

BREEAM
Refurbishment and Fit-Out
Pre-assessment Report

October 2022



Ref: 22-9860

TABLE OF CONTENTS

1.	Executive Summary.....	5
2.	Introduction	7
2.1	Planning Policy	9
2.2	BREEAM UK Refurbishment and Fit-out 2014 Non- domestic buildings	10
2.3	Assessment process	10
2.4	Environmental Issues	10
2.5	Scoring & Rating.....	11
2.6	Minimum Standards	12
2.7	Summary credit list	14
2.8	BREEAM UK Non-domestic Refurbishment and Fit-out 2014	19
3.	Conclusion.....	40

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This document must only be treated as a draft unless it has been signed by the originators and approved by a Director.

<i>Revision</i>	<i>Initial</i>	<i>Rev A</i>	<i>Rev B</i>
Date	18/10/2022		
Prepared by (BREEAM Assessor)	S. Howse		
Checked by	B. Grant		
Authorised by	M. Standen		

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Forecast cost estimates do not include such costs associated with any negotiations, appeals or other non-technical actions associated with the agreement on measures to meet the requirements of the authorities, nor are potential business loss and interruption costs considered that may be incurred as part of any technical measures.

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1. Executive Summary

Syntegra Consulting Ltd has been commissioned to undertake the Building Research Establishment Environmental Assessment Method (BREEAM) for **Unit 8, Deacon Way, Reading, RG30 6AX**. The proposal comprises of a major, whole building refurbishment for an industrial unit including an extensions.

The BREEAM pre-assessment aims to provide the outline sustainability strategy and act as a sustainable design guide for the construction works to be performed. In accordance with the Southwark planning requirements and as derived from local policy, the proposed developments will be expected to meet a minimum BREEAM 'Very Good' rating demonstrating this way that the project is designed and built to minimise greenhouse gas emissions across their lifetime and incorporate sustainable design and construction measures.

The building is to be classified as Industrial under BREEAM UK RFO 2014 Parts 1-4, for which the pre-assessment shows that by achieving the minimum standard requirements together the most feasible credits; the proposed project could achieve an overall score of **58.27%** leading to a BREEAM rating of 'Very Good'.

It should be noted that the project can and is committed to achieving a minimum score of 55% only, the threshold for 'Very Good'. The score outlined in this report is a target to ensure the required 'Very Good' threshold will be met. The current BREEAM strategy may be subject to change and therefore cannot be subjected to a specific score in order to ensure future flexibility with respect to third party verification by the BRE and any changes necessitated.

Environmental Section	Weighting	Credits Available	Credits Targeted	Weighted Score
Management	15.70%	21.0	14.0	10.46%
Health & Wellbeing	16.95%	19.0	9.0	8.03%
Energy	15.82%	21.0	4.0	9.03%
Transport	6.11%	7.0	6.0	5.23%
Water	6.98%	8.0	6.0	5.23%
Materials	11.33%	9.0	5.0	6.29%
Waste	8.18%	10.0	7.0	5.72%
Land Use & Ecology	7.85%	3.0	2.0	5.23%
Pollution	11.07%	11.0	3.0	3.02%
Innovation	10.00%	10.0	0.0	0.00%
Indicative BREEAM Score	58.27% 'Very Good' Rating			

2. Introduction

This BREEAM Pre-assessment report will be included as part of the planning application that addresses the environmental impact of the development. This report focuses on the environmental strategy for the proposed scheme and how BREEAM measurements will be targeted to achieve the sustainability aspirations of this project and also to meet the planning policy requirements.

The proposal comprises of a major, whole building refurbishment for an industrial unit including an extensions. The proposed commercial refurbishment to be further referred to as the 'Proposed Development' comprises of 716sqm GIA:

