

Sustainability Statement and BREEAM Predictive Assessments

43 and 43A London Street, Reading

Prepared for Rose Hill Commercial Estates Ltd
20th June 2019



envision

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EXECUTIVE SUMMARY

This Sustainability Statement and BREEAM Predictive Assessment has been prepared in support of the application being made by Rose Hill Commercial Estates Ltd for the proposed development at 43 & 43a London Street, Reading. The proposals include conversion and extension of 43 London Street to retain the existing commercial unit and provide 3 residential units, including an additional storey and a setback floor; redevelopment of 43A London Street to provide 6 residential units, together with communal cycle and bin stores, in a 3-4 storey building; and construction of a new building at the rear of the site to provide 3-5 storey building and landscaped square with disabled parking bays. This document demonstrates compliance with the current planning policies relevant to sustainable design and construction.

The report provides a positive response to the questions set out in Reading Borough Council's Sustainable Design Checklist and explains how the proposed development has been designed to incorporate measures to adapt to climate change, demonstrating compliance with Policy DM1, with cross reference to relevant information including within other supporting documents to the planning application.

In line with the current planning policies for BREEAM, the recognised standard for assessing good sustainable design and construction, a review has been undertaken to confirm the BREEAM ratings feasible for both the retained and refurbished commercial unit, on a shell only basis, and the proposed refurbishment of the existing building for residential flats. This review, undertaken by Envision, an independent licensed BREEAM assessor organisation, demonstrates that the minimum requirements for a BREEAM Very Good rating for both building types could be met and an overall score of above 55% (the required score for a BREEAM Very Good rating) is achievable. The BREEAM predictive assessments confirm that the commercial refurbishment could achieve a score of **59.18%**, and the residential refurbishment could achieve a score of **59.51%**.

The principles of Reading Borough Council's sustainable design and construction policy, *"designing buildings which use energy, water, minerals, materials and other natural resources appropriately, efficiently and with care and take account of the effects of climate change"*, are considered to be met by incorporating the proposed high energy and water efficient requirements within the design, and achieving this overall **BREEAM Very Good rating**.

1 INTRODUCTION

- 1.1 The report has been prepared in support of the application being in support of the application being made by Rose Hill Commercial Estates Ltd for the proposed development at 43& 43a London Street, Reading. The proposals include conversion and extension of 43 London Street to retain the existing commercial unit and provide 3 residential units, including an additional storey and a setback floor; redevelopment of 43A London Street to provide 6 residential units, together with communal cycle and bin stores, in a 3-4 storey building; and construction of a new building at the rear of the site to provide 3-5 storey building and landscaped square with disabled parking bays. This document demonstrates compliance with the existing and emerging planning policies relevant to sustainable design and construction, as previously demonstrated.
- 1.2 Following the guidance set out in Reading Borough Council's revised Sustainable Design and Construction SPD (July 2011) and the Planning Application Validation Information Requirements (Reading Borough Council, December 2016), the Sustainability Statement for this type of development should be prepared in response to the questions set out in Table A5.2 BREEAM – Sustainable Design Checklist and include a section on how the application meets the requirements of policy DM1.
- 1.3 Section 2 of this report presents the completed version of the Sustainable Design Checklist for the proposed development. Section 3 demonstrates how the application meets the requirements of policy DM1. The final section of the report, Section 4, presents the results of the BREEAM predictive assessment, with further detail provided in Appendix 1, demonstrating compliance to the existing and emerging local planning policy requirements for high standards of sustainable design and construction.

2 COMPLETED SUSTAINABLE DESIGN CHECKLIST

READING BOROUGH COUNCIL Sustainable Design Checklist		43 & 43A LONDON STREET, READING
Checklist Questions		Design and Commitments
Management Aim: To recognise and encourage environmentally and socially considerate development		
1	Will guidance for the non technical building user be provided so they can understand and operate the building efficiently and understand how the design reduces the overall environmental impact of the building and raise environmental awareness?	<i>A Building User Guide, for building staff and residents, will be prepared in line with BREEAM guidance and issued prior to occupation.</i>
2	What consideration has been given to resource use, energy consumption and pollution in terms of the construction site impacts?	<i>Commitment has been made to ensuring all construction site environmental impacts are minimised and managed in accordance with best practice guidance.</i>
3	Will site investigation and appropriate remedial action be undertaken?	<i>A site investigation report has already been completed which recommends that a watch is kept for any unforeseen contamination. Should any contamination be found, a suitable remediation strategy will be developed.</i>
4	Will the community and stakeholders be involved in the design process encouraging flexibly designed buildings which cater for shared use with the local community?	<i>The development of the design has followed a consultative approach, with, liaison with the local authority and other local stakeholder. Where feasible, flexibility will be considered within the design to allow for future changes to the internal layout whilst delivering the required building functions.</i>
5	How has the building been designed to reduce the opportunity for and the fear of crime?	<i>Appropriate security measures have been included within the design, based on the residents' needs.</i>
6	What consideration has been given to the maintenance of the building?	<i>Materials and finishes will be specified with appropriate consideration to future maintenance requirements, with the aim of minimising the frequency of replacement. The design team will identify parts of the development that could be vulnerable to high levels of pedestrian movement and specify appropriate durability and/or protection measures.</i>

READING BOROUGH COUNCIL Sustainable Design Checklist		43 & 43A LONDON STREET, READING
Checklist Questions		Design and Commitments
Health and Well-being		
Aim: To ensure a good quality amenity level is afforded to occupants of buildings		
7	How has the development been designed to ensure users have sufficient daylight, an external view, adequate and appropriate lighting, ventilation, air quality and drinking	<i>The proposed development will provide good levels of daylight in the living spaces, and lighting will be specified in accordance with best practice guidance provided by CIBSE.</i> <i>Commitment has been made to preparing an indoor air quality plan, giving appropriate consideration to potential contamination sources, how these can be minimised through material specification and procedures for pre-occupancy flush out.</i> <i>A suitable ventilation strategy has been included in the design of the development, with mechanical ventilation proposed where necessary to meet building regulations requirements.</i> <i>All water systems in the proposed development will be designed in compliance with the HSE Approved Code of Practice "Legionnaire's disease – The control of legionella bacteria in water systems".</i>
Energy		
Aim: To conserve energy and maximise the use of energy efficiency techniques		
8	How has the building been designed to minimise CO ₂ emissions associated with their operational energy consumption?	<i>Equipment which is likely to have a high energy demand during the proposed building's operation will be specified to meet best practice energy efficiency standards in order to maximise energy saving during operation.</i>
9	How has the development been designed to optimise the use of the energy from the sun, natural daylighting and controlled natural ventilation?	<i>The proposed design provides good levels of daylight, which whilst appropriate consideration will be given to thermal comfort levels, will optimise the inherent use of the energy from the sun. In addition, the proposed design includes the installation of photovoltaics on the roof to capture energy from the sun and convert it into electricity for use within the development.</i> <i>In developing the ventilation strategy, consideration has been given to balancing the opportunities with natural ventilation with the need to reduce energy demand through 'fabric first' design principles. To achieve the latter, it</i>

READING BOROUGH COUNCIL Sustainable Design Checklist		43 & 43A LONDON STREET, READING
Checklist Questions		Design and Commitments
		<i>is proposed that mechanical ventilation with heat recovery (MVHR) is included in the apartments, with a natural ventilation strategy proposed for the commercial space.</i>
10	How will the design of the building make efficient use of energy? (e.g. use of thermally massive materials, levels of insulation and use of green/brown roofs etc).	<i>The development has been designed based on following a 'fabric first' energy strategy, with specification of high levels of insulation and thermal mass to minimise the energy demand.</i>
11	Have renewable energy sources or decentralised energy been considered for this development and if so, how would they be incorporated within the development?	<i>Although the development is predominantly reducing its energy demand based on improvements in the building fabric, consideration has also been given to the potential use of low or zero carbon sources. The proposed energy strategy includes installation of a photovoltaic array to provide renewable energy to the new build apartments.</i>
Transport		
Aim: To reduce the need to travel through appropriately located development		
12	How has the design and layout incorporated measures to reduce the need to travel, especially by car, and promote alternative and sustainable modes of transport such as walking, cycling and the use of public transport?	<i>The proposed development is situated in the centre of Reading, with close proximity to the University and local amenities. There will be only be disabled carparking provided on site, and the design incorporates cycle storage facilities to encourage access by cycling.</i>
13	How have public transport networks been considered in terms of the location of the development and proximity to local amenities?	<i>The site is located to the south of Reading town centre and has easy access to bus stops which provide good access to the public transport network. The site is also in close proximity to local amenities, including food retail outlets.</i>
14	How have deliveries and the manoeuvring of delivery vehicles been considered?	<i>All deliveries and collections will adhere to local loading restrictions</i>
Water		
Aim: To improve efficiency in the use of water, conserve water resources and minimise vulnerability to flooding		
15	How will the development incorporate the use of water saving devices to achieve a maximum consumption of 5.5 cubic	<i>Water efficient sanitary ware will be specified within the proposed development to achieve a 40% improvement in water consumption over the baseline as specified in the Water Supply (Water Fittings) Regulations.</i>

