



Sustainability Statement

6-8 Market Place, Reading

June 2020

Turley
Sustainability

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Client – Castleforge Partners

Turley Reference – FAIS3001

Document Status – Final

Date – June 2020

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The refurbishment and extension of 6-8 Market Place, Reading will deliver a sustainable, high quality flexible office building which enhances the public square and provides resilience to the effects of climate change.

1. Introduction

1.1 Introduction

This Sustainability Statement sets out the sustainability measures incorporated into the development to deliver a range of economic, social and environmental benefits in accordance with the Council's sustainable development objectives.

This application demonstrates how the proposed redevelopment at 6-8 Market place, Reading aims to deliver high quality office space in response to current market demand.

1.2 Site Context

The proposed development site is located on Market Place opposite Market Place Square within Reading town centre (see **Figure 1**). The site is within a highly sustainable location, with Reading Train Station located approximately 300m to the northwest and Market Place (MC) bus stop immediately outside the building, with a number of additional bus stops within the public square.

The site is occupied by the Soane Point building, a mixed height building with roof terrace and ground level external parking.

The existing building was constructed in the 1960s – 70s and as such has a dated façade in need of enhancement to provide Market Place Square with a prime frontage.

Figure 1: Site Location (tp bennett)



1.3 Proposed Development

The application proposal is for the refurbishment and extension of the existing building to provide high quality, enhanced office development as follows:

“Internal and external refurbishment works to existing retained office building, including alterations to building frontage on Market Place and Abbey Square. Erection of side wing and 2 storey extension to increase B1(a) office provision (totalling 10,921 sqm GEA) with associated works, including infilling at ground floor, and servicing arrangements from Abbey Square. Retention of existing ground floor retail units on Market Place”.

“Clockwise” is the co-working and serviced office brand developed by Castleforge (‘the applicant’), which provides well designed contemporary work and meeting spaces within city centre locations.

The proposed Clockwise offering will be a mix of small private office spaces, dedicated desks for

individual workers and high quality breakout space with associated café and hot desks.

The proposals include retention of the existing retail frontage (including the current Tesco unit and dentist surgery). The frontage will be enhanced to bring an engaging contribution to the square.

Although basement car parking will be retained, it is proposed that the external car parking is replaced with an extension of office space.

Figure 2 provides an illustrative image of the proposed frontage on to Market Place Square.

Full details of the proposed developed are provided within the Design and Access Statement and Planning Statement that accompany the application.

Figure 2: Illustration of the Proposed Development (tp bennett)



2. Policy Context

2.1 Introduction

This chapter sets out the planning policy context relating to sustainable design and construction at the national and local authority level.

2.2 National Policy

This section sets out a summary of current national guidance and policy in relation to sustainable development.

2.2.1 National Planning Policy Framework

Most recently updated in June 2019, the National Planning Policy Framework (NPPF) provides guidance on the development of locally-prepared plans, the Government's planning policies for England, and how these are expected to be applied.

NPPF paragraph 7 states “the purpose of the planning system is to contribute to the achievement of sustainable development”.

In order to deliver sustainable development, the NPPF states the planning system must perform three distinct objectives, aligned to the three pillars of sustainability, which must not be taken in isolation and which should be pursued jointly:

An economic objective to contributing to building a strong, responsive and competitive economy, by ensuring that sufficient land of the right type is available in the right places and at the right time to support growth, innovation and improved productivity; and by identifying and coordinating the provision of infrastructure;

A social objective supporting strong, vibrant and healthy communities, by providing the supply of housing required to meet the needs of present and future generations; and by creating a high quality built environment, with accessible local services that reflect the community's needs and support its health, social and cultural well-being; and

An environmental objective contributing to protecting and enhancing our natural, built and historic environment; and, as part of this, helping to improve biodiversity, use natural resources prudently, minimise waste and pollution, and mitigate and adapt to climate change including moving to a low carbon economy.

2.2.2 Planning Practice Guidance

The Planning Practice Guidance (PPG) provides further advice on various planning issues associated with development, including those linked to sustainability, climate change and renewable energy and underpins the policies within the NPPF.

The PPG is a material consideration in planning decisions and should be followed unless there are clear reasons not to. It sets out how local authorities should include policies that protect the local environment and strategies to mitigate and adapt to climate change and supports developments that are functional and adaptable for the future.

2.2.3 National Design Guide

The National Design Guide published in October 2019 forms part of the PPG. It sets out the characteristics of well-designed places and explains what good design means in practice.

The guide explains how well-designed places and buildings conserve natural resources including land, water, energy and materials. Their design also responds to the impacts of climate change

such as rising temperatures and increased flood risk, whilst contributing to climate change mitigation through GHG emissions reduction during both construction and operation.

2.2.4 Sustainable Development Strategy

In 2005, the Government published an updated strategy for implementing sustainable development across the UK.

This Strategy acts as an overarching document from which a range of specific policies and legislation was derived. Although published in 2005, the Strategy has taken a recently renewed focus in light of the government's definition of Sustainable Development in the NPPF.

One of the key aims of this strategy is to recognise the threats of climate change and ensure that the UK develops a strategy to mitigate and adapt to this phenomenon.

The document established five key principles that will underpin the national sustainable development strategy:

- Living within Environmental Limits;
- Ensuring a Strong, Healthy and Just Society;
- Achieving a Sustainable Economy;
- Promoting Good Governance; and
- Using sound science responsibly.

With regards to planning and the built environment, this document sets the basis for the development of plans and Policies that

promotes development that mitigates and adapts to climate change.

2.2.5 Climate Change Act

The Climate Change Act (2008) originally set a legally binding target for reducing UK CO₂ emissions by least 80% on 1990 levels by 2050.

At the end of June 2016, the Government published the Fifth Carbon Budget. The budget sets a target for emission cuts of 57% from 1990 levels by 2030.

The House of Lords passed the Carbon Budget Order 2016 on 19th July, making the budget and its target law. A bill passed in early July to abolish the Department of Energy and Climate Change (DECC) and absorb its functions into the new Department for Business, Energy and Industrial Strategy (BEIS), will not affect the implementation of the Carbon Budget.

In June 2019 the Government committed to updating the Climate Change Act and set a new target for zero net emissions by 2050, the first major economy to do so.

2.3 Reading Borough Council

2.3.1 Local Plan (Adopted November 2019)

The Reading Borough Council (RBC) Local Plan contains sustainability policies which are relevant to the development. These policies are summarised below.

Policy CC2: Sustainable Design and Construction

Policy CC2 states that proposals for new development will be acceptable where the design of buildings and site layouts use energy, water, minerals, materials and other natural resources appropriately, efficiently and with care, considering the effects of climate change. To meet these requirements, all major non-residential developments are required to meet the most up-to-date BREEAM 'Excellent' standards where possible.

Policy CC3: Adaptation to Climate Change

The Policy states that all development will demonstrate how it has been designed to incorporate measures to adapt to climate change. The following measures should be incorporated into development:

- New buildings shall be orientated to maximise the opportunities for both natural heating and ventilation and reducing exposure to wind and other elements;
- Proposals involving new and existing buildings will demonstrate how they maximise resistance and resilience to climate change;
- Use of trees and other planting to provide shading;
- All development shall minimise the impact of surface water runoff from the development in design of the drainage system.

Policy CC4: Decentralised Energy

The Policy states that any non-residential development of over 1,000sqm shall consider the inclusion of decentralised energy provision within the site, unless it can be proven it is not viable or feasible.

Policy TR5: Car and Cycle Parking and Electric Vehicle Charging

The Policy states that within communal car parks for non-residential development of at least 10 spaces, 10% of spaces should provide an active charging point.

2.3.2 Sustainable Design and Construction Supplementary Planning Document (Adopted December 2019)

The Sustainable Construction Design and Construction SPD requires the following:

- Submission of a Sustainability Statement with the planning application;
- An Energy Statement demonstrating how the energy related aspects of the proposed development actually meets the requirement of policies CC2, CC4 and H5 (where relevant); and
- A completed Sustainable Design Checklist at submission stage of the application.

2.3.3 Climate Emergency

Reading Borough Council declared a Climate Emergency in February 2019 in recognition of the

urgent actions required to prevent and mitigate further impacts of climate change. As part of the declaration, the Council committed to a carbon neutral town by 2030.

RBC released the draft Reading Climate Emergency Strategy 2020-25 in March 2020, which has undergone public consultation. The Strategy includes the target to achieve carbon neutrality by 2030 by following the below principles:

- Retrofitting and building new homes and other buildings to low/zero carbon standards;
- Generating more energy from renewable sources;
- Reducing the need to travel, promoting walking, cycling and public transport, and phasing out petrol/diesel in favour of electric vehicles; and
- Buying and using less 'stuff', reducing waste and developing Reading's 'circular economy'

The Strategy also identifies that annual energy demands will need to be wholly met by renewable generation.

2.4 Planning Policy Summary

Both local and national policy aims to ensure the delivery of sustainable and well-designed and other buildings which mitigate and adapt to the potential impacts of climate change.

The declaration of Climate Emergency and commitment to achieving carbon neutrality by 2030 demonstrates the Council's commitment to the creation of sustainable new developments in the city.

The Reading Local Plan requires development to consider a range of sustainable design measures to ensure development is resilient to climate change including sustainable construction measures, incorporating low carbon renewable energy systems, consideration of measures to reduce carbon emissions, and reduction of water consumption.

RBC's policy and guidance document predicates the need for a Sustainability and Energy Statement, completion of the Sustainable Design Checklist and an indication of BREEAM performance.

The following chapters of this Statement set out the sustainable design and construction measures incorporated into the design of the development which contribute to the delivery of a sustainable development providing economic, social and environmental benefits and address the requirements of local policy.

3. BREEAM Strategy

3.1 Introduction

Policy CC2 of the Local Plan requires new development to achieve BREEAM 'Excellent' ratings. This Chapter introduces BREEAM and sets out the strategy proposed to achieve an Excellent rating for both the refurbished and new build elements under the latest 2014 Refurbishment and Fit Out, and 2018 New Construction Schemes respectively.

3.2 BREEAM

BREEAM is the world's leading sustainability assessment tool for new buildings. The scheme is operated by the Building Research Establishment (BRE) and includes a range of criteria against which the sustainability performance of new buildings are assessed.



Since its launch in 1990, BREEAM has been used to certify over 560,000 assessments of buildings across 82 countries.

BREEAM has a number of schemes which can be applied to new buildings, refurbishments and existing buildings. Additionally, each scheme regularly updated to ensure it continues to recognise and reward developments that go beyond minimum practice and requirements, for example those set out by Building Regulations.

The current BREEAM New Construction standard is the 2018 Version 3.0 under which the 'Commercial - Office' sub-scheme is applicable to the new areas of the development. 'Shell and core' methodology has been applied to reflect the speculative areas of the development.

The office sub-scheme (including Parts 1 'Fabric and Structure', and '2 Core Services') under BREEAM Refurbishment and Fit Out 2014 Version 1.1 will be applied to the refurbished element of the development.

Implementing the two different assessment schemes ensures that both new build and

refurbished elements are assessed using a suitable method. Applying BREEAM New Construction criteria to a refurbished scheme is not suitable as it would mean the refurbished areas would need to achieve already challenging criteria intended for new buildings such as energy performance. The New Construction criteria is therefore unlikely to be feasible for a refurbished building.

BREEAM includes nine categories which are listed within **Table 4**, plus an exemplary section for going above and beyond the standard credit criteria. The required percentages shown in **Figure 3** plus a number of mandatory credits must be met to achieve the desired rating.

Figure 3: Required Percentages for BREEAM Ratings

BREEAM Rating Scale

Pass ≥30%	★☆☆☆☆
Good ≥45%	★★☆☆☆
Very Good ≥55%	★★★☆☆
Excellent ≥70%	★★★★☆
Outstanding ≥85%	★★★★★

3.3 BREEAM and the UN Sustainable Development Goals

In January 2016 the UN Sustainable Development Goals (SDG) came into force. The SDGs apply to all countries with the aim to “*end poverty, protect the planet and ensure prosperity for all by 2030*”.

Given the significant economic, environmental and social impacts associated with the construction of buildings and infrastructure; the construction and property sector will have a role in addressing these goals and working towards meeting them by the 2030 deadline.

BREEAM supports a number of the goals, and these are identified within **Appendix 1**.

3.4 BREEAM Strategy

Turley Sustainability has undertaken BREEAM Excellent Pre-assessments (see **Appendix 2**) using the New Construction (NC) 2018 and Refurb and Fit Out (R&FO) 2014 methodologies to ensure that the sustainability credentials of both aspects of the development are appropriately represented.