- Ground Floor – 580sqm
- First Floor – 136sqm

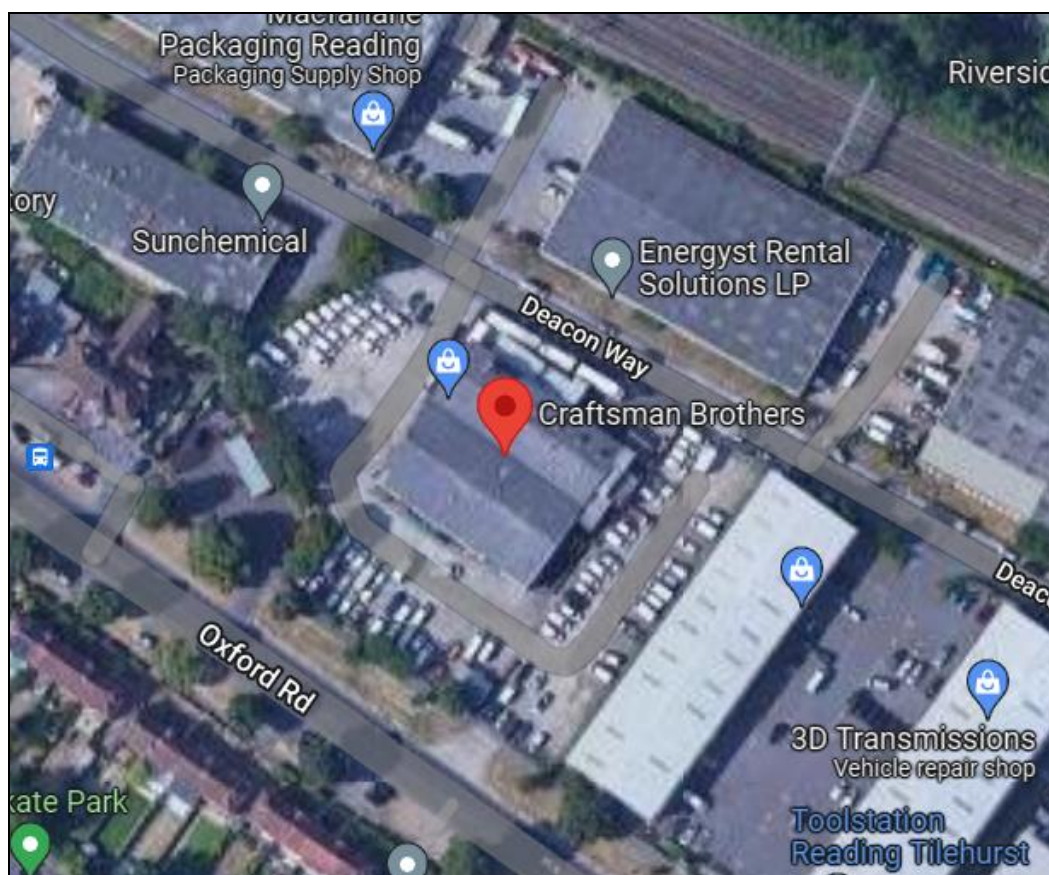


Figure 1 Site Location

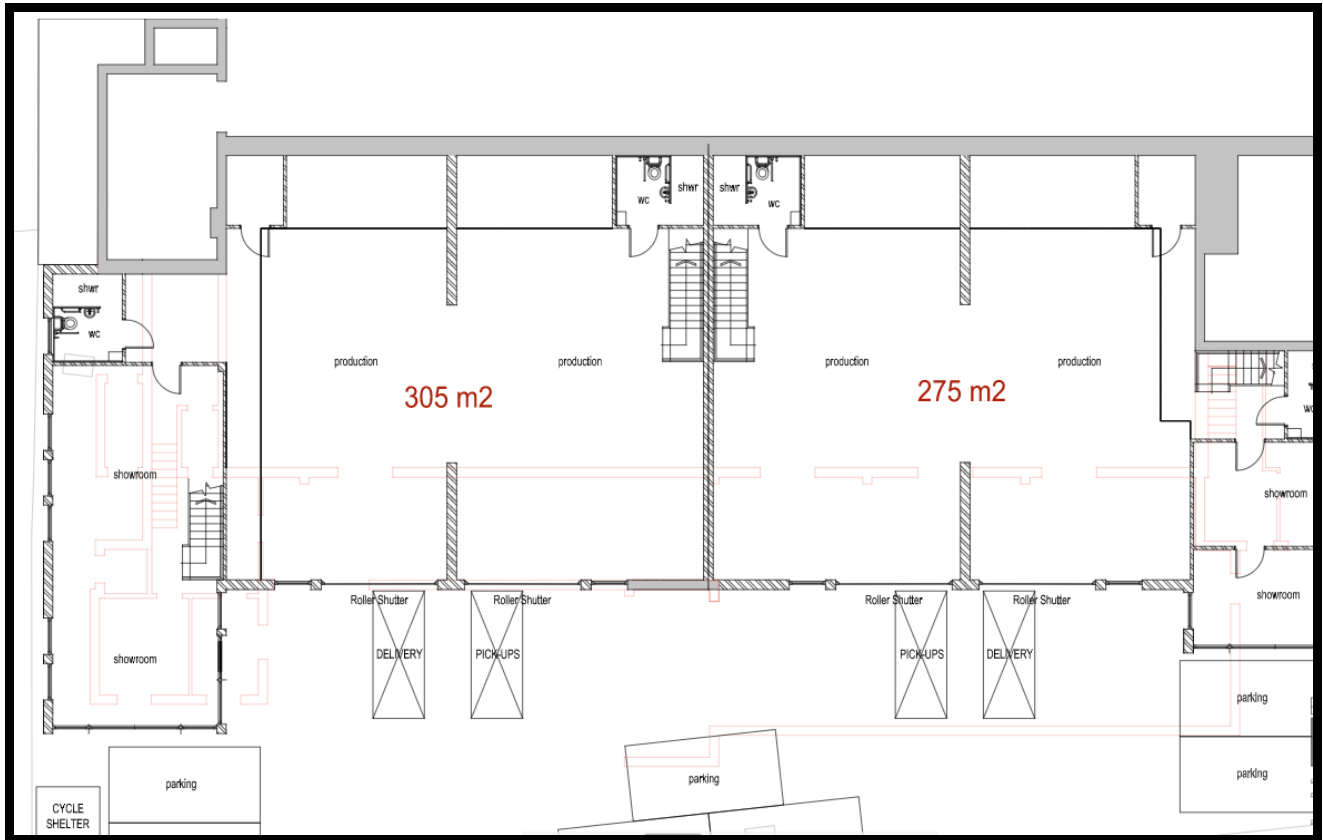


Figure 2 Proposed Development

2.1 Planning Policy

Reading Borough Local Plan - Adopted November 2019

Sustainable Design and Construction

CC2: SUSTAINABLE DESIGN AND CONSTRUCTION

Proposals for new development, including the construction of new buildings and the redevelopment and refurbishment of existing building stock, 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 and take account of the effects of climate change.

To meet these requirements:

- All major non-residential developments or conversions to residential are required to meet the most up-to-date BREEAM 'Excellent' standards, where possible;
- **All minor non-residential developments or conversions to residential are required to meet the most up-to-date BREEAM 'Very Good' standard as a minimum;**
- All non-residential development or conversions to residential should incorporate water conservation measures so that predicted per capita consumption does not exceed the appropriate levels set out in the applicable BREEAM standard. Both residential and non-residential development should include recycling greywater and rainwater harvesting where systems are energy and cost effective.

2.2 BREEAM UK Refurbishment and Fit-out 2014 Non- domestic buildings

BREEAM UK Refurbishment and Fit-out scheme (RFO) is a performance based assessment method and certification scheme for refurbishment projects. The primary aim of BREEAM RFO is to mitigate the life cycle impacts of new buildings on the environment in a robust and cost-effective manner. This is achieved through integration and use of the scheme by clients and their project teams at key stages in the design and construction process

2.3 Assessment process

The BREEAM scheme can be used to assess and rate the environmental impacts of projects at the design and construction stages.

