 1 report confirms flow restriction devices will be fitted to each outlet to conserve water and energy.

The following specification will achieve 1 credit:

WC's 4.5 litre flush

WHB taps 8 litres per minute

Showers 10 litres per minute

Kitchen taps 8 litres per minute

Wat 02 Water monitoring

To reduce the consumption of potable water in new buildings through the effective management and monitoring of water consumption.

Assessment criteria

Water meter on the mains water supply to each building :	Yes
Sub-metering/monitoring equipment on supply to plant/building areas :	Yes
Pulsed output or other open protocol communication output and BMS connection :	Yes
The water monitoring strategy used enables the identification of all water consumption for sanitary uses as assessed under Wat 01 (L/person/day) :	Yes

Credits awarded : 1

Comments :

1 credit targeted for specification of a water meter with a pulsed output on the mains water supply.

Wat 03 Water leak detection

To reduce the consumption of potable water in new buildings through minimising wastage due to water leaks.

Assessment criteria

Leak detection system :	No
Flow control devices :	Yes

Credits awarded : 1

Comments :

One credit available for a leak detection system however this credit has not been targeted. Requirements are installation of a leak detection system capable of detecting a major water leak:

On the utilities water supply within the buildings, to detect any major leaks within the buildings AND

Between the buildings and the utilities water supply, to detect any major leaks between the utilities supply and the buildings under assessment.

One credit targeted for flow control devices. Requires installation flow control devices that regulate the water supply to each WC area or sanitary facility according to demand, in order to minimise undetected wastage and leaks from sanitary fittings and supply pipework. A common solution is a solenoid valve linked to the PIR lighting.

Wat 04 Water efficient equipment

To reduce water consumption for uses not assessed under Wat 01 by encouraging specification of water efficient equipment.

Assessment criteria

Water efficient consumption : Yes

Credits awarded : 1

Comments :

1 credit targeted as no mains fed irrigation systems specified. Landscaping will rely on precipitation or manual watering using an outside tap.

Materials (Mat)

Mat 01 Life cycle impacts

To reduce the burden on the environment from construction products by recognising and encouraging measures to optimise construction product consumption efficiency and the selection of products with a low environmental impact (including embodied carbon), over the life cycle of the building.

Assessment criteria

Total Mat 01 credits achieved - taken from the Mat 01/02 Results 7

Submission Tool :

Total Exemplary credits achieved - taken from the Mat 01/02 Results 1

Submission Tool :

Credits awarded : 7

Exemplary credits awarded : 1

Comments :

7 credits achieved. A building Life Cycle Assessment (LCA) options appraisal of 4 significantly different superstructure design options and 6 different substructure and hard landscaping options has been undertaken at concept design stage prior to planning submission to appraise the different environmental impacts of each design option using a building LCA tool that is recognised by BREEAM. The Mat 01 results submission tool has been uploaded to BRE.

Mat 02 Environmental impacts from construction products

To encourage availability of robust and comparable data on the impacts of construction products through the provision of EPD.

Assessment criteria

Mat 02 credit achieved - Taken from the Mat 01/02 Results Submission 1

Tool. :

Credits awarded : 1

Comments :

Credit targeted. Requires specification of products with a recognised environmental product declaration (EPD). Architect to refer to greenbooklive.com

Mat 03 Responsible sourcing

To facilitate the selection of products that involve lower levels of negative environmental, economic and social impact across their supply chain including extraction, processing and

manufacture.

Assessment criteria

Prerequisite: All timber and timber based products are 'Legally harvested and traded timber' :	Yes
Has the enabling sustainable procurement credit been achieved? :	No
Mat 03 minimum scope level :	plus Substructure and hard landscaping / Internal Finishes
Percentage of available for percentage of RSM points achieved :	20 %

Credits awarded : 2

Comments :

Prerequisite - Legal and sustainable timber. Targeted Requires 100% of timber and timber-based products used on the project are 'Legal' and 'Sustainable' as per the UK Government's Timber Procurement Policy.

