Maria Fidelis – CSC and Main Workspace Refurbishment

Planning – Sustainability and BREEAM Report

Rev 1

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1.0 EXECUTIVE SUMMARY

1.1 Sustainability Statement

This Sustainability Statement supports the planning application for the proposed redevelopment of the existing Maria Fidelis School, Camden to provide a new Construction Skills Centre (CSC) for further education training, a refurbished office space, the Main Workspace (MW) and the provision of open space.

This document describes the proposed approach to the delivery of a sustainable development that fulfils the requirements and objectives of all stakeholders from central government to users. This approach has been set out against a range of sustainability themes which will be used to communicate the sustainable design principles to the design team, client and wider stakeholders; and which introduces the wider context of sustainability before focussing on the key components of Energy, Water, Waste and Materials etc. This report addresses the following issues:

- Review of relevant planning policy
- Review of key project aims and drivers
- Summaries of key sustainability strategies
- BREEAM Pre-Assessment and Scorecard for the CSC and Main Workspace

This statement should be reviewed alongside the associated suite of supplementary planning documents that will be submitted for this application. These include:

- Energy Statement
- Design and Access Statement

1.2 Summary of Key Strategies

Energy Strategy for the new build Construction Skills Centre (CSC)
The energy strategy will seek to minimise the use of valuable energy resources. This approach aims to minimise energy consumption from the outset through the use of low energy, passive measures and efficient systems before the deployment of low carbon and renewable energy technologies. Through the adoption of this approach, the CSC has been demonstrated to meet the GLA and Camden's requirements for a 35% reduction over Part L 2013, and achieves high levels of BREEAM 2018 ENE 01 compliance. Please refer to the energy statement for more details.

Energy Strategy for the refurbished Main Workspace (MW)
The energy strategy for the refurbishment will also seek to minimise the use of valuable energy resources. However, the approach has been to apply consequential improvements to the scheme, through the upgrading of windows, and services. This approach aims to minimise energy consumption as far as feasible in order to meet planning objectives. Please refer to the energy statement for more details.

Water
The overarching approach for the development for both buildings will be to provide efficient systems and services that mitigate excessive demand at point of use. It is expected that through the requirements placed upon the site by BREEAM, the CSC will be able to achieve a 40% reduction water demand against baseline levels and the refurbishment of the MW will be able to achieve at least a 25% reduction in, with an ambition for 40% reduction.

Materials Strategy for the CSC
The selection of materials with strong environmental credentials has been encouraged with preference given to robustly manufactured, high performance products that are flexible and resilient for the building's needs. At construction stage, the contractor will be required to procure products from ethical and renewable sources that have been certified using systems such as BES, ISO and have environmental product declarations. Given the CSC temporary nature a strategic decision was made to focus on efficiently manufactured and deliverable construction materials and technics that provide appropriate robust design for the usage of the spaces.

Materials Strategy for the MW
The MW benefits from being an existing building, therefore already having a lower future environmental material impact that a new building. The building will be assessed for material sustainability under BREEAM 2014, and the design team and contractor will be required to report on the level of materials performance using the BRE green guide ratings and benchmarks in line with minimum BREEAM requirements.

Waste
The operation waste strategy for the scheme will follow a 'reduce, reuse, recycle' hierarchical approach. It is expected that waste will be effectively segregated and recycled on site and managed by induvial parties and Facilities Management. Recommended recycling streams include organic, dry recyclables such as paper and cardboard, glass, plastics and metals.

Construction waste will follow a similar hierarchy and will be specifically set out in a Construction Waste Management Plan prepared by the contractor. Targets will be set for diversion from landfill and waste recycling on site in line with BREEAM requirements.

1.3 BREEAM Targets

The project comprises two distinct buildings and therefore they are being assessed separately.

- CSC: The CSC is being assessed under BREEAM New Construction 2018
- MW: The Main Workspace is being assessed under BREEAM Refurbishment and Fit-Out 2014

The current projected scores are:

- CSC – 65.0%
- Main Workspace – 68.33%

These both equate to a 'Very Good' rating, however the team has been advised that at all times the project should maintain a contingency, or buffer, of approximately 5% in the expected score, i.e. the score should never drop below 60%. Moving forward, the team must endeavour to maintain and secure the buffer credits in order to achieve BREEAM Very Good.

In order to maintain the buffer score (should credits be lost), a selection of additional potential credits have been identified in the scoring matrix. Please refer to the scorecards for more details.

The team should stay aware of these potential credits for use as contingency credits in case currently targeted credits are lost as the technical design and construction progresses.

The pre-assessment scoring scenarios are presented in Figure 1 & Figure 2, They indicate the targeted scores and the potential scores as well as a breakdown of the risk associated with the credits.

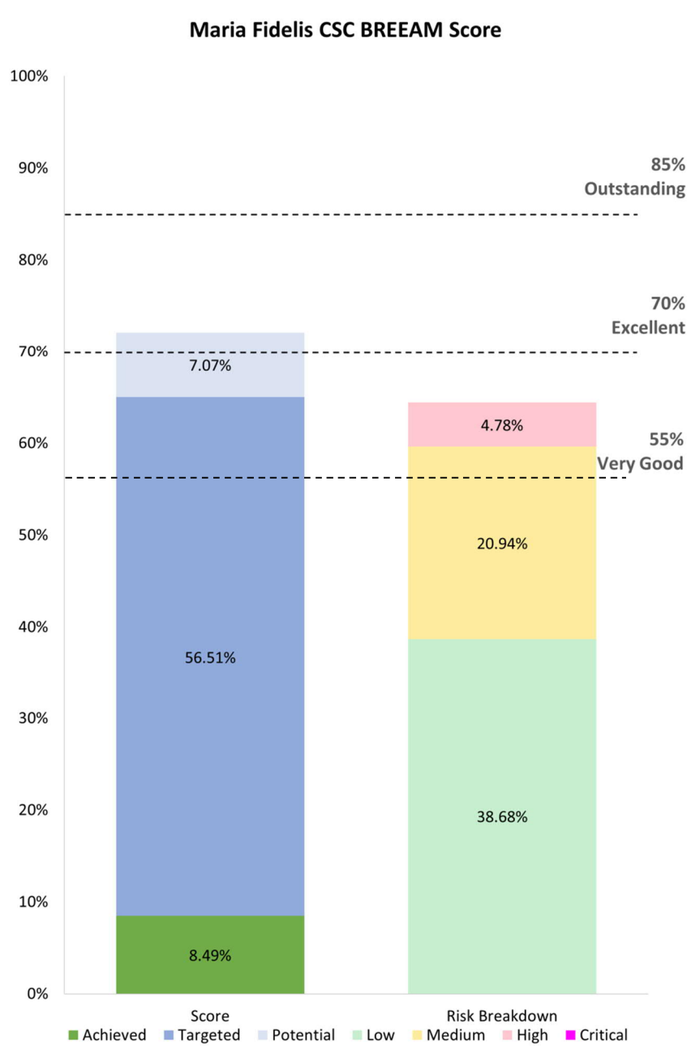

Figure 1: Maria Fidelis CSC BREEAM dashboard indicating targeted score, potential score and associated risk

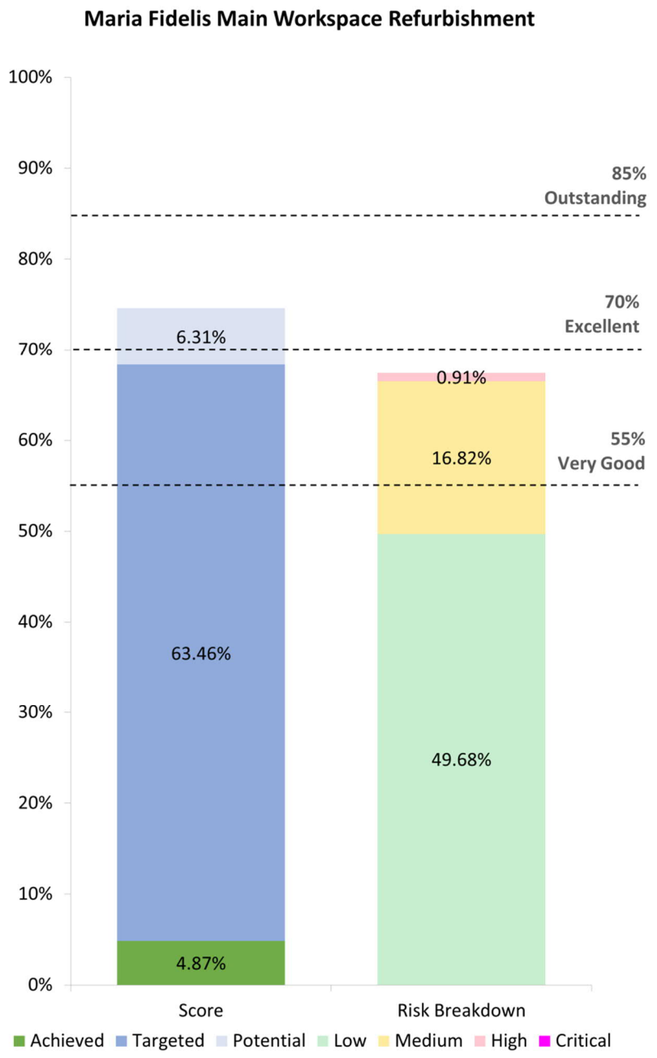

Figure 2: Maria Fidelis Main Workspace BREEAM dashboard indicating targeted score, potential score and associated risk

Derogation from Planning

Due to wider masterplanning considerations for the Euston redevelopment and HS2 works, the entire Maria Fidelis scheme is being designed for much shorter lifetime than industry standard. It is expected that the scheme will be in existence for no more than 10-15 years as part of a Meanwhile use of the site. Therefore, due to the temporary nature of the Maria Fidelis scheme, Camden council, have agreed that both developments can target a BREEAM Very Good Rating, rather than target BREEAM Excellent. This derogation was confirmed with the council during the early design stages.

The derogation was confirmed, and the schemes will ensure that the following criteria are met for each of the following BREEAM sections:

- Energy 60%
- Water 60%
- Materials 40% (excluding CSC)

A full review of the key sustainability related policies for the development can be found in Appendix I.

Scoring and Buffer

Both projects are targeting a BREEAM Very Good rating, and the project scoring and buffer shall be under continual review in order to manage risk and the attainment of key credits. Please see the BREEAM section for pre-assessment for full details of the targeted credits.

1.4 Planning

There are a number of documents that the development must adhere to in its approach to energy use and sustainability:

- Building Regulations – Approved Document Part L2
- GLA London Plan
- Camden Local Plan 2017
- Camden Planning Guidance: Sustainability

All local documents can be found:

- https://www.camden.gov.uk/local-plan-documents
- https://www.camden.gov.uk/camden-planning-guidance1

Figure 3: Camden Local Planning Documents

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2.0 SUSTAINABILITY STATEMENT

2.1 Purpose of this Sustainability Statement

This sustainability statement has been developed to support the planning application for the proposed development of a new build CSC and refurbishment of the MW at Maria Fidelis School, Camden.

The statement describes and communicates the objectives and deliverables of the development. The core themes that this statement will cover are highlighted in the following sections. An additional energy statement has been provided, please refer to appropriate documentation for reference.

The development will embed best practice initiatives in terms of sustainability and resource management as a key part of its design. Along with the low energy consumption strategy set out as part of the Energy Statement, the development will also embed the principles and requirements of BREEAM. The following sections summarise the key strategies that are being employed within the project to make it sustainable.

2.2 Drivers for Sustainability

Sustainability considers a range of aspects including the impact that the development will have on the environment, the local communities, local economic development and the financial costs. A sustainable design strategy is able to have significant influence over the requirements placed upon a construction project and development. Tools such as BREEAM and strategic local frameworks can help to inform guidance that can be employed at a development. Moreover tools such as BREEAM can help to influence certain design strategies that have impacts on various scopes of design.

Importance of Resource Management
It is important that the development embeds an appreciation of efficient resource consumption and reuse. Resource consumption is a significant issue that affects many areas of design, construction and building management. The extraction, processing, use and disposal of resources can have significant impacts on the environment, as well as creating additional economic and social implications due to resource scarcity and degradation of supply.

Through the use of a BREEAM Very Good rating, the project has created the opportunity to consider efficient resource management throughout the life time of the development, thus ensuring that that the design has optimised sustainable opportunities while limiting its environmental impact. This approach has considered:

- Minimising elements required for construction and using durable, resilient, flexible, efficient and low carbon construction materials.
- Being resourceful in the use of energy through appropriate and stringent design and technologies.

In addition, the BREEAM strategy will help to encourage:

- Efficient use of water
- Optimisation of waste management procedures
- Promotion of best practice environmental design which can lower energy demand and consumption.

Health and Wellbeing
It is important that the design and operation of the development provide comfortable places to work. Through careful environmental design and control, these requirements can be met. Moreover, studies indicate that occupants can benefit from well-designed spaces. In contrast poor quality spaces can create negative impacts on occupants' physiological states reducing productivity and health.

2.3 Environmental Design and Energy

The energy strategy will seek to minimise the use of valuable energy resources through the application of a lean, clean, green hierarchical approach. This approach aims to minimise energy consumption from the outset through the use of low energy, passive measures and efficient systems before the deployment of low carbon and renewable energy technologies. Through the adoption of this approach, the building will demonstrate a high level of compliance with Part L 2013.

See energy statement for further information.

2.4 Water

The overarching approach for the development will be to provide efficient systems and services that mitigate excessive demand at point of use, while still meeting the expected demands of the education and commercial office space facilities. It is expected that through the requirements placed upon the site by BREEAM, the CSC will be able to achieve a 40% reduction water demand against baseline levels and the refurbishment of the MW will be able to achieve at least a 25% reduction in, with an ambition for 40% reduction. This will be achieved through use of efficient fixtures.

Key Drivers
The water strategy will be influenced by the following drivers:

- To ensure efficient resource use and demand.
- To align with key targets and policy, including the local plan.
- To enable the attainment of credits for BREEAM 'Very Good' rating.
- To reduce / eliminate the demand for potable water used for landscape irrigation.
- To minimise risk of surface flooding through use of SUDS particularly in critical drainage areas.

Minimising Water Consumption
A first step of the proposed water strategy includes analysis of the development's water consumption, by primary use. Upon main design freeze on the scheme, calculations will be undertaken using the BREEAM methodology to establish the baseline water consumption case for the development and to estimate savings from improved efficiency at point of source. The project is not currently using alternative sources of water for interior usage due to the short life span of the buildings.

Improved Efficiency at Point of Use
Water efficient fixtures and fittings can help reduce site water consumption and as well as demands on waste water services. These represent passive measures, those requiring no behaviour change by the user, and in the case of the proposed development include those listed (as an example) in the following table. Flow requirements are subject to amendment following client-expressed preferences for specific fixture types in some areas of the development. The combined water strategy will take this into consideration while still aiming to meet BREEAM requirements.

Increased System Efficiency
Improvements in the design and distribution of the water system can help to reduce leakages and losses across the building. Intelligent design that reduces the number of dead legs and minimises overall distribution lengths shall be sought, whilst addition features such as flow restrictors and pressure reducing valves shall be employed. The use of metering for all substantial uses and leak detection linked to a Building Management System (BMS) will be encouraged and is included as part of the BREEAM requirements to enable close monitoring and management of water use.

Table 1: Example minimum water reduction requirements

Component	Performance levels (quoted numbers are minimum performance required to achieve the targeted level)		
	2 points	3 points*	Unit
WC	4.5 (tbc effective flush)	4 (tbc effective flush)	Effective flush volume (litres)
Wash hand basin taps	7.5	4.5	litres/min
Showers	8	6	litres/min
Urinal (2 or more urinals)	3	1.5	litres/bowl/hr
Kitchen tap: kitchenette	7.5	5	litres/min

* Further clarification is required to determine the likelihood of achieving three credits for this criteria for the MW

2.5 Materials

The selection of materials with strong environmental credentials will be encouraged with preference given to robustly manufactured, high performance products that are flexible and resilient. Once in the construction stage, the contractor will be encouraged to procure products ethically and from renewable sources.

For the CSC the contractor will be required to procure materials that are appropriately certified and have environmental product declarations.

For the MW refurbishment, the BRE Green Guide shall be used as a benchmarking resource with materials selected on their reported performance in line with minimum BREEAM requirements.

Construction Materials
Construction materials can have far reaching environmental, economic and social impacts, with irresponsible selection and use having consequences that can lead to habitat destruction, global warming and economic exploitation to name a few.

The development will respond to these concerns through a hierarchical approach to material use, which endeavours to minimise material use from the outset via:

- Efficient design and construction processes
- Use of prefabricated elements where feasible
- Low impact and locally sourced materials
- Recycled, responsibly sourced materials will be employed to help reduce the whole life environmental impacts of the development; which will consider the life cycle of the material from its source to its potential reuse.

It is understood that the material science and information required to support the responsible selection of materials is still currently developing within the market. However, the design team shall aim to take a holistic view of material sustainability, selecting materials based on a wide number of considerations including the below, in order to ensure the materials used meet the aspirations of the development and are compliant with BREEAM credits MAT1 (Main Workspace), MAT2 (CSC), MAT3 and MAT 4:.

- Operational performance;
- Aesthetics
- Source
- Green Guide rating
- Certifications
- Sensitivity to local architecture and heritage,

Selection and Sourcing of Materials
In addition, the selection of materials will also focus on minimising the impact of the building's operational demand – for example preference will be given wherever feasible to the use of insulation materials that are manufactured without containing gases of 'Ozone Depletion Potential' (ODP) and have zero 'Global Warming Potential (GWP). Responsible sourcing of materials will be ensured through the specification of FSC, ISO14001 etc. certified products and the use of BRE's Framework Standard BES 6001 for the responsible sourcing of construction products.

Low Impact Materials
It is intended that where any timber is used on-site, it will be certified by the Forest Stewardship Council (FSC), PEFC or similar, which provides a product-specific chain of custody number confirming that the timber used in the manufacture of the product originates from a sustainably managed source.

All contractors will be expected to comply with relevant legislation in relation to their environmental management provisions and will be asked to provide evidence of their environmental policies and prepare a Construction Environmental Management Plan (CEMP) to comply with ISO14001.

2.6 Waste

This section provides an overview of the operational waste strategy for the development. The proposed measures will ensure that waste is managed in a sound environmental and cost effective manner throughout the lifetime of the development. However, it will be up to the building occupants to manage waste on an individual basis. Key drivers for waste management are:

- To ensure efficient resource use and demand
- To align with key targets and policy, including the local plan, and BREEAM Wst 03
- To enable the attainment of credits for BREEAM 'Very Good' rating
- To reduce / eliminate the operational waste generation sent to landfill though smart segregation and management procedures
- To encourage behaviour change
- To encourage the reuse and recovery of materials

Figure 4: Waste Management Strategy

Operational Waste
The operation waste strategy for the scheme will follow a 'reduce, reuse, recycle' hierarchical approach. Operational waste refers to the office, and educational spaces of the development. It is expected that waste will be effectively segregated and recycled on site through provision of appropriate bins.

Recommended recycling streams include organic, dry recyclables such as paper and cardboard, glass, plastics and metals. In addition there is further scope to increase the percentage recycling on site through the following (which will be up to the individual occupants to act upon):

- Implementation of appropriate procurement chains;
- Use of behaviour change tools (i.e. easily accessible waste recycling, management points and signage)
- Providing staff and occupants with training schemes and signage;
- Development of waste user guides
- Early segregation and collection of waste to encourage comprehensive recycling.

In order to achieve high levels of recycling, it is proposed that waste will be segregated by the provision of appropriately located and sized recycling points. The operational waste should be managed in the following streams:

- Dry recyclables: This includes paper, cardboard, ferrous and non-ferrous metals, batteries
- Organic waste: This includes all food and green waste
- Residual waste: This includes all waste not collected as part of the dry recyclables or organic waste collection services, e.g. drink and food (Tetra Pack) cartons, plastics, and electrical and electronic equipment. However if suitable collection partners are found, many items such as electronics can be recycled through other means.
- Hazardous Waste: Anything generated within the CSC that needs specific treatment and recycling that has been created from the teaching facilities.

Through the implementation of a comprehensive recycling and waste management strategy a significant proportion of the total operational waste that is collected could be recycled at the point of segregation and collection. Increasing recycling rates and encouraging the prevention of waste through programmes, such as the introduction of easy to understand signage and 'Staff Information Packs' will help to further improve recycling rates and reduce residual waste generation within the development. Evidence suggests that though such behavioural change activities, and correct procurement chains waste generation be reduced.

Example Operational Waste Management Plan

The following plan outlines a range of example measures that could be deployed in order to effectively manage operational waste.

Table 2: Example proposed operational waste management strategy

Waste Stream	Primary Source	Prevention Measure	Reduction Measure	Recycling Facility	Potential Return Stream
Paper	Offices, Education	Educational and awareness initiatives, use of IT systems.	Paper management strategies including default printer settings with access cards.	Wide spread use of paper recycling bins, provide recycling bins in teaching/ lab rooms.	Procure recycled paper and paper products. Potential to use recycled paper products for insulation during construction.
Cardboard	Offices, Education	Promote responsible procurement of products with emphasis on products with reduced packaging.	Reduce procurement of cardboard packaged items.	Use of segregated collection facilities and onsite compactors to ease collection and removal from site.	Use of recycled cardboard products across the site.
Metal	Offices, Education	Ensure metals used in any spaces are documented and sent for recycling once used.	Record procurement of metals for lab testing	Use of segregated collection points.	Metal is a continuously recycled commodity.
Glass	Offices, Education	Purchase fresh unpackaged produce. Provide on-tap beverage provision in catering spaces.	Reduce procurement of glass items.	Provide glass bins and bottle collection points across the site at key points of consumption.	Glass is a widely recycled material with many mainstream products likely to include a high percentage of recycled material.
Plastics	Offices, Education	Promote responsible procurement of products with emphasis on products with reduced packaging.	Reduce procurement of plastic items. Ensure procurement products with minimal plastic packaging.	Provide plastic collection points across the development.	PET insulation material made from recycled plastic bottled could be employed across the development.
Organic	Offices, Education	Ensure responsible procurement of fresh/ organic produce.	Encourage the responsible management of perishable stock.	Provide organic waste collection facilities in all catering/ cafe spaces.	Organic waste (where feasible) and all green waste from the development will composted and used as fertilizer for onsite landscaping. Excess organic waste to be sent to the Council's anaerobic digestion plant.

Construction Waste Management
A hierarchical waste management strategy of 'Prevent, Reduce, Reuse, and Recycle' shall be employed in line with the Site Waste Management Plan. This strategy aims to encourage the use of efficient design in order to eliminate excessive material construction requirements during the construction phase. The reduction of construction waste should be a key consideration throughout the design and construction of the development.

The design will seek to ensure minimal waste through the standardisation of building elements and constituent parts, using intelligent design to minimise material use and waste production. The design will also consider the use of off-site preparation where feasible as a tool to reduce construction waste and the energy consumption required in construction, and seeks to maximise the use of recycled materials where possible.

Construction Waste Management Plan
A demolition audit for the CSC has been undertaken to understand the potential for material reuse and recovery of materials in line with BREEAM credit Wst 01 - Construction waste management.

A construction waste management plan shall also be outlined and will be further developed in detail by the contractor to ensure a thorough approach to waste control is undertaken during the construction phase of the development. This management plan should address the requirements of BREEAM WST 01 and should include for the following:

- Quantifying raw material wastage;
- Quantifying the generation of each waste stream;
- Any improvements in current working practices;
- Methods by which the waste streams are being handled and stored; and
- The available waste disposal routes used, e.g. landfills, waste transfer stations.
- Establishment of a "Just in Time" delivery strategy, in collaboration with local suppliers to minimise oversupply and the time materials are stored on site.
- Establish material storage areas that will prevent damage to materials whilst on site, but to also mitigate the effects of land contamination and ensure protection of the environment from volatile materials.
- Introduce educational programme to inform site workers and craftsmen of the sites waste management practices and their expect code of conduct.
- Establish a strategy for the reuse of materials on site.
- Establish a comprehensive recycling strategy to ensure residual waste is minimised.

The appointed contractor will be responsible for the implementation of most of these reduction and recycling measures and they will be encourage to follow any additional practices they see fit or have experience in operating.

2.7 Landscape and Habitat

The current site has minimal landscaping or habitat of any ecological significance as identified in the preliminary ecological appraisal. The development of the site will aim to protect and enhance the ecological value of the site. The Landscape architect has identified a number of areas for temporary ecological improvements across the site including a range new planting areas at the perimeter of the site

2.8 Transportation and Mobility

Public Transport
The application site is well connected with train and bus services to and from London city centre. Once the development is complete, there will be no provision for car parking and a Travel Plan will be established in order to ensure the project is committing to a number of measures designed to encourage staff and users to utilise more sustainable modes of transport for journeys to and from the site.

Cyclists and Pedestrians
Cyclists and pedestrians will be encouraged to reach the development through cycling and walking. Facilities for cyclists are being provided, such as on site secure cycle storage, as well as shower and changing facilities for staff.

2.9 Summary

The delivery of sustainability requires engagement and commitment from all team members. It is the responsibility of each individual discipline to ensure that they understand and address the project sustainability requirements and aims, much of which has been informed by the BREEAM process.

This statement summarises the key actions that the design team is incorporating to ensure a sustainable building and BREEAM compliant project is achieved. However, there is always a risk that team members do not fully understand the requirements and do not raise concerns early enough for them to be addressed. It is therefore key that as the design progresses, the design team take time to re-assess the sustainability strategies for the project and the requirements of BREEAM that have been targeted.

Key actions that should be addressed as the design progresses are items to do with:

- Ensuring that the design team and client remain engaged with the sustainability aspirations for the project as design progresses and that sustainability and BREEAM considerations are kept as a key delivery topic whilst the project goes through value engineering and tender documentation review.
- Ensuring that the sustainability issues and criteria are embedded thoroughly within the design and tender information in order to ensure that the performance criteria are clearly communicated to the contractor.

3.0 INTRODUCTION TO BREEAM

3.1 Overview

The Maria Fidelis project is made up of a new-build Construction Skills Centre (CSC) and a refurbishment of the Main Workspace. The new-build CSC will be assessed under the BREEAM New Construction 2018 scheme and the refurbishment of the Main Workspace will be assessed under the BREEAM Refurbishment and Fit-out 2014 scheme.

The Building Research Establishment Environmental Assessment Method (BREEAM) for New Construction 2018 and for Refurbishment and Fit-Out 2014 help Clients and Local Authorities to set environmental targets and demonstrate environmental performance of new construction and refurbishments and fit-outs. To date, over 260,000 buildings have been BREEAM certified worldwide since it was first launched in 1990. Figure 5, below, illustrates countries in which BREEAM assessments have taken or are currently taking place.

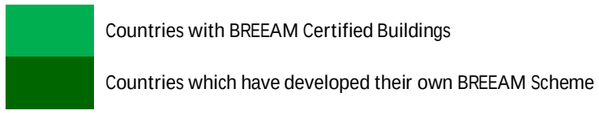

Figure 5: Countries with BREEAM certified buildings

The following categories are assessed:

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

There is also an Innovation Category, where additional Credits can be awarded for exemplary performance and any innovative features of the building project that are not assessed as standard in the other environmental sections. An application for these additional Credits has to be made to the BRE for approval.

BREEAM New Construction 2018
BREEAM New Construction 2018 covers four separate assessment types that are assessed according to the scope of work of the project. This ensures that the environmental performance is measured against the parts within the scope that are of influence and also that similar project types are assessed against a comparable set of criteria. The four assessment types are as follows:

- Fully fitted
- Simple building
- Shell & core
- Shell only

BREEAM Refurbishment and Fit-Out 2014
BREEAM Refurbishment and Fit-Out 2014 is split into four separate parts that are assessed according to the scope of work of the project. This ensures that the environmental performance is measured against the parts within the scope that are of influence and also that similar project types are assessed against a comparable set of criteria. The four parts are as follows:

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

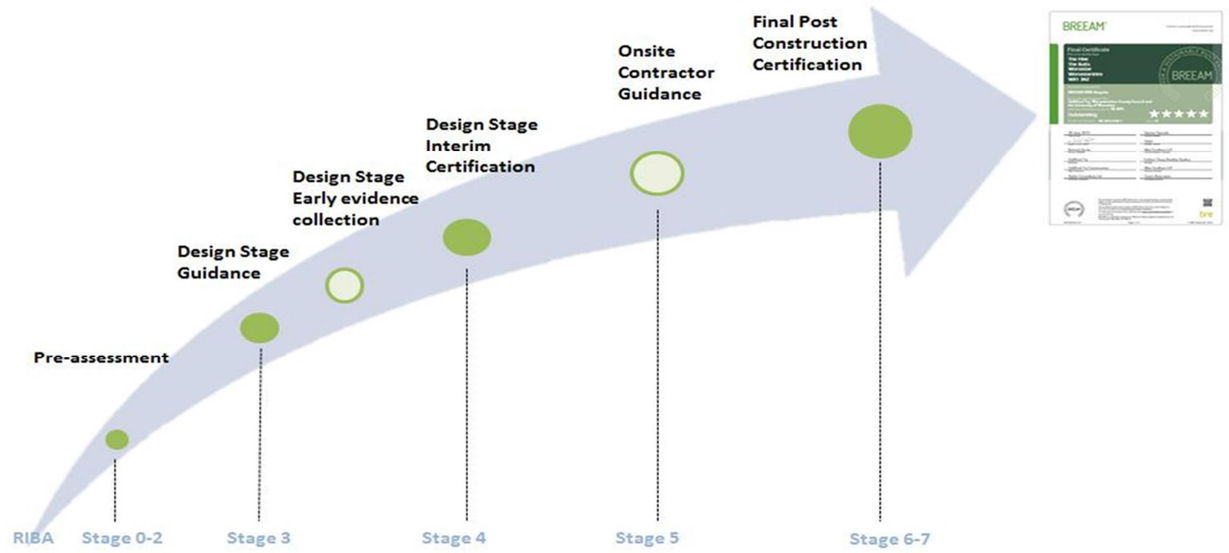

Figure 3: BREEAM assessment stages

3.2 The Value of BREEAM

When a project brief requires a sustainable building, BREEAM is an industry recognised tool that can be used to fulfil this requirement. Promoting an integrative design process where all stakeholders are involved in the BREEAM assessment from project inception, it is a tool that design teams and developers, alike, can understand and implement. There is some capital costs associated with BREEAM, but these must be seen in the wider context of the overall value that BREEAM can potentially offer, including:

- Reduced operational costs
- Limiting investor and developer risk
- Increased sales and letting values
- Creating a more productive and healthy environment

With careful planning, the capital costs of BREEAM can be reduced through targeting credits that fit with the overall project aspiration.

3.3 Scoring Process

Credits are allocated under each category and a weighting is applied to determine an overall building score. The building will be allocated a rating of Unclassified, Pass, Good, Very Good, Excellent, or Outstanding as follows in Table 3:

Table 3: BREEAM rating thresholds

BREEAM Rating	% Score
Outstanding	≥85
Excellent	≥70
Very Good	≥55
Good	≥45
Pass	≥30
Unclassified	<30

3.4 Assessment Stages

As part of the assessment scheme, two formal assessments will be required. The first assessment is to take place during design stages following the appointment of the contractor (Interim or Design Stage Certification). Design-based evidence and commitments from the team are required as evidence at this stage.

The final assessment will take place following Practical Completion (Post Construction Certification). A second batch of As-built information will be required that will confirm that the design stage information is valid. This will be carried out by a combination of on-site assessor auditing and additional as-built drawings / records. The general BREEAM process is outlined in Figure 3 below.

In BREEAM New Construction 2018 and BREEAM Refurbishment and Fit-Out 2014, minimum standards are required for a Very Good rating. These are summarised in Section 3.2.

3.5 Applicable Assessment Parts

Construction Skills Centre
The CSC development is classified as a fully fitted building and therefore all assessment parts of the BREEAM New Construction 2018 scheme are applicable.

Main Workspace
Table 2 below, indicates the typical assessment parts of the BREEAM Refurbishment and Fit-Out 2014 scheme that are applicable to the type of project being undertaken.

The Maria Fidelis Main Workspace is classified as a shell and core project and therefore assessment parts 1 & 2 are being applied.

Table 4: Typical assessment parts applicable, depending on project type – Shell and core

Project Type	Assessment Parts Typically Applied			
	Part 1 Fabric and Structure	Part 2 Core Services	Part 3 Local Services	Part 4 Internal Design
Shell and core	✓	✓		

3.6 Section Weightings

Table 3 outlines the weightings for each of the ten environmental sections included in the BREEAM New Construction 2018 and Refurbishment and Fit-Out 2014 schemes for the applicable assessment parts for the CSC and Main Workspace. Individual credits within each of the environmental sections are worth smaller percentages that add up to the total percentage weighting of that section, which means that not all credits are equal. Some contribute more to the overall score than others. Project specific weightings refer to the assessment parts, or combinations of parts, that apply to the project

Table 5: BREEAM environmental section weightings for Maria Fidelis project types

Environmental Section	Core Weightings (%)	
	BREEAM NC 2018 CSC Fully fitted	BREEAM R & FO 2014 Main Workspace Shell and core
Management	11	13
Health and Wellbeing	14	11
Energy	16	18.8
Transport	10	8.6
Water	7	5.7
Materials	15	13.4
Waste	6	8.1
Land Use and Ecology	13	10.7
Pollution	8	10.7
Innovation (additional)	10	10

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4.0 MANDATORY AND MINIMUM REQUIREMENTS

1.1 Mandatory Requirements for Very Good

Every scheme and rating level has mandatory credits. If the mandatory credits are not achieved it is impossible to achieve the targeted rating. For higher ratings more mandatory credits apply. In addition to mandatory credits up to 10% of innovation credits are available (each innovation credit is worth 1%). This is to recognise where a building demonstrates exemplary performance.

Credit Types
Credits are awarded by compliance with the issues within each category. This may be for studies (such as an overheating assessment), collaboration (i.e. stakeholder consultation with the local community), design elements (the incorporation of energy monitoring equipment) and committing to processes after practical completion (obtaining feedback on the building performance in use). Furthermore, credits can be at either a site wide or building scale. Site-wide credits include ecology and transport.