Design Stage (DS): The performance of the building is assessed at the design stage, usually prior to the beginning of the construction process. At this stage an Interim Certificate is issued based on a provisional estimated rating.

Post-Construction (PCS): The Post- Construction assessment confirms the final performance of the building, representing the 'As-built' state in accordance with that certified at the design stage. At this stage the final BREEAM certificate is issued.

A project can opt to pursue either a DS and PCS review or a full PCR review according to what suits the project better. Assessments at both stages must be carried out by a licensed assessor, who registers the assessment with the BRE.

2.4 Environmental Issues

Projects are assessed using a system of credits under different environmental issues which are divided up into the following nine categories. Innovation credits are also available for the recognition of performance levels that go beyond best practices.

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

2.5 Scoring & Rating

BREEAM Rating	Score Achieved
Outstanding	≥ 85
Excellent	≥ 70
Very Good	≥ 55
Good	≥ 45
Pass	≥ 30
Unclassified (Non-Compliant)	< 30

The BREEAM UK Non-domestic Refurbishment and Fit-out 2014 scheme provides a modular set of criteria that are applied depending upon the scope of works for a particular project type including:

- Part 1: Fabric and Structure
- Part 2: Core Services
- Part 3: Local Services
- Part 4: Interior Design

The number of credits achieved combined with the weighting assigned to their environmental section, determines the rating achieved by the project. Hence, each individual assessment issue and credit varies in terms of its contribution to a building's overall score.

Environmental Section	Weighting According to Scope of Works				
	Core weightings	Part 1	Part 1 and 2	Part 2 and 3	Part 3 and 4
Management	12%	12%	13%	16.5%	14.1%
Health & Wellbeing	15%	15%	11%	15.3%	15.9%
Energy	19%	15%	18.8%	24.3%	22.5%
Transport	8%	9%	8.6%	11.1%	9.5%
Water	6%	7%	5.7%	7.4%	7.1%
Materials	12.5%	13.5%	13.4%	5.3%	13.7%
Waste	7.5%	8.5%	8.1%	9.2%	7.9%
Land Use & Ecology	10%	10%	10.7%	0%	0%
Pollution	10%	10%	10.7%	10.9%	9.3%
Innovation (additional)	10%	N/A	10%	10%	10%

2.6 Minimum Standards

There are mandatory credits set which must be achieved in order to achieve the difference performance ratings. These must be achieved in addition to the optional credits to achieve the targeted ratings.

Failure to meet the mandatory criteria may restrict a development to an UNCLASSIFIED rating, regardless of the overall percentage achieved.

Category	BREEAM Rating	Pass	Good	Very Good	Excellent	Outstanding
	Minimum Score	<30%	<45%	<55%	<70%	<85%
Management	Man 03 – Responsible Construction Practices	-	-	-	1 credit (Responsible construction management)	2 credits
	Man 04 – Commissioning and Handover	-	-	-	Criterion 9 (Building User Guide)	Criterion 9 (Building User Guide)
	Man 05 – Aftercare	-	-	-	Parts 2 and 3 only: One credit (Seasonal commissioning)	Parts 2 and 3 only: One credit (Seasonal commissioning)
Energy	Ene 01 – Reduction of energy use and carbon emissions	-	-	-	Parts 1, 2, 3 and 4 (full assessments): Six credits, varies for other assessment types	Parts 1, 2, 3 and 4 (full assessments): Ten credits, varies for other assessment types
	Ene 02 – Energy Monitoring	-	-	Parts 2, 3 and 4: One credit (First sub-metering credit)	Parts 2, 3 and 4: One credit (First sub-metering credit)	Parts 2, 3 and 4: One credit (First sub-metering credit)
Water	Wat 01 – Water Consumption	-	One credit (where applicable)	One credit (where applicable)	One credit (where applicable)	Two credits (where applicable)
	Wat 02 – Water Monitoring	-	Part 2: Criterion 1 only	Part 2: Criterion 1 only	Part 2: Criterion 1 only	Part 2: Criterion 1 only
Materials	Mat 03: Responsible	Criterion 1 only	Criterion 1 only	Criterion 1 only	Criterion 1 only	Criterion 1 only

Category	BREEAM Rating	Pass	Good	Very Good	Excellent	Outstanding
	Minimum Score	<30%	<45%	<55%	<70%	<85%
	sourcing of materials					
Waste	Wst 01 – Construction waste management	-	-	-	-	1 credit
	Wst 03 – Operational waste	-	-	-	1 credit	1 credit

2.7 Summary credit list

The following table summarises the status of each credit and provides the RIBA Stage 2 assessment score and rating.

All credits in the 'Green' column are targeted and are included into the Stage 2 design. The design team should be aware that above score is subject to change:

