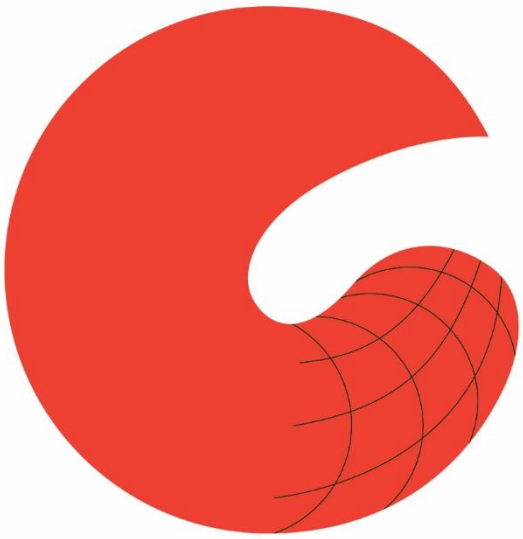

create
CONSULTING
ENGINEERS LTD

11-12 INGESTRE ROAD, LONDON NW5 1UX

Sustainability Statement

11-12 INGESTRE ROAD, LONDON, NW5 1UX
Sustainability Statement

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Reference: TA/CS/P17-1282/10 Rev B

Date: June 2018

11-12 INGESTRE ROAD, LONDON NW5 1UX
Sustainability Statement

11-12 INGESTRE ROAD, LONDON, NW5 1UX
Sustainability Statement
Revision B

Contents

Appendix

Registration of Amendments

Revision and Date	Amendment Details	Revision Prepared By	Revision Approved By
Rev A 04/07/18	Updated to address comments from BWP	TA	CB
Rev B 20/07/18	Updated to address comments from BWP	TA	CB

EXECUTIVE SUMMARY

Create Consulting Engineers Ltd has been appointed to provide a Sustainability Statement to support the forthcoming planning application for the proposed new development at Ingestre Road in the London Borough of Camden. This report has been developed to detail the sustainability features of the development and demonstrates how they relate to the following guidance documents:

- National Planning Policy Framework (2012);
- London Plan 2011 (with 2015 amendments);
- Greater London Authority (GLA) Supplementary Planning Guidance (SPG) on Sustainable Design and Construction (April 2014);
- Greater London Authority (GLA) guidance on preparing energy assessments (April 2015);
- London Borough of Camden Local Plan (June 2017);
- London Borough of Camden CPG 3 - Sustainability 2015;
- BREEAM 2014 Environmental Assessment tool

The BREEAM New Construction 2014 Assessment tools, the GLA and the London Borough of Camden sustainability policies have been reviewed and used to optimise the environmental strategy of the development and to demonstrate the sustainability credentials of the multi-residential scheme. This is in line with London Borough of Camden Local Plan - Policy CC2 Adapting to Climate Change.

The pre-assessment confirms that a BREEAM **'Excellent' rating** (targeted score of **74.41%**) is robustly targeted for Ingestre Road**.**

A formal assessment will take place once the tender documentation is produced and will require submission of a full evidence bundle from the client and the design team to show compliance with the credits. The BREEAM assessor has been and will continue to form an integral part of the design team and a consistent point for reference, review and questions. This approach is proven through experience to offer the surest route to successful BREEAM certification and holistic sustainable design.

The Sustainability Statement for the Ingestre Road development demonstrates that the design will holistically incorporate sustainable principles into the full range of sustainability aspects covered by BREEAM, the GLA and the London Borough of Camden's planning documents: Energy, Climate Change, Water, Flood Risk, Surface Water Run-Off, Pollution, Sustainable Construction Processes/Materials & Recycling, Land Use & Ecology and Accessibility.

1.0 INTRODUCTION

1.1 Create Consulting Engineers Ltd has been commissioned by Four Quarters (Ingestre Road) Ltd to produce a Sustainability Statement to support the planning application for a proposed Extra Care Development at the site of the former care home at 11 - 12 Ingestre Road, London, NW5 1UX.

Site Location and Description

1.2 The Site is located at 11 - 12 Ingestre Road in the London Borough of Camden. Please refer to Figure 1 below for site location.

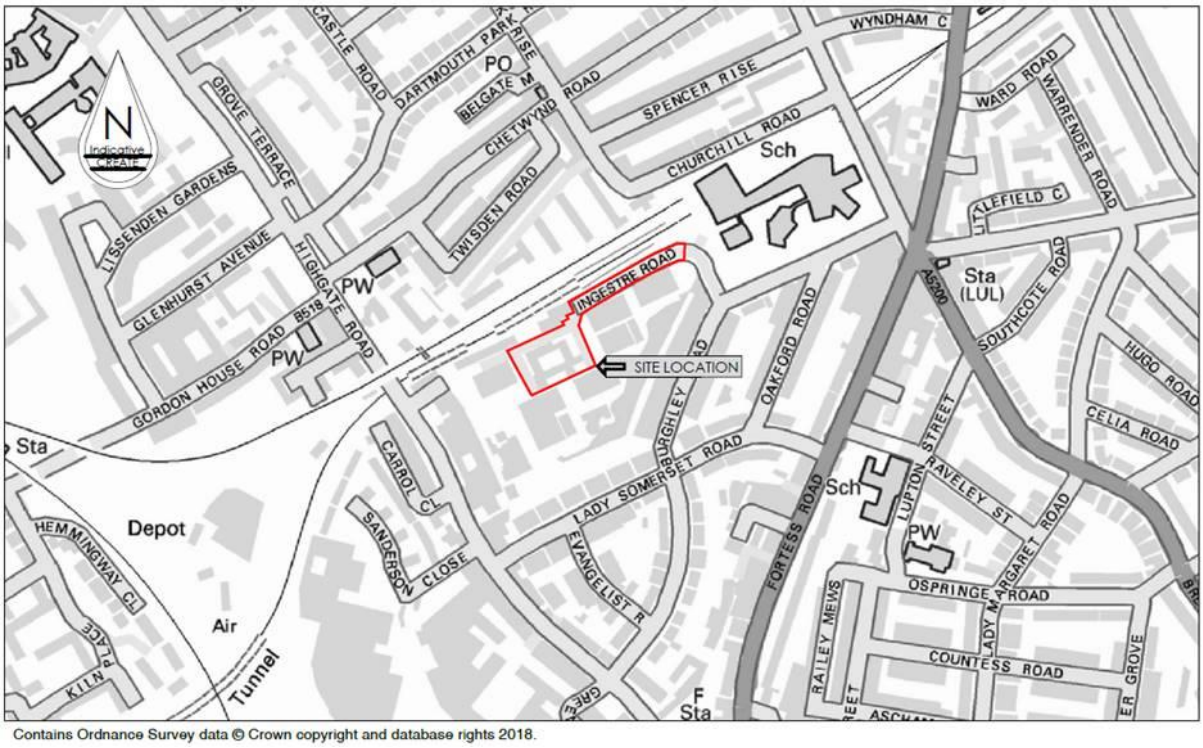

Figure 1.1: Site Location

1.3 The site is surrounded by residential buildings and is located in close proximity to Tufnell Park tube station to the east and Kentish Town tube station to the south-east. Hampstead Heath Park is located approximately 500 meters to the north-west of the site.

Proposed Development

1.4 The site is approximately 0.18 hectares in area and comprises a part two, part three-storey redundant building, originally built as an elderly persons home. The building comprises three wings arranged around a central courtyard.

1.5 The proposal is to demolish the existing buildings and the erection of a six storey building plus single storey basement building accommodating 50 Assisted Living residential apartments.

The building will include associated communal and support facilities and ancillary cafe, salon and mini gym, together with external amenity spaces, car lift, basement parking, laundry, plant, CCTV, lighting, access, landscaping, infrastructure and other ancillary works.

1.6 This report details information gathered from consultation with the design team.

Objectives

1.7 The objectives of this report are to:

- Demonstrate how the proposed development will meet and exceed the sustainability standards set by the London Borough of Camden and the London Plan.
- Identify areas for consideration at the early stages of the project to facilitate the incorporation of the principles of sustainable design and construction into the design of the development.
- Summarise the result of the BREEAM pre-assessment exercise carried out for the scheme, detailing the commitments made by the client and the design team.

Report Structure

1.8 This introductory section is followed by a comprehensive review of national/regional/local policies on sustainability and best practice standards. Section 3 summarises the results of the energy strategy. Section 4 summarises the results of the BREEAM pre-assessment exercise for the commercial elements of the scheme and the following Sections 5 - 11 detail the sustainability strategy for the scheme related to Climate Change Mitigation & Adaptation, Water Efficiency, Flood Risk and SUDs, Pollution, Sustainable Construction Processes/ Materials & Recycling, Land Use & Ecology and Sustainable Transport/Accessibility. Section 11 provides a summary and conclusion on the Sustainability strategy for the scheme. The detailed BREEAM pre-assessment for the development can be found in the Appendices section of this report.

2.0 CURRENT AND FUTURE PLANNING POLICIES / GOOD PRACTICE REVIEW AND PROJECT REQUIREMENTS

National Planning Policy Framework (March 2012)

2.1 The National Planning Policy Framework sets out the Government's planning policies for England and how these are expected to be applied. Taken together, these policies articulate the Government's vision of sustainable development, which should be interpreted and applied locally to meet local aspirations. The ministerial foreword of this NPPF highlights that 'the purpose of planning is to help achieve sustainable development' and that sustainable development "should go ahead, without delay – a presumption in favour of sustainable development that is the basis for every plan, and every decision."

2.2 Sustainable development is defined in the NPPF as comprising developments "meeting the needs of the present without compromising the ability of future generations to meet their own needs" in line with the definition of the Brundtland Commission ('Our Common Future', 1987). The NPPF also refers to the five guiding principles of sustainable development set out in the UK Sustainable Development Strategy, Securing the Future: living within the planet's environmental limits; ensuring a strong, healthy and just society; achieving a sustainable economy; promoting good governance; and using sound science responsibly.

The London Plan (2011) with 2015 amendments

2.3 This Spatial Development Strategy for Greater London includes objectives to reduce the capital's impact on, and exposure to, the effect of climate change. The most relevant policy for this Sustainability Statement is:

Policy 5.3: 'Sustainable Design and Construction':

2.4 The highest standards of sustainable design and construction should be achieved in London to improve the environmental performance of new developments and to adapt to the effects of climate change over their lifetime. Development proposals should demonstrate that sustainable design standards are integral to the proposal, including its construction and operation, and ensure that they are considered at the beginning of the design process. Major development proposals should meet the minimum standards outlined in the Mayor's supplementary planning guidance and this should be clearly demonstrated within a design and access statement. The standards include measures to achieve other policies in this Plan and the following sustainable design principles.

- Minimising carbon dioxide emissions across the site, including the building and services (such as heating and cooling systems);
- Avoiding internal overheating and contributing to the urban heat island effect
- Efficient use of natural resources (including water), including making the most of natural systems both within and around buildings;

- Minimising pollution (including noise, air and urban runoff);
- Minimising the generation of waste and maximising reuse or recycling;
- Avoiding impacts from natural hazards (including flooding);
- Ensuring developments are comfortable and secure for users, including avoiding the creation of adverse local climatic conditions;
- Securing sustainable procurement of materials, using local supplies where feasible, and promoting and protecting biodiversity and green infrastructure.

Greater London Authority (GLA) Supplementary Planning Guidance (SPG) on Sustainable Design and Construction (April 2014)

2.5 This Supplementary Planning Guidance (SPG) provides guidance on what measures developers can include in their building designs and operations to achieve the carbon dioxide and water consumption targets set out in the London Plan. This SPG also provides guidance on how boroughs can take forward the new approaches set out in the London Plan, such as carbon-dioxide off-setting, retrofitting and 'air quality neutral'. This guidance document includes 3 main sections:

- Chapter 2: 'Resource Management' (Land, Site Layout and Building Design, Energy and CO_2 emissions, Renewable Energy, Water Efficiency, Materials and Waste, Nature conservation and biodiversity);
- Chapter 3: 'Adapting to climate change and greening the city' (Tackling increased temperature and drought, Increasing green cover and trees, Flooding);
- Chapter 4: 'Pollution Management – Land, Air, Noise, Light and Water'.

Greater London Authority (GLA) Draft London Plan (December 2017)

A draft London Plan has now been produced this includes the following policies:
Policy SI1 Improving Air Quality
Policy SI2 Minimising Greenhouse Gas Emissions
Policy SI5 Water Infrastructure
Policy SI7 Reducing waste and supporting the circular economy
Policy SI12 Flood Risk Management
Policy SI13 Sustainable Drainage
Policy T5 Cycling

Camden Local Plan June 2017

Policy D1 Design

2.6 The Council will require that development is sustainable in design and construction, incorporating best practice in resource management and climate change mitigation and adaptation plus is of sustainable and durable construction and adaptable to different activities and land uses.

Policy CC1 Climate Change Mitigation

2.7 The Council will require all development to minimise the effects of climate change and encourage all developments to meet the highest feasible environmental standards that are financially viable during construction and occupation. The council will promote zero carbon development and require all development to reduce carbon dioxide emissions through following the steps in the energy hierarchy and will require all major development to demonstrate how London Plan targets for carbon dioxide emissions have been met. The Council will expect developments of five or more dwellings and/or more than 500 sqm of any gross internal floor space to achieve a 20% reduction in carbon dioxide emissions from on-site renewable energy generation (which can include sources of site related decentralised renewable energy), unless it can be demonstrated that such provision is not feasible.

2.8 The Council also require development proposals that involve substantial demolition to demonstrate that it is not possible to retain and improve the existing building.

Policy CC2 Adapting to Climate Change

2.9 All development should adopt appropriate climate change adaptation measures such as:

a. the protection of existing green spaces and promoting new appropriate green infrastructure;
b. not increasing, and wherever possible reducing, surface water runoff through increasing permeable surfaces and use of Sustainable Drainage Systems;
c. incorporating bio-diverse roofs, combination green and blue roofs and green walls where appropriate; and
d. measures to reduce the impact of urban and dwelling overheating, including application of the cooling hierarchy.

Sustainable design and construction measures

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

a. ensuring development schemes demonstrate how adaptation measures and sustainable development principles have been incorporated into the design and proposed implementation;
b. encourage new build residential development to use the Home Quality Mark and Passivhaus design standards;
c. encouraging conversions and extensions of 500 sqm of residential floorspace or above or five or more dwellings to achieve “excellent” in BREEAM domestic refurbishment; and
d. expecting non-domestic developments of 500 sqm of floorspace or above to achieve “excellent” in BREEAM assessments and encouraging zero carbon in new development from 2019.

Policy CC3 Water and flooding

2.11 The Council will seek to ensure that development does not increase flood risk and reduces the risk of flooding where possible. The council will require development to:

a. incorporate water efficiency measures;
b. avoid harm to the water environment and improve water quality;
c. consider the impact of development in areas at risk of flooding (including drainage);
d. incorporate flood resilient measures in areas prone to flooding;
e. utilise Sustainable Drainage Systems (SuDS) in line with the drainage hierarchy to achieve a greenfield run-off rate where feasible; and
f. not locate vulnerable development in flood-prone areas.

Policy CC4 Air quality

2.12 The Council will ensure that the impact of development on air quality is mitigated and ensure that exposure to poor air quality is reduced in the borough. The Council will take into account the impact of air quality when assessing development proposals, through the consideration of both the exposure of occupants to air pollution and the effect of the development on air quality.

2.13 Consideration must be taken to the actions identified in the Council's Air Quality Action Plan. Air Quality Assessments (AQAs) are required where development is likely to expose residents to high levels of air pollution. Where the AQA shows that a development would cause harm to air quality, the Council will not grant planning permission unless measures are adopted to mitigate the impact.

2.14 Similarly, developments that introduce sensitive receptors (i.e. housing, schools) in locations of poor air quality will not be acceptable unless designed to mitigate the impact. Development that involves significant demolition, construction or earthworks will also be required to assess the risk of dust and emissions impacts in an AQA and include appropriate mitigation measures to be secured in a Construction Management Plan.

Policy CC5 Waste

2.15 The Council will seek to make Camden a low waste borough. The Council will:

a. aim to reduce the amount of waste produced in the borough and increase recycling and the reuse of materials to meet the London Plan targets of 50% of household waste recycled/composted by 2020 and aspiring to achieve 60% by 2031;
b. deal with North London's waste by working with our partner boroughs in
c. North London to produce a Waste Plan, which will ensure that sufficient land is allocated to manage the amount of waste apportioned to the area in the London Plan;

d. safeguard Camden's existing waste site at Regis Road unless a suitable compensatory waste site is provided that replaces the maximum throughput achievable at the existing site; and
e. make sure that developments include facilities for the storage and collection of waste and recycling.

Policy A3 Biodiversity

2.16 The Council will protect and enhance sites of nature conservation and biodiversity. The Council will:

a. designate and protect nature conservation sites and safeguard protected and priority habitats and species;
b. grant permission for development unless it would directly or indirectly result in the loss or harm to a designated nature conservation site or adversely affect the status or population of priority habitats and species;
c. seek the protection of other features with nature conservation value, including gardens, wherever possible;
d. assess developments against their ability to realise benefits for biodiversity through the layout, design and materials used in the built structure and landscaping elements of a proposed development, proportionate to the scale of development proposed;
e. secure improvements to green corridors, particularly where a development scheme is adjacent to an existing corridor;
f. seek to improve opportunities to experience nature, in particular where such opportunities are lacking;
g. require the demolition and construction phase of development, including the movement of works vehicles, to be planned to avoid disturbance to habitats and species and ecologically sensitive areas, and the spread of invasive species;
h. secure management plans, where appropriate, to ensure that nature conservation objectives are met; and
i. work with The Royal Parks, The City of London Corporation, the London
j. Wildlife Trust, friends of park groups and local nature conservation groups to protect and improve open spaces and nature conservation in Camden.

Policy A4 Noise and vibration

2.17 The Council will seek to ensure that noise and vibration is controlled and managed. Development should have regard to Camden's Noise and Vibration Thresholds. The council will not grant planning permission for:

a. development likely to generate unacceptable noise and vibration impacts; or
b. development sensitive to noise in locations which experience high levels of noise, unless appropriate attenuation measures can be provided and will not harm the continued operation of existing uses.

2.18 The council will only grant permission for noise generating development, including any plant and machinery, if it can be operated without causing harm to amenity. The council will also seek to minimise the impact on local amenity from deliveries and from the demolition and construction phases of development.

Policy T1 Prioritising walking, cycling and public transport

2.19 The Council will promote sustainable transport by prioritising walking, cycling and public transport in the borough.

Walking

2.20 In order to promote walking in the borough and improve the pedestrian environment, the council will seek to ensure that developments:

a. improve the pedestrian environment by supporting high quality public realm improvement works;
b. make improvements to the pedestrian environment including the provision of high quality safe road crossings where needed, seating, signage and landscaping;
c. are easy and safe to walk through ('permeable');
d. are adequately lit;
e. provide high quality footpaths and pavements that are wide enough for the number of people expected to use them. Features should also be included to assist vulnerable road users where appropriate; and
f. contribute towards bridges and water crossings where appropriate.

Cycling

2.21 In order to promote cycling in the borough and ensure a safe and accessible environment for cyclists, the Council will seek to ensure that development:

a. provides for and makes contributions towards connected, high quality, convenient and safe cycle routes, in line or exceeding London Cycle Design Standards, including the implementation of the Central London Grid, Quietways Network, Cycle Super Highways and;
b. provides for accessible, secure cycle parking facilities exceeding minimum standards outlined within the London Plan (Table 6.3) and design requirements outlined within our supplementary planning document Camden Planning Guidance on transport. Higher levels of provision may also be required in areas well served by cycle route infrastructure, taking into account the size and location of the development;
c. makes provision for high quality facilities that promote cycle usage including changing rooms, showers, dryers and lockers;
d. is easy and safe to cycle through ('permeable'); and
e. contribute towards bridges and water crossings suitable for cycle use where appropriate.

Public Transport

2.22 In order to safeguard and promote the provision of public transport in the borough we will seek to ensure that development contributes towards improvements to bus network infrastructure including access to bus stops, shelters, passenger seating, waiting areas, signage and timetable information. Contributions will be sought where the demand for bus services generated by the development is likely to exceed existing capacity. Contributions may also be sought towards the improvement of other forms of public transport in major developments where appropriate.

2.23 Where appropriate, development will also be required to provide for interchanging between different modes of transport including facilities to make interchange easy and convenient for all users and maintain passenger comfort.

Sustainability Assessment Methods, BREEAM

2.24 BREEAM is the leading environmental assessment method for UK non-residential buildings. It sets the standard for best practice design and encourages and certifies that best environmental practice is incorporated within the building design and construction.

2.25 BREEAM New Construction 2014 includes specific criteria which are applicable to the commercial spaces proposed for the scheme.

2.26 BREEAM assesses the environmental performance of a non-residential development against ten categories:

- Management;
- Health & Wellbeing;
- Energy;
- Transport;
- Water;
- Materials;
- Waste;
- Land Use & Ecology;
- Pollution;
- Innovation.

2.27 Ingestre Road is aiming to achieve a score that surpasses BREEAM 'Excellent' rating demonstrating their exemplary performance in terms of sustainable design (Please refer to Section 4 of this report). A BREEAM 'Multi-residential' Pre-Assessment has been prepared in support of the planning application to demonstrate compliance with London Borough of Camden Policy CC2 Adapting to Climate Change.

3.0 SUMMARY OF THE ENERGY STRATEGY

3.1 The energy strategy for the scheme has been prepared following the principles of the London Plan Energy Hierarchy: 'Be Lean', 'Be Clean' and 'Be Green' (refer to Energy Statement report prepared by Create Consulting Engineers Ltd – ref: AK/CS/P17-1282/09). The overriding objective in the formulation of the Energy Statement has been to maximise the viable reductions in total carbon dioxide emissions from the development within the framework of the energy hierarchy.

3.2 'Be Lean': The strategy aims to reduce energy demands by first incorporating suitable passive design measures, followed by proposed enhancements to provide a highly efficient building fabric and efficient heating system. The proposed energy conservation measures will reduce the new build dwellings' Fabric Energy Efficiency (DFEE) below the Target Fabric Energy Efficiency (TFEE) by 10%. The Dwellings Emission Rate (DER) and Building Emission Rate (BER) are marginally higher than the Target Emission Rate (TER) figures dictated by the Building Regulations. These have been calculated based on gas heated spaces as required by the GLA's guidance on preparing energy statement. This figure will be revised at detailed design stage when building services design is fully developed. The design will be progressed prioritising energy efficiency of the building fabric and services.