READING BOROUGH COUNCIL Sustainable Design Checklist		43 & 43A LONDON STREET, READING
Checklist Questions		Design and Commitments
	metres per year per person for office developments? (Or the most appropriate benchmark for other types of development)	
16	Will the development and access to and from it, such as roads and paths be located away from areas of potential flooding?	<i>A desk top assessment of the site has confirmed the site, including access, is of low risk of flooding.</i>
17	How will the development incorporate harvesting and re-use of rainwater?	<i>An external rainwater collection vessel is proposed to collect rainwater to be used for irrigation purposes.</i>
Materials		
Aim: To retain local character and promote the use of materials with a low environmental impact		
18	How will the selected materials help retain local character, ensure long life and ensure a low environmental impact?	<i>Materials will be selected based on a material palette that fits with the local character, are easily maintainable, and are considered to have a low environmental impact based on achieving A/A+ ratings in the BRE Green Guide to Material Specification.</i>
19	What consideration has been given to re-using materials in-situ, responsibly sourcing materials and re-using existing structures?	<i>The design has been developed to incorporate the refurbishment of existing buildings where feasible, including the retention and refurbishment of 43, London Road into 3 apartments, with retention of the ground floor commercial unit. A pre-demolition audit will be undertaken to review the opportunities for reusing and recycling of existing materials. Construction materials will be procured from 'responsible sources' as specified by BRE, including suppliers certified to ISO14001/BES6001.</i>
Waste		
Aim: To minimise the production of waste and maximise re-use and recycling		
20	Has an audit of the materials present on the site been conducted with an assessment of the extent to which materials could be re-used?	<i>The design has been developed to incorporate the refurbishment of existing buildings where feasible, including the retention and refurbishment of 43, London Road into 3 apartments, with retention of the ground floor commercial unit. A pre-demolition audit will be undertaken to review the opportunities for reusing and recycling of existing materials.</i>

READING BOROUGH COUNCIL Sustainable Design Checklist		43 & 43A LONDON STREET, READING
Checklist Questions		Design and Commitments
21	How will the development make the maximum use of construction, demolition waste and recycled materials?	<i>A site waste management strategy will be prepared for the construction phase of the proposed development, which identifies measures to minimise construction waste, and maximise the use of demolition and construction waste. Targets have been set to generate no more than 4.5m³ of construction waste per 100m² GIFA, and to divert from landfill at least 85% (by volume) of the non-hazardous construction waste.</i>
22	How will provision be made for the storage and recycling of waste for all users of the site?	<i>A dedicated waste storage area has been designed within the the development, of a suitable size to enable the storage and recycling of different types of waste.</i>
Land Use and Ecology		
Aim: To retain, protect and enhance wildlife habitats and natural features		
23	How have the wildlife habitats and natural features on and adjacent to the site been considered and how will they be retained, protected and enhanced?	<i>The existing site is considered to be of negligible ecological value. The design proposals incorporate planted terraces and a communal garden, to incorporate natural features into the site.</i>
24	What consideration has been given to not using previously undeveloped land?	<i>Yes, the site is wholly on previously developed land, comprising existing buildings and a carpark.</i>
25	What consideration has been given to the removal of contamination from the land?	<i>A Phase 1 Geo-Environmental Risk Assessment has already been completed which recommends that, whilst the site is not considered to have any significant risks, the identified potential contaminative risks are addressed and resolved in a reasonable simple technical and commercial manner.</i>
Pollution		
Aim: To minimise damage to the environment through air, ground/surface water, land, noise or light pollution		
26	What measures have been incorporated to ensure that noise and light pollution plus pollution transported through surface water runoff will be minimised throughout the development?	<i>The external lighting proposals are in accordance with the ILE Guidance Note on reduction of obtrusive light, and appropriate daylight/automatic sensor functions. An environmental noise survey has been carried out and confirms that based on the surrounding noise climate, the provision of appropriate external</i>

READING BOROUGH COUNCIL Sustainable Design Checklist		43 & 43A LONDON STREET, READING
Checklist Questions		Design and Commitments
		<i>building fabric elements will satisfy the requirements of national and local planning policy.</i> <i>A suitable drainage strategy will be developed for the site, including water pollution prevention measures where relevant.</i>
27	What measures have been incorporated to ensure that light pollution will be minimised throughout the development?	<i>An external lighting layout has been designed in accordance with the ILE Guidance Note on reduction of obtrusive light, and appropriate daylight/automatic sensor functions.</i>
28	What consideration has been given to reducing refrigerants and minimising nitrogen oxide emissions?	<i>Where refrigerants are specified, consideration will be given to specifying refrigerants with low GWP and ODP. Low NOx emission gas fired boilers will be specified.</i>
29	How has the development been sited to minimise the impact of flooding?	<i>Desk based assessment of the site has confirmed the site is of low risk of flooding.</i>
30	How has the design considered the use of sustainable drainage systems (SUDS) and how will they be incorporated within the development?	<i>Due to the existing use of the site, the proposed development will not increase the amount of impermeable area post development compared to pre development. Sustainable drainage features will be incorporated where relevant at detailed design.</i>
Innovation		
Aim: To recognise innovation in the field of sustainability		
31	What consideration has been given to innovative sustainability measures in terms of a procurement strategy, design feature, management process or technological development?	<i>The proposed development is in a sustainable location and consideration has been given to appropriate sustainable design features as explained above.</i>

3 MEETING THE REQUIREMENTS OF POLICY DM1

3.1 Policy DM1 requires that all developments should seek to demonstrate how they have been designed to incorporate measures to adapt to climate change. A short summary and reference to the relevant information included within the planning application documentation is set out below against each of the required measures in Policy DM1:-

- *New buildings shall be orientated to maximise the opportunities for both natural heating and ventilation and reducing exposure to wind and other elements*

The Design and Access Statement sets out the design strategy for the proposed development and its proposed orientation. The Energy Statement sets out the proposed heating and ventilation strategy for the development, and demonstrates how opportunities for natural heating and ventilation have been taken into consideration.

- *Proposals involving both new and existing buildings shall demonstrate how they have been designed to maximise resistance and resilience to climate change for example by including measures such as solar shading, heating and ventilation of the building and appropriately coloured materials in areas exposed to direct sunlight, green and brown roofs, etc*

The Design and Access Statement and External Materials Schedule sets out the design strategy for the proposed development and the proposed material palette. Materials are specified that are resilient to current and future local climatic conditions. The heating and ventilation strategy has been designed to ensure appropriate levels of comfort for future occupiers.

- *Use of trees and other planting, where appropriate as part of a landscape scheme, to provide shading of amenity areas, buildings and streets, designed with plants that are carefully selected, managed and adaptable to meet the predicted changed climatic conditions*

The proposed landscaping strategy for the development includes soft landscaping features that will provide shading of the private amenity space and the building.

- *All development shall minimise the impact of surface water runoff from the development in the design of the drainage system*

Due to the existing use of the site, the proposed development will not increase the amount of impermeable area post development compared to pre development. Sustainable drainage features will be incorporated where relevant at detailed design.

- *Demonstrate the extent to which the proposal has taken account of the need to minimise the consumption of energy and resources (including water), and maximise the use of sustainable or renewable resources*

The commitments set out in Section 2 and 4 of this report, and the energy strategy proposed for the development, as defined in the Energy Statement, demonstrate how the proposal has considered the need to minimise the consumption of energy and resources (including water) and maximise the use of sustainable or renewable resources.

4 BREEAM PREDICTIVE ASSESSMENTS

- 4.1 This section of the report presents the results of the BREEAM predictive assessments for the proposed development at 43 & 43a London Street, Reading.

Targeted BREEAM Rating and Scope of Assessment

- 4.2 Policy CS1 requires new developments to achieve a BREEAM Very Good rating. This requirement is only relevant to refurbishment projects (both domestic and non-domestic) and non-domestic new build developments. Therefore, as noted in the pre-app response, this is relevant to the proposed commercial unit and the converted residential units within the existing building fronting London Street. The refurbished commercial unit would be assessed under the BREEAM UK Non Domestic Refurbishment 2014 assessment methodology, based on a Commercial – Shell only assessment. The converted residential units would be assessed under the BREEAM UK Domestic Refurbishment 2014 assessment methodology.