Sustainable Procurement Plan not targeted. Requires a sustainable procurement plan to be used by the design team to guide specification towards sustainable construction products. The plan must:

- Be in place before Concept Design. Include sustainability aims, objectives and strategic targets to guide procurement activities.
- Include a requirement for assessing the potential to procure construction products locally. There must be a policy to procure construction products locally where possible.

Responsible Sourcing of Materials 2 credits targeted. Requires written commitment from Contractor to commit to achieving at least 20% of the available responsible sourcing points for superstructure, internal finishes, substructure and hard landscaping.

Mat 05 Designing for durability and resilience

To reduce the need to repair and replace materials resulting from damage to exposed elements of the building and landscape.

Assessment criteria

Protecting vulnerable parts of the building from damage and exposed parts of the building from material degradation : Yes

Credits awarded : 1

Comments :

Credit targeted. Requires protection measures to be incorporated into the building's design and construction to reduce damage to the building's fabric or materials in case of accidental

or malicious damage occurring. These measures must provide protection against:

- 1.a Negative impacts of high user numbers in relevant areas of the building (e.g. corridors lifts, stairs, doors etc.).
- 1.b Damage from any vehicle or trolley movements within 1m of the internal building fabric in storage, delivery, corridor and kitchen areas.
- 1.c External building fabric damage by a vehicle. Protection where parking or manoeuvring areas are within 1 metre of the building facade and where delivery areas or routes are within 2 metres of the facade, i.e. specifying bollards or protection rails.
- 1.d Potential malicious damage to building materials and finishes, in public and common areas where appropriate.

Protecting exposed parts of the building from material degradation: Key exposed building elements are required to be designed and specified to limit long and short term degradation due to environmental factors.

Mat 06 Material efficiency

To avoid unnecessary materials use arising from over specification without compromising structural stability, durability or the service life of the building.

Assessment criteria

Material optimisation measures investigated and implemented at all relevant stages : Yes

Credits awarded : 1

Comments :

Credit targeted. Requirements are as follows:

- 1 At the Preparation and Brief and Concept Design stages, set targets and report on opportunities and methods to optimise the use of materials. These must be done for each of the following stages.
 - 1.a Preparation and Brief. Complete, summary report provided by Hampshire County Council.
 - 1.b Concept Design. Complete, summary report provided by Hampshire County Council.
 - 1.c Developed Design
 - 1.d Technical Design
 - 1.e Construction.
- 2 Develop and record the implementation of material efficiency, during:
 - 2.a Developed Design
 - 2.b Technical Design
 - 2.c Construction.
- 3 Report the targets and actual material efficiencies achieved

Waste (Wst)

Wst 01 Construction waste management

To reduce construction waste by encouraging reuse, recovery and best practice waste management practices to minimise waste going to landfill.

Assessment criteria

Is demolition occurring under the developer's ownership for the purpose of enabling the assessed development? : Yes

Pre-demolition audit : Yes

Compliant Resource Management Plan : Yes

Have waste materials been sorted into separate key waste groups? : Yes

Exemplary level criteria :

KPI

Measure/units for the data being reported : m³

Non-hazardous construction waste (excluding demolition/excavation) - fill in to award 'Construction resource efficiency' credits : 7.5 m³/100m²

Total non-hazardous construction waste generated :

Non-hazardous non-demolition construction waste diverted from landfill - fill in to award diversion from landfill credit : 90 %

Total non-hazardous non-demolition construction waste diverted from landfill :

Non-hazardous demolition waste diverted from landfill - fill in to award diversion from landfill credit :

Total non-hazardous demolition waste generated :

Total non-hazardous demolition waste to disposal :

Non-hazardous excavation waste diverted from landfill - fill in to award credit :

Material for reuse :

Material for recycling :

Material for energy recovery :

Hazardous waste to disposal :

Credits awarded : 3

Comments :

Pre-demolition audit. Requires a pre-demolition audit to be undertaken on the existing school to maximise the recovery of material for subsequent high grade or value applications.

2 credits targeted for construction resource efficiency. Requires main Contractor to prepare a compliant Resource Management Plan (RMP) covering:

Non-hazardous waste materials (from on-site construction and dedicated off-site manufacture or fabrication. Accurate data records on waste arisings and waste management routes.