1.1 Minimum Standards

To maintain a flexible system BREEAM adopts a 'balanced score-card' approach to the assessment and rating of building performance. This means that, to achieve a particular level of performance the majority of BREEAM credits can be traded, i.e. non-compliance in one area can be off-set through compliance in another to achieve the target BREEAM rating.

However, to ensure that performance against fundamental environmental issues is not overlooked in pursuit of a particular rating, BREEAM sets minimum standards of performance in key areas e.g. energy, water, waste etc. It is important to bear in mind that these are minimum acceptable levels of performance and, in that respect they should not necessarily be viewed as levels that are representative of best practice for a BREEAM rating level.

To achieve a particular BREEAM rating, the minimum overall percentage score must be achieved and the minimum standards, detailed in the following table, applicable to that rating level complied with.

Exemplary / Innovation Credits
Innovation or 'exemplary' credits were introduced in the previous versions of BREEAM (2008). The innovation credits provide additional recognition for a procurement strategy, design feature, management process or innovative technologies that go beyond current BREEAM guidelines.

Table 6: Minimum BREEAM standards – Very good

Issue	RIBA Stage	Requirement	Owner
Man 04: Commissioning and Handover*	6	Prepare a schedule of commissioning and testing	Contractor
Man 04: Commissioning and Handover*	6	Criterion 11: Building User Guides are to be provided and are appropriate to general building users, staff, and non-technical facilities managers.	Contractor
Ene 02: Energy Monitoring	3/4	Energy monitoring using BMS or separate accessible energy sub-meters with pulsed output that enable at least 90% of the estimated annual energy to be monitored.	M&E Engineer
Wat 01: Water Consumption	3/4	Achieve at least a 12.5% reduction of water usage as compared to a notional baseline performance.	Architect M&E Engineer
Wat 02: Water Monitoring	3/4	Water meter on mains water supply to each building.	M&E Engineer
Mat 03: Responsible Sourcing of Construction Products	4/5	All timber must be sourced in accordance with the UK Government's Timber Procurement Policy.	Architect Contractor

* Applicable to CSC only

5.0 EARLY STAGE CREDITS

A number of early stage credits are required to be completed by RIBA stages 1 and 2. While there is a choice over which credits the project pursues, it is likely that most early stage credits must be achieved in order to secure a Very Good rating.

This section lists a number of actions that need to be undertaken in RIBA Stage 1 and 2 to achieve various BREEAM credits. The credits that require fulfilling and/or documentation by early stages are as follows.

Current Status: 03/06/19 Stage 2

Key	
	Undertaken
	Currently being dealt with
	To be actioned

Table 7: Early Stage Credits

Credit	RIBA Stage	BREEAM 2018 NC Construction Skills Centre	BREEAM 2014 Refurbishment Main workspace	Evidence Required	Action	Owner
Tra 02 #2 Sustainable Transport Measures	Stage 1	✓		If Option 6 in Table 7.4 is to be pursued, during preparation of the brief, the design team consults with the local authority (LA) on the state of the local cycling network and public accessible pedestrian routes, to focus on whichever the LA deems most relevant to the project, and how to improve it. Agree and implement one proposition chosen with the local authority.	Consider as part of Transport Statement	Transport Consultant
Mat 06 #1 Material Efficiency	Stages 1, 2, 3 and 4	✓	✓	Material Efficiency Study.	Max Fordham appointed to run workshop	Architect, Structures, M&E
LE 02, 03, 04, 05 Ecology Credits	Stage 1	✓	✓	An ecologist should be appointed to conduct a Phase I habitat survey and advise on minimising ecological impact and maximising ecological enhancement and providing input into a habitat management plan. It is important the ecologists' scope covers all requirements to gain full credits.	Appoint ecologist. Ecology report to be produced.	Client
Man 01 #1 Project Delivery Planning	Stage 2	✓	✓	Roles and responsibilities of the design team defined.	Schedule of roles and responsibilities to be completed	Architect
Man 01 #2 Stakeholder Consultation	Stage 2	✓	✓	Stakeholder consultation undertaken.	Stakeholder consultation to be undertaken and minutes to be provided.	Architect
Man 01 #3 BREEAM AP	Stage 2	✓	✓	Appoint a BREEAM AP	Max Fordham appointed as BREEAM AP. AP to attend key DTMs to monitor progress. AP to issue regular score updates to team.	Client
Man 02 Life Cycle Costing	Stage 2	✓	✓	Appoint QS to conduct LCC	Appoint QS. LCC report to be produced	QS

Credit	RIBA Stage	BREEAM 2018 NC Construction Skills Centre	BREEAM 2014 Refurbishment Main workspace	Evidence Required	Action	Owner
Hea 06 #2 Security of Site and Building	Stage 2	✓	✓	Security Needs Assessment undertaken by Suitably Qualified Security Specialist. This is usually a meeting with the local Architectural Liaison Officer or Designing Out Crime Officer at the local police station. MFLLP can provide a meeting minutes template.	Security Needs Assessment to be undertaken. Meeting minutes to be provided with recommendations for design.	Architect
Ene 01 Reduction of Energy Use and Carbon Emissions	Stage 2/3	✓		Operational energy performance workshop and risk assessment undertaken.	Model being undertaken as part of Energy Strategy development	M&E
Ene 04 #1 Passive Design & Renewables	Stage 2	✓	✓	Passive Design Analysis undertaken.	Passive design report to be produced as part of energy statement for planning	M&E

6.0 STAGE 2 PERFORMANCE AND NEXT STEPS

6.1 Stage 2 Approach

An initial meeting was held with the design team and client in during stage 1 and 2 when Max Fordham was appointed to provide BREEAM Consultancy services. The results from this meeting were used as the basis for the pre-assessment.

6.2 CSC Targeted Score

The current targeted score for the CSC is 65.0%. This equates to a 'Very Good' rating, however the team has been advised that at all times the project should maintain a contingency, or buffer, of approximately 5% in the expected score, i.e. the score should never drop below 60%. Moving forward, the team must endeavour to target additional credits in order to achieve BREEAM Very Good.

A fully annotated BREEAM scoring matrix for the CSC can be found in Appendix II.

Planning Conditions for BREEAM
As part of the planning requirements, the CSC is required to achieve a minimum level of performance in Energy, Water and Materials. The projected scores in each of these sections are highlighted in the following table.

Table 8: CSC - Energy, Water and Materials Credit Compliance

Credit	Available %	Targeted %	Overall %
Ene 01 – Reduction of Energy Use and Carbon Emissions	9.1	6.3	
Ene 02 – Energy Monitoring	1.4	1.4	
Ene 03 – External Lighting	0.7	0.7	
Ene 04 – Low Carbon Design	2.1	1.4	
Ene 05 – Energy Efficient Cold Storage	Not applicable		
Ene 06 – Energy Efficient Transport Systems	1.4	1.4	
Ene 07 – Energy Efficient Laboratory Systems	Not applicable		
Ene 08 – Energy Efficient Equipment	1.4	1.4	
Energy Total (Target >60%)	16	12.5	64%
Wat 01 – Water Consumption	4.9	2.3	
Wat 02 – Water Monitoring	0.8	0.8	
Wat 03 – Water Leak Detection	1.6	1.6	
Wat 04 – Water Efficient Equipment	0.8	0.8	
Water Total (Target >60%)	8	5.4	70%

Note: The council accepted that a less than 40% target in materials was acceptable due to the temporary nature of the scheme, therefore has not been included in this summary.

6.3 Main Workspace Refurbishment Targeted Score

The current targeted score for the Main Workspace is 68.33%. This equates to a 'Very Good' rating, however the team has been advised that at all times the project should maintain a contingency, or buffer, of approximately 5% in the expected score, i.e. the score should never drop below 60%. Moving forward, the team must endeavour to target additional credits in order to achieve BREEAM Very Good.

A fully annotated BREEAM scoring matrix for the Main Workspace can be found in Appendix III.

Planning Conditions for BREEAM
Again, similar to the CSC, the Main workspace is required to achieve a minimum level performance against certain areas of BREEAM. Performance is highlighted as follows:

Table 9: Main Workspace - Energy, Water and Materials Credit Compliance

Credit	Available %	Targeted %	Overall %
Ene 01 – Reduction of Energy Use and Carbon Emissions	8.6	4.3	
Ene 02 – Energy Monitoring	1.4	1.4	
Ene 03 – External Lighting	0.7	0.7	
Ene 04 – Low Carbon Design	2.1	0.7	
Ene 05 – Energy Efficient Cold Storage	Not applicable		
Ene 06 – Energy Efficient Transport Systems	1.4	1.4	
Ene 07 – Energy Efficient Laboratory Systems	Not applicable		
Ene 08 – Energy Efficient Equipment	1.4	1.4	
Energy Total (Target >60%)	15.7	10	52%
Wat 01 – Water Consumption	3.8	2.3	
Wat 02 – Water Monitoring	0.8	0.8	
Wat 03 – Water Leak Detection	1.5	1.5	
Wat 04 – Water Efficient Equipment	Not applicable		
Water Total (Target >60%)	6.1	4.6	75%
Mat 01 – Building Life Cycle Assessment	6.4	2.1	
Mat 03 – Responsible Sourcing of Materials	4.2	1.1	
Mat 04 – Insulation	1.1	1.1	
Mat 05 – Designing for Durability and Resilience	1.1	1.1	
Mat 06 – Material Efficiency	1.1	1.1	
Materials Total (Target >40%)	14.8	6.4	43%

Note: The energy strategy for the refurbishment has taken account of providing consequential improvements, and providing energy efficiency where needed in line with the need to provide a temporary building. Therefore, not over designing the scheme for this short life time.

6.4 Summary and Next Steps

Based on the current state of the design, and the opportunities that are still available, the project is deemed to be able to secure BREEAM Very Good. It is recommended that the client and design team retain the design elements that enable the project to achieve a score of 60% or above, ideally maintaining high 'Very good' scores.

Should the design change the design team must review the impact of such changes against the BREEAM scorecard and ensure that the buffer score is maintained to manage risk.

Next Steps

- The design team should ensure that the contractor embeds the prelims and design specifications into the following stages of the project.
- It is imperative that the design team continue to review the BREEAM targeted credits to ensure that the score remains within the range to achieve BREEAM Very Good.
- Further clarification should be sought on the following:
    - Enhancement of ecology levels where feasible.

7.0 APPENDIX I – LEGISLATION AND POLICY

The Building will be required to address a number of policy requirements. The range of policy types is vast, and the following section provides summary of the key requirements that are to be addressed as part of the Building development.

7.1 National Planning Policy

The relevant national, regional and local energy policy requirements have been considered when developing the proposals. The policy documentation provides detailed guidance, therefore only the main influencing policies are summarised below and subsequently referred to in this assessment.

Legislative Context
Under the Climate Change Act 2008, the Government put in place legally binding carbon reduction targets of 35% by 2020 and 80% by 2050, compared to 1990 levels.

The construction and operation of UK buildings account for approximately 60% of national carbon dioxide emissions. Therefore, planning legislation seeks to mitigate the impacts (in particular) of new construction in order to minimise these emissions and meet the national targets.

Building Regulations
Part L of the Building Regulations defines regulatory requirements for reducing the energy consumption of buildings. The overriding goal of these regulations is to ensure that responsible provision is made for the conservation of fuel and power in buildings by limiting heat gains and losses, providing suitably commissioned energy efficient building services with effective controls and by supplying sufficient information to enable the building to be operated efficiently.

The relevant requirements to the application are Part L2A, 'Conservation of fuel and power in new buildings, other than dwellings'.

These documents set minimum standards of energy efficiency and performance for relevant aspects of the building's configuration. They refer to relation 'Building Services Compliance Guides' which outline the minimum performance standards for the related building services installations.

The Building Regulations are the minimum requirements that are legally imposed, with the intention of addressing the carbon reduction targets. For domestic buildings they also define a minimum fabric efficiency requirement (not sited in planning policy).

National Policy & Assessment Methods
The National Planning policy framework (NPPF) sets out the overarching planning policies on the delivery of sustainable development through the planning system. This framework compels planning authorities to facilitate and promote good quality and sustainable development.

7.2 Greater London Plan

The London Plan 'Spatial Development Strategy for Greater London', published in March 2015, forms the statutory development plan for Greater London. In it, the Mayor of London lays out the London-wide policy context within which London Boroughs should set their local planning policies.

All policies within the plan promote sustainable development, including mitigating and adapting to the impacts of climate change, as well as promoting health and equality within London.

A number of policies are directly related to energy use within buildings and energy generation, which form an integral part of the London Plan:

- Climate Change Mitigation
- Minimising Carbon Dioxide Emissions
- Sustainable Design & Construction
- Decentralised Energy in Development Proposals
- Renewable Energy
- Overheating and Cooling
- Flood Risk Management
- Sustainable Drainage
- Water Use and Supplies
- Climate Change

In December 2017 the GLA released the draft London Plan 2017. Consultation on the plan has closed with public examination due to take place between November 2018 and March 2019. The final London Plan revision to be published Autumn 2019. The following policies have be updated or added:

- Improving Air Quality'
- Minimising Greenhouse Gas Emissions'
- Energy Infrastructure
- Managing Heat Risk

7.3 Camden Local Plan

Key local policies in terms of Sustainability and Climate Change are as follows:

Policy CC1 Climate change mitigation

The Council will require all development to minimise the effects of climate change and encourage all developments to meet the highest feasible environmental standards that are financially viable during construction and occupation.

We will:

a. promote zero carbon development and require all development to reduce carbon dioxide emissions through following the steps in the energy hierarchy;
b. require all major development to demonstrate how London Plan targets for carbon dioxide emissions have been met;
c. ensure that the location of development and mix of land uses minimise the need to travel by car and help to support decentralised energy networks;
d. support and encourage sensitive energy efficiency improvements to existing buildings;
e. require all proposals that involve substantial demolition to demonstrate that it is not possible to retain and improve the existing building; and
f. expect all developments to optimise resource efficiency.

For decentralised energy networks, we will promote decentralised energy by:

g. working with local organisations and developers to implement decentralised energy networks in the parts of Camden most likely to support them;
h. protecting existing decentralised energy networks (e.g. at Gower Street, Bloomsbury, King's Cross, Gospel Oak and Somers Town) and safeguarding potential network routes; and

i. requiring all major developments to assess the feasibility of connecting to an existing decentralised energy network, or where this is not possible establishing a new network.

To ensure that the Council can monitor the effectiveness of renewable and low carbon technologies, major developments will be required to install appropriate monitoring equipment.

Policy CC2 Adapting to climate change

The Council will require development to be resilient to climate change.

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

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

Any development involving 5 or more residential units or 500 sqm or more of any additional floorspace is required to demonstrate the above in a Sustainability Statement.

Sustainable design and construction measures

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

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

Policy CC3 Water and flooding

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

We will require development to:

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

Where an assessment of flood risk is required, developments should consider surface water flooding in detail and groundwater flooding where applicable.

The Council will protect the borough's existing drinking water and foul water infrastructure, including the reservoirs at Barrow Hill, Hampstead Heath, Highgate and Kidderpore.

Policy CC4 Air quality

The Council will ensure that the impact of development on air quality is mitigated and ensure that exposure to poor air quality is reduced in the borough.

The Council will take into account the impact of air quality when assessing development proposals, through the consideration of both the exposure of occupants to air pollution and the effect of the development on air quality. Consideration must be taken to the actions identified in the Council's Air Quality Action Plan.

Air Quality Assessments (AQAs) are required where development is likely to expose residents to high levels of air pollution. Where the AQA shows that a development would cause harm to air quality, the Council will not grant planning permission unless measures are adopted to mitigate the impact. Similarly, developments that introduce sensitive receptors (i.e. housing, schools) in locations of poor air quality will not be acceptable unless designed to mitigate the impact.

Development that involves significant demolition, construction or earthworks will also be required to assess the risk of dust and emissions impacts in an AQA and include appropriate mitigation measures to be secured in a Construction Management Plan.

Policy CC5 Waste

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

We will:

a. aim to reduce the amount of waste produced in the borough and increase recycling and the reuse of materials to meet the London Plan targets of 50% of household waste recycled/composted by 2020 and aspiring to achieve 60% by 2031;
b. deal with North London's waste by working with our partner boroughs in North London to produce a Waste Plan, which will ensure that sufficient land is allocated to manage the amount of waste apportioned to the area in the London Plan;
c. safeguard Camden's existing waste site at Regis Road unless a suitable compensatory waste site is provided that replaces the maximum throughput achievable at the existing site; and
d. make sure that developments include facilities for the storage and collection of waste and recycling.

7.4 Specific Requirements for Maria Fidelis

The Maria Fidelis development is a short term development. Therefore, Camden council have agreed to a derogation in the targeted BREEAM rating. The Maria Fidelis development must achieve a 'Very Good' rating, rather than the 'Excellent' rating that is usually required.

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8.0 APPENDIX II – BREEAM STAGE 2 SCORESHEET - CSC

BREEAM New Construction 2018: Further Education

Project:	Maria Fidelis Construction Skills Centre
Assessor:	Anna Foden/ Rebecca Gibson
BREEAM Scheme: New Construction 2018 v1 UK	03.06.19

Achieved	8.49%	Unclassified
Targeted Very Good	65.00%	Very Good
Potential for Very Good	72.07%	Very Good

Minimum Requirements

	Achieved	Targeted Very Good
Pass	No	Yes
Good	No	Yes
Very Good	No	Yes
Excellent	No	No
Outstanding	No	No

Hea 03 Safe containment in laboratories: This is no longer assessed as a separate issue within BREEAM New Construction 2018.

		Available	Minimum Requirements	Achieved	Targeted Very G	Potential for Very Good	Risk
Management		Credit Value			0.52%		
Man 01 - Project Brief and Design	#1 - Project delivery planning	1		0	1	0	L
	#2 - Stakeholder consultation (interested parties)	1		1	1	0	L
	#3 - BREEAM AP (Concept Design)	1		1	1	0	L
	#4 - BREEAM AP (Developed Design)	1		0	1	1	L
Man 02 - Life Cycle Cost and Service Life Planning	#1 - Elemental Life Cycle Cost (LCC)	2		0	1	0	H
	#2 - Component Level LCC Plan	1		0	1	0	M
	#3 - Capital Cost Reporting	1		0	1	0	L
Man 03 - Responsible Construction Practices	Pre-requisite - Timber Procurement	-	-	-	-	0	L
	#1 - Environmental Management	1		1	1	0	L
	#2 - BREEAM AP (site)	1		1	1	0	L
	#3 - Responsible Construction Management	2	0	2	2	0	L
	« Exemplar Performance - Responsible Construction Management	1		0	0	0	
	#4 - Monitoring of construction-site impacts	1		1	1	0	L
	#5 - Transport of Construction Materials and Waste	1		0	0	1	
Man 04 - Commissioning and Handover	#1 - Commissioning: Testing Schedule and Responsibilities	1	1	1	1	0	L
	#2 - Commissioning: Design and Preparation	1		1	1	0	L
	#3 - Testing and Inspecting Building Fabric	1		1	1	0	M
	#4 - Handover	1		1	1	0	L
Man 05 - Aftercare	#1 - Aftercare Support	1		0	0	0	
	#2 - Commissioning: Implementation	1	1	1	1	0	L
	#3 - Post Occupancy Evaluation	1	4, 5	0	0	0	
Management total:		11.0%		6.3%	8.9%	0.5%	
Health & Wellbeing		Credit Value			0.78%		
Hea 01 - Visual Comfort	#1 - Glare Control	1		0	1	0	L
	#2 - Daylighting	2		0	0	0	
	« Exemplar Performance - Daylighting	1		0	0	0	
	#3 - View Out	1		0	1	0	L
	#4 - Internal and External Lighting Levels, Zoning and Control	1		0	1	0	L
	« Exemplar Performance - Internal and External Lighting	1		0	0	0	
Hea 02 - Indoor Air Quality	Pre-requisite - Indoor Air Quality (IAQ) Plan	-		0	-	0	L
	#2 - Ventilation	1		0	1	0	H
	#3 - Emissions from construction products	2		0	2	0	M
	#4 - Post-Construction Indoor Air Quality Measurement	1		0	0	0	
	« Exemplar Performance	1		0	0	0	
Hea 04 - Thermal Comfort	#1 - Thermal Modelling	1		0	1	0	L
	#2 - Design for Future Thermal Comfort	1		0	1	0	L
	#3 - Thermal Zoning and Controls	1		0	1	0	L
Hea 05 - Acoustic Performance	#1 - Sound insulation	1		0	1	0	M
	#2 - Internal indoor ambient noise levels	1		0	0	1	
	#3 - Reverberation	1		0	1	0	M
Hea 06 - Security	#1 - Security of site and building	1		0	1	0	L
	« Exemplar Performance	1		0	0	0	
Hea 07 - Safe and Healthy Surroundings	#1 - Safe access	1		0	0	0	
	#2 - Outside space	1		0	1	0	L
Health & Wellbeing total		14.0%		0.0%	10.1%	0.8%	
Energy		Credit Value			0.70%		
Ene 01 - Reduction of Energy Use and Carbon Emissions	#1 - Energy Performance	9	0	0	5	1	H
	#2 - Prediction of operational energy consumption	4	0	0	4	0	L
	« Exemplar Performance - Zero Regulated Carbon	2		0	0	0	
	« Exemplar Performance - Carbon Negative	1		0	0	0	
	« Exemplar Performance - Post Occupancy	2		0	0	0	
Ene 02 - Energy Monitoring	#1 - Sub-metering of end-use categories	1	1	0	1	0	L
	#2 - Sub-metering of High Energy Load and Tenancy Areas	1		0	1	0	L
Ene 03 - External Lighting	#1 - External Lighting	1		0	1	0	L
Ene 04 - Low Carbon Design	#1 - Passive Design Analysis	1		0	1	0	L
	#2 - Free Cooling	1		0	0	0	
	#3 - Low and Zero Carbon Technologies	1		0	1	0	L
Ene 05 - Energy Efficient Cold Storage	#1 - Refrigeration Energy Consumption	0		0	0	0	
	#2 - Indirect Greenhouse Gas Emissions	0		0	0	0	
Ene 06 - Energy Efficient Transportation Systems	#1 - Energy Consumption	1		0	1	0	L
	#2 - Energy Efficient Features	1		0	1	0	L
Ene 07 - Energy Efficient Laboratory Systems	#1 - Design Specification	0		0	0	0	
	#2 - Best Practice Energy Efficient Measures	0		0	0	0	
Ene 08 - Energy Efficient Equipment	#1 - Energy Efficient Equipment	2		0	2	0	L
Energy totals:		16.0%		0.0%	12.5%	0.7%	

Key

Achieved	
Targeted	
Potential	
Targeted - Low Risk, thought to be achievable	
Targeted - Medium Risk, some uncertainty and/or technically complex	
Targeted - High Risk, may be highly uncertain, expensive and/or historically difficult to achieve	
Targeted - Critical Risk, requires immediate action	
Credits with minimum requirements	

Note: The risk measure is a quantitive score assigned by the assessor

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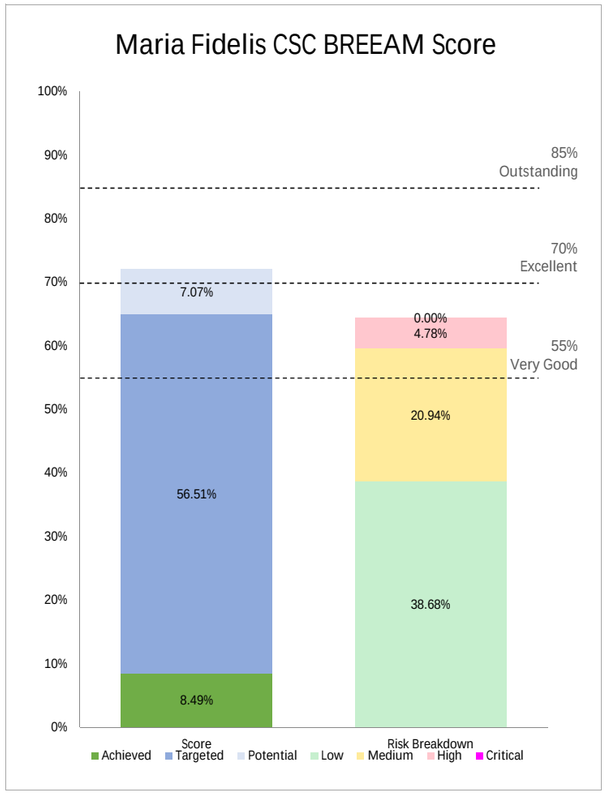

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		Available	Minimum Requirements	Achieved	Targeted Very G	Potential for Very Good	Risk
Transport		Credit Value			0.8%		
Tra 01 - Transport Assessment and Travel	#1 - Travel plan	2		0	2	0	L
Tra 02 - Sustainable transport measures	#1 - Transport options implementation	10		0	6	0	M
Transport total:		10.0%		0.0%	6.7%	0.0%	
Water		Credit Value		0.8%			
Wat 01 - Water Consumption	#1 - Water Consumption	5	1	0	3	0	L
	« Exemplar Performance	1		0	0	0	
Wat 02 - Water Monitoring	#1 - Water Monitoring	1		0	1	0	L
Wat 03 - Water Leak Detection	#1 - Leak Detection System	1		0	1	0	L
	#2 - Flow Control Devices	1		0	1	0	L
Wat 04 - Water Efficient Equipment	#1 - Water Efficient Equipment	1		0	1	0	M
Water total:		7.0%		0.0%	5.4%	0.0%	
Materials		Credit Value		1.1%			
Mat 01 - Environmental impacts from construction products: Building life cycle assessment	#1 - Superstructure	6		0	0	0	
	#1 - Substructure and Hard Landscaping	1		0	0	0	
	« Exemplar Performance - Core Building Services options appraisal	1		0	0	0	
	« Exemplar Performance - LCA and LCC alignment	1		0	0	0	
	« Exemplar Performance - Third party verification	1		0	0	0	
Mat 02 - Environmental Impacts from	#1 - Specification of Products with a Recognised El	1		0	0	1	
Mat 03 - Responsible Sourcing of Construction Products	Pre-requisite - Legally Sourced Timber	-	#1	0	_	0	L
	#1 - Enabling Sustainable Procurement	1		0	0	0	M
	#2 - Measuring Responsible Sourcing	3		0	1	0	M
	« Exemplar Performance	1		0	0	0	
Mat 05 - Designing for Durability and	#1 - Protecting Vulnerable Parts of the Building from Damage and Degradation	1		0	1	0	L
Mat 06 - Material Efficiency	#1 - Material Efficiency	1		0	1	0	L
Materials total:		15.0%		0.0%	3.2%	1.1%	
Waste		Credit Value		0.6%			
Wst 01 - Construction Waste Management	#1 - Pre-demolition audit	1		1	1	0	L
	#1 - Construction Resource Efficiency	3	0	0	2	0	
	#2 - Diversion of Resources from Landfill	1		0	1	0	M
	« Exemplar Performance	1		0	0	0	
Wst 02 - Use of Recycled and Sustainably Sourced Aggregates	#1 - Project Sustainable Aggregate Points	1		0	0	0	
	« Exemplar Performance	1		0	0	0	
Wst 03 - Operational Waste	#1 - Operational Waste	1	0	0	1	0	L
Wst 04 - Speculative finishes (Offices only)	#1 - Speculative Floor and Ceiling Finishes	0		0	0	0	

		Available	Minimum Requirements	Achieved	Targeted Very G	Potential for Very Good	Risk
Wst 05 - Adaptation to Climate Change	#1 - Structural, Fabric & Building Services Resilience	1		0	1	0	L
	« Exemplar Performance	1		0	0	1	
Wst 06 - Design for Disassembly and Adaptability	#1 - Recommendations	1		1	1	0	L
	#2 - Implementation	1		0	1	0	L
Waste total:		6.0%		1.2%	4.8%	0.0%	
Land Use & Ecology		Credit Value		1.0%			
LE 01 - Site Selection	#1 - Previously Occupied Land	1		1	1	0	L
	#2 - Contaminated Land	1		0	0	1	
LE 02 - Identifying the Risks and Opportunities	#1 - Survey, Evaluation & Determining the ecological outcomes	2		0	2	0	M
	« Exemplar Performance	1		0	0	0	
LE 03 - Managing Negative Impacts on Ecology	Pre-requisite - Identifying Risks	-		0	-	0	L
	#1 - Planning, liaison, implementation and data	1		0	1	0	M
	#2 - Managing negative impacts	2		0	1	1	M
LE 04 - Change and Enhancement of Ecological Value	#1 - Liaison, implementation and data collation	1		0	1	0	M
	#2 - Enhancement of ecology	3		0	1	1	M
LE 05 - Long term Ecology Management and Maintenance	Pre-requisite - Roles & Responsibilities	-		0	-	0	L
	#1 - Planning, Monitoring, Management & Maintenance	1		0	1	0	L
	#2 - Landscape and ecology management plan	1		0	1	0	L
Land use & Ecology total:		13.0%		1.0%	8.0%	3.0%	
Pollution		Credit Value		0.5%			
Pol 01 - Impact of Refrigerants	#1 - No Refrigerant Use	3		0	0	0	
	#2 - Impact of Refrigerant	2		0	1	0	L
	#3 - Leak Detection	1		0	1	0	M
Pol 02 - Local Air Quality	#1 - Local Air Quality	2		0	2	0	L
Pol 03 - Flood and Surface Water Management	#1 - Flood Resilience	2		0	2	0	L
	#2 - Surface Water Run-Off - Rate	1		0	1	0	M
	#3 - Surface Water Run-Off - Volume	1		0	1	0	m
	#4 - Minimising Watercourse Pollution	1		0	0	0	
Pol 04 - Reduction of Night Time Light	#1 - Reduction of Night Time Light Pollution	1		0	1	0	L
Pol 05 - Reduction of Noise Pollution	#1 - Reduction of Noise Pollution	1		0	1	0	M
Pollution total:		8.0%		0.0%	5.3%	0.0%	

Innovation		Credit Value		1.0%			
Approved Innovation		1		0	0	0	
Innovation/Exemplar Performance total:		10.0%		0.0%	0.0%	1.0%	

BREEAM New Construction 2018: Further Education
Maria Fidelis Construction Skills Centre

Date	03.06.19
Assessment Type	Fully Fit-out
Project Stage	Stage 2 (3)
Assessor Name	Anna Foden/ Rebecca Gibson
Desired Rating	Very Good
Desired Score	60.00%

Key			
BREEAM minimum requirements	Project Name	Maria Fidelis	
BREEAM stage specific requirements	Building Type	Futher Education	
(C) Complete	Achieved Score	8.5%	Unclassified
(A) Awaiting	Target Score Very	65.0%	Very Good
(O) Outstanding	Potential Score	72.1%	Very Good

BREEAM Issue	Credit Number	General Requirements	Criteria	Detailed Requirements	Available Credits	Available %	Achieved Credit	Targeted Very Credit	Potential for Very Credit	Risk	Design Stage Evidence Requirements	Design Stage Credit Owner
Man 01 - Project Brief and Design	#1 - Project delivery planning	Prior to completion of the Concept Design, all team members involved in decision making process for the project must meet to define their roles, responsibilities and contribution for each key phase of the project covering a minimum list of points detailed in the manual and the project team must demonstrate how the contributions and outcomes of this consultation process has influenced the brief, project execution plan, communication strategy and concept design. Must occur no later than RIBA Stage 2	#1	Prior to completion of the Concept Design, the project delivery stakeholders (see Definitions) meet to identify and define for each key phase of project delivery: 1.a Roles 1.b Responsibilities 1.c Contributions.	1	0.52%		1		L	1. Responsibility Matrix	All
			#2	Consider each one of the following items when defining roles, responsibilities and contributions for each key phase of the project: a End user requirements b Aims of the design and design strategy c Particular installation and construction requirements or limitations d Occupiers' budget and technical expertise in maintaining any proposed systems e Maintainability and adaptability of the proposals .f Operational energy (see Assessment scope on page 121) g Requirements for the production of project and end user documentation h Requirements for commissioning, training and aftercare support. Where the building occupants are not known, the list of considerations above still applies. The appropriate project delivery stakeholder considers each item, based on likely scenarios of building occupancy.							
			#3	The project team demonstrates how the project delivery stakeholders' contributions and the consultation process outcomes influence the following: a Initial Project Brief b Project Execution Plan (see Definitions) c Communication Strategy (see Definitions) d Concept Design.								
	#2 - Stakeholder consultation (interested parties)	Prior to completion of the Concept Design, all interested parties are identified and consulted with by the design team - evidence must be gathered that these consultations influenced the project brief and concept design. Consultation plan must be prepared that includes timescale and method of consultation. Must occur no later than RIBA Stage 2	#4	Prior to completion of the Concept Design, the design team consult with all interested parties (see Definitions) on matters that cover the minimum consultation content (see Methodology).	1	0.52%	1	1		L	1. A list of the stakeholders consulted 2. A consultation plan setting out the process and the scope of the consultation 3. Agenda/minutes from the consultation meetings 4. Documentation demonstrating feedback and subsequent actions	FBM Architects
			#5	Demonstrate how the stakeholder contributions and consultation exercise outcomes influence the Initial Project Brief and Concept Design								
			#6	Prior to completion of the detailed design (RIBA Stage 4, Technical Design or equivalent), all interested parties (see Definitions) give and receive consultation feedback.								
			#7	Additionally for education, healthcare, law courts and major transport hub buildings an independent party (see Definitions) carries out the consultation exercise. The Design Quality Indicator (DQI) and the Achieving Excellence Design Evaluation Toolkit (AEDET) could be used as methods to assess the design quality of buildings.								
	#3 - BREEAM AP (Concept Design)	No later than early RIBA Stage 1, BREEAM AP is appointed and the project team including the client formally agree the performance targets. The BREEAM AP works with the project team to help them maximise the BREEAM score, monitor progress against the targets, identify risks and opportunities related to the achievement of credits, provide feedback to the team on evidence provided and monitor and coordinate generation of evidence. Must occur no later than Stage 1	#8	The project team, including the client, formally agree strategic performance targets (see Definitions) early in the design process, see Definitions (with the support of the BREEAM AP where appointed).	1	0.52%	1	1		L	1. Sustainability Champion (AP) appointment letter 2. Relevant section/clauses of the building specification or contract 3. Project programme indicating the dates by which the key work stages (preparation and design) are to be completed 4. Meeting notes/minutes, recorded correspondence or schedules that can demonstrate BREEAM issues are a regular agenda item and AP attendance. 5. The AP progress report (for each work stage) 6. Design stage BREEAM assessment report	Client (Maria F)
			#9	Involve a BREEAM AP in the project at an appropriate time and level to: a. Work with the project team, including the client, to consider the links between BREEAM issues and assist them in maximising the project's overall performance against BREEAM, from their appointment and throughout Concept Design. b Monitor progress against the performance targets (see Definitions) agreed under criterion 8 above throughout all stages after their appointment where decisions critically impact BREEAM performance. c Proactively identify risks and opportunities related to the achievement of the targets agreed under criterion 8 on the previous page. d Provide feedback to the project team as appropriate, to support them in taking corrective actions and achieving their agreed performance targets. e Monitor and, where relevant, coordinate the generation of appropriate evidence by the project team.							