BREEAM Review Results

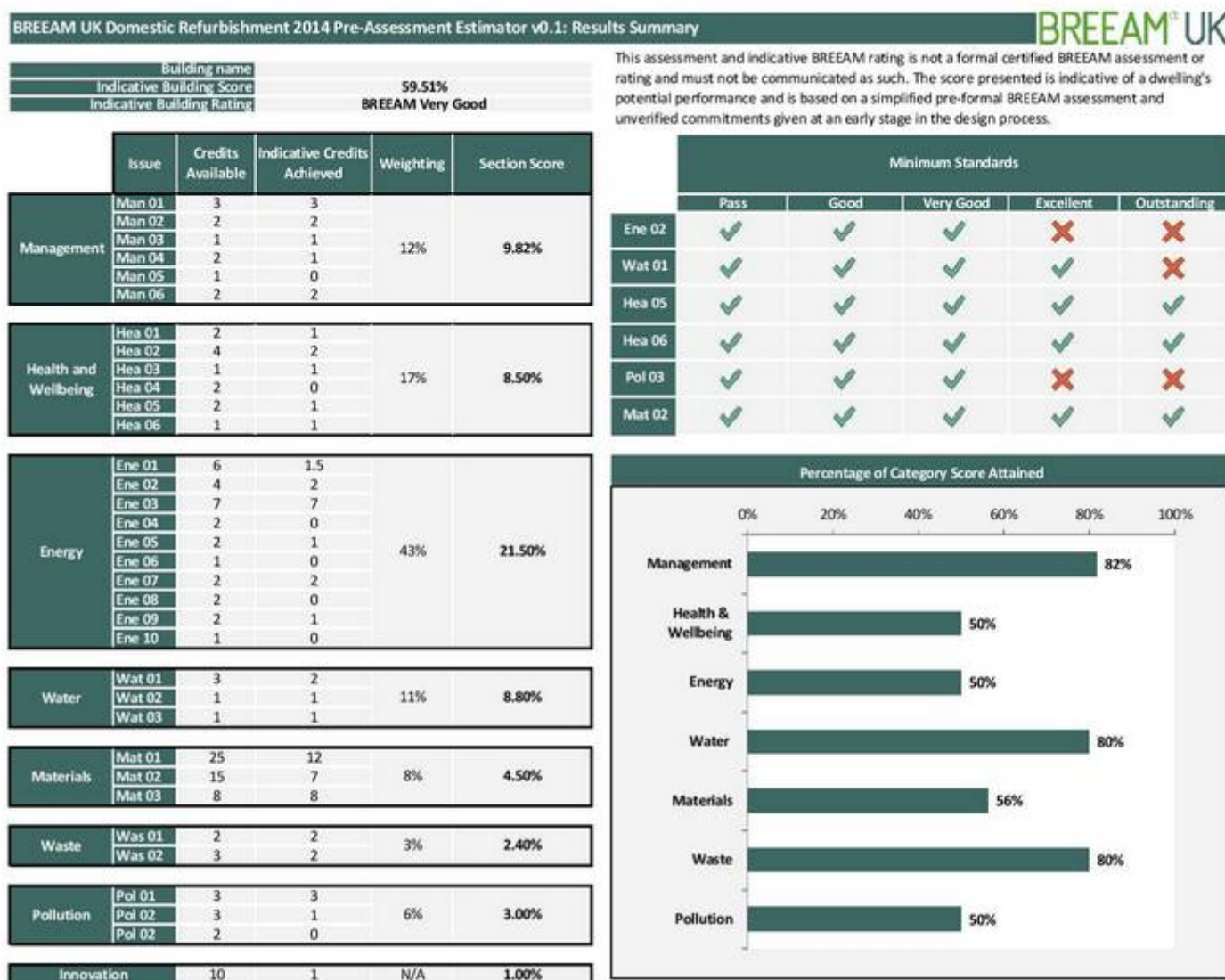
- 4.3 The results of the BREEAM review are presented in detail in Appendix A and B of this report, identifying the relevant design features and commitments that are possible for this development. This demonstrates that the minimum requirements for a BREEAM Very Good rating for each assessment could be met and confirms that the commercial refurbishment could achieve a score of **59.18%**, and the residential refurbishment could achieve a score of **59.51%**, providing a suitable buffer over the 55% required for a **BREEAM Very Good** rating. (As noted in RBC's Revised Sustainable Design and Construction SPD, a buffer is a contingency, designed in at the predictive assessment stage to ensure that if some aspects of the design cannot be achieved and credits are dropped once progression is made to later stages, the BREEAM rating thought to be achievable can actually be achieved.)
- 4.4 The results are illustrated in the graphs overleaf, confirming credits achievable across the BREEAM categories. The principles of Reading Borough Council's sustainable design and construction policy - *"designing buildings which use energy, water, minerals, materials and other natural resources appropriately, efficiently and with care and take account of the effects of climate change"* - are considered to be met by incorporating the proposed high energy and water efficient requirements within the proposed design, and achieving the BREEAM Very Good ratings.

Figure 1 BREEAM Predictive Assessment Results – Proposed Refurbished Commercial Unit

BREEAM [®] UK BREEAM UK Refurbishment & Fit-out 2014 - Pre-assessment bre					
Pre-assessment: Commercial space (tbc)					
BREEAM Rating					
	Credits available	Credits achieved	% Credits achieved	Weighting	Category score
Man	18.0	14.0	77.78%	13.43%	10.44%
Hea	14.0	4.0	28.57%	12.46%	3.56%
Ene	21.0	17.0	80.95%	15.79%	12.77%
Tra	7.0	5.0	71.43%	6.09%	4.35%
Wat	3.0	2.0	66.67%	2.61%	1.74%
Mat	13.0	10.0	76.92%	16.32%	12.55%
Wst	12.0	7.0	58.33%	9.79%	5.71%
Le	4.0	0.0	0.00%	10.45%	0.00%
Pol	13.0	8.0	61.54%	13.06%	8.03%
Inn	10.0	0.0	0.00%	10.00%	0.00%
Total	115.0	67.0	58.26%	-	59.18%
Rating	-	-	-	-	Very Good



Figure 2 BREEAM Predictive Assessment Results – Proposed Refurbished Residential Units



APPENDIX 1 – DETAILED BREEAM PREDICTIVE ASSESSMENT – COMMERCIAL UNIT (BREEAM UK NON-DOMESTIC REFURBISHMENT 2014)

Credit Title	Available Credits	Targeted Credits	Unachievable Credits	BREEAM Requirements	Project Specific Comments
Management					
Man 01 – Stakeholder Consultation	1	1		A clear sustainability brief developed prior to concept design. Identify and define roles, responsibilities and contribution of project team for key phases of the project delivery.	Assumed based on BREEAM target being set from Concept Design.
Man 01 – Stakeholder Consultation (Third Party)	1	1		Design team to consult 3 rd party stakeholders prior to completion of detailed design – feedback to all relevant parties given and received.	Assumed achievable based on consultation during planning process
Man 01 – Sustainability Champion	1	1		Appointment of sustainability champion to the project.	Achievable as Envision is a BREEAM AP organisation.
Man 01 – Sustainability Champion (Monitoring Progress)	1	1		Sustainability Champion to monitor and report progress against agreed BREEAM performance targets.	Achievable as Envision is a BREEAM AP organisation.

Man 02 – Elemental Life Cycle Cost	2		2	An outline, entire asset elemental life cycle cost plan has to be carried out at RIBA stage 2 in line with 'Standardised method of life cycle costing for construction procurement.	Elemental Lifecycle Cost appraisal not appropriate for this scale or type of development.
Man 02 - Component Level Life cycle Cost	1		1	A component level LCC plan has been developed by the end of Process Stage 4.	Component level life cycle cost not appropriate for this scale or type of development.
Man 02.2 – Capital Cost Reporting	1	1		Report the capital cost for the fit-out works in pounds per meter square (£/m ²) via the BREEAM Assessment Scoring and Reporting tool.	Feasible to achieve
Man 03 – (Prerequisite) Legally Harvest and Traded Timber	-	Y		All timber and timber-based products used on the project is 'Legally harvested and traded timber	Feasible to achieve
Man 03 – Environmental Management	1	1		Principal contractor operates ISO 14001 EMS.	Feasible to achieve
Man 03 – Construction Stage Sustainability Champion	1	1		A Sustainability Champion is appointed to monitor the project to ensure ongoing compliance with the relevant sustainability performance/process criteria, and therefore BREEAM target, during the Construction, Handover and Close Out stages.	Feasible to achieve

Man 03 – Considerate Contractors Scheme	2	2		Principal contractor achieves score >35 under the Considerate Contractors Scheme (CCS)	Feasible to achieve. To be included in Principal Contractor requirements.
Man 03 – Monitoring of Site Impacts (Energy and Water)	1	1		Construction contractor monitor energy and water consumption on site.	Feasible to achieve. To be included in Principal Contractor requirements.
Man 03 – Monitoring of Impacts (Transport of Construction Materials and Waste)	1	1		Contractor to monitor fuel consumption of transport of materials and waste to/from site.	Feasible to achieve. To be included in Principal Contractor requirements.
Man 04 – Commissioning and Testing Schedule and Responsibilities	1	1		Schedule of commissioning and testing that identifies the appropriate commissioning for the scope of the works that includes a suitable timescale for commissioning and re-commissioning of all relevant works. The schedule will identify the appropriate standards that all commissioning activities will be conducted in accordance with such as Building Regulations. An appropriate project team member to be appointed to monitor and programme pre-	Feasible to achieve.

				commissioning, commissioning, testing and, where necessary, re-commissioning activities.	
Man 04 – Commissioning Building Services	1	1		Appoint an appropriate project team member provided they are not involved with the general installation works for the building services system.	Feasible to achieve
Man 04 - Handover	1	1		A Building User Guide will be developed prior to handover for distribution to the building occupiers and a committed schedule of training for building occupiers.	Feasible to achieve
Man 05 – Seasonal Commissioning	1		1	Over a 12 month period (after occupation) the following seasonal commissioning activities will take place: I. Testing of all building services under full load conditions. II. Testing all building services during periods of extreme (high or low) occupancy. III. Interviews with building occupants to identify concerns regarding the systems. IV. Re-commissioning of systems incorporating revisions in operating procedures into the O&M manuals.	Not considered appropriate for this scale or type of development.