Contractor to commit to achieving a construction waste benchmark of 7.5m³ or 6.5 Tonnes or less per 100m² GIFA which will achieve 2 credits.

1 credit targeted for diversion from landfill. Requirement is that at least 70% of waste by volume or 80% by tonnage is diverted away from landfill.

Wst 02 Use of recycled and sustainably sourced aggregates

To encourage the use of more sustainably sourced aggregates, encourage reuse where appropriate and avoid waste and pollution arising from disposal of demolition and other forms of waste.

Assessment criteria

Is demolition occurring under the developer's ownership for the purpose of enabling the assessed development? : Yes

Pre-requisite: pre-demolition audit : Yes

Projects Sustainable Aggregate points :

KPI

Total quantity of aggregate :

% of high - grade aggregate that is recycled/ secondary aggregate by application :

Credits awarded : 0

Comments :

Credit not targeted. Requires 3.5 to 6 Project Sustainable Aggregate Points to be achieved. The Wst 02 calculator combines scores for regional mineral depletion, social cost of transport and carbon footprint.

Wst 03 Operational waste

To encourage the recycling of operational waste through the provision of dedicated storage facilities and space.

Assessment criteria

Compliant recycling and non-recyclable waste storage allocated :	Yes
Static waste compactor(s) or baler(s) :	Yes
Vessel(s) for composting suitable organic waste and water outlet :	Yes

Credits awarded : 1**Comments :**

Credit targeted. Requires a dedicated space for the segregation and storage of operational recyclable waste generated. The space needs to be:

- 1.a Clearly labelled, to assist with segregation, storage and collection of the recyclable waste streams
- 1.b Accessible to building occupants or facilities operators for the deposit of materials and collections by waste management contractors
- 1.c Of a capacity appropriate to the building type, size, number of units (if relevant) and predicted volumes of waste that will arise from daily or weekly operational activities and occupancy rates

Wst 04 Speculative finishes (Offices only)

To minimise the wastage associated with the installation of floor and ceiling finishes in lettable areas in speculative buildings where tenants have not been involved in their selection.

Assessment criteria - N/A**Wst 05 Adaptation to climate change**

To minimise the future need of carrying out works to adapt the building to take account of more extreme weather changes resulting from climate change and changing weather patterns.

Assessment criteria

Resilience of structure, fabric, building services and renewables installation Yes
:
Exemplary level - responding to climate change :

Credits awarded : 1**Comments :**

Credit targeted. Requirements are as follows: Conduct a climate change adaptation strategy appraisal using:

- 1.a A systematic risk assessment to identify the impact of expected extreme weather

conditions arising from climate change on the building over its projected life cycle. The assessment covers the installation of building services and renewable systems, as well as structural and fabric resilience aspects and includes:

1.a.i Hazard identification

1.a.ii Hazard assessment

1.a.iii Risk estimation

1.a.iv Risk evaluation

1.a.v Risk management.

2 Develop recommendations or solutions based on the climate change adaptation strategy appraisal, before or during Concept Design, that aim to mitigate the identified impact.

Complete, summary report provided by Hampshire County Council.

3 Provide an update during Technical Design demonstrating how the recommendations or solutions proposed at Concept Design have been implemented where practical and cost effective.

Wst 06 Design for disassembly and adaptability

To avoid unnecessary materials use, cost and disruption arising from the need for future adaptation works as a result of changing functional demands and to maximise the ability to reclaim and reuse materials at final demolition in line with the principles of a circular economy.

Assessment criteria

Design for disassembly and functional adaptability - recommendations : Yes

Disassembly and functional adaptability - implementation : Yes

Credits awarded : 2

Comments :

Credits targeted. Requirements are as follows:

First credit - Design for disassembly and functional adaptability - recommendations:

1 Conduct a study to explore the ease of disassembly and the functional adaptation potential of different design scenarios by the end of Concept Design. Complete, summary report provided by Hampshire County Council. Ref Rev V1 20201118

2 Develop recommendations or solutions based on the study, during or prior to Concept Design, that aim to enable and facilitate disassembly and functional adaptation.