T- Targeted credit
Minimum standards by BREEAM rating level

Credit Code	Credit Title	Credits Available	T	M	Action Lead	Stage
MANAGEMENT						
Man 01	Stakeholder consultation (project delivery)	1	1		Client	
	Stakeholder consultation (third party)	1	1		Client	
	Sustainability Champion (design)	1	0		Sustainability Champion	
	Sustainability Champion (monitoring progress)	1	0		Sustainability Champion	
Man 02	Elemental life cycle cost (LCC)	2	0		Cost Consultant	
	Component level LCC option appraisal	1	0		Cost Consultant	
	Capital cost reporting	1	1		Client	
Man 03	Environmental management	1	1		Principal Contractor	
	Sustainability Champion	1	0		Principal Contractor	
	Considerate construction	2	2	✓	Principal Contractor	
	Monitoring of construction-site impacts					
	~ Utility consumption	2	1		Principal Contractor	
	~ Transport of construction materials and waste		1		Principal Contractor	
	Exemplary	1	0		Principal Contractor	
Man 04	Commissioning and testing schedule and responsibilities	1	1	✓	Principal Contractor	
	Commissioning building services	1	1		Principal Contractor	
	Testing and inspecting building fabric	1	0		Principal Contractor	

mail@syntegragroup.com
Tel: 0330 053 6774

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Credit Code	Credit Title	Credits Available	T	M	Action Lead	Stage
	Handover	1	1	✓	Principal Contractor	
Man 05	Aftercare support	1	1		Client	
	Seasonal commissioning	1	1	✓	Client	
	Post occupancy evaluation	1	1		Client	
	Exemplary	1	0		Client	
HEALTH AND WELLBEING						
Hea 01	Glare control	1	1		Architect	
	Daylighting	3	1		Architect	
	View out	1	1		Architect	
	Internal and external lighting	1	1		M&E Engineer	
	Exemplary	1	0		M&E Engineer	
Hea 02	Indoor air quality (IAQ) plan	1	1		Air Quality Consultant	
	Ventilation	1	0		M&E Engineer	
	Volatile organic compound (VOC) emission levels (products)	2	2		Architect	
	Volatile organic compound (VOC) emission levels (post construction)				Principal Contractor	
	Post-construction indoor air quality measurements	1	0		Architect	
	Exemplary - Minimising sources of air pollution	2	0		Architect / Air Quality Consultant	
Hea 04	Thermal modelling	1	0		Sustainability Consultant	
	Design for future thermal comfort	1	0		Sustainability Consultant	
	Thermal zoning and controls	1	0		Sustainability Consultant	
Hea 05	Acoustic Performance	3	0		Acoustician	
Hea 06	Safety and security	1	1		Architect	

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ENERGY						
Ene 01	Energy performance	13	8	✓	Sustainability Consultant	
	Exemplary	5	0		M&E Engineer	
Ene 02	Sub-metering of major energy consuming systems	1	1	✓	M&E Engineer	
Ene 03	External lighting	1	1		M&E Engineer	
Ene 04	Passive design					
	~ Passive design analysis	1	0		Sustainability Consultant	
	~ Free cooling	1	0		Sustainability Consultant	
	Low zero carbon feasibility study	1	1		Sustainability Consultant	
TRANSPORT						
Tra 01	Sustainable transport solution	3	2		BREEAM Assessor	
Tra 02	Proximity to Amenities	1	1		BREEAM Assessor	
Tra 03	Cycle storage	1	1		Architect	
	Cyclist facilities	1	1		Architect	
Tra 05	Travel plan	1	1		Client/ Travel Consultant	
WATER						
Wat 01	Water consumption	5	3	✓	Architect	
	Exemplary	1	0		Architect	
Wat 02	Water monitoring	1	1	✓	M&E Engineer	
Wat 03	Leak detection system	1	1		M&E Engineer	
	Flow control devices	1	1		M&E Engineer	

MATERIAL						
Mat 01	Life cycle impacts	2	1		LCA Consultant / Architect	
	Exemplary	1	0		LCA Consultant / Architect	
Mat 03	Legal and sustainable timber	-	-	✓	Principal Contractor	
	Sustainable procurement plan	1	1		Principal Contractor	
	Responsible sourcing of materials (RSM)	3	1		Principal Contractor	
	Exemplary	1	0		Principal Contractor	
Mat 04	Insulation	1	1		Architect	
Mat 05	Designing for durability and resilience	1	1		Architect	
Mat 06	Material efficiency	1	0		Architect	
WASTE						
Wst 01	Pre-demolition audit	1	1		Waste Contractor	
	Reuse and direct recycling of materials	2	0		Waste Contractor	
	Resource efficiency	3	2		Waste Contractor	
	Diversion of resources from landfill	1	1		Waste Contractor	
	Exemplary	1	0		Waste Contractor	
Wst 03	Operational waste	1	1	✓	Principal Contractor	
Wst 05	Adaption to climate change	1	1		Architect	
	Exemplary	1	0		Architect	
Wst 06	Design for disassembly and adaptability	1	1		Architect	
LAND USE AND ECOLOGY						
LE 04	Le 04 Enhancing site ecology	1	1		Ecologist	
LE 05	Long term ecology management and maintenance	2	1		Ecologist	

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POLLUTION						
Pol 01	Impact of refrigerants	3	0		M&E Engineer	
Pol 02	Local air quality	3	0		M&E Engineer	
Pol 03	Flood resilience	5	2		Flood Risk Consultant	
Pol 04	Reduction of night time light pollution	1	1		M&E Engineer	
AI Approved Innovation						
Approved Innovation		1				
Score			58.27%			
Rating		Very Good				

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Tel: 0330 053 6774

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2.8 BREEAM UK Non-domestic Refurbishment and Fit-out 2014

Credit criteria and requirements are contained within the BREEAM Refurbishment and Fit-out 2014 manual. The credits have been categorised as follows:

Targeted (T)- Credits that are deemed to be achievable by the design team subject to compliant evidence being provided to the assessor.

Potential (P)- Credits that require further investigation by the design team and could not be deemed targeted at this stage. To gain the 'Potential' credits should not require significant investment by any design team member.

Credit title	Credits Available	T	P	Action Lead	Headline Criteria	Project Specific Notes
MANAGEMENT Credit weight = 11.00%						
Man 01 Project brief and design						
Stakeholder consultation (project delivery)	1	1		Project Manager/ Architect/ Client	Prior to completion of the Concept Design, project delivery stakeholders should have met to identify and define roles, responsibilities and contributions for each key phase of project delivery, taking into consideration the points in the manual. Project team should also demonstrate how the project delivery stakeholder contribution has influenced various stages of the project, as stated in the manual	Project team meetings have taken place and roles and responsibilities have been defined. The design team are required to demonstrate how project team collaboration has influenced the design.