Man 05 – Post Occupancy Evaluation	1	1		The client or building occupier makes a commitment to carry out a post occupancy evaluation (POE) exercise one year after initial building occupation to gain feedback from building users to inform operational processes. POE will be carried out by independent party and needs to cover: I. A review of the design intent and construction process. II. Feedback from a wide range of building users. III. Sustainability performance (energy/water consumption and sustainable features or technology). The client or building occupier makes a commitment to carry out the appropriate dissemination of information on the building's post occupancy performance.	Feasible to achieved based on commitment to POE
Health and Wellbeing					
Hea 01 – Daylighting	3		3	Up to three credits are available depending on level of improvement of daylighting compared to existing. Has to be proven by internal daylight calculations.	Whilst improvements in daylighting are proposed, credits not assumed due to modelling requirements.
Hea 01 – View out	2		2	For relevant building areas, 95% of floor area within 8m of external wall with window, and window size >20% of surrounding wall area.	Credits not feasible due to room depth

Hea 01 – Internal and external lighting levels, zoning and control	1	1		All fluorescent and compact fluorescent lights fitted with high frequency ballasts. Internal lighting designed to provide lux levels in accordance with SLL Code for Lighting, CIBSE Lighting Guide 7 and other relevant industry standards; and zoned to allow occupant control. Separate zoning required in retail space for display and counter areas (PIR controls must include manual over-ride). External lighting designed in accordance with BS5489 and BS EN 12464-2:2-14.	LED lighting to be specified that meets the SSL lighting standards. External lighting to be designed in compliance with requirements
Hea 02 – Indoor air quality (IAQ) plan	1	1		Site specific (IAQ) plan produced and implemented, the plan must be produced and implemented. The objective is to minimise indoor air quality during the design, construction and occupation of the building.	Feasible to achieve.
Hea 02 – Ventilation	1		1	Designed to minimise the indoor concentration and recirculation of pollutant in the building. Provide fresh air into the building in accordance with the criteria of the relevant standard for ventilation.	Intakes and exhausts likely to be too close to achieve credit. Assumed not feasible.
Hea 02 – Volatile Organic	1	1		All decorative paints and varnishes specified must meet BREEAM criteria. In addition, at least 5 of the 7 remaining	Feasible to achieve

Compounds (Products)				product categories meet testing requirements and emissions levels criteria for Volatile Organic Compound (VOC) Emissions.	
Hea 02 – Volatile Organic Compounds (Post Construction)	1		1	The formaldehyde concentration level is measured post construction and is to be found less or equal to 100ug/m ³ averaged over 30 mins.	Not appropriate for this scale or type of development.
Hea 02 – Potential for Natural Ventilation	1		1	The building ventilation strategy is designed to be flexible and adaptable to potential building occupant needs and climatic scenarios	Assumed limited scope of natural ventilation - credit not targeted
Hea 04 – Thermal modelling	1		1	Thermal modelling in accordance with CIBSE AM11 Inc. full dynamic thermal analysis, winter temp ranges in accordance with CIBSE Guide A, and building designed to limit risk of overheating.	Full dynamic thermal analysis too onerous for a development of this type and scale
Hea 04 – Thermal zoning and controls	1		1	Above thermal comfort analysis informs temperature control strategy, and strategy provides compliant zoning and controls	Credit above must achieved first.
Hea 05 – Acoustic performance	3		3	Meet relevant acoustic performance standards for sound insulation, indoor ambient noise levels and reverberation.	Building designed to meeting Building Regulations Part E. BREEAM credit requirements too stringent for this scale or type of development.

Hea 06 – Security of site and building	1	1		Security Needs Assessment (SNA) undertaken during RIBA Stage 2 and design embodies recommendations.	Consultation with Architectural Liaison Officer (ALO) in progress. Feasible to be achieve.
Energy					
Ene 01 – Whole Building Energy Model	15	11		A calculation of the energy score using the BREEAM Refurbishment and Fit-out energy model must be carried out. This must be assessed against a baseline BRUKL.	Initial energy model results indicate 11 credits achievable
Ene 02 – Sub-Metering of Major Energy consuming Units	1	1		Separate energy metering installed for each fuel type / use for 90% of estimated annual energy consumption , with pulsed output for future connection to energy management system	Assumed feasible
Ene 02 – Sub-Metering of High Energy Load and Tenancy Areas	1	1		This requires sub metering of different functional areas.	Credit achievable by default due to small space
Ene 04 – Passive Design Analysis	1		1	First, the first credit within issue Hea 04 Thermal comfort has been achieved. Then analysis of the existing building fabric, form, site location and outline scheme design is carried out to identify potential passive design solutions and retrofit measures that reduce demands for energy consuming building services. The building uses passive design measures to reduce the total heating,	Credit not feasible as Hea 04 not achievable.

				cooling, mechanical ventilation and lighting loads and energy consumption in line with the findings of the passive design analysis.	
Transport					
Tra 01 – Sustainable Transport	3	3		The public transport Accessibility Index (AI) for the assessed building is calculated and BREEAM credits awarded according to the building type. The Accessibility Index is determined by entering the following information into the BREEAM Tra 01 calculator: a. The distance (m) from the main building entrance to each compliant public transport node b. The public transport type(s) serving the compliant node, e.g. bus or rail c. The average number of services stopping per hour at each compliant node during the operating hours of the building for a typical day	Initial review of local bus services and proximity to railway station confirms good levels of public transport
Tra 02 – Proximity to Amenities	1	1		Where the development is within 500 meters of appropriate amenities.	Initial review of local amenities confirms feasible to achieve
Tra 03 – Cyclist Facilities	1	1		Compliant cycle storage spaces provided on site (1 per every 10 staff) (spaces must be secure, fixed to permanent structure, covered overhead)	Cycle storage proposed for whole development including 2 for the refurbished commercial space.

Tra 05 – Travel Plan	1		1	A travel plan has been developed as part of the feasibility and design stages.	There is no planning requirement for a travel plan for this development therefore credit not achievable
Water					
Wat 01 – Water consumption	5	3		Use the BREEAM Wat 01 calculator to assess the efficiency of the domestic water-consuming components.	A 40% improvement in water consumption is expected with the provision of water efficient appliances.
Wat 02 – Water monitoring	1	1		Specification of water meter with pulsed output on mains water supply to each building. Install water sub-meters for all water consuming systems over 10% of the building demand.	Assumed specification of water meter for the building. Sub-metering requirement not relevant to this project.
Materials					
Mat 01 – Life Cycle Impacts	6	6		Robust environmental performance information has been collected for newly specified materials or where materials are retained in situ.	It is assumed that all new materials used internally can be supported with robust environmental performance data.
Mat 03 – (Prerequisite) Legally harvested and traded timber	-	-		Minimum requirement for all timber products to be legally sourced.	To be included in Principal Contractor requirements.
Mat 03 – Enabling sustainable procurement	1	1		Produce a sustainable procurement plan by the design team to guide specification towards sustainable construction products	To be included in Principal Contractor requirements.

				in place before Concept Design. Following the process set out in BS ISO 20400:2017.	
Mat 03 – Measuring responsible sourcing	3	2		Achieve 36% of the points available in the Mat 03 calculation through sourcing of main building materials from responsible suppliers.	To be included in Principal Contractor requirements.
Mat 05 – Designing for durability and resilience	1	1		The building incorporates suitable durability and protection measures or designed features/solutions to prevent damage to vulnerable parts of the internal elements. This must include, but is not necessarily limited to: a. Protection from the effects of high pedestrian traffic in main entrances, public areas and thoroughfares (corridors, lifts, stairs, doors etc.). Protection against any internal vehicular/trolley movement within 1m of the internal building fabric in storage, delivery, corridor and kitchen areas.	Assumed feasible to achieve
Mat 06 – Material Efficiency	1		1	Opportunities have been identified, and appropriate measures investigated and implemented within the scope of refurbishment works, to optimise the use of materials through building design, procurement, refurbishment, maintenance and end of life.	Whilst principle has been adopted for the whole development, credit requirements too onerous for development of this type and scale

Waste					
Wst 01 – Pre Refurbishment Audit	1	1		Pre-refurbishment audit carried out prior to strip out and demolition works to identify opportunities for the reuse and recycling of materials	Assumed feasible to achieve
Wst 01 – Reuse and Direct Recycling	2		2	Where specific waste material types are either directly re-used on-site or off-site or are sent back to the manufacturer for closed loop recycling.	Not feasible for development of this type and scale
Wst 01 – Resource Efficiency	4	2		Prepare a compliant Resource Management Plan (RMP) and a construction waste resource efficiency benchmark of 4.5m ³ (or 1.2 tonnes) of construction waste generated per 100m ² GIFA.	Relevant requirements to be included in Principal Contractor requirements.
Wst 01 – Diversion from Landfill	1	1		Prepare a compliant Resource Management Plan (RMP) and divert at least 85% by volume or 90% of waste from landfill.	Target assumed achievable.
Wst 03 – Operational waste	1	1		A dedicated central space for storage of recyclable waste, clearly labelled and accessible to building occupants/facilities operators.	Appropriate waste storage space for commercial unit including in plans
Wst 06 – Design for disassembly and functional adaptability	1		1	Carry out and implement a functional adaptation appraisal at concept design.	Not considered relevant for the project.