Second credit - Disassembly and functional adaptability - implementation

Provide an update, during Technical Design, on:

How the recommendations or solutions proposed by Concept Design have been implemented where practical and cost effective. Omissions have been justified in writing to the assessor. Changes to the recommendations and solutions during the development of the Technical Design. Produce a building adaptability and disassembly guide to communicate the characteristics allowing functional adaptability and disassembly.

Land use and ecology (LE)

LE 01 Site selection

To encourage the use of previously occupied or contaminated land and avoid land which has not been previously disturbed.

Assessment criteria

Percentage of proposed development's footprint on previously occupied land: :	90 %
Contaminated land :	No

Credits awarded : 1

Comments :

Previously occupied land credit targeted. Requirement is that at least 75% of the proposed development is on previously occupied land. The new buildings footprint is on previously developed land (Multi Use Games Area)

Contaminated land: Not targeted. Requirement is that the site is significantly contaminated and remediation is undertaken.

LE 02 Ecological risks and opportunities

To determine the existing ecological value associated with the site and surrounding areas, and the risks and opportunities for ecological protection and enhancement.

Assessment criteria

Assessment route selection :	Comprehensive
Prerequisite - Statutory obligations :	Yes
Survey and Evaluation :	Yes
Determining ecological outcomes :	Yes
Exemplary level - Wider site sustainability :	

Credits awarded : 2

Comments :

Prerequisite - Statutory obligations: The client or contractor confirms compliance is monitored against all relevant UK and EU or international legislation relating to the ecology of the site.

Comprehensive route (Route 2). Credit targeted. Requires a Suitably Qualified Ecologist

(SQE) carries out a survey and evaluation for the site early enough to influence site preparation works, layout and, where necessary, strategic planning decisions (typically preparation and brief stage)

The SQE's survey and evaluation determines the site's ecological baseline including:
Current and potential ecological value and condition of the site and related areas within the Zone of Influence.

Direct and indirect risks to current ecological value from the project.

Capacity and feasibility for enhancement of the site's ecological value.

Determining ecological outcomes: Credit targeted. Requires the project team to liaise and collaborate with representative stakeholders early enough to influence key planning decisions (typically Concept Design stage), to:

Identify the optimal ecological outcomes for the site.

Identify, appraise and select measures to meet the optimal ecological outcomes for the site.

LE 03 Managing impacts on ecology

To avoid, or limit as far as possible, negative ecological impacts associated with the site and surrounding areas resulting from the project.

Assessment criteria

Assessment route :	Comprehensive
Prerequisite - Ecological risks and opportunities :	Yes
Planning and measures on-site :	Yes
Managing negative impacts :	1

Credits awarded : 2

Comments :

Prerequisite - Ecological risks and opportunities. LE 02's 'Survey and evaluation and Determining ecological outcomes' criteria have been achieved using the Comprehensive route (Route 2).

One credit targeted - Planning and measures on-site. Further planning to avoid and manage negative ecological impacts on-site is carried out early enough to influence the concept design and design brief as well as site preparation planning (typically Concept Design stage). On-site measures for managing negative ecological impacts during site preparation and construction are implemented in-practice (e.g. mitigation measures to protect existing ecological features) Criteria 2-3 are based on input from the project team in collaboration with representative stakeholders and data collated as part of the 'Determining ecological outcomes' in LE 02 Ecological risks and opportunities.

Up to two credits - Managing negative impacts.

1 credit targeted. Negative impacts from site preparation and construction works have been managed according to the mitigation hierarchy, in line with the SQE's recommendations and the loss of ecological value has been minimised. TBC

LE 04 Ecological change and enhancement

To enhance ecological value of the area associated with the site in support of local, regional and national priorities.

Assessment criteria

Assessment route :	Comprehensive
Prerequisite - Managing negative impacts on ecology :	Yes
Ecological enhancement (Comprehensive route only) :	Yes
Change and enhancement of ecology (Comprehensive route only) :	1

Credits awarded : 2

Comments :

One credit - Ecological enhancement comprehensive route.

Requirements are that measures have been implemented that enhance ecological value, which are based on input from the project team and SQE in collaboration with representative stakeholders and data collated as part of the 'Determining ecological outcomes' in LE 02.

