Sustainability Statement

Royal Academy of Dramatic Art,

16-18 Chenies Street, London. WC1E 7PA

Prepared by Ivan Ball

Bluesky Unlimited
39 Marsh Baldon
Oxfordshire
OX44 9LP

www.blueskyunlimited.co.uk

7th October 2015

Revisions schedule			
Issue	**Description of Status**	**Date**	**Authors Initials**
A	Draft	08/09/15	IPB
B	Revised draft	06/10/15	IPB
C	Final issue	07/10/15	IPB

This report has been prepared by bluesky unlimited with all reasonable skill, care and diligence, and taking account of the services and terms agreed between bluesky unlimited and the client. This report is confidential to the client, and bluesky unlimited accepts no responsibility whatsoever to third parties to whom this report, or part thereof, is made known, unless formally agreed by bluesky unlimited beforehand. Any such party relies upon the report at their own risk.

Bluesky unlimited disclaims any responsibility to the client and others in respect of any matters outside the agreed scope of services.

2.0 Executive Summary

This Sustainability Statement considers the sustainability issues relating to the proposed alterations and extensions to the rear of 16-18 Chenies Street including internal refurbishments and the erection of a student accommodation extension. It sets out the commitments of the Applicants to the site and the targets to be applied comprehensively to the development.

The Statement includes an energy strategy, which sets out a proposed construction specification for the new elements and considers those low-carbon and renewable technologies, which may be appropriate.

Throughout the design process, the applicant and design team members have given careful consideration to the sustainability issues relating to the site, and how these can be enhanced in a practical and feasible manner. As a result, this Statement demonstrates that the development meets relevant sustainability criteria and in a number of areas exceeds them.

The Statement also describes the responsibilities that the Applicants, designers and consultant and construction team have in delivering sustainability measures that will contribute to, meet and/or exceed the objectives and targets set out below.

The lack of on-site student accommodation and the insufficient seating capacity of the theatre are a threat to the long-term sustainability of the Academy.

The application is also supported by various other specialist reports and this Statement uses the detail within those reports to inform the Sustainability Statement and BREEAM Pre-Assessment Estimator.

For the sake of practicality it is proposed to undertake a single BREEAM Assessment. This will be based upon BREEAM New Construction 2014, which has superseded the BREEAM Multi-Residential scheme and allows the various ancillary uses to be included within the one assessment.

The key sustainability findings can be summarised as;

- The student accommodation provides an enhanced facility for the Academy to attract increased numbers of students
- The increased size and layout of the theatre provides for a more sustainable facility
- Reduction in CO_2 emissions through energy efficient design
- Mixed-use scheme provides a sustainable design with activity throughout the day
- BREEAM New Construction 2014 'Excellent' standard (will include the student accommodation, new library, kitchens, common rooms and café)
- High standards of environmental construction with compliance to the Considerate Constructors Scheme, a Site Waste Management Plan and other construction management principles

A BREEAM Pre-Assessment Estimator is included as Appendix 1.

3.0 Introduction

3.1 Context

3.1.1 Bluesky Unlimited has been commissioned by the Royal Academy of Dramatic Art (the Applicant) to prepare a Sustainability Statement in support of a detailed planning application for "*the creation of the 300 seat Richard Attenborough Theatre through alterations and extension to the existing drill hall, new refectory, bar and kitchen, library, exhibition space, ancillary offices and the erection of a new 60-bed purpose-built student residence to accommodate first year RADA students and various other alterations to improve facilities in the building".*

3.1.2 This Statement has been prepared to demonstrate how the Proposed Development meets the requirements of national, regional and local planning policy and guidance in relation to sustainability and provides evidence to confirm compliance or where the development exceeds the required standards.

3.1.3 The objectives of the Sustainability Statement are to;

- examine and comprehend the key sustainability themes and associated standards within the national, regional and local planning policy and guidance
- assess the performance of the proposals in achieving the sustainability standards; and
- identify any opportunities and appropriate actions required to ensure sustainability is delivered at the detailed design stage.

Study Area

3.1.4 The application site comprises a former drill hall and associated premises and is situated on the south side of Chenies Street. The site is now occupied by RADA and is used as a theatre and educational institution.

3.1.5 The local area consists of a varied mix of uses, including commercial, residential and education uses. To the west is Whittington House, which is eight-storeys high and is of modern construction. On the north side of Chenies Street are residential properties, which generally consist of five-storeys over a basement. To the south are The College of Law building and a residential development known as Rossetti Court also rising to five-storeys.

Proposal

3.1.6 The application proposes the creation of the Richard Attenborough Theatre through alterations and extension to the existing drill hall, the erection of a new 60 bed purpose-built student residence to accommodate first year RADA students and various other alterations to improve facilities in the building.

3.1.7 The scheme includes the creation of a multi-function theatre space with capacity for 300 seats within the space originally used as the drill hall. The existing roof lantern and trusses will be retained to ensure that the original roof profile is preserved.

3.1.8 The proposed student accommodation building comprises five floors and provides 56 standard student bedrooms with four larger wheelchair compliant rooms. The occupants benefit from either an en-suite WC or WC facilities and a shared kitchenette and communal seating area are laid out on each floor and are supplementary to the on-campus bar and canteen. The majority of the student bedrooms are located on outside faces of the building to maximise daylight and sunlight.

3.1.9 Other elements of the scheme include:

- The ground floor of No. 16 Chenies Street will be rationalised to enable the front room to be restored as a new reception, booking office and exhibition space.
- The library will be relocated and additional office space will be provided in a new extension to the rear of No. 16 Chenies Street
- A new staircase will be provided to the 16 Chenies Street, which will link escape routes and provide a safer egress from the building.
- The ground floor of 18 Chenies Street will be refurbished internally to accommodate staff and student common rooms, a new refectory and bar and relocated kitchens.
- The basement to 18 Chenies Street will be extended to accommodate the plant area, sewing room and paint spray room.

3.2 Preamble

3.2.1 Costs for sustainable initiatives and strategies are reducing through improvements in technology, design techniques and construction methods. Utility prices continue to rise and individuals and organisations are starting to value the more intangible benefits associated with 'sustainability'. A greater awareness is becoming apparent about the need for sustainable environments and building owners and occupiers are starting to demand these. A large part of designing sustainably is to do with addressing global warming through energy efficient design and using tools such as life-cycle assessments to maintain the balance between longevity and cost.

3.2.2 Sustainable development is a core principal throughout the Proposed Development.

4.0 The Policy Context

4.0.1 This Sustainability Statement reflects existing policy frameworks at a number of levels including National, Regional and Local Policy and Guidance. The key component that underpins policy at all levels is the concept of sustainable development. The following provides an overview of the documents that form the basis for the principles and targets.

4.1 National Policies

4.1.1 The UK Government published its sustainable development strategy in 1999 entitled "A better quality of life: A strategy for sustainable development in the UK". This sets out four main objectives for sustainable development in the UK:

- Social progress that recognises the needs of everyone.
- Effective protection of the environment.
- Prudent use of natural resources.
- Maintenance of high stable levels of economic growth and employment.

Sustainable Communities: Building for the Future, known colloquially as the Communities Plan was published in 2003. The Plan sets out a long-term programme of action for delivering sustainable communities in both urban and rural areas.

The most relevant national planning policy guidance on sustainability is set out in:

- National Planning Policy Framework – 2012

NPPF Core Planning Principle 17 states;

"support the transition to a low carbon future in a changing climate, taking full account of flood risk and coastal change, and encourage the reuse of existing resources, including conversion of existing buildings, and encourage the use of renewable resources (for example, by the development of renewable energy)"

4.2 Regional and Local Policies

4.2.1 The 'Development Plan' for the London Borough of Camden (LBC) is comprised of the London Plan (2015) (Ref 1), Local Plan, Neighbourhood Plans and other supplementary guidance. These set of documents are used to guide and manage development.

The Local Plan consists of the Core Strategy and Managing Development Document. Together these documents provide spatial policies, development management policies and site allocations to guide and manage development in the borough.

4.2.2 **London Plan, adopted July 2015 –** the following policies are relevant to the application:

4.2.3 ***Policy 5.2 - Minimising carbon dioxide emissions***

A Development proposals should make the fullest contribution to minimising carbon dioxide emissions in accordance with the following energy hierarchy:

1 Be lean: use less energy

2 Be clean: supply energy efficiently

3 Be green: use renewable energy

B The Mayor will work with boroughs and developers to ensure that major developments meet the following targets for carbon dioxide emissions reduction in buildings. These targets are expressed as minimum improvements over the Target Emission Rate (TER) outlined in the national Building Regulations leading to zero carbon residential buildings from 2016 and zero carbon non-domestic buildings from 2019.

Non-residential buildings:

Year	***Improvement on 2014 Building Regulations***
2013 – 2016	*35 per cent*

C Major development proposals should include a detailed energy assessment to demonstrate how the targets for carbon dioxide emissions reduction outlined above are to be met within the framework of the energy hierarchy.

D *As a minimum, energy assessments should include the following details:*

a *calculation of the energy demand and carbon dioxide emissions covered by the Building Regulations and, separately, the energy demand and carbon dioxide emissions from any other part of the development, including plant or equipment, that are not covered by the Building Regulations (see paragraph 5.22) at each stage of the energy hierarchy*

b *proposals to reduce carbon dioxide emissions through the energy efficient design of the site, buildings and services*

c *proposals to further reduce carbon dioxide emissions through the use of decentralised energy where feasible, such as district heating and cooling and combined heat and power (CHP)*

d *proposals to further reduce carbon dioxide emissions through the use of on-site renewable energy technologies.*

E *The carbon dioxide reduction targets should be met on-site. Where it is clearly demonstrated that the specific targets cannot be fully achieved on-site, any shortfall may be provided off-site or through a cash in lieu contribution to the relevant borough to be ring fenced to secure delivery of carbon dioxide savings elsewhere.*

4.2.4 ***Policy 5.3 - Sustainable design and construction***

A *The highest standards of sustainable design and construction should be achieved in London to improve the environmental performance of new developments and to adapt to the effects of climate change over their lifetime.*

B *Development proposals should demonstrate that sustainable design standards are integral to the proposal, including its construction and operation, and ensure that they are considered at the beginning of the design process.*

C *Major development proposals should meet the minimum standards outlined in the Mayor's supplementary planning guidance and this should be clearly demonstrated within a design and access statement. The standards include measures to achieve other policies in this Plan and the following sustainable design principles:*

a. *minimising carbon dioxide emissions across the site, including the building and services (such as heating and cooling systems)*

b. avoiding internal overheating and contributing to the urban heat island effect

c. efficient use of natural resources (including water), including making the most of natural systems both within and around buildings

d. minimising pollution (including noise, air and urban runoff)

e. minimising the generation of waste and maximising reuse or recycling

f. avoiding impacts from natural hazards (including flooding)

g. ensuring developments are comfortable and secure for users, including avoiding the creation of adverse local climatic conditions

h. securing sustainable procurement of materials, using local supplies where feasible, and

i. promoting and protecting biodiversity and green infrastructure.