Table 1 sets out a potential route to BREEAM ‘Excellent’ and targeted credits. It should be noted that the credits achieved as part of the final scheme may vary, as is the norm as the development progresses.

The currently anticipated BREEAM scores shown within **Table 1** go beyond the minimum 70% score required for BREEAM ‘Excellent’ and include relevant mandatory requirements.

Please note that the route the BREEAM Excellent compliance, as set out in the BREEAM Pre-assessments and the following section, may be subject to change during ongoing detailed design and construction.

A summary of credits targeted within each category, and the value that meeting the criteria brings to the development, is discussed in the following sections. Both New Construction and Refurb & Fit Out schemes are represented within the following section, their overarching strategies and aims are similar but where there are significant differences this is stated.

Table 1: Required Percentages for BREEAM Ratings

Category	New Construction Percentage Targeted	Refurb & Fit Out Percentage Targeted
Management	10.38%	13.93%
Health & Wellbeing	4.36%	6.64%
Energy	11.33%	11.93%
Transport	11.50%	5.68%
Water	5.44%	5.68%
Materials	8.75%	11.72%
Waste	5.72%	6.09%
Land Use & Ecology	6.92%	4.87%
Pollution	6.75%	5.62%
Exemplary	1.00%	2.00%
Score	72.18% (Excellent)	74.21% (Excellent)

3.4.1 Management

The management category encourages the adoption of sustainable management practices in connection with design, construction, commissioning, handover and aftercare.

The credits within this category across the Refurbishment and New Construction schemes are awarded to project and design teams who consider and incorporate sustainability measures, involving key stakeholders from project brief through to occupation.



Project Brief and Design

Involves key design and project team members assigning roles, responsibilities and contributions at an early stage within the design process, including the appointment of a BREEAM Accredited (AP). The contributions given by the team influence various stages of the design process, delivering a holistic approach to sustainability within the development.

A clear Sustainability Brief is required for the refurbishment setting out client aspirations, sustainability objectives, timescales and budget, consultees and constraints for the project.

Life Cycle Costing and Service Life Planning

The design team will undertake Life Cycle Costing Analysis, which will provide greater confidence in future operational and management costs, increasing the long term asset value and providing the project team with the knowledge to make decisions based on whole life costs rather than capital cost.

Responsible Construction Practices

The applicant will appoint a contractor to undertake the following:

- Prevent risks and liabilities arising from pollution to the surrounding areas during construction activities;
- Improve the safety of vehicle deliveries to and around a site;
- Improve on-site and off-site health and safety; and,
- Improve project efficiency and understanding of construction performance through continuous construction progress monitoring.

All principal (demolition and construction) contractors on site will hold an environmental management system such as ISO14001.

A BREEAM Advisory Professional will work with the project team and monitors construction progress

to assist the achievement of the targeted BREEAM rating.

The contractor will register the development under the Considerate Constructors Scheme and target a score of 40.

Commissioning and Handover

The aim of these credits is to encourage a properly planned handover and commissioning process that reflects the needs of building occupants.

The credits targeted at the development will be awarded by undertaking the following:

- Producing a commissioning schedule and assigning responsibilities at an early stage;
- Efficient commissioning review and management process;
- Undertaking thermographic testing; and
- Provide training and produce building user guides to inform building occupants on how to operate the building in the most efficient way possible.

Aftercare

The following aftercare credits targeted support the building operation in accordance with the design intent and operational demands to close the performance gap:

- Provide aftercare to the building occupiers for 12 months following occupation;
- Collection and monitor energy and water consumption data for the first 3 years following occupation;
- Undertake seasonal commissioning over a 12-month period; and

- Undertake Post Occupancy Evaluation one year following occupation.

3.4.2 Health and Wellbeing

The Health and Wellbeing category of the BREEAM schemes has been aligned with the 'WELL' Standard, bringing the comfort of building occupiers to the forefront of the design.

Indoor Air Quality

The average person spends the majority of their life indoors where poor indoor air quality can have a range of negative impacts. Therefore the aim of the BREEAM Indoor Air Quality criteria is to encourage and support healthy internal environments with good indoor air quality.

The development will produce and implement an indoor air quality plan and ensure that ventilation meets the standards set out within CIBSE AM10.

Thermal Comfort

Overheating within buildings is likely to be a significant effect of climate change and is recognised within BREEAM. To ensure that the building is capable of providing an appropriate level of thermal comfort, the following will be undertaken:

- Dynamic thermal modelling for current climatic conditions;
- Dynamic thermal modelling for future climatic conditions; and
- Thermal zoning strategy to demonstrate that the building occupiers have suitable occupant control within their 'zones'.

Acoustic Performance

To ensure that the building is capable of providing a comfortable acoustic environment for building users, a suitably qualified acoustician must be appointed to undertake an assessment of indoor ambient noise levels. The sound insulation and indoor ambient noise levels in refurbished areas will comply with BS8233:2014.

Security

The aim of the Security credit is to provide an appropriate level of security to the building and site.

The credit requires liaison with a local suitably qualified security specialist, and incorporation of their recommendations into the design.

3.4.3 Energy

The Energy category encourages the specification and design of energy efficient solutions, systems and equipment. The credit requirements support the reduction of carbon emissions throughout the operational phase of the development.

Reduction of Energy Use and Carbon Emissions – Energy Performance

This credit issue intends to minimise operational energy demand, primary energy consumption and carbon emissions.

BREEAM recognises that SAP10 carbon factors will supersede SAP2012 factors, with the update to Building Regulations Part L due in 2020. Credits within the new construction element are therefore awarded using the SAP10 factors, which reflect the

ongoing decarbonisation of the national electricity grid and show electricity as the fuel with lower carbon emissions (compared with gas).

For the refurbished element of the development, it is anticipated that a significant reduction in energy demand and carbon emissions will be achieved in comparison to the existing building.

Further details on the building's energy strategy are discussed within **Chapter 4**.

Energy Monitoring

To minimise the performance gap and inform ongoing energy management, sub-meters will be installed to monitor energy usage of different end-uses within the building. The meters will be monitored using a Building Management System (BMS) to allow the occupier to easily view and interpret the data.

External Lighting

The requirements within this credit intend to reduce energy consumption of external lighting at the development. External lighting must meet an average of 70 luminaire lumens per circuit watt, and be controlled to minimise energy use by incorporating daylight sensors and presence detection.

Low Carbon Design

The aim of the Low Carbon Design issue is to encourage the adoption of design measures, which reduce building energy consumption and associated carbon emissions.

A credit is available within Low Carbon Design is awarded where a Low and Zero Carbon Feasibility Study is undertaken. Research undertaken by The Design Collective has concluded that air source heat pumps and solar photovoltaics are appropriate to the development and will be utilised to reduce the carbon emissions onsite.

An additional credit is available where an analysis is undertaken to identify opportunities for passive design. The Energy Strategy undertaken by The Design Collective demonstrates the fabric and energy efficiency measures incorporated into the design of both new build and refurbished elements to achieve a significant reduction in carbon emissions. Please see **Section 4.2.1** for further details.

Energy Efficient Transportation Systems

The Energy Efficient Transportation Systems credits award developments which reduce energy consumption through specification of energy efficient lifts.

A lift transport analysis will be undertaken to prevent over or under supply of lifts and a comparison will confirm which lift product has the lowest energy consumption.

Additionally the following features must be installed within the new lifts (including replaced lift cars):

- Standby condition for off-peak periods;
- Energy efficient lighting within the car;

- Driver controller capable of variable speed, variable-voltage and variable-frequency control of the drive motor; and,
- Regenerative drives (where found to save energy).

3.4.4 Transport

The Transport category encourages provision of and improved access to local amenities and to sustainable means of transport. Credits are awarded where locations and solutions support reductions in car journeys and therefore congestion and CO₂ emissions over the life of the building.

The credit issues vary between the NC and R&FO schemes, therefore an overall summary of measures is provided below:

- Develop a Travel Plan to inform the occupier on measures to reduce private car travel;
- Provision of secure cycle storage and facilities;
- Provision of electric vehicle recharging points for 10% of the total car parking capacity; and,
- Provision of two extra amenities (café and gym).

Furthermore, due to the close proximity to a number of bus stops, Reading Train Station and a range of local amenities the development is within a highly sustainable location which translates into a number of credits across both schemes.

3.4.5 Water

The aim of the Water category is to reduce the consumption of internal and external potable water over the lifetime of the building and minimising losses through leakage.



Water Consumption

To reduce water consumption through sanitary uses and target a reduction in 40% (equivalent to 3 credits) of the baseline water use defined by the BRE, the following measures will be considered:

- Low flush WCs;
- Flow restricted showers and taps; and
- Rainwater or greywater harvesting.

The detailed design will confirm the final measures incorporated to reduce internal water usage.

Water Monitoring

To monitor consumption of water by effective monitoring and management, the development will be installed with water sub-meters connected to a BMS.

Water Leak Detection

To identify potential leaks during the buildings operations, a leak detection system capable of detecting major leaks between the site boundary and the building, and within the building itself, and capable of raising an alarm when detected must be installed.

Water Leak Prevention

To reduce instances of leaks, sanitary areas must be installed with leak prevention such as solenoid valves linked to presence detectors.

Water Efficient Equipment

Where incorporated into the design, soft landscaping will rely on rainwater or manual watering only to avoid use of irrigation.

3.4.6 Materials

The Materials category across the two schemes encourages development to take a 'whole life cycle' approach to construction products, considering impacts of the supply chain from raw material, to end-of-life.

Environmental Impacts from Construction Products – Life Cycle Assessment (LCA)

Credits are awarded for undertaking LCA and an options appraisal for the proposed buildings to determine how embodied carbon and other environmental impacts can be reduced.

Environmental Impacts from Construction Products – Environmental Product Declarations (EPD)

Materials and products with EPDs will be specified and procured in order to encourage consistency in and increased uptake of environmental reporting across the construction industry.

Responsible Sourcing of Construction Products

Credits are awarded where construction materials are sourced from manufacturers with lower levels of environmental, economic and social impact across their supply chain.

Manufacturers with responsible sourcing accreditation, for example, BES6001, ISO14001, FSC and CARES certification will be prioritised.

A Sustainable Procurement Plan must be produced, requiring the contractor to consider environmental, economic and social risks and opportunities within the supply chain.

Insulation

Insulation installed within the external walls ground floor, roof and building services will have a low environmental impact (in accordance with the Green Guide to Specification).

Designing for Durability and Resilience

Implementing the requirements of the Designing for Durability and Resilience credits reduce the need to repair and replace materials which may be damaged from external elements and building use, thus minimising cost and disruption resulting from

replacement of elements. In line with the credit criteria, protection measures will be incorporated to protect from damage that may arise from building users and visitors, such as protecting internal areas from trolley movement, pedestrian traffic or external areas from parking and/or delivery vehicles.

The design team will also consider the effect of environmental factors such as water ingress, solar radiation and temperature variation on the building.

3.4.7 Waste

The Waste category encourages the reduction of waste associated with construction methods through measures implemented during the design and on-site management. The category also rewards design measures encouraging the building users to recycle waste during building operation.

Construction Waste Management

The credits available reward projects which reduce construction waste on site and divert waste going to landfill by implementing waste management practices. A pre-demolition / refurbishment audit will be undertaken to identify materials for reuse on site.

Operational Waste

To encourage the building users to segregate operational waste generated, a dedicated waste storage area will be provided. The storage area will be an appropriate size and include space for both general and recyclable waste. Depending on the

nature of the café, food waste may be generated and therefore a storage area for this waste will be provided if required.



Speculative Floor Finishes

In areas where tenants have control of interior design, floor and ceiling finishes will not be installed to prevent waste associated with replacement associated with a change to the aesthetic of the space.

Adaptation to Climate Change

This credit issue requires the design team to undertake a climate change adaptation study to identify ways to protect the building from anticipated impacts from extreme weather conditions such as flood events and increased temperatures. The recommendations of this report must be incorporated into the design and construction of the building.

Design for Disassembly and Adaptability

This credit aligns with the principles of circular economy to reduce unnecessary waste, cost and disruption arising from the need for future refurbishment works.

The credit requires a study to be undertaken to explore ways to facilitate future refurbishment (e.g. replacing plant, refurbishment from wear and tear) and implement the findings.

3.4.8 Land Use and Ecology

The aim of the Land Use and Ecology category is to encourage sustainable land use, habitat protection and creation and improvement of long term biodiversity.