BREEAM Issue	Credit Number	General Requirements	Criteria	Detailed Requirements	Available Credits	Available %	Achieved Credit	Targeted Very Credit	Potential for Very Credit	Risk	Design Stage Evidence Requirements	Design Stage Credit Owner
	#4 - BREEAM AP (Developed Design)	Credit #3 has been achieved. BREEAM AP is appointed to assist the project team in maximising the project's overall performance against BREEAM, monitor progress against the targets, proactively identify risks and opportunities related to the achievement of the BREEAM targets, provide feedback to the project team to support them in taking corrective actions and achieving their agreed BREEAM targets and monitor the generation of BREEAM evidence by the project team throughout Developed Design.	#10	Criteria 8 and 9 are achieved.	1	0.52%		1		L	1. Sustainability Champion (AP) appointment letter 2. Relevant section/clauses of the building specification or contract 3. Project programme indicating the dates by which the key work stages (preparation and design) are to be completed 4. Meeting notes/minutes, recorded correspondence or schedules that can demonstrate BREEAM issues are a regular agenda item and AP attendance. 5. The AP progress report (for each work stage) 6. Design stage BREEAM assessment report	Client (Maria F)
			#11	Involve the BREEAM AP in the project at an appropriate time and level to: 11.a Work with the project team, including the client, to consider the links between BREEAM issues and to assist them in maximising the project's overall performance against BREEAM throughout Developed Design. 11.b Monitor progress against the performance targets agreed under criterion 8 on the previous page throughout all stages where decisions critically impact the specification and tendering process and the BREEAM performance. 11.c Proactively identify risks and opportunities related to the achievement of the targets agreed under criterion 8 on the previous page. 11.d Provide feedback to the project team as appropriate, to support them in taking corrective actions and achieving their agreed performance targets. 11.e Monitor and, where relevant, coordinate the generation of appropriate evidence by the project team.							
Man 02 - Life Cycle Cost and Service Life Planning	#1 - Elemental Life Cycle Cost (LCC)	A competent person carries out an outline, entire asset LCC plan at RIBA Stage 2 together with any design options appraisals in line with PD 156865: 2008. The LCC analysis shows an outline plan based on the building's basic structure and envelope, appraising a range of options and based on multiple cash flow scenario's e.g.. 20, 30, 50, 60 years and the fabric and servicing strategy for the project outlining services component and fit-out options (if-applicable) over a 15-year period, in the form of an 'elemental LCC Plan'. Demonstrate how the elemental LCC plan has been used to influence building and systems design and specification to minimise life cycle costs and maximise critical value. Must occur no later than RIBA Stage 2	#1	A competent person (see Definitions) carries out an outline, entire asset LCC plan at Process Stage 2 (equivalent to Concept Design - RIBA Stage 2) together with any design options appraisals in line with 'Standardised method of life cycle costing for construction procurement' PD 156865: 2008	2	1.05%		1		H	Elemental cycle cost plan Supporting evidence demonstrating how the elemental cycle cost plan has been utilised in design	QS Beadmans
			#2	The elemental LCC plan: 2.a Provides an indication of future replacement costs over a period of analysis as required by the client (e.g. 20, 30, 50 or 60 years); 2.b Includes service life, maintenance and operation cost estimates. The study period should ideally be agreed by the client, in line with the design life expectancy of the building. However, where the life expectancy of the building is not yet formally agreed, the default design life of 60 years should be used for modelling purposes.							
			#3	Demonstrate, using appropriate examples provided by the design team, how the elemental LCC plan has been used to influence building and systems design and specification to minimise life cycle costs and maximise critical value.							
	#2 - Component Level LCC Plan	A component level LCC plan has been developed by the end of RIBA Stage 4 and includes the following component types in line with PD 156865:2008 (where present): envelope, services, finishes, external spaces. Demonstrate how the component level LCC plan has been used to influence building and systems design/specification to minimise life cycle costs and maximise critical value Must occur no later than RIBA Stage 4	#4	A competent person develops a component level LCC options appraisal by the end of RIBA Stage 4 in line with PD 156865: 2008, including: 4.a Envelope, e.g. cladding, windows, or roofing 4.b Services, e.g. heat source, cooling source, or controls 4.c Finishes, e.g. walls, floors or ceilings 4.d External spaces, e.g. alternative hard landscaping, boundary protection. However, you do not need to consider every single example cited under each component; only a selection of those most likely to draw valued comparisons. This is to ensure that a wide range of options are considered and help focus the analysis on components which would benefit the most from appraisal.	1	0.52%		1		M	Component level life cycle cost plan Supporting evidence demonstrating how the component cycle cost plan has been utilised in design	QS Beadmans
			#5	Demonstrate, using appropriate examples provided by the design team, how the component level LCC options appraisal has been used to influence building and systems design and specification to minimise life cycle costs and maximise critical value.							
	#3 - Capital Cost Reporting	Report the capital cost for the building in pounds per square metre of gross internal floor area (£k/ m²) as part of the submission to BRE.	#6	Report the capital cost for the building in pounds per square metre of gross internal floor area (£k/ m²) as part of the submission to BRE	1	0.52%		1		L	To be reported in the BREEAM Scoring and Reporting tool	Client, Contractor
	Pre-requisite - Timber Procurement	All timber and timber-based products used during the construction process of the project are 'legally harvested and traded timber' (see Definitions) Minimum Requirements	#1	All timber and timber-based products used during the construction process of the project are 'legally harvested and traded timber' (see Definitions)	-	-	-	-		L	1. Relevant section/clauses of the building specification or contract OR a signed and dated letter of commitment to meet the relevant criteria	Client, Contractor
	#1 - Environmental Management	All parties who at any stage manage the construction site (e.g. principle contractor, demolition contractor) operate a compliant Environmental Management System covering their main operations and implement best practice pollution prevention policies and procedures on site in accordance with PPG6, Pollution Prevention Guidelines.	#3	All parties who at any stage manage the construction site (e.g. the principal contractor, the demolition contractor) operate an EMS covering their main operations. The EMS must: 3.a Be third party certified, to ISO 14001: 2015, EMAS (EU Eco-Management and Audit Scheme) or equivalent standard; OR 3.b In compliance with BS 8555: 2016 have: 3.b.i Appropriate structure 3.b.ii Reached implementation stage phase four 'implementation and operation of the environmental management system' 3.b.iii Completed defined phase audits one to four.	1	0.52%	1	1		L	1. Relevant section/clauses of the building specification or contract OR a signed and dated letter of commitment to meet the relevant criteria	Client, Contractor
			#4	All parties who at any point manage the construction site (e.g. the principal contractor, the demolition contractor) implement best practice pollution prevention policies and procedures on site in accordance with Working at construction and demolition sites: PPG6, Pollution Prevention Guidelines.							

BREEAM Issue	Credit Number	General Requirements	Criteria	Detailed Requirements	Available		Achieved	Targeted Very	Potential for Very	Risk	Design Stage Evidence Requirements	Design Stage Credit Owner
					Credits	%	Credit	Credit	Credit			
Man 03 - Responsible Construction Practices	#2 - BREEAM AP (site)	The client and the contractor formally agree BREEAM targets. A BREEAM AP is appointed to assist the project team in maximising the project's overall performance against BREEAM, monitor construction progress against the targets, proactively identify risks and opportunities related to the achievement of the BREEAM targets, provide feedback to the contractors and project team to support them in taking corrective actions and achieving their agreed BREEAM targets and monitor the generation of BREEAM evidence by the project team throughout the Construction, Handover and Close Out stages.	#5	The client and the contractor formally agree performance targets.	1	0.52%	1	1		L	3. Project programme indicating the dates by which the key work stages (preparation and design) are to be completed 4. Meeting notes/minutes, recorded correspondence or schedules that can demonstrate BREEAM issues are a regular agenda item and AP attendance. 5. The AP progress report (for each work stage) 6. Design stage BREEAM assessment report	Client, Contractor
			#6	Involve a BREEAM AP in the project at an appropriate time and level to: 6.a Work with the project team, including the client, to consider the links between BREEAM issues and assist them in achieving and if possible going beyond the design intent, to maximise the project's performance against the agreed performance targets throughout the Construction, Handover and Close Out stages. 6.b Monitor construction progress against the performance targets agreed under criterion 5 throughout all stages where decisions critically impact BREEAM performance. 6.c Proactively identify risks and opportunities related to the procurement and construction process and the achievement of the targets agreed under criterion 5 6.d Provide feedback to the constructors and the project team as appropriate, to support them in taking corrective actions and achieving their agreed performance targets. 6.e Monitor and, where relevant, coordinate the generation of appropriate evidence by the project team and the provision to the assessor.							
	#3 - Responsible Construction Management	The principal contractor achieves items in table 4.1: - 1 credit: All "required" items - 2 credits: All "required" items PLUS 6 additional items Minimum Requirements	#7	Achieve items listed as required for one credit in table 4.1, under the headings: Risk evaluation and implementation Training, awareness and feedback Monitoring and reporting	2	1.05%	2	2		L	1. Relevant section/clauses of the building specification or contract OR a signed and dated letter of commitment to meet the relevant criteria	Client, Contractor
			#8	Achieve criterion 7								
			#9	Achieve six additional items in table 4.1 for two credits								
	#4 - Monitoring of construction-site impacts	Responsibility has been assigned to an individual(s) for monitoring, recording and reporting energy use and water consumption resulting from all on-site construction processes (and dedicated off-site monitoring) throughout the build programme.	#10	Assign responsibility to an individual for monitoring, recording and reporting energy use, water consumption and transportation data (where measured) resulting from all on-site construction processes (and dedicated off-site manufacturing) throughout the build programme. To ensure the robust collection of information, this individual must have the appropriate authority and responsibility to request and access the data required. Where appointed, the BREEAM AP could perform this role.	1	0.52%	1	1		L	1. Relevant section/clauses of the building specification or contract OR a signed and dated letter of commitment to meet the relevant criteria	Client, Contractor
			#11	Achieve criterion 10.								
			#12	Set targets for the site energy consumption in kWh (and where relevant, litres of fuel used) as a result of the use of construction plant, equipment (mobile and fixed) and site accommodation.								
			#13	Monitor and record data for the energy consumption described in criterion 12.								
			#14	Report the total carbon dioxide emissions (total kgCO_2/project value) from the construction process via BREEAM Projects (for the purposes of potential future BREEAM performance benchmarking).								
			#15	Achieve criterion 10.								
			#16	Set targets for the potable water consumption (m^3) arising from the use of construction plant, equipment (mobile and fixed) and site accommodation.								
			#17	Monitor and record data for the potable water consumption described in criterion 16.								
			#18	Use the collated data to report the total net water consumption (m^3), i.e. consumption minus any recycled water use from the construction process via BREEAM Projects (for the purposes of potential future BREEAM performance benchmarking).								
	#5 - Transport of Construction Materials and Waste	Responsibility has been assigned to an individual for monitoring, recording, and reporting data on transport movements and impacts resulting from delivery of the majority of construction materials to site and construction waste from site.	#19	Achieve criterion 10.	1	0.52%			1		1. Relevant section/clauses of the building specification or contract OR a signed and dated letter of commitment to meet the relevant criteria	Client, Contractor
			#20	Set targets for transportation movements and impacts resulting from delivery of the majority of construction materials to site and construction waste from site. As a minimum cover: a transportation of materials from the point of supply to the building site, including any transport, intermediate storage and point of supply (see Definitions). Monitor as a minimum: 20.a.i Materials used in major building elements (i.e. those defined in BREEAM issue Mat 01 Environmental impacts from construction products - Building life cycle assessment (LCA) on page 210). 20.a.ii Ground works and landscaping materials. 20.b transportation of construction waste from the construction gate to waste disposal processing or recovery centre gate. This monitoring must cover the construction waste groups outlined in the project's resource management plan.								
			#21	Monitor and record data for the transportation movements as described in criterion 20 on the previous page.								
			#22	Using the collated data, report separately for materials and waste, the total transport-related carbon dioxide emissions (kgCO_2-eq), plus total distance travelled (km) via BREEAM Projects (for the purposes of potential future BREEAM performance benchmarking).								

BREEAM Issue	Credit Number	General Requirements	Criteria	Detailed Requirements	Available		Achieved	Targeted Very	Potential for Very	Risk	Design Stage Evidence Requirements	Design Stage Credit Owner
					Credits	%	Credit	Credit	Credit			
Man 04 - Commissioning and Handover	#1 - Commissioning: Testing Schedule and Responsibilities	Prepare a commissioning schedule detailing all appropriate commissioning standards. Project team member appointed to monitor and programme pre-commissioning, commissioning, and where necessary, re-commissioning. Main contractor accounts for commissioning programme, responsibilities, and criteria within main programme of works. Minimum Requirements	#1	Prepare a schedule of commissioning and testing. The schedule identifies and includes a suitable timescale for commissioning and re-commissioning of all complex and non-complex building services and control systems and for testing and inspecting building fabric.	1	0.52%	1	1		L	1. Appointment letter or commissioning responsibilities schedule 2. Relevant section/clauses of the building specification or contract 3. Principal Contractors programme 4. Commissioning schedule	Max Fordham MEP
			#2	The schedule identifies the appropriate standards for all commissioning activities to be conducted, where applicable, in accordance with: 2.a Current Building Regulations 2.b BSRIA guidelines 2.c CIBSE guidelines 2.d Other appropriate standards (see Methodology). Exclude from the assessment any process or manufacture-related equipment specified as part of the project. However, include such equipment in cases where they form an integral part of the building HVAC services, such as some heat recovery systems.								
			#3	Where a building management system (BMS) is specified: 3.a Carry out commissioning of air and water systems when all control devices are installed, wired and functional 3.b Include physical measurements of room temperatures, off-coil temperatures and other key parameters, as appropriate, in commissioning results 3.c The BMS or controls installation should be running in auto with satisfactory internal conditions prior to handover 3.d All BMS schematics and graphics (if BMS is present) are fully installed and functional to user interface prior to handover 3.e Fully train the occupier or facilities team in the operation of the system.								
			#4	Appoint an appropriate project team member to monitor and programme pre-commissioning, commissioning and testing. Where necessary include re-commissioning activities on behalf of the client.								
			#5	The principal contractor accounts for the commissioning and testing programme, responsibilities and criteria within their budget and the main programme of works. Allow the required time to complete all commissioning and testing activities prior to handover.								
	#2 - Commissioning: Design and Preparation	Credit #1 is achieved During the design stage, the client or the principal contractor appoints an appropriate project team member (provided they are not involved in the general installation works) to: a Undertake design reviews and give advice on ease of commissioning. b Provide commissioning management input to construction programming and during installation stages. c Manage commissioning, performance testing and handover or post-handover stages. For buildings with complex building services, this role needs to be carried out by a Specialist Commissioning Manager (see Definitions on page 58). Must occur no later than RIBA Stage 4	#6	Achieve criteria 1 to 5.	1	0.52%	1	1		L	1. Appointment letter or commissioning responsibilities schedule 2. Relevant section/clauses of the building specification or contract 3. Principal Contractors programme 4. Commissioning schedule	Max Fordham MEP
			#7	During the design stage, the client or the principal contractor appoints an appropriate project team member (see criterion 4), provided they are not involved in the general installation works for the building services systems, with responsibility for: 7.a Undertaking design reviews and giving advice on suitability for ease of commissioning. 7.b Providing commissioning management input to construction programming and during installation stages. 7.c Management of commissioning, performance testing and handover or post-handover stages. For buildings with complex building services and systems, this role needs to be carried out by a specialist commissioning manager (see Definitions on page 58).								
	#3 - Testing and Inspecting Building Fabric	Credit #1 has been achieved. The integrity of the building fabric is quality assured through completion of post construction testing and inspection. Through the completion of a thermographic survey as well as airtightness test and inspection by a qualified professional. Any defects must be rectified prior to building handover/close out.	#8	Achieve criteria 1 to 5	1	0.52%	1	1		M	1. Project budget 2. Programme of works 3. Relevant section/clauses of the building specification or contract and/or letter of appointment	Max Fordham MEP
			#9	Complete post-construction testing and inspection to quality-assure the integrity of the building fabric, including continuity of insulation, avoidance of thermal bridging and air leakage paths (this is through airtightness testing and a thermographic survey). A suitably qualified professional (see Definitions on page 58) undertakes the survey and testing in accordance with the appropriate standard.								
			#10	Rectify any defects identified during post-construction testing and inspection prior to building handover and close out. Any remedial work must meet the required performance characteristics for the building or element as defined at the design stage (see Methodology).								
	#4 - Handover	Prior to handover, two building user guides are developed: a A non-technical user guide for distribution to the building occupiers. b A technical user guide for the premises facilities managers. Drafts are developed and discussed with users first. Prepare two training schedules: a A non-technical training schedule for the building occupiers. b A technical training schedule for the premises facilities managers. Minimum Requirements - Building User Guide	#11	Prior to handover, develop two building user guides (see Methodology) for the following users: 11.a A non-technical user guide for distribution to the building occupiers. 11.b A technical user guide for the premises facilities managers. A draft copy is developed and discussed with users first (where the building occupants are known) to ensure the guide is most appropriate and useful to potential users.	1	0.52%	1	1		L		Max Fordham MEP
			#12	Prepare two training schedules timed appropriately around handover and proposed occupation plans for the following users: 12.a A non-technical training schedule for the building occupiers. 12.b A technical training schedule for the premises facilities managers.								

BREEAM Issue	Credit Number	General Requirements	Criteria	Detailed Requirements	Available		Achieved	Targeted Very	Potential for Very	Risk	Design Stage Evidence Requirements	Design Stage Credit Owner
					Credits	%	Credit	Credit	Credit			
Man 05 - Aftercare	#2 - Commissioning: Implementation	Seasonal Commissioning over a 12 month period once building becomes occupied. Minimum Requirements	#3	Complete the following commissioning activities over a minimum 12-month period, once the building becomes substantially occupied: 3.a Complex systems: The specialist commissioning manager will: 3.a.i Identify changes made by the owner or operator that might have caused impaired or improved performance. 3.a.ii Test all building services under full load conditions, i.e. heating equipment in mid-winter, cooling and ventilation equipment in mid-summer and under part load conditions (spring and autumn). 3.a.iii Where applicable, carry out testing during periods of extreme (high or low) occupancy. 3.a.iv Interview building occupants (where they are affected by the complex services) to identify problems or concerns regarding the effectiveness of the systems. 3.a.v Produce monthly reports comparing sub-metered energy performance to the predicted one. 3.a.vi Identify inefficiencies and areas in need of improvement. 3.a.vii Re-commission systems (following any work needed to serve revised loads), and incorporate any revisions in operating procedures into the operations and maintenance (O&M) manuals. 3.b Simple systems (naturally ventilated): The external consultant, aftercare team or facilities manager will: 3.b.i Review thermal comfort, ventilation, and lighting, at three, six and nine month intervals after initial occupation, either by measurement or occupant feedback. 3.b.ii Identify deficiencies and areas in need of improvement. 3.b.iii Re-commission systems and incorporate any relevant revisions in operating procedures into the O&M manuals.	1	0.52%	1	1		L	1. Appointment letter(s) and/or commissioning responsibilities schedule	Client
				Totals - Base	21	11.0%	12	17	1			
				Total - Innovation	1	1.0%	0	0	0			
	#1 - Glare Control	Identify areas at risk of glare using a glare control assessment. Potential for disabling glare has been designed out of all relevant building areas where risk has been identified, using a glare control strategy. The glare control strategy avoids increasing lighting energy consumption by maximising daylight levels in all weather conditions and ensuring use or location of shading does not conflict with the operation of lighting control systems.	#1	Identify areas at risk of glare using a glare control assessment. The glare control assessment also justifies any areas deemed not at risk of glare.	1	0.78%		1		L	Design drawings Relevant section/clauses of the building specification or contract Window schedule	FBM Architects
			#2	A glare control strategy designs out potential glare in all relevant building areas where risk has been identified. This should be achieved through building form and layout or building design measures.								
			#3	The glare control strategy does not increase energy consumption used for lighting. This is achieved by: 3.a Maximising daylight levels in all weather, cloudy or sunny AND 3.b Ensuring the use or location of shading does not conflict with the operation of lighting control systems.								
	#3 - View Out	95% of the floor area in 95% of spaces for each relevant building area is within 8m of an external wall which has a window or permanent opening that provides an adequate view out. The window/opening must be ≥ 20% of the surrounding wall area where the room depth is greater than 8m.	#5	95% of the floor area in 95% of spaces for each relevant building area is within 8 m of an external wall. The external wall has a window or permanent opening that provides an adequate view out.	1	0.78%		1		L	Design drawings Relevant section/clauses of the building specification or contract Window schedule	FBM Architects
			#6	The window or opening must be ≥ 20% of the surrounding wall area (refer to Definitions on page 79). Where the room depth is greater than 8 m, compliance is only possible where the percentage of window or opening is the same as, or greater than, the values in Table 1.0 of BS 8206: part 2.								

BREEAM Issue	Credit Number	General Requirements	Criteria	Detailed Requirements	Available Credits	Available %	Achieved Credit	Targeted Very Credit	Potential for Very Credit	Risk	Design Stage Evidence Requirements	Design Stage Credit Owner
Hea 01 - Visual Comfort	#4 - Internal and External Lighting Levels, Zoning and Control	Internal and External lighting provides luminance levels in accordance with the SLL Code for Lighting 2012. For areas where computer screens are regularly used, the lighting design complies with CIBSE Lighting Guide 7 sections 3.3, 4.6, 4.7, 4.8 and 4.9. External lighting provided is specified in accordance with BS 5489-1:2013 Lighting of roads and public amenity areas. Internal lighting is zoned in accordance with all BREEAM criteria.	#8	Internal lighting in all relevant areas of the building is designed to provide illuminance (lux) levels and colouring rendering index in accordance with the SLL Code for Lighting 2012 and any other relevant industry standard. Internal lighting should be appropriate to the tasks undertaken, accounting for building user concentration and comfort levels.	1	0.78%		1		L	Design drawings and/or room data sheets/schedules Relevant section/clauses of the building specification or contract OR a letter of formal confirmation of compliance from the relevant design team member	Max Fordham MEP
			#9	For areas where computer screens are regularly used, the lighting design complies with CIBSE Lighting Guide 7 sections 2.4, 2.13 to 2.15, 2.20, and 6.10 to 6.20. This gives recommendations highlighting: 9.a Limits to the luminance of the luminaires to avoid screen reflections. (Manufacturers' data for the luminaires should be sought to confirm this.) 9.b Any area where a surface is used to reflect light in to a space, such as uplighting, the recommendations refer to the luminance of the lit ceiling rather than the luminaire; a design team calculation is usually required to demonstrate this. 9.c Recommendations for direct lighting, ceiling illuminance, and average wall illuminance.								
			#10	All external lighting located within the construction zone is specified in accordance with BS 5489-1:2013 Code for the practice for the design of road lighting. Lighting of roads and public amenity areas and BS EN 12464-2:2014 Light and lighting - Lighting of work places - Part 2: Outdoor work places. External lighting should provide illuminance levels that enable users to perform outdoor visual tasks efficiently and accurately, especially during the night.								
			#11	Where no external light fittings are specified (either separate from or mounted on the external building façade or roof), the criteria relating to external lighting do not apply and the credit can be awarded on the basis of compliance with criteria 8–9.c above.								
			#12	Internal lighting is zoned to allow for occupant control. Zoning is in accordance with the criteria below for relevant areas present within the building: 12.a In office areas, zones of no more than four workplaces 12.b Workstations adjacent to windows or atria and other building areas separately zoned and controlled 12.c Seminar and lecture rooms: zoned for presentation and audience areas 12.d Library spaces: separate zoning of stacks, reading and counter areas 12.e Teaching space or demonstration area 12.f Whiteboard or display screen 12.g Auditoria: zoning of seating areas, circulation space and lectern area 12.h Dining, restaurant, café areas: separate zoning of servery and seating or dining areas 12.i Retail: separate zoning of display and counter areas 12.j Bar areas: separate zoning of bar and seating areas 12.k Wards or bedded areas: zoned lighting control for individual bed spaces and control for staff over groups of bed spaces 12.l Treatment areas, dayrooms, waiting areas: zoning of seating and activity areas and circulation space with controls accessible to staff.								
			#13	Areas used for teaching, seminar or lecture purposes have lighting controls provided in accordance with CIBSE Lighting Guide 5.								
			#14	In addition, the building type criteria in Table 5.7 are achieved.								
Hea 02 - Indoor Air Quality	Pre-requisite - Indoor Air Quality (IAQ) Plan	Indoor air quality Plan (IAQ) produced no later than the end of Concept Design. Must occur no later than RIBA Stage 2	#1	A site-specific indoor air quality plan has been produced and implemented in accordance with the guidance in Guidance Note GN06. The plan must be produced no later than the end of Concept Design. The objective of the plan is to facilitate a process that leads to design, specification and installation decisions and actions that minimise indoor air pollution during occupation of the building. The indoor air quality plan must consider the following: 1.a Removal of contaminant sources 1.b Dilution and control of contaminant sources: 1.b.i Where present, consideration is given to the air quality requirements of specialist areas such as laboratories 1.c Procedures for pre-occupancy flush out 1.d Third party testing and analysis 1.e Maintaining good indoor air quality in-use.	-	-		-		L	Copy of the indoor air quality plan Relevant section/clauses of the building specification or contract.	Max Fordham MEP
	#2 - Ventilation	Building has been designed to minimise the concentration and recirculation of pollutants in the building through: - complying with the relevant standard for ventilation - designing ventilation pathways to minimise pollutants inside the building - incorporating suitable filtration as defined in BS EN 13779:2007 - areas subject to large and unpredictable or variable occupancy patterns have carbon dioxide (CO_2) or air quality sensors specified - mechanically ventilated spaces: sensors are linked to the mechanical ventilation system and provide demand-controlled ventilation - naturally ventilated spaces: sensors either have the ability to alarm when CO_2 levels exceed set point, or are linked to controls to adjust the quantity of fresh air & thermal comfort and ventilation rates in accordance with CIBSE AM10.	#2	The building has been designed to minimise the indoor concentration and recirculation of pollutants in the building as follows: 2.a Provide fresh air into the building in accordance with the criteria of the relevant standard for ventilation 2.b Ventilation pathways are designed to minimise the ingress and build-up of air pollutants inside the building (see Methodology) 2.c Where present, HVAC systems must incorporate suitable filtration to minimise external air pollution, as defined in BS EN 13779:2007 Annex A3. The specified filters should achieve a minimum Indoor Air Quality of IDA2 2.d Areas of the building subject to large and unpredictable or variable occupancy patterns have carbon dioxide (CO_2) or air quality sensors specified and: 2.d.i In mechanically ventilated buildings or spaces: sensors are linked to the mechanical ventilation system and provide demand-controlled ventilation to the space 2.d.ii In naturally ventilated buildings or spaces: sensors either have the ability to alert the building owner or manager when CO_2 levels exceed the recommended set point, or are linked to controls with the ability to adjust the quantity of fresh air, i.e. automatic opening windows or roof vents 2.e For naturally ventilated or mixed mode buildings, the design demonstrates that the ventilation strategy provides adequate cross flow of air to maintain the required thermal comfort conditions and ventilation rates in accordance with CIBSE AM10.	1	0.78%		1		H	Design drawings	Max Fordham MEP

BREEAM Issue	Credit Number	General Requirements	Criteria	Detailed Requirements	Available		Achieved	Targeted Very	Potential for Very	Risk	Design Stage Evidence Requirements	Design Stage Credit Owner
					Credits	%	Credit	Credit	Credit			
	#3 - Emissions from construction products	1 credit: VOC levels for 3 out of 5 product types meet the emission limits, testing requirements and any additional requirements listed in Table 5.11. AND all wood-based products used for internal fixtures and fittings must be tested and classified as formaldehyde E1 class. 2 credits: All of the product types listed meet the emission limits, testing requirements and any additional requirements listed in Table 5.11.	#3	Three out of the five product types meet the emission limits, testing requirements and any additional requirements listed in Table 5.11. Where wood-based products are not one of three selected product types, all wood-based products used for internal fixtures and fittings must be tested and classified as formaldehyde E1 class as a minimum.	2	1.56%		2		M	Copy of the indoor air quality plan Relevant section/clauses of the building specification or contract	FBM Architects
			#4	All of the product types listed meet the emission limits, testing requirements and any additional requirements listed in Table 5.11.								
Hea 04 - Thermal Comfort	#1 - Thermal Modelling	Thermal modelling has been carried out using software in accordance with CIBSE AM11 and ensures design achieves criteria as set out in CIBSE Guide A Environmental Design.	#1	Thermal modelling has been carried out using software in accordance with CIBSE AM11 Building Energy and Performance Modelling.	1	0.78%		1		L	Thermal comfort study	Max Fordham MEP
			#2	The software used to carry out the simulation at the detailed design stage provides full dynamic thermal analysis. For smaller and more basic building designs with less complex heating or cooling systems, an alternative less complex means of analysis may be appropriate (such methodologies must still be in accordance with CIBSE AM11).								
			#3	The modelling demonstrates that: 3.a For air-conditioned buildings, summer and winter operative temperature ranges in occupied spaces are in accordance with the criteria set out in CIBSE Guide A Environmental design, Table 1.5; 3.b For naturally ventilated buildings: 3.b.i Winter operative temperature ranges in occupied spaces are in accordance with the criteria set out in CIBSE Guide A Environmental design, Table 1.5. 3.b.ii The building is designed to limit the risk of overheating, in accordance with the adaptive comfort methodology outlined in either of the following standards as appropriate; CIBSE TM52: The limits of thermal comfort: avoiding overheating in European buildings or CIBSE TM59: Design methodology for the assessment of overheating risk in homes								
			#4	For air-conditioned buildings, the PMV (predicted mean vote) and PPD (predicted percentage of dissatisfied) indices based on the above modelling are reported via the BREEAM assessment scoring and reporting tool.								
	#2 - Design for Future Thermal Comfort	Credit #1 has been achieved and the modelling has been undertaken against a projected climate change scenario. Project team are to demonstrate how the building has been adapted, or designed to be easily adapted in the future using utilise passive solutions	#5	Criteria #1 - #4 are achieved	1	0.78%		1		L	Thermal comfort study	Max Fordham MEP
			#6	The thermal modelling demonstrates that the relevant requirements set out in criterion 3 are achieved for a projected climate change environment (see Relevant definitions)								
			#7	Where criterion 6 above is not met, the project team demonstrates how the building has been adapted, or designed to be easily adapted in future using passive design solutions in order to subsequently meet the requirements under criterion 6 above.								
			#8	For air conditioned buildings, the PMV and PPD indices based on the above modelling are reported via the BREEAM Assessment Scoring and Reporting tool								
	#3 - Thermal Zoning and Controls	Credit #1 has been achieved and thermal modelling has informed the temperature control strategy in terms of zoning, amount of occupant control, how the systems will interact with each other, and need for accessible building user attenuated manual override for any automatic systems.	#9	Criteria #1 - #4 are achieved	1	0.78%		1		L	Design drawings Relevant section/clauses of the building specification or contract	Max Fordham MEP
			#10	The thermal modelling analysis has informed the temperature control strategy for the building and its users								
			#11	The strategy for proposed heating or cooling systems demonstrates that it has addressed the following: 11.a Zones within the building, and how the building services could efficiently and appropriately heat or cool these areas. For example consider the different requirements for the central core of a building compared with the external perimeter adjacent to the windows. 11.b The degree of occupant control required for these zones. This is based on discussions with the end user (or alternatively building type or use specific design guidance, case studies, feedback) and considers: 11.b.i User knowledge of building services 11.b.ii Occupancy type, patterns and room functions (and therefore appropriate level of control required) 11.b.iii How the user is likely to operate or interact with the systems, e.g. are they likely to open windows, access thermostatic radiator valves (TRV) on radiators, change air-conditioning settings etc. 11.b.iv The user expectations (this may differ in the summer and winter) and degree of individual control (i.e. obtaining the balance between occupant preferences, for example some occupants like fresh air and others dislike draughts) 11.c How the proposed systems will interact with each other (where there is more than one system) and how this may affect the thermal comfort of the building occupants 11.d The need or otherwise for an accessible building user actuated manual override for any automatic systems.								
Hea 05 - Acoustic Performance	#1 - Sound insulation	Sound insulation	#1	The building meets the appropriate acoustic performance standards and testing requirements defined in table 5.14 OR A suitably qualified acoustician (SQA) is appointed to define a bespoke set of performance requirements for all function areas in the building	1	0.78%		1		M	Professional report/study and calculations from the acoustician. Letter of appointment or other confirmation demonstrating when the acoustician was appointed Relevant section/clauses of the building specification or contract and/or formal letter from the project team regarding commitments	Acoustician
	#2 - Internal indoor ambient noise levels	Internal indoor ambient noise levels	#2	The building meets the appropriate acoustic performance standards and testing requirements defined in table 5.14 OR A suitably qualified acoustician (SQA) is appointed to define a bespoke set of performance requirements for all function areas in the building	1	0.78%			1			Acoustician
	#3 - Reverberation	Room acoustics.	#3	The building meets the appropriate acoustic performance standards and testing requirements defined in table 5.14 OR A suitably qualified acoustician (SQA) is appointed to define a bespoke set of performance requirements for all function areas in the building	1	0.78%		1		M		Acoustician