4.2.5 ***Policy 5.6 - Decentralised energy in development proposals***

A Development proposals should evaluate the feasibility of Combined Heat and Power (CHP) systems, and where a new CHP system is appropriate also examine opportunities to extend the system beyond the site boundary to adjacent sites.

B Major development proposals should select energy systems in accordance with the following hierarchy:

1 Connection to existing heating or cooling networks

2 Site wide CHP network

3 Communal heating and cooling.

C Potential opportunities to meet the first priority in this hierarchy are outlined in the London Heat Map tool. Where future network opportunities are identified, proposals should be designed to connect to these networks.

4.2.6 **London Borough of Camden Local Development Framework (2010)**

LBC Local Development Framework (LDF) (November 2010) (Ref 2) superseded LBC Unitary Development Plan (June 2006). The LDF incorporates a number of Local Development Plan Documents (DPDs) and, in conjunction with national planning policy and the London Plan, sets out the strategy for managing development in the Borough.

4.2.7 **Camden Development Policies 2010-2025** (Ref 3)

Of particular relevance to this Statement are;

DP22 – Promoting sustainable design and construction

The Council will require development to incorporate sustainable design and construction measures. Schemes must:

a) demonstrate how sustainable development principles have been incorporated into the design and proposed implementation; and
b) incorporate green or brown roofs and green walls wherever suitable.

The Council will promote and measure sustainable design and construction by:

e) expecting non-domestic developments of 500sqm of floorspace or above to achieve "very good" in BREEAM assessments and "excellent" from 2016 and encouraging zero carbon from 2019.

The Council will require development to be resilient to climate change by ensuring schemes include appropriate climate change adaptation measures, such as:

f) summer shading and planting;
g) limiting run-off;
h) reducing water consumption;
i) reducing air pollution; and
j) not locating vulnerable uses in basements in flood-prone areas.

DP23 – Water

The Council will require developments to reduce their water consumption, the pressure on the combined sewer network and the risk of flooding by:

a) incorporating water efficient features and equipment and capturing, retaining and re-using surface water and grey water on-site;

b) limiting the amount and rate of run-off and waste water entering the combined storm water and sewer network through the methods outlined in part a) and other sustainable urban drainage methods to reduce the risk of flooding;

c) reducing the pressure placed on the combined storm water and sewer network from foul water and surface water run-off;

d) ensuring that developments are assessed for upstream and downstream groundwater flood risks in areas where historic underground streams are known to have been present; and

e) encouraging the provision of attractive and efficient water features.

4.2.8 **Camden Planning Policy Sustainability CPG 3 – 2015** (Ref 4)

Water efficiency

The Council expects all developments to be designed to be water efficient by minimising water use and maximising the re-use of water. This includes new and existing buildings.

The Council will require developments over 10 units or 1000sq m and/or intense water use developments, such as hotels, hostels, student housing etc to include a grey water harvesting system, unless the applicant demonstrates to the Council's satisfaction that this is not feasible.

Sustainable use of materials

All developments should aim for at least 10% of the total value of materials used to be derived from recycled and reused sources. This should relate to the WRAP Quick Wins assessments or equivalent as (highlighted in the waste hierarchy information section below).
Special consideration will be given to heritage buildings and features to ensure that their historic and architectural features are preserved.
Major developments are anticipated to be able to achieve 15-20% of the total value of materials used to be derived from recycled and reused sources.

Brown roofs, green roofs and green walls

The Council will expect all developments to incorporate brown roofs, green roofs and green walls unless it is demonstrated this is not possible or appropriate. This includes new and existing buildings. Special consideration will be given to historic buildings to ensure historic and architectural features are preserved.

Sustainability assessment tools

You are strongly encouraged to meet the following standards in accordance with Development Policy DP22 - Promoting sustainable design and construction:

Time Period	*Minimum rating*	*Minimum standard for categories (% of un-weighted credits)*
2010-2012	*'Very Good'*	*Energy 60%* *Water 60%* *Materials 40%*
2013+	'Excellent'	

4.3 Other Relevant Guidance

London Sustainability Checklist

4.3.1 The London Sustainability Checklist (Ref 5) sets out a list of social, environmental and economic objectives, which can be used to identify the sustainable development implications of new policy and development proposals. The main targets of the checklist have been incorporated into this document and indeed the development has been arranged to follow topic areas within the Checklist:

4.3.2 As the BREEAM scheme assess the sustainability of designs for individual buildings, the Checklist complements these by assessing issues at the development scale, helping developers, local authorities and other interested parties to deliver sustainable communities.

4.3.3 The Checklist is intended for use at the design and planning application stages of a new development. It focuses on the sustainability issues pertinent to spatial planning, although it does address those construction and “in-use” issues that can be anticipated or influenced at the design phase.

Regional Waste Strategy

4.3.4 This Strategy (Ref 6) aims to contribute to the sustainable development of the region by developing waste management systems that will reduce waste generation, lessen the environmental impacts of waste production, improve resource efficiency, stimulate investment and maximise the economic opportunities arising from waste in line with specific targets.

4.3.5 Ensuring that the waste management systems to be developed are in accordance with the principles of sustainable development and integrated waste management, making the maximum possible contribution to reducing environmental impact at an acceptable cost.

BREEAM

4.3.6 The BRE (Building Research Establishment) Environmental Assessment Method (Ref 7) is the leading and most widely used environmental assessment method for non-residential buildings. It sets the standard for best practice in sustainable design and has become the de facto measure used to describe a building’s environmental performance.

4.3.7 The BREEAM Multi-Residential scheme has been superseded by the BREEAM New Construction 2014 scheme, which is the appropriate scheme to assess the new student accommodation. The scheme also allows the following functions to be included;

- Kitchen and catering areas: kitchens; serveries; dining areas; café areas
- General communal areas; lounges; day rooms; reading rooms
- Offices; admin areas; IT rooms
- Meeting rooms; training rooms; conference rooms
- Laundry

BRE Green Guide to Specification

4.3.8 The Building Research Establishment Green Guide to Specification (Ref 8) lists building materials and components, and ranks their potential life cycle environmental impact.

5.0 Assessment Methodology and Targets

5.1 Methodology

5.1.1 The methodology involves completing a detailed policy review of current and emerging national, regional and local policy relating to sustainability to provide a specific policy context for the assessment.

5.1.2 Furthermore a review of good practice methods and techniques relating to sustainability has been made.

5.1.3 The key aspects of sustainability addressed by the London Sustainability Checklist are addressed under the following headings and these form the structure of this assessment.

- Climate change
- Community
- Place making
- Transport
- Ecology
- Resources
- Business
- Buildings

5.1.4 The set of targets the site will achieve is set out in section 5.2 below. The subsequent sections propose strategies for meeting the targets and for the development to become an exemplar scheme, which delivers a sustainable way of living by addressing social, economic and environmental drivers.

5.2 Targets

Schedule of Sustainability Requirements

5.2.1 The targets relate to either BREEAM credits or to broader obligations and reflect the changing regulatory environment. They have been crafted to enable compliance with current Building Regulations as well as Local, Regional and National planning policy.

5.2.2 Achieving the required BREEAM rating alone does not constitute compliance with the requirements of Schedule of Sustainability Requirements.

5.2.3 The numbering in the table relates to the chapters in this Sustainability Statement.

Schedule of Sustainability Requirements		
Ref	**Description of Target**	**Target/Scope**
6.0	**Climate Change**	
	Ensure that peak run off rates are no greater for the developed site than it was for the pre-development site.	Whole Site

Schedule of Sustainability Requirements		
Ref	**Description of Target**	**Target/ Scope**
7.0	**Community**	
	Security within the student accommodation will include electronic fob access and electronic fobs will control access to other parts of the complex.	Whole Site
	CCTV will be installed to monitor access to the student accommodation and within the public areas of the complex as a whole. CCTV will control vehicular access via Ridgmount Mews.	Whole Site
	A Student Management Plan will be put in place to ensure residents within the accommodation adhere to a Code of Conduct and integrate with the wider community.	Whole Site

Schedule of Sustainability Requirements		
Ref	**Description of Target**	**Target/ Scope**
9.0	**Transport and Movement**	
	Information will be provided giving details of frequency and location of public transport services.	Whole Site
	Secure cycle storage will be provided.	Whole Site
	A Travel Plan will be developed which will be used to promote and encourage sustainable forms of transport.	Whole Site

Schedule of Sustainability Requirements		
Ref	**Description of Target**	**Target/ Scope**
11.	**Resources**	
	All materials should be A+, A or B rated according to The Green Guide to Specification, unless deemed impractical or otherwise prescribed.	Whole Site
	All timber for basic elements will be obtained from appropriately certified legal sources. In addition, 80% of building element timber will be procured from sustainably certified forests.	Whole Site
	All kitchens (shared) will be fitted with internal recycling bins and a dedicated external space will be provided for recyclable storage, which is accessible to all potential users.	Whole Site
	Using the WRAP methodology a minimum of 30% recycled content will be incorporated into the building as a whole.	30% recycled content (by value)

Schedule of Sustainability Requirements		
Ref	**Description of Target**	**Target/ Scope**
12.	**Buildings**	
	The proposals will achieve BREEAM 'Excellent'	BREEAM 'Excellent'

