BREEAM Pre-assessment

Britannia Street

Watkin Jones Group

April 2011

Halcrow Yolles

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Document history

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This document has been issued and amended as follows:

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Contents

Appendix

1 Introduction

BREEAM (Building Research Establishment Environmental Assessment Method) Multi-residential is a scheme developed by the BRE to assess the sustainability of multi-occupancy developments. BREEAM is designed to assess various aspects of sustainability, and covers the categories; Management, Health and Wellbeing, Energy and Transport, Water, Materials, Waste, Land Use and Ecology, and Pollution. A project is awarded 'credits' based on the number of sustainability features that are implemented. These represent best practice and are usually beyond Building Regulations requirements.

The final BREEAM rating is either: Pass, Good, Very Good, Excellent or Outstanding and the percentages to achieve these are:

Rating	Percentage
Pass	25% - 39%
Good	40% - 54%
Very Good	55% - 69%
Excellent	70%
Outstanding	85% +

Halcrow Yolles was appointed by Watkin Jones Group at an early stage in the project to provide BREEAM Pre-Planning Design Stage advice.

1.1 BREEAM Multi-Residential

Halcrow Yolles has consulted with members of the Design Team to establish a clear route in achieving a BREEAM target rating of Very Good. A copy of our pre-assessment summary sheet has been attached in the appendix which highlights what credits have been targeted and who is responsible in achieving these credits.

Please note that the scores shown are target scores only at this stage; gaining these scores in the final BREEAM assessment will depend on the project team submitting sufficient evidence to the BREEAM assessor to show that the full credit requirements have been met.

2 Requirements for Britannia Street

The requirements understood for this proposal are as follows:

- To achieve a BREEAM Multi-Residential rating of Very Good
- To achieve a minimum score of 60% in the Energy category of the BREEAM assessment
- To achieve a minimum of 60% in the Water category of the BREEAM assessment
- To achieve a minimum of 40% in the Materials category of the BREEAM assessment

3 The Site and Scheme

3.1 Site location

The site is located in the London Borough of Camden and has been developed since at least 1873.

3.2 Development functions, facilities and amenities

At present the site provides general office and meeting room facilities, but is currently vacant. The development is planned to be refurbished to provide 263 student bedrooms, a performance space/ gallery for use by students and other ancillary/ communal facilities for the student accommodation including a landscaped courtyard.

It is located in an established area with local amenities and transport close to Kings Cross St Pancras Station.

4 BREEAM Multi-Residential

This section summarises the strategies and solutions proposed for Britannia Street development using the BREEAM Multi-residential requirements sought by the development in compliance with the expectations required by London Borough of Camden. For a detailed summary of BREEAM Multi-residential performance please refer to Appendix A.

This section describes the key features that are to be adopted and combine to deliver a BREEAM 'Very Good' scheme.

4.1 Management

The design team have committed themselves to ensuring that the commissioning of all building services will be carried out in line with current Building Regulations and BSRIA/ CIBSE guidelines.

The construction site will be registered on the Considerate Constructors Scheme (CCS) and will aim to exceed the minimum score of 32 out of 40. Construction site impacts, encompassing energy, water and timber consumption and emissions to air, land and water, will be closely monitored. Materials storage procedures will minimise wastage due to spoilt materials.

A Building User Guide for each resident will be provided to describe the operation of the building and controls, the environmental performance of the residence, and covering information relating to the site and its surroundings in terms of transportation links, waste facilities and other amenities.

Contact has already been made with a Crime Prevention Design Advisor (CPDA) and will be consulted further during the detailed design phase to derive appropriate measures to improve site and building security. These measures will be incorporated into the design and infrastructure of the site.

4.2 Health and Wellbeing

The design shall achieve a number of credits under this section. This will provide a living space which will benefit the user by providing view outs to the surrounding area, glare control and natural ventilation. The design is to maximise user control to ensure the students and staff feel in control of their surroundings. As students both live and work in their halls of residence, the scheme will ensure their rooms can be used as a home office.

High frequency ballasts are being specified and designed in line with best practice for visual performance and comfort. This is combined with efficient and effective lighting designs that are automatically controlled for daylight and presence in communal and external areas.

4.3 Energy

High standards of thermal efficiency will be achieved through insulation, air tightness, elimination of thermal bridges, and high quality glazing. Gas boilers and the gas CHP system are to be very efficient (SEDBUK 'A' rated) and low NOX. The CHP system is expected to reduce the development's CO_2 emissions by 35.2%.