3.3 'Be Clean': The opportunity for the proposed development to link into an existing or planned decentralised energy network has been considered. The development is not located within immediate proximity of a proposed district heat network, however the design and layout of the building's plant room will be such that it will facilitate the possible future connection of the development to an energy network.

3.4 'Be Green': A feasibility study has been undertaken to establish the most suitable renewable technology for integration within the proposed development. Air source heat pumps and photovoltaic systems have been deemed the most viable and practical options for the scheme. A PV array of approximately 27kWp for the site is initially proposed to maximise the roof space and energy reduction achieved. The incorporation of ASHPs would result in the development exceeding the 19% CO2 emissions reduction target requested by Camden Local Plan. The proposed LZC technologies for the scheme (ASHP and array of Photovoltaics (PV) modules) achieve **21.9% CO_2 emissions reduction**.

3.5 The 'zero carbon' target has not been achieved for the proposed residential part of the development on-site therefore the Client will commit to meeting the shortfall by making contributions to the Camden Council carbon offsetting fund. The funds secured by the council will be ring-fenced to deliver carbon emissions savings off site through a variety of projects and will be secured through Section 106 legal agreements.

3.6 The energy strategy of the scheme has considered measures to adapt and mitigate effects of climate change, in particular through an optimised design minimising risk of overheating (compliant with the London Plan Cooling Hierarchy) and the specification of energy efficiency systems and LZC leading to significant CO_2 emission reductions **(40.38 tonnes of CO_2/yr).**

3.7 The Table below summarises the energy and CO_2 emission reductions for the stages of the energy hierarchy for the proposed Ingestre Road development.

3.8 A highly optimised energy strategy based on passive design, building fabric performance and building services systems and controls, and suitable Low and Zero Carbon systems will allow the scheme to achieve an **improvement over Part L 2013 of approximately 21.9%** (please refer to the table 3.1 below). The increase in CO_2 emissions reduction has not been considered achievable for the scheme due to the practical constraints of the site (limited roof area available for PV).

Carbon Dioxide Emissions – Domestic & Non-Domestic areas	Carbon Dioxide Emissions [tonnes/year]	
	Regulated	**Unregulated**
Baseline: Part L 2013 of the Building Regulations Compliant Development (community gas – GLA guidance)	184.42	252.64
Be Lean - energy demand reduction	190.87	252.64
Be Green - ASHP	139.89	252.64
Be Green – 27kWp PV	129.24	252.64
Improvement over Part LA: 2013	**40.38**	**Tonnes CO_2 per annum**
	21.90	**%**

Table 3.1: Energy hierarchy reductions – Whole development

3.9 Total CO_2 emissions reduction over the Building Regulations with PV system of this size will be 21.9%, falling short of the London Plan requirements for all major developments (Policy 5.2) - here applied to non-domestic part of the development. The proposed LZC technologies for the scheme (ASHP and 27kWp PV system) achieve 21.9% CO_2 emissions reduction for the scheme over the 'Be Lean' scenario, which exceeds the 20% requirement of the London Plan – Policy 5.7: 'Renewable Energy'.

4.0 BREEAM PRE-ASSESSMENT

Introduction

4.1 BREEAM (Building Research Establishment's Environmental Assessment Method) is a nationally recognised standard for the design and construction of new non-residential developments.

4.2 The BREEAM assessment process involves the evaluation of the buildings performance against the scheme and its criteria using an independent third party auditor; a BREEAM Assessor. The BREEAM certificate provides formal verification that the Assessor has completed an assessment of the building in accordance with the requirements of the scheme and its quality standards and procedures. A BREEAM certificate verifies that a building's BREEAM rating, at the time of certification, accurately reflected its performance against the BREEAM standards.

4.3 The BREEAM standard assesses and awards credits based on the environmental features of the building within a framework of nine categories, these being:

- Management
- Health and Wellbeing
- Energy
- Transport
- Water
- Materials
- Waste
- Land use and Ecology
- Pollution

BREEAM Levels

4.4 The BREEAM rating is divided into five levels of compliance Pass, Good, Very Good, Excellent and Outstanding. The BREEAM level thresholds are as follows:

Total Percentage Points Score (equal to or greater than)	BREEAM Rating
<30 Points	Unclassified
30 Points	Pass
45 Points	Good
55 Points	Very Good
70 Points	Excellent
85 Points	Outstanding

Table 4.1 BREEAM Rating Thresholds

4.5 The categories within BREEAM are weighted according to their level of importance, as indicated in Table 4.2 Total Credits Available, Weighting Factors and Points (BREEAM New Construction 2014 Technical Guide – 'Multi-Residential') below. Each category is allocated a different number of credits and therefore individual credits carry specific weightings, as a percentage of the total points score.

4.6 BREEAM awards additional credits in recognition of sustainability related benefits or performance levels which are not currently recognised by standard BREEAM assessment issues and criteria, to reward buildings that go beyond best practice. An additional 1% can be added to a building's overall score for each 'Innovation Credit' achieved up to a maximum of 10 credits for any one building. Innovation credits can be awarded regardless of the building's final BREEAM rating.

Categories of Environmental Impact	Total Credits Available in each Category*	Weighting Factor (% points contribution)	Approximate Weighted Value of each Credit
Management	21	12.0%	0.57
Health & Wellbeing	18	15.0%	0.83
Energy	23	15.0%	0.79
Transport	9	9.0%	1.00
Water	9	7.0%	0.78
Materials	14	13.5%	1.04
Waste	8	8.5%	1.06
Land Use and Ecology	10	10.0%	1.00
Pollution	13	10.0%	0.77
Innovation	10	10.0%	1.00
Total	-	100.0%	-

Table 4.2 Total Credits Available, Weighting Factors and Points (BREEAM New Construction 2014 Technical Guide – 'Multi-Residential')

**The number of credits available is based on the scoping of appropriate assessment criteria produced within BRE's assessment tool. This is based on the type of building and room functions within.*

BREEAM Minimum Standards

4.7 The BREEAM standard includes mandatory minimum performance standards in the following areas, which must be met in order to achieve the BREEAM rating sought.

BREEAM Credit	Percentage required and number of credits required to meet minimum standards				
	Pass ≥30 - <45%	Good ≥45 - <55%	Very Good ≥55 - <70%	Excellent ≥70 - <85%	Outstanding ≥85%
Man 01 - Project brief and design	n/a	n/a	**1 credit - Stakeholder consultation – project delivery**		
Man 03 - Responsible construction practices - Credits – Criterion 2	**All site timber used in the project must be sourced in accordance with the UK government's Timber Procurement Policy**				
Man 03 - Responsible construction practices	n/a	n/a	**n/a**	1	2
Man 04 – Commissioning and Handover – Criterion 9	n/a	n/a	**n/a**	Training schedule requirement	
Man 05 – Aftercare	n/a	n/a	**n/a**	1 credit – Seasonal Commissioning	
Ene 01 – Reduction of energy use and carbon emissions	n/a	n/a	**n/a**	5	8
Ene 02 –Energy Monitoring	n/a	n/a	**1 credit - Sub-metering of major energy consuming systems.**		
Ene 04 – Low and Zero Carbon Technologies	n/a	n/a	**n/a**	1	1
Wat 01 – Water Consumption	n/a	1	**1**	1	2
Wat 02 – Water Monitoring – Criterion 1	n/a	**The specification of a water meter on the mains water supply to each building; this includes instances where water is supplied via a borehole or other private source.**			
Mat 03 – Responsible Sourcing	**All timber used on the project must be 'Legally harvested and traded timber'.**				
Wst 01 – Construction Waste Management	n/a	n/a	**n/a**	n/a	1
Wst 03 – Operational Waste	n/a	n/a	**n/a**	1	1
LE 04 – Mitigating Ecological Impact	n/a	n/a	**1**	1	1

Table 4.3 BREEAM Minimum Standards

4.8 The BREEAM rating can only be achieved if the above mandatory issues achieve the minimum standards as set out in the BREEAM New Construction 2014 Technical Guidance. All other credits are tradable (i.e. they are voluntary and a developer/designer can make choices on the most appropriate standards/credits for a given site). It is these tradable credits that provide the flexibility within the BREEAM standard. Once all mandatory credits are achieved the developer is then free to make up the credits required for the target rating from the tradable credits, to give an overall score.

BREEAM Pre-Assessment Scoring Strategy – 'Excellent rating

4.9 A BREEAM Pre-Assessment has been carried out for the multi-residential space of the Ingestre Road development by licensed BREEAM assessors and Accredited Professionals. The prediction indicates that all minimum standards will be achieved to meet the

BREEAM 'Excellent' rating. The development can expect to secure the targeted credits, where supporting evidence is provided to the assessor at the formal assessment meeting.

4.10 The BREEAM pre-assessment checklist provides an approximate indication of how a future formal assessment will score and the rating that will be achieved. The prediction checklist should therefore not be used as a guarantee of a subsequent rating but will inform how credits should be targeted during the formal assessment procedure.

4.11 The current prediction is that an 'Excellent' rating is likely to be achieved, with a point's score of 74.41%, where evidence is supplied to support the award of the BREEAM credits. The prediction indicates that all minimum standards will be achieved to meet the BREEAM 'Excellent' rating.

4.12 Figure 4.1 BREEAM Pre-Assessment – Multi-residential Scheme – Summary Chart Figure 4.1 below and Table 4.4 overleaf show a resume of the BREEAM credits, with the completed BREEAM pre-assessment table in Appendix A.

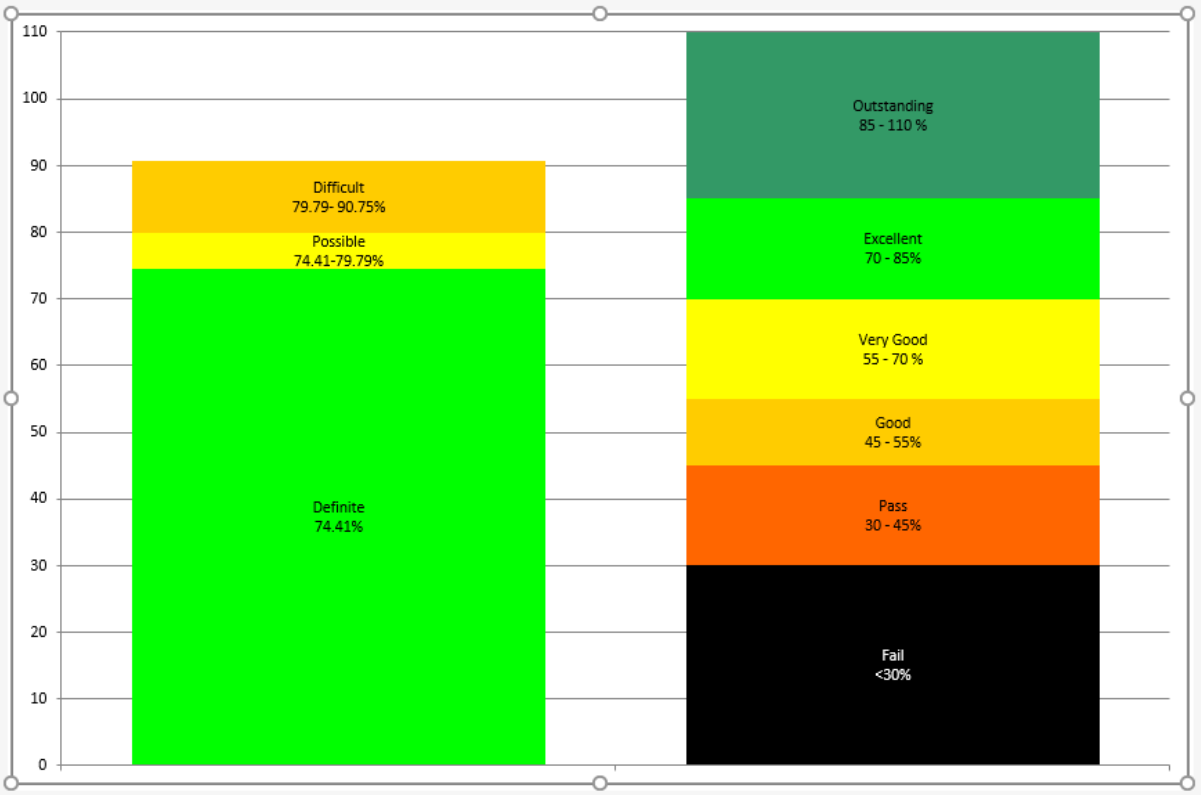

Figure 4.1 BREEAM Pre-Assessment – Multi-residential Scheme – Summary Chart

BREEAM New Construction 2014 - Multi Residential Credits	Number of credits available	TARGETED (Green: Confident Target, Orange: Require careful	Difficult	Unachievable
MANAGEMENT				
Man 01 - Project brief and Design - Stakeholder Consultation (Project Delivery)	1	1		
Man 01 - Project brief and Design - Stakeholder consultation (third party)	1	1		
Man 01 - Project brief and Design - Sustainability Champion (Design)	1	1		
Man 01 - Project brief and Design - Sustainability Champion (monitoring	1	1		
Man 02 - Life cycle cost and service life planning - Elemental life cycle cost (LCC)	2			2
Man 02 - Life cycle cost and service life planning - Component level LCC Plan	1			1
Man 02 - Life cycle cost and service life planning - Capital cost reporting	1	1		
Man 03 - Responsible construction practices- Pre-requisite	N/A			
Man 03 - Responsible construction practices - Environmental management	1	1		
Man 03 - Responsible construction practices - Sustainability Champion	1	1		
Man 03 - Responsible construction practices - Considerate construction	2	2		
Man 03 - Responsible construction practices - Monitoring of construction-site	2	2		
Man 04 - Commissioning and handover- Commissioning and testing schedule	1	1		
Man 04 - Commissioning and handover – Commissioning Building Services	1	1		
Man 04 - Commissioning and handover - Testing and inspecting building fabric	1	1		
Man 04 - Commissioning and handover - Handover	1	1		
Man 05 – Aftercare - Aftercare Support	1			1
Man 05 – Aftercare – Seasonal Commissioning	1	1		
Man 05 – Aftercare – Post Occupancy Evaluation	1			1
HEALTH AND WELLBEING				
Hea 01 - Visual comfort - Glare control	1	1		
Hea 01 - Visual comfort - Daylighting (building type dependent)	1	1		
Hea 01 - Visual comfort - View out	1	1		
Hea 01 - Visual comfort - External lighting levels, zoning and control	1	1		
Hea 02 - Indoor Air Quality - Minimising sources of air pollution	1	1		
Hea 02 – Indoor Air Quality - Ventilation	1			1
Hea 02 – Indoor Air Quality - Volatile Organic Compound (VOC) Emission Levels	1	1		
Hea 02 – Indoor Air Quality - Volatile Organic Compound (VOC) Emission Levels	1	1		
Hea 02 – Indoor Air Quality - Adaptability - Potential for natural ventilation	1	1		
Hea 04 - Thermal Comfort - Thermal modelling	1	1		
Hea 04 - Thermal Comfort - Adaptability - For a Projected Climate Change	1	1		
Hea 04 - Thermal Comfort - Thermal Zoning and Controls	1	1		
Hea 05 - Acoustic performance	4	4		
Hea 06 - Safety and security - Safe access	1	1		
Hea 06 - Safety and security - Security of site and building	1	1		
ENERGY				
Ene 01 - Reduction in CO_2 emissions	12	5		
Ene 02 – Energy Modelling	1	1		
Ene 03 -External lighting	1	1		
Ene 04 - Low Carbon Design - Passive design - Passive design analysis	2			2
Ene 04 - Low Carbon Design - Low and zero carbon technologies - Low zero	1		1	
Ene 06 - Energy Efficient Transportation Systems – Energy Consumption	1	1		
Ene 06 - Energy Efficient Transportation Systems – Energy efficient features	2	2		
Ene 08 - Energy Efficient Equipment	2	2		
TRANSPORT				
Tra 01 - Public Transport Accessibility	5	3		

BREEAM New Construction 2014 - Multi Residential Credits	Number of credits available	TARGETED (Green: Confident Target, Orange: Require careful	Difficult	Unachievable
Tra 02 - Proximity to Amenities	2	2		
Tra 03 - Cyclist facilities	1	1		
Tra 04 - Maximum Car Parking Capacity	2	2		
Tra 05 - Travel Plan	1	1		
WATER				
Wat 01 - Water consumption	5	3		
Wat 02 - Water monitoring	1	1		
Wat 03 - Water Leak Detection & Prevention - Leak detection system	1	1		
Wat 03 - Water Leak Detection & Prevention – Flow control device	1	1		
Wat 04 - Water Efficient Equipment	1	1		
MATERIALS				
Mat 01 - Life cycle impacts	6	3		
Mat 02 - Hard Landscaping/	1	1		
Mat 03 - Responsible sourcing of materials	4	2	2	
Mat 04 - Insulation	1	1		
Mat 05 - Designing for durability and resilience	1	1		
Mat 06 - Material Efficiency	1			1
WASTE				
Wst 01 - Construction Waste Management	4	3	1	
Wst 02 - Recycled aggregates	1			1
Wst 03 - Operational Waste	1	1		
Wst 05 - Adaptation to Climate Change	1		1	
Wst 06 - Functional Adaptability	1	1		
LAND USE AND ECOLOGY				
LE 01 - Site Selection - Previously developed land	1	1		
LE 01 - Site Selection - Contaminated land	1			1
LE 02 - Ecological value of site and protection of ecological features	2	2		
LE 03 - Minimising Impact on Existing Site Ecology	2	2		
LE 04 - Enhancing Site Ecology	2	2		
LE 05 - Long Term Impact on Biodiversity	2	2		
POLLUTION				
Pol 01 - Impact of refrigerants	3	2	1	
Pol 02 - NOx emissions	3			3
Pol 03 - Surface water run off - Flood risk	2	2		
Pol 03 - Surface water run off - Surface water run off- Drainage	2	2		
Pol 03 - Surface water run off - Minimising watercourse pollution	1			1
Pol 04 - Reduction of night time light pollution	1	1		
Pol 05 - Noise attenuation	1	1		
INNOVATION				
Man 03 - Responsible construction practices	1			1
Man 05 – Aftercare	1			1
Hea 01 - Visual Comfort	1			1
Hea 02 - Indoor Air Quality	2			2
Ene 01 - Reduction in CO2 emissions	5			5
Wat 01 -Water Consumption	1			1
Mat 01 - Life cycle impacts	3			3
Mat 03 - Responsible sourcing of materials	1			1

BREEAM New Construction 2014 - Multi Residential Credits	Number of credits available	TARGETED (Green: Confident Target, Orange: Require careful	Difficult	Unachievable
Wst 01 - Construction Waste Management	1			1
Wst 02 - Recycled aggregates	1			1
Wst 05 - Adaptation to Climate Change	1			1
Approved Innovation	1			1
		74.41	**79.79**	**90.75**
		Excellent	**Excellent**	**Outstanding**

Table 4.4: BREEAM Pre-Assessment – Ingestre Road

4.13 The detailed BREEAM pre-assessment checklist for the scheme detailing the commitments made by the design team can be found in Appendix A.

4.14 A formal assessment will take place once the tender documentation is produced and will require submission of a full evidence bundle from the client and the design team to show compliance with the credits. The BREEAM assessor and BREEAM Accredited Professional have been and will continue to form an integral part of the design team and a consistent point for reference, review and questions. Experience has proved that this approach offers the surest route to a successful BREEAM certification and holistic sustainable design.

5.0 CLIMATE CHANGE - MITIGATION AND ADAPTATION

5.1 The GLA SPG on Sustainable Design and Construction – Chapter 3: 'Adapting to climate change and greening the city' and the London Borough of Camden Local Plan – Policy CC1 provides further guidance on how developers should incorporate climate change adaptation and greening priorities outlined in the London Plan.

5.2 Climate change brought about by man-made emissions of greenhouse gases has been identified as the greatest challenge facing human society at the beginning of the 21st century.

5.3 The effects of climate change are complex, they include:

- Increased average temperatures;
- Rising sea levels;
- Increased precipitation;
- More frequent extreme weather.

5.4 Action to address climate change falls into two categories: mitigation and adaptation. Mitigation measures are designed to reduce greenhouse gas emissions to slow down or stop climate change, whilst adaptation measures are designed to adjust society and buildings to cope with climate changes that are already happening.

5.5 The design proposals for both the domestic and non-domestic uses at Ingestre Road incorporate climate change mitigation and adaptation features in line with the guidance of the GLA SPG on Sustainable Design and Construction and London Borough of Camden Local Plan – Policy CC1.

Climate Change - Mitigation

5.6 The energy strategy of the scheme has considered measures to mitigate the effects of climate change through the specification of energy efficient systems and LZC (ASHP + PV panels) to provide a proportion of the energy demand of the development to reduce fossil fuel usage and greenhouse gas emissions equivalent to 40.38tonnes of CO_2/yr.

5.7 Please refer to Ingestre Road Energy Statement report prepared by Create Consulting Engineers Ltd (ref: AK/CS/P17-1282/09)for details of the energy strategy proposed for the development.

Climate Change - Adaptation

Adapting to heavier rainfall

5.8 The peak run-off rates and annual volumes of run-off will be no greater than the previous conditions for the development site as there is no change of impermeable areas for the scheme. The proposed drainage measures will ensure the new development does not increase flood risk elsewhere. The use of Sustainable Drainage Systems will provide storm water run-off attenuation in line with the GLA SPG on Sustainable Design and Construction – Chapter 3: 'Adapting to climate change and greening the city' and London Borough of Camden Local Plan Policy CC2.

5.9 The proposed buildings' design will take into consideration the existing soil characteristics to make sure the foundations are designed to withstand heavier rainfalls as well as long periods of dry weather. This is particularly important for clay soils so common in the London area.

Adapting to drier and hotter summers

5.10 The energy strategy of the scheme has considered measures to adapt to the effects of climate change, in particular through an optimised design minimising risk of overheating (compliant with the London Plan Cooling Hierarchy). Please refer to Ingestre Road Energy Statement report prepared by Create Consulting Engineers Ltd (Ref: AK/CS/P17-1282/09) for details of the features proposed to limit the risk of overheating for the scheme.

5.11 The proposed development at Ingestre Road will significantly reduce its demand on mains water supply through the use of water efficient fittings. The proposed extra care units will meet or exceed the requirements of the Building Regulations regarding the maximum water use per person per day of 125 litres.

5.12 The proposed green areas and water features will reduce the 'urban island' effect and will positively impact on the residents' wellbeing by providing much needed shade and rising air humidity in hot summer days. The new proposed planting will be carefully selected to withstand long periods of drought. External water butts will be considered to provide water for landscaping irrigation.