Schedule of Sustainability Requirements		
Ref	**Description of Target**	**Target/ Scope**
12.	**Buildings**	
	All internal lighting will be fitted with dedicated low energy fittings or compact fluorescent fittings in all cases as defined under BREEAM. (does not include theatre lighting)	Energy efficient lighting throughout
	The completed new building fabric is to achieve air leakage rates of no greater than $4m^3/hr/m^2$	$4m^3/hr/m^2$
	The design team will select sanitary fittings that minimise the consumption of mains water and the student accommodation will seek to achieve a maximum water use of 105 litres per person per day	Student accommodation will achieve water use less than 105 l/p/p/d

Schedule of Sustainability Requirements		
Ref		**Target/ Scope**
13.	**Construction Process and Site Management**	
	The scheme is to be registered with the Considerate Constructors Scheme and formal certification achieved. A score of 32 or more points (minimum of at least 4 in each section) will be achieved in the CCS independent site monitors audit report.	CCS score of 32 (Min) across whole site
	Water consumption on site is to be monitored monthly and compared with agreed KPIs throughout the duration of construction.	Construction Site
	Carbon dioxide emissions due to site activity are to be monitored monthly and compared with agreed KPIs throughout the duration of construction.	Construction Site
	Waste arising from site will be monitored and segregated into at least five waste streams for recycling throughout the construction period.	Construction Site
	All temporary timber (site hoardings, formwork, and scaffold boards) will be from FSC, CSA, SFI or PEFC sources, or re-used timber.	Construction Site
	A site specific waste management plan will be developed in line with Site Waste Management Plans, Guidance for Construction Contractors and Clients, Voluntary Code of Practice, DTI, 2004. The SWMPs will include a forecast of wastage as well as a record of types of waste and their destinations	Construction Site

Environmental Considerations

6.0 Climate Change

6.1 Flooding

BREEAM Category		Credits Available	Credits Predicted
Pol 3	Surface water run-off	**5**	**3**
Wst 05	Adaption to Climate Change	**1**	**0**

6.1.1 Climate change projection predicts a decrease in annual rainfall in the South East of England by up to 10% with significantly wetter winters (between 15-20% more winter rain) and an increase in frequency of severe weather. Drier summers may lead to increased flash flooding when sudden storms cause rapid run off over dry ground. Recent research suggests the number of people at risk of localised urban flooding in England could increase fourfold due to climate change.

6.1.2 Sustainable drainage involves the provision of surface water drainage systems that slow down the run off rate to rivers/watercourses and aquifers, thus conserving water as a natural resource.

6.1.3 The Environment Agency Flood Maps confirm the site is within Flood Zone 1 and has a low risk of flooding.

6.1.4 The risk of groundwater flooding is considered low. The proposal does not alter the impermeable area of the site and the rainwater drainage strategy proposes discharge into the existing public sewer as currently used. There will be no change to the quantity of rainwater runoff.

6.2 Heat Island

6.2.1 The layout of the development is unlikely to contribute to the heat island effect.

6.3 Surface Water Management

6.3.1 Consideration has been given to the use of 'green' and/or 'brown' roofs. The new roof space over the student accommodation incorporates a large number of roof lights, which provide natural lighting to the rooms and common spaces on the fourth floor. Consequently any 'green' or 'brown' roof would be very fragmented. In addition, 16 Chenies Street is a Grade II listed building and a green or brown roof to 18 Chenies Street would adversely impact on the historic roof to No. 16. It is not proposed to provide a 'green' or 'brown' roof as part of the proposals

6.3.2 Consideration has been given to the use of grey water recycling and with the complicated internal infrastructure required an integrated system would add considerable complexity to the construction. However, individual Ecoplay systems could be installed to selected shower rooms. The Ecoplay system collects water from the showers, which is subsequently cleaned and the water is then used to flush wcs. The storage tank can be formed within the depth of the wc cistern.

7.0 Community

7.1 Introduction

BREEAM Category		Credits Available	Credits Predicted
Man 1	Project Brief and Design	**4**	**4**

7.1.1 A Statement of Community Involvement has been prepared to support the planning application which set out what consultations had been carried out, responses from local residents and stakeholders and any amendments that have been incorporated into the proposals.

7.1.2 The consultation process has included contact with local Councillors and facilitating a public exhibition attended by over 40 people. Following the exhibition PDF versions of the exhibition boards were circulated to those unable to attend. A total of 24 people provided feedback, which were all supportive. Three of the respondents raised questions, which have all been responded to.

7.1.3 Full details of the consultation process and outputs are contained within the Statement of Community Involvement prepared by Lodestone and included with this application.

7.2. Social Cohesion and Inclusion

7.2.1 The students are required to adhere to a Code of Conduct to ensure any nuisance to the local neighbourhood is minimised and the users of the Academy integrate with the wider community.

7.3 Access for All

7.3.1 Of the 60 student bedrooms proposed, four are wheelchair accessible units, which meet Part M of the Building Regulations with integral wet rooms. In addition the common parts including the shared kitchenettes and fully accessible.

7.3.2 Disabled entry to the complex is via either the existing ramped access to 16 Chenies Street or the existing disabled ramp entry to 18 Chenies Street. However, whilst 18 Chenies Street is currently a fully accessible building, 16 Chenies Street is not and the proposals provide the opportunity to bring this part of the facility up to a fully accessible standard without detriment to the character of the listed building.

7.4 Estate Management

7.4.1 The management strategy includes a Student Management Plan, which accompanies the application and includes the student Code of Conduct.

8.0 Place Making

8.1 Efficient Use of Land

8.1.1 The Proposed Development occupies an important site and the density, massing and layout of the extension to the building is appropriate to the location and respects existing development surrounding the site.

8.2 Design Process

8.2.1 High quality design is an integral element to sustainable development, both of internal and external spaces and some key elements, which have been considered include the following:

- Resource efficiency
- Safety
- Adequate daylight and minimum overlooking
- Flexible and functional use of accommodation
- Aesthetically pleasing

8.2.2 A full analysis is provided in the Design and Access Statement by Haines Phillips Architects, which accompanies this application

8.3 Passive Solar Gain

8.3.1 The energy required for space heating and lighting can be reduced by using the orientation, form and fenestration to make the most use of passive solar gain.

8.3.2 The student accommodation is generally orientated towards the south-east and of the 60 bedrooms, 40 have aspects to the south-east with nine bedrooms having an aspect to the north-west and 11 being internal bedrooms with rooflights.

8.4 Daylighting

8.4.1 Whilst the detailed building specification has yet to be agreed the site layout and building design seeks to provide a high standard of natural daylighting to all student bedrooms. This provides the opportunity to create a high quality internal environment, which will reduce the need for artificial lighting.

8.4.2 The impact of the proposals on the surrounding environment has been considered and the details are fully presented in the Daylight and Sunlight report, which accompanies the application with the Design and Access Statement. The report concludes that the impact on neighbouring residential accommodation to the rear of 25 Ridgmount Court and the mews in Ridgmount Place will be minimal with only peripheral views and will have no adverse effect on the receipt of daylight and sunlight.

8.5 Safety and Security

BREEAM Category		Credits Available	Credits Predicted
Hea 06	Safety and Security	**2**	**2**

8.5.1 The scheme will, through detailed design development, aim to incorporate secured by design principles. This puts occupant and user safety at the forefront, which in turn will help to create a high quality environment.

8.5.2 The proposed development and associated outdoor spaces are designed to prevent crime and the following measures are proposed below;

- Entrances are well lit and overlooked
- Electronic fob access to the student accommodation
- Electronic fob access to prevent unauthorised access to other parts of the complex
- CCTV surveillance of the accesses and public areas
- Gated vehicular entrance off Ridgmount Mews with CCTV link to reception
- Cycle store also secured with electronic fob

8.5.3 Consultation with the local Crime Prevention Officer will be sought during design development.

8.6 Lighting Pollution

BREEAM Category		Credits Available	Credits Predicted
Pol 04	Reduction of Night-time Light Pollution	**1**	**1**

8.6.1 Lighting to the rear vehicular access court, external accesses and footpaths around the building will be designed to minimise light pollution and will be energy efficient.

8.7 Occupant Comfort

BREEAM Category		Credits Available	Credits Predicted
Hea 01	Visual comfort	**4**	**4**
Hea 02	Indoor air quality	**5**	**3**
Hea 04	Thermal comfort	**3**	**2**

8.7.1 The visual and thermal comfort and the indoor air quality of the accommodation has been assessed and it is anticipated the credits awarded above will be achieved.

9.0 Transport and Movement

9.1 Public Transport

BREEAM Category		Credits Available	Credits Predicted
Tra 01	Public Transport Accessibility	**3**	**3**
Tra 02	Proximity to Amenities	**2**	**2**

9.1.1 In overall terms the site has excellent access to sustainable modes of transport.

9.2 Cycle

BREEAM Category		Credits Available	Credits Predicted
Tra 03	Cyclists Facilities	**1**	**1**

9.2.1 The development provides secure cycle storage to the student accommodation at a ratio of one space for two bed spaces. Therefore 30 cycle storage spaces are provided, which are located in the existing vaults to 16 Chenies Street.

9.3 Parking

BREEAM Category		Credits Available	Credits Predicted
Tra 04	Maximum Car Parking Capacity	**2**	**2**

9.3.1 As a consequence of the accessibility of the site it is proposed to provide a car free development.

9.4 Travel Plan

BREEAM Category		Credits Available	Credits Predicted
Tra 05	Travel Plan	**1**	**1**

9.4.1 It is proposed to develop a Travel Plan, which will be designed to encourage students and other users to travel in a sustainable manner. The Travel Plan will set out the existing transport options and will be regularly monitor what students and users are using to maximise the conditions.

10.0 Ecology and Landscaping

BREEAM Category		Credits Available	Credits Predicted
LE 01	Site Selection	**2**	**1**
LE 02	Ecological Value of Site and Protection of Features	**2**	**2**
LE 03	Mitigating Ecological Impact	**2**	**2**
LE 04	Enhancing Site Ecology	**2**	**0**
LE 05	Long Term Impact on Biodiversity	**2**	**0**

10.1.1 The site is entirely comprised of existing buildings and hardstandings.

10.1.2 The site can therefore be regarded as being of 'low' ecological value. The BREEAM credit under LE 02 can therefore be awarded. The credit 'dropped' under LE 01 is because the works proposed do not remove any areas of ground contamination.

10.1.3 There is limited opportunity to introduce areas of landscaping but the incorporation of bat and/or bird boxes could be considered at the detailed working drawing stage.