Pollution					
Pol 01 – (Prerequisite)	-	-		All systems (with electric compressors) must comply with the requirements of BS EN 378:20081 (parts 2 and 3) and where refrigeration systems containing ammonia are installed, the Institute of Refrigeration Ammonia Refrigeration Systems Code of Practice.	Assumed feasible
Pol 01 – Impact of refrigerant	3	1		3 credits if no refrigerants used. OR Systems using refrigerants have a DELC of < 100 (2 credits) or 1000 (1 credit) kgCO ₂ eq/kW cooling and heating capacity.	Assumed 1 credit for HVAC systems use refrigerants with DELC CO ₂ of <1000kgCO ₂ e/kW cooling/heating capacity.
Pol 01 – Leak detection	1		1	Where systems using refrigerants have a permanent automated refrigerant leak detection system installed; OR where an inbuilt automated diagnostic procedure for detecting leakage is installed. In all instances a robust and tested refrigerant leak detection system must be installed and must be capable of continuously monitoring for leaks.	Likely to have a cost implication. Credit not targeted
Pol 02 – Local air quality	3	3		All heating and hot water supplied by non-combustion systems OR emissions from combustion plant that provide heating and hot water do not exceed defined air emissions standards.	Assumed feasible based on specification of low NO _x emission gas fired boilers

Pol 03 – Flood Risk Management	2	2		Flood mapping confirms the development is in Flood zone 1.	Site confirmed to be in Flood Zone 1
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APPENDIX 2 – DETAILED BREEAM PREDICTIVE ASSESSMENT – REFURBISHED RESIDENTIAL UNITS (BREEAM UK DOMESTIC REFURBISHMENT 2014)

BREEAM UK Domestic Refurbishment 2014 Pre-Assessment Estimator v0.1**BREEAM® UK**

This assessment and indicative BREEAM rating is not a formal certified BREEAM assessment or rating and must not be communicated as such. The score presented is indicative of a dwelling's potential performance and is based on a simplified pre-formal BREEAM assessment and unverified commitments given at an early stage in the design process.

Building name	
Indicative building score (%)	59.51%
Indicative BREEAM rating	BREEAM Very Good
Management	Health & Wellbeing
Energy	Water
Materials	Waste
Pollution	

	Minimum Standards				
	Pass	Good	Very Good	Excellent	Outstanding
Ene 02	✓	✓	✓	✗	✗
Wat 01	✓	✓	✓	✓	✗
Hea 05	✓	✓	✓	✓	✓
Hea 06	✓	✓	✓	✓	✓
Pol 03	✓	✓	✓	✗	✗
Mat 02	✓	✓	✓	✓	✓

INNOVATION

Section Weighting: 10%

Indicative Section Score: 1.00%

Comments

MANAGEMENT

Section Weighting: 12%

Indicative Section Score: 9.82%

Man 01 Home Users Guide

No. of BREEAM credits available	3	Available contribution to overall score	3.27%
No. of BREEAM innovation credits	0	Minimum Standards applicable:	No

Assessment Criteria

Where a Home Users Guide be provided to all dwellings, covering all issues set out in the 'Users Guide Contents list', three credits may be awarded

Indicative Credits
3

Comments

Man 02 Responsible Construction Practices

No. of BREEAM credits available	2	Available contribution to overall score:	2.18%
No. of BREEAM innovation credits	1	Minimum Standards	No

Assessment Criteria

Where a compliant considerate construction scheme will be used, credits are awarded depending the score achieved as outlined below:

Indicative Credits
2

Large Scale - project with more than 5 units

	One Credit	Two Credits
Considerate Constructors Scheme	Score of 25-34 with a score of 5 in each section	Score of 35-39 with a score of 7 in each section
Alternative Compliant Scheme	Compliance	Beyond Compliance

Small Scale - project with 5 units or fewer

	One Credit	Two Credits
Considerate Constructors Scheme	Score of 25-34 with a score of 5 in each section	Score of 35-39 with a score of 7 in each section
Alternative Compliant Scheme	Compliance	Beyond Compliance
Checklist A-3	50% of the optional items	80% of the optional items

Exemplary Credit

Indicative Innovation

Considerate Constructors Scheme	Score of 40 or more with a score of 7 in each section		Credits Achieved
Alternative Compliant Scheme	Exemplary Level Compliance		Please Select
Checklist A-3*	All Items (Optional & Mandatory)		

* Small Scale Project Only

Comments

Man 03 Construction Site Impacts

No. of BREEAM credits available	1	Available contribution to overall score	1.09%
No. of BREEAM innovation credits	0	Minimum Standards applicable	No

Assessment Criteria

Where evidence demonstrate that site impacts will be monitored, as detailed below:

	One Credit	Indicative Credits
Large Scale	Where there is evidence to demonstrate that 2 or more of the sections in Checklist A-4 are completed	1
Small Scale	Where there is evidence to demonstrate that 2 or more of the sections in Checklist A-5 are completed	

Sections of Checklist	
Large Scale - Checklist A-4	Small Scale - Checklist A-5
Monitor, report and set targets for CO2 production of energy use arising from site activities	Set objectives for reducing CO2 production from energy use arising from site activities
Monitor, report and set targets for water consumption arising from site activities	Set objectives for reducing water use arising from site activities
A main contractor with an environmental materials policy	Main contractor environmental materials statement
A main contractor that operates an Environmental Management System	80% of site timber is reclaimed, re-used or responsibly sourced
80% of site timber is reclaimed, re-used or responsibly sourced	

Same definition of small and large scale as in Man 02

Comments

Man 04 Security

No. of BREEAM credits available	2	Available contribution to overall score:	2.18%
No. of BREEAM innovation credits	0	Minimum Standards applicable:	No

Assessment Criteria

Where the following requirements will be met:

One Credit Secure windows and doors	External doors and accessible windows meet minimum standards and appropriately certified	Indicative Credits
	Principles and guidance of Secured by Design Section 2 are complied with	1

Two Credits Secured by design		Principles and guidance of Secured by Design Section 2 are complied with			
		A suitably qualified security consultant is consulted at the design stage and their recommendations are incorporated into the refurbishment			
Comments					
Man 05 Protection and Enhancement of Ecological Features					
No. of BREEAM credits available	1	Available contribution to overall score:	1.09%		
No. of BREEAM innovation credits	1	Minimum Standards applicable:	No		
Assessment Criteria				Indicative Credits	
Where the following requirements will be met:				0	
One Credit Protecting Ecological Features		Site survey carried out to determine presence of ecological features			
		Statutory Nature Conservation Organisation notified of protected species			
		Features of ecological value protected during refurbishment works			
Exemplary Credit Ecological enhancement		A suitably qualified ecologist recommends features to enhance ecology of the site		Indicative Innovation Credits Achieved Please Select	
		adopts all general ecological recommendations			
		adopts 30% of additional recommendations			
Comments					
Man 06 Project Management					
No. of BREEAM credits available	2	Available contribution to overall score:	2.18%		
No. of BREEAM innovation credits	2	Minimum Standards applicable:	No		
Assessment Criteria				Indicative Credits	
Where the following requirements will be met:				2	
One Credit Project Roles and Responsibilities		Where all of the project team are involved in the project decision making			
		Small Scale - the project manager assigns individual and shared responsibilities amongst the project team including all trades on site			
		Large Scale - the project manager assigns individual and shared responsibilities across the following key design and refurbishment stages: i. Planning and Building control notification ii. Design iii. Refurbishment iv. Commissioning and handover v. Occupation			

Small Scale projects: five units or fewer and less than £100k

Large Scale projects: more than five units and more than £100k

One Credit Handover and Aftercare	Handover meeting arranged	Indicative Innovation Credits Achieved
	2 or more of the following committed to: - A site inspection within 3 months of occupation - Conduct post occupancy interviews with building occupants or a survey via phone or posted information within 3 months of occupation - Longer term after care e.g. a helpline, nominated individual or other appropriate system to support building users for at least the first 12 months of occupation	
Exemplary Credits		1
One Exemplary Credit Early Design Input	Where A BREEAM Accredited Professional has been appointed to oversee key stages within the project. OR Where a BREEAM Domestic Refurbishment Assessor has been appointed at an early stage of the project, prior to the production of a refurbishment specification	
One Exemplary Credit Thermographic Surveying and Airtightness Testing	Where Thermographic surveying and Airtightness testing have been carried out at both pre and post refurbishment stages Where an improved air tightness target has been set at design stage and testing demonstrates that this has been achieved post refurbishment	