Sub-metering of energy uses within the building has been specified which will facilitate the monitoring of in-use energy consumption.

Electrical efficiency is provided through the incorporation of high efficacy internal and external lighting and white goods that perform well under the EU energy efficiency labelling scheme.

All study rooms will contain sufficient facilities to accommodate a home office by the nature of their function. This entails providing adequate space, power, telephone/broadband sockets and daylight in an appropriate room in each bedroom.

The project team has confirmed that 60.87% will be achieved in this section, thus meeting the minimum planning requirement of 60%.

4.4 Transport

The site is well served by local public transport links and is within 1000m of several public amenities. Pedestrian and cyclist safety has influenced the design to help encourage students to use more sustainable forms of transport.

4.5 Water

The specification of sanitary fittings will ensure that efficient appliances are procured and installed. This will include dual-flush WCs and low-flow and aerating taps and showers.

The building will have its own pulsed output water meter on the mains supply to enable the management to monitor water usage.

External landscaping areas will rely solely on precipitation during all seasons of the year.

The project team has confirmed that 62.50% will be achieved in this section, thus meeting the minimum planning requirement of 60%.

4.6 Materials

Many of the main construction elements – roof, external and internal walls, floors, windows, floor finishes, hard landscaping – will endeavour to specify and procure materials that achieve an 'A/A+' rating in the Green Guide to Specification. Insulation materials, steel for the structural frame, and materials for the floors and the other major elements will strive to be responsibly sourced using an audit procedure for the Environmental Management Systems adopted in the supply chain. Timber will be procured from FSC, or equivalent, certified sources.

The current design re-uses the existing façade where possible and vulnerable areas of the building will be identified and suitable durability measures will be specified.

The project team has confirmed that 41.18% will be achieved in this section, thus meeting the minimum planning requirement of 40%.

4.7 Waste

An external central, dedicated area for recycling is to be provided adjacent to the main bin store allowing students to recycle most of their waste.

Construction site waste management procedures are to be adopted that delivers a Site Waste Management Plan that complies with regulatory requirements and, in addition, meets the specific requirements and commitments set out in the BREEAM guidance. This involves a commitment to sort, re-use and recycle construction waste either on-site or through a licensed external contractor.

4.8 Land Use and Ecology

The proposed development is using an existing building and therefore will make excellent use of previously developed land, whilst minimising the building footprint.

A BREEAM compliant ecological report has been produced detailing how the development can enhance site ecology and minimise impact on the ecology during the construction period. The proposed scheme will offer a slight ecological enhancement based on the existing site by following the ecologist recommendations which include:

- Bird boxes
- Shade tolerant plants
- Log pie for invertebrates

4.9 Pollution

All heating and hot water is to be provided using very efficient, low NOx, condensing gas boilers. The overall NOx emissions from the boilers and gas CHP systems will be specified to achieve dry emissions <70mg/kWh at 0% excess O_2.

The site is located in a flood zone defined as having a low annual probability of flooding and a Flood Risk Assessment has commented that the run-off rate from the site shall be no greater for the developed site than it was for the pre-development site.

External lighting has been kept to a minimum, reducing unnecessary light pollution, energy consumption and nuisance to neighbouring properties.

4.10 Summary

The measures described above demonstrate the current strategy to achieving BREEAM Multi-residential compliance to meet the target rating for the Britannia Street development. The scheme has targeted a score of 62.82% which is a comfortable 'Very Good' rating. The individual measures may change as the detailed design emerges, but the overall rating level achieved will remain.

For details of the scoring for the scheme concept, refer to the summary sheet in Appendix A - BREEAM.

Appendix A

BREEAM

Appendix A BREEAM

A preliminary assessment has been undertaken by a qualified BREEAM Multi-residential assessor and Accredited Professional to demonstrate that an appropriate strategy is in place for each assessed space within the development. It should be noted that little evidence to support this strategy is currently available, although this will emerge during the detailed design stages to come. Similarly, the final route to achieving BREEAM compliance may differ from the strategy set out in this document, however, the overall rating will remain unchanged.

The BREEAM Multi-residential preliminary assessment was undertaken by Jonathan Williams (BREEAM assessor: HG-JW34), and quality controlled by Miss Natasha Fox (BREEAM Multi-residential assessor and BREEAM AP: HG-NF07) both of Halcrow Group Limited. CVs describing full qualifications are available upon request.

The preliminary assessment summary sheet shown below is Halcrow Yolles' own established tool to calculate BREEAM performance and guide the design team towards the agreed BREEAM certification level.