5.13 The proposed buildings form ensures that no extra care units are south facing with a single aspect. This will help to prevent overheating in the dwellings in hot summer months.

6.0 WATER EFFICIENCY, FLOOD RISK AND SUDS

6.1 Consideration has been made to the conservation of water resources through water efficiency measures, in addition to the risk posed by flooding and the use of Sustainable Urban Drainage Systems (SUDs) to reduce the risk of surface water flooding, in line with GLA SPG on Sustainable Design and Construction – Chapter 2: 'Resource Management', Chapter 3: 'Adapting to climate change and greening the city' and the London Borough of Camden Policy CC2 Adapting to Climate Change

Water Efficiency

6.2 The water consumption of the residential units has been calculated using the Government's national calculation methodology for assessing water efficiency in new dwellings published by Communities and Local Government, September 2009. The document outlines the calculation methodology for assessing the whole house potable water consumption used, and to assess compliance against the water performance targets of the Building Regulations.

6.3 The extra care units will achieve a potable water use target of less than 125 litres per person per day through the use of water efficient fittings alone. This will meet or exceed the requirements of Part G of the Building Regulations.

6.4 If white goods are provided, these will be water efficient with the highest Eco rating.

6.5 Pulsed water meters will be fitted to the mains supply for the non-residential area of the building, which have the potential to be connected to a Building Management System. Any water-consuming plant or building areas, which consume 10% or more of the building's total water demand, will either be fitted with sub meters or have water monitoring equipment integral to the plant or area. This requirement will be included in a lease agreement and will achieve 1 credit under BREEAM Wat 02 'Water Monitoring'.

6.6 Rainwater harvesting for internal uses (toilet flushing / use in washing machines) is not considered viable for the scheme due to the cost and practical constraints related to this system which do not balance the environmental and economic benefit of this system.

6.7 The water conservation strategy for the development will include a water efficient irrigation strategy (incorporation of rain water collection or/and drought resistant planting).

Flood Risk & SUDs

6.8 The site is expected to be in an area of low probability of flooding as confirmed by the Environment Agency Flood Maps. A Flood Risk Assessment (FRA) in line with the 'National Planning Policy Framework' has been carried out by Create Consulting Engineers Ltd (ref: JJ/CS/P17-1282/08) which confirms that all sources of flooding pose a very low risk to the proposed development.

6.9 The design of the scheme will incorporate flood resistant and resilient measures such as:

- Finished floor levels of all residential and non-residential areas to be raised 150mm above ground level;
- Use of flood resilient fittings;
- Build walls/floors with low permeability, virtually no damage or deformation and easy to clean (e.g. engineering bricks, water resistant renders).

6.10 The peak run-off rates and annual volumes of run-off will be lower than the previous conditions for the development site as there will be higher amounts of sustainable drainage. The use of Sustainable Drainage System such as blue roofs and geo-cellular storage crates will lead to further storm water run-off attenuation.

6.11 In addition, the drainage strategy developed by Create Consulting Engineers Ltd will ensure that there is no risk of flooding in case of local drainage system failure.

7.0 POLLUTION

7.1 The development has minimised its impact on noise, air, light and land pollution in line with the guidance of the GLA SPG on Sustainable Design and Construction – Chapter 4: 'Pollution Management', London Borough of Camden Policy CC2 Adapting to Climate Change

Noise

7.2 Create Consulting Engineers has carried out the Noise Assessment for Ingestre Road (Ref: FV/CC/P17-1282/01).

7.3 The proposed site at Ingestre Road is likely to be acceptable from a noise perspective provided that a good acoustic design process is followed.

7.4 In line with BS8233:2014, the ambient noise levels were found to be sufficiently low, so that the standard "thermal" double glazing and standard passive ventilation would be suitable for the proposed new residential properties. This also satisfies the World Health Organisation requirements.

7.5 The external noise levels measured were 51dB $L_{Aeq,T}$, this level is found to be slightly above the 50dB $L_{Aeq,T}$ threshold but below the upper guideline value of 55dB $L_{Aeq,T}$ therefore, it satisfies the BS 8233:2014 guidance for external noise levels.

7.6 The short-term measurements of the noise sources around the proposed development site have been shown to be unlikely to cause adverse impact since their levels were measured to be very low.

7.7 The proposed development site, being 40 meters approximately from the railway was below the threshold for "Low probability of adverse comment" in line with BS 6472:2008. The vibration levels at the proposed site are therefore acceptable.

7.8 Regarding plant noise, the assessment presented in this report has been conducted in line with BS 4142:2014 by setting a cumulative maximum plant noise rating limit. External noise attenuators will be provided for noise break out and cross talk.

Light Pollution

7.9 Light pollution from the scheme will be minimised through careful lighting design.

7.10 Low energy high efficiency luminaires, mounted both on columns and the building will be provided throughout the scheme and will be supplemented by bollard type lighting to the footpaths. The whole system will be controlled by photocell / solar dial timeclock arrangement which will have an over-ride switching facility if required.

7.11 The external lighting will be designed in compliance with the guidance in the Institution of Lighting Professionals (ILP) Guidance notes for the reduction of obtrusive light, 2011. Lighting will be designed so that it is directed to where it is needed and does not spill into neighbouring residential properties or affect wildlife.

7.12 All external lighting (except for safety and security lighting) will include appropriate controls to ensure they can be automatically switched off between 2300hrs and 0700hrs. Safety and security lighting system will comply with the lower levels of lighting recommended during these hours in Table 2 of the ILP's Guidance notes.

Air Pollution

7.13 An Air Quality Assessment has been prepared for the site by Create Consulting Engineers Ltd (Ref: DM/CS/P17-1282/02) to support the planning application for the scheme.

7.14 It has been concluded that based on the proposed scheme uses, Ingestre Road is unlikely to cause significant impact to local air quality.

7.15 The proposed development is situated within an AQMA declared by London Borough of Camden Council. The AQMA covers the whole borough and it is declared on the basis that levels of NO_2 do not meet the UK AQOs at certain locations across borough. However, air quality monitoring and modelling data taken from the vicinity of the development site indicate that the national air quality objectives are met at the development site area.

7.16 Generally, exceedances of the NO_2 objective occur at roadside locations (between 5 to 20 m from the kerb). Given that the setback distance between the development site and Highgate Road is approximately 110m, it is expected that NO_2 concentrations at the development site will remain below UK AQOs and that future residents will not be exposed to NO_2 and PM_{10} pollution that exceeds UK air quality standards.

7.17 A construction dust assessment has been undertaken for the demolition and construction phase associated with the proposed development in accordance with IAQM and GLA guidance on the assessment of dust from demolition and construction. Given the close proximity of sensitive receptors, appropriate mitigation measures should be implemented in order to minimise the potential risk of nuisance. These mitigation measures, outlined in this report, should be included in a Construction Environment Management Plan (CEMP), which should be implemented to minimise the potential of adverse construction dust impacts throughout all the relevant construction stages.

7.18 Vehicular movements generated by the redevelopment of the facility will not result in a significant increase. The Transport Assessment concludes that there will be a slight increase in traffic initially, however during the five-year lifecycle of the Travel Plan, traffic to and from the site will reduce. As such, a detailed modelling assessment of the impact on air quality is not required.

7.19 Results of the air quality neutral transport assessment indicates that NOx and PM_{10} emissions traffic activity related to the development are lower than the relevant GLA benchmarks, and the development is considered air quality neutral from a transport emissions perspective. However, additional mitigation measures such as substantial bicycle/ mobility scooter storage facilities have been incorporated into the development design.

7.20 Due to the energy philosophy relying on Air Source Heat Pumps for domestic hot water and heating, the is no requirement to complete an air quality neutral assessment for building emissions, since there will be no combustion sources on site.

8.0 SUSTAINABLE CONSTRUCTION PROCESSES / MATERIALS & RECYCLING

Existing Development

8.1 The current building configuration and existing foundations would not be sufficient to support the excavation of a basement and a five-storey building.

8.2 The building has effectively reached the end of its useful economic life for its current use, originally as an elderly persons home, as it no longer meets the requirements for modern care home facilities. Taking this conclusion into account and also the issue that there is a lack of architectural merit to the existing building, it is considered that it is neither practical nor desirable for the retention of the existing dated building.

Resource Management

8.3 Preference has been given to the selection of sustainable materials with a low environmental impact over their life cycle, as well as sustainable procurement and waste disposal. This review has been undertaken in the context of the GLA SPG on Sustainable Design and Construction – Chapter 2: 'Resource Management'.

8.4 The environmental impact of construction activities will be minimised through the implementation of best practice measures detailed in the sections below:

Sustainable Construction

8.5 Sustainable construction practices include good site management to encourage resource efficiency, increase materials recovery and avoid the disposal of waste to landfill.

8.6 The following sustainable construction practices will be considered within the development of Ingestre Road:

- Reducing construction and excavation waste to landfill;
- Ensuring the products used in construction are responsibly sourced;
- Carrying out biodiversity surveys and following up with necessary actions;
- Best practice site management principles through registering the site with the Considerate Constructor Scheme to commit to manage the site beyond best practice.

8.7 As part of achieving a sustainable approach to construction, the main contractor will be encouraged to commit to reducing the impact of the construction processes on the environment. In line with the BREEAM 2014 requirements, the contractor will be required to monitor and mitigate construction site impacts throughout the construction period. Best practice pollution prevention policies will be adopted in respect of air (dust) and water pollution arising from site activities. To minimise air (dust) pollution, skips will be covered,

dust generating site activities will be dampened down and wet cutters will be used. Low emission and efficient equipment will be used on site.

8.8 A construction management plan will be in place prior to commencement on site. The construction management plan will appropriately demonstrate how the impacts of air/water pollution, noise and vibration will be mitigated against during the construction of the development. Where feasible timber used on site will be reclaimed, re-used or responsibly sourced.

Construction Materials

8.9 The proposed development will give preference to the selection of sustainable materials and the minimisation of waste. The following measures will be considered to demonstrate that the materials specified are sourced, managed and used in a sustainable manner.

- The BRE's Green Guide to Specification will be used to determine the proposed materials' green rating and their impact on the environment;
- The use of locally sourced materials will be prioritised, where feasible to reduce transport related emissions and to support local supply chains;
- Responsible sourcing of materials from suppliers that operate an Environmental Management System will be prioritised. 100% of all timber included in the construction of floors, roofs, walls and staircase will be legally sourced;
- The use of recyclable materials, such as aggregate will be considered;
- The use of insulation materials with low Global Warming Potential (GWP) will be prioritised;
- The use of high VOC content paints, sealants and all ozone depleting materials including insulation will be avoided. Specific consideration will be given to embodied energy and durability and strength of materials selected for the scheme.

Construction Waste

8.10 A Resource Management Plan will be developed for the scheme.

8.11 On-site waste will be minimised, and a high proportion of the waste that is produced will be diverted from landfill, through either;

- Re-use on site (in situ or for new applications) or re-use on other sites;
- Salvaged/reclaimed for re-use;
- Returned to the suppliers via 'take-back' schemes;
- Recovered and recycled using an approved waste management contractor.

8.12 Where it is not possible to reduce or re-use materials on site, opportunities to recycle the materials off-site will be explored, where feasible.

8.13 A target of <7.5m^3 or <6.5m^3/100m^2 GIA has been set for the maximum amount of waste to be generated by commercial area construction activities.

8.14 More than 80% by weight or 70% by volume of construction waste generated by commercial area construction activities will be diverted from landfill.

Operational Waste

8.15 Adequate internal and external space for the storage of recyclable and residual household and commercial waste will be provided in line with the Camden planning Guidance recommendations (see Create's Delivery and Service Management Plan Ref: TA/CS/P17-1282/07). Dedicated bins will be provided for food waste and optional service of garden waste collection will be offered.

8.16 All dedicated storage will be clearly labelled to assist segregation, storage and collection of the recyclable waste streams.

8.17 The developer will consider additional storage space (preferably lockable) for bulky waste such as fridges/freezers, washing machines, mattresses, furniture, IT equipment etc. This will be accommodated in a designated dry storage room which should not be part of the communal storage area for non-recyclable waste and recycling materials. These items are only collected on request by Camden Council.

8.18 Suitable accessibility to external waste bins will also be taken into account when designing the buildings to meet all relevant requirements of the Camden Waste Planning Guidance.

8.19 It is recommended that easily accessible waste management notice boards are provided close to residential access routes to provide details of waste separation and disposal and notify of any changes to the waste collection scheme.

8.20 For the commercial areas two dedicated storage spaces will be provided for all waste streams. These containers will be clearly labelled, to assist with segregation, storage and collection of waste, accessible to building occupants / facilities operators for the deposit of materials and collections by waste management contractors, and of a capacity appropriate to the commercial development.

9.0 LAND USE & ECOLOGY

9.1 The Ecology Partnership have prepared the Ecology report for Ingestre Road (Ref: Ingestre Road PEA issue 1).

9.2 The scheme is located on a site which comprises an un-vegetated building and hard standing. Approximately less than 5% of the site is vegetated or 90m2, this is equal to flora of 38 species recorded which includes both common native and alien species typical to London waste ground.

9.3 Due to the locality of the nearby publicly accessible Hampstead Heath the area is not deficient in nature conservation. There are no invasive species present and no potential for other protected species.

9.4 The site's buildings have low potential for breeding birds and negligible potential for bat roosts.

9.5 Demolition of the buildings and clearance of taller vegetation should take place outside the breeding season unless the work is supervised by a suitably qualified ecologist.

9.6 The development should aim to meet the London Borough of Camden's planning guidance but the opportunities through ecological enhancement of the provision of brown and green roofs, trees, living walls, bird and bat boxes on the buildings are few, but where possible the provision of artificial bat roost boxes can meet the borough's biodiversity action plan targets.

9.7 The ecological enhancements included in the development are an increased number of street trees, including species with a high value to birds, bees and other insects. There will also be a large green wall plus increased areas of planting beds with a variety of shrub and grass species that will provide for birds, bats, Bees, insect and small mammals.

9.8 The contractors will be required to minimise the ecological impact of construction activities. The following measures will be implemented:

- Nominate a 'Biodiversity Champion' with the authority to influence site activities;
- Train all workforce on how to protect site ecology;
- Records actions taken to protect biodiversity;
- Works conducted at times to minimise ecological disturbance.

10.0 SUSTAINABLE TRANSPORT / ACCESSIBILITY

10.1 To reduce the dependency on travel by car, consideration has been given as to how the development can be designed to encourage the use of public transport and/or other forms of sustainable transport within the context of the GLA SPG on Sustainable Design and Construction – Chapter 2: 'Resource Management'.

10.2 It has been concluded within the Transport Statement prepared by Create Consulting Engineers Ltd (Ref: AF/CS/P17-1282/03) that the proposed development at Ingestre Road will have no material impact on the surrounding transport network and will offer significant pedestrian amenity benefits in accordance with local, regional and national transport policy guidance.

10.3 The online WebCAT planning tool calculates the PTAL of the Site as 3. The results of the WebCAT PTAL report appear not to have taken into account the pedestrian link from the Site to Highgate Road via Little Green Street. The independent PTAL calculation (undertaken by Create Consulting Engineers) adjusted to allow for pedestrian movement from the Site to Highgate Road via Little Green Street which subsequently reduced many of the walking times/distances to local public transport facilities. As a result of this the calculation generated an Access Index (AI) value of 27.07 which gives the Site a PTAL rating of 6a, confirming the Site has, in fact, "Excellent" access to public transport.

Bus

10.4 The nearest northbound bus stop to the Site (stop GZ) is located approximately 200m walking distance from Site on Highgate Road. This stop is served by buses heading towards Highgate and Parliament fields.

10.5 The nearest southbound bus stop (stop GW) is located approximately 180m walking distance to the south-east of the Site. This stop is served by buses heading towards Kentish Town and Central London.

10.6 Both bus stops are wheelchair accessible each feature flag markers and timetable information the northbound stop is also equipped with a shelter.

Rail

10.7 The nearest underground station is Tuffnell Park which is located approximately 480m (walking distance) from the site. This station is served by the northern line underground service connecting the Site to central London and locations such as Finchley and High Barnet to the north. Trains from this station run every 5-6 minutes to each destination throughout the day, with the first departure at 05:41 (to Morden) and the last arrival at 00:54 (towards High Barnet).

10.8 Approximately 800m walking distance to the south of the Site is Kentish Town Station which being just one stop south of Tuffnell Park on the Northern Line offers a very similar service.

10.9 To the west approximately 600m walking distance from the Site is the Gospel Oak London Overground Station. The station is wheel chair accessible and has regular services from three platforms to destinations such as Richmond, Clapham Junction and Stratford.

Walking

10.10 The site's urban location benefits from a high level of pedestrian infrastructure with a well-developed local street network which offers good connectivity to the north, south, east and west of the site. There is continuous footway provision on the southern side of Ingestre Road and sections of footway on the northern side giving pedestrian connectivity to the Site from the east. Ingestre Road itself is well lit and the footways are flat and even, providing a safe and secure walking environment outside the site.

10.11 Little Green Street provides a pedestrian link from Highgate Road to the west of the Site. Highgate Road is the main link from the Site to the north and south and has generous footway provision on both sides of the carriageway.

10.12 College Lane provides an off road pedestrian link to the Site from Lady Somerset Road to the south of the Site.

10.13 The site is well located in relation to a wide range of local amenities including public transport services, retail and leisure facilities, which are all readily accessible on foot.

Cycling

10.14 Whilst there are no cycle lanes on Ingestre Road itself, there are short sections provided along Highgate Road to the west of the site. Advanced cycle stop markings are also provided at the junctions along Highgate Road.

10.15 The TfL Local Cycling Guide mapping has been examined and shows that there is a good network of roads surrounding the Site which are deemed by TfL to be suitable for cycling.

10.16 Highgate Road south of Ingestre Road is classified as "roads that have been recommended by cyclists, may connect other route sections" all the way south to Kentish Town underground station. Somerset Road to the south of Ingestre Road also has the same classification.

10.17 To the north of the Site Highgate Road is classified as "Routes signed or marked for use by cyclists on a mixture of quiet or busier roads" all the way until it connects with Highgate High Street.

10.18 Cycling is therefore seen as a convenient and desirable mode of transport for the more able bodied future site residents.

10.19 On the whole cycling is an increasingly popular mode of transport in London, and to further encourage this trend a generous provision of secure cycle parking is to be offered for both staff and residents in the proposed Site basement.

11.0 CONCLUSION

11.1 This report has been developed to detail the sustainability features of the development and demonstrates how they relate to the relevant planning policy documents including the London Borough of Camden Local Plan, the London Plan and the GLA Supplementary Planning Document (SPD) on Sustainable Design and Construction.

11.2 The Sustainability Statement for Ingestre Road demonstrates that the design will holistically incorporate sustainable principles into the full range of sustainability aspects covered by BREEAM, the GLA and the London Borough of Camden planning documents.

12.0 DISCLAIMER

12.1 This report details information gathered from consultation with the design team and Four Quarters (Ingestre Road) Ltd. All information provided has been accepted in good faith as being accurate and representative of the proposed scheme at the time of review.

12.2 Create Consulting Engineers disclaims any responsibility to the Client and others in respect of any matters outside the scope of this report.

12.3 The copyright of this report is vested in Create Consulting Engineers Ltd and Four Quarters (Ingestre Road) Ltd. The Client, or his appointed representatives, may copy the report for purposes in connection with the development described herein. It shall not be copied by any other party or used for any other purposes without the written consent of Create Consulting Engineers Ltd or Four Quarters (Ingestre Road) Ltd.

12.4 Create Consulting Engineers Ltd accepts no responsibility whatsoever to other parties to whom this report, or any part thereof, is made known. Any such other parties rely upon the report at their own risk.