10.1.4 It is assumed at this stage that an Ecologist will not be employed and hence no credits can be awarded for LE 04 and 05.

11.0 Resources

11.1 Materials

BREEAM Category		Credits Available	Credits Predicted
Mat 01	Life Cycle Impacts	**6**	**4**
Mat 02	Hard Landscaping and Boundary Protection	**1**	**1**
Mat 03	Responsible sourcing	**4**	**4**
Mat 05	Designing for Durability and Resilience	**1**	**0**
Mat 06	Material Efficiency	**1**	**1**

11.1.1 The Green Guide to Specification is a simple guide for design professionals. The guide provides environmental impact, cost and replacement interval information for a wide range of commonly used building specifications over a notional 60-year building life. All materials used on site are to be A+, A or B rated, unless otherwise agreed.

11.1.2 Preference will be given to the use of local materials & suppliers where viable to reduce the transport distances and to support the local economy. A full evaluation of these suppliers will be undertaken at the next stage of design.

11.1.3 In addition, timber would be sourced, where practical, certified by PEFC or an equivalent approved certification body and all site timber used within the construction process would be recycled.

11.2 Pollution

BREEAM Category		Credits Available	Credits Predicted
Mat 04	Insulation	**1**	**1**
Pol 01	Impact of Refrigerants	**3**	**2**
Pol 02	NOx Emissions	**3**	**1**

11.2.1 All insulation materials to will have a zero ozone depleting potential.

11.2.2 The Nox emissions are predicted to be more than 100 mg/kWh because of the existing plant within the building, which is expected to be retained in the short term.

11.2.3 When the plant is replaced the emissions are anticipated to be below 100 mg/kWh.

11.3 Noise

BREEAM Category		Credits Available	Credits Predicted
Hea 05	Acoustic Performance	**4**	**3**
Pol 05	Noise Attenuation	**1**	**1**

11.3.1 The site will be designed (at detailed working drawing stage) to minimise the impact of noise from external sources and the buildings will be constructed to reduce sound transmission through the different uses within the complex. It is proposed to reduce impact and airborne sound transmission by at least 5db.

11.4 Construction waste

BREEAM Category		Credits Available	Credits Predicted
Wst 01	Construction Waste Management	**4**	**4**
Wst 02	Recycled Aggregates	**1**	**1**

11.4.1 A Site Waste Management Plan will be prepared which will monitor and report on waste generated on site into defined waste groups.

11.4.2 The Plan will indicate the setting of targets to promote resource efficiency in accordance with guidance from WRAP, Envirowise, BRE and DEFRA.

11.4.3 The overarching principle of waste management is that waste should be treated or disposed of within the region where it is produced.

11.4.4 Construction operations generate waste materials as a result of general handling losses and surpluses. These wastes can be reduced through appropriate selection of the construction method, good site management practices and spotting opportunities to avoid creating unnecessary waste.

11.4.5 A Construction Strategy has been developed and accompanies the planning application. This will be expanded once planning consent has been secured and will explore a number of additional issues, some of which are set out below:

- Proper handling and storage of all materials to avoid damage.
- Efficient purchasing arrangements to minimise over ordering.
- Segregation of construction waste to maximise potential for reuse/recycling.
- Suppliers who collect and reuse/recycle packaging materials

11.5 Operational Waste and Recycling

BREEAM Category		Credits Available	Credits Predicted
Wst 03	Operational Waste	**1**	**1**

11.5.1 Operational waste has been considered in the proposed development in the following way:

- External space is provided for storing recyclable materials, for collection by the Authority or private contractors, within the boundary of the site.
- The external space for recyclable material is of sufficient size to accord with Local Authority procedures.
- Internal storage for recyclables is provided within the shared kitchen areas at a capacity in excess of 30 litres.
- The Students Guide will provide information about the location of the nearest recycling bank.

12.0 Buildings

12.1 Energy use and CO_2 emissions statement

BREEAM Category		Credits Available	Credits Predicted
Ene 01	Reduction of CO_2 Emissions	**12**	**5**
Ene 02	Energy Monitoring	**1**	**1**
Ene 03	External Lighting	**1**	**1**
Ene 04	Low and Zero Carbon Technology	**3**	**0**
Ene 06	Energy Efficient Transport System	**3**	**3**
Ene 08	Energy Efficient Equipment	**2**	**2**
Ene 09	Drying Space	**1**	**0**

12.1.1 Buildings account for most of the UK's CO_2 emissions and dwellings alone account for 30% of the UK energy consumption and 28% of the resulting CO_2. Wasted energy from power stations and the national grid in the UK is approximately double the energy consumed by transport.

12.1.2 In line with the Core Strategy and London Authority guidance on energy policies an outline energy strategy is considered below and describes the proposed energy efficient measures and which low and zero carbon systems are appropriate for use at the site.

12.1.3 The development has been designed and will be constructed to reduce energy demand and carbon dioxide emissions. The objective is to reduce the energy demand to an economic minimum by making investment in the new or refurbished parts of the building that have the greatest impact on energy demand and are the most difficult and costly to change in the future, namely the building fabric. Once a cost effective structure has been designed, renewable and low carbon technologies have been considered for installation to provide heat and electricity.

12.1.4 The following hierarchy, as set out in the London Plan 2015 has been followed:

- ❖ Lean reduce demand and consumption (Policy 5.3)
- ❖ Clean increase energy efficiency (Policy 5.5 & 5.6)
- ❖ Green provide low carbon renewable energy sources (Policy 5.7)

Building Envelope

12.1.5 U-values of the building envelope must meet Building Regulations Part L standards and further improvements to those U-values will reduce the building's heating requirements and emissions.

12.1.6 The selection of high thermal density materials can help to stabilise temperature fluctuations in a building, reducing maximum demands on building services.

12.1.7 There is a commitment to exceed the minimum U-values required by the Building Regulations and whilst the type of construction for the new construction has not yet been agreed the U-values set out in the table below have been targeted for all new construction;

New Elements	Limiting U values Part L	Proposed
	W/m^2K	W/m^2K
External Walls	**0.30**	**0.20**
Roofs	**0.20**	**0.13**
Floors	**0.25**	**0.15**
Windows and Doors	**2.00**	**1.40**

Air Leakage

12.1.8 Large amounts of heat are lost in winter through air leakage from a building (also referred to as infiltration of air permeability) often through poor sealing of joints and openings in the building

12.1.9 ADL sets a minimum standard for air permeability of 10 m^3 of air per hour per m^2 of envelope area, at 50Pa. Air tightness standards will be constructed to the 'Accredited Construction Details' as compiled by Department of Communities and Local Government (DCLG).

12.1.10 The standard proposed will average a 50% improvement over Building Regulations and the buildings will aim to achieve a permeability of less than 5m^3/hr/m^2.

Thermal Bridging

12.1.11 The significance of Thermal Bridging, as a potentially major source of fabric heat losses, is increasingly understood. Improving the U-values for the main building fabric without accurately addressing the Thermal Bridging is no longer an option and will not achieve the fabric energy efficiency and energy and CO_2 reduction targets set out in this strategy.

12.1.12 Accredited Construction Details (ACD's) have been developed to provide the performance standards required to achieve the higher energy efficiency requirements of the Building Regulations. The new extensions to the complex will target achieving a value of 0.04 – 0.06 for thermal detailing.

Ventilation

12.1.13 Mechanical ventilation will be used for the control of air quality although maximum use will be made of natural ventilation for night-time cooling.

Lighting

12.1.14 Where practical natural lighting will be optimised to reduce the need to artificial lighting

12.1.15 All light fittings will be of a dedicated energy efficient type and external lighting will be fitted with time controls and light sensors to ensure illumination is restricted to required times. This improves energy consumption and reduces the effects of light pollution.

12.2 Renewable Technologies

12.2.1 This section determines the appropriateness of each renewable technology.

12.2.2 The Government's Renewable Obligation defines renewable energy in the UK. The identified technologies are:

- Small hydro-electric
- Landfill and sewage gas
- Onshore and offshore wind
- Biomass
- Tidal and wave power
- Geothermal power
- Solar

12.2.3 The use of landfill or sewage gas, offshore wind or any form of hydroelectric power is not suitable for the site due to its location. The remaining technologies are considered below:

Wind

12.2.4 Wind turbines are available in various sizes from large rotors able to supply whole communities to small roof or wall-mounted units for individual dwellings.

12.2.5 The Government wind speed database predicts local wind speeds at Chenies Street to be 4.8 m/s at 10m above ground level and 5.5 m/s at 25m above ground level. This is below the level generally required for commercial investment in large wind turbines and in addition the land take, potential for noise and signal interference make a large wind turbine unsuitable for this development.

12.2.6 A stand alone or roof mounted turbine could be used at the site to generate small but valuable amounts of renewable electricity but the low output and contribution to total emissions means other technologies are more attractive. In addition any turbine would have a detriment impact on the aesthetics of the site.

Combined Heat and Power and Community Heating

12.2.7 Combined heat and power (CHP) also called co-generation is a de-centralised method of producing electricity from a fuel and 'capturing' the heat generated for use in buildings. The plant is essentially a small-scale electrical power station.

12.2.8 The production and transportation of electricity via the National Grid is very inefficient with over 65% of the energy produced at the power station being lost to the atmosphere and through transportation.

12.2.9 Consequently CHP can demonstrate significant CO_2 savings and although not necessary classed as renewable energy (depending on the fuel used) the technology is low carbon.

12.2.10 For a CHP plant to be economic it needs to operate for as much of the time as possible (usually deemed to be in excess of 14 hours per day) and therefore the size of the units are usually based upon the hot water load of the buildings with additional boilers being used to meet the peak space heating demand.

12.2.11 The complex is currently served by split systems with three boilers located in No. 16 Chenies Street and two boilers in No. 18 Chenies Street.

12.2.12 However, a gas-fired CHP system may be viable and subject to detailed design the new hot water load could provide the necessary baseload to sustain a small CHP unit.

12.2.13 CHP could be used to provide space heating and hot water heating to the building and should be investigated when further detailed design is undertaken.

Ground Source Heat Pumps

12.2.14 Sub soil temperatures are reasonable constant and predictable in the UK, providing a store of the sun's energy throughout the year. Ground source heat pumps (GSHP) extract this low-grade heat and convert it to usable heat for space heating.