The Halcrow Yolles process ensures that each BREEAM issue is assigned to an 'actionee' who becomes responsible for including the requirements in the design and providing the final evidence. This robust process ensures that the target rating is achieved.

The preliminary assessment is summarised in the following table:

Britannia Street

Halcrow Yolles

BREEAM Multi-residential 2008 Design-stage Pre-Assessment Summary Sheet

Revision E, Date: 18/04/2011

Based on the BREEAM Multi-residential 2008 Assessor Manual BES 5064: Issue 1.0

Overview

This summary sheet is based on consultation with the project team meeting, which took place on 09/11/10 and 10/11/10. Note that the scores shown are target scores only at this stage; gaining these scores in the final BREEAM assessment will depend on the project team submitting sufficient evidence to the BREEAM Assessor to show that the full credit requirements have been met. This project has a planning target rating of BREEAM Very Good and a requirement to achieve a minimum of 60% in the Energy and Water section and 40% in the Materials section.

DS target score	This column shows which credits are anticipated be gained by the project team. This column gives a score of 62.82% which is a rating of Very Good.
Energy Section	There is a planning requirement to achieve a minimum of 60% in this section. The project team have confirmed that 60.87% will be achieved in this section.
Water Section	There is a planning requirement to achieve a minimum of 60% in this section. The project team have confirmed that 62.50% will be achieved in this section.
Materials Section	There is a planning requirement to achieve a minimum of 40% in this section. The project team have confirmed that 41.18% will be achieved in this section.

	Credit Title	CREDITS: Credits Available	CREDITS: DS target score	Actionee	Summary of Requirements (Refer to the BREEAM Guidance Notes for the full requirements including what evidence you must provide to demonstrate compliance)
MANAGEMENT					
Man 1	Commissioning	2	1	BSE	One credit is awarded where: an appropriate project team member has been appointed to monitor commissioning; commissioning will be carried out in line with Building Regulations and BSRIA/CIBSE guidelines; AND a specialist commissioning manager is appointed for complex systems (e.g. air conditioning, mechanical ventilation, BMS, renewable energy, cold storage). Two credits are awarded where, in addition to the above, seasonal commissioning will be carried out during the first 12 months of building occupation. **Mandatory minimum: 1 credit for Pass, Good, Very Good or Excellent. 2 credits for Outstanding.**
Man 2	Considerate Constructors	2	2	WJDT	One credit awarded where formal certification will be achieved under the Considerate Constructor Scheme (CCS) with a score of at least 24 out of 40. The second credit is awarded where formal certification will be achieved with a score of at least 32 out of 40. Alternative schemes to CCS may also be acceptable. An additional innovation credit is available - see below. **Mandatory minimum: 1 credit for Excellent. 2 credits for Outstanding.**
Man 3	Construction Site Impacts	4	3	WJDT	One credit is awarded where the full requirements (as listed in BREEAM checklist A3) are met for 2 items listed below; two credits for 4 items; three credits for 6 items. a. Monitor, report and set targets for CO_2 or energy arising from site activities. b. Monitor, report and set targets for CO_2 or energy arising from transport to and from site. c. Monitor, report and set targets for water consumption arising from site activities. d. Implement best practice policies in respect of air (dust) pollution arising from the site. e. Implement best practice policies in respect of water (ground and surface) pollution on the site. f. Main contractor has an environmental materials policy in place. g. Main contractor operates an Environmental Management System. One additional credit is awarded where at least 80% of site timber is responsibly sourced and 100% is legally sourced.
Man 4	Building User Guide	1	1	WJDT	Credit awarded where a simple building user guide (in line with BREEAM guidelines) will be provided tha covers information relevant to the tenants/occupants and non-technical building manager on the operation and environmental performance of the building. **Mandatory minimum: 1 credit for Excellent or Outstanding.**
Man 6	Consultation	2	2	PPS	One credit is awarded where adequate consultation has been, or is being, undertaken and feedback given to the local community and building users, early in the design process (equivalent to RIBA Stage B). A second credit is awarded where changes to the design and/or other actions have been taken as a result of the consultation process.
Man 8	Security	1	1	Arch	One credit is awarded where an Architectural Liaison Officer (ALO) or Crime Prevention Design Advisor (CPDA) from the local police force has been consulted at the design stage and their recommendations incorporated into the design of the building and its parking facilities.
Sub-Total		**12**	**10**	**One management credit equals 1%**	
Weighted Sub-Total		**12**	**10.00**		
HEALTH & WELLBEING					
Hea 1	Daylighting	1	0	-	Credit awarded where calculations have been carried out, demonstrating that at least 80% of floor area in each occupied space is adequately daylit. An additional innovation credit is available - see below.
Hea 2	View Out	1	1	Arch	Credit awarded where all desks/workstations within self contained flats, individual bedrooms, offices and IT suites will be within 7m of a window and have an adequate view out, and where the window/opening is ≥20% of the total inside wall area.