APPENDICES

APPENDIX A

DETAILED BREEAM - PRE-ASSESSMENT CHECKLIST

	Credit Criteria Red- Minimum standards	Comments	Number of credits available	TARGETED (Green: Confident Target, Orange: Require careful	Difficult	Unachievable	Responsibility
MANAGEMENT							
Man 01 - Project Brief and Design	**Stakeholder Consultation (Project Delivery)** **1 credit** where: 1.Prior to completion of the Concept Design (RIBA Stage 2 or equivalent), the project delivery stakeholders have met to identify and define their roles, responsibilities and contributions for each of the key phases of project delivery. Project delivery stakeholders include the client, the building occupier (where known), the design team and the principal contractor. With regards to contractors' involvement, it ensures their input in terms of formulating sustainable design solutions, commenting/inputting on the practicality and build ability of (one or more) design solutions and their impact on programming, cost etc. Where the contractor for the works is not appointed at the early stages of the project , criterion 1 will be met provided that a suitably experienced person with substantial construction/contracting experience in projects similar to the proposed works is involved prior to appointment of the contractor. A suitably experienced person could be a contractor appointed as a consultant for this stage or a construction project manager. 2.In defining the roles and responsibilities for each key phase of the project, the following must be considered: a.End user requirements; b.Aims of the design and design strategy; c.Particular installation and construction requirements/limitations; d.Occupiers budget and technical expertise in maintaining any proposed systems; e.Maintainability and adaptability of the proposals; f.Requirements for the production of project and end user documentation; g.Requirements for commissioning, training and aftercare support. 3.The project team demonstrate how the project delivery stakeholder contributions and the outcomes of the consultation process have influenced or changed the Initial Project Brief, including if appropriate, the Project Execution Plan, Communication Strategy, and the Concept Design.	The team should forward to the BREEAM assessor any documentation demonstrating involvement from RIBA stage 2 of the client, building occupier, design team and contractor and the contribution of the entire team to the decision making process. If this credit is targeted, in addition to other compliance information, the project manager will need to write a summary note confirming this credit. Update 06/06/18 - 1 credit assumed	1	1			Project manager/ design team
	Stakeholder Consultation (Third Party) **1 credit** where: 4. Prior to completion of the Concept Design Stage, all relevant third party stakeholders have been consulted by the design team and this covers the minimum consultation content. 5. The project must demonstrate how the stakeholder contributions and outcomes of the consultation exercise have influenced or changed the Initial Project Brief and Concept Design. 6. Prior to completion of the detailed design (RIBA Stage 4, Technical Design or equivalent), consultation feedback has been given to, and received by, all relevant parties.	Update 06/06/18 - 1 credit assumed. Regular consultation with local residents has taken place, and comments incorporated into the design. Stakeholder consultation has to be carried before RIBA Stage 2 All relevant third party stakeholders have been consulted by the design team. The team should forward to the assessor any documentation demonstrating that all relevant parties and relevant bodies have been identified and consulted with by the design team before key and final design decisions for the development are made. During the design stage, consultation feedback should be given to and received by all relevant parties regarding suggestions made, including how the results of the consultation process have influenced, or resulted in modifications to, the proposed design and building operation/use.	1	1			architect

Credit Criteria Red- Minimum standards		Comments	Number of credits available	TARGETED (Green: Confident Target, Orange: Require careful	Difficult	Unachievable	Responsibility
	Sustainability Champion (Design) **1 credit** where: 8.A Sustainability Champion has been appointed to facilitate the setting and achievement of BREEAM performance target(s) for the project. The design stage Sustainability Champion is appointed to perform this role during the feasibility stage (Stage 1, Preparation and Brief Stage, as defined by the RIBA Plan of Work 2013 or equivalent). 9.The defined BREEAM performance target(s) has been formally agreed between the client and design/project team no later than the Concept Design Stage (RIBA Stage 2 or equivalent). 10.To achieve this credit at the interim design stage assessment, the agreed BREEAM performance target(s) must be demonstrably achieved by the project design. This must be demonstrated via the BREEAM Assessor's design stage assessment report. Sustainability Champion: Currently only BREEAM Accredited Professional (AP) qualifies.	1 credit assumed for the appointment of a sustainability champion / BREEAM AP. Update 06/06/18 - Create to submit fee proposal The BREEAM AP assessor should remain involved throughout the design phase.	1	1			Create
	Sustainability Champion (Monitoring Progress) **1 credit** where: 11. The Sustainability Champion criteria 8, 9 and 10 have been achieved. 12. A Sustainability Champion is appointed to monitor progress against the agreed BREEAM performance target(s) throughout the design process and formally report progress to the client and design team. To do this the Sustainability Champion must attend key project/design team meetings during the Concept Design, Developed Design and Technical Design stages, as defined by the RIBA Plan of Work 2013, reporting during, and prior to, completion of each stage, as a minimum.	1 credit assumed for the appointment of a sustainability champion / BREEAM AP Update 06/06/18 - Create to submit fee proposal The BREEAM AP assessor should remain involved throughout the design phase.	1	1			Create
Man 02 - Life Cycle Cost and Service Life Planning	**Elemental Life Cycle Cost (LCC)** **Two credits** where: 1. An elemental life cycle cost (LCC) analysis has been carried out, at Process Stage 2 (equivalent to Concept Design - RIBA Stage 2) together with any design option appraisals in line with 'Standardised method of life cycle costing for construction procurement' PD 156865:20081. 2. The LCC analysis shows: a. An outline LCC plan for the project based on the building's basic structure and envelope, appraising a range of options and based on multiple cash flow scenarios e.g. 20, 30, 50+ years; b. The fabric and servicing strategy for the project outlining services component and fit-out options (if applicable) over a 15-year period, in the form of an 'elemental LCC Plan'.	0 credits assumed These credits are considered very challenging and are not currently targeted for the scheme due to the very demanding BREEAM requirements for life cycle costing and service life planning. Update 06/06/18 - QS not yet appointed, but unlikely that credits will be targeted.	2			2	QS

Credit Criteria Red- Minimum standards		Comments	Number of credits available	TARGETED (Green: Confident Target, Orange: Require careful	Difficult	Unachievable	Responsibility
	Component Level LCC Plan **One credit** where: 3. A component level LCC plan has been developed by the end of Process Stage 4 (equivalent to Technical Design – RIBA Stage 4) in line with PD 156865:2008 and includes the following component types (where present): a. Envelope, e.g. cladding, windows, and/or roofing b. Services, e.g. heat source cooling source, and/or controls c. Finishes, e.g. walls, floors and/or ceilings d. External spaces, e.g. alternative hard landscaping, boundary protection. 4. 4. Demonstrate, using appropriate examples provided by the design team, how the component level LCC plan has been used to influence building and systems design/specification to minimise life cycle costs and maximise critical value.	0 credits assumed This credit is considered very challenging and are not currently targeted for the scheme due to the very demanding BREEAM requirements for life cycle costing and service life planning. Update 06/06/18 - QS not yet appointed, but unlikely that credits will be targeted.	1			1	QS
	One credit - Capital Cost Reporting1 credit where:5. Report the capital cost for the building in pounds per square metre (£k/m2), via the BREEAM Assessment Scoring and Reporting tool, Assessment Issue Scoring tab, Management section.	1 credit assumed for capital cost for the building in pounds per square metre (£k/m2), which should be reported via the BREEAM Assessment Scoring and Reporting tool, Assessment Issue Scoring tab, Management section.Update 06/06/18 - credit assumed still viable.	1	1			QS
Man 03 - Responsible Construction Practices	**Pre-requisite** 1. All timber and timber based products used on the project is 'Legally harvested and traded timber'. Note: For other materials there are no pre-requisite requirements at this stage.	Pre-requisite assumed All timber and timber based products used on the project will be 'Legally harvested and traded timber'. Copies of all relevant certificates/chain of custody evidence	N/A				Contractor
	Environmental Management **1 credit** where: 1. The principal contractor operates an environmental management system (EMS) covering their main operations. The EMS must be either: a. Third party certified, to ISO 14001/EMAS or equivalent standard; or b. Have a structure that is in compliance with BS 8555:2003 and has reached phase four of the implementation stage, 'Implementation and Operation of the Environmental Management System', and has completed phase audits one to four, as defined in BS 8555. 2. The principal contractor implements best practice pollution prevention policies and procedures on-site in accordance with Pollution Prevention Guidelines, Working at Construction and Demolition Sites: PPG61	1 credit assumed for commitment by the client/developer to appoint a principal contractor who will operate EMS, they should provide a copy of their EMS certification The principal contractor will be required to implement best practice pollution prevention policies and procedures on-site in accordance with Pollution Prevention Guidelines, Working at construction and demolition-sites: PPG61	1	1			Contractor

Credit Criteria Red- Minimum standards	Comments	Number of credits available	TARGETED (Green: Confident Target, Orange: Require careful	Difficult	Unachievable	Responsibility
Sustainability Champion (Construction) **1 credit** where: 3. A Sustainability Champion is appointed to monitor the project to ensure ongoing compliance with the relevant sustainability performance/process criteria, and therefore BREEAM target(s), during the Construction, Handover and Close Out stages (as defined by the RIBA Plan of Works 2013, Stages 5 and 6). To do this the Sustainability Champion will ideally be site based or will visit the site regularly to carry out spot checks, with the relevant authority to do so and require action to be taken to address shortcomings in compliance. The Sustainability Champion will monitor site activities with sufficient frequency to ensure that risks of non-compliance are minimised. They will report on progress at relevant project team meetings including identifying potential areas of non-compliance and any action needed to mitigate. In this context, visits should occur at key stages of the construction process, at times where: works can be observed before they are covered up or new works or trades start; where significant risks of conflicts or errors could occur; where timing is critical to demonstrating compliance; where key evidence is required to be produced at specific times including, but not limited to photographic, delivery notes and other documentary evidence; and where different trades and systems come together and one could harm the integrity or compliance of another system's performance against BREEAM requirements. 4. The defined BREEAM performance target forms a requirement of the principal contractor's contract. 5. To achieve this credit at the final post construction stage of assessment, the BREEAM-related performance target for the project must be demonstrably achieved by the project. This is demonstrated via the BREEAM Assessor's final post construction stage assessment report.	Assumed sustainability champion appointed leading to 1 credit. Update 06/06/18 - This appointment could be made by contractor. A 'Sustainability champion' (either BREEAM AP or BRE Site Sustainability Manager) will be appointed at construction stage to monitor the project to ensure ongoing compliance with the relevant sustainability performance/process criteria, and therefore BREEAM target(s), during the Construction, Handover and Close Out stages.	1	1			Client / Contractor / Sustainability Champion / BREEAM AP
Considerate Construction **Up to two credits :** 6. Where the principal contractor has used a 'compliant' organisational, local or national considerate construction scheme and their performance against the scheme has been confirmed by independent assessment and verification. The BREEAM credits can be awarded as follows: a. **One credit** where the contractor achieves 'compliance' with the criteria of a compliant scheme (a CCS score between 25 and 34) - A score of at least 5 in each of the five sections must be achieved. b. **Two credits** where the contractor significantly exceeds 'compliance' with the criteria of the scheme (a CCS score between 35 and 39) - A score of at least 7 in each of the five sections must be achieved. **1 credit - Minimum standard for an Excellent rating, 2 credits- Minimum standard for an Outstanding rating** At the final stage of the BREEAM assessment, the number of BREEAM credits awarded should therefore be based on the final visit and the subsequent Monitor's report and certified CCS score.	2 credits assumed for relevant section/clauses of the building specification or contract OR a formal letter of commitment from the client/developer. These credits are targeted for the scheme based on the achievement of very good environmental construction practices. The project should be registered under the CCS scheme and should achieve a very good score under this scheme.	2	2			Contractor

	Credit Criteria Red- Minimum standards	Comments	Number of credits available	TARGETED (Green: Confident Target, Orange: Require careful	Difficult	Unachievable	Responsibility
	Monitoring of Construction Site Impacts **Up to two credits** where: 7. Responsibility has been assigned to an individual(s) for monitoring, recording and reporting energy use, water consumption and transport data (where measured) resulting from all on-site construction processes (and dedicated off-site monitoring) throughout the build programme. To ensure the robust collection of information, this individual(s) must have the appropriate authority and responsibility to request and access the data required. Where appointed, the Sustainability Champion could perform this role. **First Monitoring Credit - Utility Consumption** Energy consumption 8. Criterion 7 is achieved. 9. Monitor and record data on principal contractors and subcontractors' energy consumption in kWh (and where relevant, litres of fuel used) as a result of the use of construction plant, equipment (mobile and fixed) and site accommodation. 10. Report the total carbon dioxide emissions (total kgCO2/project value) from the construction process via the BREEAM Assessment Scoring and Reporting tool. Water consumption 11. Criterion 7 is achieved. 12. Monitor and record data on principal contractors and subcontractors' potable water consumption (m^3) arising from the use of construction plant, equipment (mobile and fixed) and site accommodation. 13. Using the collated data, report the total net water consumption (m3), i.e. consumption minus any recycled water use, from the construction process via the BREEAM Assessment Scoring and Reporting tool. **Second Monitoring Credit - Transport of Construction Materials and Waste** 14. Criterion 7 is achieved. 15. Monitor and record data on transport movements and impacts resulting from delivery of the majority of construction materials to site and construction waste from site. As a minimum this must cover: a. Transport of materials from the factory gate to the building site, including any transport, intermediate storage and distribution. b. Scope of this monitoring must cover the following as a minimum: i. Materials used in major building elements (i.e. those defined in BREEAM issue Mat 01 Life Cycle Impacts), including insulation materials. ii. Ground works and landscaping materials. c. Transport of construction waste from the construction gate to waste disposal processing/recovery centre gate. Scope of this monitoring must cover the construction waste groups outlined in the project's waste management plan. 16. Using the collated data, report separately for materials and waste, the total fuel consumption (litres) and total carbon dioxide emissions (kgCO2 eq), plus total distance travelled (km) via the BREEAM Assessment Scoring and Reporting tool.	2 credits assumed. A contract or specification clause or a formal letter of commitment can be used to show intent to meet the criteria at design stage. This credit requires that the contractor operates rigorous environmental procedures on their sites and have established systems for monitoring site energy and water consumption and transport CO2 emissions. These credits are expected to be achieved for the scheme.	2	2			Contractor
Man 04 - Commissioning and Handover	**Commissioning and Testing Schedule and Responsibilities One credit** where: 1. A schedule of commissioning and testing that identifies and includes a suitable timescale for commissioning and re-commissioning of all complex and non-complex building services and control systems and testing and inspecting building fabric.2. All commissioning activities are carried out in accordance with current Building Regulations, BSRIA1 and CIBSE2 guidelines and/or other appropriate standards, where applicable. Where a Building Management System (BMS) is specified, the following commissioning procedures must be carried out:1.Commissioning of air and water systems is carried out when all control devices are installed, wired and functional.2.In addition to air and water flow results, commissioning results include physical measurements of room temperatures, off-coil temperatures and other key parameters as appropriate.3.The BMS/controls installation should be running in auto with satisfactory internal conditions prior to handover.4.All BMS schematics and graphics (if BMS is present) are fully installed and functional to user interface before handover.5.The occupier or facilities team is fully trained in the operation of the system.3. An appropriate project team member(s) is appointed to monitor and programme pre-commissioning, commissioning, testing and, where necessary, re-commissioning activities on behalf of the client.4. The principal contractor accounts for the commissioning and testing programme, responsibilities and criteria within their budget and main programme of works, allowing for the required time to complete all commissioning and testing activities prior to handover.	Assumed 1 credit with commissioning scheduleThis credit should be achievable for the scheme. An appropriate team member will need to be appointed to monitor and programme pre-commissioning, commissioning and, where necessary, re-commissioning of all building services. Moreover, a specialist commissioning manager will be appointed during the design stage for complex system.	1	1			M&E

Credit Criteria Red- Minimum standards		Comments	Number of credits available	TARGETED (Green: Confident Target, Orange: Require careful	Difficult	Unachievable	Responsibility
	Commissioning Building Services **One credit** where: 5. For buildings with complex building services and systems, a specialist commissioning manager is appointed during the design stage (by either the client or the principal contractor) with responsibility for: a. Undertaking design reviews and giving advice on suitability for ease of commissioning. b. Providing commissioning management input to construction programming and during installation stages. c. Management of commissioning, performance testing and handover/post-handover stages. Where there are simple building services, this role can be carried out by an appropriate project team member (see criterion 3), provided they are not involved in the general installation works for the building services system(s).	Assumed 1 credit with appointment of commissioning manager This credit should be achievable for the scheme. An appropriate team member will need to be appointed to monitor and programme pre-commissioning, commissioning and, where necessary, re-commissioning of all building services. **Note - a specialist commissioning manager will be appointed during the design stage for complex system.**	1	1			M&E
	Testing and Inspecting Building Fabric **One credit** where: 6. The commissioning and testing schedule and responsibilities credit is achieved. 7. The integrity of the building fabric, including continuity of insulation, avoidance of thermal bridging and air leakage paths is quality assured through completion of post construction testing and inspection. Dependent on building type or construction, this can be demonstrated through the completion of a thermographic survey as well as an air tightness test and inspection. The thermographic survey must cover 100% of the treated spaces, unless it is a large complex building, and ensure that all elements of the building fabric that enclose an internal heated and/or conditioned (treated) zone of the building will be tested. This includes internal walls separating treated and untreated zones. In the case of large and complex buildings, it may be impractical for the thermographic survey and air-tightness testing to cover 100% of the building. Where a complete thermographic survey is deemed impractical by a Level 2 qualified thermographic surveyor, the guidance in air tightness standard TSL2 should be followed on the extent of the survey and testing. The survey and testing is undertaken by a Suitably Qualified Professional in accordance with the appropriate standard: Air tightness testing: by professionals with membership of ATTMA (Air Tightness Testing and Measurement Association) attained at organisational level maintaining UKAS accreditation (as air tightness testing laboratories to ISO 17025).Thermographic survey: by a professional holding a valid Level 2 certificate in thermography, as defined by the UKTA website http://www.ukta.org. 8. Any defects identified in the thermographic survey or the air tightness testing reports are rectified prior to building handover and close out. Any remedial work must meet the required performance characteristics for the building/element.	Assumed 1 credit is achieved where thermographic survey and air tightness testing are carried out **Note - credit available only if both are carried out.**	1	1			Client/ M&E/ thermographic survey specialist
	Handover - Minimum standard for an Excellent and Outstanding ratings. 9. A Building User Guide (BUG) is developed prior to handover for distribution to the building occupiers and premises managers. **Criteria applicable only for fully fitted out buildings:** 10. A training schedule is prepared for building occupiers/premises managers, timed appropriately around handover and proposed occupation plans, which includes the following content as a minimum: a. The building's design intent b. The available aftercare provision and aftercare team main contact(s), including any scheduled seasonal commissioning and post occupancy evaluation. c. Introduction to, and demonstration of, installed systems and key features, particularly building management systems, controls and their interfaces. d. Introduction to the Building User Guide and other relevant building documentation, e.g. design data, technical guides, maintenance strategy, operations and maintenance (O&M) manual, commissioning records, log book etc. e. Maintenance requirements, including any maintenance contracts and regimes in place.	1 credit is assumed where a BUG will be compiled A simple non-technical Building User Guide will be produced for the building staff and the building manager describing simply how the building works and where to find appropriate facilities and amenities. The document will be separate from the O & M manuals and Building Log Book. Production of a BUG is now standard practice. The client will confirm the BUG will be circulated to all the relevant building user. A training schedule will be prepared for building occupiers/premises managers, timed appropriately around handover and proposed occupation plans.	1	1			Contractor

	Credit Criteria Red- Minimum standards	Comments	Number of credits available	TARGETED (Green: Confident Target, Orange: Require careful	Difficult	Unachievable	Responsibility
Man 05 - Aftercare	**Aftercare Support One credit** where: 1. There is (or will be) operational infrastructure and resources in place to provide aftercare support to the building occupier(s), which includes the following as a minimum:a. A meeting programmed to occur between the aftercare team/individual and the building occupier/management (prior to initial occupation, or as soon as possible thereafter) to:i. Introduce the aftercare team or individual to the aftercare support available, including the Building User Guide (where existing) and training schedule/content.ii. Present key information about the building including the design intent and how to use the building to ensure it operates as efficiently and effectively as possible.b. On-site facilities management training, to include a walkabout of the building and introduction to and familiarisation with the building systems, their controls and how to operate them in accordance with the design intent and operational demands.c. Initial aftercare support provision for at least the first month of building occupation, e.g. on-site attendance on a weekly basis to support building users and management (this could be more or less frequent depending on the complexity of the building and building operations).d. Longer term aftercare support provision for occupants for at least the first 12 months from occupation, e.g. a helpline, nominated individual or other appropriate system to support building users/management.2. There is (or will be) operational infrastructure and resources in place to co-ordinate the collection and monitoring of energy and water consumption data for a minimum of 12 months, once the building is occupied. This is done to facilitate analysis of discrepancies between actual and predicted performance, with a view to adjusting systems and/or user behaviours accordingly.	Energy and water consumption data will be collected and analysed for at least 12 months after occupation. These data will be compared with target expected and any discrepancies will be analysed with a view of adjusting systems if they are not operating as expected/designed. Aftercare support will be provided to the building occupants including: a meeting with building occupants, a building user guide, on-site attendance on a weekly basis for at least 4 weeks after handover, in site FM training and long term after care in the first 12 months of occupation. 0 credits assumed - TBCUpdate 06/06/18 - 0 credit confirmed	1			1	
	Seasonal Commissioning **Minimum standard for an Excellent and Outstanding ratings.** **One credit** where: 3. The following seasonal commissioning activities will be completed over a minimum 12-month period, once the building becomes substantially occupied: a. Complex systems - Specialist Commissioning Manager: i. Testing of all building services under full load conditions, i.e. heating equipment in mid-winter, cooling/ventilation equipment in mid-summer, and under part load conditions (spring/autumn). ii. Where applicable, testing should also be carried out during periods of extreme (high or low) occupancy. iii. Interviews with building occupants (where they are affected by the complex services) to identify problems or concerns regarding the effectiveness of the systems. iv. Re-commissioning of systems (following any work needed to serve revised loads), and incorporating any revisions in operating procedures into the operations and maintenance (O&M) manuals. b. Simple systems (naturally ventilated) - external consultant/aftercare team/facilities manager: i. Review thermal comfort, ventilation, and lighting, at three, six and nine month intervals after initial occupation, either by measurement or occupant feedback. ii. Take all reasonable steps to re-commission systems following the review to take account of deficiencies identified and incorporate any relevant revisions in operating procedures into the O&M manuals.	Following occupation, seasonal commissioning will need to be completed for 12 months. A letter of appointment to the commissioning agent, detailing his responsibilities for conducting commissioning and seasonal commissioning in line with CIBSE and BSRIA guidance will be required to award this credit at the final assessment. update 06/06/18 - 1 credit must be targeted as minimum standard for BREEAM Excellent	1	1			Client/Contractor

	Credit Criteria Red- Minimum standards	Comments	Number of credits available	TARGETED (Green: Confident Target, Orange: Require careful	Difficult	Unachievable	Responsibility
	Post Occupancy Evaluation **One credit** where: 4. The client or building occupier makes a commitment to carry out a Post-Occupancy Evaluation (POE) exercise one year after initial building occupation. This is done to gain in-use performance feedback from building users to inform operational processes, including re-commissioning activities, and maintain or improve productivity, health, safety and comfort. The POE is carried out by an independent party and needs to cover: a. A review of the design intent and construction process (review of design, procurement, construction and handover processes). i. Internal environmental conditions (light, noise, temperature, air quality) ii. Control, operation and maintenance iii. Facilities and amenities iv. Access and layout v. Other relevant issues vi. Sustainability performance (energy/water consumption, performance of any sustainable features or technologies e.g. materials, renewable energy, rainwater harvesting etc.). b. A review of the design intent and construction process (review of design, procurement, construction and handover processes). c. Feedback from a wide range of building users including facilities management on the design and environmental conditions of the building covering: i. Internal environmental conditions (light, noise, temperature, air quality) ii. Control, operation and maintenance iii. Facilities and amenities iv. Access and layout v. Other relevant issues. d. Sustainability performance (energy/water consumption, performance of any sustainable features or technologies e.g. materials, renewable energy, rain- water harvesting etc.). 5. The client or building occupier makes a commitment to carry out the appropriate dissemination of information on the building's post-occupancy performance. This is done to share good practice and lessons learned and inform changes in-user behaviour, building operational processes and procedures, and system controls.	Post Occupancy Evaluation (POE) will be carried out by an independent third party, one year after building occupation to gain building performance feedback and the information on the post occupancy performance of the building will be disseminated. 0 credits assumed - TBC Update 06/06/18 credit not targeted. To be considered at a later stage?	1			1	Client
		Total - Management:	**21**	**16**	**0**	**5**	**0**
		Credit value:	**0.57%**				
	HEALTH & WELLBEING						
Hea 01 - Visual comfort	**Glare control** **One credit** where 1. The potential for disabling glare has been designed out of all relevant building areas using a glare control strategy, either through building form and layout and/or building design measures. 2. The glare control strategy avoids increasing lighting energy consumption, by ensuring that: a. The glare control system is designed to maximise daylight levels under all conditions while avoiding disabling glare in the workplace or other sensitive areas. The system should not inhibit daylight from entering the space under cloudy conditions, or when sunlight is not on the facade. AND b. The use or location of shading does not conflict with the operation of lighting control systems.	This credit is expected to be achieved for the scheme. The simplest form of glare control is occupant controlled blinds	1	1			Client/Architect