12.2.15 GSHP operates on a similar principle to refrigerators, transferring heat from a cool place to a warmer place. They operate most efficiently when providing space heating at a low temperature, typically via under floor heating or with low temperature radiators.

12.2.16 There are generally two types of installation being a bore-hole (open loop) and a closed loop system. Open loop bore holes extract energy from ground water located deep below the surface and discharge the water back to the ground reservoir whereas closed loop systems circulate a fluid around a series of boreholes or horizontal 'slinky' and extract heat from the ground.

12.2.17 There is insufficient external ground area to sustain a 'slinky' system and a borehole system would be necessary. This is not practical and therefore ground source heat pumps are not proposed.

Solar

(i) Solar Water Heating

12.2.18 Solar hot water panels use the suns energy to directly heat water circulating through panels or pipes. The technology is simple and easily understood by building users.

12.2.19 Solar hot water heating panels are based generally around two types, which are available being 'flat plate collectors' and 'evacuated tubes'. Flat plate collectors can achieve an output of up to 1,124 kWh/annum and evacuated tubes can achieve outputs up to 1,365 kWh/annum

12.2.20 Evacuated tube solar panels could be installed horizontally on the flat roof of the building above the student accommodation. However, consideration will need to be given to the routing of any service routes and the use of solar hot water heating could conflict with any future use of a combined heat and power unit.

12.2.21 Solar hot water heating panels could be used.

(ii) Photovoltaics

12.2.22 Photovoltaic panels (PV) provide clean silent electricity. They generate electricity during most daylight conditions although they are most efficient when exposed to direct sunlight or are orientated to face plus or minus 30 degrees of due south.

12.2.23 PV panels can be integrated into many different aspects of a development including roofs, walls, shading devices or architectural panels. The panels typically have an electrical warranty of 20-25 years and an expected system lifespan of 25-40 years.

12.2.24 Photovoltaic panels could be installed on the flat roof or pitched roof areas of the student accommodation or theatre respectively (subject to structural checks) and consideration of the impact upon the Listed Building. Any installation on a flat roof would need to position the panels on a gentle incline on racks at circa 10 degrees to provide self-cleaning.

Air Source Heat Pumps (ASHP)

12.2.25 Air sourced heat pumps operate using the same reverse refrigeration cycle as ground source heat pumps, however the initial heat energy is extracted from the external air rather than the ground. These heat pumps can be reversed to provide cooling to an area although this reduces the coefficient of performance of the pumps.

12.2.26 The use of air sourced heat pumps with heat recovery has been investigated. These units can recover the heat generated within the building and also can heat and cool different spaces simultaneously. This allows the units to cool overheated areas whilst providing heat to under-heated areas.

12.2.27 The use of air source heat pumps is feasible and provides the opportunity to install a space efficient system which can balance heat and cooling demands through specific parts of the complex.

12.3 Water use statement

BREEAM Category		Credits Available	Credits Predicted
Hea 04	Water Quality	**1**	**1**
Wat 01	Water consumption	**5**	**2**
Wat 02	Water monitoring	**1**	**0**
Wat 03	Water leak detection and prevention	**2**	**2**

12.3.1 In the South East of England, water demand exceeds the volume licensed for abstraction, with the shortfall being met from ground water. In excess of 20% of the UK's water is used domestically with over 50% of this used for flushing WCs and washing (source: Environment Agency). The majority of this comes from drinking quality standard or potable water.

12.3.2 The amount of potable water used within buildings can be reduced by using fixed fittings, which reduce water use in WC's, taps and showers. Further reductions can be achieved by installing greywater or rainwater collection and treatment systems.

12.3.3 Throughout the design process for the development the following have been considered as part of the proposal:

- Reductions in the use of water within homes.
- Facilities for rainwater harvesting.
- Integrated approach to water demand and rainwater disposal.
- Suitability of sustainable drainage systems.
- Reduction of water use in construction.

12.3.4 The Applicant has committed to achieve a water consumption of less than 105 litres/ person/ day for the student accommodation.

12.3.5 Water efficient devices will be fully evaluated, and installed, wherever possible to all student en-suites, common shower rooms and wcs. The specification of such devices will be considered at detailed design stage and each will be subject to an evaluation based on

technical performance, cost and market appeal, together with compliance with the water use regulations.

12.3.6 Below is a typical specification, which would achieve the 105 Litres per person per year target.

Schedule of Appliance Water Consumption		
Appliance	Flow rate or capacity	Total Litres
WC	4/2.6 litres dual flush	14.72
Basin	1.7 litres/min.	5.98
Shower	8 litres/min	24.00
Bath	160 litres	25.60
Sink	4 litres/min	14.13
Washing Machine	Default used	16.66
Dishwasher	Default used	3.90
		104.99

13.0 Construction Process and Site Management

13.1 Where best practice guidance is available dealing with construction methods and standards these will be adopted.

13.2 The effects of construction can be divided into two sections;

- those related to the materials used on site
- those related to the construction process

Life Cycle Cost

BREEAM Category		Credits Available	Credits Predicted
Man 02	Life cycle costs and service life planning	**4**	**0**

Considerate Constructors

BREEAM Category		Credits Available	Credits Predicted
Man 03	Responsible construction practices	**6**	**5**

13.3 The site will be registered with the Considerate Constructors Scheme, which addresses both limiting the effect on the community and the effects on the environment. The Applicant is committed to demonstrate best site management practices, and if practical to go beyond this. The CC scheme monitors the contractor's performance against the eight point Code for Considerate Practice. There is a commitment to achieve 'best practice+' standards and score in excess of 32 points.

13.4 To ensure good relations with the local community, the Applicant will ensure that they keep local people informed of works, which might affect them, and provide a method for comments, complaints and required remedial action to be communicated to the developer.

13.5 Site management procedures will be put in place to monitor water consumption and CO_2 emissions arising from site activities.

Life Cycle Cost and Aftercare

BREEAM Category		Credits Available	Credits Predicted
Man 04	Commissioning and Handover	**4**	**4**
Man 05	Aftercare	**3**	**3**
Wst 06	Functional Adaptabilty	**1**	**0**

14.0 Conclusion

14.1 This Statement demonstrates that the Proposed Development will provide a highly sustainable development in terms of its economic, social and environmental sustainability. The Proposed Development includes accommodation to sustain the future of the Academy and creates a tangible opportunity for the site. The mixed-use nature of the proposal will provide for a highly sustainable development with high levels of activity throughout the day.

14.2 Throughout the design process, the applicant and design team members have given careful consideration to the sustainability issues relating to the site, and how these can be enhanced in a feasible manner. As a result, this Statement demonstrates that the development meets relevant sustainability criteria and in a number of areas exceeds them.

14.3 The Statement also describes the responsibilities that the Applicants, designers and consultant and construction team have in delivering sustainability measures that will contribute to, meet and/or exceed the objectives and targets set out below.

14.4 The key sustainability findings can be summarised as;

- The student accommodation provides an enhanced facility for the Academy to attract increased numbers of students
- The increased size and layout of the theatre provides for a more sustainable facility
- Reduction in CO_2 emissions through energy efficient design
- Mixed-use scheme provides a sustainable design with activity throughout the day
- BREEAM New Construction 2014 'Excellent' standard (will include the new student accommodation, library, kitchens, common rooms and café)
- High standards of environmental construction with compliance to the Considerate Constructors Scheme, a Site Waste Management Plan and other construction management principles

References

Ref 1 The London Plan - (2015)

Ref 2 London Borough of Camden Local Development Framework (2010)

Ref 3 Camden Development Policies 2010-2025 (2010)

Ref 4 Camden Planning Policy Sustainability CPG3 (2015)

Ref 5 London Sustainability Checklist

Ref 6 Regional Waste Strategy

Ref 7 BREEAM New Construction Non-Domestic Buildings (2014)

Ref 8 The Green Guide to Specification (Fourth Edition)

Appendix 1 – BREEAM Pre-Assessment Estimator

BREEAM UK New Construction 2014 Pre-Assessment Estimator: Assessment Issue Scoring

BREEAM® UK

Building name	RADA, 16-18 Chenies Street, London WC1E 7PA
Building score (%)	72.27%
Building rating	Excellent
Minimum standards level achieved	Excellent level

MANAGEMENT

Man 01 Project brief and design

No. of BREEAM credits available	4	Available contribution to overall score	2.29%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will stakeholder consultation (project delivery) take place?	Yes	1	1
Will stakeholder consultation (third party) take place?	Yes	1	1
Will a sustainability champion (design) be assigned?	Yes	1	1
Will a sustainability champion (monitoring progress) be assigned?	Yes	1	1

Total BREEAM credits achieved	4
Total contribution to overall building score	2.29%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	N/A

Comments/notes:

Man 02 Life cycle cost and service life planning

No. of BREEAM credits available	4	Available contribution to overall score	2.29%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will an elemental life cycle cost (LCC)analyses be carried out?	No	2	0
Will a component level LCC plan be developed?	No	1	0
Will the predicted capital cost be reported?	No	1	0
Expected capital cost of the project (if available)		£/m^2	

Total BREEAM credits achieved	0
Total contribution to overall building score	0.00%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Man 03 Responsible construction practices

No. of BREEAM credits available	6	Available contribution to overall score	3.43%
No. of BREEAM innovation credits available	1	Minimum standards applicable	Yes

Assessment Criteria	Compliant?	Credits available	Credits achieved
Is all site timber used in the project 'legally harvested and traded timber'?	Yes		
Will/does the principal contractor operate a compliant Environmental Management System?	Yes	1	1
Will a construction stage sustainability champion be assigned?	Yes	1	1
Will a considerate construction scheme be used by the principal contractor? (One credit where 'compliance' has been achieved. Two credits where 'compliance' is significantly exceeded.)	2	2	2
Will construction site impacts be metered/monitored?	Yes		
Will site utility consumption be metered/monitored?	Yes	1	1
Will transport of construction materials and waste be metered/monitored?	No	1	0
Will exemplary level criteria be met?	No	1	0

Key Performance Indicators: Construction site energy use

Energy consumption (total) - site processes		Information not available at design stage
Energy consumption (intensity) - site processes		Information not available at design stage
Distance (total) - materials transport to site		Information not available at design stage
Distance (total) -waste transport from site		Information not available at design stage
Energy consumption (total) - materials transport to site		Information not available at design stage
Energy consumption (total) - waste transport from site		Information not available at design stage
Energy consumption (intensity) - materials transport to site		Information not available at design stage
Energy consumption (intensity) - waste transport from site		Information not available at design stage