Comments

HEALTH & WELLBEING

Section Weighting: 17%

Indicative Section Score 8.50%

Hea 01 Daylighting

No. of BREEAM credits available	2	Available contribution to overall score	2.83%
No. of BREEAM innovation credits	0	Minimum Standards applicable	No

Assessment Criteria

Where the refurbishment results in a neutral impact on daylighting or where minimum daylighting standards are met, up to two credits may be awarded as follows:

For Existing Dwellings and Change of Use Projects

First Credit Maintaining Good Daylighting	The refurbishment results in a neutral impact on the dwellings daylighting levels in the kitchen, living room, dining room and study
--	--

Where the property is being extended

First Credit Maintaining Good Daylighting	New spaces achieve minimum daylighting levels The extension does not significantly reduce daylighting levels in the kitchen, living room, dining room or study of neighbouring properties
--	--

For All Properties

Second Credit	The dwelling achieves minimum daylighting levels in the kitchen, living room, dining
---------------	--

Second Credit Minimum Daylighting		The dwelling achieves minimum daylighting levels in the kitchen, living room, dining room and study	
Comments			
Hea 02 Sound Insulation			
No. of BREEAM credits available	4	Available contribution to overall score Minimum Standards applicable	5.67%
No. of BREEAM innovation credits	0		No
Assessment Criteria			Indicative Credits
To ensure the provision of acceptable sound insulation standards and so minimise the likelihood of noise complaints.			➡ 2
Properties where sound testing has been carried out:			
Up to Four Credits	Four credits awarded according to the improvement over building regulations. See table in additional information in Technical Manual		
Properties where sound testing is not feasible and not required by the appointed Building Control body			
Two Credits	Where existing separating walls and floors are designed to meet the requirements of Building Regulations with compliant construction details		
Up to Four Credits	Where a Suitably Qualified Acoustician (SQA) provides recommendations for the specification of all existing separating walls and floors		
	SQA confirms in their professional opinion that they have the potential to meet or exceed the sound insulation credit requirements		
	Where these recommendations are implemented		
	See table in additional information in Technical Manual		
Historic Buildings			
Up to Four Credits	Where the dwelling is a Historic Building and sound testing results demonstrate existing separating walls and floor meet the Historic Building credit requirements		
	See table in additional information in Technical Manual		
	Where sound testing is not feasible and not required by the appointed Building Control body meeting criteria 2 and 3 using Table 12		
	Properties where sound testing has been carried out, credits awarded according to the improvement over building regulations. See table in additional information in Technical Manual		
	Where the dwelling is a detached property		

	Where the dwelling is a property with separating walls or floors only between non habitable rooms OR Testing not required by building control body													
Detached Properties														
Four Credits	By Default													
Properties with separating walls or floors only between non habitable rooms OR Testing not required by building control body														
Four Credits	By Default													
Comments														
Hea 03 Volatile Organic Compounds														
No. of BREEAM credits available	1	Available contribution to overall score 1.42%												
No. of BREEAM innovation credits	0	Minimum Standards applicable No												
Assessment Criteria		Indicative Credits												
Where the refurbishment avoids the use of VOCs with new products meeting the following requirements:		1												
One Credit Avoiding the use of VOCs	Where all decorative paints and varnishes used in the refurbishment have met the requirement listed in table 5.4 in the Technical Manual													
	Where at least five of the eight remaining product categories listed in table 5.4 have met the testing requirements and emission levels for Volatile Organic Compound (VOC) emissions against the relevant standards identified within table 5.4 in the Technical Manual													
	Where five or less products are specified within the refurbishment, all must meet the requirements in order to achieve this credit.													
Comments														
Hea 04 Inclusive Design														
No. of BREEAM credits available	2	Available contribution to overall score 2.83%												
No. of BREEAM innovation credits	1	Minimum Standards applicable No												
Assessment Criteria		Indicative Credits												
Where an access statement has been carried out using Checklist A-8 of the Technical Manual to optimise the accessibility of the home as follows:		0												
	<table border="1"> <thead> <tr> <th colspan="3">Checklist A-8 of the Technical Manual</th> </tr> <tr> <th></th> <th>Section 1</th> <th>Section 2</th> </tr> </thead> <tbody> <tr> <td>One Credit Minimum Accessibility</td> <td>Completed with Evidence</td> <td></td> </tr> <tr> <td>Two Credits Advanced Accessibility</td> <td>Completed with Evidence</td> <td>Completed with Evidence</td> </tr> </tbody> </table>		Checklist A-8 of the Technical Manual				Section 1	Section 2	One Credit Minimum Accessibility	Completed with Evidence		Two Credits Advanced Accessibility	Completed with Evidence	Completed with Evidence
Checklist A-8 of the Technical Manual														
	Section 1	Section 2												
One Credit Minimum Accessibility	Completed with Evidence													
Two Credits Advanced Accessibility	Completed with Evidence	Completed with Evidence												
Exemplary Performance		Indicative Innovation Credits Achieved Please Select												
One Credit	Where an access expert suitably qualified member of the design team has completed sections 1, 2 and 3 of Checklist A-8, access statement template with evidence provided of the measures implemented in the refurbishment													

Comments				
Hea 05 Ventilation				
No. of BREEAM credits available	2	Available contribution to overall score	2.83%	
No. of BREEAM innovation credits	0	Minimum Standards applicable	Yes	
Assessment Criteria				Indicative Credits
Where the dwelling meets the following ventilation requirements:				1
One Credit Minimum Ventilation Requirements	A minimum level of background ventilation is provided (with trickle ventilators or other means of ventilation) for all habitable rooms, kitchens, utility rooms and bathrooms compliant with section 7, Building Regulations Approved Document Part F, 2010			
	A minimum level of extract ventilation is provided in all wet rooms (e.g. kitchen, utility and bath-rooms), compliant with section 5, Building Regulations Approved Document Part F 2010.			
	A minimum level of purge ventilation is provided in all habitable rooms and wet rooms, compliant with section 7, Building Regulations Approved Document Part F, 2010.			
	It is an historic building and meets historic building requirements in CN4 of the technical manual			
Two Credits Advanced Requirements	Ventilation is provided for the dwelling that meets the requirements of Section 5 of Building Regulations Part F in full			
	Where the building is a historic building and meets the requirements for Historic Buildings in compliance note 4 of the technical manual			
Comments				
Hea 06 Safety				
No. of BREEAM credits available	1	Available contribution to overall score	1.42%	
No. of BREEAM innovation credits	0	Minimum Standards applicable	Yes	
Assessment Criteria				Indicative Credits
Where a fire and carbon monoxide (CO) detection and alarm system is specified as follows:				1
One Credit Fire and Carbon Monoxide (CO) Detection and Alarm Systems	Where a compliant fire detection and fire alarm system is provided			
	Carbon Monoxide detector installed if dwelling is supplied with mains gas or other fossil fuel			
	Mains supplied fire detection and alarm system if project involves re-wiring*			
	Battery operated fire detection and alarm system if no re-wiring* is to take place			
* see CN9 in Hea 06 for the definition of re-wiring				

Comments				
ENERGY		Section Weighting: 43%	Indicative Section Score 21.50%	
Ene 01 Improvement in Energy Efficiency Rating				
No. of BREEAM credits available	6	Available contribution to overall score	8.90%	
No. of BREEAM innovation credits	0	Minimum Standards applicable	No	
Assessment Criteria				Indicative Credits
Where the following targets are met for the improvement in Energy Efficiency Rating achieved as a result of refurbishment:				1.5
	Improvement in EER	Credits		
	≥ 5	0.5		
	≥ 9	1		
	≥ 13	1.5		
	≥ 17	2		
	≥ 21	2.5		
	≥ 26	3		
	≥ 31	3.5		
	≥ 36	4		
	≥ 42	4.5		
	≥ 48	5		
	≥ 54	5.5		
	≥ 60	6		
Comments				
Ene 02 Energy Efficiency Rating Post Refurbishment				
No. of BREEAM credits available	4	Available contribution to overall score	5.93%	
No. of BREEAM innovation credits	2	Minimum Standards applicable	Yes	
Assessment Criteria				Indicative Credits
Where the following Energy Efficiency Rating benchmarks will be met as a result of refurbishment:				2
	EER post refurbishment	Credits	Minimum requirements	
	≥50	0.5	'Pass' level EER of 50	
	≥55	1	'Good' level EER of 58	
	≥60	1.5		
	≥65	2	'Very Good level' EER of 65	
	≥70	2.5	'Excellent' level EER of 70	
	≥75	3		
	≥80	3.5	'Outstanding' level EER of 81	
	≥85	4		
	Exemplary	Credits		
	≥90	1		
	≥100	2		
Indicative Innovation Credits Achieved				Please Select
Comments				