Site Selection

To encourage development on brownfield land, one credit can be awarded where at least 75% of the proposed site is previously developed.

The proposed site is entirely brownfield land and therefore this criteria has been met.

Remaining Land Use and Ecology Category

The remaining credits targeted within the Land Use and Ecology category are interlinked and awarded based on the following:

- Identify ecological value and potential risks;
- Determining the ecological outcomes for the site based on a hierarchy from avoidance through to onsite and off-site enhancement;

- Allocating roles and responsibilities to team member to manage the potential impacts of site preparation and construction works;
- Minimising the loss in ecological value on site to achieve a net gain where viable;
- Monitoring and reporting the ecological outcomes of the site and 'lessons learnt'; and,
- Developing a landscape and ecology management plan covering at least 5 years following completion.

3.4.9 Pollution

The aim of the Pollution category is to address the prevention and control of pollution and surface waste run-off associated with the building's location and use.

Pollution issues covered within the credit requirements include light, noise, flooding and emissions to air, land and water.

Impact of Refrigerants

The aim of these credits are to reduce the level of greenhouse gas emissions arising from the leakage of refrigerants from building systems.

Systems will be hermetically sealed to reduce risk of refrigerant leak. Furthermore, refrigerants with lower direct effect life cycle carbon emissions will be prioritised.

Local Air Quality

In the case of this development, these credits can be achieved as the building services strategy is all-electric. Therefore there is no local pollution.

Surface Water Run-Off

The aim of the surface water run-off credits is to minimise the risk and impact of localised flooding on-site and within the area. The site is within Flood Zone 1 and a flood risk assessment will confirm any further risks and mitigation required. Due to reuse of an existing building, it is anticipated that mitigation will be required.

Reduction of Night Time Light Pollution

To minimise light nuisance to neighbouring properties and reduce energy consumption, the credit is awarded where lighting is designed in accordance with the ILP Guidance Notes for the Reduction of Obtrusive Light 2011 (Table 2). Lighting will also be controlled to be automatically switched off between 11pm and 7am, unless they must remain on for safety and security purposes.

Noise Attenuation

This credit will be awarded where the development is designed and constructed to minimise noise nuisance to local neighbours and wildlife. The noise level from the building, measured at the nearest or most exposed noise sensitive receptor must be at least 5dB lower than the background noise throughout the day and night.

3.5 Summary

The above section summarises the BREEAM strategy proposed for the redevelopment of 6-8 Market Place, the value that it will bring to the building occupants and surrounding areas, and support of the UN SDGs.

Both aspects of the scheme (new construction and refurbishment) target a score of over 70% with which would achieve BREEAM 'Excellent' with some margin of safety. All of the mandatory credits for 'Excellent' are also targeted.

It should be noted that this Sustainability Statement does not guarantee the award of these credits, and may not reflect the final route to achieve an 'Excellent' rating. Credits may be removed and replaced with others which may be more viable over the course of the design and construction.

4. Sustainable Design – Mitigating and Adapting to Climate Change

4.1 Introduction

This chapter of the report outlines sustainability design measures incorporated into the design beyond the scope of the BREEAM assessment to address key national and local policy requirements, demonstrating how the development will mitigate and adapt to the effects of climate change.

The focus of the Chapter is principally on the environmental pillar of sustainability. Further holistic sustainable benefits are summarised within the BREEAM strategy in **Chapter 3**.

4.2 Meeting the Challenge of Climate Change

One of the main challenges facing the UK and new development is the need to mitigate and adapt to a changing climate. The Government is committed to tackling climate change and in 2019 set out an ambition to extend the UK Carbon reduction target to achieve zero carbon emissions by 2050.

Climate change will cause the UK to become warmer, with wetter winters and drier summers. Adapting to this changing climate will impact on the design, construction, location, cost and

operation of all new buildings in the next few decades. One of the NPPF's core planning principles is to encourage development to consider climate change adaptation and mitigation during the planning process.

The Council's adopted Local Plan supports the Government's objectives for sustainable development reducing energy use and carbon dioxide emissions, adapting to and mitigating the effects of climate change. Furthermore, the declaration of Climate Emergency and target of a net zero carbon town by 2030 demonstrates RBC's commitment to sustainable development.

In this context the following sections outlines the key climate change mitigation and adaptation measures considered appropriate for this development based on the latest national guidance.

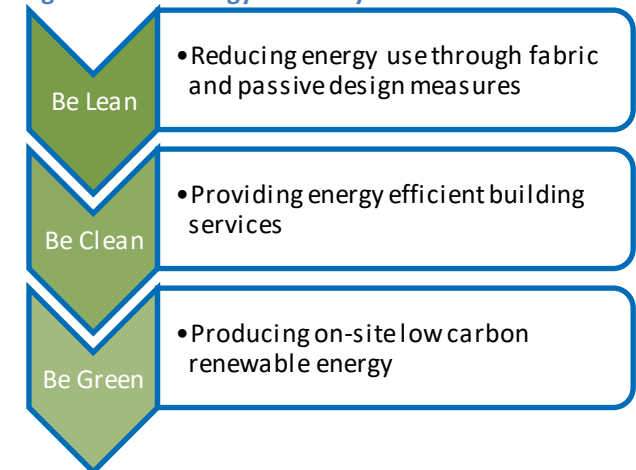
In response to the Climate Emergency, the proposed development has incorporated a number of measures into the design to mitigate climate change and be resilient to its effects.

4.2.1 Mitigating Climate Change

Developing energy efficient, low carbon buildings is a key objective of national and local policy to mitigate climate change.

The extension and refurbishment will be developed in accordance with the energy hierarchy, which aims to reduce energy demand through passive design measures and a fabric first approach before utilising low carbon energy and the production of on-site renewable energy.

Figure 4: The Energy Hierarchy



The following sections set out the measures included to deliver an energy efficient, low carbon development as set out within the Energy Statement undertaken by The Design Collective.

Be Lean – Reducing Energy Use

Central to the delivery of low carbon and energy efficient buildings is the ‘Fabric First’ principle which recognises the most effective way of minimising carbon emissions is to reduce the demand for heat and power through a well-insulated, energy efficient building fabric and services.

Reducing the primary energy demand of a building through the use of an efficient fabric and services is widely regarded as best practice and is therefore the first and most important step to reducing carbon emissions.

This ‘fabric first’ approach has a number of distinct benefits including:

- Carbon savings delivered are ‘locked-in’ for the lifetime of the building (60 years or more) rather than the much shorter lifespan (around 25 years) of a renewable energy technology;
- Virtually no maintenance and/or replacement costs to maintain carbon reductions through improved fabric;
- No reliance on an occupier’s behaviour to deliver carbon reductions. Achieving carbon savings from renewable energy technologies

require education, awareness and often, behavioural changes from occupants.

The following measures to reduce energy use and carbon emissions have been incorporated into the design:

- Design to promote passive solar gains and maximise natural daylight through large areas of glazing on the exposed east and west facades;
- Protection from peak summer sun through installation of brick corbels and piers;
- Specification of glazing with a g value of 0.4 or better to reduce excessive solar gain;
- Daylight controlled perimeter lighting within the floor plates;
- Incorporation of a mixed mode ventilation strategy, utilising natural ventilation within perimeter areas and providing mechanical ventilation boosts to internal areas to meet CIBSE Guide AM10;
- Retaining the existing structure of concrete frame and floor slabs to achieve a high thermal mass to assist of control of the internal temperatures;
- Internal insulation of existing walls to improve u-value to 0.3W/m²K;
- New wall constructions to achieve u-value of 0.24W/m²K or better;
- New and existing roof structures to be insulated to achieve a u-value of 0.18 W/m²K;

- Air tightness within the new construction to target 5m³/hr/m²;
- 100% of all light fittings to be low energy LED; and
- Use of high efficiency heating systems appropriate to the building use to reduce energy consumption.

Incorporating these measures from the ‘be lean’ stage of the energy hierarchy achieves the following energy savings from the notional buildings, as shown within **Table 2** below.

Table 2: Be Lean Annual Carbon Savings

	Baseline Emissions (tonnes)	Targeted Emissions (tonnes)	Percentage Reduction
Refurbished	362.8	251.6	30.65%
New Construction	127.9	120.7	5.63%
Total	490.7	372.4	24.12%

Note – Carbon emissions associated with both regulated & unregulated emissions

It can be seen that the development achieves a 24.12% reduction in carbon emissions by incorporating measures to improve energy efficiency.

Be Clean – Efficient Energy

The next stage of the Energy Hierarchy is the provision of energy efficiently, i.e. from a decentralised energy system such as a Heat Network.

District Heating Networks (DHN) comprise a centralised heat generator, typically a gas fired Combined Heat and Power (CHP) engine. CHP systems generate electricity and waste heat which can be fed into a network of insulated pipes which deliver low carbon heat to buildings to provide heating and hot water via individual heat transfer units.

Consideration of decentralised energy for development of over 1,000m² is required as part of Policy CC4 of the Local Plan.

The proposed development falls in between two viable clusters for district heating and therefore would require an extended connection or stand-alone loop.

Additionally, the continued decarbonisation of the national electricity grid, as supported by the draft SAP10.1 document published in October 2019, is also reducing the carbon benefit of gas CHP systems which will over time emit more carbon than they save.

In this context based on the lack of available network to connect to and decarbonisation of the electricity network it is therefore considered connection or creation of a heat network is not feasible for this development.

Be Green – Low Carbon Renewable Energy

The final stage of the energy hierarchy is the generation of on-site low carbon renewable energy. The use of a fabric first approach to design and construction and provision of energy efficiency measures recognises that the most effective route to delivering long term energy and carbon reductions is through efficient building design.

This approach is reflected by government guidance that aims to improve developments energy use and carbon emissions through changes to the Building Regulations.

The Energy Statement submitted to support the planning application includes consideration of a number of low and zero carbon technologies. The feasibility of these systems are summarised below:

Solar Photovoltaics (PV)

Solar photovoltaic (PV) systems generate zero carbon electricity from sunlight and are well suited to buildings with unobstructed roof space. Excess power is exported to the grid or can be harnessed using battery storage. Maintenance requirements are typically minimal.

A 20 panel south facing array is proposed to generate circa 5,298kWh per annum.

Solar Thermal

Solar thermal systems generate zero carbon hot water from sunlight in a similar manner to Solar PV. They require insulated tanks to store the hot

water and have greater maintenance demands than solar PV given the need to ensure anti-freeze in the pipework is topped up. Due to the low hot water demand within the office, the roof space would be better suited for solar PV.

Heat Pumps

Air Source Heat Pumps (ASHPs) are highly efficient systems which utilise latent heat in the air to help generate heat and hot water. This type of system being electricity based will deliver carbon savings as the national grid continues to decarbonise. When used as part of a variable refrigerant flow (VRF) system, the use of ASHPs can also provide cooling mitigating the potential risk of overheating from climate change.

Ground Source Heat Pumps work in a similar way taking latent heat from the ground to provide heating and hot water. This type of system is not considered feasible due to the limited area for loop installations required to withdraw the heat from the ground.

Biomass

Biomass energy is generated from the burning of organic material such as plants. It has lower emissions than gas, but should not be seen as a zero-pollution option. Greenhouse gases are generated to cut, transport and burn the fuel, with some debate over how long it takes for trees to re-absorb the carbon emitted; the burning of the fuel also contributes to local air quality issues and is currently being discouraged in major cities such as

London for this reason. Market Place is within an Air Quality Management Area, therefore biomass is considered inappropriate for air quality reasons.

Wind

As the building is surrounded by buildings of a similar height in all directions, a turbine of significant size would be required to generate adequate electricity. A turbine of this size is unlikely to be acceptable within the town centre.

Combined Heat and Power (CHP)

The benefits of CHP relate to the concurrent generation of heat and electricity; although this occurs at much lower efficiencies than via standard boilers, the higher carbon factor for grid electricity has traditionally displaced greater emissions overall.

However, the benefit of the technology is significantly reduced as more grid energy is produced from renewable sources and the grid decarbonises, as shown within the latest SAP10 data.

The CHP engine needs to be running for at least 17 hours a day to be truly efficient, and therefore requires a significant heat load to be supported. As the annual hot water demand and heating load is relatively low within an office building, this technology is not suitable.

The high NOx emissions associated with CHPs also determines their unsuitability within an inner town location.

It is considered a combination of VRF ASHPs and solar PV is the most appropriate renewable strategy for this development and will deliver approximately 17.15% reduction in carbon emissions in addition to those shown within **Table 2** from the 'be lean' measures.