	Credit Criteria Red- Minimum standards	Comments	Number of credits available	TARGETED (Green: Confident Target, Orange: Require careful	Difficult	Unachievable	Responsibility
	Daylighting **One credit** where: 3. Daylighting criteria have been met using either of the following options: a. The relevant building areas meet good practice daylight factor(s) and other criterion: **Multi-residential buildings:** Kitchen and Living rooms, dining rooms, studies (including home office) and Non-residential or communal occupied spaces : 80% area meet 2% DF - **1 credit** and (a) or (c) (a) A uniformity ratio of at least 0.3 or a minimum point daylight factor of at least 0.3 times the relevant average daylight factor value. Spaces with glazed roofs, such as atria, must achieve a uniformity ratio of at least 0.7 or a minimum point daylight factor of at least 0.7 times the relevant average daylight factor value in Table - 10. (b) At least 80% of the room has a view of sky from desk or table top height (0.85m in multi-residential buildings, 0.7m in other buildings). (c) The room depth criterion d/w +d/HW < 2/(1-RB) is satisfied. Where: d = room depth,w = room width,HW = window head height from floor level,RB = average reflectance of surfaces in the rear half of the room, **OR** The relevant building areas meet good practice average and minimum point daylight illuminance criteria as outlined in Table - 12: **Multi-residential buildings:** Kitchen and Living rooms, dining rooms, studies (including home office) : 100% area comply - Average: 100 lux for 3450h/yr, Min: 30 lux for 3450h/yr AND Non-residential/communal occupied spaces: 80% area comply - Average: 200 lux for 2650h/yr, Min: 60 lux for 2650h/yr - **1 credit**	1 credit assumed - will need to be confirmed via daylight calculations. Update 06/06/18 - credit needs to be confirmed as soon as possible via daylight assessment.	1	1			Daylight consultant
	View out **One credit** where: **6. In addition, the following building type criteria should be met where applicable:** **Multi-residential buildings** Self-contained flats - living rooms Sheltered housing - communal lounges, individual bedrooms and bedsits All positions within relevant areas are to be within 5m of a wall which has a window or permanent opening providing an adequate view out. The window/opening must be ≥ 20% of the surrounding wall area.	1 credit assumed for 95% floor area that is 5m from wall with window, according to requirements for multi-res. Design drawings showing room depth and permanent work stations. Design drawings showing window sizes and location. Window area calculations carried out by a design team member.	1	1			Daylight consultant
	Internal and external lighting levels, zoning and control **One credit** where: **Internal lighting** 7. All fluorescent and compact fluorescent lamps are fitted with high frequency ballasts. 8. Internal lighting in all relevant areas of the building is designed to provide an illuminance (lux) level appropriate to the tasks undertaken, accounting for building user concentration and comfort levels. This can be demonstrated through a lighting design strategy that provides illuminance levels in accordance with the SLL Code for Lighting 2012 and any other relevant industry standard. 9. For areas where computer screens are regularly used, the lighting design complies with CIBSE Lighting Guide 72 sections 3.3, 4.6, 4.7, 4.8 and 4.9. This gives recommendations highlighting: a. Limits to the luminance of the luminaires to avoid screen reflections. (Manufacturers' data for the luminaires should be sought to confirm this.) b. For uplighting, the recommendations refer to the luminance of the lit ceiling rather than the luminaire; a design team calculation is usually required to demonstrate this. c. Recommendations for direct lighting, ceiling illuminance, and average wall illuminance. **Zoning and occupant control should comply where relevant - see below.** **External lighting** 10. All external lighting located within the construction zone is designed to provide illuminance levels that enable users to perform outdoor visual tasks efficiently and accurately, especially during the night. To demonstrate this, external lighting provided is specified in accordance with BS 5489-1:2013 Lighting of roads and public amenity areas3 and BS EN 12464-2:2014 Light and lighting - Lighting of work places - Part 2: Outdoor work places.	1 credit assumed The MEP specification will require that all fluorescent and compact fluorescent luminaires are equipped with high frequency control gear. All internal and external lighting specified will be compliant with the required relevant standards. The lighting zoning and control strategy for the scheme will meet the BREEAM requirements.	1	1			MEP

Credit Criteria Red- Minimum standards		Comments	Number of credits available	TARGETED (Green: Confident Target, Orange: Require careful	Difficult	Unachievable	Responsibility
	Zoning and occupant control 11. Internal lighting is zoned to allow for occupant control (Light switches or controls for a particular area/zone of the building that can be accessed and operated by the individual(s) occupying that area or zone. Such controls will be located within, or within the vicinity of, the zone or area they control) in accordance with the criteria below for relevant areas present within the building: a. In office areas, zones of no more than four workplaces b. Workstations adjacent to windows/atria and other building areas separately zoned and controlled c. Seminar and lecture rooms: zoned for presentation and audience areas d. Library spaces: separate zoning of stacks, reading and counter areas e. Teaching space or demonstration area, f. Whiteboard or display screen g. Auditoria: zoning of seating areas, circulation space and lectern area h. Dining, restaurant, café areas: separate zoning of servery and seating/dining areas i. Retail: separate zoning of display and counter areas, j. Bar areas: separate zoning of bar and seating areas k. Wards or bedded areas: zoned lighting control for individual bed spaces and control for staff over groups of bed spaces l. Treatment areas, dayrooms, waiting areas: zoning of seating and activity areas and circulation space with controls accessible to staff. Note: the criteria for zoning of lighting control are excluded for assessments of prison buildings. 12. Areas used for teaching, seminar or lecture purposes have lighting controls provided in accordance with CIBSE Lighting Guide 5						
Hea 02 - Indoor Air Quality	**Minimising Sources of Air Pollution** **One credit - Indoor Air Quality (IAQ) Plan** 1. An indoor air quality plan has been produced, with the objective of facilitating a process that leads to design, specification and installation decisions and actions that minimise indoor air pollution during occupation of the building. The indoor air quality plan must consider the following: a. Removal of contaminant sources; b. Dilution and control of contaminant sources; c. Procedures for pre-occupancy flush out; d. Third party testing and analysis; e. Maintaining indoor air quality in-use.	Assumed 1 credit for a compliant indoor air quality plan Update 06/06/18 - Create to submit fee proposal.	1	1			Client/Create
	Ventilation One credit where: The building has been designed to minimise the concentration and recirculation of pollutants in the building as follows: 2. Provide fresh air into the building in accordance with the criteria of the relevant standard for ventilation.3. Design ventilation pathways to minimise the build-up of air pollutants in the building, as follows:a. In air conditioned and mixed mode buildings/spaces: i. The building's air intakes and exhausts are over 10m apart and intakes are over 20m from sources of external pollution. ORii. The location of the building's air intakes and exhausts, in relation to each other and external sources of pollution, is designed in accordance with BS EN 13779:20071 Annex A2.b. In naturally ventilated buildings/spaces: openable windows/ventilators are over 10m from sources of external pollution.**Criteria 4 & 5 - only applicable to fully fitted out building**4. Where present, HVAC systems must incorporate suitable filtration to minimise external air pollution, as defined in BS EN 13779:2007 Annex A3.5. Areas of the building subject to large and unpredictable or variable occupancy patterns have carbon dioxide (CO_2) or air quality sensors specified and: a.In mechanically ventilated buildings/spaces: sensor(s) are linked to the mechanical ventilation system and provide demand-controlled ventilation to the space.b. In naturally ventilated buildings/spaces: sensors either have the ability to alert the building owner or manager when CO_2 levels exceed the recommended set point, or are linked to controls with the ability to adjust the quantity of fresh air, i.e. automatic opening windows/roof vents.	Assumed 1 creditConfirm ventilation strategy.Air conditioned/mixed mode - intakes and exhausts must be 10m apart and 20m from sources external pollution.Natural ventilation - openable windows are >10m from sources external pollution.Update 06/06/18 - this credit considered unachievable due to site location close to local highway, and delivery areas in close proximity to main building.	1			1	
	Volatile Organic Compound (VOC) Emission Levels (Products) **One credit** where: 6. All decorative paints and varnishes specified meet the BREEAM criteria listed in BREEAM manual Table - 18. 7. At least five of the seven remaining product categories listed in BREEAM manual Table - 18. meet the testing requirements and emission levels criteria for Volatile Organic Compound (VOC) emissions (listed in the table).	Assumed 1 credit where all materials are compliant with table 20 in BREEAM manual - depend on the VOC levels of the paints	1	1			Client/contractor

	Credit Criteria Red- Minimum standards	Comments	Number of credits available	TARGETED (Green: Confident Target, Orange: Require careful	Difficult	Unachievable	Responsibility
	Volatile Organic Compound (VOC) Emission Levels (Post Construction) **One credit** where: 8. The formaldehyde concentration level is measured post construction (but pre-occupancy) and is found to be less than or equal to 100µg/averaged over 30 minutes (WHO guidelines for indoor air quality: Selected pollutants, 20102). 9. The total volatile organic compound (TVOC) concentration level is measured post construction (but pre-occupancy) and found to be less than 300µg/over 8 hours, in line with the building regulation requirements. 10. Where VOC and formaldehyde levels are found to exceed the limits defined in criteria 10 and 11, the project team confirms the measures that have, or will be taken, in accordance with the IAQ plan, to reduce the levels to within these limits. 11. The testing and measurement of the above pollutants are in accordance with the following standards where relevant: a. BS ISO 16000-4: 2011 Diffusive sampling of formaldehyde in air3 b. BS ISO 16000-6: 2011 VOCs in air by active sampling4 c. BS EN ISO 16017-2: 2003 VOCs - Indoor, ambient and workplace air by passive sampling5 d. BS ISO 16000-3: 20116 formaldehyde and other carbonyls in air by pumped sampling. 12. The measured concentration levels of formaldehyde (µg/m3) and TVOC (µg/m3) are reported, via the BREEAM Assessment Scoring and Reporting Tool.	1 credit assumed Dependent on achieving Design Stage, and pre-occupancy measurements are found to be compliant	1	1			Client/contractor
	Adaptability - Potential for Natural Ventilation **One credit** where: 13. The building ventilation strategy is designed to be flexible and adaptable to potential building occupant needs and climatic scenarios. This can be demonstrated as follows: Occupied spaces of the building are designed to be capable of providing fresh air entirely via a natural ventilation strategy. The following are methods deemed to satisfy this criterion dependent upon the complexity of the proposed system: a.i.Room depths are designed in accordance with CIBSE AM10 (section 2.4) to ensure effectiveness of any natural ventilation system. The openable window area in each occupied space is equivalent to 5% of the gross internal floor area of that room/floor plate. OR ii. The design demonstrates that the natural ventilation strategy provides adequate cross flow of air to maintain the required thermal comfort conditions and ventilation rates. This is demonstrated using ventilation design tool types recommended by CIBSE AM107. For a strategy which does not rely on openable windows, or which has occupied spaces with a plan depth greater than 15m, the design must demonstrate (in accordance with criterion 13.a.i. above) that the ventilation strategy can provide adequate cross flow of air to maintain the required thermal comfort conditions and ventilation rates. 14. The natural ventilation strategy is capable of providing at least two levels of user-control on the supply of fresh air to the occupied space. The two levels of ventilation must be able to achieve the following: *Higher level*: higher rates of ventilation achievable to remove short term odours and/or prevent summertime overheating, *Lower level*: adequate levels of draught-free fresh air to meet the need for good indoor air quality throughout the year, sufficient for the occupancy load and the internal pollution loads of the space. Note: Any opening mechanisms must be easily accessible and provide adequate user-control over air flow rates to avoid draughts. Relevant industry standards for ventilation can be used to define 'adequate levels of fresh air' sufficient for occupancy and internal air pollution loads relevant to the building type. **Note: Multi-residential buildings with self-contained flats and individual bedrooms must have a degree of openable window function. This does not need to provide two levels of user-control (as required above), but must be occupant controlled.**	Assumed 1 credit. Occupied spaces are capable of providing fresh air via natural ventilation. Update 06/06/18 - self contained flats do not need to achieve 2 levels of openability. Other relevant parts of building must meet this requirement.	1	1			Architect

Credit Criteria Red- Minimum standards		Comments	Number of credits available	TARGETED (Green: Confident Target, Orange: Require careful	Difficult	Unachievable	Responsibility
Hea 04 - Thermal Comfort	**Thermal ModellingOne credit** where:1. Thermal modelling has been carried out using software in accordance with CIBSE AM11 1 Building Energy and Environmental Modelling.2. The software used to carry out the simulation at the detailed design stage provides full dynamic thermal analysis. For smaller and more basic building designs with less complex heating or cooling systems, an alternative less complex means of analysis may be appropriate (such methodologies must still be in accordance with CIBSE AM11).3. The modelling demonstrates that:a. For air conditioned buildings, summer and winter operative temperature ranges in occupied spaces are in accordance with the criteria set out in CIBSE Guide A Environmental design2, Table 1.5; or other appropriate industry standard (where this sets a higher or more appropriate requirement/level for the building type).b. For naturally ventilated/free running buildings:i. Winter operative temperature ranges in occupied spaces are in accordance with the criteria set out in CIBSE Guide A Environmental design, Table 1.5; or other appropriate industry standard (where this sets a higher or more appropriate requirement/level for the building type).ii. The building is designed to limit the risk of overheating, in accordance with the adaptive comfort methodology outlined in CIBSE TM52: The Limits of Thermal Comfort: Avoiding Overheating in European Buildings3.4. For air conditioned buildings, the PMV (predicted mean vote) and PPD (predicted percentage of dissatisfied) indices based on the above modelling are reported via the BREEAM Assessment Scoring and Reporting Tool.	Assumed 1 credit where thermal modelling has been carried out using software in accordance with CIBSE AM11 Building Energy and Environmental Modelling. Update 06/06/18 - it is expected that this will be included in the overheating analysis	1	1			Create
	Adaptability - For a Projected Climate Change Scenario **One credit** where: 5. Criteria 1 to 4 are achieved. 6. The thermal modelling demonstrates that the relevant requirements set out in criteria 3 are achieved for a projected climate change environment (see relevant definitions). 7. Where thermal comfort criteria are not met for the projected climate change environment, the project team demonstrates how the building has been adapted, or designed to be easily adapted in future using passive design solutions in order to subsequently meet the requirements under criterion 6. 8. For air conditioned buildings, the PMV and PPD indices based on the above modelling are reported via the BREEAM Assessment Scoring and Reporting Tool.	Assumed 1 credit. Thermal model should be able to address the impact of climate change Update 06/06/18 - it is expected that this will be included in the overheating analysis	1	1			Create

Credit Criteria Red- Minimum standards		Comments	Number of credits available	TARGETED (Green: Confident Target, Orange: Require careful	Difficult	Unachievable	Responsibility
	Thermal Zoning and Controls **One credit** where: 9. Criteria 1 to 4 are achieved. 10. The thermal modelling analysis (undertaken for compliance with criteria 1 to 4) has informed the temperature control strategy for the building and its users. 11. The strategy for proposed heating/cooling system(s) demonstrates that it has addressed the following: a. Zones within the building and how the building services could efficiently and appropriately heat or cool these areas. For example consider the different requirements for the central core of a building compared with the external perimeter adjacent to the windows. b. The degree of occupant control required for these zones, based on discussions with the end user (or alternatively building type or use specific design guidance, case studies, feedback) considers: i. User knowledge of building services; ii. Occupancy type, patterns and room functions (and therefore appropriate level of control required); iii. How the user is likely to operate or interact with the system(s), e.g. are they likely to open windows, access thermostatic radiator valves (TRV) on radiators, change air-conditioning settings etc.; iv. The user expectations (this may differ in the summer and winter) and degree of individual control (i.e. obtaining the balance between occupant preferences, for example some occupants like fresh air and others dislike drafts). c. How the proposed systems will interact with each other (where there is more than one system) and how this may affect the thermal comfort of the building occupants. d. The need or otherwise for an accessible building user actuated manual override for any automatic systems.	Assumed 1 credit This credit requires that the thermal comfort modelling (first credits Hea 04) has been carried out and has informed the thermal zoning and control strategy. The zoning and control strategy for heating and cooling of the scheme should also address all the BREEAM requirements.	1	1			MEP
Hea 05 - Acoustic Performance	**Up to Four Credits are Available** 4. One, three or four credits are available for Multi-residential and Other, Residential institution buildings where the relevant criteria in the checklists and table section have been applied. Individual bedrooms and self-contained dwellings: One credit Airborne sound insulation values are at least 3dB higher and impact sound insulation values are at least 3dB lower than the performance standards in the relevant Building Regulations or Standards. Three credits Airborne sound insulation values are at least 5dB higher and impact sound insulation values are at least 5dB lower than the performance standards in the relevant Building Regulations or Standards. Four credits Airborne sound insulation values are at least 8dB higher and impact sound insulation values are at least 8dB lower than the performance standards in the relevant Building Regulations or Standards.	Assumed 4 credits with acoustic report confirming criteria A suitably qualified acoustician should be appointed for the scheme and should provide suitable recommendations to achieve 4 credits for the scheme based on the sound insulation for the scheme.	4	4			Acoustician

Credit Criteria Red- Minimum standards		Comments	Number of credits available	TARGETED (Green: Confident Target, Orange: Require careful	Difficult	Unachievable	Responsibility
Hea 06 - Safety and Security	**Safe access** **One credit** where: Where external site areas form part of the assessed development the following apply: 1. Dedicated cycle paths provide direct access from the site entrance(s) to any cycle storage provided, without the need to deviate from the cycle path and, if relevant, connect to off-site cycle paths (or other appropriate safe route) where these run adjacent to the development's site boundary. 2. Footpaths on-site provide direct access from the site entrance(s) to the building entrance(s) and connect to public footpaths off-site (where existing), providing practical and convenient access to local transport nodes and other off-site amenities (where existing). 3. Where provided, drop-off areas are designed off/adjoining to the access road and provide direct access to pedestrian footpaths, therefore avoiding the need for the pedestrian to cross vehicle access routes. 4. Dedicated pedestrian crossings are provided where pedestrian routes cross vehicle access routes, and appropriate traffic calming measures are in place to slow traffic down at these crossing points. 5. For large developments with a high number of public users or visitors, pedestrian footpaths must be signposted to other local amenities and public transport nodes off-site (where existing). 6. The lighting for access roads, pedestrian routes and cycle lanes is compliant with the external lighting criteria defined in Hea 01 Visual comfort, i.e. in accordance with BS 5489-1:20131 Lighting of roads and public amenity areas. Where vehicle delivery access and drop-off areas form part of the assessed development, the following apply: 7. Delivery areas are not directly accessed through general parking areas and do not cross or share pedestrian and cyclist routes and other outside amenity areas accessible to building users and general public. 8. There is a dedicated parking/waiting area for goods vehicles with appropriate separation from the manoeuvring area and staff and visitor car parking. 9. Parking and turning areas are designed for simple manoeuvring according to the type of delivery vehicle likely to access the site, thus avoiding the need for repeated shunting. 10. There is a dedicated space for the storage of refuse skips and pallets away from the delivery vehicle manoeuvring area and staff/visitor car parking (if appropriate given the building type/function).	Credit could be targeted - TBC Update 06/06/18 - it is assumed that this credit will be targeted - improvements to site safety are being proposed.	1	1			Transport consultant /Architect
	Security of Site and BuildingOne credit where: 11. A suitably qualified security specialist (SQSS) conducts an evidence-based Security Needs Assessment (SNA) during or prior to Concept Design (RIBA Stage 2 or equivalent). 12. A suitably qualified security specialist (SQSS) develops a set of recommendations or solutions during or prior to Concept Design (RIBA Stage 2 or equivalent). These recommendations or solutions aim to ensure that the design of buildings, public and private car parks and public or amenity space are planned, designed and specified to address the issues identified in the preceding SNA.13. The recommendations or solutions proposed by the suitably qualified security specialist (SQSS) are implemented (see CN9. Any deviation from those recommendations or solutions will need to be justified, documented and agreed in advance with a suitably qualified security specialist.	Assumed 1 credit with security needs assessment. Recommendations of SQSS are applied.Consultation with a suitably qualified security specialist (SQSS) during RIBA stage 2 should be carried out and the recommendations of the SQSS should be incorporated. Update 06/06/18 - architect confirmed that consultation with Designing Out Crime officer had taken place and that recommendations would be implemented.	1	1			Architect
		Total - Health& Wellbeing:	**18**	**17**	**0**	**1**	**0**
		Credit value:	**0.83%**				
ENERGY							

Credit Criteria Red- Minimum standards		Comments	Number of credits available	TARGETED (Green: Confident Target, Orange: Require careful	Difficult	Unachievable	Responsibility
Ene 01 - Reduction in CO_2 emissions	**Up to 15 credits** can be awarded for buildings designed to minimise operational energy demand, primary energy consumption and CO_2 emission. Credit are awarded based on the Energy Performance Ratio for New Construction (EPR_{NC}) using BREEAM Ene 01 calculator. The calculation is determined using performance data from the approved building energy calculation software. **EPR_{NC}: 0.075 0.15 0.225 0.3 0.375 0.45 0.525 0.60 0.675 0.75 0.825 0.90 and zero net regulated CO_2 emissions** **BREEAM credits: 1 2 3 4 5 6 7 8 9 10 11 12** **Pass, Good, Very Good minimum standards: Requires a performance improvement progressively better than the relevant national building regulations compliant standard** **Excellent minimum standard: Requires 5 credits to be achieved (equivalent to an EPR of at least 0.375).** **Outstanding minimum standard: Requires 8 credits to be achieved (equivalent to an EPR of at least 0.6).**	Assumed 5 credits. **This is the minimum standard for Excellent rating** Update 06/06/18 - Confirmed that Create are producing energy strategy, and that credits will be calculated during this process.	12	5		7	Create
Ene 02 -Energy monitoring	**Sub-metering of major energy consuming systems - Minimum standard for Very Good, Excellent and Outstanding ratings.** **One credit** where: 1. Energy metering systems are installed that enable at least 90% of the estimated annual energy consumption of each fuel to be assigned to the various end-use categories of energy consuming systems (see Methodology). 2. The energy consuming systems in buildings with a total useful floor area greater than 1,000m2. are metered using an appropriate energy monitoring and management system. 3. The systems in smaller buildings are metered either with an energy monitoring and management system or with separate accessible energy sub-meters with pulsed or other open protocol communication outputs, to enable future connection to an energy monitoring and management system (see Relevant definitions). 4. The end energy consuming uses are identifiable to the building users, for example through labelling or data outputs.	1 credit assumed. Please note this credit is a minimum requirement for a 'Very Good, Excellent and Outstanding' rating.	1	1			MEP
Ene 03 -External lighting	**One credit** where: 1. The building has been designed to operate without the need for external lighting (which includes on the building, signs and at entrances). OR alternatively, where the building does have external lighting, one credit can be awarded as follows: 2. The average initial luminous efficacy of the external light fittings within the construction zone is not less than 60 luminaire lumens per circuit Watt. 3. All external light fittings are automatically controlled for prevention of operation during daylight hours and presence detection in areas of intermittent pedestrian traffic.	Assumed 1 credit	1	1			MEP