Credit title	Credits Available	T	P	Action Lead	Headline Criteria	Project Specific Notes
Stakeholder consultation (interested parties)	1	1		Project Manager/ Architect/ Client	Prior to completion of the Concept Design stage, all relevant third party stakeholders need to be consulted by design team. Contributions and outcomes of consultation and the influence on the project must be demonstrated. Feedback to relevant parties should be given prior to completion of detailed design.	
Prerequisite:	Yes			Project Manager/ Client	Have the client and the contractor formally agreed performance targets?	
Sustainability Champion (design)	1			Project Manager/ Client / Sustainable Champion	Design stage sustainability champion appointed to facilitate the setting and achievement of BREEAM's performance target for the project during feasibility stage. The BREEAM performance target must be formally agreed between client and design team and where necessary must be demonstrably achieved by the project design.	Not deemed to be achievable
Sustainability Champion (monitoring progress)	1			Project Manager/ Client / Sustainable Champion	Above criteria must be met. Sustainability champion appointed must monitor progress and formally report to client and design team.	Not deemed to be achievable
Man 02 Life cycle cost and service life planning						
Elemental life cycle cost (LCC)	2			Project Manager/ Cost Consultant	An elemental life cycle cost analysis has been carried out, at process stage 2 as defined in manual.	Not deemed to be achievable
Component level LCC option appraisal	1			Cost Consultant	A component level LCC plan has been developed by the end of Process Stage 4 as defined in the manual.	Not deemed to be achievable
Capital cost reporting	1	1		Cost Consultant	Report the capital cost for the building in pounds per square metre (£k/m2), via the BREEAM Assessment Scoring and Reporting tool, Assessment Issue Scoring tab, Management section.	The capital cost of the project will be reported.

Man 03 Responsible construction practices						
Prerequisite:	Yes			Principal Contractor	All site timber used on the project is sourced in accordance with the UK Government's Timber Procurement Policy.	
Environmental management	1	1		Principal Contractor	The principal contractor for the project: - Operates an Environmental Management System covering their main operations - Implements best practice pollution prevention policies and procedures on site.	To be included in the contractor's prelims.
BREEAM Advisory Professional (site)	1			Principal Contractor	A sustainability champion is appointed to monitor the project to ensure on-going compliance with the relevant sustainability performance/process criteria, and BREEAM targets during Construction, Handover and Close Out stages.	Not deemed to be achievable
Responsible Construction Management	2	2		Principal Contractor	Achieves or exceeds 'compliance' with the criteria of the compliant scheme. One credit: a CCS score between 25 and 34 and score of at least 5 in each of the five sections must be achieved. Two credits: a CCS score between 35 and 39 and score of at least 7 in each of the five sections must be achieved. Exemplary level performance: a CCS score of 40 or more and score of at least 7 in each of the five sections must be achieved.	To be included in the contractor's prelims.
Monitoring of construction-site impacts						
~ Utility consumption	2	1		Principal Contractor	Provide formal letter confirming monitoring, recording and reporting of energy and water consumption from the use of construction plant, equipment (mobile and fixed) and site accommodation. Energy emissions must be reported in terms of total kgCO₂/project value. Water use must be reported in m³. Note: This is applicable to both principal contractor and subcontractor operations	To be included in the contractor's prelims.

~ Transport of construction materials and waste		1			Confirm an appropriate person is assigned to monitor, record and report energy and water consumption from the use of construction plant, equipment (mobile and fixed) and site accommodation. This is applicable to both principal contractor and subcontractor. Provide formal letter confirming monitoring, recording and reporting of transport of construction materials and waste accommodation. Reporting must be separate for materials and waste, the total fuel consumption (litres) and total carbon dioxide emissions (kgCO2 eq), plus total distance travelled (km) must be included. This is applicable to both principal contractor and subcontractor	To be included in the contractor's prelims but may be cost prohibitive following tender.
Exemplary	1			Principal Contractor	To achieve the exemplary credits, a score of 40 with a score of 7 in each of the 5 sections is required under the CCS scheme. As well as completing site fleet operator training and accident reporting.	Not deemed to be achievable
Man 04 Commissioning and handover						
Commissioning - testing schedule and responsibilities	1	1		M&E Engineer	Commissioning of all building services will be carried out in line with current Building Regulations, BSIRA and CIBSE standards. Commissioning manager & specialist commissioning manager will be appointed.	To be included in the contractor's prelims.
Commissioning Building Services	1	1		M&E Engineer	A specialist commissioning manager appointed in design stage to manage commissioning and offer expertise.	Must achieve Commissioning -testing and responsibilities credit. Team member must not be involved in general installation works
Testing and inspection building fabric	1			M&E Engineer	Credit Man 04a achieved. Integrity of building fabric should be quality assured through post-construction testing and inspection. Defects in the thermographic survey and the airtightness testing reports are rectified before building handover and close out.	Must achieve Commissioning -testing and responsibilities credit.