Ene 03 Primary energy demand				
No. of BREEAM credits available	7	Available contribution to overall score	10.38%	
No. of BREEAM innovation credits	0	Minimum Standards applicable	No	
Assessment Criteria			Indicative Credits	
Where the following Primary Energy Demand benchmarks will be met as a result of refurbishment:			7	
	Primary Energy Demand Post Refurbishment	Credits		
	≤ 400	0.5		
	≤ 370	1		
	≤ 340	1.5		
	≤ 320	2		
	≤ 300	2.5		
	≤ 280	3		
	≤ 260	3.5		
	≤ 240	4		
	≤ 220	4.5		
	≤ 200	5		
	≤ 180	5.5		
	≤ 160	6		
	≤ 140	6.5		
	≤ 120	7		
Comments				
Ene 04 Renewable Technologies				
No. of BREEAM credits available	2	Available contribution to overall score	2.97%	
No. of BREEAM innovation credits	0	Minimum Standards applicable	No	
Assessment Criteria			Indicative Credits	
Where the dwelling will meet the following % contribution from renewables and primary energy demand targets as a result of refurbishment			0	
	Dwelling Type	Primary Energy Demand	Percentage from Renewables	
			1 Credit	2 Credits
	Detached	≤ 250 kWh/m ² /year	≥10%	≥20%
	Semi-Detached		≥10%	≥20%
	Bungalow		≥10%	≥20%
	End of Terrace		≥10%	≥20%
	Mid Terrace	≤ 220 kWh/m ² /year	≥10%	≥20%
	Low Rise Flat		≥10%	≥20%
	Mid Rise Flat		≥10%	≥15%
	High Rise Flat		≥10%	≥15%
Comments				
Ene 05 Energy Labelled White Goods				
No. of BREEAM credits available	2	Available contribution to overall score	2.97%	
No. of BREEAM innovation credits	0	Minimum Standards applicable	No	
Assessment Criteria			Indicative Credits	

Where Energy Efficiency White goods are to be provided as follows:

1

First Credit		
Appliance	Appliance provided	Appliance not to be provided
Fridges, Freezers and Fridge-Freezers	A+ Rating under EU Energy Efficiency Labelling Scheme	EU Energy Efficiency Labelling Scheme Information Leaflet provided to all dwellings
Second Credit		
Appliance	Appliance provided	Appliance not to be provided
Washing Machines and Dishwashers	Washing Machine A++ under EU Energy Efficiency Labelling Scheme AND Dishwasher A+ under EU Energy Efficiency Labelling Scheme	Second credit not achieved
Washer-Dryers and Tumble Dryers	Appliances specified with A Rating under EU Energy Efficiency Labelling Scheme	EU Energy Efficiency Labelling Scheme Information Leaflet provided to all dwellings

Comments

Ene 06 Drying Space

No. of BREEAM credits available	1	Available contribution to overall score	1.48%
No. of BREEAM innovation credits	0	Minimum Standards applicable	No

Assessment Criteria

Where adequate, secure internal or external space with posts and footings or fixings is provided with the following:

Indicative Credits

0

1 Credit	
Number of bedrooms	Drying line required
1-2	4m+
3+	6m+

Comments

Ene 07 Lighting

No. of BREEAM credits available	2	Available contribution to overall score	2.97%
No. of BREEAM innovation credits	0	Minimum Standards applicable	No

Assessment Criteria

Where energy efficient internal and external lighting is provided as follows:

Indicative Credits

2

External Lighting - 1

Energy Efficient Space Lighting of more than 45 lumens per circuit watt and Energy Efficient Security Lighting OR
Where Energy Efficient Space Lighting is provided ONLY

Internal Lighting - 1

Maximum average wattage across the total floor area of the dwelling of 9 watts/m2

Comments

Ene 08 Display Energy Devices				
No. of BREEAM credits available	2	Available contribution to overall score	2.97%	
No. of BREEAM innovation credits	1		Minimum Standards applicable	
Assessment Criteria			Indicative Credits	
Where consumption data is displayed to occupants by a compliant energy display device			0	
Electricity usage data displayed		Primary Heating Fuel		
		Electricity	Other	
Electricity usage data displayed		2 credits awarded	1 credit awarded	
Primary Heating Fuel usage data displayed		N/A	1 credit awarded	
Electricity & Primary Heating Fuel usage displayed		N/A	2 credits awarded	
Exemplary Credits				
One credit Recording consumption data		Where the first two credits are achieved Where any compliant Energy Display Device is capable of recording consumption data		Indicative Innovation Credits Achieved Please Select
Comments				
Ene 09 Cycle Storage				
No. of BREEAM credits available	2	Available contribution to overall score	2.97%	
No. of BREEAM innovation credits	0		Minimum Standards applicable	
Assessment Criteria			Indicative Credits	
Where individual or communal compliant cycle storage is provided as follows:			1	
Dwelling Size	One Credit	Two Credits		
Studios/ 1 bedroom	1 per two dwellings	1 per dwelling		
2-3 bedrooms	1 per dwelling	2 per dwelling		
4 bedrooms	2 per dwelling	4 per dwelling		
Comments				
Ene 10 Home Office				
No. of BREEAM credits available	1	Available contribution to overall score	1.48%	
No. of BREEAM innovation credits	0		Minimum Standards applicable	
Assessment Criteria			Indicative Credits	
Where sufficient space and services will be provided to allow occupants to set up a home office in a suitable room with adequate ventilation			0	
Comments				
WATER Section Weighting: 11% Indicative Section Score 8.80%				
Wat 01 Internal Water Use				
No. of BREEAM credits available	3	Available contribution to overall score	6.60%	
No. of BREEAM innovation credits	1		Minimum Standards applicable	
Assessment Criteria			Indicative Credits	

Where the dwellings water consumption meets the following consumption benchmarks, or where terminal fittings meet the following water consumption standards:

Calculated Water Consumption (litres/person/day)	Equivalent terminal fitting standards	Minimum Standard	Credits
>150	Typical baseline performance	N/A	0
from 140 to ≤ 150	All showers specified to 'Good' OR All taps and WC's to 'Good' OR Kitchen fittings specified to 'Excellent'	N/A	0.5
from 129 to < 140	All showers specified to 'Excellent' OR All showers and bathroom taps to 'Good'	BREEAM Very Good	1
from 118 to < 129	All bathroom and WC room fittings specified to 'Good' OR All bathroom fittings specified to 'Excellent'	N/A	1.5
from 107 to < 118	All Bathroom and WC room fittings specified to 'Excellent' OR All Bathroom fittings Specified to 'Excellent' and WC room fitting specified to 'Good' OR All Bathroom fittings, kitchen and utility fittings specified to 'Good'	BREEAM Excellent	2
from 96 to < 107	All kitchen, bathroom, utility room and WC room fittings specified to 'Good' OR All bathrooms, kitchens and utility rooms specified to 'Excellent'	N/A	2.5
< 96	All bathroom fittings specified to 'Excellent' and WC room, kitchen and utility room fittings specified to 'Good'	BREEAM Outstanding	3

NOTE: 'Good' fittings are equivalent to good practice fittings with "Excellent" fittings equivalent to best practice fittings (see the technical manual for full details).

Exemplary Credit

If the water consumption is less than 80l/person/day

Indicative Innovation Credits Achieved

Please Select

Comments

Wat 02 External Water Use

No. of BREEAM credits available	1	Available contribution to overall score	2.20%
No. of BREEAM innovation credits	0	Minimum Standards applicable	No

Assessment Criteria

Where the following requirements will be met:

Requirements:

Where a compliant rainwater collection system for external/internal irrigation use has been provided to dwellings.