Summary

In summary, both refurbished and new construction elements of the development will be designed in accordance with the principles of the energy hierarchy to reduce the primary energy use and carbon emissions beyond the requirements of Building Regulations (2013) Part L.

The carbon savings achieved from the fabric, energy efficiency and low carbon renewable energy measures outlined above are summarised within **Table 3**.

Table 3: Total Annual Carbon Savings

	Baseline Emissions (tonnes)	Targeted Emissions (tonnes)	Percentage Reduction
Refurbished	362.8	205.3	43.41%
New Construction	127.9	103.2	19.31%
Total	490.7	308.5	37.13%

Note – Carbon emissions associated with both regulated & unregulated emissions

The total saving in carbon emissions associated with unregulated and regulated operational energy achieved is estimated to be 37.13% from incorporating a number of fabric efficiency, energy efficiency and renewable measures.

Excluding unregulated uses, the regulated carbon saving estimated is 60.94%. This saving increases to over 70% using SAP10 carbon factors which are due to be formally introduced within the next Building Regulations update.

The development therefore demonstrates a commitment to mitigate climate change, reducing operational carbon emissions compared with the existing building, and a building regulation compliant new built.

4.2.2 Climate Change Adaptation

The ensure the proposed development is resilient to the effects of climate change in line with Policy CC3, a number of key design measures will be incorporated in response to the climate predictions set out in the UKCP18 projections.¹

The UKCP18 projections demonstrate that over time the UK will experience increased summer and winter temperatures with significantly increased maximum temperatures, reduced summer rainfall, increased winter rainfall and an increase in extreme weather events.

The UK Climate Change Risk Assessment² updated in 2017 identifies key risks associated with the effects of climate change and in relation to the built environment and the proposed development these include reduce summer water availability, increased winter rainfall and increased summer temperatures.

This section identifies key measures which will be incorporated into the design of new buildings and the proposed development to adapt to climate change.

Water Efficiency

Potable water is an increasingly important natural resource and with the majority of the UK classed as being in an area of moderate or severe water

stress the conservation of water is becoming a more significant sustainability metric.

As the Thames Water area is recognised by the Environment Agency as a water stressed area the new development will aim to reduce water consumption. Three credits are targeted under Wat 01 Water Consumption which represents an improvement of 40% over the baseline defined by the BRE.

The development will incorporate low flush WCs and limited flow showers and taps to achieve the 40% target reduction targeted.

At detailed design greywater recycling and rainwater harvesting will be considered. The water saving benefits will be considered against cost effectiveness and impacts of embodied carbon in line with the requirements Policy CC2.

Flood Risk and Drainage

The existing building is within Flood Zone 1 and therefore less than 0.1% (1 in 1000) chance of flooding in any year. The risk of surface water flooding is also classed as low as shown within **Figure 5** below where the darker blue represents high risk.

Figure 5: Surface Water Flood Risk (GOV.UK)



Furthermore, the area is beyond the maximum extent of reservoir flooding.

The proposed extension will not increase the impermeable area of the site and therefore should not increase the risk of flooding to the property or surrounding area.

Overheating

With increasing summer temperatures there is an increasing risk of overheating in buildings which could adversely affect building occupants and users.

¹<https://www.metoffice.gov.uk/research/approach/collaboration/ukcp/about>

²<https://www.theccc.org.uk/uk-climate-change-risk-assessment-2017/>

As part of the BREEAM pre-assessments, the credits associated with thermal comfort are targeted. These require dynamic thermal modelling using current and future climatic scenarios to reduce risk of overheating for the occupants.

Through the provision of mitigation measures, buildings will be able to adapt to and be resilient to future climatic changes.

Biodiversity

A Bat Survey was undertaken in June 2020 to assess suitability of the building for roosting bats. The results of the survey found there to be no evidence of roosting bats, and found the building to have negligible potential. Therefore no mitigation is recommended.

Furthermore, the site is considered to have no existing features of ecological value and therefore no protection is required.

The proposed development is anticipated to deliver a net gain in biodiversity as there is currently limited green space on site. The development proposals include a number of areas of ground floor and roof level soft landscaping including wildflower blankets to appeal to local insect and bird populations. A planting schedule will be developed at detailed design to achieve the optimum onsite biodiversity gain. Increasing site biodiversity helps contribute to mitigating the effect of climate change on habitats and species.

Increasing the amount of soft landscaping on site will also increase the amount of impermeable area, therefore providing some flood risk mitigation.

4.3 Sustainable Transport

The location of 6-8 Market Place is highly sustainable and accessible for building occupants and visitors. This section summarises access to the site in terms of public transport, walking and cycling, and measures implemented to reduce private car travel.

4.3.1 Walking and Cycling

The site is within Reading Town Centre and is therefore suited to access from pedestrians. Market Place itself is one way, reducing the risk of pedestrian and vehicle collisions. The active frontage and entrance of the ground floor will be improved to encourage pedestrian travel to and from the site.

There are a number of local amenities within the vicinity of the site. These are summarised within **Table 4**.

As shown within Table 4, the majority of key services and amenities are within 100m or 1 minute walk from the site. Health services such as NHS Walk-in Centre and Options are within a 6 minute walk from site.

Additionally, an onsite gym and café are included within the proposals, increasing the amenity offering for building users.

Table 4: Nearby Services and Facilities

Amenity	Distance from Site
Tesco Express	Onsite
Dentist Surgery	Onsite
Oxfam Bookshop	30m
A number of food and drink offerings e.g. Costa, Pho, Picnic Foods, Pret, Perry's and Greggs	Within 100m
Broad Street (including a number of high street retail stores and banks)	100m
Forbury Gardens	180m
Reading Museum	240m
NHS Walk in Centre	500m
Leightons Opticians and Hearing Care	300m

In terms of cyclist accessibility, there are a number of combined cycle lanes within the town centre, including a combined bus, taxi and cycle lane adjacent to 'The Forbury' and along the length of Duke Street and London Street. This lane connects

to a combined pedestrian and cyclist pavement on the A329 / Queen’s Road.

The current office building provides no dedicated cycle store, however the proposed refurbishment of the basement will provide a new cycle store in line with BREEAM criteria. Furthermore, showers, changing facilities and lockers will be incorporated to complement the cycle storage and encourage use of the gym.

4.3.2 Public Transport

Reading Train Station is approximately 5m walk from the site via what is considered to be a safe walking route with a number of crossings. The station has a number of facilities including cycle parking, cash machine, post box and a number of shops.

The station is located on the Great Western Main Line which runs between Reading and London Paddington. The line branches to also serve a number of South West England and South Wales locations including Bristol Temple Meads, Bath Spa, Cardiff and Swansea. The Reading to Taunton branch services communities within Berkshire and Wiltshire. North to South services connect Reading to a number of large cities such as Birmingham, Southampton, Newcastle and Manchester via Cross Country.

The station benefits from a direct link to Gatwick Airport. Furthermore, there is a proposed rail link between Heathrow Airport and Reading which is due to become operational in 2024. In the

meantime, an hourly express bus service links Reading to Heathrow taking approximately 56 minutes. Alternatively, travellers can proceed by train to Heathrow with one change at Hayes & Harlington.

The site is served by a number of bus services which stop directly outside the building. These include the Emerald line to Whitley Wood, Greenwave line to Three Mile Cross and Bronze line to Coley Park. Approximately 50m from the site, an additional bus stop is served by the Leopard and Claret lines which connect to Wokingham Town Centre and Lower Earley respectively.

4.3.3 Car Travel

The proposed extension of the office is more than halving the number of car parking spaces on site, from 98 to 41. This decrease in number of spaces therefore reduces carbon emissions and pollution in the local area associated with petrol and diesel engines.

A total of 4 electric vehicle charging points are proposed, representing a 10% provision. A 5% provision of disabled car parking spaces will be provided. This provision meets the requirements of Policy TR5.

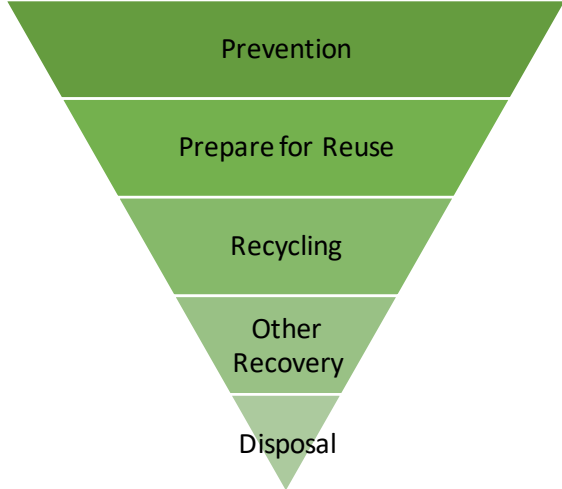
In summary, the sustainable location of 6-8 Market Place, proximity to a range of local amenities and proposed measures such as cycle store and facilities ensures that visitors and building

occupants have a wide range of alternatives to private car travel.

4.4 Resource Efficiency

The proposed development has been designed to reflect the principles of circular economy. The refurbishment of an existing building in comparison with full demolition and reconstruction is inherently resource efficient and reduces the carbon emissions associated with construction (known as embodied carbon). The refurbishment of the existing building prevents the production of waste and new materials in line with the NPPF waste hierarchy (**Figure 6**).

Figure 6: Waste Hierarchy



4.4.1 Material Reuse

At the appropriate time, a pre-refurbishment and pre-demolition audit will be undertaken by a qualified person to identify materials which can be re-used.

Some materials removed during the demolition and strip out may be suitable for reuse, which would achieve the following benefits:

- Saving on the cost of new materials;
- Contributing to reuse and recycling targets (such as BREEAM);
- Contribute to social value; and
- Deliver carbon savings.

As demolition will be limited, the materials available for reuse on site are likely to consist of the existing tarmac, which could be reused as asphalt or sub-base on site.

Materials which are likely to be present during the strip out may be appropriate to reuse offsite. Examples to this effect are shown in **Table 5** below.

Table 5: Examples of Reusing Materials Off-Site

Material	Reuse Option
Flooring	Carpet tiles can be re-furbished and re-used, providing low-cost flooring to households and charities. Examples of used carpet suppliers include 'Carpet Tile Wholesale' and 'Envirocycle London'.
Electrical Items	Electrical items such as white goods, in good condition can be donated to charities or sold on sites such as 'Globechain' (a broker service for unwanted resources).
Furniture	As per electrical items, unwanted furniture can be donated to local charities or community uses.

The above table provides a generic indication and will be superseded by the pre-demolition / refurbishment audit. The audit will inform the project team on which site specific components can be reused, either directly on site or donated / sold elsewhere. Donating materials to charities have a number of social and environmental benefits, and will be prioritised where possible if material is removed in good condition.

4.4.2 Recycling

Where materials cannot be reused, they will be diverted from landfill where possible. Once appointed, the main contractor(s) will develop a

Site Waste Management Plan (SWMP) to confirm the construction waste strategy. The SWMP will be developed in line with BREEAM Wst 01 standards and include a 90% diversion from landfill target as a minimum.

Manufacturers may also participate in 'take back' schemes to recycle materials such as plasterboard and carpets which are likely to be present within the strip out. The main contractor(s) will check if any 'take back' schemes are available for materials removed onsite.

4.4.3 Other Recovery and Landfill

Where possible, waste which cannot be recycled will be recovered at a waste to energy plant which will incinerate the waste, then using the heat to create steam and generate electricity. Landfill will be the last resort for any residual waste.

4.4.4 New Materials

The specification for the construction and refurbishment will prioritise materials with low environmental impacts and embodied carbon, and where feasible.

Examples of materials with low environmental impacts which could be considered at detailed design (alongside effects on aesthetics, function and life cycle cost) include:

- Timber building materials;
- Pre-stressed concrete within upper floor slabs;

- Use of cement substitutes such as fly ash and ground granulated blast furnace slag (GGBS) within concrete blends;
- Flooring made from natural rubber or hardwood;
- Natural stone hard landscaping;
- Organic based insulation such as sheep's wool; and,
- Organic based blocks such as 'hempcrete' and straw bale.

Materials with minimal impact on human health will be selected, such as those with low formaldehyde and volatile organic compounds (VOCs)

Using materials with recycled content will optimise material efficiency in construction, reduce environmental impacts and contribute to a circular

economy. The demand for virgin materials will be reduced, thus encouraging the supply chain to incorporate more by-products and recycled content into products.

As standard, steel from the UK contains approximately 97% recycled content, therefore steel products will be procured from the UK wherever possible.