Handover	1	1		Client/ Project Manager/ Principal	Building User Guides should be developed prior to hand over. A training schedule should also be prepared containing a minimum set of information detailed in the manual. Building User Guides are provided and are appropriate to all users of the building (general users including staff and if applicable residents, as well as the non-technical facilities management team/building manager). The Guides cover all functions and uses of the building, ensuring building users are able to use the building effectively. Where relevant, the documents must describe the facilities to be shared and how access to them will be arranged for potential users. Building and site related information is made readily available to all future building users, enabling them to access and use the building, site and local transport infrastructure/amenities effectively.	To be included in the contractor's prelims.
Man 05 Aftercare						
Aftercare support	1	1		Aftercare support	There will be operational infrastructure and resources in place to provide aftercare support to the building occupier, which should include the minimum outlined in the manual. Operational infrastructure and resources should also be in place that allows collection and monitoring of energy and water consumption data for a minimum of 12 months, once occupied.	Aftercare support to be included in the contractor's prelims. Confirm operational infrastructure and procedures for monitoring of utilities.
Seasonal Commissioning	1	1		Seasonal commissioning	The seasonal commissioning activities outlined in the manual should be completed over a minimum of 12 months, once building becomes substantially occupied.	To be included in the contractor's prelims.
Post occupancy evaluation (POE)	1	1		Post occupancy evaluation	A post-occupancy evaluation (POE) exercise one year after initial building occupation should be completed. This should be completed by an independent party and contain that stated in the manual.	Confirm a commitment to undertake a Post Occupancy Evaluation 12 months following occupation.
Exemplary	1	1		Principal Contractor	Operational infrastructure and resources in place to coordinate the activities at quarterly intervals for the first three years of building occupation	

HEALTH AND WELLBEING Credit weight = 14.00%						
Hea 01 Visual comfort						
Glare control	1	1		Architect	Potential for disabling glare has been designed out of all relevant building areas using a glare control strategy which should also avoid increasing lighting energy consumption.	Analysis required
Daylighting	3	2		Architect	Good practice daylighting levels have been met.	Analysis required
View out	2	1		Architect	Floor space in relevant building areas has an adequate view out to reduce eyestrain and provide a link to the outside	Analysis required
Internal and external lighting	1	1		M&E Engineer	New internal & external lighting will need to comply with relevant CIBSE standards. Manual lighting controls should be easily accessible. Systems should be designed to avoid flicker and provide appropriate illuminance levels. Internal lighting is zoned to allow for occupant control	Internal and external lighting will comply with the required standards and lighting will be appropriately zoned with occupant control.
Exemplary	1			M&E Engineer	Good practice daylighting levels have been exceeded.	Not deemed to be achievable
Hea 02 Indoor air quality						
Indoor Air Quality Plan	1	1		Air Quality Consultant	A site-specific indoor air quality plan has been produced and implemented in accordance with the guidance in Guidance Note GN06.	

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Ventilation	1			Architect	Fresh air provision and internal pollutant minimisation is in compliance with the appropriate standards. CO2 or air quality sensors specified where necessary. Air-conditioned/mixed-mode buildings: air intakes and exhausts are over 10m apart and intakes are over 20m from sources of external pollution	Not deemed to be achievable
Volatile organic compound (VOC) emission levels (products)	1	1		Principal Contractor	5 of 7 finishing elements and materials will need to be specified in line with appropriate European Standards in respect of VOC's	
Post-construction indoor air quality measurement	1	1		Air Quality Consultant	VOC and formaldehyde levels tested in accordance with EU standards should be below given levels provided by the WHO and building regulations	
Adaptability - Potential for Natural Ventilation	1		1	Architect / Air Quality Consultant	The building ventilation strategy is designed to be flexible and adaptable to the potential building occupant needs and climatic scenarios and should be capable of providing at least two-levels of user control on the supply of fresh air to the occupied space.	Not deemed to be achievable.
Exemplary	1			Architect / Air Quality Consultant	7 of 7 finishing elements and materials will need to be specified in line with appropriate European Standards in respect of VOC's	

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Hea 04 Thermal Comfort						
Thermal modelling	1		1	M&E Engineer	Thermal modelling carried out using software in accordance with CIBSE guidelines	Potential credit
Design for future thermal comfort	1		1	M&E Engineer	Thermal modelling is completed. The above criteria are achieved and demonstrate adaptability to a projected climate change environment.	Potential credit
Thermal zoning and controls	1		1	M&E Engineer	Thermal modelling is completed. Thermal modelling analysis informs temperature control strategy for the building and its users. Strategy for proposed heating/cooling systems demonstrates that it has addressed the criteria in the manual.	Potential credit
Hea 05 Acoustic performance						
Acoustic performance	3		1	Acoustician	An Acoustician is appointed to provide early advice on influencing outline design solutions. The building should be designed, constructed and fitted out to meet the acoustic performance standards and testing requirements as required for that type of building.	Potential credit
Hea 06 Safety and security						
Security of site and building	1	1		Architect	A suitably qualified security specialist (SQSS) will be consulted (at RIBA Stage 2) and their recommendations will be implemented into the project.	SBD required

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ENERGY Credit weight = 16.00%						
Ene 01 Reduction of energy use and carbon emissions						
Energy performance – building score	15	8		M&E Engineer	Identify the number of credits available from Energy Performance Ratio (EPRNC) calculated.	Credits are awarded based on the output of the modelling software
Exemplary	5			M&E Engineer	Two credits - Zero regulated carbon Up to four credits - Zero regulated carbon and carbon neutral unregulated energy Five credits - Carbon negative	Not deemed to be feasible.
Ene 02 Energy Monitoring						
Sub-metering of end-use categories	1	1		M&E Engineer	Energy metering systems are installed where appropriate to enable energy consumption to be assigned to end uses	A compliant metering strategy will be developed.
	1	1		M&E Engineer	Sub-meters are provided for high energy load and tenancy areas	A compliant metering strategy will be developed.