Key Performance Indicators: Construction site greenhouse gas emissions

Process greenhouse gas emissions (total) - site processes		Information not available at design stage
Greenhouse gas emissions (intensity) - site processes		Information not available at design stage
Greenhouse gas emissions (total) - materials transport to site		Information not available at design stage
Greenhouse gas emissions (total) - waste transport from site		Information not available at design stage
Greenhouse gas emissions (intensity) - materials transport to site		Information not available at design stage
Greenhouse gas emissions (intensity) - waste transport from site		Information not available at design stage

Key Performance Indicators: Construction site use of freshwater resources

Use of freshwater resource (total) - site processes		Information not available at design stage
Use of freshwater resource (intensity) - site processes		Information not available at design stage

Total BREEAM credits achieved	5
Total contribution to overall building score	2.86%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	Outstanding level

Comments/notes:

Man 04 Commisioning and handover

No. of BREEAM credits available	4	Available contribution to overall score	2.29%
No. of BREEAM innovation credits available	0	Minimum standards applicable	Yes

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will commissioning schedule and responsibilities be developed & accounted for?	Yes	1	1
Will a commissioning manager be appointed?	Yes	1	1
Will the building fabric be commissioned?	Yes	1	1
Will a training schedule for building occupiers/managers at Handover?	Yes	1	1
Will a building user guide be developed prior to handover?	Yes		

Total BREEAM credits achieved	4
Total contribution to overall building score	2.29%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	Outstanding level

Comments/notes:

Man 05 Aftercare

No. of BREEAM credits available	3	Available contribution to overall score	1.71%
No. of BREEAM innovation credits available	1	Minimum standards applicable	Yes

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will aftercare support be provided to building occupiers?	Yes	1	1
Will seasonal commissioning occur over 12months once substantially occupied?	Yes	1	1
Will a post occupancy evaluation be carried out 1 year after occupation?	Yes	1	1
Will exemplary level criteria be met?	No	1	0

Total BREEAM credits achieved	3
Total contribution to overall building score	1.71%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	Outstanding level

Comments/notes:

HEALTH & WELLBEING

Hea 01 Visual Comfort

No. of BREEAM credits available	4	Available contribution to overall score	3.33%
No. of BREEAM innovation credits available	1	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will the design provide adequate glare control for building users?	Yes	1	1
Will relevant building areas be designed to achieve appropriate daylight factor(s)?	2	1	2
Will the design provide adequate view out for building users?	No	1	0
Will internal/external lighting levels, zoning and controls be specified in accordance with the relevant CIBSE Guides/British Standards?	Yes	1	1
Will exemplary level criteria be met?	No	1	0

Total BREEAM credits achieved	4
Total contribution to overall building score	3.33%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	N/A

Comments/notes:

Hea 02 Indoor Air Quality

No. of BREEAM credits available	5	Available contribution to overall score	4.17%
No. of BREEAM innovation credits available	2	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will an air quality plan be produced and building designed to minimise air pollution?	No	1	0
Will building be designed to minimise the concentration and recirculation of pollutants in the building?	Yes	1	1
Will the relevant products be specified to meet the VOC testing and emission levels required?	Yes	1	1
Will formaldehyde and total VOC levels be measured post construction?	No	1	0
Will the building be designed to, or have the potential to provide, natural ventilation?	Yes	1	1
Will exemplary level VOCs (products)criteria be met?	0	2	0

Key Performance Indicators: Indoor air quality

Concentration levels of formaldehyde	INA	Information not available at design stage
Total volatile organic compound (TVOC) concentration	INA	Information not available at design stage

Total BREEAM credits achieved	3
Total contribution to overall building score	2.50%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	N/A

Comments/notes:

Hea 03 Safe containment in laboratories

Assessment issue not applicable

No. of BREEAM credits available	N/A	Available contribution to overall score	N/A
No. of BREEAM innovation credits available	N/A	Minimum standards applicable	N/A

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will an objective risk assessment of proposed laboratory facilities' design be completed?			
Will the manufacture & installation of fume cupboards and containment devices meet best practice standards?			
Will containment level 2 & 3 labs meet best practice safety & performance criteria?			

Total BREEAM credits achieved	N/A
Total contribution to overall building score	N/A
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Hea 04 Thermal comfort

No. of BREEAM credits available	3	Available contribution to overall score	2.50%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will thermal modelling of the design be carried out?	Yes	1	1
Will the building design be adapted for a projected climate change scenario?	No	1	0
Will the modelling inform the development of a thermal zoning and control strategy?	Yes	1	1

Key Performance Indicators: Thermal comfort

Predicted Mean Vote (PMV)	INA
Predicted Percentage Dissatisfied (PPD)	INA

Total BREEAM credits achieved	2
Total contribution to overall building score	1.67%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Hea 05 Acoustic Performance

No. of BREEAM credits available	4	Available contribution to overall score	3.33%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Credits	Credits available	Credits achieved
Will the building meet the appropriate acoustic performance standards and testing requirements for: a. Sound insulation b. Indoor ambient noise level c. Reverberation times?	3	4	3

Total BREEAM credits achieved	3
Total contribution to overall building score	2.50%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Hea 06 Safety and Security

No. of BREEAM credits available	2	Available contribution to overall score	1.67%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Where external site areas are present, will safe access be designed for pedestrians and cyclists?	Yes	1	1
Will a suitably qualified security consultant be appointed and security considerations accounted for?	Yes	1	1

Total BREEAM credits achieved	2
Total contribution to overall building score	1.67%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

ENERGY

Ene 01 Reduction of energy use and carbon emissions

No. of BREEAM credits available	12	Available contribution to overall score	7.83%
No. of BREEAM innovation credits available	5	Minimum standards applicable	Yes

How do you wish to assess the number of BREEAM credits achieved for this issue?	Define a target number of BREEAM credits achieved
Select the target number of BREEAM credits for the Ene01 issue:	5

Ene 01 Calculator

Country of the UK where the building is located		Confirm building regulation and version to be used:	

New Construction (Fully fitted)

Building floor area		m2
Notional building heating and cooling energy demand		MJ/m2yr
Actual building heating and cooling energy demand		MJ/m2yr
Notional building primary energy consumption		kWh/m2yr
Actual building primary energy consumption		kWh/m2yr
Target emission rate (TER)		kgCO2/m2yr
Building emission rate (BER)		kgCO2/m2yr
Building emission rate improvement over TER		
Heating & cooling demand energy performance ratio (EPR_{ED})		
Primary consumption energy performance ratio (EPR_{PC})		
CO_2 Energy performance ratio (EPR_{CO2})		
Overall building energy performance ratio (EPR_{NC})		

Where specified, please confirm the energy production from onsite or near site energy generation technologies	
Equivalent % of the building's 'regulated' energy consumption generated by carbon neutral sources and used to meet energy demand from 'unregulated' building systems or processes?	
Is the building designed to be 'carbon negative' ?	
If the building is defined as 'carbon negative' what is the total (modelled) renewable/carbon neutral energy generated and exported?	

Total BREEAM credits achieved	5
Total contribution to overall building score	3.26%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	Excellent level

Comments/notes:

Ene 02 Energy monitoring

No. of BREEAM credits available	1	Available contribution to overall score	0.65%
No. of BREEAM innovation credits available	0	Minimum standards applicable	Yes

Assessment criteria	Compliant?	Credits available	Credits achieved
Will a BMS or sub-meters be specified to monitor energy use from major building services systems?	Yes	1	1
Will a BMS or sub-meters be specified to monitor energy use by tenant/building function areas?			

Total BREEAM credits achieved	1
Total contribution to overall building score	0.65%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	Outstanding level

Comments/notes:

Ene 03 External lighting

No. of BREEAM credits available	1	Available contribution to overall score	0.65%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment criteria	Compliant?	Credits available	Credits achieved
Will external light fittings and controls be specified in accordance with the BREEAM criteria?	Yes	1	1

Total BREEAM credits achieved	1
Total contribution to overall building score	0.65%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Ene 04 Low carbon design

No. of BREEAM credits available	3	Available contribution to overall score	1.96%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment criteria	Compliant?	Credits available	Credits achieved
Will passive design measures be used in line with an analysis be carried out during concept design stage (RIBA stage 2 or equivalent)?	No	1	0
Will free cooling measures be implemented in the whole building in line with the passive design analysis?	No	1	0
Will a LZC technology be specified in line with a feasibility study carried out by the completion of the Concept Design stage (RIBA Stage 2 or equivalent)?	No	1	0

KPI - Low and/or zero carbon energy generation

Total on-site and/or near-site LZC energy generation	INA	kWh/yr

Total BREEAM credits achieved	0
Total contribution to overall building score	0.00%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Ene 05 Energy efficient cold storage

Assessment issue not applicable

No. of BREEAM credits available	N/A	Available contribution to overall score	N/A
No. of BREEAM innovation credits available	N/A	Minimum standards applicable	N/A

Assessment criteria	Compliant?	Credits available	Credits achieved
Will the refrigeration system be designed, installed & commissioned in accrodance with BREEAM criteria?		N/A	N/A
Will the refrigeration system demonstrate a saving in indirect greenhouse gas emissions?		N/A	N/A

Total BREEAM credits achieved	N/A
Total contribution to overall building score	N/A
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Ene 06 Energy efficient transportation systems

No. of BREEAM credits available	3	Available contribution to overall score	1.96%
No. of BREEAM innovation credits available	0	Minimum standards applicable	N/A

Assessment criteria	Compliant?	Credits available	Credits achieved
Will a transportation system analysis be carried out to determine and specify the optimum number, size and type of lifts that is most energy efficient?	Yes	1	1
Will the relevant energy-efficient features criteria be met?	Yes	2	2

Total BREEAM credits achieved	3
Total contribution to overall building score	1.96%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Ene 07 Energy efficient laboratory systems

Assessment issue not applicable

No. of BREEAM credits available	N/A	Available contribution to overall score	N/A
No. of BREEAM innovation credits available	N/A	Minimum standards applicable	N/A

Assessment criteria	Compliant?	Credits available	Credits achieved
Pre-requisite: Criterion 1 of Hea 03 - risk assessment of laboratory facilities			
Have the occupants' laboratory requirements & performance criteria been confirmed during the preparation of the initial project brief to minimise energy demand?			
Best Practice Energy Practices in Laboratories (table 27)			
Will the laboratory meet criteria item b) Fan power?			
Will the laboratory criteria item c) Fume cupboard volume flow rates?			
Will the lab meet item d) Grouping / isolation of high filtration/ventilation activities?			
Will the laboratory meet criteria item e) Energy recovery - heat?			
Will the laboratory meet criteria item f) Energy recovery - cooling?			
Will the laboratory meet criteria item g) Grouping of cooling loads?			
Will the laboratory meet criteria item h) Free cooling?			
Will the laboratory meet criteria item i) Load responsiveness?			
Will the laboratory meet criteria item j) Cleanrooms?			