Hea 3	Glare Control	1	1	Arch	Credit awarded where occupant-controlled blinds are fitted to all windows within self contained flats, individual bedrooms, offices and IT suites and any other relevant areas.
Hea 4	High Frequency Lighting	1	1	BSE	Credit awarded where high frequency ballasts are installed on all fluorescent and compact fluorescent lamps. **Mandatory minimum: 1 credit for Pass, Good, Very Good, Excellent or Outstanding.**
Hea 5	Internal & External Light Levels	1	1	BSE	Credit awarded where all internal lighting is specified in accordance with the appropriate maintained illuminance levels (in lux) recommended by the CIBSE Code for Lighting 2002 and its 2004 Addendum; lighting to areas where computer screens are regularly used complies with CIBSE Lighting Guide 7; lighting to communal residential areas comply with CIBSE Lighting Guide 9; and all external lighting complies with CIBSE Lighting Guide 6.
Hea 7	Potential for Natural Ventilation	1	1	Arch	Credit awarded where fresh air is capable of being delivered to the occupied spaces of the building via a natural ventilation strategy, and there is sufficient user-control of the supply of fresh air.
Hea 8	Indoor Air Quality	1	0	-	Credit awarded where: air intakes avoid sources of pollution (including roads, car parking and air exhausts); a ventilation rate of 12 litres/second/person is provided to office type areas; and areas of the building subject to large and variable/ unpredictable occupancy patterns have CO_2 or air quality sensors.
Hea 9	Volatile Organic Compounds	1	0	-	One credit awarded where the emissions of VOCs and other substances from key internal finishes and fittings comply with best practice levels.
Hea 10	Thermal Comfort	1	0	-	Credit awarded where thermal comfort levels in occupied spaces of the building have been assessed at the design stage to evaluate the appropriate servicing options, ensuring appropriate thermal comfort levels are achieved. The thermal modelling must be in line with CIBSE AM11.
Hea 11	Thermal Zoning	1	1	BSE	Credit awarded where local occupant control is available for temperature adjustment in each occupied space to reflect differing user demands, including separate zoning of the perimeter area and central zone, and separate zoning of each flat and study bedroom.
Hea 12	Microbial Contamination	1	1	BSE	Credit awarded where all water systems are designed in accordance with the HSE Approved Code of Practice "The control of legionella bacteria in water systems" (2000), and where no humidification systems (other than steam humidification) are provided. **Mandatory minimum: 1 credit for Pass, Good, Very Good, Excellent or Outstanding.**
Hea 15	Outdoor Space	1	0	-	Credit awarded where adequate outdoor amenity space accessible for use by the building's occupants is provided.
Hea 20	Home Office	1	1	Arch / BSE	Credit awarded where space and services which allow the occupants to set up a home office in a quiet room are provided in each self contained flat and study bedroom. For sheltered housing and other multi-residential accommodation, credit awarded where a dedicated, shared IT space is provided with a minimum of one computer space for every 20 dwellings.
Hea 21	Sound Insulation	4	1	DM	One credit awarded where airborne and impact sound insulation values are 3dB better than those required under Approved Document E; three credits where these are 5dB better; or four credits where these are 8dB better.
Sub-Total		**17**	**9**	**One health & wellbeing credit equals 0.88%**	
Weighted Sub-Total		**15**	**7.94**		