Indicative Credits

1

	One Credit	been provided to dwelling(s).	
		OR	
		Where dwellings have no individual or communal garden space.	
Comments			
Wat 03 Water Meter			
No. of BREEAM credits available	1	Available contribution to overall score	2.20%
No. of BREEAM innovation credits	0	Minimum Standards applicable	No
Assessment Criteria			Indicative Credits
Where an appropriate water meter for measuring usage of mains potable water meter has been provided to dwelling(s), one credit may be awarded			1
Comments			
MATERIALS		Section Weighting: 8%	Indicative Section Score 4.50%
Mat 01 Environmental Impact of Materials			
No. of BREEAM credits available	25	Available contribution to overall score	4.16%
No. of BREEAM innovation credits	0	Minimum Standards applicable	No
Assessment Criteria			Indicative Credits
Up to 25 credits can be awarded, with credits calculated using the Mat 01 calculator tool. The table below shows the maximum number of credits available for each element:			12
Elements	Green Guide Rating credits available	Thermal performance credits	
Roof	5	3	
External walls	5	3.8	
Internal walls (including separating walls)	5	-	
Upper and Ground Floor	5	1.2	
Windows	5	2	
The full 25 credits represents all of the elements containing refurbished or existing materials that meet the Green Guide Rating of A+(6)			
GG Rating	Points for existing / refurbished elements	Points for new elements	
A+ (6)	5		
A+ (5)	4.6		
A+ (4)	4.2		
A+ (3)	3.8		
A+ (2)	3.4		
A+	3	3	
A	2	2	
B	1	1	
C	0.5	0.5	
D	0.25	0.25	
E	0	0	
Where the full 25 credits cannot be achieved the score can be 'topped up' with thermal performance credits. The full number of thermal performance credits for each element can be achieved when achieving the minimum U-values shown below.			
Elements	Minimum U-Value		
Roof	0.11		
External walls	0.15		
Internal walls (including separating walls)	-		

Upper and Ground Floor Windows		0.15	1.4
Comments			
Mat 02 Responsible Sourcing of Materials			
No. of BREEAM credits available	15	Available contribution to overall score	2.50%
No. of BREEAM innovation credits	0	Minimum Standards applicable	Yes
Assessment Criteria			Indicative Credits
Where new materials are responsibly sourced, up to 12 credits may be awarded where 80% of new materials for an element are responsibly sourced. The credits achieved are dependent on % of point achieved which is based upon the responsible sourcing tier level of each material sourced as detailed below:			7
Sustainable Procurement Plan (3 BREEAM credits)		Will all new timber used in the project be sourced in accordance with the UK Government's Timber Procurement	
The principal contractor sources materials for the project in accordance with a documented sustainable procurement plan		Yes	
OR Where the principal contractor is a Small Company (up to 3 BREEAM credits)			
Checklist A-9 is filled in with supporting evidence			
Table 1	BREEAM credits	% of available points achieved	
	12	≥54%	
	10	≥45%	
	8	≥36%	
	6	≥ 27%	
	4	≥ 18%	
	2	≥ 9%	
Comments			
Mat 03 Insulation			
No. of BREEAM credits available	8	Available contribution to overall score	1.33%
No. of BREEAM innovation credits	0	Minimum Standards applicable	No
Assessment Criteria			Indicative Credits
Where any new insulation specified for use within external walls, ground floor, roof and buildings services meet the following requirements:			8
Requirements			
4 Credits	Where the Insulation Index for new insulation used in the buildings is ≥2		
	Where Green Guide ratings are determined using the Green Guide to specification tool		
Requirements			
4 Credits	Where ≥ 80% of the new thermal insulation used in the building elements is responsibly sourced.		
Comments			
WASTE			
Section Weighting: 3%		Indicative Section Score 2.40%	

Was 01 Household Waste																					
No. of BREEAM credits available	2	Available contribution to overall score	1.20%																		
No. of BREEAM innovation credits	0		Minimum Standards applicable		No																
Assessment Criteria			Indicative Credits																		
Where compliant recycling and composting facilities are provided, up to two credits may be awarded as follows			2																		
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Comments																					
Was 02 Refurbishment Site Waste Management																					
No. of BREEAM credits available	3	Available contribution to overall score	1.80%																		
No. of BREEAM innovation credits	1		Minimum Standards applicable		No																
Assessment Criteria			Indicative Credits																		
Up to three credits are available depending on the site waste management plan to be implemented as follows			2																		
Projects up to £100k																					
Three Credits	Where waste generated through the refurbishment process is managed in accordance with Checklist A-9		Indicative Innovation Credits Achieved																		
Exemplary Credit	Where a compliant Level 1; Site Waste Management Plan (SWMP) is in place		Please Select																		

Projects up to £300k

Three Credits	Where a compliant Level 1; Site Waste Management Plan (SWMP) is in place
Exemplary Credit	Where a compliant Level 2; Site Waste Management Plan (SWMP) is in place
	Non-hazardous construction waste generated by the dwellings refurbishment meets or exceeds the resource efficiency benchmark
	The percentage of non-hazardous construction waste and demolition waste generated by the project has been diverted from landfill and meets or exceeds the refurbishment & demolition waste diversion benchmarks

Projects over £300k

First Credit Management Plan	Where a compliant Level 2; Site Waste Management Plan (SWMP) is in place
Second Credit Good Practice Waste Benchmarks	First credit achieved
	Non-hazardous construction waste generated by the dwellings refurbishment meets or exceeds the resource efficiency benchmark
	Amount of waste generated against £100,000 of project value is recorded in the SWMP
	Pre-refurbishment audit of the existing building is completed
Third Credit Best Practice Waste Benchmarks	If demolition is included as part of the refurbishment programme, then the audit should also cover demolition materials
	Where the first two credits have been achieved achieved
Exemplary Credit	Where Non-hazardous demolition waste generated by the dwellings refurbishment meets or exceeds the refurbishment & demolition waste diversion benchmarks
	Where non-hazardous construction waste generated by the dwellings refurbishment meets or exceeds the <i>exemplary level resource efficiency benchmark</i>
	Where Non-hazardous demolition waste generated by the dwellings refurbishment meets or exceeds the exemplary level diversion benchmarks

Comments

POLLUTION

Section Weighting: 6%

Indicative Section Score 3.00%

Pol 01 NOx Emissions

No. of BREEAM credits available	3	Available contribution to overall score	2.25%
No. of BREEAM innovation credits	0	Minimum Standards applicable	No

Assessment Criteria

Credits are awarded on the basis of NO_x emissions arising from the operation of space heating and hot water systems for each refurbished dwelling as follows:

Indicative Credits
3

		Dry NO _x Emissions
	One Credit	≤100 mg/kWh (NO _x class 4 boiler)
	Two Credits	≤70 mg/kWh (NO _x class 5 boiler)
	Three Credits	≤40 mg/kWh

Comments

Pol 02 Surface Water Runoff

No. of BREEAM credits available	3	Available contribution to overall score	2.25%
No. of BREEAM innovation credits	1	Minimum Standards applicable	No

Assessment Criteria

Where impacts of the refurbishment on surface water runoff are neutralised or where runoff is reduced as a result of refurbishment, up to three credits can be awarded as follows:

Indicative Credits
1

Requirements

One Credit Neutral Impact on Surface Water	New hard standing areas must be permeable
	If building on to previously permeable area additional run-off must be managed on site
	Calculations should be carried out by an appropriately qualified professional

Requirements

OR Second Credits Reducing Run-Off From Site: Basic	Where the criteria needed for One Credit has been achieved
	Where all run-off from the roof for rainfall depths up to 5 mm, have been managed on site using source control methods
	Include runoff from all existing and new parts of the roof.
	An appropriately qualified professional should be used to design an appropriate drainage strategy for the site

Requirements

OR Three Credits Reducing Run-Off From Site: Advanced	Where run-off as a result of the refurbishment is managed on site using source control
	An appropriately qualified professional should be used to design an appropriate drainage strategy for the site.
	The peak rate of run-off as a result of the refurbishment for the 1 in 100 year event has been reduced by 75% from the existing site.
	The total volume of run-off discharged into the watercourses and sewers as a result of the refurbishment, for a 1 in 100 year event of 6 hour duration has been reduced by 75%.
	An allowance for climate change must be included for all of the above calculations, in accordance with current best practice (PPS25, 2010).

Requirements

	Where all run-off from the developed site is managed on site using source control
	The peak rate of run-off as a result of the refurbishment for the 1 in 1 year

Indicative Innovation Credits Achieved

Please Select

Exemplary Credit	event is reduced to zero.		
	The peak rate of run-off as a result of the refurbishment for the 1 in 100 year event is reduced to zero.		
	There is no volume of run-off discharged into the watercourses and sewers as a result of the refurbishment, for a 1 in 100 year event of 6 hour duration.		
	An allowance for climate change must be included for all of the above calculations, in accordance with current best practice (PPS25, 2010).		
Comments			
Pol 03 Flooding			
No. of BREEAM credits available	2	Available contribution to overall score	1.50%
No. of BREEAM innovation credits	0	Minimum Standards applicable	Yes
Assessment Criteria			Indicative Credits
Where the dwelling is located in a low flood risk zone, or where in a medium to high flood risk zone and a flood resilience/resistance strategy has been implemented, up to two credits can be awarded as follows:			0
Minimum Standards	A minimum of two credits must be achieved for this issue at the Excellent and Outstanding levels		
Option 1 - Low Flood Risk			
Two Credits	Where a Flood Risk Assessment (FRA) has been carried out and the assessed dwellings are defined as having a low annual probability of flooding.		
Option 2 - Medium / High Flood Risk			
Two Credits	Where a Flood Risk Assessment (FRA) has been carried out and the assessed dwellings are defined as having a medium or high annual probability of flooding.		
	Two credits are awarded where as a result of the dwellings floor level or measures to keep water away the dwelling is defined as achieving avoidance from flooding by following Checklist A-10; Decision Strategy Flow Chart.		
	Where avoidance is not possible, two credits are achieved where a full flood resilience/resistance strategy is implemented for the dwellings in accordance with recommendations made by a Suitably Qualified Building Professional		
Comments			