Credit Criteria Red- Minimum standards		Comments	Number of credits available	TARGETED (Green: Confident Target, Orange: Require careful	Difficult	Unachievable	Responsibility
Ene 04 - Low Carbon Design	**Passive design - Passive design analysis** **One credit** where: 1. The first credit within issue Hea 04 Thermal comfort has been achieved to demonstrate the building design can deliver appropriate thermal comfort levels in occupied spaces. 2. The project team carries out an analysis of the proposed building design/development to influence decisions made during Concept Design stage (RIBA Stage 2 or equivalent) and identify opportunities for the implementation of passive design solutions that reduce demands for energy consuming building services 3.The building uses passive design measures to reduce the total heating, cooling, mechanical ventilation and lighting loads and energy consumption in line with the findings of the passive design analysis and the analysis demonstrates a meaningful reduction in the total energy demand as a result. **Free cooling** **One credit** where: 4. The passive design analysis credit is achieved. 5. The passive design analysis carried out under criterion 2 includes an analysis of free cooling and identifies opportunities for the implementation of free cooling solutions. 6. The building uses ANY of the free cooling strategies listed below to reduce the cooling energy demand, i.e. it does not use active cooling: 1.Night time cooling (which could include the use of a high exposed thermal mass) 2.Ground coupled air cooling 3.Displacement ventilation (not linked to any active cooling system) 4.Ground water cooling 5.Surface water cooling 6.Evaporative cooling, direct or indirect 7.Desiccant dehumidification and evaporative cooling, using waste heat 8.Absorption cooling, using waste heat 9.The building does not require any significant form of active cooling or mechanical ventilation (i.e. naturally ventilated).	Credits assumed unachievable due to the lack of passive design measures	2			2	

	Credit Criteria Red- Minimum standards	Comments	Number of credits available	TARGETED (Green: Confident Target, Orange: Require careful	Difficult	Unachievable	Responsibility
	Low and zero carbon technologies - Low zero carbon feasibility study **One credit** where: 7. A feasibility study has been carried out by the completion of the Concept Design stage (RIBA Stage 2 or equivalent) by an energy specialist (see Relevant definitions) to establish the most appropriate recognised local (on-site or near-site) low or zero carbon (LZC) energy source(s) for the building/development. The LZC study should cover as a minimum: 1.Energy generated from LZC energy source per year 2.Carbon dioxide savings from LZC energy source per year 3.Life cycle cost of the potential specification, accounting for payback 4.Local planning criteria, including land use and noise 5.Feasibility of exporting heat/electricity from the system 6.Any available grants 7.All technologies appropriate to the site and energy demand of the development. 8.Reasons for excluding other technologies 9.Where appropriate to the building type, connecting the proposed building to an existing local community CHP system or source of waste heat or power OR specifying a building/site CHP system or source of waste heat or power with the potential to export excess heat or power via a local community energy scheme. 8. A local LZC technology/technologies has/have been specified for the building/development in line with the recommendations of this feasibility study and this method of supply results in a meaningful reduction in regulated carbon dioxide (CO_2) emissions: The amount of energy or CO_2 emissions reduction is not specified in the criteria in this issue. However, it should not be a trivial amount. As a guide, the installation should contribute at least 5% of overall building energy demand and/or CO_2 emissions	Credit could be achieved - requires some additional work to existing energy strategy Update TA 07/06/18 There will be a large area of roof area allocated to PV, therefore this should be included in the low zero carbon feasibility study. McKee Associates Design Report Section 4 Mechanical	1		1		Client/Cre ate
Ene 06 - Energy Efficient Transportation Systems	**Energy consumption One credit** where1. Where lifts, escalators and/or moving walks (transportation types) are specified:a. An analysis of the transportation demand and usage patterns for the building has been carried out to determine the optimum number and size of lifts, escalators and/or moving walks.b. The energy consumption has been calculated in accordance with BS EN ISO 25745 Energy performance of lifts, escalators and moving walks, Part 2 : Energy calculation and classification for lifts (elevators) and/or Part 3 - Energy calculation and classification for escalators and moving walks, for one of the following: i.At least two types of system (for each transportation type required); ORii. An arrangement of systems (e.g. for lifts, hydraulic, traction, machine room-less lift (MRL)); ORiii. A system strategy which is 'fit for purpose'.c. The use of regenerative drives should be considered, subject to the requirements in CN6.d. The transportation system with the lowest energy consumption is specified.	1 credit assumed for compliant transportation analysis (TBC)	1	1			

Credit Criteria Red- Minimum standards		Comments	Number of credits available	TARGETED (Green: Confident Target, Orange: Require careful	Difficult	Unachievable	Responsibility
	Energy efficient features **Two credits** 2.Criterion 1 is achieved. **Lifts** 3. For each lift, the following three energy efficient features are specified: a. The lifts operate in a standby condition during off-peak periods. For example the power side of the lift controller and other operating equipment such as lift car lighting, user displays and ventilation fans switch off when the lift has been idle for a prescribed length of time. b. The lift car lighting and display lighting provides an average lamp efficacy, (across all fittings in the car) of > 55 lamp lumens/circuit Watt. c. The lift uses a drive controller capable of variable speed, variable-voltage, and variable-frequency (VVVF) control of the drive motor. 4. Where the use of regenerative drives is demonstrated to save energy, they are specified. **Escalators and/or moving walks** Each escalator and/or moving walk complies with at least one of the following: 5. It is fitted with a load-sensing device that synchronises motor output to passenger demand through a variable speed drive; OR 6. It is fitted with a passenger-sensing device for automated operation (auto walk), so the escalator operates in standby mode when there is no passenger demand.	2 credits assumed. Cannot be awarded without Criterion 1 being achieved. Where only one mode of transport (ie lifts only), 2 credits can be awarded for this single mode. TBC	2	2			
Ene 08 - Energy Efficient Equipment	**Two credits** 1. Identify the building's unregulated energy consuming loads and estimate their contribution to the total annual unregulated energy consumption of the building, assuming a typical/standard specification. 2. Identify the systems and/or processes that use a significant proportion of the total annual unregulated energy demand of the development and its operation. 3. Demonstrate a meaningful reduction in the total annual unregulated energy demand of the building. **Small power, plug-in equipment:** The following equipment has been awarded an Energy Star1 rating OR has been procured in accordance with the Government Buying Standards2: 1. Office equipment 2. Other small powered equipment 3. Supplementary electric heating. For domestic scale white goods, the criteria in Ref F(Residential areas) apply.	2 credits assumed with specification sheets of unregulated energy efficient equipment showing Energy Star Rating or Government Buying Standards procurement	2	2			Client/MEP

Credit Criteria Red- Minimum standards		Comments	Number of credits available	TARGETED (Green: Confident Target, Orange: Require careful	Difficult	Unachievable	Responsibility
	Kitchen and catering facilities The project has incorporated at least two-thirds of the energy efficiency measures outlined in the section summaries of each of the following sections of CIBSE Guide TM505 (except as specified): 1. Section 8 (Drainage and kitchen waste removal) 2. Section 9 (Energy controls - specifically controls relevant to appliances) 3. Section 11 (Appliance specification - not fabrication or utensil specifications) 4. Section 12 (Refrigeration) 5. Section 13 (Warewashing: dishwashers and glasswashers) 6. Section 14 (Cooking appliance selection) 7. Section 15 (Water temperatures, taps, faucets and water saving controls).Refrigeration for kitchen and catering facilities should be assessed here, not in Ene 05 Energy efficient cold storage.						
Ene 09 - Drying Space	One credit **1. For self-contained dwellings:** An adequate internal or external space with posts and footings, or fixings capable of holding: a. One to two bedrooms: 4m+ of drying line b. Three or more bedrooms: 6m+ of drying line. OR **2. Individual bedrooms:** An adequate internal or external space with posts and footings, or fixings capable of holding: a. Two metres or more of drying line per bedroom for developments with up to 30 individual bedrooms; plus b. One metre of additional drying line for each bedroom over the 30 individual bedroom threshold. AND 3. The space (internal or external) is secure.	1 credit assumed for the provision of compliant drying facilities.	1	1			
		Total - Energy:	**23**	**13**	**1**	**9**	**0**
		Credit value:	**0.65%**				
TRANSPORT							

Credit Criteria Red- Minimum standards		Comments	Number of credits available	TARGETED (Green: Confident Target, Orange: Require careful	Difficult	Unachievable	Responsibility
Tra 01 - Public Transport Accessibility	**Three credits are available depending on the Accessibility Index of the site** where: 1. The public transport Accessibility Index (AI) for the assessed building is calculated and BREEAM credits awarded in accordance with the BREEAM tables. (1 credit - AI >2, 2 credits -AI >4, 3 credits- AI> 8) 2. The Accessibility Index is determined by entering the following information in to the BREEAM Tra 01 calculator: a. The distance (m) from the main building entrance to each compliant public transport node b. The public transport type(s) serving the compliant node e.g. bus or rail c. The average number of services stopping per hour at each compliant node during the operating hours of the building for a typical day . OR **One credit - Dedicated bus service** 3. For buildings with a fixed shift pattern, i.e. where building users will predominantly arrive/depart at set times, one credit can be awarded where the building occupier provides, or commits to providing a dedicated bus service to and from the building at the beginning and end of each shift/day. This credit is only available in cases where a development is unable to achieve any of the available credits using the Accessibility Index criteria (i.e. its location has a low public transport Accessibility Index).	3 credits confirmed - AI= 11.85, PTAL =3 Completed by assessor Site should achieve high accessibility index due to London location	3	3			Create
Tra 02 - Proximity to Amenities	**One credit** where the building is located within 500m of 4 relevant facilities (including two core facilities) **Two credits** where the building is located within 1000m of 7 relevant facilities (including two core facilities) Core facilities: food outlet, access to cash, access to an outdoor space Other facilities: Access to a recreation/leisure facility for fitness/sports, Publicly available postal facility, Community facility, Over the counter services associated with a pharmacy, Public sector GP surgery or general medical centre, Child care facility or school.	2 credits assumed Completed by assessor Marked up site map	2	2			Create
Tra 03 - Cyclist facilities	**One credit - Cycle storage and cyclist facilities** **Where criteria 1 to 3 have been met for cycle space and cycle facilities requirements.** 1. Compliant cycle storage and wheelchair/buggy storage spaces that meet the minimum levels set out in Table - 32 (see checklists and tables) are installed (1 cycle space per 10 staff and 1 compliant wheelchair or electric buggy storage spaces per 10 +residents Or spaces specified in accordance with the number required as identified by the likely resident profile. Where the resident profile is not the elderly or physically disabled or impaired then, where appropriate, the requirement for wheelchair or electric buggy spaces should be changed to compliant cycle spaces.) 2. Criterion 1 has been achieved.3. At least two of the following types of compliant cyclist facilities have been provided for all staff and pupils (where appropriate) (see relevant definitions for the scope of each compliant cyclist facility): a. Showers b. Changing facilities c. Lockers d. Drying spaces .	Only 1 credit available for achieving both cycle storage and showers, lockers etc which may be difficult to achieve. Amount of cycle storage required can be reduced by 50% due to the high accessibility index. Current drawings show 37 cycle spaces, and 12 electric buggy spaces. Showers/lockers etc will need to be confirmed. **MEP - Lighting must also be compliant with external lighting criteria** Update 06/06/18 - showers in basement, plus additional space for lockers etc if required.	1	1			Architect/ MEP

Credit Criteria Red- Minimum standards		Comments	Number of credits available	TARGETED (Green: Confident Target, Orange: Require careful	Difficult	Unachievable	Responsibility
Tra 04 - Maximum Car Parking Capacity	**Up to two credits - Car parking capacity** where: 1. The building's car parking capacity is compared to the maximum car parking capacity benchmarks in Table - 33 and the relevant number of BREEAM credits awarded. For most building types, except those where stated, the benchmarks vary according to the building's public transport Accessibility Index (AI determined in accordance with BREEAM issue Tra 01 Public transport accessibility). Therefore, for these building types the AI must be determined prior to assessing this issue. This is required to ensure that the building's car parking capacity is relative to the development's accessibility to the public transport network.	Assumed 2 credits dependant on building user numbers and Building Assesibility Index AI=11, therefore for 2 credits, max car parking is 1 space per 7 building users. Disabled parking bays are excluded. Update 06/06/18 - car free scheme	2	2			
Tra 05 - Travel Plan	**One credit** where: 1. A travel plan has been developed as part of the feasibility and design stages. 2. A site specific travel assessment/statement has been undertaken to ensure the travel plan is structured to meet the needs of the particular site and covers the following (as a minimum): a. Where relevant, existing travel patterns and opinions of existing building or site users towards cycling and walking so that constraints and opportunities can be identified. b. Travel patterns and transport impact of future building users. c. Current local environment for walkers and cyclists (accounting for visitors who may be accompanied by young children) d. Disabled access (accounting for varying levels of disability and visual impairment) e. Public transport links serving the site f. Current facilities for cyclists. 3. The travel plan includes a package of measures to encourage the use of sustainable modes of transport and movement of people and goods during the buildings operation and use. 4. If the occupier is known, they must be involved in the development of the travel plan and they must confirm that the travel plan will be implemented post construction and be supported by the buildings management in operation.	Assumed 1 credit for compliant Travel Plan and Transport Assessment	1	1			Transport consultant
		Total - Transport:	**9**	**9**	**0**	**0**	**0**
		Credit value:	**1.00%**				
WATER							

Credit Criteria Red- Minimum standards		Comments	Number of credits available	TARGETED (Green: Confident Target, Orange: Require careful	Difficult	Unachievable	Responsibility
Wat 01 - Water consumption	**Up to five credits** where: 1. An assessment of the efficiency of the building's domestic water-consuming components is undertaken using the BREEAM Wat 01 calculator. 2. The water consumption (L/person/day) for the assessed building is compared against a baseline performance and BREEAM credits awarded based upon Table - 35. 3. The efficiency of the following 'domestic scale' water-consuming components must be included in the assessment (where specified): a. WCs, b. Urinals, c. Taps (wash hand basins and where specified kitchen taps and waste disposal unit), d. Showers, e. Baths, f. Dishwashers (domestic and commercial sized) and g. Washing machines (domestic and commercial or industrial sized). % Improvement: 12.5 % 25% 40% 50 % 55% 65% BREEAM Credits: 1 2 3 4 5 Exemplary performance **One credit required for a Good, Very Good and Excellent ratings. Two credits required for an Outstanding rating.** 4. Where a greywater and/or rainwater system is specified, its yield (L/person/day) is used to off-set non potable water demand from components that would otherwise be supplied using potable water. 5. Any greywater systems must be specified and installed in compliance with BS 8525-1:2010 Greywater Systems - Part 1 Code of Practice. Any rainwater systems must be specified and installed in compliance with BS 8515:2009+A1:2013 Rainwater Harvesting Systems - Code of practice2.	3 credits assumed with BREEAM Wat 1 Calculator Tool Water Services drawings showing all water consuming equipment Sanitary ware schedule complete with flow rates and flush volumes Confirmation any grey or rain water systems are specified and installed to the relevant Building Standards. The sanitary ware specification should be developed to ensure at least 3 credits are achieved. The following list of features gives an indication of the features that would be required to achieve 3 credits. - 6 / 3 litre dual flush toilet cistern for the non-accessible toilet cubicles. - 4.5 litre single flush toilets for the accessible WC cubicles - Presence controlled urinals - 0.5-1 L/flush - 5 litre per minute taps (maximum flow rate) - 6 litre per minute showers (maximum flow rate)	5	3		2	MEP
Wat 02 - Water monitoring	**One credit** where: 1. The specification of a water meter on the mains water supply to each building; this includes instances where water is supplied via a borehole or other private source. **Criterion 1 - Minimum standard for a Good, Very Good, Excellent and Outstanding ratings.** 2. Water-consuming plant or building areas, consuming 10% or more of the building's total water demand, are either fitted with easily accessible sub-meters or have water monitoring equipment integral to the plant or area . As a minimum, this includes the following (where present): 1.Buildings with a swimming pool and its associated changing facilities (toilets, showers etc.). 2.On-sites with multiple units or buildings, e.g. shopping centres, industrial units, retail parks etc. separate sub meters are fitted on the water supply to the following areas (where present):Each individual unit supplied with water, Common areas (covering the supply to toilet blocks), Service areas (covering the supply to outlets within storage, delivery, waste disposal areas etc.), Ancillary/separate buildings to the main development with water supply. 3. Each meter (main and sub) has a pulsed or other open protocol communication output to enable connection to an appropriate utility monitoring and management system, e.g. a building management system (BMS), for the monitoring of water consumption 4. If the site on which the building is located has an existing BMS, managed by the same occupier/owner (as the new building), the pulsed/digital water meter(s) for the new building must be connected to the existing BMS.	1 credit assumed with a schematic/layout drawings for water distribution within the developed area. It should indicate meters on each water supply (incl. boreholes or other private water source), sub-meters on the supply to each tenant area and/or water consuming system. A water meter with a pulsed output will be provided for the water supply of the building. Water consuming plant or building areas that consume 10% of the schemes total demand will be fitted with sub-meters with a pulsed output.	1	1			MEP

Credit Criteria Red- Minimum standards		Comments	Number of credits available	TARGETED (Green: Confident Target, Orange: Require careful	Difficult	Unachievable	Responsibility
Wat 03 - Water Leak Detection & Prevention	**Leak detection system** One credit where: 1. A leak detection system which is capable of detecting a major water leak on the mains water supply within the building and between the building and the utilities water meter is installed. The leak detection system must be: a. A permanent automated water leak detection system that alerts the building occupants to the leak OR an in-built automated diagnostic procedure for detecting leaks is installed. b. Activated when the flow of water passing through the water meter/data logger is at a flow rate above a pre-set maximum for a pre-set period of time. c. Able to identify different flow and therefore leakage rates, e.g. continuous, high and/or low level, over set time periods. d. Programmable to suit the owner/occupiers' water consumption criteria. e. Where applicable, designed to avoid false alarms caused by normal operation of large water-consuming plant such as chillers.	1 credit assumed A major leak detection system will be provided for this scheme. Update 06/06/18 - credit difficult - TBC by MEP ASAP Updated 15th June 2018 - Easy to achieve and should be included - MEP	1	1			MEP
	Flow control device **One credit** where: 2. Flow control devices that regulate the supply of water to each WC area/facility according to demand are installed (and therefore minimise water leaks and wastage from sanitary fittings). **Multi res:** The credit for the specification of flow control devices in WC areas/facilities does not apply to ensuite facilities in residential areas e.g. ensuite in individual private bedrooms and a single bathroom for a collection of individual private bedrooms in halls of residence, key worker accommodation or sheltered accommodation. Where only ensuite facilities are provided, the credit can be awarded by default. The credit and criteria are however applicable to buildings with guest bedrooms with ensuite facilities, e.g. hotel rooms, and communal WC areas/facilities, e.g. communal WC facilities in hotels/hostels and care homes.	1 credit assumed Sanitary supply shut offs will be supplied for the toilet areas- see specific instructions for **multi res** on the left (ie not required for self-contained flats, but required for other areas)	1	1			MEP
Wat 04 - Water Efficient Equipment	**One credit** where: 1. The design team has identified all unregulated water demands that could be realistically mitigated or reduced. 2. System(s) or processes have been identified to reduce the unregulated water demand, and demonstrate, through either good practice design or specification, a meaningful reduction in the total water demand of the building.	Credit targeted Planting on site will not be irrigated Update 06/06/18 - assumed that all planting will be irigated by natural rainfall	1	1			Landscape architect
		Total - Water:	**9**	**6**	**1**	**2**	**0**
		Credit value:	**0.78%**				
MATERIALS							
Mat 01 - Life cycle impacts	**Up to 6 credits are available where the use of construction materials with a low environmental impact over the life cycle of the building is encouraged.** Credits are awarded based on the areas and green guide to specification ratings of the different type of external walls, internal walls, windows, roof, upper floor slab and floor finishes/coverings present in the development. Life cycle Green House Gas emissions for each elements are also required to be reported based on a 60-year building life. Where data is not available, generic data from the online Green Guide for each element can be used.	3 credits are assumed. Collection of environmental performance information for newly specified materials Completed Mat 1 Calculator Tool At this stage of design it is not possible to assess the exact number of credits that can be achieved. However the architect are to review the BRE Green Guide to Specification (www.thegreenguide.org.uk) and bear it in mind when considering materials selections for the main building fabric. Where possible the team will aim to use A and A+ rated materials as these have the lowest environmental impact. At this stage, 3 credits are targeted for the scheme.	6	3	1	2	Architect