Will the laboratory meet criteria item k) Diversity?	
Will the laboratory meet criteria item l) Room air-change rates?	

Total BREEAM credits achieved	N/A
Total contribution to overall building score	N/A
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Ene 08 Energy efficient equipment

No. of BREEAM credits available	2	Available contribution to overall score	1.30%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment criteria

Which of the following will be present and likely to be a/the major contributor to 'unregulated' energy use?	Present	Major impact
Ref A Small power and plug in equipment?	Yes	No
Ref B Swimming pool?	No	No
Ref C Communal laundry?	Yes	No
Ref D Data centre?	No	
Ref E IT-intensive operation areas?	No	
Ref F Residential areas?	Yes	Yes
Ref G Healthcare?	No	
Ref H Kitchen and catering facilities?	Yes	Yes

	Compliant	Credits available	Credits achieved
Will the significant majority contributor(s) to 'unregulated' energy use above meet the BREEAM criteria?	Yes	2	2

Total BREEAM credits achieved	2
Total contribution to overall building score	1.30%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Ene 09 Drying space

No. of BREEAM credits available	1	Available contribution to overall score	0.65%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment criteria	Compliant?	Credits available	Credits achieved
Will internal/external drying space and fixings be provided?	No	1	0

Total BREEAM credits achieved	0
Total contribution to overall building score	0.00%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

TRANSPORT

Tra 01 Public Transport Accessibility

No. of BREEAM credits available	3	Available contribution to overall score	3.00%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Building type category (for purpose of Tra01 issue assessment)	Multi-Residential Accommodation

Assessment Criteria	Compliant	Credits available	Credits achieved
Indicative public transport accessibility index (AI):	18.00	3	3
Will the building have a dedicated bus service?			N/A

AI	Indicative Accessibility Index for pre-assessment
0	Poor or no public transport provision
1	A single BREEAM compliant public transport node available
2	Some BREEAM compliant public transport nodes/services available
4	A selection of BREEAM compliant public transport nodes/services available
8	Good provision of public transport i.e. small urban centre / suburban area
10	Very Good provision of public transport i.e. small/medium urban centre
12	Excellent provision of public transport, i.e. medium urban centre
18	Excellent provision of public transport, i.e. large urban/metropolitan city centre

Total BREEAM credits achieved	3
Total contribution to overall building score	3.00%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Tra 02 Proximity to Amenities

No. of BREEAM credits available	2	Available contribution to overall score	2.00%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will the building be in close proximity of and accessible to applicable amenities?	Yes	2	2

Total BREEAM credits achieved	2
Total contribution to overall building score	2.00%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Tra 03 Cyclist facilities

No. of BREEAM credits available	1	Available contribution to overall score	1.00%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Building type category (for purpose of Tra03 issue assessment)	Student residences and key worker accommodation
How many compliant cycle storage spaces will be provided?	30

Assessment Criteria	Compliant?	Credits available	Credits achieved
Cycle storage spaces	Yes	1	1

Total BREEAM credits achieved	1
Total contribution to overall building score	1.00%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Tra 04 Maximum Car Parking Capacity

No. of BREEAM credits available	2	Available contribution to overall score	2.00%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Building type category (for purpose of Tra04 issue)	Student residences and key worker accommodation
Building's indicative Accessibility Index (sourced from issue Tra01)	18

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will BREEAM's maximum parking capacity criteria for the building type/Accessibility Index be met?	Yes	2	2

Total BREEAM credits achieved	2
Total contribution to overall building score	2.00%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Tra 05 Travel Plan

No. of BREEAM credits available	1	Available contribution to overall score	1.00%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will a transport plan based on site specific travel survey/assessment be developed?	Yes	1	1

Total BREEAM credits achieved	1
Total contribution to overall building score	1.00%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

WATER

Wat 01 Water Consumption

No. of BREEAM credits available	5	Available contribution to overall score	4.38%
No. of BREEAM innovation credits available	1	Minimum standards applicable	Yes

How do you wish to assess the number of BREEAM credits to be achieved for this issue?	Define a target % improvement over baseline sanitary fittings
What is the target for % reduction in potable water consumption for sanitary use in the building?	25% - two credits
Please select the calculation procedure used	

Standard approach data

Water Consumption from building micro-components		L/person/day
Water demand met via greywater/rainwater sources		L/person/day
Total net water consumption		L/person/day
Improvement on baseline performance		%

Key Performance Indicator - use of freshwater resource

Total net Water Consumption		m3/person/yr
Default building occupancy		

Alternative approach data

Overall microcomponent performance level achieved	

Total BREEAM credits achieved	2
Total contribution to overall building score	1.75%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	Outstanding level

Comments/notes:

Wat 02 Water Monitoring

No. of BREEAM credits available	1	Available contribution to overall score	0.88%
No. of BREEAM innovation credits available	0	Minimum standards applicable	Yes

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will there be a water meter on the mains water supply to the building(s)?	Yes	1	0
Will metering/monitoring equipment be specified on the water supply to any relevant plant/building areas?	Yes		
Will all specified water meters have a pulsed output?	No		
If the site/building has an existing BMS connection, will all pulsed meters be connected to the BMS?	No		

Total BREEAM credits achieved	0
Total contribution to overall building score	0.00%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	Outstanding level

Comments/notes:

Wat 03 Water Leak Detection and Prevention

No. of BREEAM credits available	2	Available contribution to overall score	1.75%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will a mains water leak detection system be installed on the building's mains water supply?	Yes	1	1
Will flow control devices be installed in each sanitary area/facility?	Yes	1	1

Total BREEAM credits achieved	2
Total contribution to overall building score	1.75%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Wat 04 Water Efficient Equipment — **Assessment issue not applicable**

No. of BREEAM credits available	N/A	Available contribution to overall score	N/A
No. of BREEAM innovation credits available	N/A	Minimum standards applicable	N/A

Assessment Criteria	Compliant?	Credits available	Credits achieved

Has a meaningful reduction in unregulated water demand been achieved?			

Total BREEAM credits achieved	N/A
Total contribution to overall building score	N/A
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

MATERIALS

Mat 01 Life Cycle Impacts

No. of BREEAM credits available	6	Available contribution to overall score	5.79%
No. of BREEAM innovation credits available	3	Minimum standards applicable	No

How do you wish to assess the number of BREEAM credits to be achieved for this issue?	Define the number of Mat 01 credits achieved

Assessment Criteria

Predicted total Mat01 credits achieved	4
Predicted total Mat01 points achieved	
Number of building elements assessed	
Green Guide exemplary level compliant?	Yes
Has IMPACT compliant software been used?	No

Key Performance Indicator - embodied green house gas emissions by element	Total area of element m^2	Total impact $kgCO_2$ eq.	Area of element impact data relevant to m^2
External walls			
Windows			
Roof			
Upper floor construction			
Internal wall			
Floor finishes/coverings			

Key Performance Indicator - embodied green house gas emissions for building (assessed elements only)

Total embodied green house gas emissions for building (by assessed elements)	Missing data	$kgCO_2$ eq.		$kgCO_2$ eq./m^2
Proportion of applicable building elements that data reported covers				

Total BREEAM credits achieved	4
Total contribution to overall building score	3.86%
Total BREEAM innovation credits achieved	1
Minimum standard(s) level	N/A

Comments/notes:

Mat 02 Hard Landscaping and Boundary Protection

No. of BREEAM credits available	1	Available contribution to overall score	0.96%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will ≥80% of all external hard landscaping and boundary protection achieve a Green Guide A or A+ rating?	Yes	1	1

Total BREEAM credits achieved	1
Total contribution to overall building score	0.96%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Mat 03 Responsible Sourcing

No. of BREEAM credits available	4	Available contribution to overall score	3.86%
No. of BREEAM innovation credits available	1	Minimum standards applicable	Yes

Assessment Criteria	Compliant	Credits available	Credits achieved
All timber and timber based products are 'Legally harvested and trader timber'	Yes		
Is there a documented sustainable procurement plan?	Yes	1	1
Percentage of available responsible sourcing of materials points achieved	60.00%	3	3

Please confirm the route used to assess Mat03	Route 3: Combination of routes

Total BREEAM credits achieved	4
Total contribution to overall building score	3.86%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	Outstanding level

Comments/notes:

Mat 04 Insulation

No. of BREEAM credits available	1	Available contribution to overall score	0.96%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria		Credits available	Credits achieved	
What is the building's targeted insulating index?	2.50	1	1	Note: An insulation

Total BREEAM credits achieved	1
Total contribution to overall building score	0.96%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Mat 05 Designing for durability and resilience

No. of BREEAM credits available	1	Available contribution to overall score	0.96%
No. of BREEAM innovation credits available	0	Minimum standards applicable	N/A

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will suitable durability/protection measures be specified and installed to vulnerable areas of the building?	No	1	0
Will suitable durability/protection measures be specified and installed to exposed parts of the building?	No		

Total BREEAM credits achieved	0
Total contribution to overall building score	0.00%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Comments/notes:

Mat 06 Material efficiency

No. of BREEAM credits available	1	Available contribution to overall score	0.96%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will material efficiency measures be identified & implemented during all RIBA stages?	Yes	1	1

Total BREEAM credits achieved	1
Total contribution to overall building score	0.96%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

WASTE

Wst 01 Construction Waste Management

No. of BREEAM credits available	4	Available contribution to overall score	4.25%
No. of BREEAM innovation credits available	1	Minimum standards applicable	Yes

How do you wish to assess the number of BREEAM credits to be achieved for this issue?	Define a target number of BREEAM credits		
Select the number of BREEAM credits being targeted for issue Wst 01:	4	BREEAM Wst01 Innovation credits:	1

Assessment Criteria	Compliant?
Construction resource management plan	
Compliant Pre-demolition audit	
Does the excavation waste meet the exemplary level requirements?	