Cement substitutes such as fly ash and GGBS are not recycled as such, but are by-products from other processes; iron blast furnaces and coal burning for energy generation respectively. Therefore they represent secondary materials when introduced into a concrete mix for new buildings. Cement substitutes will be considered within the construction of the new buildings where

feasible in terms of construction programme and functionality.

Other products such as carpets, insulation and plasterboard can have up to 100% recycled content depending on the supplier. Therefore products with Environmental Product Declarations demonstrating a high level of recycled content will be prioritised in the supply chain.

The main contractor(s) will be encouraged to place agreements with the manufacturer of products with short life spans e.g. carpets, to participate in a take back scheme.

5. Sustainable Design Checklist

5.1 Introduction

This Chapter is based on the requirements of the Sustainable Design Checklist within the Sustainable Design and Construction SPD. It reflects on some of the statements made within Chapters 3 and 4 and how they apply to the checklist.

5.2 Sustainable Design Checklist

1. Will guidance for the non-technical building user be provided so they can understand and operate the building efficiently and understand how the design reduced the overall environmental impact of the building and raise environmental awareness?

Yes, in accordance with BREEAM credit Man 04 'Building User Guide' under both New Construction and Refurb and Fit Out schemes.

2. What consideration has been given to resource use, energy consumption and pollution in terms of the construction site impacts?

Construction site impacts will be monitored and reported to the BRE in line with BREEAM credit

Man 03 under both NC and R&FO schemes. Furthermore, the site will be registered with CCS and target a score of 40.

A Construction Environmental Management Plan (CEMP) will be developed by the main contractor(s) once appointed.

3. Will site investigation and appropriate remedial action be undertaken?

N/A as the site is refurbishment and extension of existing building.

4. Will the community and stakeholders be involved in the design process encouraging flexibly designed buildings which cater for shared use with the local community?

The retail units on the ground floor will be enhanced to provide an improvement to the active frontage of the building onto Market Place Square. Furthermore, the existing Tesco unit will be retained for local community use.

5. How has the building been designed to reduce the opportunity for and the fear of crime?

Credit issue Hea 06 'Security' is targeted within both BREEAM pre-assessments. Refer to **Section 3.4.2** for further details.

6. What consideration has been given to the maintenance of the building?

The maintenance arrangements will be considered further at detailed design.

7. How has the development been designed to ensure users have sufficient daylight, an external view, adequate and appropriate lighting, ventilation, air quality and drinking water?

Rather than widen floor plates which would require mechanical ventilation and provide low natural daylight, the design team have taken the approach to add additional mass, allowing for maximum daylight and natural ventilation potential.

8. How has the building been designed to minimise CO₂ emissions associated with their operational energy consumption?

The building incorporates a number of fabric and energy efficiency measures, and ASHP and solar PV to minimise carbon emissions. Please see **Section 4.3.1** for further details.

9. How has the development been designed to optimise the use of the energy from the sun, natural daylighting and controlled natural ventilation?

The design team have retained existing narrow floor plates which provide optimal daylight and natural ventilation through the offices.

10. How will the design of the building make efficient use of energy? (e.g. use of thermally massive materials, levels of insulation and use of green/brown roofs etc.).

The building maximises natural ventilation and daylight to reduce operational energy usage associated with ventilation systems and lighting. The frame and upper floors have a high thermal mass, and green roofs provide mitigation against the urban heating effect.

11. Have renewable energy sources or decentralised energy been considered for this development and if so, how would they be incorporated within the development?

Yes, please see **Section 4.2.1** for further details. ASHPs and solar PV have been incorporated.

12. How has the design and layout incorporated measures to reduce the need to travel, especially by car, and promote alternative and sustainable modes of transport such as walking, cycling and the use of public transport?

6-8 Market Place is in a highly sustainable location within 300m of Reading Station and served by a number of bus services (with a stop immediately outside the building). Secure cycle storage and facilities such as showers, changing space and lockers will be provided to encourage cycling to the site. The redevelopment of the building will include enhancement of the active frontage to encourage walkers.

13. How have public transport networks been considered in terms of the location of the development and proximity to local amenities?

The site is within close proximity to a number of public transport nodes and local amenities, achieving maximum BREEAM credits available for accessibility index and provision of facilities. No further consideration has therefore been given. The refurbishment of the office will provide a gym and café for use by the building occupants. See **Section 4.3.3** for further details.

14. How have deliveries and the manoeuvring of delivery vehicles been considered?

Vehicle access has been retained as per the existing arrangement. There is a new refuse

point proposed close to the existing vehicle entrance for ease of access.

15. How will the development incorporate the use of water saving devices to achieve a maximum consumption of 5.5 cubic m per year per person for office developments? (or the most appropriate benchmark for other types of development).

The development is targeting an improvement of 40% over the BRE benchmark, equivalent to 3 credits. Please refer to **Chapters 3 and 4** for further information.

16. Will the development and access to and from it such as roads and paths be located away from areas of potential flooding?

The existing building is within Flood Zone 1 and at low risk from surface water flooding.

17. How will the development incorporate harvesting and re-use of rainwater?

Greywater recycling and rainwater harvesting will be considered further at detailed design stage.

18. Does this development meet the requirements of EN18?

The site is within Flood Zone 1 and at low risk of surface water flooding. As the proposed development will not increase the impermeable

area of the site, surface water run-off is not anticipated to increase.

19. How will the selected materials help retain local character, ensure long life and ensure a low environmental impact, including consideration of embodied energy?

The Design and Access Statement (DAS) submitted with the planning application provides detail on how the design has been developed to complement local character.

The reuse of an existing building inherently reduces embodied carbon and other environmental impacts compared to the alternative option of demolition and rebuild. In line with the criteria for BREEAM Mat 01 under both NC and R&FO schemes, the environmental impacts (including embodied carbon) of the development will be considered over its life cycle.

20. What consideration has been given to reusing materials in-situ, responsibly sourcing materials and re-using existing structures?

The proposed development is reusing the existing building on site, and enhancing the façade and building services to provide aesthetic and environmental performance improvements.

Responsible sourcing will be prioritised in line with the credit requirements for BREEAM Mat 03.

21. Has an audit of the materials present on the site been conducted with an assessment of the extent to which materials could be re-used?

A pre-demolition and refurbishment audit will be considered at the appropriate stage to identify any materials for reuse on or off-site.

22. How will the development make the maximum use of construction, demolition waste and recycled materials?

As per the response to Question 21 above, a pre-demolition / refurbishment audit will be considered at the appropriate stage to provide a specialist opinion on the reuse of materials.

Onsite reuse will be prioritised in line with the Waste Hierarchy and circular economy principles.

23. How will provision be made for the storage and recycling of waste for all users of the site?

The final strategy for commercial refuse collection in terms of frequency will be subject to confirmation of the final use of the workspace. Routes have been located to avoid impact on the public realm.

24. How have the wildlife habitats and natural features on and adjacent to the site been

considered and how will they be retained, protected and enhanced?

There are no existing features on site, as confirmed by the Bat Survey, therefore no protection or mitigation is required. Soft landscaping will be incorporated into the design at ground and roof level, therefore enhancing the natural environment.

25. What consideration has been given to not using previously undeveloped land?

N/A - the site is entirely previously developed.

26. What consideration has been given to the removal of contamination from the land?

The site is refurbishment and extension of an existing building. Any hazardous waste encountered within the building will be dealt with appropriately.

27. What measures have been incorporated to ensure that noise and light pollution plus pollution transported through surface water runoff or infiltration will be minimised through the development?

Refer to **Section 3.4.9** for further details.

28. What measures have been incorporated to ensure that light pollution will be minimised through the development?

Refer to details of credit Pol 04 'Minimising Night-time Pollution' within **Section 3.4.9** for further details.

29. What consideration has been given to reducing refrigerants and minimising nitrogen dioxide emissions?

Refer to **Section 3.4.9** for further details.

30. How has the development been sited to minimise the impact of flooding?

The proposed development makes use of an existing building within Flood Zone 1, at low risk of surface water flooding and outside of the maximum extent for reservoir flooding.

31. How has the design considered the use of sustainable drainage systems (SuDS) and how will they be incorporated within the development

The existing surface water drainage system will be retained. The increase in soft landscaping (decrease in impermeable area) will help reduce water run-off from the development and slow down drainage into the town's network.

32. What consideration has been given to innovative sustainability measures in terms of a procurement strategy, design feature, management process or technological?

The development incorporates the principles of circular economy, as summarised within **Section**

4.4. Furthermore, the design achieves a 70% reduction in operational carbon emissions compared against the baseline existing building and building regulation compliant new construction using the recently updated SAP10 carbon factors.

6. Conclusion

6.1 Introduction

This Sustainability Statement has been prepared to demonstrate how Castleforge Partners will deliver a high quality, sustainable redevelopment of 6-8 Market Place.

The proposed development supports the sustainability objectives of both local and national policy to address the Climate Emergency as declared by Reading Borough Council.

The office refurbishment and extension will include the following sustainable design measures which will provide a range of economic, social benefits, protect and enhance the environment, as well as mitigating and adapting to the effects of climate change.

6.2 Social and Economic Benefits

The development aims to provide a range of social and economic benefits to the building occupants and extended area of Reading, through:

- Development designed in response to local constraints and opportunities

considering measures to ensure the character of the development reflects the character of the environment;

- Retention of narrow floor plates to optimise natural daylight and ventilation for building occupants; and
- Retention of existing Tesco and dental surgery, and provision of additional facilities for building users including a gym and café.

6.3 Environmental Protection and Enhancement

Through a range of design measures the development aims to protect and enhance the local environment, through:

- Achieving a BREEAM 'Excellent' rating;
- The use of measures to reduce pollution during construction and operation including measures related to noise pollution, air quality and water pollution; and,
- Redevelopment of a brownfield site with no ecological value to deliver a net gain in

biodiversity through installation of wildflower blankets.

6.4 Mitigating and Adapting to Climate Change

In line with Policies CC2 and CC3, the development will incorporate a range of measures to reduce carbon emissions, mitigating the effects of climate change, and adaptation measures to ensure the long term resilience of the development to the effects of climate change. Measures proposed at this stage include:

- Reducing construction carbon emissions by reusing an existing building and specifying materials with low environmental impacts and responsible supply chains;
- Reducing regulated and unregulated operational carbon emissions by 70% (using SAP10 carbon factors) by incorporated fabric and energy efficiency measures, and ASHP and solar PVs;
- Targeting BREEAM 'Outstanding' standards in water efficiency by reducing

flow rates and flush volumes, and considering rainwater harvesting / grey water recycling if feasible; and

- Minimising emissions associated with transport by redevelopment within a highly sustainable location, reducing car parking spaces, providing 10% provision of EV charging points and provision of a cycle store, changing facilities and showers.

This Sustainability Statement demonstrates that the redevelopment of 6-8 Market Place incorporates measures to mitigate and adapt to climate change, whilst providing enhanced high quality and flexible office space to a key location within Reading Town Centre.

9 Colmore Row
Birmingham
B3 2BJ

T 0121 233 0902

Turley
Sustainability

UN Sustainable Development Goals and the BREEAM Family of Standards and Tools

SUSTAINABLE DEVELOPMENT GOALS	BREEAM's Overarching Contribution to Sustainable Development Goals	Building Standards BREEAM [®] delivered by bre HOME QUALITY MARK	Communities Standard BREEAM [®] delivered by bre	Infrastructure Standard CEEQUAL delivered by bre	Shelter and Settlement Sustainability Tool* QSAND
1 NO POVERTY End poverty in all its forms everywhere	Encourages the delivery of assets that are resilient and that use resources efficiently in order to reduce operational costs connected to the built environment (e.g. helping to alleviate fuel poverty; maintenance costs; access to affordable transport)				
2 ZERO HUNGER End hunger, achieve food security and improved nutrition and promote sustainable agriculture	Encourages the delivery of assets that use land and resources efficiently, thereby maximising opportunities for self-help and relieving pressure on agricultural land and resources				
3 GOOD HEALTH AND WELL-BEING Ensure healthy lives and promote wellbeing for all at all ages	Encourages the provision of comfortable, healthy and safe internal and external environments for asset users and others within the vicinity				
4 QUALITY EDUCATION Ensure inclusive and quality education for all and promote lifelong learning	Encourages the provision of education and training opportunities to local communities, plus encourages ongoing learning through training and development courses for trades and professionals				
5 GENDER EQUALITY Achieve gender equality and empower all women and girls	Encourages responsible sourcing and procurement principles in construction material supply chains				
6 CLEAN WATER AND SANITATION Ensure access to water and sanitation for all	Encourages the provision of water efficient solutions, systems and equipment that minimise water consumption, whilst maintaining a clean and reliable supply				
7 AFFORDABLE AND CLEAN ENERGY Ensure access to affordable, reliable, sustainable and modern energy for all	Encourages the provision of energy efficient solutions, systems and equipment that minimise energy consumption and carbon dioxide emissions, whilst maintaining a reliable supply				
8 DECENT WORK AND ECONOMIC GROWTH Promote inclusive and sustainable economic growth, employment and decent work for all	Encourages measures that result in a positive economic impact and provision of training and skills to the local community				
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE Build resilient infrastructure, promote sustainable industrialisation and foster innovation	Promotes the delivery of sustainable and resilient buildings and infrastructure, and encourages and recognises innovations that improve the sustainability performance of assets and provides learning opportunities for wider dissemination				

SUSTAINABLE DEVELOPMENT GOALS	BREEAM's Overarching Contribution to Sustainable Development Goals	Building Standards BREEAM [®] delivered by bre HOME QUALITY MARK	Communities Standard BREEAM [®] delivered by bre	Infrastructure Standard CEEQUAL delivered by bre	Shelter and Settlement Sustainability Tool* QSAND
10 REDUCED INEQUALITIES Reduce inequality within and among countries	Encourages measures that result in a positive social impact and inclusivity, as well as encouraging responsible sourcing and procurement principles in construction material supply chains				
11 SUSTAINABLE CITIES AND COMMUNITIES Make cities inclusive, safe, resilient and sustainable	Promotes the development of sustainable communities and encourages access to sustainable transport, delivery of affordable and safe homes, implementation of flood resilience measures, minimisation of air pollution, and access to public and green space				
12 RESPONSIBLE CONSUMPTION AND PRODUCTION Ensure sustainable consumption and production patterns	Encourages the sustainable procurement and use of construction materials by recognising materials that are reused or recycled, are used in an efficient manner, have a low environmental impact, are sourced in a responsible way, and are durable and resilient				
13 CLIMATE ACTION Take urgent action to combat climate change and its impacts	Encourages the sustainable use of energy, minimisation of greenhouse gas emissions, and implementation of climate change adaptation and flood resilience measures in one of the biggest contributing sectors globally				
14 LIFE BELOW WATER Conserve and sustainably use the oceans, seas and marine resources	Encourages the prevention and control of pollution and surface water runoff associated with the location and use of assets				
15 LIFE ON LAND Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss	Encourages sustainable land use, protection and creation of ecological features, and improvement of long term biodiversity for asset sites and surrounding land				
16 PEACE, JUSTICE AND STRONG INSTITUTIONS Promote just, peaceful and inclusive societies	Encourages responsible sourcing and procurement principles in construction material supply chains				
17 PARTNERSHIPS FOR THE GOALS Revitalise the global partnership for sustainable development	Encourages the creation of strong international partnerships and relationships across policy, property, infrastructure and the supply chain to deliver and manage sustainable assets and communities				
KEY	Significant contribution to meeting the UN goals and targets	Some contribution to meeting the UN goals and targets	Limited or indirect contribution to meeting the UN goals and targets		

*Free to use tool developed on behalf of the International Federation of the Red Cross and Red Crescent Societies. To find out more, go to www.qsand.org



BREEAM New Construction 2018 (Office) Shell and Core

Pre-Assessment to Support Planning Application - 6-8 Market Place New Build Element

June 2020

Key



Mandatory Credit for 'Excellent'

TARGET (>70%)	72.18%	Excellent				
Credit Summary BREEAM 2018: Office Shell & Core Building			Credit Ref.	Credits Available	Credits Targeted	Comments
MANAGEMENT						
Credit Value 0.61%	Project Brief and Design	Project Delivery Planning	Man 01	1	1	Prior to the end of Stage 2 , roles & responsibilities must have been issued to the project team, and internal consultation occurred, resulting in changes to the design.
		Stakeholder Consultation		1	0	
		BREEAM Advisory Professional		1	1	A BREEAM AP has been appointed to work with the project team and monitor progress against performance targets during RIBA Stage 2 .
				1	1	A BREEAM AP must be appointed to work with the project team and monitor progress against performance targets during RIBA Stages 2-4 .
	Life Cycle Costing (LCC) and Service Life Planning	Elemental Life Cycle Cost	Man 02	2	2	Elemental life cycle costing must be undertaken during Stage 2 by cost consultant.
		Component Life Cycle Cost		1	1	Component life cycle costing must be undertaken during Stage 4 by cost consultant.
		Capital Cost Reporting		1	1	Report cost per sqm (£/100m2).

	Responsible Construction Practices	Legally harvested and traded timber - Pre-requisite	Man 03	-	Y	Contractor must demonstrate that all timber is FSC certified.
		Environmental Management		1	1	Main contractor must operate EMS (ISO14001).
		Sustainability Champion		1	1	Ensure a BREEAM AP / Site Sustainability Champion is appointed to cover stages 5 & 6.
		Responsible Construction Management (1 credit mandatory)		2	2	The contractor must achieve the required number of items listed within Table 4.1 within the BREEAM Manual. Considerate Constructors Scheme can contribute to this credit.
		Monitoring of Construction Site Impacts		2	2	The contractor must monitor energy, water and transport of materials and waste on site. Note that these will need to be reported to the BRE.
	Commissioning and Handover	Commissioning and Testing Schedule and Responsibilities	Man 04	1	1	Appoint a member of the design team to monitor and programme pre-commissioning, commissioning and testing
		Commissioning Building Services		1	1	A specialist commissioning manager must be appointed during the design stage, undertaking design reviews, input to construction programme and management of commissioning.
		Testing and Inspecting Building Fabric		1	1	Thermographic survey & air tightness testing must be undertaken post completion - any defects are rectified.
		Handover (Building User Guide mandatory)		1	1	Two separate Building User Guides must be produced for: - Building occupiers (non technical) - FM team (technical) Two training schedules must also be produced for the above.
Section Credit Total				18	17	
Weighted Section Total				11%	10.39%	
HEALTH & WELLBEING						
0.73%	Visual Comfort	Daylight factors	Hea 01	2	0	
		View Out		1	0	
		Internal and External Lighting Levels		1	1	External lighting must meet BS5489-1:2013 and BSEN12464-2:2014. Internal lighting is scoped out in shell and core assessments.
	Indoor Air Quality	Indoor Air Quality Pre-Requisite	Hea 02	-	Y	The team will need to produce an indoor air quality plan, ideally prior to detailed design.
		Ventilation		1	1	The building must provide fresh air in accordance with the relevant standard for ventilation. For naturally ventilated buildings this would be CIBSE AM10. For mechanically ventilated - BS ISO 17772 - 2017.

	Thermal Comfort	Thermal modelling	Hea 04	1	1	Occupied areas (for longer than 30 minutes) meet CIBSE Guide A criteria & TM52 / TM59 where naturally ventilated. Predicted Mean Vote (PMV) & Predicted People Dissatisfied (PPD) must be reported where buildings are air conditioned.
		Adaptability for projected climate change scenario		1	1	The above is achieved for a projected climate change environment. Where this is not met, the team must demonstrate how the building has been adapted (or can be in future) to meet the criteria using passive design solutions.
	Acoustic Performance		Hea 05	1	1	A suitably qualified acoustician (SQA) must carry out a quantifiable assessment of the specification of the build form, construction and any external factors likely to affect the indoor ambient noise levels. The SQA must then confirm the developer's works will enable a future tenant utilising a typical fit-out and specification to meet the levels required to demonstrate compliance.
	Security		Hea 06	1	1	Security specialist should be consulted by the end of Stage 2 and undertake a full site assessment with bespoke recommendations. All recommendations must be implemented. Where appointed after Stage 2, the SQSS will need to confirm they have not been restricted by late appointment. Compliant SNA received but need qualifications of SQSS. All recommendations from SQSS must be incorporated into the final design.
	Safe and Healthy Surroundings	Safe access	Hea 07	1	0	
		Outside Space		1	0	
	Section Credit Total				11	6
Weighted Section Total				8%	4.36%	
ENERGY						
Credit Value 0.67%	Reduction of Energy Use and CO2 Emissions	Energy Performance Ratio (4 credits mandatory)	Ene 01	9	6	6 credits estimated based on EPR of 0.6.
		Prediction of Operational Energy Consumption		4	4	Several energy scenarios must be modelled to create a range of predicted operational consumptions in line with CIBSE TM54. This modelling should be accompanied by a risk assessment of the possible building energy uses. Different scenarios may include: - Good / poor building management - Extreme weather - Maximum usage An energy workshop is held to establish the risks associated with operation energy performance. If 4 credits cannot be achieved within the energy performance ratio above, these credits become mandatory.

	Energy Monitoring	Sub-metering End-Use Categories	Ene 02	2	1	90% of each fuel should be metered by end use - a BMS or will need to monitor all of the meters.	
		Sub-metering of High Energy Load and Tenancy Areas			1	Metering of each floor plate or area is required - must be readable from a BMS (or similar). It may be beneficial in this case to meter by floor plate.	
	External Lighting		Ene 03	1	1	External lighting must have average luminous efficacy of 70 lumens / circuit Watt. Lighting should be controlled by photocell and PIR in areas of intermittent pedestrian use.	
	Low Carbon Design	Passive Design Analysis (PDA)	Ene 04	1	1	A passive design analysis is required to identify opportunities for passive design. Implementation of these measures result in a circa 10% improvement over building regs.	
		Free Cooling		1	0		
		Low and Zero Carbon Feasibility Study		1	1	LZC Feasibility Study required during design stage covering each requirement within the BREEAM Manual. The recommendations must be implemented to achieve a 'meaningful' reduction i.e. 10%	
	Energy Efficient Transportation Systems	Energy Consumption	Ene 06	1	1	A transport analysis must be produced for lifts. Additionally energy consumption must be calculated for at least two different lift models (the one with the lowest energy consumption must be specified and installed).	
		Energy Efficient Features		1	1	The following three energy efficient features must be specified and installed in each lift: - standby condition - lift and display lighting must be an average of more than 70 lm/cW - VVVF control drive motor Where demonstrated to save energy, regen drives are installed (likely in a building of this height).	
	Section Credit Total				21	17	
	Weighted Section Total				14%	11.33%	

TRANSPORT						
Credit Value 0.96%	Transport Assessment and Travel Plan		Tra 01	2	2	A transport assessment must be made during concept design alongside a draft travel plan in line with BREEAM criteria. The assessment (or statement) must include accessibility index and overview of disabled access. Current building users should also be consulted to advise on potential improvements.
	Sustainable Transport Measures		Tra 02	10	10	Sustainable transport measures provides credits based on measures provided on site. This would need to be confirmed with the Transport Consultant and Client but have been estimated based on the following: - Accessibility Index of >25 (TBC ASAP) - Install cycle spaces for staff (1 per 10) - Shower(s) and changing areas provided for staff - Three amenities located nearby (e.g. cafe, access to cash, post office) - Two extra amenities provided (gym & cafe) - Electric recharging points provided for 10% total parking capacity, or set up car sharing club and provide priority spaces (5%).
Section Credit Total				12	12	
Weighted Section Total				12%	11.50%	
WATER						
Credit Value 0.78%	Water Consumption (1 credit mandatory)		Wat 01	5	3	40% improvement on the baseline required - sanitary ware should be limited where possible and rainwater / greywater systems should be considered.
	Water Monitoring		Wat 02	1	1	A pulsed water meter must be installed on the supply to each building and connected to the BMS. Areas consuming over 10% of the building's water demand must also be sub-metered.
	Water Leak Detection & Prevention	Leak Detection System	Wat 03	1	1	A water leak detection will be installed to monitor the internal pipework and any pipework to the boundary.
		Flow Control Devices		1	1	Sanitary areas must be fitted with leak prevention e.g. solenoid valves linked to PIR. Please note that this should not be connected to showers, but on the cold water supply to WCs, urinals and taps.
	Water Efficient Equipment (Process)		Wat 04	1	1	Identify systems or processes to reduce the irrigation required by soft landscaping and establish a demonstrable reduction in the total water demand of the building. Please note that if there is no soft landscaping this credit will be scoped out.
Section Credit Total				9	7	
Weighted Section Total				7%	5.44%	