Measures are implemented in the following order:

- On site, and where this is not feasible,
- Off site within the Zone of Influence.

Up to three credits - Change and enhancement of ecology comprehensive route (Route 2).

Up to three credits are awarded based on the change in ecological value occurring as a result of the project. This must be calculated in accordance with the process set out in GN36 - BREEAM, CEEQUAL and HQM Ecology Calculation Methodology - Route 2. Credits are awarded in line with the Reward Scale table in GN36 where there are no residual impacts on protected sites or irreplaceable habitats. Data collated are analysed and where potentially valuable, provided to the local environmental records centres nearest to, or relevant for, the site.

LE 05 Long term ecology management and maintenance

To secure ongoing monitoring, management and maintenance of the site and its habitats and ecological features, to ensure intended outcomes are realised for the long term.

Assessment criteria

Assessment route :	Comprehensive
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At least one credit achieved under LE 04 for 'Change and Enhancement of Ecology' : Yes

Prerequisite - Statutory obligations, planning and site implementation : Yes

Management and maintenance throughout the project : Yes

Landscape and ecology management plan : Yes

Credits awarded : 2

Comments :

Prerequisite - Statutory obligations, planning and site implementation

The client or contractor has confirmed that compliance is being monitored against all relevant UK, EU and international standards relating to the ecology of the site. The following must be achieved, according to the route being assessed:

Comprehensive route (Route 2) - Criterion 8 in LE 03 has been achieved, and at least one credit under LE 04 for 'Change and Enhancement of Ecology' has been awarded.

Management and maintenance throughout the project - credit targeted. Requires measures to be implemented to manage and maintain ecology throughout the project.

Landscape and ecology management plan - credit targeted. Requires a Landscape and Ecology Management Plan to be developed in accordance with BS 42020:2013 Section 11.1 covering at least the first five years after project completion.

Pollution (Pol)

Pol 01 Impact of refrigerants

To reduce the level of greenhouse gas emissions arising from the leakage of refrigerants from building systems.

Assessment criteria

Refrigerant containing systems installed in the assessed building? : Yes

Prerequisite: All systems (with electric compressors) comply with BS EN 378:2016 (parts 2 and 3) and (where applicable) Institute of Refrigeration Ammonia Refrigeration Systems code of practice? : Yes
Total Direct Effect Life Cycle CO₂eq (DELCO). Emissions from the system :
Global Warming Potential (GWP) of the specified refrigerant(s) 10 or less? No
:

Leak detection

Are all the systems hermetically sealed? :

Credits awarded : 0

Comments :

It is a prerequisite that all systems with electric compressors comply with the requirements of BS EN 378:2016.

One credit awarded if systems using refrigerants to have a DELCO of less than 1000kgCO₂eq/kW cooling and heating capacity. Not targeted.

One credit available for leak detection. Not targeted. Requirement is that all systems are hermetically sealed or only use environmentally benign refrigerants.

OR

Where the systems are not hermetically sealed, systems have:

A permanent automated refrigerant leak detection system, that is robust and tested, and capable of continuously monitoring for leaks.

OR

An inbuilt automated diagnostic procedure for detecting leakage is enabled.

Pol 02 Local air quality

To contribute to a reduction in local air pollution through the use of low emission combustion appliances in the building.

Assessment criteria

Is the project required to connect to a District Heating system, and it No

supplies all heating and hot water demands to the building? :
How many credits have been achieved? :

2

Credits awarded : 2

Comments :

2 credits achievable if all heating and hot water is supplied by non-combustion systems. For example, only powered by electricity.

Require details of the heating and hot water source. If all heating and hot water is supplied by non-combustion systems then 2 credits can be awarded.

Section 1.1.1 of the MEP Stage 1 report states that Reading Borough Council have expressed a preference for an all-electric building without the use of natural gas as a primary fuel source. 2 credits targeted.

Pol 03 Flood risk management and reducing surface water run-off

To avoid, reduce and delay the discharge of rainfall to public sewers and watercourses, thereby minimising the risk and impact of localised flooding on and off-site, watercourse pollution and other environmental damage.