ENERGY

Ene 1	Reduction of CO_2 Emissions	15	7	BSE	Up to fifteen credits can be awarded where there is an improvement in the building operational related CO_2 emissions. For building elements assessed against Building Regulations Part L2, the number of credits is based on the Energy Performance Certificate (EPC) rating. For example for new builds, an EPC rating of 63 is required to gain one credit, and then further credits are awarded on a sliding scale up to a maximum of 15 credits if the EPC rating is 0. To achieve an Excellent rating an EPC score of 40 is required to gain the 6 mandatory minimum credits. For building elements assessed against Building Regulations Part L1, the number of credits is based on the CO_2 Emission Rate. **Refurbishments:** There is a different scale for refurbished buildings. Two additional innovation credits are available - see below. **Mandatory minimum: 6 credits for Excellent or 10 credits for Outstanding.**
Ene 2	Sub-metering of Substantial Energy Uses	1	1	BSE	Credit awarded where direct sub-metering of energy uses within the building is provided, including separate sub-meters for space heating, domestic hot water, humidification, cooling, major fans, lighting and small power (lighting and small power can be combined if supplies are taken at each floor), and other major energy-consuming items. **Mandatory minimum: 1 credit for Very Good, Excellent or Outstanding.**
Ene 4	External Lighting	1	1	BSE	Credit awarded where energy-efficient external lighting is specified and all light fittings are controlled by time switch or sensor.
Ene 5	Low or Zero Carbon Technologies	3	3	BSE	One credit is awarded where a feasibility study considering local (on-site and/or near site) low or zero carbon (LZC) technologies has been carried out at RIBA Stage C and the results implemented. Two credits are awarded where in addition there is a 10% reduction in the building's CO_2 emissions as a result of the installation of a feasible local LZC technology, or three credits if there is a 15% reduction. An additional Innovation credit available - see below. OR alternatively, one credit is awarded where a contract with an energy supplier is in place to provide sufficient electricity used within the assessed building to meet the above criteria from a 100% renewable energy source (Note: a standard Green Tariff will not comply) **Mandatory minimum: 1 credit for Excellent or Outstanding.**

Ene 15	Provision of Energy Efficient Equipment	2	2	BSE	One credit awarded where all fridges, freezers and fridge/freezers have an A+ rating under the EU Energy Efficiency Labelling Scheme. One credit awarded where domestic washing machines and dishwashers have an A rating; domestic washer dryers and tumble dryers have a B rating; and any commercial scale laundry facilities within the development will maximise opportunities for energy efficient operation. If no (or not all) white goods are provided, one credit can be awarded where information on the EU Energy Efficiency Labelling Scheme is provided to all residential areas.
Ene 18	Drying Space	1	0	-	Credit awarded where space is provided with posts and footings, or fixings, to enable the natural drying of clothes. These should be capable of holding 2m+ of drying line per individual bedroom, or for self-contained dwellings, 4M+ of line for each 1-2 bedroomed dwelling, or 6m+ of drying line for each 3+ bedroomed dwelling.
Sub-Total		**23**	**14**	**One energy credit equals 0.83%**	
Weighted Sub-Total		**19**	**11.57**		

TRANSPORT

Tra 1	Provision of Public Transport	3	3	Arch	Up to three credits awarded based on the building's accessibility to the public transport network. Credits are determined using the BREEAM Tra 1 Public Transport Accessibility calculator, which takes into account the distance to a public transport node and the average frequency of service.
Tra 2	Proximity to Amenities	2	2	Arch	One credit awarded where the building is located within 500m of a grocery shop and/or food outlet, post box, and cash machine. One credit awarded where the building is located within 1000m of at least 5 of the following: postal facility; grocery shop (only qualifies where the 1st credit has not been gained); bank/cash point; pharmacy; doctors surgery/medical centre; community centre; leisure centre; outdoor open access public area; place of worship; public house.
Tra 3	Cyclist Facilities	1	0	-	For buildings such as student residences and key worker accommodation, credit is awarded where covered, secure and well-lit cycle storage facilities are provided for 50% of building residents plus 10% of building staff. For buildings such as sheltered housing and supported housing for the disabled, credit awarded where cycle racks are provided for 10% of building staff and also showers, changing facilities and lockers and/or drying space for wet clothes is provided. In addition, wheelchair and buggy storage should be provided for at least 10% of building residents.
Tra 4	Pedestrian and Cyclist Safety	1	1	Arch	Credit awarded where the site layout has been designed in accordance with best practice guidance to ensure safe and adequate pedestrian and cycle access.
Tra 6	Maximum Car Parking Capacity	2	0	Arch	For sheltered housing and care homes, one credit awarded where no more than one parking space is provided for every four building users, or two credits where no more than one space for every five users. For other buildings, one credit awarded where no more than one parking space is provided for every three building users, or two credits where no more than one space for every four users.
Sub-Total		**9**	**6**	**One transport credit equals 0.89%**	
Weighted Sub-Total		**8**	**5.33**		

WATER

Wat 1	Water Consumption	5	3	BSE	Up to four credits are awarded where the specification includes taps, urinals, WCs, showers and other fittings that consume less potable water in use than standard specifications. In addition, one credit awarded where systems that collect, store and where necessary treat rainwater or greywater for WC and urinal flushing purposes are specified. **Mandatory minimum: 1 credit for Good, Very Good or Excellent. 2 credits for Outstanding.**
Wat 2	Water Meter	1	1	BSE	Credit awarded where a water meter with a pulsed output will be installed on the mains supply to each building/unit. An additional innovation credit is available - see below. **Mandatory minimum: 1 credit for Good, Very Good, Excellent or Outstanding.**
Wat 3	Major Leak Detection	1	0	-	Credit awarded where a BREEAM compliant leak detection system is specified or installed on the buildings water supply.
Wat 6	Irrigation Systems	1	1	Arch	Credit awarded where a low-water irrigation strategy/system is specified, or where planting and landscaping is irrigated via rainwater or reclaimed water.
Sub-Total		**8**	**5**	**One water credit equals 0.75%**	
Weighted Sub-Total		**6**	**3.75**		

MATERIALS

Mat 1	Materials Specification (Major Building Elements)	6	3	Arch	**New build and Major Refurbishments:** Up to six credits are awarded, determined by the Green Guide to Specification (2008) ratings for the major building elements (external walls, windows, roof, upper floor slabs, internal walls, floor finishes). Credits determined via the BREEAM Mat 1 calculator. **Refurbishments:** For each element that is reused in situ, BREEAM allocates an A+ rating. An additional innovation credit is available - see below
Mat 2	Hard Landscaping and Boundary Protection	1	1	Arch	Credit awarded where at least 80% of the combined area of external hard landscaping and boundary protection specification achieves an A or A+ rating, as defined by the Green Guide to Specification (2008). **Refurbishments:** For each element that is reused in situ, BREEAM allocates an A+ rating
Mat 3	Re-use of Façade	1	0	-	Credit awarded where at least 50% of the total final façade (by area) is reused in situ and at least 80% of the reused façade (by mass) comprises in-situ reused material.
Mat 4	Re-use of Building Structure	1	0	-	Credit awarded where a design reuses at least 80% of an existing primary structure and, for part refurbishment and part new build, the volume of the reused structure comprises at least 50% of the final structure's volume.

Mat 5	Responsible Sourcing of Materials	3	1	Arch	Up to three credits are awarded where 80% of the assessed materials in the following building elements are responsibly sourced: Structural Frame; Ground floor; Upper floors (including separating floors); Roof; External walls; Internal walls; Foundation/substructure; Staircase. Additionally 100% of any timber must be legally sourced. To class as responsibly sourced, materials should be from a manufacturer with an Environmental Management System such as ISO14001 or EMAS in place covering at least the processing stage of the product (the EMS should also cover the extraction phase if higher numbers of credits are to be achieved). Timber should be certified. An additional innovation credit is available - see below.
Mat 6	Insulation	2	1	Arch / BSE	One credit is awarded where thermal insulation products used in the building have a low embodied impact relative to their thermal properties, determined by the Green Guide to Specification ratings. A second credit is awarded where the thermal insulation products used in the building have been responsibly sourced as per credit Mat5. **Refurbishments**: For each element that is reused in-situ, BREEAM allocates an A+ rating.
Mat 7	Designing for Robustness	1	1	Arch	One credit awarded where adequate protection is given to vulnerable parts of the building such as areas exposed to high pedestrian traffic, vehicular and trolley movements. **Refurbishments:** The assessment only applies to areas that form a part of the works or hard landscape of the building.
Mat 8	Responsible Sourcing of Materials- Finishing Elements	2	0	-	Up to two credits are awarded where 80% of the assessed materials in the following finishing elements are responsibly sourced as per credit Mat 5: Stairs; Windows; External and internal doors; Skirting; Panelling; Furniture; Facias; Any other significant use. Additionally 100% of any timber must be legally sourced.
Sub-Total		**17**	**7**	**One materials credit equals 0.74%**	
Weighted Sub-Total		**12.5**	**5.15**		

WASTE

Wst 1	Construction Site Waste Management	4	1	WJDT	Up to three credits are awarded where the amount of non-hazardous construction waste generated on site by the development is the same as or better than good or best practice levels. In addition, one credit is awarded where a significant majority of non-hazardous construction waste generated by the development will be diverted from landfill and reused or recycled. An additional innovation credit is available - see below.
Wst 2	Recycled Aggregate	1	0	-	Credit awarded where over 25% (by weight or volume) of the total high grade aggregate used on site comprises recycled or secondary aggregates. **Refurbishments:** This credit can be awarded automatically where no new aggregate is being used.
Wst 3	Recyclable Waste Storage	2	2	Arch	One credit awarded where storage space is provided for recyclable household waste in each self contained dwelling and each communal kitchen or other suitable communal room. One credit awarded where a central, dedicated space is provided for the storage of the building's recyclable waste streams which is clearly labelled for recycling, accessible, and in a location with good vehicular access. **Mandatory minimum: 1 credit for Excellent or Outstanding.**
Wst 5	Composting	1	0	-	Credit awarded where individual home composting facilities are provided for individual dwellings/communal kitchens AND where there is a vessel on site for composting food waste and adequate storage space for such waste OR where space or access is limited, there is a dedicated space for compostable food waste to be stored prior to removal and composting at an alternative site.
Sub-Total		**8**	**3**	**One waste credit equals 0.94%**	
Weighted Sub-Total		**7.5**	**2.81**		

LAND USE & ECOLOGY

LE1	Re use of Land	1	1	Arch	Credit awarded where at least 75% of the proposed development's footprint is on an area of land that has been developed or used for industrial, commercial or domestic purposes in the last 50 years.
LE2	Contaminated Land	1	0	-	Credit awarded where the land used for the new development has, prior to development, been defined as contaminated and adequate remedial steps have been taken to decontaminate the site prior to construction.
LE3	Ecological Value of Site AND Protection of Ecological Features	1	1	Arch / Eco	Credit awarded where the site's construction zone is defined as land of low ecological value and all existing features of ecological value will be fully protected from damage during site preparation and construction works.
LE4	Mitigating Ecological Impact	2	2	Arch / Eco	One credit is awarded where the change in the site's existing ecological value, as a result of development, is minimal. Two credits are awarded where there is no negative change in the site's existing ecological value as a result of development. **Mandatory minimum: 1 Credit for Very Good, Excellent or Outstanding.**
LE5	Enhancing Site Ecology	3	2	Arch / Eco	One credit is awarded where the design team (or client) has appointed a suitably qualified ecologist to advise and report on enhancing and protecting the ecological value of the site, and implemented the professional's recommendations for general enhancement and protection of site ecology. Two credits are awarded where there is a positive increase in the ecological value of the site of up to 6 species. Three credits awarded where there is a positive increase in the ecological value of the site of 6 species or greater.

LE6	Long Term Impact on Biodiversity	2	2	Arch / Eco	One credit is awarded where: 1) A suitably qualified ecologist has been appointed prior to commencement of site activities; 2)The ecologist confirms all relevant legislation has been complied with; 3) A 5 year landscape and habitat management plan has been developed; AND two of the 'additional requirements' in the BREEAM guidance relating to protection/enhancement of biodiversity have been met. Two credits are awarded where items 1, 2 and 3 above have been met plus four of the 'additional requirements' in the BREEAM guidance.
Sub-Total		**10**	**8**	**One land use and ecology credit equals 1%**	
Weighted Sub-Total		**10**	**8.00**		
POLLUTION					
Pol 1	Refrigerant GWP-Building Services	1	1	BSE	Credit awarded where all refrigerants used have a global warming potential (GWP) of less than 5 or where there are no refrigerants specified for use in building services.
Pol 2	Preventing Refrigerant Leaks	2	1	BSE	One credit awarded where refrigerant leaks can be detected OR where there are no refrigerants specified for the development. One credit awarded where, in addition to achieving the first credit, the provision of automatic refrigerant pump down is made to a heat exchanger (or dedicated storage tanks) with isolation valves OR where there are no refrigerants specified for the development.
Pol 4	NO_x Emissions from Heating Source	3	2	BSE	One credit is awarded where the dry NO_x emissions from delivered space heating energy are ≤100 mg/kWh (at 0% excess O_2), or two credits where the dry NOx emissions from delivered space heating energy are ≤70 mg/kWh (at 0% excess O_2), or three credits where the dry NOx emissions from delivered space heating energy are≤40 mg/kWh (at 0% excess O_2).
Pol 5	Flood Risk	3	3	SE	One credit is awarded where the assessed development is located in a zone defined as having a medium or high annual probability of flooding AND the ground level of the building, car parking and access is above the design flood level for the site's location. Two credits are awarded where the assessed development is located in a zone defined as having a low annual probability of flooding. One additional credit is awarded where surface water run-off attenuation measures are specified to minimise the risk of localised flooding.
Pol 6	Minimising Watercourse Pollution	1	0	-	Credit awarded where effective on site treatment has been specified in areas that could be a source of watercourse pollution. SUDs, permeable surfaces or infiltration trenches are acceptable for low risk areas. Oil/ petrol interceptors are required for higher risk areas.
Pol 7	Reduction of Night Time Light Pollution	1	1	BSE	Credit awarded where evidence provided demonstrates that external lighting design is in compliance witl guidance in the Institution of Lighting Engineers (ILE) Guidance notes for the reduction of obtrusive light, 2005.
Sub-Total		**11**	**8**	**One pollution credit equals 0.91%**	
Weighted Sub-Total		**10**	**7.27**		
INNOVATION CREDITS					
Man 2	Considerate Constructors	1	0	-	Credit awarded where post construction, a Considerate Constructors Scheme certificate can be provided demonstrating that the site achieved CCS Code of Considerate Practice with a score of at least 36.
Hea 1	Daylighting	1	0	-	Credit awarded where at least 80% of the floor area (for the building spaces/room identified above in the standard requirements) has an average daylight factor of 3% in multi-storey buildings and 4% in single-storey buildings.
Ene1	Reduction of CO_2 Emissions	2	0	-	Credit awarded where the building is designed to be a carbon neutral building as defined by the NCM (i.e. in terms of building services energy demand). Two credits awarded where the building is designed to be a true zero carbon building (in terms of building services and operational energy demand).
Ene 5	Low or Zero Carbon Technologies	1	1	BSE	Credit awarded where a local LZC energy technology has been installed in line with the recommendations of a compliant feasibility study and this method of supply results in a 20% reduction in the building's CO_2 emissions.
Wat 2	Water Meter	1	0	-	Credit awarded where sub meters are fitted to allow the metering of individual water-consuming plant or building areas, where demand in such areas will be at least 10% of the total water demand of the building (e.g. cooling towers, car washes, catering areas, etc.). If the building does not have any major water consuming plant this exemplar credit is not available. Each sub meter should have a pulsed output to enable connection to a Building Management System (BMS) for the monitoring of water consumption.
Mat 1	Materials Specification	1	0	-	Credit awarded where: a. When assessing four or more applicable building elements, the building achieves at least two points additional to the total points required to achieve maximum credits under the standard BREEAM requirements. b. When assessing fewer than four applicable building elements, the building achieves at least one poin additional to the total points required to achieve maximum credits under the standard BREEAM requirements.
Mat 5	Responsible Sourcing of Materials	1	0	-	Credit awarded where, in addition to the standard BREEAM requirements, 95% of the applicable materials, comprised within the applicable building elements, have been responsibly sourced.
Wst 1	Construction Site Waste Management	1	0	-	Credit awarded where non-hazardous construction waste generated by the building's development meets or exceeds the resource efficiency benchmark required to achieve three credits (as outlined in the guidance); AND where at least 90% by weight (80% by volume) of non-hazardous construction waste and 95% of demolition waste by weight (85% by volume) (if applicable) generated by the build has been diverted from landfill and either reused or recycled.
Inn 1	BREEAM Accredited Professional	2	0	-	One credit is awarded where BREEAM objectives are agreed, (and are achieved at final certification) no later than the end of RIBA Stage B; the appointed BREEAM Accredited Design Advisor is given the opportunity to attend key design stage meetings held from RIBA Stage B up to and including RIBA Stage E, and is included on the circulation list for all meeting minutes.

Inn 1	Approved Innovations	10	0	-	Credit awarded where a successful application is made to the BRE to have a particular building feature, system or process recognised as 'innovative'. Further credits are available if more than one application is successful.
Sub-Total		**10**	**1**	**One Innovation credit = 1%. A maximum of 10% can be awarded in this section.**	

TOTALS

DS target score	**62.82**
Minimum required for 'Pass'	**30**
Minimum required for 'Good'	**45**
Minimum required for 'Very Good'	**55**
Minimum required for 'Excellent'	**70**
Minimum required for 'Outstanding'	**85**

Note that the mandatory requirements for the rating sought must also be achieved, as detailed in the summary of requirements.

PROJECT TEAM KEY:

DM: Development Manager (Watkin Jones - Paul Gillespie)
BSE: Building Services Engineer (Watkin Jones - John Rigby)
Arch: Architect (Carey Jones - Jake Walton)
WJ: Watkin Jones (Developer - Ian Smith)
PPS: (PPS Group - Stephen Byfield)
HY: Halcrow Yolles (BREEAM - Natasha Fox & Jonathan Williams)
WJDT: Watkin Jones Design Team
SE: Structural Engineer (Tier Consult - Phil Barlow)
DLA: Daylight Assessor (Watts group - Daniel Tapscott)
Eco: Ecologist (Environmental perspectu - Lucy Plumb)

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