BREEAM Issue	Credit Number	General Requirements	Criteria	Detailed Requirements	Available Credits	Available %	Achieved Credit	Targeted Very Credit	Potential for Very Credit	Risk	Design Stage Evidence Requirements	Design Stage Credit Owner
Hea 06 - Security	#1 - Security of site and building	Suitably Qualified Security Specialist (SWSS) prepares evidence based Security Needs Assessment no later than RIBA Stage 2. Final design must incorporate recommendation from SQSS. Assessment during or prior to RIBA Stage 2	#1	A Suitably Qualified Security Specialist (SQSS) conducts an evidence-based Security Needs Assessment (SNA) during or prior to Concept Design (RIBA Stage 2 or equivalent). The purpose of the SNA will be to identify attributes of the proposal, site and surroundings which may influence the approach to security for the development .	1	0.78%		1		L	Design drawings (including a scaled site plan), AND/OR relevant sections of the specification highlighting all necessary compliant features and dimensions.	FBM Architects
			#2	The SQSS develops a set of security controls and recommendations for incorporation into the proposals. Those controls and recommendations shall directly relate to the threats and assets identified in the preceding SNA.								
			#3	The controls and recommendations shall be incorporated into proposals and implemented in the as-built development. Any deviation from those controls and recommendations shall be justified and agreed with the SQSS.								
Hea 07 -	#2 - Outside space	There is an outside space providing building users with an external amenity area.	#7	There is an outside space providing building users with an external amenity area.	1	0.78%		1		L		FBM Architects
				Totals - Base	18	14.00%	0	13	1			
				Total - Innovation	4	4.00%	0	0	0			
Ene 01 - Reduction of Energy Use and Carbon Emissions	#1 - Energy Performance	Design achieves a minimum Energy Performance Ratio on a scale of 0.1 to 0.9 (1 - 9 credits available). Minimum Requirement- Excellent 4 points	#1	Calculate an Energy Performance Ratio for New Construction (EPR NC). Compare the EPR NC achieved with the benchmarks in Table 6.1 and award the corresponding number of BREEAM credits	9	6.26%		5	1	H		M&E
	#2 - Prediction of operational energy consumption	Prior to completion of the Concept Design, design team members hold a workshop on operational energy performance. Undertake energy modelling and produce reports during the design and post-construction stage to predict operational energy consumption. Carry out a risk assessment to highlight any design, technical, and process risks to be monitored and managed throughout construction and commissioning. Must occur no later than RIBA Stage 2	#2	Prior to completion of the Concept Design, relevant members of the design team hold a preliminary design workshop focusing on operational energy performance. (Prerequisit)	4	2.78%		4		L	A copy of the Building Regulations Output Document from the approved software. The output must be based on the design stage of analysis A copy of the Building Regulations Output Document from the design stage SAP calculations (where relevant for multi-residential buildings)	M&E
			#3	Undertake additional energy modelling during the design and post-construction stage to generate predicted operational energy consumption figures (see Prediction of operational energy consumption on page 125).								
			#4	Report predicted energy consumption targets by end use, design assumptions and input data (with justifications).								
			#5	Carry out a risk assessment to highlight any significant design, technical, and process risks that should be monitored and managed throughout the construction and commissioning process.								
Ene 02 - Energy Monitoring	#1 - Sub-metering of end-use categories	Energy metering systems are installed that enable at least 90% of the estimated annual energy consumption of each fuel to be assigned at various end-use categories of energy consuming systems. The energy consuming systems in buildings with a total useful floor area greater than 1,000m2 are metered using an appropriate energy monitoring and management system Minimum Requirements	#1	Install energy metering systems so that at least 90% of the estimated annual energy consumption of each fuel is assigned to the end-use categories.	1	0.70%		1		L	Relevant section/clauses of the building specification or contract AND Design drawings	M&E
			#2	Meter the energy consumption in buildings according to the total useful floor area: 2.a If the area is greater than 1,000 m², by end-use category with an appropriate energy monitoring and management system. 2.b If the area is less than 1,000 m², use either: 2.b.i an energy monitoring and management system or 2.b.ii separate accessible energy sub-meters with pulsed or other open protocol communication outputs, for future connection to an energy monitoring and management system								
			#3	Building users can identify the energy consuming end uses, for example through labelling or data outputs								
	#2 - Sub-metering of High Energy Load and Tenancy Areas	An accessible energy monitoring and management system or separate accessible energy sub-meters with pulsed or other open protocol communication outputs to enable future connection to an energy monitoring and management system are provided, covering a significant majority of the energy supply to tenanted areas or in the case of single occupancy buildings, relevant function areas or departments within the building/unit	#4	Monitor a significant majority of the energy supply with: 4.a An accessible energy monitoring and management system for: 4.a.i tenanted areas or 4.a.ii relevant function areas or departments in single occupancy buildings. OR 4.b Separate accessible energy sub-meters with pulsed or other open protocol communication outputs for future connection to an energy monitoring and management system for: 4.b.i tenanted areas or 4.b.ii relevant function areas or departments in single occupancy buildings.	1	0.70%		1		L	Relevant section/clauses of the building specification or contract AND Design drawings	M&E
			#5	Sub-meter per floor plate in large single occupancy or single-tenancy buildings with one homogeneous function, for example hotel bedrooms, offices.								
Ene 03 - External	#1 - External Lighting	Either no external lighting OR Energy efficient external light fittings(with average efficacy of at least 70luminaire lumens per circuit watt) are specified for external areas of the development and are only on when required.	#1	No external lighting (which includes lighting on the building, at entrances and signs).	1	0.70%		1		L	Relevant section/clauses of the building specification or contract AND Design drawings	M&E
			#2	External light fittings within the construction zone with: 2.a Average initial luminous efficacy of not less than 70 luminaire lumens per circuit Watt 2.b Automatic control to prevent operation during daylight hours 2.c Presence detection in areas of intermittent pedestrian traffic.								

BREEAM Issue	Credit Number	General Requirements	Criteria	Detailed Requirements	Available		Achieved	Targeted Very	Potential for Very	Risk	Design Stage Evidence Requirements	Design Stage Credit Owner
					Credits	%	Credit	Credit	Credit			
Ene 04 - Low Carbon Design	#1 - Passive Design Analysis	The first Hea 04 Thermal Comfort credit has been achieved and the design team has carried out analysis of the proposed building design/development to influence decisions made during Concept Design stage and identify opportunities for the implementation of passive design solutions. Quantify the reduced total energy demand and carbon dioxide (CO_2) emissions resulting from the passive design measures. Must occur no later than RIBA Stage 2	#1	Achieve the first credit Assessment scope - One credit - Thermal modelling on page 96 to demonstrate that the building design delivers appropriate thermal comfort levels in occupied spaces.	1	0.70%		1		L		M&E
			#2	The project team analyses the proposed building design and development during Concept Design to identify opportunities for the implementation of passive design measures								
			#3	Implement passive design measures to reduce the total heating, cooling, mechanical ventilation, lighting loads and energy consumption in line with the passive design analysis findings.								
			#4	Quantify the reduced total energy demand and carbon dioxide (CO_2) emissions resulting from the passive design measures.								
	#3 - Low and Zero Carbon Technologies	LZC feasibility study carried out no later than RIBA Stage 2 with a local LZC technology/technologies specified in line with the recommendations of the feasibility study. Quantify the reduced regulated carbon dioxide (CO_2) emissions resulting from the feasibility study. Must occur no later than RIBA Stage 2	#9	An energy specialist (see Definitions on page 148) completes a feasibility study (see Low and zero carbon feasibility study on page 146) by the end of Concept Design.	1	0.70%		1		L	Results from a dynamic simulation model demonstrating the feasibility of the free cooling strategy and meeting the first credit for Hea 04	M&E
			#10	Establish the most appropriate recognised local (on-site or near-site) low or zero carbon (LZC) energy sources for the building or development (see Scope of LZC systems and how they are assessed on page 146), based on the feasibility study.								
			#11	Specify local LZC technologies for the building or development in line with the feasibility study recommendations.								
			#12	Quantify the reduced regulated carbon dioxide (CO_2) emissions resulting from the feasibility study.								
Ene 06 - Energy Efficient Transportation Systems	#1 - Energy Consumption	Analysis for transportation demand and energy consumption for lifts, escalators, and/or moving walkways takes place. Strategy with lowest energy consumption is to be specified.	#1	For specified lifts, escalators or moving walks (transportation types): 1.a Analyse the transportation demand and usage patterns for the building to determine the optimum number and size of lifts, escalators or moving walks 1.b Calculate the energy consumption in accordance with BS EN ISO 25745 Part 2 or Part 3 for one of the following: 1.b.i At least two types of system for each transportation type required OR 1.b.ii An arrangement of systems, for example for lift systems, hydraulic, traction, machine room-less lift (MRL) OR 1.b.iii A system strategy that is 'fit for purpose' 1.c Consider the use of regenerative drives, subject to the requirements in Regenerative drives below 1.d Specify the transportation system with the lowest energy consumption.	1	0.70%		1		L	Professional report/study of transportation analysis AND/OR calculations	M&E
	#2 - Energy Efficient Features	Credit #1 has been achieved and compliant energy efficient features are specified	#2	Criterion 1 is achieved	1	0.70%		1		L	Relevant section/clauses of the building specification or contract AND EITHER Manufacturers product details OR Formal letter of commitment from the system(s) manufacturer/supplier	M&E
			#3	Specify the following three energy efficient features for each lift: 3.a A standby condition for off-peak periods 3.b The lift car lighting and display lighting provides an average luminous efficacy across all fittings in the car of > 70 luminaire lumens per circuit Watt 3.c Use of a drive controller capable of variable speed, variable-voltage, and variable-frequency (VVVF) control of the drive motor.								
			#4	Specify regenerative drives where their use is demonstrated to save energy.								
			#5	Specify at least one of the following for each escalator or moving walk: 5.a A load-sensing device that synchronises motor output to passenger demand through a variable speed drive OR 5.b A passenger-sensing device for automated operation (auto walk), so the escalator operates in auto start mode when there is no passenger demand.								
Ene 08 - Energy	#1 - Energy Efficient Equipment	Energy efficient equipment specified for small power and plug-in equipment, swimming pools, laundry, kitchen, IT intensive areas, etc. Requires an analysis showing the total annual unregulated energy demand of the development and its operation and ways to reduce consumption.	#1	Identify the building's unregulated energy consuming loads. Estimate their contribution to the total annual unregulated energy consumption of the building, assuming a typical or standard specification.	2	1.39%		2		L	Relevant section/clauses of the building specification or contract Manufacturers product details Documentation confirming compliance with the relevant scheme or standard outlined in the criteria, e.g. details of compliance with the ECA scheme Design drawings and/or calculations	M&E
			#2	Identify the systems or processes that use a significant proportion of the total annual unregulated energy consumption of the building.								
			#3	Demonstrate a meaningful reduction in the total annual unregulated energy consumption of the building. Table 6.5 lists some examples of significant contributors to unregulated energy consumption, and the associated criteria. If additional significant contributors, not listed in the table, will be specified, the design team should justify how a meaningful reduction will be achieved for these contributors.								
				Totals - Base	23	16.00%	0	18	1			
				Total - Innovation	5	5.00%	0	0	0			
				60% target un-weighted credits (Camden)	28		0	64%				

BREEAM Issue	Credit Number	General Requirements	Criteria	Detailed Requirements	Available		Achieved	Targeted Very	Potential for Very	Risk	Design Stage Evidence Requirements	Design Stage Credit Owner
					Credits	%	Credit	Credit	Credit			
Tra 01 - Transport Assessment and Travel Plan	#1 - Travel plan	During the feasibility and design stages, develop a travel plan based on a site-specific travel assessment or statement including all the points as listed in the BREEAM manual, including calculator of the public transport accessibility index, current facilities available for cyclists, disabled access etc. The travel plan includes recommendations and these must be implemented.	#1	During the feasibility and design stages, develop a travel plan based on a site-specific travel assessment or statement.	2	1.67%		2		L	A completed copy of the Tra 01 calculator Documentary evidence supporting the data used to complete the calculator tool	FBM Architects/ Client
			#2	The site-specific travel assessment or statement covers as a minimum: 2.a Existing travel patterns and opinions of existing building or site users towards cycling and walking, identifying constraints and opportunities, if relevant 2.b Travel patterns and transport impact of future building users 2.c Current local environment for walkers and cyclists (accounting for visitors who may be accompanied by young children) 2.d Reporting of the number and type of existing accessible amenities, see Table 7.1 within 500m of the site 2.e Disabled access (accounting for varying levels of disability and visual impairment) 2.f Calculation of the existing public transport Accessibility Index (AI) 2.g Current facilities for cyclists							
			#3	The travel plan includes proposals to increase or improve sustainable modes of transport and movement of people and goods during the building's operation and use.								
			#4	If the occupier is known, involve them in the development of the travel plan.								
			#5	Demonstrate that the travel plan will be implemented post construction and be supported by the building's management in operation.								
Tra 02 - Sustainable transport measures	#1 - Transport options implementation	Credit #1 must be awarded. Identify and implement sustainable transport measures within Table 7.4 Award credits according to the Accessible Index (AI) and the total number of points achieved for the options implemented, see Table 7.3.	#1	Achieve the Tra 01 Transport assessment and travel plan credits.	10	8.33%		6		M	Where the amenities do not currently exist but are due to be developed a letter from the client/developer confirming: 1. The location and type of amenities to be provided 2. The timetable for development of the amenities	FBM Architects
			#2	~~Identify the sustainable transport measures, see Table 7.4~~ Update as needed: Criteria 1-XX Criteria 1: The existing AI calculated in Tra 01 achieves the following: ≥ 4 for prison or MOD sites, rural location sensitive buildings, and other building group 3 ≥ 8 for all other building types 1 Point Critera 2 - Not likely Criteria 3-4- Not Likley Criteria 5. Provide a public transport information system in a publicly accessible area, to allow building users access to up-to-date information on the available public transport and transport infrastructure. This may include signposting to public transport, cycling, walking infrastructure or local amenities. Yes, Target 1 Point Criteria 6: Provide electric recharging stations of a minimum of 3kw for at least 10% of the total car parking capacity for the development. Not likely? 1 point Criteria 7-10: Set up a car sharing group or facility to facilitate and encourage building users to car share. 8. Raise awareness of the sharing scheme with marketing and communication materials. 9. Provide priority spaces for car sharers for at least 5% of the total car parking capacity for the development. 10. Locate priority parking spaces nearest the development entrance used by the sharing scheme participants. Not likely? 1 point Criteria 11: During preparation of the brief, the design team consults with the local authority (LA) on the state of the local cycling network and public accessible pedestrian routes, to focus on whichever the LA deems most relevant to the project, and how to improve it. Yes, Target 1 Point Criteria 12. Agree and implement one proposition chosen with the local authority. The proposition supported by the development is additional to existing local plans and has a significant impact on the local cycling network or on pedestrian routes open to the public. Yes, Target 1 Point Criteria 13. Install compliant cycle storage spaces to meet the minimum levels set out in Table 7.5.1/ 10 staff and pupils. Yes, Target 1 Point							
			#3	Award credits according to the Accessible Index (AI) of the project, and the total number of points achieved for the options implemented, see Table 7.3.								
Totals -					12	10.00%	0	8.00	0			

BREEAM Issue	Credit Number	General Requirements	Criteria	Detailed Requirements	Available		Achieved	Targeted Very	Potential for Very	Risk	Design Stage Evidence Requirements	Design Stage Credit Owner
					Credits	%	Credit	Credit	Credit			
Wat 01 - Water Consumption	#1 - Water Consumption	Credits awarded on a sliding scale based on the percentage improvement in water usage over a baseline notional building. Must use the Wat 01 calculator to determine final number of credits awarded. Minimum for one credit is 12.5% improvement, 5 credits awarded for 55% improvement or better. The following domestic scale water consuming components are included: WCs, urinals, taps, showers, baths, dishwashers, washing machines. Grey water and rainwater collection systems are taken into account in the calculator tool. Minimum Requirements	#1	An assessment of the efficiency of the building's domestic water-consuming components is undertaken using the BREEAM Wat 01 calculator	5	3.89%		3		L	A completed copy of the BREEAM Wat 01 calculator Documentary evidence supporting the data used to complete the calculator tool	FBM Architects
			#2	The water consumption (L/person/day) for the assessed building is compared against a baseline performance and BREEAM credits awarded based upon table 8.1								
			#3	If a greywater or rainwater system (see Definitions on page 197) is specified, use its yield in L/person/day to offset potable water demand from components.								
			#4	If a greywater or rainwater system is specified and installed: 4.a Greywater systems in compliance with BS 8525-1:2010 Greywater systems - Part 1 Code of Practice. 4.b Rainwater systems in compliance with BS 8515:2009+A1:2013 Rainwater harvesting systems - Code of practice. Achieve Assessment scope - Criterion 6 on page 201, if you intend to pursue a post occupancy stage certification.								
Wat 02 - Water Monitoring	#1 - Water Monitoring	Where a water meter with a pulsed output will be installed on the mains supply to each building/unit. Water-consuming plant or building areas that consume 10% or more of the building's total water demand must be fitted with sub meters or have water monitoring equipment with pulsed output enabling it to connect to a BMS system. If the site has an existing BMS belonging to the same owner as the new development, the meters must be connected to this system. Minimum Requirements- Criteria 1	#1	The specification of a water meter on the mains water supply to each building, this includes instances where water is supplied via a borehole or other private source Minimum Requirements- Criteria 1	1	0.78%		1		L	Relevant section/clauses of the building specification or contract Design drawings	M&E
			#2	For water-consuming plant or building areas consuming 10% or more of the building's total water demand: 2.a Fit easily accessible sub-meters OR 2.b Install water monitoring equipment integral to the plant or area.								
			#3	For each meter (main and sub): 3.a Install a pulsed or other open protocol communication output AND 3.b Connect it to an appropriate utility monitoring and management system, e.g. a building management system (BMS), for the monitoring of water consumption. If there is no BMS system in operation at Post-Construction stage, award credits provided that the system used enables connection when the BMS becomes operational.								
			#4	In buildings with swimming pools, or large water tanks and aquariums, fit separate sub-meters on the water supply of the above and any associated changing facilities (toilets, showers etc.) irrespective of their water consumption levels.								
			#5	In buildings containing laboratories, fit a separate water meter on the water supply to any process or cooling loop for 'plumbed-in' laboratory process equipment, irrespective of their water consumption levels.								
			#6	Additionally for those pursuing a post occupancy stage certification: 6 The water monitoring strategy used enables the identification of all water consumption for sanitary uses as assessed under Wat 01 (litres/person/day), if a post occupancy stage certification is sought.								
Wat 03 - Water Leak Detection	#1 - Leak Detection System	Leak detection system capable of detecting a major water leak on the mains water supply within the building and between the building and the utilities water meter.	#1	Install a leak detection system capable of detecting a major water leak: 1.a On the utilities water supply within the buildings, to detect any major leaks within the buildings AND 1.b Between the buildings and the utilities water supply, to detect any major leaks between the utilities supply and the buildings under assessment.	1	0.78%		1		L	Relevant section/clauses of the building specification or contract Design drawings	M&E
			#2	The leak detection system is: 2.a A permanent automated water leak detection system that alerts the building occupants to the leak OR an inbuilt automated diagnostic procedure for detecting leaks 2.b Activated when the flow of water passing through the water meter or data logger is at a flow rate above a pre-set maximum for a pre-set period of time. This usually involves installing a system which detects higher than normal flow rates at meters or sub-meters. It does not necessarily require a system that directly detects water leakage along part or the whole length of the water supply system 2.c Able to identify different flow and therefore leakage rates, e.g. continuous, high or low level, over set time periods. Although high and low level leakage rates are not specified, the leak detection equipment installed must have the flexibility to distinguish between different flow rates to enable it to be programmed to suit the building type and owner's or occupier's usage patterns. 2.d Programmable to suit the owner's or occupier's water consumption criteria 2.e Where applicable, designed to avoid false alarms caused by normal operation of large water-consuming plant such as chillers. Where there is physically no space for a leak detection system between the utilities water meter and the building, alternative solutions can be used, provided that a major leak can still be detected.								
	#2 - Flow Control Devices	Install flow control devices that regulate the water supply to each WC area or sanitary facility according to demand, in order to minimise undetected wastage and leaks from sanitary fittings and supply pipework.	#3	Install flow control devices that regulate the water supply to each WC area or sanitary facility according to demand, in order to minimise undetected wastage and leaks from sanitary fittings and supply pipework.	1	0.78%		1		L		M&E
Wat 04 - Water Efficient Equipment	#1 - Water Efficient Equipment	Design team has identified all unregulated water demands that could be realistically mitigated or reduced. Systems or processes have been identified to reduce the unregulated water demand, and demonstrate, through either good practice design or specification, a meaningful reduction in the total water demand of the building.	#1	Identify all water demands from uses other than those listed under Assessment scope - Table 8.1 that could be realistically mitigated or reduced. Where there is no water demand from uses other than domestic-scale, sanitary use components in the building, this issue is not applicable.	1	0.78%		1		M	Documentation detailing the planting and irrigation strategy Relevant section/clauses of the building specification or contract AND/OR Design drawings (where necessary) Manufacturers product details	FBM Architects
			#2	Identify systems or processes to reduce the relevant water demand and establish, through either good practice design or specification, a demonstrable reduction in the total water demand of the building.								
Totals -					9	7.00%	0	7	0			
Total -					1	1.00%	0	0	0			
				60% target un-weighted credits (Camden)	10			70%				

BREEAM Issue	Credit Number	General Requirements	Criteria	Detailed Requirements	Available Credits	Available %	Achieved Credit	Targeted Very Credit	Potential for Very Credit	Risk	Design Stage Evidence Requirements	Design Stage Credit Owner
Mat 02 - Environme	#1 - Specification of Products with a Recognised EPD	Specify construction products with EPD that achieve a total EPD points score of at least 20, as shown in the Mat 01/02 Results Submission Tool.	#1	Specify construction products with EPD that achieve a total EPD points score of at least 20.	1	1.07%			1		Relevant section/clauses of the building specification or contract and/or design drawings and calculations confirming: 1. A detailed description of each applicable element and its constituent materials 2. Location and area (m^2) of each applicable element	FBM Architects/ Landscape
			#2	Enter the details of each EPD into the Mat 01/02 Results Submission Tool, including the material category classification. The Mat 01/02 Results Submission Tool will verify the EPD points score and credit award.								
Mat 03 - Responsible Sourcing of Construction	Pre-requisite - Legally Sourced Timber	All timber and timber based products used on the project is 'Legally harvested and traded timber'. Minimum Requirement - Timber Procurement	#1	All timber and timber-based products used on the project are legally harvested and traded timber as per the UK Government's Timber Procurement Policy (TPP) (see Definitions)	-	-		–		L	Completed copy of the Mat 03 calculator tool Documentary evidence detailing how the calculator tool has been completed	FBM Architects
	#2 - Measuring Responsible Sourcing	Up to 3 credits can be awarded where the applicable building materials are responsibly sourced in accordance with the BREEAM methodology. - 1 credit: Superstructure: ≥ 10% of available points achieved - 2 credits: As above plus: Internal finishes & Substructure & Hard Landscaping ≥ 20% of available points achieved - 3 credits: As above plus: Internal finishes & Substructure & Hard Landscaping ≥ 30% of available points achieved	#3	Use the Mat 03 calculator tool and methodology to determine the number of credits achieved for the construction products specified or procured. Credits are awarded in proportion to the scope of the assessment and the number of points achieved, as set out in Table 9.10.	3	3.21%		1		M	Design plan and/or specification confirming: 1. The building elements 2. Details of the materials specification for each element A copy of the output from the BREEAM Mat 03 calculator AND EITHER 1. A letter of intent from the design team or other detailed documentary evidence confirming	FBM Architects
Mat 05 - Designing for Durability and Resilience	#1 - Protecting Vulnerable Parts of the Building from Damage and Degradation	- Protection measures are incorporated into the building's design (internal and external) to protect against high pedestrian traffic, vehicle or trolley movement, potential malicious damage to materials in public and common areas. - Design to include protection for exposed parts from degradation through achieving the relevant standard or through detailed assessment. - Convenient access to the roof and facade for cleaning and maintenance - Design to prevent water damage, ingress and ponding	#1	Protecting vulnerable parts of the building from damage Protection measures are incorporated into the building's design and construction to reduce damage to the building's fabric or materials in case of accidental or malicious damage occurring. These measures must provide protection against: 1.a Negative impacts of high user numbers in relevant areas of the building (e.g. corridors, lifts, stairs, doors etc.). 1.b Damage from any vehicle or trolley movements within 1m of the internal building fabric in storage, delivery, corridor and kitchen areas. 1.c External building fabric damage by a vehicle. Protection where parking or manoeuvring areas are within 1 metre of the building façade and where delivery areas or routes are within 2 metres of the façade, i.e. specifying bollards or protection rails. 1.d Potential malicious damage to building materials and finishes, in public and common areas where appropriate.	1	1.07%		1		L	Design drawings illustrating vulnerable areas/parts of the building Design drawings and/or relevant section/clauses of the building specification or contract confirming the durability measures specified	FBM Architects
			#2	Protecting exposed parts of the building from material degradation Key exposed building elements have been designed and specified to limit long and short term degradation due to environmental factors. This can be demonstrated through one of the following: 2.a The element or product achieving an appropriate quality or durability standard or design guide, see Table 9.14. If none are available, use BS 7543:2015 as the default appropriate standard OR 2.b A detailed assessment of the element's resilience when exposed to the applicable material degradation and environmental factors.								
			#3	Include convenient access to the roof and façade for cost-effective cleaning, replacement and repair in the building's design.								
			#4	Design the roof and façade to prevent water damage, ingress and detrimental ponding.								
Mat 06 - Material Efficiency	#1 - Material Efficiency	Design/Construction team must identify, investigate, implement and report on measures to optimise material use at all stages of the project. Must be undertaken at RIBA Stages 1, 2, 3, 4 and 5	#1	At the Preparation and Brief and Concept Design stages, set targets and report on opportunities and methods to optimise the use of materials. These must be done for each of the following stages. See Table 9.15: 1.a Preparation and Brief 1.b Concept Design 1.c Developed Design 1.d Technical Design 1.e Construction	1	1.07%		1		L		All
			#2	Develop and record the implementation of material efficiency, see Table 9.15 during: 2.a Developed Design 2.b Technical Design 2.c Construction								
			#3	Report the targets and actual material efficiencies achieved.								
Totals -					14	15.00%	0	3	1			
Total -					4	4.00%	0	0	0			
				60% target un-weighted credits (Camden)	18			17%				

BREEAM Issue	Credit Number	General Requirements	Criteria	Detailed Requirements	Available Credits	Available %	Achieved Credit	Targeted Very Credit	Potential for Very Credit	Risk	Design Stage Evidence Requirements	Design Stage Credit Owner
Wst 01 - Construction Waste Management	#1 - Pre-demolition audit	At Concept design, a competent person completes a pre-demolition audit of any existing buildings, structures or hard surfaces being considered for demolition. This must be used to determine whether refurbishment or reuse is feasible and maximise the recovery of demolition material. The audit must cover the content of Pre-demolition audit scope in the manual. Contractors must be engaged in the process and actual waste must be monitored against the targets and reported in the RMP. Must occur no later than RIBA Stage 2	#1	Complete a pre-demolition audit of any existing buildings, structures or hard surfaces being considered for demolition. This must be used to determine whether refurbishment or reuse is feasible and, in the case of demolition, to maximise the recovery of material for subsequent high grade or value applications. The audit must cover the content of Pre-demolition audit scope in the manual and: 1.a Be carried out at Concept Design stage (RIBA Stage 2) by a competent person (see Definitions) prior to strip-out or demolition works 1.b Guide the design, consider materials for reuse and set targets for waste management 1.c Engage all contractors in the process of maximising high grade reuse and recycling opportunities 1.d Compare actual waste arising and waste management routes used with those forecast and investigate significant deviations from planned targets.	1	0.60%	1	1		L	A copy of the Resource Management Plan and, where relevant, pre-demolition audit	Contractor
			#2	Make reference to the audit in the resource management plan (RMP)								
	#1 - Construction Resource Efficiency	There is a compliant Resource Management Plan. Non-hazardous construction waste (excluding demolition and excavation waste) generated as follows: - One credit - ≤ 13.3m3/100m2 of G.I.F.A (≤ 11.1 tonnes/100m2 of G.I.F.A) - Two credit - ≤ 7.5m3/100m2 of G.I.F.A (≤ 6.5 tonnes/100m2 of G.I.F.A) - Three credit -≤ 3.4m3/100m2 of G.I.F.A (≤ 3.2 tonnes/100m2 of G.I.F.A)	#3	Prepare a compliant Resource Management Plan (RMP) covering: 3.a Non-hazardous waste materials (from on-site construction and dedicated off-site manufacture or fabrication, see Definitions on page 247), including demolition and excavation waste 3.b Accurate data records on waste arising and waste management routes.	3	1.80%		2		M	A copy of the Resource Management Plan and, where relevant, pre-demolition audit	Project Manager
			#4	Meet or improve upon the benchmarks in Table 10.1 for non-hazardous construction waste, excluding demolition and excavation waste. - One credit - ≤ 13.3m3/100m2 of G.I.F.A (≤ 11.1 tonnes/100m2 of G.I.F.A) - Two credit - ≤ 7.5m3/100m2 of G.I.F.A (≤ 6.5 tonnes/100m2 of G.I.F.A) - Three credit -≤ 3.4m3/100m2 of G.I.F.A (≤ 3.2 tonnes/100m2 of G.I.F.A)							
	#2 - Diversion of Resources from Landfill	The following percentages, at a minimum, of non-demolition and demolition waste (where applicable) generated by the project have been diverted from landfill: Non-demolition - 70% by volume or 80% by weight. Demolition - 80% by volume or 90% by weight.	#5	Meet, where applicable, the diversion from landfill benchmarks in Table 10.2 for non-hazardous construction waste and demolition and excavation waste generated.	1	0.60%		1		M	A letter from the client or their representative Appropriate section of the Resource Management Plan	Project Manager
			#6	Sort waste materials into separate key waste groups as per Table 10.3 on page 249, either on-site or through a licensed contractor for recovery.								
Wst 03 - Operational Waste	#1 - Operational Waste	Where dedicated, clearly labelled, accessible, and properly sized storage space is provided for recycling. Where consistent generation in large volumes of waste or compostable materials are generated, compactors, balers, and/or composting vessels or facilities with water outlet must be provided. Minimumm Requirements	#1	Provide a dedicated space for the segregation and storage of operational recyclable waste generated. The space is: 1.a Clearly labelled, to assist with segregation, storage and collection of the recyclable waste streams 1.b Accessible to building occupants or facilities operators for the deposit of materials and collections by waste management contractors 1.c Of a capacity appropriate to the building type, size, number of units (if relevant) and predicted volumes of waste that will arise from daily or weekly operational activities and occupancy rates.	1	0.60%		1		L	Design drawings and/or relevant section/clauses of the building specification or contract confirming provision and scope of dedicated facilities Project team meeting minutes/letter confirming likely building waste streams and indicative volumes For Healthcare: Documentary evidence from the design team confirming compliance with the relevant Healthcare Technical Memorandum (e.g. letter or relevant signed meeting minutes)	FBM Architects
			#2	For consistent and large amounts of operational waste generated, provide: 2.a Static waste compactors or balers; situated in a service area or dedicated waste management space 2.b Vessels for composting suitable organic waste OR adequate spaces for storing segregated food waste and compostable organic material for collection and delivery to an alternative composting facility 2.c A water outlet provided adjacent to or within the facility for cleaning and hygiene purposes where organic waste is to be stored or composted on site.							
Wst 05 - Adaptation to Climate Change	#1 - Structural, Fabric & Building Services Resilience	Conduct a climate change adaptation strategy appraisal for structural, fabric & building services resilience by the end of Concept Design by carrying out a systematic risk assessment to identify and evaluate the impact on the building over its projected life cycle from expected extreme weather conditions arising from climate change. Recommendations are to be implemented in the design. Must occur no later than RIBA Stage 2	#1	Conduct a climate change adaptation strategy appraisal using: 1.a A systematic risk assessment to identify the impact of expected extreme weather conditions arising from climate change on the building over its projected life cycle. The assessment covers the installation of building services and renewable systems, as well as structural and fabric resilience aspects and includes: 1.a.i Hazard identification 1.a.ii Hazard assessment 1.a.iii Risk estimation 1.a.iv Risk evaluation	1	0.60%		1		L		Structural Engineer
			#2	Develop recommendations or solutions based on the climate change adaptation strategy appraisal, before or during Concept Design, that aim to mitigate the identified impact.								
			#3	Provide an update during Technical Design demonstrating how the recommendations or solutions proposed at Concept Design have been implemented where practical and cost effective. Omissions have been justified in writing by the assessor.								
Wst 06 - Design for Disassembly and Adaptability	#1 - Recommendations	Conduct a study to explore the ease of disassembly and the functional adaptation potential of different design scenarios by the end of Concept Design. Develop recommendations or solutions to enable and facilitate disassembly and functional adaptation. Must occur no later than RIBA Stage 2	#1	Conduct a study to explore the ease of disassembly and the functional adaptation potential of different design scenarios (see Methodology) by the end of Concept Design.	1	0.60%	1	1		L	Functional adaptation strategy and implementation plan report	All
			#2	Develop recommendations or solutions (see Methodology below) based on the study (criterion 1 above), during or prior to Concept Design, that aim to enable and facilitate disassembly and functional adaptation.								
	#2 - Implementation	- Provide an update, during Technical Design, on how the recommendations or solutions proposed by Concept Design have been implemented and any changes to the recommendations and solutions. - Produce a building adaptability and disassembly guide for prospective tenants.	#3	Achieve criteria 1 and 2	1	0.60%		1		L	Functional adaptation strategy and implementation plan report	All
			#4	Provide an update, during Technical Design, on: 4.a How the recommendations or solutions proposed by Concept Design have been implemented where practical and cost effective. Omissions have been justified in writing to the assessor. 4.b Changes to the recommendations and solutions during the development of the Technical Design.								
			#5	Produce a building adaptability and disassembly guide to communicate the characteristics allowing functional adaptability and disassembly to prospective tenants.								
Totals -					10	6.00%	2	8	0			
Total -					3	3.00%	0	0	1			

BREEAM Issue	Credit Number	General Requirements	Criteria	Detailed Requirements	Available		Achieved	Targeted Very	Potential for Very	Risk	Design Stage Evidence Requirements	Design Stage Credit Owner
					Credits	%	Credit	Credit	Credit			
LE 01 - Site Selection	#1 - Previously Occupied Land	At least 75% of the proposed footprint is on ab area of land which has previously been occupied by industrial, commercial or domestic buildings or fixed surface infrastructure.	#1	At least 75% of the proposed development's footprint is on an area of land which has been occupied by industrial, commercial or domestic buildings or fixed surface infrastructure	1	1.00%	1	1		L	1. Type and duration of previous land use 2. Area (m2) of previous land use 3. Proposed site plan showing location and footprint (m2) of proposed development and temporary works	FBM Architects
	#2 - Contaminated Land	Site is deemed to be significantly contaminated as confirmed by a contaminated land specialist's site investigation, risk assessment, and appraisal. Client must confirm that remediation has occurred in accordance with the remediation strategy set out by the contaminated land specialist.	#2	A contaminated land specialist's site investigation, risk assessment and appraisal has deemed land within the site to be affected by contamination. The site investigation, risk assessment and appraisal have identified: a. The degree of contamination b. The contaminant sources/types c. The options for remediating sources of contamination which present an unacceptable risk	1	1.00%			1		A copy of the remediation strategy and implementation plan	Structural Engineer
			#3	The client or principal contractor confirms that remediation of the site will be carried out in accordance with the remediation of the site will be carried out in accordance with the remediation strategy and its implementation plan as recommended by the contaminated land specialist								
LE 02 - Identifying the Risks and Opportunities	#1 - Survey, Evaluation & Determining the ecological outcomes	The client or contractor confirms compliance is monitored against all relevant UK and EU or international legislation relating to the ecology of the site. Prior to the completion of the preparation and brief, an appropriate level of survey and evaluation is conducted. An assessment route determined using BREEAM Guidance Note GN34 BREEAM Ecological Risk Evaluation Checklist: Project team member route (Route 1) - 1 credit available Ecologist route (Route 2) - 2 credits available During Concept Design, the project team liaise and collaborate with stakeholders to determine the ecological outcome in line with BREEAM hierarchy. Must occur no later than RIBA Stage 1	#1	An assessment route (see Definitions on page 283) for the project has been determined using BREEAM Guidance Note GN34 BREEAM Ecological Risk Evaluation Checklist.	2	2.00%		2		M	Where a Suitably Qualified Ecologist is not employed: 1. BREEAM checklist for defining land of low ecological value	Ecologist
			#2	The client or contractor confirms compliance is monitored against all relevant UK and EU or international legislation relating to the ecology of the site.								
			#3	Route 1: Completion of the BREEAM Ecological Risk Evaluation Checklist indicates Assessment route 1 can be used as the assessment								
			#4	Route 2: An appropriate individual is appointed at a project stage that ensures early involvement in site configuration and, where necessary, can influence strategic planning decisions								
			#5	Prior to the completion of the preparation and brief, an appropriate level of survey and evaluation Assessment route 2: For sites where complex ecological systems are likely to be present) has been carried out to determine the ecological baseline of the site, taking account of the zone of influence to establish: 5.a Current and potential ecological value and condition of the site, and related areas within the zone of influence. 5.b Direct and indirect risks to current ecological value 5.c Capacity and feasibility for enhancement of the ecological value of the site and, where relevant, areas within the zone of influence.								
			#6	Data are collated and shared with project team to inform the site preparation, design or construction works.								
			#7	Determining the ecological outcomes for the site (Routes 1 and 2) Survey and evaluation criteria (criteria 3–6 above) relevant to the chosen route have been achieved.								
			#8	During Concept Design, the project team liaise and collaborate with representative stakeholders to identify and consider ecological outcome for the sites (appropriate to the scale and type of development) for the project.								
			#9	When determining the ecological outcome for the site, this must involve the identification, appraisal and selection of specific solutions and measures sufficiently early to influence key project planning decisions. This must be done in accordance with the following hierarchy of action: 9.a avoidance 9.b protection 9.c reduction or limitation of negative impacts 9.d on site compensation and, 9.e enhancement, considering the capacity and feasibility within the site, or where viable, off-site.								
			#10	Following this the optimal ecological outcome for the site is selected after liaising with representative stakeholders and the project team.								

BREEAM Issue	Credit Number	General Requirements	Criteria	Detailed Requirements	Available		Achieved	Targeted Very	Potential for Very	Risk	Design Stage Evidence Requirements	Design Stage Credit Owner
					Credits	%	Credit	Credit	Credit			
LE 03 - Managing Negative Impacts on Ecology	Pre-requisite - Identifying Risks	LE 02 has been achieved and the client or contractor has confirmed that compliance is monitored against all relevant UK, and EU or International legislation relating to the ecology of the site.	#1	LE 02 has been achieved.	-	-		-		L	Copy of the indoor air quality plan Relevant section/clauses of the building specification or contract.	Ecologist
			#2	The client or contractor has confirmed that compliance is monitored against all relevant UK, and EU or International legislation relating to the ecology of the site								
	#1 - Planning, liaison, implementation and data	- Roles and responsibilities have been clearly defined, allocated and implemented at an early enough stage to influence the concept design or design brief. - Site preparation and construction works have been planned for and are implemented at an early project stage to optimise benefits and outputs. - Recommendations set out in LE 2 have been implemented. Must occur no later than RIBA Stage 1	#3	Roles and responsibilities have been clearly defined, allocated and implemented to support successful delivery of project outcomes at an early enough stage to influence the concept design or design brief.	1	1.00%		1		M	Where relevant: 1. A completed copy of the LE 03/04 calculator 2. Documentary evidence supporting the data used to complete the calculator tool	Ecologist
			#4	Site preparation and construction works have been planned for and are implemented at an early project stage to optimise benefits and outputs.								
			#5	The project team liaising and collaborating with representative stakeholders, taking into consideration data collated and shared, have implemented solutions, and measures have been selected (see Assessment scope on page 279), during site preparation and construction works.								
	#2 - Managing negative impacts	Route 1: 1 credit: Negative impacts from site preparation and construction works have been managed according to the hierarchy and no net impact has resulted. Route 2: a. No overall loss of ecological value has occurred (2 credits) b The loss of ecological value has been limited as far as possible (1 credit)	#6	Route 1 (one credit): Negative impacts from site preparation and construction works have been managed according to the hierarchy (see Methodology) and no net impact has resulted.	2	2.00%		1	1	M		
			#7	Route 2 (up to two credits) Negative impacts from site preparation and construction works have been managed according to the hierarchy (see Assessment route 2: For sites where complex ecological systems are likely to be present) and either: 7.a No overall loss of ecological value has occurred (2 credits) OR 7.b The loss of ecological value has been limited as far as possible (1 credit)							
LE 04 - Change and Enhancement of Ecological Value	#1 - Liaison, implementation and data collation	LE 03 has been achieved. Route 2: The project team implement measures selected in a way that enhances ecological value in the following order: a On site, and where this is not feasible, b Off site within the zone of influence.	#1	Prerequisite - Identifying and understanding the risks and opportunities for the project LE 03 has been achieved. Including the following, specific to the aims of this issue: 1.a Roles and responsibilities have been clearly defined, allocated and implemented to support successful delivery of project outcomes 1.b Site preparation and construction works have been planned for and implemented at a stage that is sufficiently early in the project to optimise benefits and outputs.	1	1.00%		1		M	Ecologist report Design drawings including proposed and existing (pre-development) site plan/survey Written confirmation from the client/design team confirming how the ecologist's recommendations will be implemented AND A completed copy of the BREEAM LE 03/04 calculator Documentary evidence supporting the data used to complete the calculator	Ecologist
			#2	The client or contractor confirms compliance is monitored against all relevant UK, EU or international legislation relating to the ecology of the site.								
			#5	Route 2: The project team liaising and collaborating with representative stakeholders, taking into consideration data collated and shared, have implemented the solutions and measures selected in a way that enhances ecological value in the following order: 5.a On site, and where this is not feasible, 5.b Off site within the zone of influence.								
	#2 - Enhancement of ecology	LE 03 has been achieved. 1 credit - Route 1: The project team implement measures based on recommendations from recognised 'local' ecological expertise and data collated is provided to the local environmental records centres. Up to 3 credits - Route 2: Credits are awarded based on the calculation of the change in ecological value occurring as a result of the project in accordance with GN 35 or GN 36.	#3	One credit - Enhancement of ecology Route 1: The project team liaising and collaborating with representative stakeholders, taking into consideration data collated and shared, have implemented solutions and measures based on recommendations from recognised 'local' ecological expertise, specialist input and guidance to inform the adoption of locally relevant ecological solutions and measures which enhance the site.	3	3.00%		1	1	M	Ecologist report Design drawings including proposed and existing (pre-development) site plan/survey Written confirmation from the client/design team confirming how the ecologist's recommendations will be implemented AND A completed copy of the BREEAM LE 03/04 calculator Documentary evidence supporting the data used to complete the calculator	Ecologist
			#4	Data collated is provided to the local environmental records centres nearest to, or relevant for, the site.								
			#6	Route 2: Credits are awarded on a scale of 1 to 3, based on the calculation of the change in ecological value occurring as a result of the project. This must be calculated in accordance with the process set out in either GN 35 - BREEAM, CEEQUAL, HQM Ecology Assessment Issues – Route 1 or GN 36 - BREEAM, CEEQUAL, HQM Ecology Assessment Issues – Route 2 (whichever is applicable to the project).							

BREEAM Issue	Credit Number	General Requirements	Criteria	Detailed Requirements	Available		Achieved	Targeted Very	Potential for Very	Risk	Design Stage Evidence Requirements	Design Stage Credit Owner
					Credits	%	Credit	Credit	Credit			
LE 05 - Long term Ecology Management and Maintenance	Pre-requisite - Roles & Responsibilities	LE 04 has been achieved.	#1	The client or contractor has confirmed that compliance is being monitored against all relevant UK, EU and international standards relating to the ecology of the site.	-	-		-		L	Copy of the indoor air quality plan Relevant section/clauses of the building specification or contract.	Ecologist
			#2	Where pursued, LE 04 has been achieved, including the following specific aims of this issue: 2.a Roles and responsibilities have been clearly defined, allocated and implemented to support successful delivery of project outcomes. 2.b Site preparation and construction works have been planned for and implemented at a stage that is sufficiently early in the project to optimise benefits and outputs.							
	#1 - Planning, Monitoring, Management & Maintenance	- Monitor and review implementation and the effectiveness of measures - Develop and review management and maintenance solutions, actions or measures. - Include information on Ecology and Biodiversity for the owner or occupant to inform of local ecological features, value and biodiversity on or near the site.	#3	The project team liaise and collaborate with representative stakeholders, taking into consideration data collated and shared, on solutions and measures implemented to: 3.a monitor and review implementation and the effectiveness 3.b develop and review management and maintenance solutions, actions or measures.	1	1.00%		1		L	Ecologist's report A copy of the site's landscape and habitat management plan OR Relevant section/clauses of the building specification or contract confirming its development and scope OR A letter from the client confirming a commitment to produce the management plan and it's scope Training schedule or letter of confirmation from the principal contractor committing to provide relevant training OR A copy of the specification clause requiring the training of the site's workforce by the principal contractor A letter from the principal contractor confirming and reporting criteria for the development OR	Ecologist
			#4	In support of the above and to help ensure their continued relevance over the period of the project the following should be considered: 4.a Monitoring and reporting of on the ecological outcomes for site implemented at the design and construction stage 4.b Monitoring and reporting of outcomes and successes from the project 4.c Arrangements for the ongoing management of landscape and habitat connected to the project (on and, where relevant, off site) 4.d Maintaining the ecological value of the site and its relationship or connection to its zone of influence 4.e Maintaining the site in line with the any sustainability linked activities, e.g. ecosystems benefits (LE 02). 4.f Remedial or other management actions are carried out which relate to those identified in LE 02, LE 03 and LE 04.							
			#5	As part of the tenant or building owner information supplied, include a section on Ecology and Biodiversity to inform the owner or occupant of local ecological features, value and biodiversity on or near the site.							
	#2 - Landscape and ecology management plan	Landscape and ecology management plan, or similar, is developed in accordance with BS 42020:2013 covering as a minimum the first five years after project completion	#6	Landscape and ecology management plan, or similar, is developed in accordance with BS 42020:2013 covering as a minimum the first five years after project completion and includes: 6.a Actions and responsibilities, prior to handover, to give to relevant individuals 6.b The ecological value and condition of the site over the development life. 6.c Identification of opportunities for ongoing alignment with activities external to the development project and which supports the aims of BREEAM's Strategic Ecology Framework 6.d Identification and guidance s to trigger appropriate remedial actions to address previously unforeseen impacts 6.e Clearly defined and allocated roles and responsibilities.	1	1.00%		1		L		Ecologist
			#7	The landscape and management plan or similar is updated as appropriate to support maintenance of the ecological value of the site.								
Totals -					13	13.00%	1	8	3			

BREEAM Issue	Credit Number	General Requirements	Criteria	Detailed Requirements	Available		Achieved	Targeted Very	Potential for Very	Risk	Design Stage Evidence Requirements	Design Stage Credit Owner
					Credits	%	Credit	Credit	Credit			
Pol 01 - Impact of Refrigerants	Pre-requisite - Guidelines Compliance	All systems (with electric compressors) must comply with the requirements of BS EN 378:2016 and have a Direct Effect Life Cycle CO2 of ≤ 100kgCO2e/kW (2 credits) or ≤ 1000kgCO2e/kW cooling capacity (1 credit).	#2	All systems with electric compressors comply with the requirements of BS EN 378:2016 (parts 2 and 3). Refrigeration systems containing ammonia comply with the Institute of Refrigeration Ammonia Refrigeration Systems code of practice	2	1.07%		1		L	Completed copy of the Pol 01 calculator tool Documentary evidence supporting the data used to complete the calculator tool	M&E
	#2 - Impact of Refrigerant		#3	Achieve #2 above. Where the systems using refrigerants have Direct Effect Lift Cycle CO2 equivalent emissions (DELC CO2e) of ≤ 100 kgCO2e/kW cooling/heating capacity -OR-								
			#4	Achieve #2 above. Where air-conditioning or refrigerant systems are installed the refrigerants used have a Global Warming Potential (GWP) ≤ 10 -OR-								
			#5	Achieve #2 above. Where the systems using refrigerants have Direct Effect Lift Cycle CO2 equivalent emissions (DELC CO2e) of ≤ 1000 kgCO2e/kW cooling/heating capacity. (this option worth 1 credit only)								
	#3 - Leak Detection	All systems are hermetically sealed OR only use environmentally benign refrigerants OR Permanent automated refrigerant leak detection system OR an in-built automated diagnostic procedure for detecting leakage has been installed.	#6	All systems are hermetically sealed or only use environmentally benign refrigerants (see Leak detection and Hermetically sealed systems on page 303). -OR-	1	0.53%		1		M	A copy of the specification clause or letter from the M&E engineer/system manufacturer confirming relevant refrigeration type and system information	M&E
			#7	Where the systems are not hermetically sealed: 7.a Systems have: 7.a.i A permanent automated refrigerant leak detection system, that is robust and tested, and capable of continuously monitoring for leaks. OR 7.a.ii An inbuilt automated diagnostic procedure for detecting leakage is enabled. 7.b 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 (see Automatic isolation and containment of refrigerant on page 305).								
Pol 02 - Local Air Quality	#1 - Local Air Quality	Two credits available if heating and hot water supplied by non-combustion systems, e.g. only powered by electricity. OR, two credits available for all combustion plant that provides space heating and domestic hot water that meets tables 12.4 and 12.5 of the BREEAM technical manual. These tables set NOx emission, particulate matter, and VOC levels.	#1	All heating and hot water is supplied by non-combustion systems. For example, only powered by electricity. OR alternatively;	2	1.07%		2		L	Relevant section/clauses of the building specification or contract Manufacturer's product details Calculations from the project team	M&E
			#2	Emissions from all installed combustion plant that provide space heating and domestic hot water do not exceed the levels set in Table 12.4 and Table 12.5. The measurements must be provided by manufacturers, following the labelling requirements of the European directive 2009/125/EC. No credits can be awarded for Pol 02 if any of the combustion appliances are not covered in Table 12.4 and Table 12.5.								
			#3	Emissions from all installed combustion plant that provide space heating and domestic hot water do not exceed the levels set in Table 1.21 and Table 1.22.								
Pol 03 - Flood and Surface Water Management	Pre-requisite - Identifying Risks	An appropriate consultant is appointed to carry out and demonstrate the development's compliance with all criteria.	#1	An appropriate consultant is appointed to carry out and demonstrate the development's compliance with all criteria.	-	-		-		L		Structural Engineer
	#1 - Flood Resilience	Site is Low Flood Risk which is confirmed by a site-specific Flood Risk Assessment (2 credits), or if site is medium or high flood risk and not in a Functional Floodplain, either the ground level of building and access to building and site are at least 600mm above the design flood level or the final design reflects the recommendations of an appropriate consultant- must be confirmed by Flood Risk Assessment.	#2	A site-specific flood risk assessment (FRA) confirms the development is in a flood zone that is defined as having a low annual probability of flooding. The FRA takes all current and future sources of flooding into consideration (see Sources of flooding on page 314).	2	1.07%		2		L	Flood risk assessment Design drawings Where appropriate, correspondence from the appropriate statutory body confirming reduced annual probability of flooding due to existing flood defences	Structural Engineer
			#3	A site-specific FRA confirms the development is in a flood zone that is defined as having a medium or high annual probability of flooding and is not in a functional floodplain. The FRA must take all current and future sources of flooding into consideration (see Sources of flooding on page 314). For smaller sites refer to Level of detail required in the FRA for smaller sites on page 314, which overrides criterion 2 above.								
			#4	To increase the resilience and resistance of the development to flooding, one of the following must be achieved: 4.a The ground level of the building and access to both the building and the site, are designed (or zoned) so they are at least 600 mm above the design flood level of the site's flood zone (see 600 mm threshold on page 314). 4.b The final design of the building and the wider site reflects the recommendations made by an appropriate consult								
	Pre-requisite - Surface water run-off	Surface water run-off design solutions must be bespoke, with justification given by the appropriate consultant where water is allowed to leave the site.	#5	Surface water run-off design solutions must be bespoke, i.e. they must take account of the specific site requirements and natural or man-made environment of and surrounding the site. The priority levels detailed in the Methodology must be followed, with justification given by the appropriate consultant where water is allowed to leave the site.	1	0.53%		1		M	Evidence confirming appropriate Consultant status	Structural Engineer
	#2 - Surface Water Run-Off - Rate	Pre-requisite achieved. Appropriate consultant appointed to carry out the following analysis: Peak run-off from site to watercourses shows a 30% improvement for the developed site compared with pre-developed site - calcs should include allowance for climate change. Also maintenance agreements set out for all SuDS.	#6	Drainage measures are specified so that the peak rate of run-off from the site to the watercourses (natural or municipal) shows a 30% improvement for the developed site compared with the pre-developed site. This should comply at the 1-year and 100-year return period events.								
			#7	Relevant maintenance agreements for the ownership, long term operation and maintenance of all specified Sustainable Drainage Systems (SuDS) are in place.								
			#8	Calculations include an allowance for climate change. This should be made in accordance with current best practice planning guidance (see Definitions on page 317).								
	#3 - Surface Water Run-Off - Volume	Appropriate consultant appointed to carry out the following analysis: Flooding will not occur in event of local drainage system failure and either: post development run-off volume, over development lifetime, is no greater than it would have been prior to development - any additional predicted volume for the 100yr 6hr event must be prevented from leaving the site. OR, justification from the consultant that the first option is not achievable and post-development run-off rate is reduced to a limiting discharge. Calcs should include allowance for climate change.	#9	Flooding of property will not occur in the event of local drainage system failure (caused either by extreme rainfall or a lack of maintenance); AND	1	0.53%		1		m	Information showing the proposed drainage solution, and system failure flood routes, potential flood ponding levels and ground floor levels. Consultant's report containing all information necessary to demonstrate compliance including 1. Type and storage volume (l) of the drainage measures 2. Total area of hard surfaces (m2) 3. Peak Volume flow rates (l/s) pre and post development events 4. Additional allowance for climate change designed in to the system 5. Impact on the building of flooding from local drainage system failure	Structural Engineer
			#10	EITHER Drainage design measures are specified so that the post-development run-off volume, over the development lifetime, is no greater than it would have been prior to the assessed site's development. This must be for the 100-year 6-hour event, including an allowance for climate change (see criterion 14).								
			#11	Any additional predicted volume of run-off for this event is prevented from leaving the site by using infiltration or other SuDS techniques.								
			#12	OR (only where criteria 10 and 11 cannot be achieved): Justification from the appropriate consultant indicating why the above criteria cannot be achieved, i.e. where infiltration or other SuDS techniques are not technically viable options.								
			#13	Drainage design measures are specified so that the post-development peak rate of run-off is reduced to the limiting discharge. The limiting discharge is defined as the highest flow rate from the following options: 13.a The pre-development one-year peak flow rate 13.b The mean annual flow rate (Qbar) 13.c 2L/s/ha.								
			#14	For the one-year peak flow rate, the one-year return period event criterion applies. Relevant maintenance agreements for the ownership, long term operation and maintenance of all specified SuDS are in place.								
			#15	For either option, above calculations must include an allowance for climate change; this should be made in accordance with current best practice planning guidance.								

BREEAM Issue	Credit Number	General Requirements	Criteria	Detailed Requirements	Available		Achieved	Targeted Very	Potential for Very	Risk	Design Stage Evidence Requirements	Design Stage Credit Owner
					Credits	%	Credit	Credit	Credit			
Pol 04 - Reduction of Night Time Light	#1 - Reduction of Night Time Light Pollution	Where the external lighting design is compliant with ILE guidance for the reduction of night time pollution and is automatically switched off between 2300 and 0700.	#1	External lighting pollution has been eliminated through effective design that removes the need for external lighting. This does not adversely affect the safety and security of the site and its users. OR alternatively, where the building does have external lighting, one credit can be awarded as follows:	1	0.53%		1		L	Design drawings Relevant section/clauses of the building specification or contract or external lighting data/calculations	M&E
			#2	The external lighting strategy has been designed in compliance with Table 2 (and its accompanying notes) of the Institution of Lighting Professionals (ILP) Guidance notes for the reduction of obtrusive light, 2011								
			#3	All external lighting (except for safety and security lighting) can be automatically switched off between 23:00 and 07:00.								
			#4	If safety or security lighting is provided and will be used between 23:00 and 07:00, this part of the lighting system complies with the lower levels of lighting recommended during these hours in Table 2 of the ILP guidance notes.								
			#5	Illuminated advertisements are designed in compliance with ILP PLG05 The Brightness of Illuminated Advertisements								
Pol 05 - Reduction of Noise Pollution	#1 - Reduction of Noise Pollution	Noise sources from development do not exceed ambient noise levels. Noise impact assessment to be BS 4142 compliant. Credit achieved by default where there are no noise sensitive areas or buildings within 800m radius of development.	#1	Where there are, or will be, no noise-sensitive areas or buildings within 800m radius of the assessed site, OR where noise-sensitive areas exist #2 - #5	1	0.53%		1		M	Design drawings highlighting: 1. All existing and proposed noise-sensitive building local to, and within, the site boundary 2. Proposed sources of noise from the new development 3. Distance (m) from these buildings to the assessed development Acoustician's report with noise attenuation measures, acoustician's qualifications and professional status OR Relevant section/clauses of the building specification or contract requiring a noise assessment by a suitably qualified acoustician in compliance with BS 7445:2003 OR A letter from the client or design team confirming that they will appoint an acoustician to carry out a noise assessment in compliance	Acoustician
			#2	Where there are noise-sensitive areas within the assessed building or noise-sensitive areas within 800 m radius of the assessed site, a noise impact assessment compliant with BS 4142:2014 is commissioned. Noise levels must be measured or determined for: 2.a Existing background noise levels: 2.a.i at the nearest or most exposed noise-sensitive development to the proposed assessed site 2.a.ii including existing plant on a building, where the assessed development is an extension to the building 2.b Noise rating level from the assessed building.								
			#3	The noise impact assessment must be carried out by a suitably qualified acoustic consultant.								
			#4	The noise level from the assessed building, as measured in the locality of the nearest or most exposed noise-sensitive development, must be at least 5dB lower than the background noise throughout the day and night.								
			#5	If the noise sources from the assessed building are greater than the levels described in criterion 4, measures have been installed to attenuate the noise at its source to a level where it will comply with the criterion.								
Totals -					15	8.00%	0	10	0			

9.0 APPENDIX III – BREEAM STAGE 2 SCORESHEET – WORKSPACE REFURBISHMENT

MAX FORDHAM

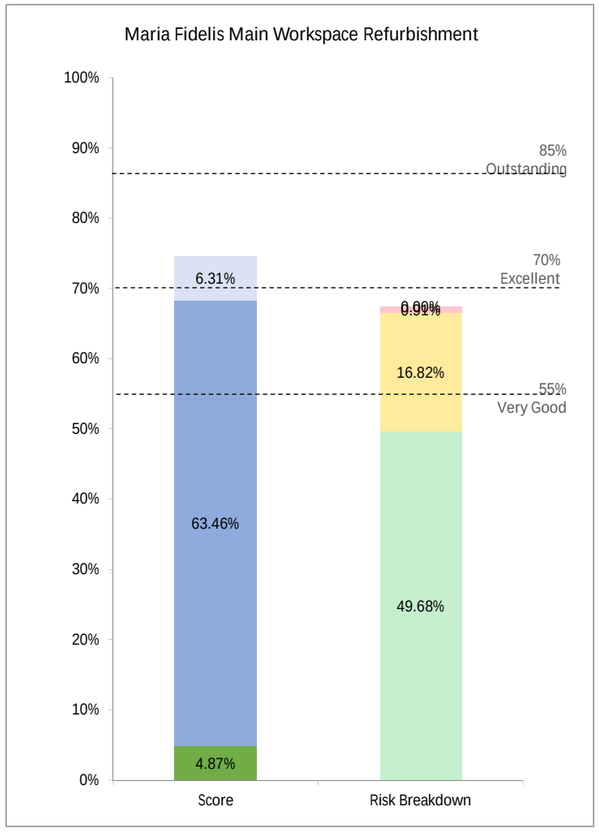
BREEAM 2014 Dashboard Maria Fidelis

Project: Maria Fidelis Main Work Space Refurb Office Core & Shell
Assessor: Ingrid Berkely Assessor, Rebecca Gibson BREEAM AP
BREEAM UK Refurbishment and Fit-out 2014, SD216 1.0-2014

Achieved Score	4.87%	Unclassified
Targeted Score	68.33%	Very Good
Targeted and Potential Score	73.63%	Excellent

Minimum Requirements

	Targeted	Achieved
Pass	Yes	No
Good	Yes	No
Very Good	Yes	No
Excellent	No	No
Outstanding	No	No



		Available	Minimum Requirements	Targeted	Potential	Risk
Management						
Man 01 - Project Brief and Design	#1 - Stakeholder Consultation (project delivery)	1		1	0	L
	#2 - Stakeholder Consultation (third party)	1		1	0	L
	#3 - Sustainability Champion (design)	1		1	0	L
	#4 - Sustainability Champion (monitoring progress)	1		1	0	L
Man 02 - Life Cycle Cost and Service Life Planning	#1 - Elemental Life Cycle Cost (LCC)	2		2	0	M
	#2 - Component Level LCC Plan	1		1	0	M
	#3 - Capital Cost Reporting	1		1	0	L
Man 03 - Responsible Construction Practices	Pre-requisite - Timber Procurement	-		-	0	L
	#1 - Environmental Management	1		1	0	L
	#2 - Sustainability Champion (construction)	1		1	0	L
	#3 - Considerate Construction	2		2	0	L
	« Exemplar Performance - Considerate Construction	1		1	0	M
	#4 - Monitoring of construction-site impacts	1		1	0	L
	#5 - Transport of Construction Materials and Waste	1		0	1	
Man 04 - Commissioning and Handover	#1 - Commissioning and Testing Schedule and Responsibilities	1		1	0	L
	#2 - Commissioning Building Services	1		1	0	L
	#3 - Testing and Inspecting Building Fabric	1		1	0	L
	#4 - Handover	1		1	0	L
Man 05 - Aftercare	#1 - Aftercare Support	1		1	0	I
	#2 - Seasonal Commissioning	1		1	0	M
	#3 - Post Occupancy Evaluation	1		0	0	
	« Exemplar Performance	1		0	0	
Management Total		15.34%		13.88%	0.73%	
Health & Well-being						
Hea 01 - Visual Comfort	#1 - Glare Control	1		1	0	L
	#2 - Daylighting	3		1	0	H
	« Exemplar Performance	1		0	0	
	#3 - Views Out	2		1	0	L
	#4 - Internal and External Lighting Levels, Zoning and Control	1		1	0	L
Hea 02 - Indoor Air Quality	#1 - Indoor Air Quality (IAQ) Plan	1		1	0	L
	#2 - Ventilation	1		1	0	
	#3 - Volatile Organic Compound (VOC) Emission Levels (products)	0		0	0	
	#4 - Volatile Organic Compound (VOC) Emission Levels (post construction)	0		0	0	
	« Exemplar Performance	0		0	0	
	« Exemplar Performance	0		0	0	
	#5 - Potential for Natural Ventilation	1		0	0	
Hea 03 - Safe Containment in Laboratories	#1 - Lab Containment Devices and Containment Areas	0		0	0	
	#2 - Buildings with Containment Level 2 or 3 Laboratory Facilities	0		0	0	
Hea 04 - Thermal Comfort	#1 - Thermal Modelling	1		1	0	L
	#2 - Adaptability - for a Projected Climate Change Scenario	1		1	0	L
	#3 - Thermal Zoning and Controls	1		1	0	L
Hea 05 - Acoustic Performance	#1 - Sound Insulation	1		1	0	M
	#2 - Internal Indoor Ambient Noise Levels	1		1	0	M
	#3 - Reverberation	1		1	0	M
Hea 06 - Safety and Security	#1 - Security of Site and Building	1		1	0	L
Health & Well-being Total		15.52%		11.87%	0.00%	
Energy						
Ene 01 - Reduction of Energy Use and Carbon Emssions	#1 - Energy Performance	12		6	0	M
	« Exemplar Performance	2		0	0	
	« Exemplar Performance	3		0	0	
Ene 02 - Energy Monitoring	#1 - Sub-metering of Major Energy Consuming Systems	1	1	1	0	L
	#2 - Sub-metering of High Energy Load and Tenancy Areas	1		1	0	L
Ene 03 - External Lighting	#1 - External Lighting	1		1	0	L
Ene 04 - Low Carbon Design	#1 - Passive Design Analysis	1		1	0	L
	#2 - Free Cooling	1		0	0	
	#3 - Low and Zero Carbon Technologies	1		0	0	
Ene 05 - Energy Efficiency Cold Storage	#1 - Refrigeration Energy Consumption	0		0	0	
	#2 - Indirect Greenhouse Gas Emissions	0		0	0	
Ene 06 - Energy Efficient Transportation Systems	#1 - Energy Consumption	0		0	0	
	#2 - Energy Efficient Features	2		2	0	L
Ene 07 - Energy Efficient Laboratory Systems	Pre-requisite - Safe Containment	-		0	0	
	#1 - Design Specification	0		0	0	
	#2 - Best Practice Energy Efficient Measures	0		0	0	
Ene 08 - Energy Efficient Equipment	#1 - Energy Efficient Equipment	2		2	0	L
Ene 09 - Drying Space	#1 - Drying Space	0		0	0	
Energy Total		15.72%		10.00%	0.00%	
Transport						
Tra 01 - Sustainable Transport Solutions	#1 - Accessibility Index	3		3	0	L
	#2 - Alternative Transport Measures					
Tra 02 - Proximity to Amenities	#1 - Proximity to Amenities	1		1	0	L
Tra 03 - Cyclist Facilities	#1 - Cycle Storage	1		1	0	M
	#2 - Cycle Facilities	1		1	0	M
	#3 - Cycle Storage and Cyclist Facilities	0		0	0	
Tra 04 - Maximum Car Parking Capacity	#1 - Car Parking Capacity	2		2	0	L
Tra 05 - Travel Plan	#1 - Travel Plan	1		1	0	L
Transport Total		7.67%		7.67%	0.00%	
Water						
Wat 01 - Water Consumption	#1 - Water Consumption	5	1	2	1	L
	« Exemplar Performance	1		0	0	
Wat 02 - Water Monitoring	#1 - Water Monitoring	1	Criterion 1 only	1	0	L
Wat 03 - Water Leak Detection	#1 - Leak Detection System	1		1	0	L
	#2 - Flow Control Devices	1		1	0	L
Wat 04 - Water Efficient Equipment	#1 - Water Efficient Equipment	0		0	0	
Water Total		6.14%		3.84%	0.77%	

Key

Achieved	
Targeted	
Potential	
Targeted - Low Risk, thought to be achievable	
Targeted - Medium Risk, some uncertainty and/or technically complex	
Targeted - High Risk, may be highly uncertain, expensive and/or historically difficult to achieve	
Targeted - Critical Risk, requires immediate action	
Credits with minimum requirements	

Note: The risk measure is a quantitive indicator assigned by the assessor

67.33%

MAX FORDHAM

		Available	Minimum Requirements	Targeted	Potential	Risk
Materials						
Mat 01 - Life Cycle Impacts	#1 - Life Cycle Impacts	6		2	1	M
Mat 03 - Responsible Sourcing of Materials	Pre-requisite - Legally Sourced Timber	-	#1 - Timber	-	0	L
	#1 - Sustainable Procurement Plan	1		0	0	0
	#2 - Responsible Sourcing of Materials (RSM)	3		1	0	M
	« Exemplar Performance	1		0	0	
Mat 04 - Insulation	#1 - Embodied Impact	1		1	0	L
Mat 05 - Designing for Durability and Resilience	#1 - Protecting Vulnerable Parts of the Building from Damage and Degradation	1		1	0	L
Mat 06 - Material Efficiency	#1 - Material Efficiency	1		1	0	L
Material Total		14.84%		6.36%	1.06%	
Waste						
Wst 01 - Construction Waste Management	#1 - Pre-refurbishment audit	1		1	0	L
	#2 - Reuse and Direct Recycling of Materials	2		0	0	0
	#3 - Resource Efficiency	3		2	0	L
	#4 - Diversion of Resources from Landfill	1		1	0	L
	« Exemplar Performance	1		0	0	
Wst 02 - Recycled Aggregates	#1 - Recycled Aggregates	1		0	1	
	« Exemplar Performance	1		0	0	
Wst 03 - Operational Waste	#1 - Operational Waste	1		1	0	L
Wst 04 - Speculative Floor and Ceiling Finishes	#1 - Speculative Floor and Ceiling Finishes	0		0	0	
Wst 05 - Adaptation to Climate Change	#1 - Structural and Fabric Resilience	1		1	0	L
	« Exemplar Performance	0		0	0	
Wst 026 - Functional Adaptability	#1 - Functional Adaptability	1		1	0	L
Waste Total		8.79%		5.59%	0.80%	

		Available	Minimum Requirements	Targeted	Potential	Risk
Land Use & Ecology						
LE 02 - Protection of Ecol. Features	#1 - Protection of Ecological Features	0		0	0	
LE 04 - Enhancing Site Ecology	#1 - Ecologist's Report and Recommendations	1		1	0	L
LE 05 - Long Term Impact on Biodiversity	#1 - Long Term Impact on Biodiversity	0		0	0	
Land Use & Ecology Total		3.20%		3.20%	0.00%	
Pollution						
Pol 01 - Impact of Refrigerants	#1 - No Refrigerant Use	0		0	0	
	Pre-requisite - Guidelines Compliance		2	0	1	
	#2 - Impact of Refrigerant					
	#3 - Leak Detection	1		0	1	
Pol 02 - NOx Emissions	#1 -NOx Emissions	3		0	1	M
Pol 03 - Surface Water Run-off	#1 - Flood Risk Management	2		2	0	L
	#2 - Surface Water Run-Off	2		1	0	M
	#3 - Minimising Watercourse Pollution	1		0	0	
	« Exemplar Performance	1		0	0	
Pol 04 - Reduction of Night Time Light Pollution	#1 - Reduction of Night Time Light Pollution	1		1	0	L
Pol 05 - Reduction of Noise Pollution	#1 - Reduction of Noise Pollution	1		1	0	L
Pollution Total		12.78%		4.92%	2.95%	
Innovation						
★Approved Innovation	Approved Performance	0		0	0	0

Total		110.00%		68.33%	6.31%	

BREEAM Refurbishment & Fitout 2014

Maria Fidelis Main Work Space Refurb Office Core & Shell

For Planning 03.06.19

Project Stage	RIBA Stage 2
Assessor Type	Core & Shell
Assessor Name	Ingrid Berkely Assessor, Rebecca Gibson BREEAM AP
Desired Rating	Very Good
Desired Score	60.00%

Key

- BREEAM minimum requirements
- BREEAM stage specific requirements
- (C) Complete
- (A) Awaiting
- (O) Outstanding

Achieved Score	4.87%	Unclassified
Target Score	68.33%	Very Good
Potential Score	73.63%	Excellent

Category	BREEAM Issue	Credit Number	General Requirements	Criterion	Detailed Requirements	Available Credits	Available Percent	Achieved Credits	Targeted Credit	Potential Credit	Risk	Design Stage Evidence Requirements	Design Stage Credit Owner
	Man 01 - Project Brief and Design	#1 - Stakeholder Consultation (project delivery)	Prior to completion of the Concept Design, a clear sustainability brief is set out and roles and responsibilities must be specifically outlined. Must occur no later than RIBA Stage 2	#1	A clear sustainability brief is developed prior to Concept Design which sets out: a. Client requirements, e.g. internal environmental conditions required b. Sustainable objectives and targets including target BREEAM rating, business objectives, etc. c. Timescales and budget d. List of consultees and professional appointments that may be required, e.g. Suitably Qualified Acoustician, etc. e. Constraints for the project, e.g. technical, legal, physical, environmental	1	0.73%		1		L	Consultation plan setting out the process and scope of the consultation One or more of the appropriate evidence types listed in the BREEAM evidential requirements section, e.g.: 1. The training schedule	All
				#2	Prior to completion of the Concept Design (RIBA Stage 2 or equivalent), the project delivery stakeholders have met to identify and define their roles, responsibilities and contributions for each of the key pases of the project delivery								
				#3	In definiig the roles and responsibilities for each key phase of the project, the following must be considered: a. End user requirements b. Aims of the design and design strategy c. Particular installation and construction requirements/limitations d. Design and construction risk assessment, e.g. CDM, legionella risk assessment e. Legislative requirements, e.g. building control notification, heritage requirements f. Procurement and supply chain g. Identifying and measuring project success in line with project brief objectives h. Occupiers' budget and technical expertise in maintaining any proposed systems i. Maintainability ans adaptability of the proposals j. Requirements for the production of project and end user documentation k. Requirements for commissioning, training and aftercare support								
				#4	The project team demonstrate how the project delivery stakeholder contributions and the outcomes of the consultation process have influenced or changed the Initial Project Brief, including if appropriate, the Project Execution Plan, Communication trategy, and the Concept Design								
		#2 - Stakeholder Consultation (third party)	During design brief preparation, all relevant parties and bodies are identified and consulted with by the design team - evidence must be gathered that these consultations were incorporated into the design. Consultation plan must be prepared that includes timescale and method of consultation. Must occur no later than RIBA Stage 2	#5	Prior to completion of the Concept Design stage, all relevant third party stakeholders have been consulted by the design team and this covers the minimum consultation content	1	0.73%	1	1		L	One or more of the appropriate evidence types listed in the BREEAM evidential requirements section, e.g.: 1. A list of the stakeholders consulted 2. A consultation plan setting out the process and the scope of the consultation 3. Agenda/minutes from the consultation meetings	FBM FBM Architectss
				#6	The project must demonstrate how the stakeholder contributions and outcomes of the consultation exercise have influenced or changed the Iniital Project Brief and Concept Design								
				#7	Prior to completion of the detailed design (RIBA Stage 4, Technical Design or equivalent), consultation feedback has been given to, and received by, all relevant parties.								
		#3 - Sustainability Champion (design)	No later than early RIBA Stage 1, Sustainability Champion is appointed to facilitate setting of BREEAM performance targets. BREEAM target must be contractually agreed between client and project team no later than RIBA Stage 2. Project must undergo Design Stage Certification assessment. Must occur no later than RIBA Stage 1	#9	A Sustainability Champion has been appointed to facilitate the setting and achievement of BREEAM performance targets for the project. The design stage Sustainability Champion is appointed to perform this role during the feasibility stage (Stage 1, Preparation and Brief stage, as defined by the RIBA Plan of Work 2013 or equivalent)	1	0.73%	1	1		L	One or more of the appropriate evidence types listed in the BREEAM evidential requirements section, e.g.: 1. Sustainability Champion (AP) appointment letter 2. Relevant section/clauses of the building specification or contract 3. Project programme indicating the dates by which the key work stages (preparation and design) are to be completed 4. Meeting notes/minutes, recorded correspondence or schedules that can demonstrate BREEAM issues are a regular agenda item and AP attendance. 5. The AP progress report (for each work stage) 6. Design stage BREEAM assessment report	Client (Maria F)
				#10	The defined BREEAM performance target(s) has been formally agreed between the Client and the Design/Project Team no later than the Concept Design stage (RIBA Stage 2 or equivalent)								
				#11	To achieve this credit at the interin design stage assessment, the agreed BREEAM performance target(s) must be demonstrably achieved by the project design. This must be demonstrated via the BREEAM assessor's design stage assessment report								
		#4 - Sustainability Champion (monitoring progress)	Credit #3 has been achieved. Sustainability Champion is appointed to monitor progress against the agreed BREEAM performance targets throughout the design process and formally report progress to the client and design team. Sustainability Champion must attend key design team meetings and prepare regular written reports. Must occur no later than RIBA Stage 2	#12	The Sustainability Champion, criteria 9, 10 and 11 have been achieved	1	0.73%		1		L		Client (Maria F)
				#13	A Sustainability Champion is appointed to monitor progress against the agreed BREEAM performance target(s) throughout the design process and formally report progress to the Client and Design Team								
	Service Life Planning	#1 - Elemental Life Cycle Cost (LCC)	An elemental life cycle cost (LCC) analysis has been carried out, at RIBA Stage 2. The LCC analysis shows an outline plan based on the building's basic structure and envelope, appraising a range of options and based on multiple cash flow scenario's e.g., 20, 30, 50+ years and the fabric and servicing strategy for the project outlining services component and fit-out options (if-applicable) over a 15-year period, in the form of an 'elemental LCC Plan'. Must occur no later than RIBA Stage 2	#1	An elemental life cycle (LCC) analysis has been carried out at Process Stage 2 (equivalent to Concept Design - RIBA Stage 2) together with any design option appraisals in line with Standardised method of life cycle costing for construction procurement PD 156865:2008	2	1.46%		2		M	Elemental cycle cost plan	QS Beadmans
				#2	The LCC analysis shows: a. An outline LCC plan has been undertaken for the project based on the building's basic structure and envelope, appraising a range of options and based on the life expectancy of the refurbished building, e.g. 20, 30, 50+ years b. The servicing strategy for the project outlining services component over a 15 year period, in the form of an 'elemental LCC plan' c. A fit-out strategy is developed outlining fit-out options over a 10 year period								

Category	BREEAM Issue	Credit Number	General Requirements	Criterion	Detailed Requirements	Available Credits	Available Percent	Achieved Credits	Targeted Credit	Potential Credit	Risk	Design Stage Evidence Requirements	Design Stage Credit Owner
Management	Man 02 - Life Cycle Cost and	#2 - Component Level LCC Plan	A component level LCC plan has been developed by the end of RIBA Stage 4 and includes the following component types in line with PD 156865:2008 (where present): envelope, services, finishes, external spaces. Demonstrate how the component level LCC plan has been used to influence building and systems design/specification to minimise life cycle costs and maximise critical value. Must occur no later than RIBA Stage 4	#3	A component level LCC plan has been developed by the end of Process Stage 4 (equivalent to Technical Design - RIBA Stage 4) in line with PD 156865:2008 and includes the following component types (where present): - Part 1 assessment, including components within scope of works: Envelope, e.g. cladding, windows, and/or roofing - Part 2 & 3 assessment, including newly specified local and core services: Newly specified local and/or core services equipment, e.g. boiler, air-conditioning, air handling unit, and/or controls, etc. - Parts 1-4 where finishes are within scope of works: Finishes, e.g. walls, partitions, floors and/or coverings, etc. - WHere external spaces are within the scope of works: External spaces, e.g. alternative hard landscaping, boundary protection	1	0.73%		1		M	Component level life cycle cost plan	QS Beadmans
				#4	Demonstrate, using appropriate examples provided by the design team, how the component level LCC plan has been used to influence building and systems design/specification to minimise life cycle costs and maximise critical value								
		#3 - Capital Cost Reporting	Report the capital cost for the building in pounds per square metre (£/m^2), via the BREEAM Assessment Scoring and Reporting tool, Assessment Issue Scoring tab, Management section.	#5	Report the capital cost for the refurbishment/fit-out works in pounds per square meter, £k/m^2, via the BREEAM Assessment Scoring and Reporting tool.	1	0.73%		1		L	To be reported in the BREEAM Scoring and Reporting tool	QS Beadmans
	Man 03 - Responsible Construction Practices	Pre-requisite - Timber Procurement	All timber and timber-based products used on the project are 'legally harvested and traded timber' (see Relevant definitions) Minimum Requirements	#1	All timber and timber-based products used on the project is 'legally harvested and traded timber'	-	-		-		L	1. Relevant section/clauses of the building specification or contract OR a signed and dated letter of commitment to meet the relevant criteria	Client, Contractor
		#1 - Environmental Management	Principle contractor operates a compliant Environmental Management System concerning their main operations and implement best practice pollution prevention policies and procedures on site in accordance with Pollution Prevention Guidelines.	#2	The principal contractor operates an environmental management system (EMS) covering their main operations. The EMS must be either: a. Third party certified, to ISO 14001/EMAS or equivalent standard; or b. Have a structure that is in compliance with BS 8555:2003 and has reached phase four of the implementation stage, 'implementation operation of the environmental management system', and has completed phase audits 1 to 4, as defined in BS 8555:2003.	1	0.73%		1		L	One or more of the appropriate evidence types listed in the BREEAM evidential requirements section, e.g.: 1. Relevant section/clauses of the building specification or contract OR a signed and dated letter of commitment to meet the relevant criteria	Client, Contractor
				#3	The principal Contractor impelments best practice pollution prevention policies and procedures on-site in accordance, with Pollution Prevention Guidelines, Working at Construction and Demolition Sites: PPG6								
		#2 - Sustainability Champion (construction)	Sustainability Champion is appointed to monitor the project to ensure ongoing compliance with the relevant sustainability performance/process criteria and BREEAM targets throughout the Construction, Handover and Close out stages and formally report progress to the client and design team. Sustainability Champion must attend key design team meetings and submit a final post construction stage assessment report.	#4	A Sustainability Champion is appointed to monitor the project to ensure ongoing compliance with the relevant sustainability performance/process criteria, and therefore BREEAM target(s), during the Construction, Handover and Close Out stages (as defined by the RIBA Plan of Works 2013, Stages 5 and 6)	1	0.73%		1		L	One or more of the appropriate evidence types listed in the BREEAM evidential requirements section, e.g.: 3. Project programme indicating the dates by which the key work stages (preparation and design) are to be completed 4. Meeting notes/minutes, recorded correspondence or schedules that can demonstrate BREEAM issues are a regular agenda item and AP attendance.	Client, Contractor
				#5	The defined BREEAM performance target forms a requirement of the principal Contractor's contract.								
				#6	To achieve this credit at the final post construction stage of assessment, the BREEAM-related performance target for the project must be demonstrbly achieved by the project. This is demonstrated via the BREEAM Assessor's final post construction stage assessment report								
		#3 - Considerate Construction	The principal contractor has used a 'compliant' organisational, local or national considerate constructors scheme and their performance against the scheme has been confirmed by independent assessment and verification. Under CCS scheme one credit can be awarded for a score between 25 and 34 with at least 5 in each section, and two credits for a score between 35 and 39 with at least 7 in each section. Minimum Requirements	#7	For a small scale or low value refurbishment or fit-out project: a. One credit can be awarded where an individual(s) is responsible for implementing and maintaining the following considerate construction practices throughout the works stage: i. Keeping the site clean and tidy ii. Reducing impacts on the community through community/neighbour engagement iii. Continuous improvement in safety iv. Commitments to respect and fair treatment of all workers v. Suitable site facilities for operatives and visitors b. Two credits can be awarded where the Contractor achieves 'compliance' with the criteria of a 'compliant' scheme	2	1.46%		2		L	One or more of the appropriate evidence types listed in the BREEAM evidential requirements section, e.g.: 1. Relevant section/clauses of the building specification or contract OR a signed and dated letter of commitment to meet the relevant criteria	Client, Contractor
				#8	Where the refurbishment or fit-out project does not meet the definition of a small scale or low value project the principal Contractor has used a 'compliant' organisational, local or national considerate construction scheme and their performance against the scheme has been confirmed by independent assessment and verification. The BREEAM credits can be awarded as follows: a. One credit where the Contractor achieves 'compliance' with the criteria of an compliant scheme b. Two credits where the Contractor significantly exceeds 'compliance' with the criteria of the scheme.								
		★ Exemplar Performance - Considerate Construction	Exemplary Level of Practice achieving a score of 40 or above	#19	With reference to the considerate construction criteria, in addition to meeting the criteria for two credits, the Contractor achieves compliance with the criteria of the compliant scheme to an exemplary level of practice	1	1.00%		1		M	One or more of the appropriate evidence types listed in the BREEAM evidential requirements section, e.g.: 1. Relevant section/clauses of the building specification or contract OR a signed and dated	Client, Contractor
		#4 - Monitoring of construction-site impacts	Responsibility has been assigned to an individual(s) for monitoring, recording and reporting energy use and water consumption resulting from all on-site construction processes (and dedicated off-site monitoring) throughout the build programme.	#9	Responsibility has been assigned to an individual(s) for monitoring, recording and reporting energy use, water consumption and transport data (where measured) resulting from all on-site erfurbishment or fit-out processes (and dedicated off-site monitoring) throughout the refurbishment or fit-out programme. To ensure the robust collection of information, this individual(s) must have the appropriate authority and responsibility to request and access the data required. Where appropriate, the Sustainability Champion could perform this role.	1	0.73%		1		L	One or more of the appropriate evidence types listed in the BREEAM evidential requirements section, e.g.: 1. Relevant section/clauses of the building specification or contract OR a signed and dated letter of commitment to meet the relevant criteria	Client, Contractor
				#10	Criterion 9 is achieved								
				#11	Monitor and record data of the site energy consumption in kWh (and where relevant, litres of fuel used) as a result of the use of construction plant, equipment (mobile and fixed) and site accommodation (as relevant to the project type)								
				#12	Report the total carbon dioxide emissions (totak kGCO2/project value) from the construction processes via the BREEAM Assessment Scoring and Reporting tool (for the purposes of potential future BREEAM performance benchmarking)								
				#13	Criterion 9 is achieved								
				#14	Monitor and record data on principal Constructur's and Sub-contractor's potable water consumption (m3) arising from the use of construction plant, equipment (mobile and fixed) and site accommodation (as relevant to the project type)								
				#15	Using the collated data report the total net water consumption (m3), i.e. consumption minus any recycled water use from the construction process via the BREEAM Assessment Scoring and Reporting tool (for the purposes of potential future BREEAM performance benchmarking)								

Category	BREEAM Issue	Credit Number	General Requirements	Criterion	Detailed Requirements	Available		Achieved	Targeted	Potential	Risk	Design Stage Evidence Requirements	Design Stage Credit Owner
						Credits	Percent	Credits	Credit	Credit			
Man 04 - Commissioning and Handover		#5 - Transport of Construction Materials and Waste	Responsibility has been assigned to an individual for monitoring, recording, and reporting data on transport movements and impacts resulting from delivery of the majority of construction materials to site and construction waste from site.	#16	Criterion 9 is achieved	1	0.73%			1		One or more of the appropriate evidence types listed in the BREEAM evidential requirements section, e.g.: 1. Relevant section/clauses of the building specification or contract OR a signed and dated letter of commitment to meet the relevant criteria	Client, Contractor
				#17	Monitor and record data on transport movements and impacts resulting from delivery of the majority of refurbishment or fit-out materials to site and refurbishment, fit-out and demolition or strip-out waste from site. As a minimum this must cover: a. Transport of materials from the factory gate to the building site, including any transport, intermediate storage and distribution b. Scope of this monitoring must cover the following as a minimum: i. Where Part 1 is being assessed, materials used in major building elements, including insulation materials ii. Where Part 2 is being assessed, materials used for core services iii. Where undertaking a comprehensive refurbishment including fit-out with a combination of Parts 1-4, materials used for major building elements, services and interior fit-out iv. Where within scope, ground works and landscaping materials v. Where undertaking a Parts 3 & 4 only assessment, materials used inthe fit-out are included within the exception of small scale and low value refurbishment or fit-out projects c. Transport of construction waste from the construction gate to waste disposal processing or recovery centre gate. Scope of this monitoring must cover the construction waste groups outlined in the project's waste management plan								
				#18	Using the collated data, report separately for materials and waste, the total fuel consumption (litres) and/or total carbon emissions (kgCO2eq), plus total distance travelled (km) via the BREEAM Assessment Scoring and Reporting tool (for the purpose of potential future BREEAM performance benchmarking)								
		#1 - Commissioning and Testing Schedule and Responsibilities	Project team member appointed to monitor and programme pre-commissioning, commissioning, and where necessary, re-commissioning. Main contractor accounts for commissioning programme, responsibilities, and criteria within main programme of works. Must occur no later than RIBA Stage 4	#1	There is a schedule of commissioning and testing that identifies appropriate commissioning required for the scope of works that includes a suitable timescale for commissioning and re-commissioning of all relevant works carried out. Commissioning should be carried out where changes are being made to the following: a. Building services (including both complex and non-complex) b. Building services control systems (including BMS) c. Changes to the building fabric that will affect thermal performance	1	0.73%		1		L	One or more of the appropriate evidence types listed in the BREEAM evidential requirements section, e.g.: 1. Appointment letter or commissioning responsibilities schedule 2. Relevant section/clauses of the building specification or contract 3. Principal Contractors programme 4. Commissioning schedule	Max Fordham MEP
				#2	The schedule willidentify the appropriate standards that all commissioning activities will be conducted in accordance with such as current Building Regulations, BSRIA and CIBSE guidelines and/or other appropriate standards, where applicable. Where a BMS is specified the following commissioning procedures must be carried out: 1. Commissioning of air and water systems is carried out when all control devices are installed, wired and functional 2. In addition to air and water flow results, commissioinng results include physical measurements of room temperature, off-coil temperatures and other key parameters as appropriate 3. The BMS/controls installation should be running in auto with satisfactory internal conditions prior to handover 4. All BMS schematics and graphics (if BMS is present) are fully installed and functional to user interface before handover 5. The occupier or facilities team is fully trained in the operation of the system								
				#3	An appropriate project team member(s) is appointed to monitor and programme pre-commissioning, commissioning, testing and, where necessary, re-commissioning activities on behalf of the client								
				#4	The principal Contractor accounts for the commissioning and testing programme, responsibilities and criteria within their budget and main programme of works, allowing for the required time to complete all commissioning and testing activities prior to handover								
		#2 - Commissioning Building Services	Specialist Commissioning Manager must be appointed during design stage (by either client or contractor) for complex systems in order to give design input.	#5	The commissioning and testing schedule and responsibilities credit is achieved	1	0.73%		1		L	One or more of the appropriate evidence types listed in the BREEAM evidential requirements section, e.g.: 1. Appointment letter or commissioning responsibilities schedule 2. Relevant section/clauses of the building specification or contract 3. Principal Contractors programme 4. Commissioning schedule	Max Fordham MEP
				#6	For projects where work is being undertaken to update, renovate or install new building services and systems a. For complex building services and systems, a specialist commissioning manager is appointed during the design stage (by wither Client or Contractor) with responsibility for: i. Undertaking design reviews and giving advice on suitability for ease of commissioning ii. Providing commissioning management input to construction programming and during installation stage iii. Management of commissioinng, performance testing and handover/post handover stages b. For simple building services, this role can be carried out by an appropriate project team member (see criterion 3), provided they are not involved in the general installation works for the building services system(s)								
		#3 - Testing and Inspecting Building Fabric	Credit #1 has been achieved. The integrity of the building fabric is quality assured through completion of post construction testing and inspection. Dependent on building type this can be demonstrated through the completion of a thermographic survey as well as airtightness test and inspection by a qualified professional. Any defects must be rectified prior to building handover/close out.	#7	Projects where the fabric of the building is being upgraded, the integrity of the building fabric, including continuity of insulation, avoidance of thermal bridging and air leakage paths is quality assured through completion of a thermpographic survey as well as air tightness testing and visual inspection at appropriate times during the refurbishment. The survey/testing is undertaken by a Suitably Quality Professional in accordance with the appropriate standard, with visual inspection conducted by a representative of the Main Contractor or by an independent inspection such as a clerk of works	1	0.73%		1		L	One or more of the appropriate evidence types listed in the BREEAM evidential requirements section, e.g. 1. Project budget 2. Programme of works 3. Relevant section/clauses of the building specification or contract and/or letter of appointment	Max Fordham MEP
				#8	Any defects identified in the site inspection, thermographic survey and the airtightness testing reports are rectified prior to building handover and close out. Any remedial works must meet the required performance characteristics for the building/element								

Category	BREEAM Issue	Credit Number	General Requirements	Criterion	Detailed Requirements	Available		Achieved	Targeted	Potential	Risk	Design Stage Evidence Requirements	Design Stage Credit Owner
						Credits	Percent	Credits	Credit	Credit			
		#4 - Handover	Building User Guide is developed for distribution to the building occupiers and premises managers. A training schedule is prepared for building occupiers/premises managers containing the building's design intent, aftercare provision, introduction/demonstration of installed systems and key features, introduction to the Building User Guide, maintenance requirements. Minimum Requirements - Building User Guide	#9	A Building User Guide is developed or (where present) an existing Building User Guide is updated, prior to handover for distribution to the building occupiers and premises managers, with a draft copy developed and discussed with users first (where the building occupants are known) to ensure the guide is most appropriate and useful to potential users	1	0.73%		1		L	One or more of the appropriate evidence types listed in the BREEAM evidential requirements section, e.g.:	Max Fordham MEP
				#10	A training schedule is prepared for building ocucpiers/premises managers, timed appropriately around handover and proposed occupation plans, which includes the following content as a minimum: a. The design intent of refurbishment/fit-out works b. The available aftercare provision and aftercare team main contact(s), including any scheduled seasonal commissioning and post occupancy evaluation c. Introduction to, and demonstration of, installed systems and key features, particularly building management systems, controls and their interfaces, to ensure they are fully conversant with the detailed operation of the building d. Introduction to the Building User Guide and other relevant building documentation, e.g. design data, technical guides, maintenance strategy, operations and maintenance (O&M) manual, commissioning records, log books, etc. e. Maintenance requirements, including any maintenance contracts and regimes in place							
	Man 05 - Aftercare	#1 - Aftercare Support	Energy and water consumption data is collected for at least 12 months after occupation and data is analysed. A contract is in place for building aftercare support.	#1	There is (or will be) operational infrastructure and resource in place to provide aftercare support to the building occupier(s), which includes the following as a minimum: a. A meeting programmed to occur between the aftercare team/individual and the building occuiper/management (prior to initial occupation, or as soon as possible thereafter) to: i. Introduce the aftercare team or individual to the aftercare support available, including the Building User Guide (where existing) and training schedule/content ii. Presnt key information about features of the refurbished building including the design intent and how to use the building to ensure it operates as efficiently and effectively as possible (including the use of local services and controls and central services, as applicable) b. On-site facilities management training, to include a walkabout of the refurbishment area of the building and introduction to, and	1	0.73%		1		I	One or more of the appropriate evidence types listed in the BREEAM evidential requirements section, e.g.: Evidence of either existing procedures or a commitment/contract to put in place a mechanism to: 1. Collect, compare and analyse relevant data 2. Undertake suitable adjustments if necessary	Client
				#2	There is (or will be) operational infrastructure and resource in place to coordinate the collection and monitoring of energy and water consumption data for a minimum of 12 months (for Part 4, where local metering is available and accessible), once the building is occupied. Discrepancies between actual and predicted performance should be identified, with a commitment to identify actions required to address any discrepancies such as adjusting systems and/or to develop/review operational policies to influence user behaviours accordingly								
		#2 - Seasonal Commissioning	Seasonal Commissioning over a 12 month period once building becomes occupied. Minimum Requirements	#3	The following seasonal commissioning activities will be completed over a minimum 12-month period, once the building becomes substantially occupied: a. Complex systems - Specialist Commissioning Manager: i. Testing of all building services under full load conditions, i.e. heating equipment in mid-winter, cooling/ventilation equipment in mid-summer, and under part load conditions (spring/autumn)	1	0.73%		1		M	One or more of the appropriate evidence types listed in the BREEAM evidential requirements section, e.g.: 1. Appointment letter(s) and/or commissioning responsibilities schedule	Client
					Totals - Base	21	15.34%	2	19	1			
					Total - Innovation	2	2.00%	0	1	0			

Category	BREEAM Issue	Credit Number	General Requirements	Criterion	Detailed Requirements	Available		Achieved	Targeted	Potential	Risk	Design Stage Evidence Requirements	Design Stage Credit Owner
						Credits	Percent	Credits	Credit	Credit			
	Hea 01 - Visual Comfort	#1 - Glare Control	Potential for disabling glare has been designed out of all relevant building areas using a glare control strategy. The glare control strategy avoids increasing lighting energy consumption and use or location of shading does not conflict with the operation of lighting control systems.	#1	The potential for disabling glare has been designed out of all relevant building areas using a glare control strategy, either through building form and layout and/or building design measures	1	0.91%		1		L	One or more of the appropriate evidence types listed in the BREEAM evidential requirements section, e.g.: Design drawings Relevant section/clauses of the building specification or contract Window schedule	FBM FBM Architectss
				#2	The glare control strategy avoids increasing lighting energy consumption, by ensuring that: a. The glare control system is designed to maximise daylight levels under all conditions while avoiding disabling glare in the workplace or other sensitive areas. The system should not inhibit daylight from entering the space under cloudy conditions, or where sunlight is not on the facade, and b. The use or location of shading does not conflict with the operation of lighting control systems								
		#2 - Daylighting	The building achieves good practice daylighting relevant to the building function to ensure appropriate levels of natural light for the building occupants The relevant building areas meet good practice daylight factor(s) and other criterion OR The relevant building areas meet good practice average and minimum point daylight illuminance criteria	#3	Up to three credits are awarded on a sliding scale depending on the percentrage of relevant building areas that comply with one of the following daylighting criteria: a. The relevant building areas meet good practice daylight factor(s) and other criterion as outlined in Table 12 and Table 13 within BREEAM Refurbishment and Fit-out 2014, Hea 01 - Visual Comfort, or b. The relevant building areas meet good practice average and minimum point daylight illuminance criteria as outlined in Table 14 within BREEAM Refurbishment and Fit-out 2014, Hea 01 - Visual Comfort	3	2.74%		1		H	Daylighting calculations	FBM FBM Architectss
				#4	Two credits where daylighting provision, averaged over all relevant spaces, has improved after refurbishment or fit-out by 30% or more and there is aminimum glazing to floor area ratio of either: a. 5% glass to floor area ratio for side windows; or b. 2.5% glass to floor area ratio for roof lights								
				#5	One credit where daylighting provision, averaged over all relevant spaces, has improved after refurbishment or fit-out by 15% or more and there is a minimum glazing floor area ratio of either: a. 5% glass to floor area ratio for side windows; or b. 2.5% glass to floor area ratio for roof lights								
		#3 - Views Out	95% (for two credits) or 80% (for one credit) of the floor area in relevant building areas is within 7m of a wall which has a window or permanent opening that provides an adequate view out. The window/opening must be ≥ 20% of the surrounding wall area where the room depth is greater than 7m.	#6	Two credits where 95% of the floor area in relevant building areas is within 7 meters of a wall which has a window or permanent opening that provides an adequate view out	2	1.83%		1		L	One or more of the appropriate evidence types listed in the BREEAM evidential requirements section, e.g.: Design drawings Relevant section/clauses of the building specification or contract Window schedule	FBM FBM Architectss
				#7	One credit where 80% of the floor area space in relevant building areas is within 7 meters of a wall which has a window or permanent opening that provides an adequate view out and criterion 8 is met								
				#8	The window/opening must be ≥ 20% of the surrounding wall area. Where the room depth is greater than 7 meters, compliance is only possible where the percentage of window/opening is the same as, or greater than, the values in Table 1.0 of BS 8206								
				#9	In addition, the building type criteria in Table 15 within BREEAM Refurbishment and Fit-out, Hea 01 - Visual Comfort, are applicable to view out criteria								
		#4 - Internal and External Lighting Levels, Zoning and Control	Internal and External lighting provides luminance levels in accordance with the SLL Code for Lighting 2012. For areas where computer screens are regularly used, the lighting design complies with CIBSE Lighting Guide 72 sections 3.3, 4.6, 4.7, 4.8 and 4.9. External lighting provided is specified in accordance with BS 5489-1:2013 Lighting of roads and public amenity areas.	#10	All fluorescent and compact fluorescent lamps are fitted with high frequency ballasts	1	0.91%		1		L	Design drawings and/or room data sheets/schedules Relevant section/clauses of the building specification or contract OR a letter of formal confirmation of compliance from the relevant design team member	Max Fordham MEP
				#11	Internal lighting in all relevant areas of the building is designd to provide an illuminance (lux) level appropriate to the tasks undertaken, accounting for building user concentration and comfort levels. This can be demonstrated through a lighting design strategy that provide illuminance levels in accordance with the SLL Code for Lighting 2012 and any other relevant industry standard								
				#12	For areas where computer screens are regularly used, the lighting design complies with CIBSE Lighting Guide 7, section 3.3, 4.6, 4.7, 4.8 and 4.9. This gives recommendations highlighting: a. Limits to the luminance of the luminaires to avoid screen reflections b. For uplighting, the recommendations refer to the luminance of the lit ceiling rather than the luminaire; a design team calculation is usually required to demonstrate this c. Recommendations for direct lighting, ceiling illuminance, and average wall illuminance								
				#13	All external lighting located within the refurbishment or fit-out zone is designed to provide illuminance levels that enable users to perform outdoor visual tasks efficiently and accurately, especially during the night. To demonstrate this, external lighting provided is specified in accordance with BS 5489-1:2013 Lighting of Roads and Public Amenity Areas and BS EN 12464-2:2014 Light and Lighting - Lighting of Work Places - Part 2: Outdoor Work Places								
				#14	Internal lighting is zoned to allow for occupant control in accordance with the criteria below for relevant areas present within the building: a. In office areas, zones of no more than four workplaces b. Workstations adjacent to windows/atria and other building areas separately zoned and controlled c. Seminar and lecture rooms: zoned for present and audience areas d. Library spaces: separate zoning of stacks, reading and counter areas e. Teaching space or demonstration area f. Whiteboard or display screen g. Auditoria: zoning of seating areas, circulation space and lectern area h. Dining, restaurant, cafe areas: separate zoning of servery and seating/dining areas i. Retail: separate zoning of display and counter areas j. Bar areas: separate zoning of bar and seating areas k. Wards or bedded areas: zoned lighting control for individual bed spaces and control for sfatt over groups of bed spaces l. Treatment areas, dayrooms, waiting areas: zoning of seating and activity areas and circulation space with controls accessible to staff								
				#15	Areas used for teaching, seminar or lecture purposes have lighting controls provided in accordance with CIBSE Lighting Guide 5								
				#16	In addition, the building type crieria in Table 16 of BREEAM Refurbishment and Fit-out 2014, Hea 01 - Visual Comfort, are met								

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Health and Well-being	Hea 02 - Indoor Air Quality	#1 - Indoor Air Quality (IAQ) Plan	Indoor air quality Plan (IAQ) produced.	#1	An indoor air quality plan has been produced and implemented, with the objective of facilitating a process that leads to design, specification and installation decisions and actions that minimise indoor air pollution during the design, construction and occupation of the building. The indoor air quality plan must consider the following: a. Removal of containment sources b. Dilution and control of containment sources c. Procedures for pre-occupancy flush out d. Protection of Heating, Ventilation and Air Conditioning (HVAC) systems from sources of pollution during refurbishment/fit-out works, e.g. dust e. Procedures for protecting the indoor air quality of areas outside of the refurbishment or fit-out zone that may be affected by the refurbishment/fit-out works f. Procedures for identifying and implementing third party testing and analysis required to ascertain that the containment sources have been removed effectively before occupancy g. Commitments for maintaining indoor air quality in-use, e.g. maintenance and cleaning of the HVAC system, ductwork and filters	1	0.91%		1		L	One or more of the appropriate evidence types listed in the BREEAM evidential requirements section, e.g.: Copy of the indoor air quality plan Relevant section/clauses of the building specification or contract.	Max Fordham MEP
		#2 - Ventilation	Building has been designed to minimise the concentration and recirculation of pollutants in the building.	#2	provide fresh air into the building in accordance with the criteria of the relevant standard for ventilation	1	0.91%		1			One or more of the appropriate evidence types listed in the BREEAM evidential requirements section, e.g.: Design drawings	Max Fordham MEP
				#3	Design ventilation pathways to minimise the build-up of air pollutants in the building as follows: a. In air conditioned and mixed mode buildings/spaces: i. The building's air intakes and exhausts are over 10 meters apart and intakes are over 20 meters from sources of external pollution, or ii. The location of the building's air intakes and exhausts, in relation to each other and external sources of pollution, is designed in accordance with BS EN 13779:2007 Annex A2 b. In naturally ventilated buildings/spaces: openable windows/ventilations are over 10 meters from sources of external pollution								
				#4	Where present, HVAC systems must incorporate suitable filtration to minimise external air pollution, as defined in BS EN 13779:2007 Annex A3								
				#5	Areas of the building subject to large and unpredictable or variable occupancy patterns have carbon dioxide ir air quality sensors specified and: a. In mechanical ventilated buildings/spaces: sensor(s) are linked to the mechanical ventilation system and provide demand-controlled ventilation to the space b. In naturally ventilated building/spaces: sensor either have the ability to alert the building owner or manager when CO2 levels exceed the recommended set point, or are linked to controls with the ability to adjust the quantity of fresh air, i.e. automatic opening windows/roof vents								
	Hea 04 - Thermal Comfort	#1 - Thermal Modelling	Thermal modelling has been carried out and ensures design achieves criteria as set out in CIBSE Guide A Environmental Design	#1	Thermal modelling has been carried out using software in accordance with CIBSE AM11 Building Energy and Environmental Modelling	1	0.91%		1		L	Thermal comfort study	Max Fordham MEP
				#2	The software used to carry out the simulation at the detailed design stage provides full dynamic thermal analysis. For smaller and more basic building designs with less complex heating or cooling systems, an alternative less complex means of analysis may be appropriate (such methodologies must still be in accordance with CIBSE AM11)								
				#3	The modelling demonstrates that: a. For air conditioned buildings, summer and winter operative temperature ranges in occupied spaces are in accordance with the criteria set out in CIBSE Guide A Environmental design, Table 1.5; or other appropriate industry standard (where this sets a higher or more appropriate requirement/level for the building type) b. For naturally ventilated/free running building: i. Winter operative temperature ranges in occupied spaces are in accordance with the criteria set out in CIBSE Guide A Environmental design, Table 1.5; or other appropriate industry standard (where this sets a higher or more appropriate requirement/level for the building type) ii. The building is designed to limit the risk of overheating, in accordance with the adaptive comfort methodology outlined in CIBSE TM52: The limits of thermal comfort: avoiding overheating in European buildings								
				#4	Where undertaking a Part 4 assessment a competent person (e.g. chartered building services engineer) must assess the suitability of existing building services and controls to identify any changes that may be required as a result of fit-out works (e.g. as a result of changes to internal layout, occupant density, equipment that may increase cooling loads, etc)								
				#5	For air conditioned buildings, the PMV (predicted mean vote) and PPD (predicted percentage of dissatisfied) indices based on the above modelling are reported via the BREEAM Assessment Scoring and Reporting tool								
		#2 - Adaptability - for a Projected Climate Change Scenario	Credit #1 has been achieved and the modelling has been undertaken against a projected climate change scenario. Project team are to demonstrate how the building has been adapted, or designed to be easily adapted in the future using utilise passive solutions.	#6	Criteria 1 to 4 are achieved	1	0.91%		1		L	One or more of the appropriate evidence types listed in the BREEAM evidential requirements section, e.g.: Thermal comfort study	Max Fordham MEP
				#7	The thermal modelling demonstrates that the relevant requirements set out in criterion 3 are achieved for a projected climate change environment								
				#8	Where thermal comfort criteria are not met for the projected climate change environment, the project team demonstrates how the building has been adapted, or designed to be easily adapted in the future using passive design solutions in order to subsequently meet the requirements under criterion 7								
				#9	For air conditioned buildings, the PMV and PPD indices based on the above modelling are reported via the BREEAM Assessment Scoring and Reporting tool								
		#3 - Thermal Zoning and Controls	Credit #1 has been achieved and thermal modelling has informed the temperature control strategy in terms of zoning, amount of occupant control, how the systems will interact with each other, and need for accessible building user attenuated manual override for any automatic systems.	#10	Criteria 1 to 4 are achieved	1	0.91%		1		L	One or more of the appropriate evidence types listed in the BREEAM evidential requirements section, e.g.: Design drawings Relevant section/clauses of the building specification or contract	Max Fordham MEP
				#11	The thermal modelling analysis (undertaken for compliance with criteria 1 to 4) has informed the temperature control strategy for the building and its users								
				#12	The strategy for proposed heating/cooling system(s) demonstrates that it has addressed the following: a. Zones within the building and how the building services could efficiently and appropriately heat or cool these areas. For example consider the different requirements for the central core of a building compared with the external perimeter adjacent to the windows b. Where specified, any new local cooling or heating services (or changes to existing services) are designed to ensure they do not conflict with core services (e.g. conflicts between two separate cooling systems, conflicts between core heating and locally provided cooling systems) c. The degree of occupant control required for these zones, based on discussions with the end user (or alternatively building type or use specific design guidance, case studies, feedback) consider: i. User knowledge of building services ii. Occupancy type, patterns and room functions (and therefore appropriate level of control required) iii. How the user is likely to operate or interact with the system(s), e.g. are they likely to open windows, access thermostatic radiator valves (TRV) on radiators, change air-conditioning settings, etc. d. How the proposed systems will interact with each other (where there is more than one system) and how this may affect the thermal comfort of the building occupants e. The need or otherwise for an accessible building user actuated manual override for any automatic systems								

Category	BREEAM Issue	Credit Number	General Requirements	Criterion	Detailed Requirements	Available Credits	Available Percent	Achieved Credits	Targeted Credit	Potential Credit	Risk	Design Stage Evidence Requirements	Design Stage Credit Owner
	Hea 05 - Acoustic Performance	#1 - Sound Insulation	Ensure that the building's sound insulation meets the appropriate standards for its purpose	#1	The building meets the appropriate acoustic performance standards and testing requirements defined within the checklist and tables section of BREEAM RFO 2014, Hea 05 which defines criteria for the acoustic principles of: a. Sound insulation b. Indoor ambient noise level c. Reverberation times	1	0.91%		1		M		
		#2 - Internal Indoor Ambient Noise Levels	Ensure that the building's internal indoor ambient noise levels meet the appropriate standards for its purpose	#2	Where undertaking a partial refurbishment or fit-out, the performance standards and testing requirements defined in the checklist and tables section of BREEAM RFO 2014, Hea 05 for the following principles are applicable to each assessment part: a. Part 1: criteria for sound insulation and indoor ambient noise levels b. Part 2: criteria for indoor ambient noise levels only c. Part 3: criteria for sound insulation and indoor ambient noise levels d. Part 4: sound insulation and reverberation control	1	0.91%		1		M	One or more of the appropriate evidence types listed in the BREEAM evidential requirements section, e.g.: Professional report/study and calculations from the acoustician. Letter of appointment or other confirmation demonstrating when the acoustician was appointed Relevant section/clauses of the building specification or contract and/or formal letter from the project team regarding commitments	Acoustician
		#3 - Reverberation	Ensure that the building's reverberation times meet the appropriate standards for its purpose	#3	See relevant compliance notes on applicable assessmnet criteria, where undertaking a partial refurbishment or fit-out for further information on how to apply the appropriate acoustic performance standards and testing requirements defined in this issue.	1	0.91%		1		M		
	Hea 06 - Safety and Security	#1 - Security of Site and Building	Consultation with a Suitably Qualified Security Consultant no later than RIBA Stage 2. Final design must incorporate suggestions from SQSS and must confirm to either Secured by Design and/or Safer Parking Scheme (actual certification not required) Consultation must occur no later than RIBA Stage 2	#1	A Suitably Qualified Security Specialist (SQSS) conducts an evidence based Security Needs Assessment (SNA) during or prior to Concept Design (RIBA Stage 2 or equivalent), see complaince note where the refurbishment or fit-out zone comprises part of a larger building	1	0.91%		1		L	One or more of the appropriate evidence types listed in the BREEAM evidential requirements section, e.g.: Correspondence from or a copy of the report/feedback from the ALO/CPDA/Security Consultant confirming: Scope of their advice/involvement The stage of design in which their advice was sought Summary of their recommendations	FBM FBM Architectss
				#2	The SQSS develops a set of recommendations or solutions during or prior to Concept Design (RIBA Stage 2 or equivalent). These recommendations or solutions aims to ensure that the design of buildings, public and private car parks and public or amenity space are planned, designed and specified to address the issues identified in the preceding SNA								
				#3	The recommendations or solutions proposed by the SQSS are implemented. Any deviation from those recommendations or solutions will need to be justified, documented and agreed in advance with a suitably qualified security specialist								
					Totals - Base	17	15.52%	0	13	0			
					Total - Innovation	1	1.00%	0	0	0			
Energy	Ene 01 - Reduction of Energy Use and Carbon Emissions	#1 - Energy Performance	Whole building energy model (up to 15 credits available)	#1	Calculate the Energy Performance Ratio for Non-Domesitc Refurbishment and compare with the benchmarks in BREEAM Refurbishment and Fit-out 2014, Ene 01 - Reduction of Energy Use and Carbon Emissions, Table 27 to determine the corresponding number of BREEAM credits	12	8.57%		6		M	A copy of the Building Regulations Output Document from the approved software. The output must be based on the design stage of analysis A copy of the Building Regulations Output Document from the design stage SAP calculations (where relevant for multi-residential buildings)	Max Fordham MEP
			Elemental level energy model (up to 12 credits available)	#2	Calculate the energy score using the BREEAM Refurbishment and Fit-out energy model for the applicable assessment parts to determine the number of credits awarded. Refer to BREEAM Refurbishment and Fit-out 2014, Ene 01 - Reduction of Energy Use and Carbon Emissions, Table 28 to determine the monimum required for this issue. The following should be assessed as applicable to the scope of works (see BREEAM Refurbishment and Fit-out 2014, Ene 01 - Reduction of Energy Use and Carbon Emissions, Table 30 for further details): a. Part 1: Fabric and Structure: thermal performance and air-tightness of the building fabric b. Part 2: Core Services: energy performance of core heating, hot water, cooling and ventilation systems and controls c. Part 3: Local Services: energy performance of local heating, cooling, ventilation, lighting and controls as relevant d. Part 4: Interior Design: not applicable								
			Historic Buildings Only: Specialist study undertaken by a Suitably Qualified Heritage Conservation Specialist to investigate implications of improving building fabric and services performance, while minimising negative impacts of historic character, the condition of the building fabric, and indoor air quality. As a minimum, the folllowing must be analysed: roof, external walls, ground and upper floors, windows and external doors. Must occur no later than RIBA Stage 2	#3	A specialist study has been undertaken by a Suitably Qualified Heritage Conservation Specialist at the Concept Design stage (equivalent to RIBA Stage 2), to investigate the implications of improving building fabric and services performance while minimising the potential negative impacts of both the historic character of the building, the condition of the building fabric and indoor air quality								
				#4	The study includes looking at the potential for improving ventilation, air tightness and moisture control within the building, ensuring that these are considered in balance with that of the welfare of the historic building fabric. This includes considering materials specified, impacts on breathability of the building, paying attention to additional ventilation that may be required, e.g. roof, wall and floor voids								
				#5	The report makes recommendations for potential improvements to the building fabric in accordance with best practice guidanceincluding: a. Energy Efficnecy and Historic Buildings: Application of Part L of the Building Regulations to historic and traditionally constructed buildings, English Heritage b. Guide for practicioners 6, conversion of traditional buildings parts 1 and 2, application of the Scottish building standards, Historic Scotland c. The Sustainable Traditional Building Alliance (STBA) Responsible Retrofit Guidance Tools (www.responsibleretrofit.org)								
				#6	Each of the following (as a minimum) must be considered and recommendations for improvement made: a. Roof b. External/sheltered walls c. Ground floor d. Upper floors e. Windows and external doors								
				#7	Where improvement cannot be made to any of the above (e.g. due to conservation or building performance issues), justification should be provided including the alternative measures that have been considered and reasons those measures could not be adopted (e.g. glazing options considered, etc.)								
	Ene 02 - Energy Monitoring	#1 - Sub-metering of Major Energy Consuming Systems	Energy metering systems are installed that enable at least 90% of the estimated annual energy consumption of each fuel to be assigned at various end-use categories of energy consuming systems. The energy consuming systems in buildings with a total useful floor area greater than 1,000m2 are metered using an appropriate energy monitoring and management system Minimum Requirement	#1	Energy metering systems are installed that enable at least 90% of the estimated annual energy consumption of each fuel to be assigned to the various end-use cetegories of energy consuming systems	1	0.71%		1		L	One or more of the appropriate evidence types listed in the BREEAM evidential requirements section, e.g.: Relevant section/clauses of the building specification or contract AND Design drawings	Max Fordham MEP
				#2	The energy consuming systems in buildings with a total usaeful floor area greater than 1,000m² are metered using an appropriate energy monitring and management system								
				#3	the systems in smaller buildings are metered either with an energy monitoring and management system or with separate accessible energy sub-meters with pulsed or other ope nprotocol communication outputs, to enable future connection to an energy monitoring and management system								
				#4	The end energy consuming uses are identifiable to the building users, for example through labbelling or data outputs								
		#2 - Sub-metering of High Energy Load and Tenancy Areas	An accessible energy monitoring and management system or separate accessible energy sub-meters with pulsed or other open protocol communication outputs to enable future connection to an energy monitoring and management system are provided, covering a significant majority of the energy supply to tenanted areas or, in the case of single occupancy buildings, relevant function areas or departments within the building/unit	#5	An accessible energy monitoring and management system or separate accessible energy sub-meters with pulsed or other open protocol communication outputs to enable future connection to an energy monitoring and management system are provided, covering a significant majority of the energy supply to tenanted areas or, in the case of single occupancy buildings, relevant function areas or departments within the building/unit	1	0.71%		1		L	One or more of the appropriate evidence types listed in the BREEAM evidential requirements section, e.g.: Relevant section/clauses of the building specification or contract AND Design drawings	Max Fordham MEP

Category	BREEAM Issue	Credit Number	General Requirements	Criterion	Detailed Requirements	Available Credits	Available Percent	Achieved Credits	Targeted Credit	Potential Credit	Risk	Design Stage Evidence Requirements	Design Stage Credit Owner
	Ene 03 - External Lighting	#1 - External Lighting	Energy efficient external light fittings are specified for external areas of the development and are only on when required.	#1	the buildong has been designed ot operate without the need for external lighting (which includes on the building, signs and at entrances)	1	0.71%		1		L	One or more of the appropriate evidence types listed in the BREEAM evidential requirements section, e.g.: Relevant section/clauses of the building specification or contract AND Design drawings	Max Fordham MEP
				#2	The average initial luminous efficacy of the external light fittings within the construction zone is not less than 60 luminaire lumens per circuit Watt								
				#3	All external light fittings are automatically controlled for prevention of operation during daylight hours and presence detection in areas of intermittent pedestrian traffic								
	Ene 04 - Low Carbon Design	#1 - Passive Design Analysis	The first Hea 04 Thermal Comfort credit has bee achieved and the design team has carried out analysis of the proposed building design/development to influence decisions made during Concept Design stage and identify opportunities for the implementation of passive design solutions. The building uses passive design measures to reduce total energy demand of the building. Must occur no later than RIBA Stage 2	#1	The first credit within issue Hea 04 - Thermal Comfort has been achieved to demonstrate the building can deliver the appropriate thermal comfort levels in occupied spaces	1	0.71%		1		L	One or more of the appropriate evidence types listed in the BREEAM evidential requirements section, e.g.:	Max Fordham MEP
				#2	The project team carries out an analysis of the existing building fabric, form, site location and outline scheme design to influence decisions made during the Concept Design stage (RIBA Stage 2 or equivalent) and identifies opportunities for the implementation of passive design solutions and retrofit measures that reduce demands for energy consuming building services								
				#3	The building uses passive design measures to reduce the total heating, cooling, mechanical ventilation and lighting loads and energy consumption in line with the findings of the passive design analysis demonstrates a meaningful reduction in the total energy demand as a result								
	Ene 06 - Energy Efficient Transportation Systems	#2 - Energy Efficient Features	Credit #1 has been achieved and compliant energy efficient features are specified	#2	Criterion 1 is achieved for newly specified lifts	2	1.43%		2		L	One or more of the appropriate evidence types listed in the BREEAM evidential requirements section, e.g.: Relevant section/clauses of the building specification or contract AND EITHER Manufacturers product details OR Formal letter of commitment from the system(s) manufacturer/supplier	Max Fordham MEP
				#3	For each newly specified lift, the following three energy efficient features are specified and for existing lifts, at least two of the following energy efficient features are specified: a. The lift operates in a stand-by condition during off-peak periods. For esample the power side of the lift controller and other operating equipment such as lift car lighting, user displays and ventilation fans switch off when the lift has been idle for a prescribed length of time b. The lift car lighting and display lighting provides an average lamp efficacy, (across all fittings in the car) of > 55 lamp lumens/circuit Watt c. The lift uses a drive controller capable of variable speed, variable-voltage, and variable-frequency (VVVF) control of the drive motor								
				#4	Where the use of regenerative drives is demonstrated to save energy, they are specified								
				#5	Each newly specified or existing escalator and/or moving walk must comply with or is retrofitted with a load sensing device that sychronises motor output to passenger demand through a variable speed drive, or								
				#6	Is fitted with a passenger sensing device for automated operation (auto walk), so the escalator operates in stand-by mode when there is no passenger demand								
	Ene 08 - Energy Efficient Equipment	#1 - Energy Efficient Equipment	Energy efficient equipment specified for small power and plug-in equipment, swimming pools, laundry, kitchen, IT intensive areas, etc. Requires an analysis showing the total annual unregulated energy demand of the development and its operation and ways to reduce consumption.	#1	Identify the building's unregulated energy consuming loads and estimate their contribution to the total annual unregulated energy consumption of the building, assuming a typical/standard specification	2	1.43%		2		L	One or more of the appropriate evidence types listed in the BREEAM evidential requirements section, e.g.: Relevant section/clauses of the building specification or contract Manufacturers product details	Max Fordham MEP
				#2	Identify the systems and/or processes that use a significant proportion of the total annual unregulated energy consumption of the development and its operation								
				#3	Demonstrate a meaningful reduction in the total annual unregulated energy consumption of the building								
					Totals - Base	22	15.72%	0	14	0			
					Total - Innovation	5	5.00%	0	0	0			
					60% Camden requirement for Energy Credits				52%				

Category	BREEAM Issue	Credit Number	General Requirements	Criterion	Detailed Requirements	Available		Achieved	Targeted	Potential	Risk	Design Stage Evidence Requirements	Design Stage Credit Owner
						Credits	Percent	Credits	Credit	Credit			
Transport	Tra 01 - Sustainable Transport Solutions	#1 - Accessibility Index	Up to 3 credits can be awarded in combination from one or both of the following options: Option 1: Credits awarded on a sliding scale based on the proximity of the buildings' accessibility to the public transport network. An Accessibility Index (AI) is determined by the Tra 01 Calculator Tool. Option 2:Where alternative transport measures in BREEAM Refurbishment and Fit-out, Tra 01, Table 35 are provided, credits can be awarded based upon the number of measures implemented as detailed in BREEAM Refurbishment and Fit-out, Tra 01, Table 33	#1	The public transport Accessibility Index (AI) for the assessed building is calculated and BREEAM credits awarded according to the building type. For Accessibility Index benchmarks see BREEAM Refurbishment and Fit-out, Tra 01, Table 34 in the Checklists and tables section	3	2.56%	3	3		L	A completed copy of the Tra 01 calculator Documentary evidence supporting the data used to complete the calculator tool	Assessor
				#2	The Accessibility Index is determined by entering the following informaiton into the BREEAM Tra 01 calculator: a. The distance (m) from the main building entrance to each compliant public transport node b. The public transport type(s) serving the compliant node, e.g. bus or rail c. The average number of services stopping per hour at each compliant node during the operating hours of the building for a typical day								
		#2 - Alternative Transport Measures		#3	Where alternative transport measures in BREEAM Refurbishment and Fit-out, Tra 01, Table 35 are provided, credits can be awarded based upon the number of measures implemented as detailed in BREEAM Refurbishment and Fit-out, Tra 01, Table 33							One or more of the appropriate evidence types listed in the BREEAM evidential requirements section, e.g.:	FBM Architects
	Tra 02 - Proximity to Amenities	#1 - Proximity to Amenities	Building located in close proximity to building-type-specific local amenities which are likely to be frequently required and used by building occupants.	#1	Where a building is located within close proximity of, and accessible to, local amenities which are likely to be frequently required and used by building occupants, as outlined in BREEAM Refurbishment and Fit-out, Tra 02, Table 37.	1	0.85%	1	1		L	Where the amenities do not currently exist but are due to be developed a letter from the client/developer confirming: 1. The location and type of amenities to be	Assessor
	Tra 03 - Cyclist Facilities	#1 - Cycle Storage	Compliant cycle storage spaces that meet the minimum levels set out in Table 32 of the BREEAM manual.	#1	Compliant cycle storage spaces that meet the minimum levels set out in BREEAM Refurbishment and Fit-out, Tra 03, Table 38 are installed	1	0.85%		1		M	One or more of the appropriate evidence types listed in the BREEAM evidential requirements section, e.g.: Design drawings and/or relevant section/clauses	FBM Architects
		#2 - Cycle Facilities	#1 is achieved. Provide two of the four options: 1) showers, 2) changing facilities, 3) lockers, 4) drying space for clothes. Showers: 1 for every 10 cycle storage spaces, subject to a minimum provision of one shower. Changing facilities: appropriately sized for the number of users, must be able to hang or store clothes (e.g. benches or hooks). Toilet cubicles do not comply. Lockers: at least equal to the number of cycle spaces required. A dedicated drying space for the drying of wet clothes.	#2	Criterion 1 has been achieved	1	0.85%		1		M	One or more of the appropriate evidence types listed in the BREEAM evidential requirements section, e.g.: Design drawings and/or relevant section/clauses of the building specification or contract	FBM Architects
				#3	At least two of the following types of compliant cyclist facilities have been provided for all building users (including pupils where appropriate to the building type: a. Showers b. Changing facilities c. Lockers d. Drying spaces								
	Tra 04 - Maximum Car Parking Capacity	#1 - Car Parking Capacity	Credits awarded on a sliding scale based on the proximity of the buildings' accessibility to the public transport (Accessibility Index) network and how many car parking spaces are provided. A development with no parking associated with it (i.e. it relies on public car parks adjacent or near the site) receives full credits by default.	#1	The building's car parking capacity is compared to the maximum car parking capacity benchmarks in BREEAM Refurbishment and Fit-out, Tra 04, Table 39 and the relevant numbe rof BREEAM credits achieved. For most building types, except those where stated, the benchmarks very according to the building's public transport Accessibility Index (AI determined in accordance with BREEAM issue Tra 01 Sustainable Transport solutions). Therefore, for these building types the AI must be determined prior to assessing this issue. This is required to ensure that the building's car parking capacity is relative to the building's accessibility to the public transport network	2	1.70%		2		L	One or more of the appropriate evidence types listed in the BREEAM evidential requirements section, e.g.: Drawing or relevant section/clauses of the building specification or contract confirming the number and type of parking spaces provided for the building Relevant documentation or correspondence from the design team or client confirming the number of users Where relevant, confirmation of the buildings' Accessibility Index (as per BREEAM Tra 01) For healthcare building, relevant documentation	Assessor
	Tra 05 - Travel Plan	#1 - Travel Plan	A travel plan is developed specifically for the site as part of the feasibility and design stages which considers all types of travel relevant to the building type and users. Travel plan must include a package of measures that have been used to steer the design of the development in order to meet the travel plan objectives and minimise car-based travel patterns.	#1	A travel plan has been developed as part of the feasibility and design stages	1	0.85%		1		L	One or more of the appropriate evidence types listed in the BREEAM evidential requirements section, e.g.: A copy of the Travel Plan A copy of the site-specific transport survey/assessment Design drawings demonstrating examples of design measures implemented in support of the travel plan's findings OR Where a detailed site plan is not available, a formal letter from the client confirming that measures will be implemented into the final design in support the travel plan's findings A letter of confirmation from either the building's occupier, or in the case of a speculative development, the developer stating that the travel plan shall be implemented post	Client
				#2	A site specific travel assessment/statement has been undertaken to ensure the travel plan is structured to meet the needs of the particular site and covers the following (as a minimum): a. Where relevant, existing travel patterns and opinions of existing building or site users towards cycling and walking so the constraints and opportunities can be idntified b. Travel patterns and transport impact of future building users c. Current local environment for walkers and cyclists (according for visitors who may be accompanied by young children d. Disabled access (accounting for varying levels of disability and visual impairment) e. Public transport links serving the site f. Current facilities for cyclists								
				#3	The travel plan includes a package of measures to encourage the use of sustainable modes of transport and movement of people and goods during the building's operation and use								
				#4	If the occupier is known, they must be involved in the development of the travel plan and they must confirm that the travel plan will be implemented post refurbishment or fit-out and be supported by the building's management in operation								
					Totals - Base	9	7.67%	4	9.00	0			

Category	BREEAM Issue	Credit Number	General Requirements	Criterion	Detailed Requirements	Available		Achieved	Targeted	Potential	Risk	Design Stage Evidence Requirements	Design Stage Credit Owner
						Credits	Percent	Credits	Credit	Credit			
Water	Wat 01 - Water Consumption	#1 - Water Consumption	Credits awarded on a sliding scale based on the percentage improvement in water usage over a baseline notional building. Must use the Wat 01 calculator to determine final number of credits awarded. Minimum for one credit is 12.5% improvement, 5 credits awarded for 55% improvement or better. The following domestic scale water consuming components are included: WCs, urinals, taps, showers, baths, dishwashers, washing machines. Grey water and rainwater collection systems are taken into account in the calculator tool. Minimum Requirement	#1	An assessment of the efficiency of newly specified domestic water-consuming components and (where relevant) measures specified to retrofit existing devices is undertaken using the BREEAM Wat 01 calculator, including all fittings applicable to the project type as detailed within BREEAM Refirbishment and Fit-out, Wat 01, Table 42. Where there are no fittings within the scope of refurbishment or fit-out works, or only a minimal water-consuming fittings present or specified, refer to compliance notes 5 or 6 to determine how this issue should be assessed	5	3.84%		2	1	L	A completed copy of the BREEAM Wat 01 calculator Documentary evidence supporting the data used to complete the calculator tool	FBM FBM Architectss
				#2	The water consumption (litres/person/day) for the assessed building is compared against a baseline performance and BREEAM credits awarded based upon BREEAM Refurbishment and Fit-out 2014, Wat 01, Table 41								
				#3	The efficiency of the following 'domestic scale' water consuming components must be included in the assessment (where specified/relevant to project type as defined by Table 42): a. WCs b. Urinals c. Taps (wash hand basins and where specified kitchen taps and waste disposal unit d. Showers e. Baths f. Dishwashers (domestic and commercial sized) g. Washing machine (domestic and comercial or industrial sized)								
				#4	Where a grey water and/or rainwater system is specified, its yield (litres/person/day) is used to off-set non-potable water demand from components that would otherwise be supplied using potable water								
				#5	Any grey water systems must be specified and installed in compliance with BS 8525-1:2010 Greywater Systmes - Part 1 Code of Practice. Any rainwater systems must be specified and installed in compliance with BS 8515:2009 Rainwater Harvesting Systems - Codeof Practice								
	Wat 02 - Water Monitoring	#1 - Water Monitoring	Where a water meter with a pulsed output will be installed on the mains supply to each building/unit. Water-consuming plant or building areas that consume 10% or more of the building's total water demand must be fitted with sub meters or have water monitoring equipment with pulsed output enabling it to connect to a BMS system. If the site has an existing BMS belonging to the same owner as the new development, the meters must be connected to this system. Minimum Requirement -Cirterion 1 only	#1	The specification of a water meter on the mains water supply to each building; this includes instances where water is supplied via a borehole or other private source	1	0.77%		1		L	One or more of the appropriate evidence types listed in the BREEAM evidential requirements section, e.g.: Relevant section/clauses of the building specification or contract Design drawings	Max Fordham MEP
				#2	Water-consuming plant or building areas, consuming 10% or more of the building's total water demand, are either fitted with easily accessible sub-meters or have water moitoring equipment integral to the plant or area								
				#3	Each meter (main and sub) has a pulsed or other open protocol communication output to enable connection to an appropriate utility monitoring and management system, e.g. a BMS, for the monitoring of water consumption								
				#4	If the refurbishment zone is within as site that has existing BMS, managed by the same occupier/owner (as the space undergoing reburbishment or fit-out), the pulsed/digital water meter(s) for the refurbishment or fit-out zone must be connected to the existing BMS								
				#5	If the refurbishment or fit-out zone is within a building that is leasehold, the pulsed/digital water meter(s) for the refurbishment or fit-out zone must be connected to the incoming water supply for water using equipment in tenanted areas								
	Wat 03 - Water Leak Detection	#1 - Leak Detection System	Leak detection system capable of detecting a major water leak on the mains water supply within the building and between the building and the utilities water meter.	#1	A leak detection system which is capable of detecting a major water leak on the mains water supply within the building and between the building and the utilities water meter is installed. The leak detection ssytem must be: a. A permanent automated water leak detection system that alerts the building occupants to the leak OR an inbuilt automated diagnostic procedure for detecting leaks is installed b. Activated when the flow of water passing through the water meter/data logger is at a flow rate above a pre-set maximum for a pre-set period of time c. Able to identify different flow and therefore leakage rates, e.g. continuous, high and/or low level, over set time periods d. Programmable to suit the owner/occupiers' water consumption criteria e. Where applicable, designed to avoid false alarms caused by normal operation of large water-consuming plants such as schillers	1	0.77%		1		L	One or more of the appropriate evidence types listed in the BREEAM evidential requirements section, e.g.: Relevant section/clauses of the building specification or contract Design drawings	Max Fordham MEP
		#2 - Flow Control Devices	One of the following types of flow control devices is fitted to each WC area/facility to ensure water only supplied when needed: time controller, programmed time controller, volume controller, presence detector, or central control unit. Criteria does not apply to single WC - in these instances, shut-off could be provided via the same switch that controls the lighting.	#2	Flow control devices that regulate the supply of water to each WC area/facility according to demand are installed (and therefore minimise water leaks and wastage from sanitary fittings)	1	0.77%		1		L	One or more of the appropriate evidence types list	Max Fordham MEP
					Totals - Base	8	6.14%	0	5	1			
					60% Camden requirement for Water Credits				63%				

Category	BREEAM Issue	Credit Number	General Requirements	Criterion	Detailed Requirements	Available Credits	Available Percent	Achieved Credits	Targeted Credit	Potential Credit	Risk	Design Stage Evidence Requirements	Design Stage Credit Owner
Materials	Mat 01 - Life Cycle Impacts	#1 - Life Cycle Impacts	Project Lifecycle Assessment Study (up to 6 credits) OR	#1	the project uses a life cycle assessment (LCA) tool or undertakes a building information model life cycle assessment (BIM LCA) to measure the life cycle environmental impact of the refurbishment or fit-out works	6	6.36%		2	1	M	One or more of the appropriate evidence types listed in the BREEAM evidential requirements section, e.g.: Specification providing a detailed description of each applicable element and its constituent materials specification Design drawings or specification detailing the location and area (m2) of each applicable element A copy of the output from the BREEAM Mat 01 calculator, including GREEN Guide rating and element number for each specification assessed 1. Copies of Environmental Product Declarations 2. A link/reference to the EPD's Product Category Rules 3. Online Green Guide calculator output 4. Environmental Profile certificate(s) (or certificate number) 5. For IMPACT (or equivalent) the Building Information Model (BIM) and BRE Global email confirmation for receipt of the Model	FBM Architects
				#2	The LCA covers new materials as relevant to the assessment parts listed in CN7 and indicated in the 'Materials assessment scope' section of the BREEAM Refurbishment and Fit-out Mat 01 calculator (Part B of the tool)								
				#3	The mandatory requirements identified in the 'Materials assessment tool, method and data' section of the BREEAM Refurbishment and Fit-out Mat 01 calculator have been met								
				#4	A member of the project team completes the BREEAM Refurbishment and Fit-out Mat 01 calculator using parts A and B and determines a score based on the robustness of the LCA tool used (Part A of the tool) and the scope of the assessment in terms of the materials specified that have been considered (Part B of the tool)								
				#5	Where the design team can demonstrate how the LCA has benefited the building in terms of measuring and reducing its environmental impact								
				#6	Where the design team submit the LCA tool output (e.g. Building Information Model (BIM)) for assessing the building to BRE Global to inform future potential LCA benchmarking for BREEAM								
				#7	Credits are awarded in accordance with BREEAM Refurbishment and Fit-out 2014, Mat 01, Table 46								
			Elemental Assessment of Environmental Performance Information using the Mat01 Calculator (up to 4 credits)	#8	Robust environmental performance information has been collected for newly specified materials or where materials are retained in situ, for elements listed within BREEAM Refurbishment and Fit-out 2014, Mat 01, CN7								
				#9	The total numbe rof points achieved as set out in the Methodology section are calculated using Part B of the BREEAM Mat 01 calculator. The number of points scored is based on the percentage of each element that has been: a. reused in situ b. reused in situ with minor repairs								
				#10	Credits are awarded based upon the percentage of available points achieved as set out in BREEAM Refurbishment and Fit-out 2014, Mat 01, Table 47								
	Mat 03 - Responsible Sourcing of Materials	Pre-requisite - Legally Sourced Timber	All timber and timber based products used on the project is 'Legally harvested and traded timber'. Minimum Requirement	#1	All timber and timber-based products used on the project is Legally harvested and traded timber. Note: a. It is a minimum requirement for achieving a BREEAM rating (for any rating level) that compliance with criterion 1 is confirmed b. For other materials there are no pre-requisite requirements at this stage	-	-		-		L	Completed copy of the Mat 03 calculator tool Documentary evidence detailing how the calculator tool has been completed	FBM Architects
		#2 - Responsible Sourcing of Materials (RSM)	Up to 3 credits can be awarded where the applicable building materials (refer to Table - 44 of BREEAM 2014 Manual) are responsibly sourced in accordance with the BREEAM 2014 methodology.	#3	One credit can be awarded where at least three of the material types listed in BREEAM Refurbishment and Fit-out, Mat 03, Table 53 'Material categories' has been responsibly sourced from one of the responsible sourcing schemes recognised by BREEAM as detailed in Guidance Note 18	3	3.18%		1		M	One or more of the appropriate evidence types listed in the BREEAM evidential requirements section, e.g.: Design plan and/or specification confirming: 1. The building elements 2. Details of the materials specification for each	Contractor
				#4	Up to three of the available RSM credits (refer to BREEAM Refurbishment and Fit-out 2014, Mat 03, Table 51) can be awarded where the applicable building materials (refer to Table 53) are responsibly sourced in accordance with the BREEAM methodology, as defined in steps 1 to 2 in the Methodology section of BREEAM Refurbishment and Fit-out 2014, Mat 03								
	Mat 04 - Insulation	#1 - Embodied Impact	All new insulation specified for external walls, ground floor, roof, and building services must be assessed. The Insulation Index for the building insulation is > 2.5, as determined by the Mat 04 Calculator Tool.	#1	Any new insulation specified for use within the following elements must be assessed: a. External walls b. Ground floor c. Roof d. Building services	1	1.06%		1		L	A completed copy of the Mat 04 calculator tool One or more of the appropriate evidence types listed in the BREEAM evidential requirements section, e.g.: Design drawings AND/OR relevant section/clauses of the building specification or contract confirming:	FBM Architects
				#2	The Insulation Index for the building fabric and services insulation is the same as or greater than 2.5. See the Methodology section of BREEAM Refurbishment and Fit-out 2014, Mat 04 for a description of calculating the Insulation Index								
	Mat 05 - Designing for Durability and Resilience	#1 - Protecting Vulnerable Parts of the Building from Damage and Degradation	Areas of the building identified, both internal and external, where vehicular, trolley, and pedestrian movement occur. Design must incorporate suitable durability and protection measures to prevent damage to vulnerable parts of the building.	#1	The building incorporates suitable durability and protection measures or designed features/solutions to prevent damage to vulnerable parts of the internal and external building and landscaping elements. This must include, but is not necessarily limited to: a. Protection from the effects of high pedestrian traffic in main entrances, public areas and thoroughfare (corridors, lifts, stairs, doors, etc) b. Protection against any internal vehicular/trolley movement within 1 meter of the internal building fabric in storage, delivery, corridor and kitchen areas c. Protection against, or prevention from, any potential vehicular collision where vehicular parking and manoeuvring occurs within 1 meter of the external building facade for all car parking areas and within 2 meters of all delivery areas	1	1.06%		1		L	One or more of the appropriate evidence types listed in the BREEAM evidential requirements section, e.g.: Design drawings illustrating vulnerable areas/parts of the building Design drawings and/or relevant section/clauses of the building specification or contract confirming the durability measures specified	FBM Architects
				#2	Environmental factors have been indetified that are relevant to the site location								
				#3	Existing applicable building elements that are exposed to any relevant environmental factors have been identified								
				#4	Existing applicable building elements have been surveyed have been assessed to identify impacts of material degradation effects including an assessment to grade the severity of any degradation effects. Design and specification affects, to limit degradation. Where it is not feasible to implement measures to limit material degradation for existing elements, justification should be provided								
				#5	Newly specified materials or newly constructed elements (e.g. a new external wall) within the scope of refurbishment or fit-out works incorporate appropriate design and specification measures to limit material degradation due to environmental factors								
	Mat 06 - Material Efficiency	#1 - Material Efficiency	Design/Construction team must identify, investigate and implement measures to optimise material use at all stages of the project. Must be undertaken at RIBA Stages 1, 2, 3, and 4	#1	Opportunities have been deitnfied, and appropriate measures investigated and implemented within the scope of refurbishment or fit-out works, to optimise the use of materials through building design, procurement, refurbishment, maintenance and end of lofe	1	1.06%		1		L	One or more of the appropriate evidence types listed in the BREEAM evidential requirements section, e.g.:	All
				#2	The above is carried out by the design/construction team in consultation with the relevant parties at each of the following RIBA stages: a. Preparation and Brief b. Concept Design c. Developed Design d. Technical Design e. Construction								
					Totals - Base	14	14.84%	0	6	1			
					40% Camden requirement for Materials Credits				43%				

Category	BREEAM Issue	Credit Number	General Requirements	Criterion	Detailed Requirements	Available		Achieved	Targeted	Potential	Risk	Design Stage Evidence Requirements	Design Stage Credit Owner
						Credits	Percent	Credits	Credit	Credit			
Waste	Wst 01 - Project Waste Management	#1 - Pre-refurbishment audit	There is a compliant Resource Management Plan. Where demolition must occur, a compliant pre-demolition audit must take place. Non-hazardous construction waste (excluding demolition and excavation waste) generated by the building's design and construction meets or exceeds resource efficiency benchmarks as set out in the BREEAM 4014 Manual. The less waste generated by area or weight earns more credits Must be undertaken During Concept Stage	#1	The Client shall ensure that a pre-refurbishment audit of all existing buildings, structures or hard surfaces within the scope of the refurbishment or fit-out zone is completed The requirements for carrying out an appropriate pre-refurbishment audit are: a. The audit should be carried out at the Concept Design Stage (equivalent to RIBA Stage 2) prior to strip-out or demolition works in order to use the audit results to guide the design, consideration of materials that can be reused, and to set targets for waste management and ensure all contractors are engaged in the process of maximising high grade reuse and recycling opportunities b. The audit should be carried out by a competent person who is independent of the project, has appropriate knowledge of buildings, waste and options for the reuse and recycling of different waste streams c. Actual waste arisings and waste management routes used should be compared with those forecast from the audit and barriers to achieving targets should be investigated. The audit must be referenced in the resource management plan and cover: d. Identification and quantification of the key materials where present on the project e. Potential applications and any related issues for the reuse and recycling of the key materials in accordance with the waste hierachy f. Identification of local reporcessors or recyclers for recycling of materials g. Identification of overall recycling rate for all key materials h. Identification of reuse targets where appropriate i. Identification of overall landfill diversion rates for all key materials	1	0.80%		1		L	A copy of the Resource Management Plan and, where relevant, pre-demolition audit	Contractor
		#3 - Resource Efficiency	Develop and implement a compliant Resource Management Plan to minimising waste, and record and report accurate data on waste arisings. Meet or exceed the resource efficiency benchmarks in Table 61.	#5	Develop and implement a compliant resource management plan covering the waste arisings from the refurbishment or fit-out project with the aim of minimising waste, recording and reporting accurate data on waste arisings.	3			2		L		Contractor
				#6	The non-hazardous waste relating to on-site refurbishment or fit-out, and dedicated off-site manufacture or fabrication processes generated by the building's design and construction meets, or exceeds, the resource efficiency benchmarks set out in BREEAM Refurbishment and Fit-out 2014, Wst 01, Tables 61 and 62 to the project type								
		#4 - Diversion of Resources from Landfill	The percentage of non-hazardous construction and demonlition waste generated have been diverted from landfill as per BREEAM Refurbishment and Fit-out 2014, Wst 01, Table 63.	#7	The percentage of non-hazardous construction and demonlition waste generated have been diverted from landfill as per BREEAM Refurbishment and Fit-out 2014, Wst 01, Table 63.	1			1		L		Contractor
	Wst 03 - Operational Waste	#1 - Operational Waste	Where dedicated, accessible, and properly sized storage space is provided for recycling. Where consistent generation in large volumes of waste or compostable materials are generated, compactors, balers, and/or composting vessels or facilities with water outlet must be provided. Minimum requirement	#1	Dedicated space(s) is provided for the segregation and storage of operational recyclable waste volumes generated by the assessed building/unit, its ocupcant(s) and activities. This space must be: a. Clearly labelled, to assist with segregation, storage and collection of the recyclable waste streams b. Accessible to building occupants or facilities operators for the deposit of materials and collection by waste management contractors c. Of a capacity appropriate to the building type, size, number of units (if relevant) and predicted volumes of waste that will arise from daily,weekly operational activities and occupancy rates	1	0.80%		1		L	One or more of the appropriate evidence types listed in the BREEAM evidential requirements section, e.g.: Design drawings and/or relevant section/clauses of the building specification or contract confirming provision and scope of dedicated facilities Project team meeting minutes/letter confirming likely building waste streams and indicative volumes For Healthcare: Documentary evidence from the design team confirming compliance with the relevant	FBM Architects
				#2	Where the consistent generation in volume of the appropriate operational waste streams is likely to exist, e.g. large amounts of packaging or compostable waste generated by the building's use and operation, the following facilities are provided: a. Static waste compactor(s) or baler(s); situated in a service area or dedicated waste management space b. Vessel(s) for composting suitable organic waste resulting from the building's daily operation and use; or adequate space(s) for storing segregated food waste and compostable organic material prior to collection and delivery to an alternative composting facility c. Where organic waste is to be stored/composted on-site, a water outlet is provided adjacent to or within the facility for cleaning and hygiene purposes								
	Wst 05 - Adaptation to Climate Change	#1 - Structural and Fabric Resilience	Conduct a climate change adaptation to climate change strategy appraisal for structural and fabric resilience by the end of Concept Design by carrying out a systematic risk assessment to identify and evaluate the impact on the building over its projected life cycle from expected extreme weather conditions arising from climate change. Must occur no later than RIBA Stage 2	#1	Conduct a climate change adaptation strategy appraisal for structural and fabric resilience by the end of Concept Design (RIBA Stage 2 or equicalent), in accordance with the following approach: a. Carry out a systematic (structural and fabric resilience specific) risk assessment to indentify and evaluate the impact on the building over its projected life cycle from expected extreme weather conditions arising from climate change and, where feasible, mitigate against these impacts. The assessment should cover the following stage: i. Hazard identification ii. Hazard assessment iii. Risk estimation iv. Risk evaluation v. Risk management	1	0.80%		1		L	One or more of the appropriate evidence types listed in the BREEAM evidential requirements section, e.g.:	Conisbee Struct/ Civils
	Wst 06 - Functional Adaptability	#1 - Functional Adaptability	Client and design team to undertake a building-specific functional adaptation strategy study by Concept Design which includes recommendations for measures in to be incorporated to facilitate future adaptation. Must occur no later than RIBA Stage 2	#1	A building-specific functional adaptation strategy study has been undertaken by the client and design team by Concept Design (RIBA Stage 2 or equivalent), which includes recommendations for measures to be incorporated to facilitate future adaptation	1	0.80%		1		L	Functional adaptation strategy and implementation plan report	FBM Architects
				#2	Functional adaptation measures (see example within BREEAM Refurbishment and Fit-out 2014, Wst 06, Table 68) have been adopted in the design by Technical Design stage (RIBA Stage 4 or equivalent) in accordance with the functional adaptation strategy recommendations, where practical and cost effective. Omissions have been justified in writing to the assessor								
					Totals - Base	11	8.79%	0	7	1			
					Total - Innovation	2	2.00%	0	0	0			
Land Use & Ecology	LE 04 - Enhancing Site Ecology	#1 - Ecologist's Report and Recommendations	Suitable Qualified Ecologist (SQE) is appointed no later than RIBA Stage 1 to report on enhancing and protecting the ecology of the site. SQE must provide an Ecology Report based on a site visit. General recommendations made by SQE must be implemented. SQE must be appointed no later than RIBA Stage 1	#1	A suitably qualified ecologist (SQE) has been appointed by the client or their project representative by the end of the Preparation and Brief (RIBA Stage 1 or equivalent) to advise on enhansing the ecology of the site at an early stage	1	3.20%		1		L	One or more of the appropriate evidence types listed in the BREEAM evidential requirements section, e.g.: Ecologist report Design drawings including proposed and existing (pre-development) site plan/survey Written confirmation from the client/design team confirming how the ecologist's recommendations will be implemented AND A completed copy of the BREEAM LE 03/04	Ecologist
				#2	The SQE has provided an Ecology Report with appropriate recommedations for the enhancement of the site's ecology at Concept Design stage (RIBA Stage 2 or equivalent). The report is based on a site visit/survey by the SQE								
				#3	The early stage advice and recommendations of the Ecology Report for the enhancement of site ecology have been, or will be, implemented in the refurbishment or fit-out								
					Totals - Base	1	3.20%	0	1	0			

Category	BREEAM Issue	Credit Number	General Requirements	Criterion	Detailed Requirements	Available		Achieved	Targeted	Potential	Risk	Design Stage Evidence Requirements	Design Stage Credit Owner
						Credits	Percent	Credits	Credit	Credit			
Pollution	Pol 01 - Impact of Refrigerants	Pre-requisite - Guidelines Compliance	All systems (with electric compressors) must comply with the requirements of BS EN 378:2008 and have a Direct Effect Life Cycle CO_2 of ≤ 100kgCO_2e/kW (2 credits) or ≤ 1000kgCO_2e/kW cooling capacity (1 credit).	#2	All systems (with electric compressors) must comply with the requirements of BS EN 378:2008 (parts 2 and 3) and where refrigeration systems containing ammonia are installed, the Institute of Refrigeration Ammonia Refrigeration Systems Code of Practice.	2	1.97%			1		Completed copy of the Pol 01 calculator tool Documentary evidence supporting the data used to complete the calculator tool	Max Fordham MEP
		#2 - Impact of Refrigerant		#3	Two credits - Impact of Refrigerant Where the systems using refrigerants have Direct Effect Life Cycle CO2 equivalent emissions (DELC CO2e) of ≤ 100 kgCO2e/kW cooling/heating capacity. To calculate the DELC CO2e please refer to the Relevant Definition section in the Additional Information section and the Methodology section within BREEAM Refurbishment and Fit-out 2014, Pol 01 Or								
				#4	Where air-conditioning or refrigeration systems are installed the refrigerants used have a Global Warming Potential (GWP) ≤ 10 Or								
				#5	One credit - Impact of Refrigerant Where the systems using refrigerants have Direct Effect Life Cycle CO2 equivalent emissions (DELC CO2e) of ≤ 1000 kgCO2e/kW cooling/heating capacity								
		#3 - Leak Detection	Permanent automated refrigerant leak detection system or an in-built automated diagnostic procedure for detecting leakage has been installed.	#6	One credit - Leak Detection Where systems using refrigerants have a permanent automated refrigerant leak detection system installed; or where an inbuilt automated diagnostic procedure for detecting leakage is installed. In all instances a robust and tested refrigerant leak detection system must be installed and must be capable of continuously monitoring for leaks	1	0.98%			1		One or more of the appropriate evidence types listed in the BREEAM evidential requirements section, e.g.: A copy of the specification clause or letter from the Max Fordham MEP engineer/system manufacturer confirming relevant refrigeration type and system information	Max Fordham MEP
				#7	The system must be capable of automatically isolating and containing the remaining refrigerant(s) charge in response to a leak detection incident								
	Pol 02 - NOx Emissions	#1 -NOx Emissions	Plant installed to meet delivered heating has a low dry NOx emission level: ● ≤ 100mg/kWh - 1 credit ● ≤ 70mg/kWh - 2 credit ● ≤ 40mg/kWh - 3 credit	#1	Where the plant installed to meet the building's delivered heating and hot water demand has, under normal operating conditions, a NOx emissions level (measured on a dry basis at 0% excess O2) as follows: ≤ 100 mg/kWh - 1 credit ≤ 70 mg/kWh - 2 credits ≤ 40 mg/kWh - 3 credits The awarding of credits differs for Industrial buildings, please refer to BREEAM Refurbishment and Fit-out, Pol 02	3	2.95%			1	M	One or more of the appropriate evidence types listed in the BREEAM evidential requirements section, e.g.: Relevant section/clauses of the building specification or contract Manufacturer's product details Calculations from the project team	Max Fordham MEP
				#2	Report via the BREEAM Scoring and Reporting tool the direct and indirect NOx emissions in mg/kWh and energy consumption in kWh/m2/yr arising from systems installed to meet the building's space heating, cooling and hot water demands								
	Pol 03 - Flood Risk Management	#1 - Flood Risk Management	<u>If the site is low flood risk:</u> 1) Flood maps show low annual probability of flooding; <u>OR</u> 2) The project meets the requirements for avoidance of flooding in accordance with BREEAM Checklist 1, e.g. where 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, etc. <u>If the site is medium or high flood risk:</u> 1) A site-specific floor risk assessment must be undertaken that takes into account all sources of flooding. 2) One of the following must be undertaken: -the refurbishment and fit-out zone is located entirely on the first floor or above and a flood emergency plan has been developed in accordance with 'Would your business stay afloat? A Guide to preparing your business for flooding', Environment Agency, 2011, <u>OR</u> -As a result of the building's floor level or measures to keep water away, the building is defined as achieving avoidance from flooding by following Checklist A-1 3) Where avoidance is not possible, two credits can be achieved where a full flood resilience/resistance strategy is implemented.	#1	Where flood maps from the appropriate statutory body confirm the refurbishment or fit-out is situated in a flood zone that is defined as having a low annual probability of flooding; or	2	1.97%		2		L	One or more of the appropriate evidence types listed in the BREEAM evidential requirements section, e.g.: Flood risk assessment Design drawings Where appropriate, correspondence from the appropriate statutory body confirming reduced annual probability of flooding due to existing flood defences	Conisbee Struct/ Civils
				#2	The project meets the requirements for avoidance of flooding in accordanec with Checklist 1, e.g. where the refurbishment or fit-out zone is of a floor level that is 0.3 meters higher than the obtained/estimated floor level and safe access/escape routes are available/present								
				#3	Where criterion 4 and either crierion 5 or 6 have been met								
				#4	Where flood mpas from the appropriate statutory body confirm the site has a medium or high flood risk and a site specific FRA has been undertaken (as relevant to the size of project inaccordance with BREEAM Refurbishment and Fit-out, Pol 03, CN7). The FRA must take all current and future sources of flooding into consideration in accordance with compliance note.								
				#5	Where the refurbishment or fit-out zone achieves avoidance from flooding through either: a. the refurbishment and fit-out zone is located entirely on the first floor or above and a flood emergency plan has been developed in accordance with 'Would your buisness stay afloat? A guide to preparing your business for flooding', Environment Agency, 2011 b. As a result of the building's floor level or measures to keep water away, the building is defined as achieving avoidance from flooding by following Checklist A-1, Checklists and tables, BREEAM Refurbishment and Fit-out								
				#6	Where avoidance is not possible, two credits are achieved where a full flood resilience/resistance strategy is implemented for the building's scope of works in accordance with recommendations made by a Suitably Qualified Building Professional (see BREEAM Refurbishment and Fit-out, Pol 03, Relevant definitions). The following aspects of the design should be addressed for the relevant parts, in accordance with best practice (see BREEAM Refurbishment and Fit-out, Pol 03, CN9): a. Part 1: Fabric - using flood resilient materials and flood protection measures for the building fabric, e.g. waterproof materials, impermeable membranes, flood barriers, safe access/exit points in the event of a flood, etc. b. Part 2: Core services - core services and associated infrastructure (including equipment and vulnerable pipes/ducts/cables, etc.) should be located/specified so as to protect servi ces from flooding damage, e.g. location/routing/height, protection of building apertures (such as intakes/extracts/ventilation), non-return valves, etc. c. Part 3: Local services - the location/height of local services such as sockets, vents, etc. and the location of the wiring/pipework/ductwork in relation to the flood level and other measures to protect local service d. Part 4: Interior - the proposed function of spaces that are below the flood level (e.g. sacrificial spaces) should be limited to those which are not susceptible to flood damage, and the resilience of materials used for partitions, walls, floors, ceiling finishes, furniture and fittings and the location of equipment in relation to the flood level, e.g. avoid storing flood sensitive materials and functions in spaces that are below the flood level								

Category	BREEAM Issue	Credit Number	General Requirements	Criterion	Detailed Requirements	Available		Achieved	Targeted	Potential	Risk	Design Stage Evidence Requirements	Design Stage Credit Owner
						Credits	Percent	Credits	Credit	Credit			
		#2 - Surface Water Run-Off	One credit - neutral impact of surface water: 1) No increase in impermeable surfaces as a result of the refurbishment works (on-site footpaths are excluded in this calculation). OR 2) If there is an increase in impermeable surfaces: -For hardscaped areas: permeable surfaces and/or SuDS must be incorporated so that there is a neutral effect from the run-off from the site (as compared to the run-off volumes of the original site). -For building extensions: where there is an increase in building footprint that extends onto any previous permeable surfaces, additional run-off must be managed on site using SuDS for rainfall depths up to 5mm. Two credits - reducing run-off: 1) An appropriate consultant is used to design a drainage strategy. 2) Either of the following criteria are met: -Decrease in impermeable area by at least 50% from pre-existing impermeable hard surfaces, OR -Where run-off is managed on site, peak run-off for 1 in 100yr event is reduced by 50%, total volume of run-off for 1 in 100yr event of 6hr duration is reduced by 50%, and	#7	There is no increase in the impermeable surfaces as a result of the refurbishment works; or	2	1.97%		1		M		Conisbee Struct/ Civils
				#8	If there is an increase in the impermeable surface as a result of the refurbishment works then the following must be met: a. Hard standing areas - where there is an extension or increase in the hardstanding areas and hence an increase in the total impermeable area as a result of the refurbishment works, the hanrdstanding area must be permeable or be provided with on-site SUDs to allow full infiltration of the additional volume, to achieve the same end result. The permeable hardstanding must include all pavements and public rights of way, car parks, driveways and non-adoptable roads, but exclude footpaths that cross soft landscape areas which will drain onto a naturally permeable surface b. Building extension - where there is an increase in building footprint, extending onto any previously permeable surfaces, the additional run-off caused by the area of the new extension must be managed on-site using an appropriate SUDs technique for rainfall depths up to 5mm								
				#9	An Appropriate Consultant has been used to design an appropriate drainage strategy for the site								
				#10	Either of the following criteria are met a. There is a decrease in impermeable area by 50% or more, from the pre-existing impermeable hard surfaces, OR b. Where run-off as a result of the refurbishment is managed on-site using source control achieving the following requirements: i. The peak rate of run-off as a result of the refurbishment for the 1 in 100 year even has been reduced by 50% from the existing site ii. The total volume of run-off discharge into the watercources and sewers as a result of the refurbishment, for a 1 in 100 year even of 6 hour duration has been reduced by 50% iii. An allowance for climate change must be included for all the above calculations, this should be made in accordance with current best practice planning guidance								
	Pol 04 - Reduction of Night Time Light Pollution	#1 - Reduction of Night Time Light Pollution	Where the external lighting design is compliant with ILE guidance for the reduction of night time pollution and is automatically switched off between 2300 and 0700.	#1	Where external lighting pollution has been eliminated through effective design that removes the need for external lighting without adversely affecting the safety and security of the site and its users Or alternatively, where the building does have external lighting, one credit can be awarded through compliance with requirements 2 to 5	1	0.98%		1		L	One or more of the appropriate evidence types listed in the BREEAM evidential requirements section, e.g.: Design drawings Relevant section/clauses of the building specification or contract or external lighting data/calculations	Max Fordham MEP
				#2	The external lighting strategy has been designed in compliance with Table 2 of the ILP Guidance notes for the reduction of obtrusive light, 2011. Buildings located in Scotland must comply with the light pollution criteria in the guidance note 'Controlling Light Pollution and Reducing Lighting Energy Consumption'. This can be demonstrated via completion of the checklists in Annexes B and C of the guidance note by a relevant member of the design team								
				#3	All external lighting (except for safet and security lighting) can be automatically switched off between 23:00 and 07:00								
				#4	If safety or security lighting is provided and will be used between 23:00 and 07:00, this part of the lighting system complies with the lower levels of lighting recommended during these hours in Table 2 of the ILP's Guidance notes								
				#5	Illuminated advertisements, where specified, must be designed in compliance with ILE Technical Report 5 - The Brightness of Illuminated Advertisements								
	Pol 05 - Reduction of Noise Pollution	#1 - Reduction of Noise Pollution	Noise sources from development do not exceed ambient noise levels. Noise impact assessment to be BS 4142 compliant. Credit achieved by default where there are no noise sensitive areas or buildings within 800m radius of development.	#1	Where there are, or will be, no noise-sensitive areas or buildings within 800m radius of the assessed site, or	1	0.98%		1		L	One or more of the appropriate evidence types listed in the BREEAM evidential requirements section, e.g.: Design drawings highlighting: 1. All existing and proposed noise-sensitive building local to, and within, the site boundary 2. Proposed sources of noise from the new development 3. Distance (m) from these buildings to the assessed development Acoustician's report with noise attenuation measures, acoustician's qualifications and professional status OR Relevant section/clauses of the building specification or contract requiring a noise assessment by a suitably qualified acoustician in compliance with BS 7445:2003 OR A letter from the client or design team confirming	Acoustician
				#2	Alternatively, where the building dies have noise-sensitive areas or buildings within 800 meters radius of the site, one credit can be awarded as follows: a. Where a noise impact assessment in compliance with BS 7445 has carried out and the following noise levels measured/determined: i. Existing background noise levels at the nearest or most exposed noise-sensitive development to the proposed development or at a location where background conditions can be argued to be similar ii. The rating noise level resulting from the new noise source								
				#3	The noise impact assessment must be carried out by a suitably qualified acoustic consultant holding a recognised acoustic qualification and membership of an appropriate professoinal body								
				#4	The noise level from the proposed site/building, as measured in the locality of the nearest or most exposed noise-sensitive devleopment, is a differnece no greater than +5dB during the day (07:00 to 23:00) and +3dB at night (23:00 to 07:00) compared to the background noise level								
				#5	Where the noise seource(s) from the proposed site/building is greater than the levels described in criterion 4, measures have been installed to attenuate the noise at its source to a level where it will comply with criterion 4.								
					Totals - Base	13	12.78%	0	5	3			

10.0 APPENDIX IV – SCHEDULE OF ROLES AND RESPONSIBILITIES

Maria Fidelis CSC - RACK/RACI MATRIX - Schedule of Roles and Responsibilities

BREEAM Man 01 Credit 1 Stakeholder Consultation

Date:	28.1.19
Stage:	Stage 2

				Design team										
	Roles and Responsibilities in relation to usability and maintenance	**Client**	**Building Occupier**	**Project Manager**	**Architect**	**Services Engineer**	**Acoustics**	**Landscape Architects**	**Flood Risk**	**Drainage Strategy**	**Structural Engineer**	**Transport Engineers**	**Contractor (construction representative)**	**Method / Forum / Consultation undertaken during Brief Development stage**
	Organisation and Name of Representative	London Borough of Camden	London Borough of Camden	London Borough of Camden	FBMA	Max Fordham LLP	Spectrum	ME- Landscape	Conisbee	Conisbee	Conisbee	Conisbee	TBC	
Design Stage 0-3	Defining end user requirements	R	R	K	K	K	K	K	K	K	K	K	N/A	Already discussed at Stage 0 & Stage 1
	Designing in relation to end user requirements (Aims of the design and design strategy)	A	C	A	R	R	R	R	K	R	R	R	N/A	Already discussed at Stage 0 & Stage 1
	Particular installation and construction requirements or limitations	R	C	A	R/A	R	R	R	K	R	R	R	N/A	Discussed during DTM, and by design team at stage 0
	Occupiers budget and technical expertise in maintaining any proposed systems	R	K	A	A	K	K	K	N/A	N/A	N/A	N/A	N/A	To be discussed during Stage 3 onwards
	Maintainability and adaptability of the proposals	A	C	Ensure reviews	R	R	R	R	R	R	R	R	N/A	To be discussed during Stage 3 onwards
	Operational energy	C	C	A	R	R	R	R	R	R	R	R	N/A	Discussed during stage 2 and in more detail during Stage 3 onwards
	Production of maintenance strategy	A	C	Ensure considered	R	R	C	R	C	C	C	C	N/A	To be discussed during stage 4 and 5
	Outline Building User Guide	A	C	Ensure developed	R	R	N/A	R	N/A	N/A	N/A	N/A	R	To be discussed during stage 4 and 5
	Production of other project and end user documentation	R	C	R	K	K	K	K	K	K	K	K	R	To be provided at Stage 6
	Commissioning, training and aftercare support including budget allocation	R	C	K	C	C	N/A	N/A	N/A	N/A	N/A	N/A	N/A	To be provided at Stage 6 & 7

Key	
Responsible - those roles that have to execute the task.	R
Accountable -the individuals that delegate the activity and that are ultimately responsible for it	A
Consulted - those who opinions are sought	C
Knowledge (Informed) - those that need to be updated on the progress of that task.	K
NB: we have changed 'I' to 'K' in order to deconflict with the number 1.	

Figure 6: Schedule of roles and responsibilities - CSC

Maria Fidelis Main Workspace Refurb - RACK/RACI MATRIX - Schedule of Roles and Responsibilities

BREEAM Man 01 Credit 1 Stakeholder Consultation

Date:	28.1.19
Stage:	Stage 2

						Design team									
	Roles and Responsibilities in relation to usability and maintenance	**Client**		**Building Occupier**	**Project Manager**	**Architect**	**Services Engineer**	**Acoustics**	**Landscape Architects**	**Flood Risk**	**Drainage Strategy**	**Structural Engineer**	**Transport Engineers**	**Contractor (construction representative)**	**Method / Forum / Consultation undertaken during Brief Development stage**
	Organisation and Name of Representative	London Borough of Camden	LCR	London Borough of Camden	London Borough of Camden	FBMA	Max Fordham LLP	Spectrum	ME- Landscape	Conisbee	Conisbee	Conisbee	Conisbee	TBC	
Design Stage 0-3	Defining end user requirements	R	R	R	K	K	K	K	K	K	K	K	K	N/A	Already discussed at Stage 0 & Stage 1
	Designing in relation to end user requirements (Aims of the design and design strategy)	A	A	C	A	R	R	R	R	K	R	R	R	N/A	Already discussed at Stage 0 & Stage 1
	Particular installation and construction requirements or limitations	R	R	C	A	R/A	R	R	R	K	R	R	R	N/A	Discussed during DTM, and by design team at stage 0
	Occupiers budget and technical expertise in maintaining any proposed systems	R	R/A	K	A	A	K	K	K	N/A	N/A	N/A	N/A	N/A	To be discussed during Stage 3 onwards
	Maintainability and adaptability of the proposals	A	A	C	Ensure reviews	R	R	R	R	R	R	R	R	N/A	To be discussed during Stage 3 onwards
	Operational energy	C	C	C	A	R	R	R	R	R	R	R	R	N/A	Discussed during stage 2 and in more detail during Stage 3 onwards
	Production of maintenance strategy	A	A	C	Ensure considered	R	R	C	R	C	C	C	C	N/A	To be discussed during stage 4 and 5
	Outline Building User Guide	A	A	C	Ensure developed	R	R	N/A	R	N/A	N/A	N/A	N/A	R	To be discussed during stage 4 and 5
	Production of other project and end user documentation	R	R	C	R	K	K	K	K	K	K	K	K	R	To be provided at Stage 6
	Commissioning, training and aftercare support including budget allocation	R	R	C	K	C	C	N/A	N/A	N/A	N/A	N/A	N/A	N/A	To be provided at Stage 6 & 7
	Design and construction risk assessments e.g. CDM, legionella risk assessment	A	A	C	C	K	R	N/A	N/A	N/A	N/A	N/A	N/A	C	Discussed during stage 2 and in more detail during Stage 3 onwards
	Legislative requirements e.g. building control notification, heritage requirements	A	A	K	K	R	R	R	R	R	R	R	K	R	To be discussed from Stage 0 onwards
	Procurement and supply chain	R	R	C	A	R	R	K	C	K	C	R	K	A	To be discussed from Stage 0 onwards
	Identifying and measuring project success in line with project brief objectives	R	R	K	A	R	R	R	R	R	R	R	R	A	To be discussed from Stage 4 onwards

Key	
Responsible - those roles that have to execute the task.	R
Accountable -the individuals that delegate the activity and that are ultimately responsible for it	A
Consulted - those who opinions are sought	C
Knowledge (Informed) - those that need to be updated on the progress of that task.	K
NB: we have changed 'I' to 'K' in order to deconflict with the number 1.	

Figure 7: Schedule of roles and responsibilities - Main Workspace Refurbishment