MATERIALS						
Credit Value 1.25%	Environmental Impacts from Construction Products - Building Life Cycle Assessment (LCA)		Mat 01	7	2	Credits are available for undertaking a Life Cycle Assessment and options appraisal during Stages 2 & 4 . Stage 2 LCA not undertaken, therefore only 2 credits available for undertaking superstructure options appraisal at Stage 4. Benchmark N/A as project is part new build / part refurbishment.
	Environmental Impacts from Construction Products - Environmental Product Declarations (EPD)		Mat 02	1	1	Specify construction products with EPD that achieve a total EPD points score of at least 20. Depending on the type of EPD available for the product, a range of scores are provided for the EPD depending on its strength against the criteria - 0.5-1.5. The total score across the components will need to add up to 20 to achieve the credit which will require a high number of EPDs across a number of products.
	Responsible Sourcing of Construction Products	Pre-requisite - Legal and Sustainable Timber	Mat 03	-	Y	All timber used to be FSC.
		Enabling Sustainable Procurement		1	1	A Sustainable Procurement Plan must be in place before Stage 2 .
		Measuring Responsible Sourcing		3	2	20% of available points must be achieved, the scope expands to internal finishes, substructure and hard landscaping. Relevant responsible sourcing accreditations include BES6001 (highest scorer), CARES, FSC, PEFC & ISO14001. Additional credit to be reviewed by the contractor.
	Designing for Durability and Resilience		Mat 05	1	1	Vulnerable areas of the building must be protected from damage e.g. vehicle manoeuvring. Exposed parts of the building should also be protected against the elements. The architect will need to produce reports and drawings demonstrating this.
	Material Efficiency		Mat 06	1	0	
Section Credit Total				14	7	
Weighted Section Total				17.5%	8.75%	
WASTE						
Credit Value 0.64%	Construction Waste Management	Pre-Demolition Audit	Wst 01	1	1	A pre-demolition / pre-refurbishment audit must be carried out during Stage 2 by an appropriately experience or qualified person. Note there are specific requirements for this, as listed in the BREEAM Manual.
		Construction Resource Efficiency		3	2	A Resource Management Plan must be produced - no more than 7.5m³ or 6.5 tonnes of construction waste can be generated per 100m² GIFA.
		Diversion of Resources from Landfill		1	1	70% (80%) by volume or 80% (90%) by tonnage of construction (demolition) waste must be diverted from landfill.
	Use of Recycled and Sustainably Sourced Aggregates		Wst 02	1	0	To be considered following pre-demolition audit.

	Operational Waste		Wst 03	1	1	An area for recycled waste must be provided of an appropriate capacity. The space must be labelled and accessible to occupants and waste collectors. The building is unlikely to produce waste needing a compactor but this must be confirmed based on similar building's waste streams. There must be an area for food waste storage with a tap and drain if food preparation will be undertaken on site.
	Speculative Floor Finishes		Wst 04	1	1	The end user must agree to the floor and ceiling finishes, OR no finishes are fitted, OR a show area only is fitted with finishes.
	Adaptation to Climate Change		Wst 05	1	1	A climate change adaptation strategy must be undertaken during Stage 2 / early Stage 3 . This strategy must cover all points listed within the BREEAM requirements.
	Design for Disassembly and Adaptability		Wst 06	2	2	A study must be conducted to explore the ease of disassembly and the functional adaptation potential of different design scenarios by the end of Stage 2 / early Stage 3. This strategy must cover all points listed within the BREEAM requirements. An update will need to be provided on the above at technical design, including how the study has developed the design. The team must produce a building adaptability and disassembly guide to communicate the characteristics to prospective tenants.
Section Credit Total				11	9	
Weighted Section Total				7%	5.73%	
LAND USE & ECOLOGY						
Credit Value	Site Selection	Previously Developed Land	LE 01	1	1	Site is currently developed - note that site cabins should also be on previously developed land.
1.15%		Contaminated Land		1	0	It is assumed that the site is not contaminated.

	Ecological Risks and Opportunities		LE 02	2	1	BREEAM Guidance Note 34 must be completed by a member of the project team to confirm that 'Route 1' is applicable for this site. Route 1 is a less complex method which does not require appointment of an ecologist, however, less credits are available for this route. The project team must then liaise pre-planning to identify the optimal ecological outcomes from the site, and identify measure to achieve this. Only 1 credit can be achieved under Route 1. The following must be considered: – Ecological value and benefit offered (pre, during and post project completion) – Contribution of the site to local biodiversity goals taking into consideration quality, connectivity and fragmentation of local habitats – Opportunities to enhance or restore existing habitats and ecological features or to create new more valuable ones – Wider community and end user involvement benefits
	Managing Negative Impacts on Ecology	Prerequisite - Ecological risks and Opportunities	LE 03	-	Y	Achieve LE02.
		Planning and Measures On-site		1	1	Roles and responsibilities must be clearly defined, allocated and implemented to support successful delivery of project outcomes and manage negative impacts on ecology at an early enough stage to influence the concept design or design brief. Where possible, local wildlife groups should be consulted. On site measures for managing negative ecological impacts will be implemented.
		Managing Negative Impacts		2	1	Negative impacts from site preparation and construction works must be managed according to the mitigation hierarchy (avoid and protect). Only 1 credit can be achieved under Route 1.
	Ecological Change and Enhancement	Prerequisite - Managing Negative Impacts on Ecology	LE 04	-	Y	Criterion 6 in LE 03 has been achieved (negative impacts from site preparation and construction works are managed). The client or contractor confirms compliance is monitored against all relevant UK, EU or international legislation relating to the ecology of the site.
		Change and Enhancement of Ecology		3	1	Locally relevant ecological measures must be implemented that enhance the site's ecological value. The measures adopted should be based on: - Recommendations from local ecological expertise; and - Collaboration between the project team. Only 1 credit can be achieved under Route 1.

	Long Term Ecological Management and Maintenance		LE 05	2	1	Measures have been implemented to manage and maintain ecology throughout the project. These measures are based on input from the project team in collaboration with representative stakeholders and data collated as part of the ‘Determining ecological outcomes’ in LE 02. Only 1 credit can be achieved under Route 1. 5 year landscape and habitat management plan must be produced in line with BREEAM criteria and a section on ecology must be included within the building user guides.
Section Credit Total				13	6	
Weighted Section Total				15%	6.92%	
POLLUTION						
Credit Value 0.75%	Impact of Refrigerants	Prerequisite	Pol 01	-	Y	All systems with electric compressors must comply with the requirements of BS EN 378:2016(212) (parts 2 and 3).
		Impact of Refrigerants		2	1	Direct Effect Life Cycle CO ₂ Emissions from cooling systems must be ≤ 1000CO ₂ -eq/kW.
		Leak Detection		1	1	All systems must be hermetically sealed or only use environmentally benign refrigerants.
	Local Air Quality		Pol 02	2	2	These credits have been added in under the assumption that they can be achieved by default using an all-electric services strategy.
	Surface Water Run Off	Low Flood Risk	Pol 03	2	2	It is assumed that the site is low flood risk from all sources. A flood risk assessment will be required to confirm this.
		Surface Water Run-Off - Rate		1	0	
		Surface water Run-Off - Volume		1	1	This credit can be met by default as there is no increase in impermeable area.
		Minimise watercourse pollution		1	0	
	Reduction of Night Time Light Pollution		Pol 04	1	1	External lighting must be designed in compliance with ILP Guidance Table 2 and is switched off between 23:00 and 07:00.
	Reduction of Noise Pollution		Pol 05	1	1	Noise levels must be at least 5dB lower than background noise throughout the day and night. Testing or modelling will need to be undertaken to confirm this.
Section Credit Total				12	9	
Weighted Section Total				9%	6.75%	

INNOVATION				
Credit Value 1.00%	Man 03 Responsible Construction Practices	1	1	All measures shown in Table 4.1 within the BREEAM Manual are achieved.
	Hea 01 Visual Comfort	1	0	
	Hea 06 Security	1	0	
	Ene 01 Beyond Zero Net Regulated Carbon	3	0	
	Ene 01 Post Occupancy Stage	2	0	
	Wat 01 Water Consumption	1	0	
	Mat 01 Life Cycle Impacts	3	0	
	Mat 03 Responsible Sourcing of Materials	1	0	
	Wst 01 Construction Waste Management	1	0	
	Wst 02 Recycled Aggregates	1	0	
	Wst 05 Adaptation to climate change	1	0	
	LE 02 Ecological Risks and Opportunities	1	0	
	LE 04 Ecological Change and Enhancement	1	0	
Section Credit Total		18	1	
Weighted Section Total		18%	1%	

It should be noted therefore that this score is indicative only at this stage and must be reviewed throughout design development as well as audited by the BRE to confirm the final rating.

Not all credit requirements are listed within this document, it must be read in conjunction with the BREEAM 2018 New Construction V3.0
<https://www.breeam.com/NC2018/>

72.18%

Excellent

Disclaimer



BREEAM Refurbishment and Fit Out 2014 (Office) Parts 1-2

Pre-Assessment to Support Planning Application - 6-8 Market Place Refurb Element

June 2020



Scope	Included?
Part 1 - Fabric and Structure	Yes
Part 2 - Core Services	Yes
Part 3 - Local Services	No
Part 4 - Interior Design	No

Key

Mandatory Credit for 'Excellent'

TARGET (>70%)	74.21%	Excellent				
Credit Summary BREEAM 2014 R&FO: Office Building Parts 1-2			Credit Ref.	Credits Available	Credits Targeted	Comments
MANAGEMENT						
Credit Value 0.70%	Project Brief and Design	Stakeholder Consultant (Project Delivery)	Man 01	1	1	Prior to the end of Stage 1 , the team must produce a sustainability brief including project budget, programme constraints, appointments and sustainability targets. Prior to the end of Stage 2 , roles & responsibilities must have been issued to the project team, and internal consultation occurred, resulting in changes to the design.
		Stakeholder Consultation (Third Party)		1	0	
		BREEAM Advisory Professional		1	1	A BREEAM AP has been appointed to work with the project team and monitor progress against performance targets during RIBA Stage 2 .
				1	1	A BREEAM AP must be appointed to work with the project team and monitor progress against performance targets during RIBA Stages 2-4 .

	Life Cycle Costing (LCC) and Service Life Planning	Elemental Life Cycle Cost	Man 02	2	2	Elemental life cycle costing must be undertaken during Stage 2 by cost consultant.
		Component Life Cycle Cost		1	1	Component life cycle costing must be undertaken during Stage 4 by cost consultant.
		Capital Cost Reporting		1	1	Report cost per sqm (£/100m2).
	Responsible Construction Practices	Legally harvested and traded timber - Pre-requisite	Man 03	-	Y	Contractor must demonstrate that all timber is FSC certified.
		Environmental Management		1	1	Main contractor must operate EMS (ISO14001).
		Sustainability Champion		1	1	Ensure a BREEAM AP / Site Sustainability Champion is appointed to cover stages 5 & 6.
		Considerate Construction (1 credit)		2	2	It is assumed that the contractor will comply with the Considerate Constructors Scheme and will achieve a score of at least 35 out of 50 with no section scoring below 7. (Note - the innovation credit is also targeted which requires a score of 40).
		Monitoring of Construction Site Impacts		2	2	The contractor must monitor energy, water and transport of materials and waste on site. Note that these will need to be reported to the BRE.
	Commissioning and Handover	Commissioning and Testing Schedule and Responsibilities	Man 04	1	1	Appoint a member of the design team to monitor and programme pre-commissioning, commissioning and testing
		Commissioning Building Services		1	1	A specialist commissioning manager must be appointed during the design stage, undertaking design reviews, input to construction programme and management of commissioning.
		Testing and Inspecting Building Fabric		1	1	Thermographic survey & air tightness testing must be undertaken post completion - any defects are rectified.
		Handover (Building User Guide mandatory)		1	1	A simple, standalone building user guide covering all aspects described within the BREEAM 2014 Manual will be produced that is suitable for general building users as well as the facilities management team. A schedule of training will be identified for the occupiers at handover to cover all points set out within the BREEAM manual.
	Aftercare	Aftercare Support	Man 05	1	1	Contractor provides 12 month aftercare including helpline, FM team walk around and run through Building User Guide. Requirements will need to be included in the contract - note that this generally goes beyond soft landings.
		Commissioning - Implementation		1	1	Undertake seasonal commissioning over 12 months.