Credit Criteria Red- Minimum standards		Comments	Number of credits available	TARGETED (Green: Confident Target, Orange: Require careful	Difficult	Unachievable	Responsibility
Mat 02 - Hard Landscaping/ Boundary Protections	**One credit:** 1. Where at least 80% of all external hard landscaping and 80% of all boundary protection (by area) in the construction zone achieves an A or A+ rating, as defined in the Green Guide to Specification. Green Guide ratings for the specification(s) of each element can be found at www.thegreenguide.org.uk If one of the elements is not present, e.g. boundary protection, then the credit must be assessed on the basis of the specification of the single element, e.g. hard landscaping. Where the development has neither element, the credit can be awarded. Where there is hard landscaping or boundary protection which is to remain as existing, then, provided no more than 20% of the total area of the existing hard landscaping and boundary protection elements are subject to minor alterations, repair or maintenance, these elements can be awarded an A+ rating for the purposes of determining compliance with this issue.	1 credit difficult to achieve Green guide ratings for each element must be A or A+ - requires recycled sub-base Update 06/06/18 - credit marked as achievable - TBC	1	1			Landscape architect
Mat 03 - Responsible sourcing of materials	**Pre-requisite** 1. All timber and timber based products used on the project is ' Legally harvested and traded timber' **Note:** **a.It is a minimum requirement for achieving a BREEAM rating (for any rating level) that compliance with criterion 1 is confirmed.** b. For other materials there are no pre-requisite requirements at this stage. **One credit - Sustainable procurement plan** 2. The principal contractor sources materials for the project in accordance with a documented sustainable procurement plan **Up to 3 credits** - Responsible sourcing of materials (RSM) are responsibly sourced in accordance with the BREEAM methodology. 18% RSM points achieved - 1 credit, 36% RSM points achieved - 2 credits, 54% RSM points achieved - 3 credits **Location use categories:** 1.Ceiling (including ceiling finishes), 2.Door/window, 3.Floor (including floor finishes), 4.Insulation 5.Internal partition/internal walls (including finishes), 6.Roof (including roof finishes), 7.Structure, primary and secondary, 8.External wall (e.g cladding, lining, render, including finishes) 9.Building service, 10.Hard landscaping, 11.Other **Material categories:** 1. Timber/ timber-based products (TBP), 2. Concrete/ cementitious (plaster, mortar, screed etc.) 3. Metal, 4. Stone/ aggregate 5. Clay-based (pavers, blocks, bricks, roof tiles, etc.), 6. Gypsum, 7. Glass 8. Plastic, polymer, resin, paint, chemicals and bituminous 9. Animal fibre/skin, cellulose fibre, 10. Other	2 credits are assumed with drawings/specification and/or schedule confirming the construction of each element and either information on the actual responsible sourcing certification or confirmation of the aspired responsible sourcing level where products are yet to be specified. Mat03 calculator tool. Copies of any EMS/COC certification should be provided. All timber and timber based products used on the project will be ' Legally harvested and traded timber'. The principal contractor will source materials in compliance with a documented sustainable procurement plan. Where principal contractor not yet appointed, a specification or letter of intent must be provided. 1 credit targeted. The contractor will ensure that all construction materials and insulation products used for the scheme are sourced from manufacturers who hold certification for responsibly manufacturing their products. Ideally manufacturers should be accredited under BES 6001 (Cemex, Lafarge, Hanson Aggregates, Bardon Aggregates and Tarmac have achieved Excellent or Very Good accreditation). Those suppliers who have not achieved BES 6001 should be ISO 14001 accredited. As a minimum this should cover the manufacturing plant preferably this should also cover the extraction and processing of raw materials (e.g. Corus' ISO 14001 certificate covering their ore extraction, coke plants, blast furnaces and steel mills). All timber will be FSC or equivalent.	4	2	2		Contractor

Credit Criteria Red- Minimum standards		Comments	Number of credits available	TARGETED (Green: Confident Target, Orange: Require careful	Difficult	Unachievable	Responsibility
Mat 04 - Insulation	**Embodied impact** **One credit** where: 1. Any new insulation specified for use within the following building elements must be assessed: a. External walls, b. Ground floor, c. Roof, d. Building services. 2. The Insulation Index for the building fabric and services insulation is the same as or greater than 2.5. If the insulation is incorporated as a component of an element that has been manufactured off-site (in order to maximise material optimisation), e.g. a wall or roof, and that element has been assessed as part of Mat 01, then for the purpose of assessing the insulation for this BREEAM issue, a Green Guide rating of A+ should be used. The same rule applies to insulation that has a significant additional function, such as providing supporting structure, e.g. structural insulated panels (SIPS). In the Green Guide, the actual insulation will be listed within the element title, rather than under the generic insulation category.	1 credit assumed with drawings and/or specification or completed Mat04 Schedule The design team should specify insulation materials that have a Green Guide A or A+ rating and that have very good R values. Details of the materials specification, area, thickness and length of insulation products should be provided to assess this credit fully. **MEP - Building services insulation is required for this credit**	1	1			Architect/ Contractor /MEP
Mat 05 - Designing for durability and resilience	**Protecting vulnerable parts of the building from damage.** **One credit** where: 1. The building incorporates suitable durability and protection measures or designed features/solutions to prevent damage to vulnerable parts of the internal and external building and landscaping elements. This must include, but is not necessarily limited to: a. Protection from the effects of high pedestrian traffic in main entrances, public areas and thoroughfares (corridors, lifts, stairs, doors etc.). b. Protection against any internal vehicular/trolley movement within 1m of the internal building fabric in storage, delivery, corridor and kitchen areas. c. Protection against, or prevention from, any potential vehicular collision where vehicular parking and manoeuvring occurs within 1m of the external building façade for all car parking areas and within 2m for all delivery areas. Protecting exposed parts of the building from material degradation 2. The relevant building elements incorporate appropriate design and specification measures to limit material degradation due to environmental factors. **Applicable building elements: 1**.Foundation/substructure/lowest floor/retaining walls, 2.External walls, 3.Roof/balconies, 4.Glazing: windows, skylight, 5.External doors, 6.Railings/balusters (where exposed to external environment), 7.Cladding (where exposed to external environment), 8.Staircase/ramps (where exposed to external environment), 9.Hard landscaping **Environmental factors:** 1.Environmental agents, including: a.Solar radiation, b.Temperature variation, c.Water/moisture, d.Wind, e.Precipitation, e.g. rain and snow, f.Extreme weather conditions: high wind speeds, flooding, driving rain, snow, 2. Biological agents, including: a.Vegetation, b.Pests, insects, c.Pollutants, including: d.Air contaminants, e.Ground contaminants **Material degradation effects** (includes, but not necessarily limited to the following): 1.Corrosion, 2.Dimensional change, e.g. swelling or shrinkage, 3.Fading/discolouration, 4.Rotting, 5.Leaching, 6.Blistering, 7.Melting, 8.Salt crystallisation, 9.Abrasion	1 credit is assumed with marked up plans/drawings identifying vulnerable areas of the building internally and externally Design drawings/specifications showing protection measures incorporated to prevent damage Schedule identifying measures to protect from material degradation listing applicable building elements, applicable environmental factors, material degradation effects and any measures specified to mitigate the possible degradation.	1	1			Architect

<table>
<tr><th colspan="2">Credit Criteria
Red- Minimum standards</th><th>Comments</th><th>Number of credits available</th><th>TARGETED (Green: Confident Target, Orange: Require careful</th><th>Difficult</th><th>Unachievable</th><th>Responsibility</th></tr>
<tr><td>Mat 06 - Material Efficiency</td><td>One credit where: 1. Opportunities have been identified, and appropriate measures investigated and implemented, to optimise the use of materials in building design, procurement, construction, maintenance and end of life2. The above is carried out by the design/construction team in consultation with the relevant parties at each of the following RIBA stages:a. Preparation and Brief, b. Concept Design, c. Developed Design, d. Technical Design, e. Construction.All parties (as relevant to the project stage) involved in the design, specification and/or construction of the building should be consulted. This includes but is not limited to the following:1.Client/developer, 2.Cost consultant, 3.Architect, 4.Structural/civil engineers, 5.Building services engineers - mechanical, electrical, 6.Principal contractor, 7.Demolition/strip-out contractor, 8.Environmental consultant, 9.Project management consultant, 10.Materials/component manufacturers/suppliers.</td><td>Credit not targetedThe credit is currently considered too challenging for this scheme</td><td>1</td><td></td><td></td><td></td><td>1</td></tr>
<tr><td colspan="3">Total - Materials:</td><td>14</td><td>8</td><td>3</td><td>2</td><td>1</td></tr>
<tr><td colspan="3">Credit value:</td><td>0.96%</td><td colspan="4"></td></tr>
<tr><td colspan="8">WASTE</td></tr>
<tr><td>Wst 01 - Construction Waste Management</td><td>One credit required for an Outstanding rating.
Construction resource efficiency (excluding simple buildings)
Up to three credits
1. Where a Resource Management Plan (RMP) has been developed covering the non-hazardous waste related to on-site construction and dedicated off-site manufacture or fabrication (including demolition and excavation waste) generated by the building’s design and construction.
2. Where construction waste related to on-site construction and dedicated off-site manufacture/fabrication (excluding demolition and excavation waste) meets or is lower than the following
<table><tr><th>BREEAM credits</th><th colspan="2">Amount of waste generated per 100m² (gross internal floor area)</th></tr><tr><td></td><td>m³</td><td>tonnes</td></tr><tr><td>One credit</td><td>≤ 13.3</td><td>≤ 11.1</td></tr><tr><td>Two credits</td><td>≤ 7.5</td><td>≤ 6.5</td></tr><tr><td>Three credits</td><td>≤ 3.4</td><td>≤ 3.2</td></tr><tr><td>Exemplary level</td><td>≤ 1.6</td><td>≤ 1.9</td></tr></table>
3. Where existing buildings on the site will be demolished a pre-demolition audit of any existing buildings, structures or hard surfaces is completed to determine if, in the case of demolition, refurbishment/reuse is feasible and, if not, to maximise the recovery of material from demolition for subsequent high grade/value applications. The audit must be referenced in the RMP and cover:
a. Identification of the key refurbishment/demolition materials. b. Potential applications and any related issues for the reuse and recycling of the key refurbishment and demolition materials in accordance with the waste hierarchy.

Diversion of resources from landfill
One credit where: 4. The following percentages of non-hazardous construction (on-site and off-site manufacture/fabrication in a dedicated facility), demolition and excavation waste (where applicable) generated by the project have been diverted from landfill:
<table><tr><th>BREEAM credits</th><th>Type of waste</th><th>Volume</th><th>Tonnage</th></tr><tr><td rowspan="3">One credit</td><td>Non demolition</td><td>70%</td><td>80%</td></tr><tr><td>Demolition</td><td>80%</td><td>90%</td></tr><tr><td>Excavation</td><td>N/A</td><td>N/A</td></tr><tr><td rowspan="3">Exemplary level</td><td>Non demolition</td><td>85%</td><td>90%</td></tr><tr><td>Demolition</td><td>85%</td><td>95%</td></tr><tr><td>Excavation</td><td>95%</td><td>95%</td></tr></table>
5. Waste materials will be sorted into separate key waste groups (according to the waste streams generated by the scope of the works) either on-site or through a licensed contractor for recovery.</td><td>A compliant Resource Management Plan (RMP/SWMP - see below) will be developed for the site. Limits will be placed on the amount of construction waste that is produced by the contractor, and that obligations on construction waste recycling are set. The limits will be set to <7.5m3 or <6.5 tonnes of construction waste per 100m2 GIA and a recycling rate of 80% by weight or 70% by volume for construction waste.</td><td>4</td><td>3</td><td>1</td><td></td><td>Contractor / Architect / Constructi on Waste consultant</td></tr>
</table>

<table>
<tr><th colspan="2">Credit Criteria
Red- Minimum standards</th><th>Comments</th><th>Number of credits available</th><th>TARGETED (Green: Confident Target, Orange: Require careful</th><th>Difficult</th><th>Unachievable</th><th>Responsibility</th></tr>
<tr><td></td><td>Resource Management Plan (RMP/SWMP)
The aim of the RMP is to promote resource efficiency and to prevent illegal waste activities. Resource efficiency includes minimising waste at source and ensuring that clients, designers and principal contractors assess the use, reuse and recycling of materials and products on and off the site.
A compliant RMP is one that defines:
1.A target benchmark for resource efficiency, i.e. m3of waste per 100m2or tonnes of waste per 100m2.
2. Procedures and commitments for minimising non-hazardous waste in line with the target benchmark
3.Procedures for minimising hazardous waste
4.A waste minimisation target and details of waste minimisation actions to be undertaken
5.Procedures for estimating, monitoring, measuring and reporting hazardous and non-hazardous site waste. If waste data is obtained from licensed external waste contractors, the data needs to be reliable and verifiable, e.g. by using data from EA/SEPA/EA Wales/NIEA Waste Return Forms
6.Procedures for sorting, reusing and recycling construction waste into defined waste groups (see additional guidance section), either on-site or through a licensed external contractor
7.Procedures for reviewing and updating the plan
8.The name or job title of the individual responsible for implementing the above.A Site Waste Management Plan is a form of Resource Management Plan and for BREEAM should be written in line with best practice:. Best practice is a combination of commitments to: 1.Design out waste (materials optimisation), 2.Reduce waste generated on site, 3.Develop and implement procedures to sort and reuse/recycle construction and demolition waste on-site and off-site (as applicable), 4.Follow guidance from: Defra (Department of Environment, Food and Rural Affairs), BRE (Building Research Establishment Ltd), WRAP (Waste and Resources Action Programme), Welsh Government.</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>Wst 02 - Recycled aggregates</td><td>Recycled aggregates
One credit where:
1. The percentage of high grade aggregate that is recycled or secondary aggregate, specified in each application (present) must meet the following minimum % levels (by weight or volume) to contribute to the total amount of recycled or secondary aggregate, as specified in
2. The total amount of recycled or secondary aggregate specified, and meeting criterion 1, is greater than 25% (by weight or volume) of the total high grade aggregate specified for the development. Where the minimum level in criterion 1 is not met for an application, all the aggregate in that application must be considered as primary aggregate when calculating the total high grade aggregate specified.
3.The recycled or secondary aggregates are EITHER:
a.Construction, demolition and excavation waste obtained on-site or off-site OR b. Secondary aggregates obtained from a non-construction post-consumer industrial by product source.
<table>
<tr><th>Application</th><th>Min. % One credit</th><th>Min. % Exemplary performance</th></tr>
<tr><td>Bound</td><td></td><td></td></tr>
<tr><td>Structural frame</td><td>15%</td><td>30%</td></tr>
<tr><td>Bitumen or hydraulically bound base, binder, and surface courses for paved areas and roads</td><td>30%</td><td>75%</td></tr>
<tr><td>Building foundations</td><td>20%</td><td>35%</td></tr>
<tr><td>Concrete road surfaces</td><td>15%</td><td>45%</td></tr>
<tr><td>Unbound</td><td></td><td></td></tr>
<tr><td>Pipe bedding</td><td>100%</td><td>N/A</td></tr>
<tr><td>Granular fill and capping (see Relevant definitions section)</td><td>100%</td><td>N/A</td></tr>
</table></td><td>This credit is currently considered too challenging for the scheme.</td><td>1</td><td></td><td></td><td>1</td><td></td></tr>
</table>

Credit Criteria Red- Minimum standards		Comments	Number of credits available	TARGETED (Green: Confident Target, Orange: Require careful	Difficult	Unachievable	Responsibility
Wst 03 - Operational Waste	**Credit required for Excellent and Outstanding ratings. Operational wasteOne credit** where: 1. Dedicated space(s) is provided for the segregation and storage of operational recyclable waste volumes generated by the assessed building/unit, its occupant(s) and activities. This space must be:a. Clearly labelled, to assist with segregation, storage and collection of the recyclable waste streamsb. Accessible to building occupants or facilities operators for the deposit of materials and collections by waste management contractorsc. Of a capacity appropriate to the building type, size, number of units (if relevant) and predicted volumes of waste that will arise from daily/weekly operational activities and occupancy rates.2. Where the consistent generation in volume of the appropriate operational waste streams is likely to exist, e.g. large amounts of packaging or compostable waste generated by the building's use and operation, the following facilities are provided:a. Static waste compactor(s) or baler(s); situated in a service area or dedicated waste management space.b. Vessel(s) for composting suitable organic waste resulting from the building's daily operation and use; OR adequate space(s) for storing segregated food waste and compostable organic material prior to collection and delivery to an alternative composting facility.c. Where organic waste is to be stored/composted on-site, a water outlet is provided adjacent to or within the facility for cleaning and hygiene purposes.**Additionally for multi-residential buildings with self-contained dwellings/bedsits only**4. Each dwelling/bedsit has a provision of three internal storage containers, as follows:a. A minimum total capacity of 30 litres, b. No individual container smaller than 7 litresc. All containers in a dedicated non obstructive position, d. The storage containers for recycling are provided in addition to non-recyclable waste storage.**Additionally for multi-residential buildings with individual bedrooms and communal facilities only**5. The above storage requirements (criterion 4) for self-contained dwellings/bedsits are met for every six bedrooms.6. The recyclable storage is located in a dedicated non-obstructive position in either:a. Communal kitchens; OR b. Where there are no communal kitchens present, in a communal space such as communal lounges or utility areas.7. Home composting facilities and a home composting information leaflet is provided within the kitchen area or communal space for each self-contained dwelling, bedsit or communal kitchen.	1 credit assumed with drawings showing the location of the operational waste facilitiesSee additional requirements for **multi-res** - segregated bins per dwelling if self-contained, or 6 dwellings if bedsits. The recycling facilities provided for the care home will meet the BREEAM requirements. Update 06/06/18 - communal operational waste store is located in basement. There is lift access to the basement.	1	1			Architect
Wst 05 - Adaptation to Climate Change	**Adaptation to climate change – structural and fabric resilience** **One credit** where: 1. Conduct a climate change adaptation strategy appraisal for structural and fabric resilience by the end of Concept Design (RIBA Stage 2 or equivalent), in accordance with the following approach: a. Carry out a systematic (structural and fabric resilience specific) risk assessment to identify and evaluate the impact on the building over its projected life cycle from expected extreme weather conditions arising from climate change and, where feasible, mitigate against these impacts. The assessment should cover the following stages: i. Hazard identification, ii. Hazard assessment, iii. Risk estimation, iv. Risk evaluation, v. Risk management - See detailed guidance on each topics.	0 credit assumed This credit is currently considered to challenging for the scheme.	1			1	

Credit Criteria Red- Minimum standards		Comments	Number of credits available	TARGETED (Green: Confident Target, Orange: Require careful	Difficult	Unachievable	Responsibility
Wst 06 - Functional Adaptability	**Functional adaptability** **One credit** where: 1. A building-specific functional adaptation strategy study has been undertaken by the client and design team by Concept Design (RIBA Stage 2 or equivalent), which includes recommendations for measures to be incorporated to facilitate future adaptation. 2. Functional adaptation measures have been implemented (RIBA Stage 4 or equivalent) in accordance with the functional adaptation strategy recommendations, where practical and cost effective. Omissions have been justified in writing to the assessor.	1 credit assumed It is possible to show the functional adaptability of the building through architectural drawings. Update 06/06/18 - credit assumed - further investigation for building type to be carried out.	1	1			Architect
		Total - Waste:	**8**	**5**	**1**		**0**
		Credit value:	**1.06%**				
LAND USE & ECOLOGY							
LE 01 - Site Selection	**Previously developed land** **1 credit** where: 1. At least 75% of the proposed development's footprint is on an area of land which has previously been occupied by industrial, commercial or domestic buildings or fixed surface infrastructure.	Credit possible if applicable to the following: if new building covers 75% of previously developed land credit can be achieved.	1	1			
	Contaminated land **One credit** where: 2. A contaminated land specialist's site investigation, risk assessment and appraisal has deemed land within the site to be affected by contamination. The site investigation, risk assessment and appraisal have identified: a. The degree of contamination b. The contaminant sources/types c. The options for remediating sources of contamination which present an unacceptable risk. 3. The client or principal contractor confirms that remediation of the site will be carried out in accordance with the remediation strategy and its implementation plan as recommended by the contaminated land specialist. Where the only remediation required is the removal of asbestos within an existing building fabric, the site cannot be classified as contaminated land. However, where asbestos is found to be present in the ground this will be classed as contamination for the purposes of assessing this issue.	Credit not targeted	1			1	

Credit Criteria Red- Minimum standards		Comments	Number of credits available	TARGETED (Green: Confident Target, Orange: Require careful	Difficult	Unachievable	Responsibility
LE 02 - Ecological value of site and protection of ecological features	**One credit - Ecological value of site** **One credit** where: 1. Land within the construction zone is defined as 'land of low ecological value' using either: a. The BREEAM checklist for defining land of low ecological value (see Checklists and tables below); OR b. A Suitably Qualified Ecologist (SQE) who has identified the land as being of 'low ecological value' within an ecological assessment report, based on a site survey **Protection of ecological features** **One credit** where: 2. All existing features of ecological value within and surrounding the construction zone and site boundary area are adequately protected from damage during clearance, site preparation and construction activities in line with BS42020: 2013 3. In all cases, the principal contractor is required to construct ecological protection recommended by the SQE, prior to any preliminary site construction or preparation works (e.g. clearing of the site or erection of temporary site facilities). For sites cleared prior to purchase of the site and less than five years before assessment, a Suitably Qualified Ecologist should estimate the site's ecological value immediately prior to clearance using available desktop information (including aerial photography) and the landscape type/area surrounding the site. Where it is not possible for the ecologists to determine that the site was of low ecological value prior to the site clearance then the credits must be withheld, i.e. where there is no evidence and therefore justification for awarding the credits. For sites cleared more than five years ago, the ecological value of the site is to be based on the current situation on the basis that within five years, ecological features would have started to re-establish themselves and therefore act as an indicator of the site's ecological value.	2 credits assumed with Ecology report produced by suitably qualified ecologist. Confirmation ecologist is suitably qualified Update 06/06/18 - it is assumed that site has low ecological value, and that ecological features will be protected - TBC by ecologist	2	2			Landscape architect/ Ecologist
LE 03 - Minimising Impact on Existing Site Ecology	**Credit required for Very Good, Excellent and Outstanding ratings.** **Change in ecological value 1 - Two credits** where: 1. The change in ecological value of the site is equal to or greater than zero plant species, i.e. no negative change, using the methods outlined in either (a) or (b) below: a. Determine the following information and input this data in to the BREEAM LE 03/LE 04 calculator: i. The broad habitat type(s) that define the landscape of the assessed site in its existing pre-developed state and proposed state ii. Area (m2) of the existing and proposed broad habitat types. OR b. Where a Suitably Qualified Ecologist (SQE) has been appointed and, based on their site survey, they confirm the following and either the assessor or ecologist inputs this data in to the BREEAM LE 03/LE 04 calculator: i. The broad habitat types that define the landscape of the assessed site in its existing pre-developed state and proposed state. ii. Area (m 2) of the existing and proposed broad habitat plot types. iii. Average total taxon (plant species) richness within each habitat type. **Change in ecological value 2 - One credit** where: 2. Where the change in ecological value of the site is less than zero but equal to or greater than minus nine plant species i.e. a minimal change, use the methods outlined in either 1(a) or (b) above. The contribution of plant species on a green roof can only be incorporated within the calculation where a Suitably Qualified Ecologist has been appointed to advise on suitable plant species for the roof. Presently green walls cannot be considered compliant within this BREEAM issue due to concerns over high maintenance requirements which are often not self-supporting/sustainable, resulting in deterioration of these plants. If the assessor feels that the green wall specified meets the aims of this issue and will be self-sustaining, details can be sent to BRE Global for consideration. Ground planted plants trained up a framework supported by the building would be acceptable (confirmed by the SQE) as these are not so dependent on systems and maintenance.	2 credits assumed to be confirmed by Suitably Qualified Ecologist: Update 06/06/18 - it is assumed that there will be a positive change - TBC by ecologist.	2	2			Landscape architect/ Ecologist

Credit Criteria Red- Minimum standards		Comments	Number of credits available	TARGETED (Green: Confident Target, Orange: Require careful	Difficult	Unachievable	Responsibility
LE 04 - Enhancing Site Ecology	**Ecologist's report and recommendations** **One credit** 1.A suitably qualified ecologist (SQE) has been appointed by the client or their project representative **by the end of the Preparation and Brief stage (RIBA Stage 1 or equivalent)** to advise on enhancing the ecology of the site at an early stage. 2. The SQE has provided an Ecology Report with appropriate recommendations for the enhancement of the site's ecology at Concept Design stage (RIBA Stage 2 or equivalent). The report is based on a site visit/survey by the SQE 3. The early stage advice and recommendations of the Ecology Report for the enhancement of site ecology have been, or will be, implemented in the final design and build. **Increase in ecological value** **One credit** 4. The criteria of the first credit are met. 5. The recommendations of the Ecology Report for the enhancement of site ecology have been implemented in the final design and build, and the SQE confirms that this will result in an increase in ecological value of the site, with an increase of six plant species or greater . 6.The increase in plant species has been calculated using the BREEAM LE 03/LE 04 calculator, using actual plant species numbers. The role of the SQE during the Preparation and Brief stage (RIBA Stage 1 or equivalent) will be to advise on early stage site layout and development density decisions so that opportunities to enhance site ecology are maximised. SQE involvement at the Concept Design stage (RIBA Stage 2 or equivalent) will be necessary to provide more detailed ecological recommendations (see Definitions) based on the outline design. The suitably qualified ecologist must carry out site surveys of existing site ecology, on which their report is based (or to provide verification where the report is prepared by others) at the Concept Design stage (RIBA Stage 2 or equivalent) in order to facilitate and maximise potential ecological enhancement.	2 credit assumed with confirmation that the ecologist was appointed prior to RIBA Stage 1 and that they meet the definition of a Suitably Qualified Ecologist. Where appointed at a later stage, the ecologist must confirm that this has not hindered their ability to make recommendations or maximise potential ecological enhancement. Update 06/06/18 - TBC by ecologist.	2	2			Landscape architect/ Ecologist
LE 05 - Long Term Impact on Biodiversity	**Up to two credits**1. Where a Suitably Qualified Ecologist (SQE) is appointed prior to commencement of activities on-site and they confirm that all relevant UK and EU legislation relating to the protection and enhancement of ecology has been complied with during the design and construction process.2. Where a landscape and habitat management plan, appropriate to the site, is produced covering at least the first five years after project completion in accordance with BS 42020:2013 Section 11.1. This is to be handed over to the building owner/occupants for use by the grounds maintenance staff **3. Where additional measures to improve the assessed site's long term biodiversity are adopted, where 2-4 additional requirements,1- 2 credits may be awarded respectively.Additional requirements:**a) Nominate a 'Biodiversity Champion' with the authority to influence site activities;b) Train all a personnel on how to protect site ecology;c) Records actions taken to protect biodiversity;d) Ecologically valuable habitats to be created that contribute to local biodiversity action plan targets;e) Works conducted at times to minimise ecological disturbance.	2 credits assumedA landscape management plan will be produced covering 5 years after project completion.Credits should be relatively easy to achieve with little or no extra cost as a suitably qualified ecologist has been appointed prior to commencement of activities on site. All the mandatory and 4 of the additional BREEAM criteria on long term impact on biodiversity should be met. It includes among other things the development of a landscape and habitat management plan covering at least the first five years after project completion, the nomination by the contractor of the 'Biodiversity Champion' for the development and a training of the workforce on how to protect site ecology during the project	2	2			Landscape architect/ Ecologist/ contractor
		Total Land Use & Ecology:	**10**	**9**	**0**	**1**	**0**
		Credit value:	**1.00%**				

	Credit Criteria Red- Minimum standards	Comments	Number of credits available	TARGETED (Green: Confident Target, Orange: Require careful	Difficult	Unachievable	Responsibility
POLLUTION							
Pol 01 - Impact of refrigerants	**Up to 3 credits** are available for the reduction of the level of greenhouse gas emissions arising from the leakage of refrigerants from building systems. **3 credits** where the building does not required the use of refrigerant within its installed plant/systems OR alternatively, where the building does require the use of refrigerants, the three credits can be awarded as follows: **Pre-requisite:** 2. All systems (with electric compressors) must comply with the requirements of BS EN 378:2008 (parts 2 and 3) and where refrigeration systems containing ammonia are installed, the Institute of Refrigeration Ammonia Refrigeration Systems Code of Practice **Impact of refrigerants - Two credits** where : 3. The systems using refrigerants have direct effect life cycle CO_2 equivalent emissions of 100 kgCO_2e/kW cooling capacity OR 4. where the refrigerant used have a Global Warming Potential (GWP) of 10 or less. OR **Impact of refrigerants -One credit** where : 5. the refrigerants have direct effect life cycle CO_2 equivalent emissions of 1000 kgCO_2e/kW cooling capacity **Leak detection - One credit** where: 6. Where systems using refrigerants have a permanent automated refrigerant leak detection system installed; OR where an in-built automated diagnostic procedure for detecting leakage is installed. In all instances a robust and tested refrigerant leak detection system must be installed and must be capable of continuously monitoring for leaks. 7. The system must be capable of automatically isolating and containing the remaining refrigerant(s) charge in response to a leak detection incident.	2 credits assumed The systems using refrigerants have direct effect life cycle CO2 equivalent emissions of 100 kgCO2e/kW cooling capacity Update 06/06/18 - Specification of heat pump ad comfort cooling to be confirmed as soon as possible by MEP to claim these credits. Update 07/06/18 TA - All common areas within the building will be mechanically ventilated using ceiling mounted heat recovery units with an efficiency of 80% or higher. McKee Associates Design Report Section 4 Mechanical Updated 15/06/18 - Plan for 2 points but 3 is achievable if required - MEP	3	2	1		MEP
Pol 02 - NOx emissions	**Up to 3 credits** Where the plant installed to meet the building's delivered heating and hot water demand has, under normal operating conditions, a NO x emission level (measured on a dry basis at 0% excess O 2) as follows: **1 credit** where maximum dry NOx ≤100 mg/kWh (at 0% excess O_2). **2 credits** where maximum dry NOx ≤70 mg/kWh (at 0% excess O_2). **3 credits** where maximum dry NOx ≤40 mg/kWh (at 0% excess O_2). 2. Report via the BREEAM scoring and reporting tool the direct and indirect NO x emissions in mg/kWh and energy consumption in kWh/m 2 /yr arising from systems installed to meet the building's space heating, cooling and hot water demands. No credits may be awarded for open flue heating or hot water systems. Where the water heating can be demonstrated to be less than 10% of the building's total energy consumption, these credits can be awarded based solely on the NO x emissions from space heating.	Zero credits for heating via ASHP	3			3	MEP

	Credit Criteria Red- Minimum standards	Comments	Number of credits available	TARGETED (Green: Confident Target, Orange: Require careful	Difficult	Unachievable	Responsibility
Pol 03 - Surface water run off	**Two credits - Low flood risk** 1. Where a site-specific flood risk assessment (FRA) confirms the development is situated in a flood zone that is defined as having a low annual probability of flooding (in accordance with current best practice national planning guidance). The FRA must take all current and future sources of flooding into consideration. **One credit - Medium/high flood risk** 2. Where a site-specific FRA confirms the development is situated in a flood zone that is defined as having a medium or high annual probability of flooding and is not in a functional floodplain (in accordance with current best practice national planning guidance). The FRA must take all current and future sources of flooding into consideration. 3. To increase the resilience and resistance of the development to flooding, one of the following must be achieved: a. The ground level of the building and access to both the building and the site, are designed (or zoned) so they are at least 600mm above the design flood level of the flood zone in which the assessed development is located. OR c.The final design of the building and the wider site reflects the recommendations made by an appropriate consultant in accordance with the hierarchy approach outlined in section 5 of BS 8533:2011.	2 credits assumed The building is in an area of Low Flood Risk TBC by FRA	2	2			Drainage consultant
	Surface water run off **Pre-requisite** 4. An Appropriate Consultant is appointed to carry out, demonstrate and/or confirm the development's compliance with the following criteria: **Surface water run-off - volume, attenuation, and/or limiting discharge.** **One credit** where: 5. Where drainage measures are specified to ensure that the peak rate of run-off from the site to the watercourses (natural or municipal) is no greater for the developed site than it was for the pre-development site. This should comply at the 1-year and 100-year return period events. 6. Relevant maintenance agreements for the ownership, long term operation and maintenance of all specified SuDS are in place. 7. Calculations include an allowance for climate change; this should be made in accordance with current best practice planning guidance. **One credit** 8. Where flooding of property will not occur in the event of local drainage system failure (caused either by extreme rainfall or a lack of maintenance); AND EITHER 9. Drainage design measures are specified to ensure that the post development run-off volume, over the development lifetime, is no greater than it would have been prior to the assessed site's development for the 100-year 6-hour event, including an allowance for climate change (see criterion 14). 10. Any additional predicted volume of run-off for this event is prevented from leaving the site by using infiltration or other Sustainable Drainage System (SuDS) techniques. OR (only where criteria 9 and 10 for this credit cannot be achieved): 11. Justification from the Appropriate Consultant indicating why the above criteria cannot be achieved, i.e. where infiltration or other SuDS techniques are not technically viable options. 12. Drainage design measures are specified to ensure that the post development peak rate of run-off is reduced to the limiting discharge. The limiting discharge is defined as the highest flow rate from the following options: a. The pre-development 1-year peak flow rate; OR b. The mean annual flow rate Qbar; OR c. 2L/s/ha. Note that for the 1-year peak flow rate the 1-year return period event criterion applies (as described in the peak run-off criteria above). 13. Relevant maintenance agreements for the ownership, long term operation and maintenance of all specified SuDS are in place. 14. For either option, above calculations must include an allowance for climate change; this should be made in accordance with current best practice planning guidance.	2 credits assumed The peak rate of run-off will be no greater for the developed site than pre-development. Flooding of the property will not occur in the event of drainage failure and post development run-off will be no greater than prior to the site's development for the 100 year 6 hour event.	2	2			Drainage consultant

Credit Criteria Red- Minimum standards		Comments	Number of credits available	TARGETED (Green: Confident Target, Orange: Require careful	Difficult	Unachievable	Responsibility
	Minimising watercourse pollutionOne credit where: 15. There is no discharge from the developed site for rainfall up to 5mm (confirmed by the Appropriate Consultant).16. In areas with a low risk source of watercourse pollution, an appropriate level of pollution prevention treatment is provided, using appropriate SuDS techniques.17. Where there is a high risk of contamination or spillage of substances such as petrol and oil (an area that presents a risk of watercourse pollution includes vehicle manoeuvring areas, car parks, waste disposal facilities, delivery and storage facilities or plant areas.), separators (or an equivalent system) are installed in surface water drainage systems.18. Where the building has chemical/liquid gas storage areas, a means of containment is fitted to the site drainage system (i.e. shut-off valves) to prevent the escape of chemicals to natural watercourses (in the event of a spillage or bunding failure).19. All water pollution prevention systems have been designed and installed in accordance with the recommendations of documents such as Pollution Prevention Guideline 3 (PPG 3) and/or where applicable the SUDS manual. For areas where vehicle washing will be taking place, pollution prevention systems must be in accordance with Pollution Prevention Guidelines 1320.A comprehensive and up-to date drainage plan of the site will be made available for the building/site occupiers.21.Relevant maintenance agreements for the ownership, long term operation and maintenance of all specified SuDS must be in place.22.Where present, all external storage and delivery areas designed and detailed in accordance with the current best practice planning guidance.	Possible credit but difficult to achieve, dependent on rainfall discharge and SuDS.	1			1	
Pol 04 - Reduction of night time light pollution	**One credit** 1. Where external lighting pollution has been eliminated through effective design that removes the need for external lighting without adversely affecting the safety and security of the site and its users. OR alternatively, where the building does have external lighting, one credit can be awarded as follows: 2. The external lighting strategy has been designed in compliance with Table 2 (and its accompanying notes) of the ILP Guidance notes for the reduction of obtrusive light, 2011 3.All external lighting (except for safety and security lighting) can be automatically switched off between 23:00 and 07:00. 4.If safety or security lighting is provided and will be used between 23:00 and 07:00, this part of the lighting system complies with the lower levels of lighting recommended during these hours in Table 2 of the ILP's Guidance notes. 5.Illuminated advertisements, where specified, must be designed in compliance with ILE Technical Report 5 – The Brightness of Illuminated Advertisements.	The lighting will comply with ILP Guidance, it will be switched off between 23:00 and 07:00.	1	1			MEP
Pol 05 - Noise attenuation	**One credit** 1. Where there are, or will be, no noise-sensitive areas or buildings within 800m radius of the assessed development. OR 2. Alternatively, where the building does have noise-sensitive areas or buildings within 800m radius of the development, one credit can be awarded as follows: a.Where a noise impact assessment in compliance with BS 7445. 1has been carried out and the following noise levels measured/determined: i.Existing background noise levels at the nearest or most exposed noise-sensitive development to the proposed development or at a location where background conditions can be argued to be similar. ii.The rating noise level resulting from the new noise source . 3. The noise impact assessment must be carried out by a suitably qualified acoustic consultant holding a recognised acoustic qualification and membership of an appropriate professional body. 4. The noise level from the proposed site/building, as measured in the locality of the nearest or most exposed noise-sensitive development, is a difference no greater than +5dB during the day (07:00 to 23:00) and +3dB at night (23:00 to 07:00) compared to the background noise level. 5. Where the noise source(s) from the proposed site/building is greater than the levels described in criterion 4, measures have been installed to attenuate the noise at its source to a level where it will comply with criterion 4.	1 credit assumed with a Noise Impact Assessment report (or other relevant acoustician's report),	1	1			Noise consultant
		Total - Pollution:	**13**	**8**	**0**	**5**	**0**
		Credit value:	**0.77%**				

Credit Criteria Red- Minimum standards		Comments	Number of credits available	TARGETED (Green: Confident Target, Orange: Require careful	Difficult	Unachievable	Responsibility
INNOVATION							
Man 03 - Responsible construction practices	**Considerate construction** 6. Where the principal contractor has used a 'compliant' organisational, local or national considerate construction scheme and their performance against the scheme has been confirmed by independent assessment and verification. The BREEAM credits can be awarded as follows: a. where the contractor achieves compliance with the criteria of the compliant scheme to an exemplary level of practice. (a CCS score of 40 or more) -- A score of at least 7 in each of the five sections must be achieved At the final stage of the BREEAM assessment, the number of BREEAM credits awarded should therefore be based on the final visit and the subsequent Monitor's report and certified CCS score.		1			1	
Man 05 - Aftercare	The following outlines the exemplary level criteria to achieve one innovation credit for this BREEAM issue: 6.There is (or will be) operational infrastructure and resources in place to co-ordinate the following activities at quarterly intervals for the first three years of building occupation: a.Collection of occupant satisfaction, energy consumption and water consumption data. b.Analysis of the data to check the building is performing as expected and make any necessary adjustments to systems controls or to inform building user behaviours. c.Setting targets for reducing water and energy consumption and monitor progress towards these. d.Feedback any 'lessons learned' to the design team and developer for use in future projects. e. Provision of the actual annual building energy, water consumption and occupant satisfaction data to BRE.		1			1	
Hea 01 - Visual Comfort	**Daylighting (building type dependent)- exemplary level**		1			1	

Credit Criteria Red- Minimum standards		Comments	Number of credits available	TARGETED (Green: Confident Target, Orange: Require careful	Difficult	Unachievable	Responsibility
Hea 02 - Indoor Air Quality	One credit 15. Criterion 6 has been achieved. 16. All seven remaining product categories listed in Table - 18 meet the testing requirements and emission levels criteria for Volatile Organic Compound (VOC) emissions (listed in the table). 17. For products b) – f) listed in Table - 18, the formaldehyde emission levels have been measured and found to be less than or equal to 0.06mg/m3 air in accordance with the approved testing standards in Table - 18. Two credits 18. Criterion 6 has been achieved. 19. All seven remaining products categories listed in Table - 18 meet the testing requirements and emission levels criteria for Volatile Organic Compound (VOC) emissions (listed in the table). 20. For products B to F listed in Table - 18, the formaldehyde emission levels have been measured and found to be less than or equal to 0.01mg/m3 air, in accordance with the approved testing standards in Table - 18.		2			2	
Ene 01 - Reduction in CO2 emissions	**Up to four credits - Zero regulated carbon** 2. The building achieves an EPRNC≥ 0.9 and zero net regulated CO2 emissions . 3. An equivalent percentage of the buildings modelled 'regulated' operational energy consumption, as stipulated in Table - 26, is generated by carbon neutral on-site or near-site sources and used to meet energy demand from 'unregulated' building systems or processes. Table 26: 10% (1 credit), 20% (2 credits), 50% (3 credits), 80% (4 credits), > 100% + un-regulated energy (5 credits)) **Five credits - Carbon negative** 4. The building is 'carbon negative' in terms of its total modelled operational energy consumption, including regulated and unregulated energy (see Relevant definitions in the Additional information section of this issue).		5			5	0
Wat 01 -Water Consumption	**An innovation** credit is awarded where the assessed building achieves an improvement of 65% or higher compared against a baseline performance and BREEAM credits. The efficiency of the following 'domestic scale' water-consuming components must be included in the assessment (where specified): a. WCs, b. Urinals, c. Taps (wash hand basins and where specified kitchen taps and waste disposal unit), d. Showers, e. Baths, f. Dishwashers (domestic and commercial sized), g. Washing machines (domestic and commercial or industrial sized).		1			1	

Credit Criteria Red- Minimum standards		Comments	Number of credits available	TARGETED (Green: Confident Target, Orange: Require careful	Difficult	Unachievable	Responsibility
Mat 01 - Life cycle impacts	The following outlines the two exemplary level routes available to achieve up to three innovation credits for this BREEAM issue.**Route 1: Using the Green Guide to Specification (elemental approach) - one credit**4.Where assessing four or more applicable building elements, the building achieves at least two points in addition to the total points required to achieve maximum credits under the standard BREEAM criteria (as outlined in the table above) OR5.Where assessing fewer than four applicable building elements, the building achieves at least one point in addition to the total points required to achieve maximum credits under the standard BREEAM criteria.Where the assessed building does not specify an element listed above, regarding the exemplary level benchmark.**Route 2: Using compliant life cycle assessment software tools (whole building approach) - two credits**6.Where the design team has used an IMPACT compliant software tool (or equivalent) to measure the environmental impact of the building.7.Where the design team can demonstrate how the use of an IMPACT compliant software (or equivalent) has benefited the building in terms of measuring and reducing its environmental impact. 8.Where the design team submit the building information model (BIM) from the IMPACT compliant software tool (or equivalent) for the assessed building to BRE Global (via the project's appointed BREEAM Assessor). Please note a project can achieve all three innovation credits where it is complying with exemplary level criteria 4 to 8, i.e. one route is not necessarily exclusive of the other: a project can comply with both routes 1 and 2 or choose to comply with only route 1 or only route 2.		3	0		3	
Mat 03 - Responsible sourcing of materials	**One innovation credit where** Responsible sourcing of materials (RSM) points calculated in accordance with the BREEAM methodology is higher than 70%.		1			1	
Wst 01 - Construction Waste Management	The following outlines the exemplary level criteria to achieve an innovation credit for this BREEAM issue: 6. Non-hazardous construction waste generated by the building's design and on-site construction and off-site manufacture or fabrication (excluding demolition and excavation waste) is no greater than the exemplary level resource efficiency benchmark . 7.The percentage of non-hazardous construction (on-site and dedicated off-site manufacture/fabrication), demolition and excavation waste (if relevant) diverted from landfill meets or exceeds the exemplary level percentage benchmark . 8. All key waste groups are identified for diversion from landfill in the RMP.		1			1	1
Wst 02 - Recycled aggregates	**One innovation credit** where: 4.The percentage of high grade aggregate that is recycled or secondary aggregate, specified in each application (present) must meet the exemplary minimum levels (by weight or volume), as defined in the table above. Where this minimum level is not met, all the aggregate in that application must be considered as primary aggregate when calculating the total high grade aggregate specified. 5.Where the total amount of recycled or secondary aggregate specified is greater than 35% (by weight or volume) of the total high grade aggregate specified for the project. Where the minimum level in criterion 1 is not met for an application, all the aggregate in that application must be considered as primary aggregate when calculating the total high grade aggregate specified. 6.The contributing secondary aggregate must not be transported more than 30 km by road transport.		1			1	

Credit Criteria Red- Minimum standards		Comments	Number of credits available	TARGETED (Green: Confident Target, Orange: Require careful	Difficult	Unachievable	Responsibility
Wst 05 - Adaptation to Climate Change	A holistic approach to the design and construction of the current building's life cycle, to mitigate against the impacts of climate change, is represented by the achievement of these criteria. 2.Achievement of the Structural and fabric resilience criterion in this issue and the following criteria points or credits: Hea 04 Thermal comfort (Link to Wst 05 issue:- to preventing increasing risks of overheating), Criterion 6 in the second credit of the Hea 04 issue has been achieved. Ene 01 Reduction of energy use and carbon emissions, (Link to Wst 05 issue: to maximise energy efficiency contributing to low carbon emissions resulting from increasing energy demands), At least eight credits in this issue have been achieved. Ene 04 Low carbon design, (Link to Wst 05 issue: to maximise opportunities to avoid unnecessary carbon emissions), The Passive design analysis credit in this issue has been achieved. Wat 01 Water consumption, (Link to Wst 05: to minimise water demands in periods of drought), A minimum of three credits in this issue have been achieved. Mat 05 Designing for durability and resilience, (Link to Wst 05 issue: to avoid increased risks of deterioration and higher maintenance demands), Criterion 2 relating to material degradation in this issue has been achieved. Pol 03 Surface water run-off, (Link to Wst 05: to minimise the risks of increased flood risk and surface water run-off affecting the site or others), Flood risk – a minimum of one credit has been achieved. Surface water run-off – two credits have been achieved		1			1	
Approved Innovation			1			1	
Total - Innovation - Maximum credit : 10			**10**	**0**	**0**	**19**	**10**
Credit value:			**1.00%**				
				74.41	**79.79**	**90.75**	**90.75**
				Excellent	**Excellent**	**Outstanding**	**Outstanding**