Ene 03 External lighting						
External lighting	1	1		M&E Engineer	The building has been designed to operate without the need for external lighting. OR All external lighting will achieve the relevant luminous efficacy and will be controlled to prevent operation during daylight hours	Energy efficient lighting will be specified.
Ene 04 Low carbon design						
~ Passive design analysis	1			Architect	Analysis of the proposed building design/development is undertaken to identify opportunities for and encourage the adoption of passive design solutions, including free cooling	Not deemed to be achievable
~ Free cooling	1			M&E Engineer	Analysis of the proposed building design/development is undertaken to identify opportunities for and encourage the adoption of passive design solutions, including free cooling strategies to reduce cooling energy demand.	Not deemed to be feasible.
Low zero carbon feasibility study	1	1		M&E Engineer	Feasibility study carried out by energy specialist before completed Concept Design stage to establish most appropriate recognised local low or zero carbon energy sources. These recommendations adopted and a meaningful reduction in regulated CO2 emissions noted.	PV implemented

TRANSPORT Credit weight = 9.16%						
Tra 01 Sustainable transport solutions						
Sustainable transport solutions	3	1		Transport assessor	Recognition for developments in proximity to good public transport networks, thereby helping to reduce transport-related pollution and congestion. Additional measures are available for those projects where the Accessibility Index is poor	
Tra 02 Proximity to amenities						
Proximity to Amenities	1	1		Architect	Recognition for developments in close proximity of, and accessible to, local amenities which are likely to be frequently required and used by building occupants such as cash machine, post box and food outlet.	
Tra 03 Cyclist Facilities						
Cyclist Storage & Facilities	1	1		Architect	Provision of compliant cycle storage spaces to encourage safe and healthy cycling.	
	1	1		Architect	Provision of compliant cyclist facilities to encourage safe and healthy cycling.	
Tra 05 Travel Plan						
Travel Plan	1	1		Architect	To promote sustainable reductions in transport burdens by undertaking a site specific travel assessment/statement and developing a travel plan based on the needs of the particular site.	Credits are achievable where a compliant transport assessment is produced.

WATER Credit weight = 55.25%						
Wat 01 Water consumption						
Water consumption	5	3		Water consumption	Reducing the demand for potable water through the provision of efficient sanitary fitting, rainwater collection and water recycling systems	Up to 3 credits are deemed to be achievable for specifying water efficient sanitary ware.
Exemplary	1			Exemplary	A 65% improvement over baseline building water consumption needs to be achieved.	Not deemed to be achievable.
Wat 02 Water monitoring						
Water monitoring	1	1		Water monitoring	A water meter will be fitted to the mains water supply to encourage water consumption management and monitoring to reduce the impacts of inefficiencies and leakage. Each meter has a pulsed output as well as the capability of being connected to the buildings Building Management System (BMS).	Water will be monitored via a pulsed output meter.
Wat 03 Water leak detection						
Leak detection system	1	1		M&E	Recognition of a leak detection system capable of detecting a major water leak on the mains water supply.	On the utilities water supply within the buildings, to detect any major leaks within the buildings
Flow control devices	1	1		M&E	A flow control device will be installed that regulate the supply of water to each WC area/facility to reduce water wastage.	PIR controlled solenoid vales to be specified covering the water supply to each toilet area.

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Water efficient equipment	1	1	M&E	Identify a building's total unregulated water demand and mitigate or reduce consumption through systems and/or processes.	
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MATERIALS Credit weight = 10.71%						
Mat 01 Life cycle impacts						
Life cycle impacts	2	1		LCA Consultant / Architect	Reductions in the building's environmental life cycle impacts through assessment of the main building elements. The Green Guide rating for the specifications for all major building elements will be determined and entered in to the BREEAM assessor's Mat 01 Calculator. Green Guide ratings for the specification(s) of each element can be found at: www.thegreenguide.org.uk. Furthermore the life cycle Green House Gas emission for each element will be reported based upon a 60-year building life.	
Exemplary	1			LCA Consultant / Architect	Where IMPACT will not be undertaken route 1 applies.4-5) Route 1) Using the Green Guide Specification: Where assessing four or more applicable building elements, the building achieves at least 2 points in addition to the total. Where assessing fewer than four applicable elements, the building achieves at least one point in addition to the total Where IMPACT is undertaken route 2 applies6-8) Route 2) Using compliant life cycle assessment software tools e.g. IMPACT Where the design team has used an IMPACT compliant software tool to measure the environmental impact of the building. Where the design team can demonstrate how the use of an IMPACT compliant software has benefited the building in terms of measuring and reducing its environmental impact Where the design team submit the building information model (BIM) from the IMPACT compliant tool for the assessed building to BRE.	Not deemed to be achievable

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Mat 03 Responsible sourcing of materials						
MAT 03 – Pre-requisite	Yes			Principal Contractor / Architect	Pre-Requisite (Mandatory credit element): 1) All timber AND timber based products used on the project is 'Legally harvested and traded timber'.	To be included in the contractor's requirements.
Enabling Sustainable procurement	1	1		Developer/ Architect	Materials sourced in accordance with a sustainable procurement plan.	
Responsible sourcing of materials (RSM)	3	1		Principal Contractor	Key building materials are responsibly sourced to reduce environmental and socio-economic impacts.	
Exemplary	1		1	Principal Contractor	Where 70% of available RSM are achieved	Not deemed to be achievable.
Mat 04 Insulation						
Insulation	1	1		Architect	Recognition of the use of thermal insulation which has a low embodied environmental impact relative to its thermal properties. Insulation for the external wall, ground floor, roof and building services will need to be specified.	
Mat 05 Designing for Durability and Resilience						
Designing for durability and resilience	1	1	0	Architect	The project will include durability and protection measures to prevent damage to the vulnerable parts of the building. Minimum protection measures specified will be for high pedestrian traffic, internal vehicular/ trolley movement and external vehicular collision. Exposed parts of the building should also be protected from material degradation due to environmental factors	Features of robustness and durable materials to be implemented.

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Mat 06 Material efficiency						
Material efficiency	1			Architect	Opportunities and measures have been identified and taken to optimise the use of efficient materials to minimise environmental impacts of material use and waste. This should be carried out at each RIBA stage.	Not deemed to be achievable.