		Post Occupancy Evaluation		1	1	Post Occupancy Evaluation is undertaken 12 months after occupation.
Section Credit Total				21	20	
Weighted Section Total				15%	13.93%	
HEALTH & WELLBEING						
0.83% Credit Value	Visual Comfort	Daylight factors	Hea 01	3	0	
		View Out		2	0	
	Indoor Air Quality	Indoor Air Quality Plan	Hea 02	1	1	The team will need to produce an indoor air quality plan, ideally prior to detailed design.
		Ventilation		1	0	
		Potential for Natural Ventilation		1	1	1. For a strategy with opening windows, room depths are in accordance with CIBSE AM10 (section 2.4) . The openable window area in each occupied space is equivalent to 5% of the gross internal floor area of that room/floor plate. There is adequate cross flow of air to maintain the required thermal comfort conditions and ventilation rates. 2. For a strategy without openable windows, or with spaces with a plan depth >15m, the design must demonstrate that the ventilation strategy can provide adequate cross flow of air to maintain the required thermal comfort conditions and ventilation rates. 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. Any opening mechanisms must be easily accessible and provide adequate user-control over air flow rates to avoid draughts.
	Thermal Comfort	Thermal modelling	Hea 04	1	1	Occupied areas (for longer than 30 minutes) meet CIBSE Guide A criteria & TM52 / TM59 where naturally ventilated. Predicted Mean Vote (PMV) & Predicted People Dissatisfied (PPD) must be reported where buildings are air conditioned.
		Adaptability for projected climate change scenario		1	1	The above is achieved for a projected climate change environment. Where this is not met, the team must demonstrate how the building has been adapted (or can be in future) to meet the criteria using passive design solutions.
		Thermal Zoning and Controls		1	1	A thermal zoning strategy is developed to demonstrate that the building occupiers have suitable occupant control.
	Acoustic Performance	Sound Insulation	Hea 05	1	1	Sound insulation between acoustically sensitive rooms and other occupied areas should comply with performance criteria given in Section 7 of BS 8233:2014. Carry out a programme of pre-completion testing by a compliant test body in accordance with BS 8233:2014.
		Indoor Ambient Noise Levels		1	1	Indoor ambient noise levels should comply with the design ranges given in Section 7 of BS 8233:2014. Carry out a programme of pre-completion testing by a compliant test body in accordance with the full BREEAM requirements.

		Security		Hea 06	1	1	Security specialist should be consulted by the end of Stage 2 and undertake a full site assessment with bespoke recommendations. All recommendations must be implemented. Where appointed after Stage 2, the SQSS will need to confirm they have not been restricted by late appointment. Compliant SNA received but need qualifications of SQSS. All recommendations from SQSS must be incorporated into the final design. High risk until recommendations are known.
Section Credit Total					14	8	
Weighted Section Total					12%	6.65%	
ENERGY							
Credit Value 0.70%	Reduction of Energy Use and CO2 Emissions	Energy Performance Ratio (6 credits mandatory)	Ene 01	15	9	9 credits estimated based on EPR of 0.54. This compares the existing building to the refurbished building.	
	Energy Monitoring	Sub-metering End-Use Categories	Ene 02	2	1	90% of each fuel should be metered by end use - a BMS or will need to monitor all of the meters.	
		Sub-metering of High Energy Load and Tenancy Areas			1	Metering of each floor plate or room type is required - must be readable from a BMS (or similar). It may be beneficial in this case to meter by room.	
	External Lighting		Ene 03	1	1	External lighting must have average luminous efficacy of 70 lumens / circuit Watt. Lighting should be controlled by photocell and PIR in areas of intermittent pedestrian use.	
	Low Carbon Design	Passive Design Analysis (PDA)	Ene 04	1	1	A passive design analysis is required to identify opportunities for passive design. Implementation of these measures result in a circa 10% improvement over building regs.	
		Free Cooling		1	0		
		Low and Zero Carbon Feasibility Study		1	1	LZC Feasibility Study required during design stage covering each requirement within the BREEAM Manual. The recommendations must be implemented to achieve a 'meaningful' reduction i.e. 10%	

	Energy Efficient Transportation Systems	Energy Consumption	Ene 06	1	1	A transport analysis must be produced for lifts. Additionally energy consumption must be calculated for at least two different lift models (the one with the lowest energy consumption must be specified and installed). Please note this is applicable where a lift car is replaced (in addition to newly specified lifts).
		Energy Efficient Features		2	2	The following three energy efficient features must be specified and installed in each lift: - standby condition - lift and display lighting must be an average of more than 70 lm/cW - VVVF control drive motor Where demonstrated to save energy, regen drives are installed (likely in a building of this height). Please note this is applicable where a lift car is replaced (in addition to newly specified lifts).
Section Credit Total				24	17	
Weighted Section Total				17%	11.94%	
TRANSPORT						
Credit Value 0.81%	Accessibility Index		Tra 01	3	3	Based on the close proximity to Reading Station, it is assumed that maximum credits can be achieved here.
	Proximity to Amenities		Tra 02	1	1	There are a good number of facilities within the vicinity of the development.
	Cyclist Facilities	Cycle Storage	Tra 03	1	1	Is it assumed that compliant (covered, well lit & in a prominent position) cycle racks will be provided at a rate of 1 space for every 10 staff. Please note that if cycle storage is not in a prominent location e.g. basement, signage will be required indicating their location to users.
		Cycle Facilities		1	1	Showers and changing spaces (or lockers) to be provided. 1 shower per 10 cycle spaces, 1 locker per cycle space.
	Travel Plan		Tra 05	1	1	A transport assessment must be made during concept design alongside a draft travel plan in line with the BREEAM criteria. Recommendations made within the Travel Plan must be implemented.
Section Credit Total				7	7	
Weighted Section Total				6%	5.69%	

WATER						
Credit Value 0.81%	Water Consumption (1 credit mandatory)		Wat 01	5	3	40% improvement on the baseline required - sanitary ware should be limited where possible and rainwater / greywater systems should be considered.
	Water Monitoring		Wat 02	1	1	A pulsed water meter must be installed on the supply to each building and connected to the BMS. Areas consuming over 10% of the building's water demand must also be sub-metered.
	Water Leak Detection & Prevention	Leak Detection System	Wat 03	1	1	A water leak detection will be installed to monitor the internal pipework and any pipework to the boundary.
		Flow Control Devices		1	1	Sanitary areas must be fitted with leak prevention e.g. solenoid valves linked to PIR. Please note that this should not be connected to showers, but on the cold water supply to WCs, urinals and taps.
	Water Efficient Equipment (Process)		Wat 04	1	1	Identify systems or processes to reduce the irrigation required by soft landscaping and establish a demonstrable reduction in the total water demand of the building. Please note that if there is no soft landscaping this credit will be scoped out.
Section Credit Total				9	7	
Weighted Section Total				7%	5.69%	
MATERIALS						
Credit Value 1.17%	Project Lifecycle Assessment Study		Mat 01	6	6	An Life Cycle Assessment (LCA) tool is used to measure the life cycle environmental impact of the refurbishment. The design team should demonstrate how this has reduced the environmental impact of the building. Please note that this exercise can also be undertaken using the Green Guide but will achieve less credits (5 maximum).
	Responsible Sourcing of Construction Products	Pre-requisite - Legal and Sustainable Timber	Mat 03	-	Y	All timber used to be FSC.
		Enabling Sustainable Procurement		1	1	A Sustainable Procurement Plan must be in place before Stage 2 .
		Measuring Responsible Sourcing		3	1	18% of available points must be achieved. Relevant responsible sourcing accreditations include BES6001 (highest scorer), CARES, FSC, PEFC & ISO14001. An extra credit may be possible here.
	Insulation		Mat 04	1	1	It is assumed that all insulation products used in the external walls; ground floor; roof and building services will have a low embodied impact. To ensure that this credit is achieved, A+ rated insulation types, according to the BRE's Green Guide Online, will be selected.
	Designing for Durability and Resilience		Mat 05	1	1	Vulnerable areas of the building must be protected from damage e.g. vehicle manoeuvring. Exposed parts of the building should also be protected against the elements. The architect will need to produce reports and drawings demonstrating this.

	Material Efficiency		Mat 06	1	0	
Section Credit Total				13	10	
Weighted Section Total				15%	11.72%	
WASTE						
Credit Value 0.76%	Construction Waste Management	Pre-Refurbishment Audit	Wst 01	1	1	A pre-demolition / pre-refurbishment audit must be carried out during Stage 2 by an appropriately experience or qualified person.
		Reuse and Direct Recycling of Materials		2	0	
		Construction Resource Efficiency		3	2	A Resource Management Plan must be produced - no more than 4.5m³ or 1.2 tonnes of construction waste can be generated per 100m² GIFA.
		Diversion of Resources from Landfill		1	1	85% (90%) by volume or 90% (95%) by tonnage of construction (demolition) waste must be diverted from landfill.
	Use of Recycled and Sustainably Sourced Aggregates		Wst 02	1	0	
	Operational Waste		Wst 03	1	1	An area for recycled waste must be provided of an appropriate capacity. The space must be labelled and accessible to occupants and waste collectors. The building is unlikely to produce waste needing a compactor but this must be confirmed based on similar building's waste streams. There must be an areas for food waste storage with a tap and drain if food preparation will be undertaken.
	Speculative Floor Finishes		Wst 04	1	1	The end user must agree to the floor and ceiling finishes, OR no finishes are fitted, OR a show area only is fitted with finishes.
	Adaptation to Climate Change		Wst 05	1	1	A climate change adaptation strategy must be undertaken during Stage 2 / early Stage 3 . This strategy must cover all points listed within the BREEAM requirements.
	Functional Adaptability		Wst 06	1	1	A study must be conducted to explore the ease of disassembly and the functional adaptation potential of different design scenarios by the end of Stage 2 . This strategy must cover all points listed within the BREEAM requirements.
Section Credit Total				12	8	
Weighted Section Total				9%	6.09%	

LAND USE & ECOLOGY						
Credit Value 2.44%	Ecological Enhancement		LE04	1	0	
	Long Term Impact on Biodiversity		LE 03	2	2	It is assumed that a suitably qualified ecologist will be appointed prior to the commencement of site works, will be able to confirm adherence to all relevant EU and UK legislation and will produce a 5 year management plan for site biodiversity. Furthermore, it is assumed that FOUR of the additional requirements, where applicable, outlined within the BREEAM manual will be incorporated into the design / planting.
Section Credit Total				3	2	
Weighted Section Total				7%	4.87%	
POLLUTION						
Credit Value 0.94%	Impact of Refrigerants	Prerequisite	Pol 01	-	Y	All systems with electric compressors must comply with the requirements of BS EN 378:2016(212) (parts 2 and 3).
		Impact of Refrigerants		2	1	Direct Effect Life Cycle CO ₂ Emissions from cooling systems must be ≤ 1000CO ₂ -eq/kW.
		Leak Detection		1	0	
	NO x Emissions		Pol 02	3	0	
	Flood Risk Management and Surface Water Run Off	Flood Risk	Pol 03	2	2	The site is within Flood Zone 1.
		Surface Water Run-Off - Neutral Impact		1	1	This credit can be met by default as there is no increase in impermeable area.
		Surface water Run-Off - Reduction		1	0	
		Minimise watercourse pollution		1	0	
	Reduction of Night Time Light Pollution		Pol 04	1	1	External lighting must be designed in compliance with ILP Guidance Table 2 and is switched off between 23:00 and 07:00.
	Reduction of Noise Pollution		Pol 05	1	1	Noise levels must be at 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. Testing or modelling will need to be undertaken to confirm this.
Section Credit Total				13	6	
Weighted Section Total				12%	5.63%	

INNOVATION				
Credit Value 1.00%	Man 03 Responsible Construction Practices	1	1	The contractor achieves a CCS score of 40.
	Man 05 Aftercare		1	It is assumed that there 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.
	Hea 01 Visual Comfort	1	0	
	Hea 02 Indoor Air Quality	1	0	
	Ene 01 Reduction of Energy Use and Carbon Emissions	3	0	
	Ene 01 Post Occupancy Stage	2	0	
	Wat 01 Water Consumption	1	0	
	Mat 01 Life Cycle Impacts	1	0	
	Mat 03 Responsible Sourcing of Materials	1	0	
	Wst 01 Construction Waste Management	1	0	
	Wst 02 Recycled Aggregates	1	0	
	Wst 05 Adaptation to climate change	1	0	
Section Credit Total		14	2	
Weighted Section Total		14%	2%	

It should be noted therefore that this score is indicative only at this stage and must be reviewed throughout design development as well as audited by the BRE to confirm the final rating.

Not all credit requirements are listed within this document, it must be read in conjunction with the BREEAM 2014 Refurbishment and Fit Out Manual V1.1 <https://www.breeam.com/ndrefurb2014manual/>

74.21%

Excellent

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