Assessment criteria

Prerequisite: Has an appropriate consultant demonstrated and confirmed the development's compliance with all sought credits? : Yes

Has a site-specific flood risk assessment been conducted? : Yes

Annual probability of flooding : Low

Has the pre-requisite for the Surface Water Run-Off credits been achieved? : Yes

Has the Surface Water Run-Off - Rate credit been achieved? : Yes

Has the Surface Water Run-Off - Volume credit been achieved? : Yes

Minimising watercourse pollution : Yes

Credits awarded : 5

Comments :

First 2 credits targeted: Flood map from the Environment Agency confirms that the site is located Flood Zone 1 with a low risk of flooding. An appropriate consultant is to be appointed to carry out a site specific flood risk assessment which takes all current and future sources of flooding into consideration.

Two credits - Surface water run-off

Prerequisite for surface water run-off credits, surface water run-off design solutions must be bespoke, i.e. they must take account of the specific site requirements and natural or

man-made environment of and surrounding the site.

One credit - Surface Water Run-Off - Rate

For brownfield sites, drainage measures are specified so that the peak rate of run-off from the site to the watercourses (natural or municipal) shows a 30% improvement for the developed site compared with the predeveloped site. This should comply at the 1-year and 100-year return period events.

Relevant maintenance agreements for the ownership, long term operation and maintenance of all specified Sustainable Drainage Systems (SuDS) are in place.

Calculations include an allowance for climate change. This should be made in accordance with current best practice planning guidance.

One credit - Surface Water Run-Off - Volume

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 so that the post-development run-off volume, over the development lifetime, is no greater than it would have been prior to the assessed site's development. This must be for the 100-year 6-hour event, including an allowance for climate change.

Any additional predicted volume of run-off for this event is prevented from leaving the site by using infiltration or other SuDS techniques.

OR

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 so that the post-development peak rate of run-off is reduced to the limiting discharge. The limiting discharge is defined as the highest flow rate from the following options:

The pre-development one-year peak flow rate

The mean annual flow rate (Q_{bar})

2L/s/ha.

For the one-year peak flow rate, the one-year return period event criterion applies.

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. Require confirmation that there will be no discharge from the developed site for rainfall up to 5 mm (confirmed by the appropriate consultant).

Pol 04 Reduction of Night Time Light Pollution

To ensure that external lighting is concentrated in the appropriate areas and that upward lighting is minimised, reducing unnecessary light pollution, energy consumption and nuisance to neighbouring properties.

Assessment criteria

External lighting has been designed out? : No

Does external lighting meet all relevant criteria? : Yes

Credits awarded : 1

Comments :

Credit targeted. Requirement is that the external lighting strategy has been designed in compliance with Table 2 (and its accompanying notes) of the Institution of Lighting Professionals (ILP) Guidance notes for the reduction of obtrusive light, 2011. All external lighting (except for safety and security lighting) can be automatically switched off between 23:00 and 07:00.

Pol 05 Noise attenuation

To reduce the likelihood of noise arising from fixed installations on the new development affecting nearby noise-sensitive buildings.

Assessment criteria

Noise-sensitive areas/buildings within 800m radius of the development : Yes

Is the site compliant with all relevant criteria? : Yes

Credits awarded : 1

Comments :

Targeted: Requirement is that where there are noise-sensitive areas within 800 m radius of the assessed site, a noise impact assessment compliant with BS 4142:2014 is commissioned. Noise levels must be measured or determined for:

2.a Existing background noise levels:

2.a.i at the nearest or most exposed noise-sensitive development to the proposed assessed site

2.a.ii including existing plant on a building, where the assessed development is an extension to the building

2.b Noise rating level from the assessed building.

3 The noise impact assessment must be carried out by a suitably qualified acoustic consultant.

4 The noise level from the assessed building, as measured in the locality of the nearest or most exposed noise-sensitive development, must be at least 5dB lower than the background noise throughout the day and night.

Innovation (Inn)

Inn 01 Innovation

To support innovation within the construction industry through the recognition of sustainability related benefits which are not rewarded by standard BREEAM issues.

Assessment criteria

Number of 'approved' innovation credits achieved? : 0

Credits awarded : 0