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WASTE Credit weight = 3.27%						
Wst 01 Construction waste management						
Pre-demolition audit	1	1		Waste manager	A BREEAM compliant pre-refurbishment audit has to be prepared prior to any refurbishment works, and this has to be prepared prior or during RIBA Stage2, Concept Design	
Reuse and direct recycling of materials	2			Principal Contractor	Where waste materials are either directly re-used on site or off-site or are sent back to the manufacturer for closed loop recycling	Not deemed to be achievable.
Construction Resource Efficiency	3	2		Principal Contractor	A Resource Management Plan (RMP) should be developed in line with the BREEAM requirement. The total allowable amount of waste generated per 100 m2 of gross internal floor area will be ≤ 4.5 m3 or ≤ 1.2 tonnes. In addition, a pre-demolition audit will be required where demolition of existing buildings will occur.	To be included in the contractor's requirements. The target set is currently 4.5m3 / 100m2 of floor area which would result in 2 credit.
Diversion of Resources from Landfill	1	1	1	Principal Contractor	Non-hazardous construction, demolition and excavation waste generated should be diverted from landfill. Will be required to divert at least 70% by volume and 80% by tonnage of non- demolition waste AND 80% by volume and 90% by tonnage of demolition waste	

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Wst 03 Operational waste						
Operational waste	1	1		Principal Contractor	Provision of suitable space and facilities to allow for segregation and storage of operational recyclable waste volumes generated by the assessed building/unit, its occupants and activities	A dedicated recyclable waste storage area will be provided.
Wst 06 Functional adaptability						
Functional adaptability	1			Architect	Encourage consideration and implementation of measures to accommodate future changes to the use of the building and its systems over its lifespan	

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LAND USE AND ECOLOGY Credit weight = 6.00%						
Le 04 Enhancing site ecology						
Long term impact on biodiversity	1	1		Ecologist	To encourage actions taken to enhance the ecological value of the site as a result of development.	Provide an Ecology Report
Le 05 Long term impact on biodiversity						
Long term impact on biodiversity	2	2		Ecologist	To encourage long term protection and enhancement of biodiversity on the site and surrounding area. Where a landscape and habitat management plan, appropriate to the site, is produced covering at least the first five years after project completion in accordance with BS 42020:20131 Section 11.1.	Provide an Ecology Report

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POLLUTION Credit weight = 7.33%						
Pol 01 Impact of refrigerants						
No refrigerant use	3			M&E Engineer	No refrigerant use within the installed plant or systems.	Not deemed to be achievable
Prerequisite	Yes			M&E Engineer	All systems with electric compressors comply with the requirements of BS EN 378:2016 ¹ (parts 2 and 3). Refrigeration systems containing ammonia comply with the Institute of Refrigeration Ammonia Refrigeration Systems code of practice	
Impact of refrigerant	2	1			Any systems using refrigerants that have Direct Effect Life Cycle CO ₂ equivalent emissions of ≤ 1000 kgCO ₂ e/kW cooling/heating capacity.	
Leak detection	1			M&E Engineer	All systems are hermetically sealed or only use environmentally benign refrigerants Or Where the systems are not hermetically sealed: systems have: • A permanent automated refrigerant leak detection system, which is robust and tested, and capable of continuously monitoring for leaks. • Or • An inbuilt automated diagnostic procedure for detecting leakage is enabled. • In the event of a leak, the system must be capable of automatically responding and managing the remaining refrigerant charge to limit loss of refrigerant.	Not deemed to be achievable.
Pol 02 Local air quality						
Local air quality	2			M&E Engineer	The plant installed to meet the buildings' heating and hot water demand should have, under normal operation conditions, a dry NO _x emission level (measured at 0% excess O ₂) of ≤ 70 mg/kWh.	

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Pol 03 Flood risk management and reducing surface water run-off						
Flood risk management	5	2		Flood Risk Consultant	To achieve 2 credits, the development should be situated in a flood zone that is defined as having a low annual probability of flooding. The refurbishment or fit-out zone is of a floor level that is 0.3m higher than the obtained/estimated flood level and safe access/escape routes are available/present To achieve 1 credit, development has a medium to high annual probability of flooding and is not in a functional floodplain. Development should be raised above flood zone OR should be designed in accordance with the relevant standards	It is assumed that the site has a low probability of flooding.
Pol 04 Reduction of night time light pollution						
Reduction of night time light pollution	1	1		M&E Engineer	The external lighting strategy should be designed in compliance with Table 2 (and its accompanying notes) of the ILP Guidance notes for the reduction of obtrusive light, 2011 All external lighting (except for safety and security lighting) can be automatically switched off between 23:00 hr and 07:00 hr. If safety or security lighting is provided and will be used between 23:00 hr and 07:00 hr, this part of the lighting system complies with the lower levels of lighting recommended during these hours in Table 2 of the ILP's Guidance note. Illuminated advertisements, where specified, must be designed in compliance with ILE Technical Report 5 – The Brightness of Illuminated Advertisements	A compliant external lighting strategy will be developed.

3. Conclusion

In summary the project aims to achieve high sustainability standards and as can be seen in the table below, the proposed development can achieve 'Very Good' under BREEAM UK Refurbishment and Fit-out 2014 Non-domestic buildings scheme.

Environmental Section	Weighting	Credits Available	Credits Targeted	Weighted Score
Management	15.70%	21.0	14.0	10.46%
Health & Wellbeing	16.95%	19.0	9.0	8.03%
Energy	15.82%	21.0	4.0	9.03%
Transport	6.11%	7.0	6.0	5.23%
Water	6.98%	8.0	6.0	5.23%
Materials	11.33%	9.0	5.0	6.29%
Waste	8.18%	10.0	7.0	5.72%
Land Use & Ecology	7.85%	3.0	2.0	5.23%
Pollution	11.07%	11.0	3.0	3.02%
Innovation	10.00%	10.0	0.0	0.00%
Indicative BREEAM Score	58.27% 'Very Good' Rating			