Key Performance Indicators - Construction Waste

Measure/units for the data being reported		
Non-hazardous construction waste (excluding demolition/excavation)		
Total non-hazardous construction waste generated		Note: At the pre-assessment stage this figu
Non-hazardous non-demolition const. waste diverted from landfill		Note: At this stage this will be a target ber
Total non-hazardous non-demolition const. waste diverted from landfill		Note: At the pre-assessment stage this figu
Total non-hazardous demolition waste generated		Note: At this stage this will be a target ber
Non-hazardous demolition waste diverted from landfill		Note: At this stage this will be a target ber
Total non-hazardous demolition waste to disposal		Note: At the pre-assessment stage this figu
Material for reuse		Note: At this stage this will be a target ber
Material for recycling		Note: At this stage this will be a target ber
Material for energy recovery		Note: At this stage this will be a target ber
Hazardous waste to disposal		Note: At this stage this will be a target ber

Total BREEAM credits achieved	4
Total contribution to overall building score	4.25%
Total BREEAM innovation credits achieved	1
Minimum standard(s) level	Outstanding level

Comments/notes:

Wst 02 Recycled Aggregates

No. of BREEAM credits available	1	Available contribution to overall score	1.06%
No. of BREEAM innovation credits available	1	Minimum standards applicable	No

Assessment Criteria	Total
What is the target total % of high-grade aggregate that will be recycled/secondary aggregate?	50%

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

Structural frame	N/A
Bitumen/hydraulically bound base, binder and surface courses	N/A
Building foundations	50%
Concrete road surfaces	N/A
Pipe bedding	60%
Granular fill and capping	60%

Total BREEAM credits achieved	1
Total contribution to overall building score	1.06%
Total BREEAM innovation credits achieved	1
Minimum standard(s) level	N/A

Comments/notes:

Wst 03 Operational Waste

No. of BREEAM credits available	1	Available contribution to overall score	1.06%
No. of BREEAM innovation credits available	0	Minimum standards applicable	Yes

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will operational recyclable waste volumes be segregated and stored?	Yes	1	1
Will static waste compactor(s) or baler(s) be specified where appropriate?	Yes		
Will vessel(s) for composting suitable organic waste where appropriate?	Yes		
Will Internal and, if applicable, communal storage & home compost facilities be provided?	Yes		

Total BREEAM credits achieved	1
Total contribution to overall building score	1.06%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	Outstanding level

Comments/notes:

Wst 04 Speculative Floor and Ceiling Finishes — **Assessment issue not applicable**

No. of BREEAM credits available	N/A	Available contribution to overall score	N/A
No. of BREEAM innovation credits available	N/A	Minimum standards applicable	N/A

Assessment Criteria	Compliant?	Credits available	Credits achieved

Total BREEAM credits achieved	N/A
Total contribution to overall building score	N/A
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Wst 05 Adaption to climate change

No. of BREEAM credits available	1	Available contribution to overall score	1.06%

No. of BREEAM innovation credits available	1	Minimum standards applicable	N/A

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will a climate change adaptation strategy appraisal for structural and fabric resilience be conducted by the end of Concept Design (RIBA Stage 2 or equivalent)?	No	1	0
Will emexplary level criteria – Responding to adaptation to climate change be met?	No	1	0

Total BREEAM credits achieved	0
Total contribution to overall building score	0.00%
Total BREEAM innovation credits achieved	0
Minimum standard(s) level	N/A

Comments/notes:

Wst 06 Functional adaptability

No. of BREEAM credits available	1	Available contribution to overall score	1.06%
No. of BREEAM innovation credits available	0	Minimum standards applicable	N/A

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will a building specific functional adaptation strategy appraisal be conducted by Concept Design (RIBA Stage 2 or equivalent) and will functional adaptation measures be implemented?	No	1	0

Total BREEAM credits achieved	0
Total contribution to overall building score	0.00%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

LAND USE & ECOLOGY

LE 01 Site Selection

No. of BREEAM credits available	2	Available contribution to overall score	2.00%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will at least 75% of the proposed development's footprint be located on previously occupied land?	Yes	1	1
Is the site deemed to be significantly contaminated?	No	1	0

Total BREEAM credits achieved	1
Total contribution to overall building score	1.00%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

LE 02 Ecological Value of Site and Protection of Ecological Features

No. of BREEAM credits available	2	Available contribution to overall score	2.00%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Ecological value of the land defined using	The BREEAM checklist

Assessment Criteria	Compliant?	Credits available	Credits achieved
Can the land within the construction zone be defined as 'land of low ecological value'?	Yes	1	1
Will all features of ecological value surrounding the construction zone/site boundary be protected?	Yes	1	1

Total BREEAM credits achieved	2
Total contribution to overall building score	2.00%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

LE 03 Mitigating Ecological Impact

No. of BREEAM credits available	2	Available contribution to overall score	2.00%
No. of BREEAM innovation credits available	0	Minimum standards applicable	Yes

Data sourced for calculating the change in ecological value from	Assessor's classification of broad habitat type(s) using BREEAM LE03/LE04 Calculator

Assessment Criteria

What is the likely change in ecological value as a result of the sites development?	≥0 species (i.e. no negative change)	Plant species richne

Total BREEAM credits achieved	2
Total contribution to overall building score	2.00%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	Outstanding level

Comments/notes:

LE 04 Enhancing Site Ecology

No. of BREEAM credits available	2	Available contribution to overall score	2.00%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will a suitably qualified ecologist be appointed to report on enhancing and protecting site ecology?	No	2	0
Will the suitably qualified ecologist's general recommendations be implemented?			
What is the targeted/intended improvement in ecological value as a result of enhancement actions?			

Total BREEAM credits achieved	0
Total contribution to overall building score	0.00%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

LE 05 Long Term Impact on Biodiversity

No. of BREEAM credits available	2	Available contribution to overall score	2.00%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will a Suitably Qualified Ecologist be appointed to monitor/minimise impacts of site activities on biodiversity?	No	2	0
Will a landscape and habitat management plan be produced covering at least the first five years after project completion in accordance with British Standards?			
Number of applicable measures to improve biodiversity confirmed by SQE:			
Number of applicable measures implemented:			

Total BREEAM credits achieved	0
Total contribution to overall building score	0.00%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

POLLUTION

Pol 01 Impact of Refrigerants

No. of BREEAM credits available	3	Available contribution to overall score	2.31%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria		Credits available	Credits achieved
Refrigerant containing systems installed in the assessed building?	Yes	2	2
Do all systems (with electric compressors) comply with the requirements of BS EN 378:2008 (parts 2 & 3) & where refrigeration systems containing ammonia are installed, the IoR Ammonia Refrigeration Systems Code of Practice?	Yes		
Global Warming Potential of the specified refrigerant(s) 10 or less?	Yes		
What is the target range Direct Effect Life Cycle CO2eq. emissions for the system?		kgCO2eq/kW coolth capacity	
Cooling/Heating capacity of the system		kW	
Will a refrigerant leak detection and containment system be specified/installed?	No	1	0

Total BREEAM credits achieved	2
Total contribution to overall building score	1.54%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Pol 02 NO_x Emissions

No. of BREEAM credits available	3	Available contribution to overall score	2.31%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria

NO_x emission level - space heating	150.00	mg/kWh
NO_x emission level - cooling		mg/kWh
Does this building meet BREEAM's definition of a highly insulated building?	Yes	
Energy consumption: heating and hot water		kWh/m2 yr

Total BREEAM credits achieved	1
Total contribution to overall building score	0.77%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Pol 03 Surface Water Run off

No. of BREEAM credits available	5	Available contribution to overall score	3.85%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
What is the actual/likely annual probability of flooding for the assessed site?	Low	2	0
Will a Flood Risk Assessment be undertaken?	No		
Will the site meet the BREEAM criteria for peak rate surface water run off?	Yes	1	1
Will the site meet the criteria for surface water run off volume, attenuation and/or limiting discharge?	Yes	1	1
Will the site be designed to minimise watercourse pollution in accordance with the BREEAM criteria?	Yes	1	1

Total BREEAM credits achieved	3
Total contribution to overall building score	2.31%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Pol 04 Reduction of Night Time Light Pollution

No. of BREEAM credits available	1	Available contribution to overall score	0.77%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Will the external lighting specification be designed to reduce light pollution?	Yes	1	1

Total BREEAM credits achieved	1
Total contribution to overall building score	0.77%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

Pol 05 Noise Attenuation

No. of BREEAM credits available	1	Available contribution to overall score	0.77%
No. of BREEAM innovation credits available	0	Minimum standards applicable	No

Assessment Criteria	Compliant	Credits available	Credits achieved
Will there be noise-sensitive areas/buildings within 800m radius of the development?	Yes	1	1
Will a noise impact assessment be carried out and, if applicable, noise attenuation measures specified?	Yes		

Total BREEAM credits achieved	1
Total contribution to overall building score	0.77%
Total BREEAM innovation credits achieved	N/A
Minimum standard(s) level	N/A

Comments/notes:

INNOVATION

Inn 01 Innovation

No. of BREEAM innovation credits available	10	Available contribution to overall score	10.00%
		Minimum standards applicable	No

Assessment Criteria	Compliant?	Credits available	Credits achieved
Man 03 Responsible construction practices	No	1	0
Man 05 Aftercare	No	1	0
Hea 01 Visual Comfort	No	1	0
Hea 02 Indoor Air Quality	No	2	0
Ene 01 Reduction of energy use and carbon emissions	No	5	0
Wat 01 Water Consumption	No	1	0
Mat01 Life Cycle Impacts	Yes	3	1
Mat03 Responsible Sourcing of Materials	No	1	0
Wst01 Construction Waste Management	Yes	1	1
Wst02 Recycled Aggregates	Yes	1	1
Wst 05 Adaption to climate change	No	1	0

Number of 'approved' innovation credits achieved?	

Total BREEAM innovation credits achieved	3
Total contribution to overall building score	3.00%
Minimum standard(s) level	N/A

Comments/notes: