

12-14 Greville Street

For Workspace Group PLC

February 2016

XCO2 energy

w: www.xco2energy.com :: e: mail@xco2energy.com t: +44 (0) 20 7700 1000 :: f: +44 (0) 20 7183 6620

17-18 Hayward's Place :: Clerkenwell :: London :: EC1R 0EQ



### Contents

Executive Summary	3
Site	4
Planning Policies	5
Camden Core Strategy 2010	5
Camden Development Policies 2010	6
Camden Planning Guidance - Sustainability CPG3 - 2013	7
Sustainability Standards	
Sustainability Standards	8
BREEAM Pre-Assessment	Ç

### About us:

XCO2 Energy are a low-carbon consultancy working in the built environment. We are a multi-disciplinary company consisting of both architects and engineers, with specialists including CIBSE low carbon consultants, Code for Sustainable Homes, EcoHomes and BREEAM assessors and LEED accredited professionals.

	Issue 01	Issue 02	Issue 03	Issue 04
Remarks	Draft	Final		
Prepared by	MS	MS		
Checked by	TS	TS		
Authorised by	RM	RM		
Date	20/11/2015	04/02/2016		
Project reference	8_461	8_461		





### **Executive Summary**

This report outlines the sustainability strategy for the proposed development at 12-14 Greville Street, in line with the requirements set out by the London Borough of Camden and the client and design team's aspirations.

This sustainability statement is divided into two parts:

- Policy and Sustainability Standards
- BREEAM New Construction

The first part provides an overview of the site and the planning policies applicable to this development as detailed in the Camden Council planning documents. The report then demonstrates how these policies have been met.

The body of this report outlines the sustainability measures that have been adopted for the scheme to achieve BREEAM 'Excellent'. A summary of the preassessment credits for the BREEAM assessment is provided at the end.

In summary, the proposed development meets the criteria set out by the London Borough of Camden. The proposed light industrial units achieve 74.6 credits, which exceeds the required 70 credits for BREEAM 'Excellent'.

In addition, all mandatory BREEAM 'Excellent' credits in the Energy, Water, Material and Ecology categories have also been satisfied.

A SBEM calculation has been carried out to determine energy and CO<sub>2</sub> savings achievable, the results of which are included in the accompanying Energy Statement.

The diagram below provides a summary of the average  $\mathrm{CO}_2$  savings achieved over Part L Building Regulations (2013). The reduction in  $\mathrm{CO}_2$  emissions of 7.3% reflects reduction in regulated energy use only achieved through fabric improvements, in accordance with Part L of the Building Regulations. Unregulated energy use is not taken into account in the calculation of BREEAM credits (e.g. plug-in load and appliances). In addition, given the amount of on-site renewables proposed, the development achieves a reduction in total  $\mathrm{CO}_2$  emissions of 31.4%.

The number of credits obtained in the BREEAM pre-assessment reflects the client and design team's determination in incorporating as many sustainability measures as possible.

## **Total savings over existing building baseline (assessed under Part L 2013)** (savings is based on regulated energy only in accordance with Part L)

14.2 tCO<sub>2</sub> 31.4% BREEAM "Excellent" achieved Baseline Lean Clean Green 0.0% 7.3% 26.0% 58.9 tCO<sub>2</sub> 54.6 tCO<sub>2</sub> 54.6 tCO<sub>2</sub> 40.4 tCO<sub>2</sub> Savings through Savings through Savings through building fabric **Combined Heat** Renewables and Power (CHP) efficiency





#### **Site**

The proposed development is located at 12-14 Greville Street and is distributed over five storeys and a basement. It includes a retail jewellery store on the ground floor, workshop and service areas in the basement and office spaces on all other floors.

The proposed development will replace an existing café/restaurant and low quality work spaces and a section of the existing facade will be retained.

The site is located towards the middle of Greville Street, with Farringdon railway station to the west, within the London Borough of Camden.

The approximate location of the development is shown in the figure below.

The demolition and rebuild of an existing building may result in high carbon emissions due to the embodied energy to carry out these processes. However, the new building will operate more efficiently, significantly reducing operational related carbon emissions. Therefore, it is envisioned that in addition to the benefits to building users and occupiers, brought by the redesign and extension of internal spaces, the new building will have less environmental impact during its lifetime than the refurbishment of the existing building.







### **Planning Policies**

This report outlines the sustainability related strategies and policies for the proposed development at 12-14 Greville Street, as set out by the London Borough of Camden's planning documents as well as the London Plan 2015 (further alterations to the London Plan).

#### **Camden Core Strategy 2010**

The Camden Core Strategy sets out the Council's key planning policies and is a central part of their Local Development Framework (LDF). The pertinent sustainability excerpts are inserted below:

## CS13-Tackling climate change through promoting higher environmental standards

## Reducing the effects of and adapting to climate change

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

- a) Ensuring patterns of land use that minimise the need to travel by car and help support local energy networks;
- b) Promoting the efficient use of land and buildings;
- c) Minimising carbon emissions from the redevelopment, construction and occupation of buildings by implementing, in order, all of the elements of the following energy hierarchy:
- 1. Ensuring developments use less energy,
- 2. Making use of energy from efficient sources, such as the King's Cross, Gower Street, Bloomsbury and proposed Euston Road decentralised energy networks;
- 3. Generating renewable energy on-site; and
- d) Ensuring buildings and spaces are designed to cope with, and minimise the effects of, climate change.

The Council will have regard to the cost of installing measures to tackle climate change as well as the cumulative future costs of delaying reductions in carbon dioxide emissions.

#### Water and surface water flooding

We will make Camden a water efficient borough and minimise the potential for surface water flooding by:

- h) making sure development incorporates efficient water and foul water infrastructure;
- i) requiring development to avoid harm to the water environment, water quality or drainage systems and prevents or mitigates local surface water and downstream flooding, especially in areas up-hill from, and in, areas known to be at risk from surface water flooding such as South and West Hampstead, Gospel Oak and King's Cross.

# CS13 – Dealing with our waste and encouraging recycling

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

b) make sure that developments include facilities for the storage and collection of waste and recycling.







### **Camden Development Policies 2010**

In addition to the Core Strategy Document the Camden Development Policies also forms part of the LDF. The policy relating to sustainability is listed below:

## DP22 – Promoting sustainable design and construction

The Council will require development to incorporate sustainable design and construction measures. Schemes must:

- a) demonstrate how sustainable development principles have been incorporated into the design and proposed implementation; and
- b) incorporate green or brown roofs and green walls wherever suitable.

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

e) expecting non-domestic developments of 500sqm of floorspace or above to achieve "Very Good" in BREEAM assessments and "Excellent" from 2016 and encouraging zero carbon from 2019.

The Council will require development to be resilient to climate change by ensuring schemes include appropriate climate change adaptation measures, such as:

- f) summer shading and planting;
- *g) limiting run-off;*
- *h) reducing water consumption;*
- i) reducing air pollution; and
- *j)* not locating vulnerable uses in basements in flood prone areas.

#### DP23 - Water

The Council will require developments to reduce their water consumption, the pressure on the combined sewer network and the risk of flooding by:

a) incorporating water efficient features and equipment and capturing, retaining and re-using surface water and grey water on-site;

b) limiting the amount and rate of run-off and waste water entering the combined storm water and sewer network through the methods outlined in part a) and other sustainable urban drainage methods to reduce the risk of flooding;

c) reducing the pressure placed on the combined storm water and sewer network from foul water and surface water run-off and ensuring developments in the areas identified by the North London Strategic Flood Risk Assessment and shown on as being at risk of surface water flooding are designed to cope with the potential flooding;

d) ensuring that developments are assessed for upstream and downstream groundwater flood risks in areas where historic underground streams are known to have been present; and

*d)* encouraging the provision of attractive and efficient water features.

Camden Development Policies 2010-2025

Local Development Framework









## Camden Planning Guidance - Sustainability CPG3 - 2013

The Camden Planning Guidance support the policies set out in the Local Development Framework (LDF). While the Camden LDF contains policies relating to sustainability in their Core Strategy and Development Policies documents, the Council also has a separate planning guidance specific to sustainability.

The sections that will be covered by a combination of the Sustainability Statement and accompanying Energy Statement are listed below:

#### The energy hierarchy

All new developments are to be designed to minimise carbon dioxide emissions by being as energy efficient as is feasible and viable.

#### **Energy efficiency: new buildings**

- All buildings, whether being updated or refurbished, are expected to reduce their carbon emissions by making improvements to the existing building. Work involving a change of use or an extension to an existing property is included. As a guide, at least 10% of the project cost should be spent on the improvements.
- Development involving a change of use or a conversion of 5 or more dwellings or 500sq m of any floorspace, will be expected to achieve 60% of the un-weighted credits in the Energy category in their EcoHomes or BREEAM assessment, whichever is applicable. (See the section on Sustainability assessment tools for more details).
- Special consideration will be given to buildings that are protected e.g. listed buildings to ensure that their historic and architectural features are preserved.

# Decentralised energy networks and combined heat and power

Development should follow the Energy Hierarchy

- 1. use less energy
- 2. supply energy efficiently
- 3. use renewable energy

#### **Renewable Energy**

All developments are to target at least a 20% reduction in carbon dioxide emissions through the installation of on-site renewable energy technologies. Special consideration will be given to heritage buildings and features to ensure that their historic and architectural features are preserved.

#### **Water Efficiency**

The Council expects all developments to be designed to be water efficient by minimising water use and maximising the re-use of water. This includes new and existing buildings.

#### Sustainable use of materials

Major developments are anticipated to be able to achieve 15-20% of the total value of materials used to be derived from recycled and reused sources.

#### **Sustainability assessment tools**

Developments are anticipated to be able to achieve BREEAM 'Excellent' from 2013 onwards and at least 60% of Energy and Water credits and 40% of Materials credits.

#### Brown roofs, green roofs and green walls

The Council will expect all developments to incorporate brown roofs, green roofs and green walls unless it is demonstrated this is not possible or appropriate. This includes new and existing buildings. Special consideration will be given to historic buildings to ensure historic and architectural features are preserved.

#### **Flooding**

Developments must not increase the risk of flooding, and are required to put in place mitigation measures where there is known to be a risk of flooding.

#### Adapting to climate change

All development is expected to consider the impact of climate change and be designed to cope with the anticipated conditions.





### **Sustainability Standards**

This development will be assessed using BREEAM New Construction 2014 and aims to achieve a 'Excellent' rating. The following sections provide an overview of the most widely used sustainability assessment method in the UK.



BREEAM 2011 Ratings	Percentage of Credits Required
Outstanding	85%
Excellent	70%
Excellent	55%
Good	45%
Pass	30%

#### **BREEAM**

BREEAM New Construction 2014 is a performance based environmental assessment method and certification scheme for new buildings. The primary aim of BREEAM New Construction is to mitigate the impacts of new developments on the environment over the entire life-cycle of the building in a comprehensive and cost-effective manner. This is achieved through the integration of the BREEAM scheme at key stages of the design and procurement process.

A BREEAM Office Pre-Assessment was carried out for the proposed development.

The pre-assessment tool uses established benchmarks to evaluate a building's specification, design, construction and operation, over a broad range of categories and criteria:

- Management processes
- Health and wellbeing
- Energy use
- Transport
- Water use
- Materials
- Waste
- Land use and ecology
- Pollution

The outcome of the pre-assessment is expressed as a single certified BREEAM rating, ranging from Pass (30%) to Outstanding (85%).





#### **BREEAM Pre-Assessment**

This report discusses how the development addresses the BREEAM sustainability criteria required to meet BREEAM 'Excellent'.

The BREEAM Pre-Assessment shows that the development at 12-14 Greville Street is expected to achieve a score of 74.6%, which exceeds the target of 70% for BREEAM 'Excellent'. The results are listed in the table below, including a breakdown of the indicative scores available and achieved in each section.

The BREEAM Pre-Assessment shows that the building design meets the client and design team's sustainability aspirations whilst also aiming for the highest possible rating for this development.

The following pages address each of the sustainability categories as set out in BREEAM. Each category highlights the sustainability measures that have been adopted to meet BREEAM 'Excellent'.

BREEAM 2014 Categories	Indicative Scores Available	Indicative Scores Achieved: BREEAM Shell and Core - Office	
Management	11.0%	9.2%	
Health & Wellbeing	10.5%	6.7%	
Energy	15.0%	12.1%	
Transport	10.0%	10.0%	
Water	7.5%	6.6%	
Materials	14.5%	10.0%	
Waste	9.5%	8.4%	
Land Use & Ecology	11.0%	6.6%	
Pollution	11.0%	5.1%	
Innovation	10.0%	1.0%	
Total	100%	74.6%	





#### Management

#### Man 01 Project Brief and Design

Prior to completion of the Concept Design (RIBA Stage 2 or equivalent), a project delivery consultation meeting will be held to identify and define stakeholders' roles and responsibilities at each key stage of the project delivery. A third party stakeholders' consultation will also be carried out in line with BREEAM requirements.

#### **Man 02 Life Cycle Cost and Service Life Planning**

An elemental life cycle cost (LCC) analysis will be carried out at Concept Design Stage 2 and a component level LCC plan will be developed by the end of Technical Design Stage 4. The capital cost for the building will also be reported via the BREEAM Assessment Scoring and Reporting Tool in pounds per square metre (£k/m²).

#### **Man 03 Responsible construction practices**

All timber used in the project will be 'legally harvested and traded' timber. This is a prerequisite for the following issues which will also be included for this project:

- The principal contractor will operate a compliant Environmental Management System covering their main operations.
- The principal contractor will achieve exemplary compliance with the Considerate Constructors Scheme and go beyond best practice with a total CCS score of more than 40 points, and a minimum score of 7 in each of the 5 sections.
- Energy use and water consumption and transport from on-site construction processes will be monitored and recorded.



#### **Man 04 Commissioning and Handover**

A schedule including a time scale for commissioning and testing all building services and control systems will be completed. An appropriate team member will be appointed to monitor and programme all commissioning requirements on behalf of the client.

A commissioning manager will be appointed to undertake design reviews, give advice and manage performance testing and handover/post-handover stages.

A thermographic survey and airtightness test will be carried out and any defects identified in the building fabric will be rectified.

A Building User Guide and a training schedule will be prepared for the building occupier and user, to ensure the efficient operation and maintenance of the building.

#### **Health and Well being**

#### Hea 01 Visual comfort

All fluorescent and compact fluorescent lamps specified will be fitted with high frequency ballasts to meet the mandatory requirements of this category. Internal lighting should be zoned to allow for occupant control. In office areas, zones of no more than 4 workplaces should be allowed for.

All lighting will be designed to reduce glare and give occupants the flexibility in achieving desired illuminance levels without excessive energy use. Appropriately maintained illuminance levels will be achieved in line with the SLL Code for Lighting 2012, CIBSE Lighting Guide 2009 and other relevant industry standards.

A glare control strategy will be used design out glare using strategies such as building integrated measures and occupant controlled devices such as blinds, bioclimatic design, external shading or brise soleil.

All external lighting will be designed to provide illuminance levels that enable the users to perform outdoor visual tasks efficiently at night. External lighting will be specified in accordance with BS 5489-1:2013 and BS EN 12464-2:2014.





#### **Hea 04 Thermal Comfort**

A thermal model will be built and thermal comfort analysed. The model will inform the development of a thermal zoning and control strategy and considers the influence of the projected climate change scenarios, or demonstrates how the building can be adapted in future using passive design solutions.

#### **Hea 05 Acoustic Performance**

A suitably qualified acoustician will be appointed to verify the performance requirements for all function areas in the building using the acoustic principles for indoor ambient noise level, setting out the performance requirements for each and the testing regime required.

#### **Hea 06 Safety and security**

A suitably qualified security specialist (SQSS) will be appointed to conduct a Security Needs Assessment (SNA) during the Concept Design stage (RIBA Stage 2) of the project, and the resulting set of recommendations implemented on site.

#### **Energy**

## Ene 01 Reduction of energy use and carbon emissions

An SBEM calculation was carried out to determine the energy demand and  ${\rm CO_2}$  emissions for the notional and actual buildings. The results were subsequently applied to the Ene01 calculator within the BREEAM 2014 Pre-assessment Scoring tool.

An overall building energy performance ratio (EPR $_{\rm NC}$ ) of >0.81 is achieved for the proposed development through a number of energy efficiency measures which are discussed in the accompanying Energy Statement.

#### **Ene 02 Energy monitoring**

An energy monitoring and management system that enables at least 90% of the estimated annual energy consumption of each fuel to be assigned to the various end-use categories of energy consuming systems will be installed.

In addition, sub-meters will be installed to the energy supply of each separate function area. Where the function area extends beyond a single floor plate, sub-meters will be installed per floor plate for each tenanted unit.

#### **Ene 03 External lighting**

All external luminaries are to be energy efficient and all light fittings are to be controlled for the presence of daylight. Daylight sensors will help to ensure that artificial lights are not used when daylight levels are sufficient.

The average initial luminous efficacy of the external light fittings within the construction zone will not be less than 60 luminaire lumens per circuit Watt.

#### **Ene 04 Low Carbon Design**

A feasibility study will be carried out by the completion of RIBA Stage 2 to establish the most appropriate low or zero carbon energy source(s) for the building, which will aim to meet at least 5% of the overall building energy demand.

#### **Ene 06 Energy Efficient Transportation Systems**

The usage patterns of the building will be assessed to determine the optimum number of lifts and their energy consumption be calculated in line with BS EN ISO 25745 Energy Performance of Lifts (elevators).

The following energy efficient features will be specified:

- standby mode operation (during off peak periods),
- the lamp efficacy of lift car and lift display lighting (>55 lamp lumens/circuit Watt), and
- drive controllers with variable speed, voltage and frequency control of the drive motor.





#### **Transport**

#### **Tra 01 Public Transport Accessibility**

The site has excellent public transport links with a public transport accessibility index of 55.

#### **Tra 02 Proximity to amenities**

There are restaurants, cash points and open spaces located in close proximity to the building site.

#### **Tra 03 Cyclist facilities**

Cycle storage spaces for will be provided for staff in an appropriate and secure location. These will be within proximity of the main building entrance.

#### **Tra 04 Maximum Car Parking Capacity**

Car parking spaces will not be provided on site.

#### Tra 05 Travel Plan

A travel plan will be developed as part of the design and feasibility stage, encouraging the use of sustainable modes of transport of people and goods during the buildings' operation and use. The travel plan will be based on site specific travel assessment.



#### Water

#### Wat 01 Water consumption

A minimum of 50% improvement over baseline performance will be sought in all water consuming components. The following maximum flow rates will be used:

#### Office spaces:

- Wash hand basin taps: flow rate 3.5 litres/min.
- WC: effective flush volume 3.5 litres
- Kitchenette taps: flow rate 5.0 litres/min

Any other water consuming fixtures, fittings or appliances will be compared against BREEAM performance levels before specification.

A rainwater harvesting system could be considered to achieve additional credits in this category.

#### **Wat 02 Water monitoring**

A water meter with a pulsed or other open protocol output will be provided on the mains water supply to accurately monitor the building's water usage. Building service systems with a significant water demand will be have additional water monitoring equipment fitted to them. All water meters will be connected to the BMS if applicable.

Any water consuming plant or building areas installed by the tenant need not be assessed.

### Wat 03 Water leak detection and prevention

A leak detection system capable of detecting a major leak on the mains water supple within the building and between the building and the utilities water meter will be installed.

Flow control devices that regulate the supply of water to each WC area/facility according to demand will be installed in order to minimise water leaks and wastage from sanitary fittings.





#### **Materials**

#### Mat 01 Life cycle impacts

The materials specified for the main building elements will have a low environmental impact. For this development it will be required that the external walls, windows, upper floor slab, internal walls, floor finishes and roof achieve a Green Guide rating of between A+ and C.

## Mat 02 Hard landscaping and boundary protection

More than 80% of all external hard landscaping will achieve a Green Guide rating of either A+ or A.

#### **Mat 03 Responsible sourcing**

Building materials used for the main construction elements will need to be 'responsibly sourced' with a documented Sustainable Procurement plan in place. All timber and timber based products specified will be legally harvested and traded timber.

In addition, at least 18% of the responsible sourcing of materials (RSM) points must be achieved in accordance with the BREEAM methodology.

#### **Mat 04 Insulation**

All insulation specified for the development will have a low embodied environmental impact relative to its thermal properties. Insulation specified for use within external walls, ground floor, roof and building services will be assessed and the Insulation Index should be equal to or greater than 2.5.

#### Mat 05 Designing for durability and resilience

The design will incorporate suitable durability and protection measures or designed features/solutions to prevent damage to vulnerable and exposed parts of the internal and external building and landscaping elements

#### **Mat 06 Material Efficiency**

The design and construction teams will identify opportunities where material use can be optimised during the RIBA stages 1-5 (Preparation and Brief through to Construction).

#### Waste

### **Wst 01 Construction waste management**

A Resource Management Plan (RMP) will be developed with the aim of minimising and monitoring waste, to ensure the amount of construction waste generated is lower than or equal to 3.4m<sup>3</sup> per 100m<sup>2</sup> of gross internal floor area. The proportion of this construction waste diverted from landfill will also be measured and reported.

A pre-demolition audit will be carried out for any existing buildings, structures or hard surfaces to identify key refurbishment/demolition materials.

In addition, 70% of non-demolition waste and 80% of demolition waste must be diverted from land fill.

#### **Wst 03 Operational waste**

There will be dedicated space to cater for the segregation and storage of operational recyclable waste volumes generated by the assessed building/unit, its occupant(s) and activities. A minimum of at least 2m² of waste storage space per 1000m² of net floor area shall be provided.

If the consistent generation in volume of waste streams such as packaging or compostable waste is generated, static waste compactors or balers and vessels for composting or storage of organic waste prior to collection to an alternative composting facility will also be provided.





#### **Wst 05 Adaption to climate change**

A climate change adaptation strategy appraisal for structural and fabric resilience will need to be conducted by the end of the Concept Design stage (RIBA Stage 2), to identify the impact of climate change influenced weather conditions on the projected lifespan of the building.

#### **Wst 06 Functional Adaptability**

A building specific functional adaptation strategy study needs to be conducted by the Concept Design stage (RIBA Stage 2), including recommendations to incorporate measures for future building adaptation. Where practical and cost effective, these measures are to be implemented.

#### **Land Use & Ecology**

#### **LE 01 Site Selection**

The footprint of this development is entirely located on a site previously developed.

## LE 02 Ecological value of site and protection of ecological features

Due to its location and absence of ecological features on the existing site, the site is likely to be considered to be of low ecological value according to the BREEAM checklist. A suitably qualified ecologist (SQE) will need to be appointed to confirm this. Any features of ecological value surrounding the site will need to be protected in line with BS42020: 2013.

#### LE 03 Minimising impact on existing site ecology

As the development site has an absence of ecological features, no negative change in plant species richness is expected. This will be calculated via the BREEAM LE03/L04 calculator by the SQE.

#### **Pollution**

#### Pol 02 NOx emissions

NOx emissions will be reduced through a 'highly insulated building' fabric as the heating load is less than or equal to 7% of the heat load for a Building Regulations compliant building of the same size.

#### Pol 03 Surface water run off

The Environmental Agency Flood Map shows that the development is located in an area with a low probability of flooding. A Flood Risk Assessment will be carried out for the site to confirm this.

As there will be no change in the impermeable area post-development, two credits (peak and volume of run-off) will be met by default.

#### Pol 04 Reduction of night time light pollution

External lighting will be confined to appropriate areas for security and safety purposes, and lighting will comply with the Institution of Lighting Engineers guidance notes for the reduction of obtrusive light.

All external lighting (except for safety and security lighting) will be fitted with timers to enable them to switch off automatically between the hours of 2300hrs and 0700hrs.

Illuminated advertisements must be designed to comply with ILE Technical Report 5 - The Brightness of Illuminated Advertisements.





#### **Pol 05 Noise attenuation**

As there are noise-sensitive buildings within 800m radius of the development, the following will be carried out:

- A noise impact assessment in compliance with BS7445 to determine the existing background noise levels at the nearest or most exposed noise-sensitive development to the proposed development and the rating noise level resulting from the new noise source
- The noise level from the proposed site is a difference no greater than +5dB during the day and +3dB at nigh compared to background noise level
- Where the noise source from the proposed site is greater than the levels described above, measures will be installed to attenuate the noise at its source to a level where it will comply with the above.

#### **BREEAM Pre-Assessment Results**

A BREEAM pre-assessment was carried out for the proposed development at 12-14 Greville Street, based on the sustainability targets set out by the Council and the design measures adopted by the client and design team.

The table on the following page summarises the number of credits achieved in each of the BREEAM categories.

The proposed development achieves a total of 74.6 credits, which meets the level required for BREEAM 'Excellent', reflecting the client and project team's commitment in adopting a range of sustainability measures over the life-cycle of the development.

#### Conclusion

The proposed development will comprise a highly sustainable scheme. It is compliant with strategic and local policy requirements and objectives regarding sustainability and will a achieve a BREEAM rating of "Excellent".





**BREEAM Pre-Assessment Results Summary** 

	re-Assessment Results Summary		Score Assessment		
	BREEAM Section	Credit Score	Sub Total	Weighting (%)	Score (%)
Management	Man 01 Project brief and design	2			
	Man 02 Life cycle cost and service life planning	4	14	11.0%	9.2%
	Man 03 Responsible construction practices	5			
	Man 04 Commissioning and handover	4			
Health &	Hea 01 Visual comfort	2			
Wellbeing	Hea 04 Thermal comfort	2	7	10.5%	6.7%
	Hea 05 Acoustic Performance	1	,	10.370	0.7 70
	Hea 06 Safety and security	2			
Energy	Ene 01 Reduction of energy use and carbon emissions	10			
	Ene 02 Energy monitoring	2			
	Ene 03 External lighting	1	17	15.0%	12.1%
	Ene 04 Low carbon design	1			
	Ene 06 Energy efficient transportation systems	3			
Transport	Tra 01 Public transport accessibility	3			
	Tra 02 Proximity to amenities	1			
	Tra 03 Cyclist facilities	2	9	10.0%	10.0%
	Tra 04 Maximum Car Parking Capacity	2			
	Tra 05 Travel Plan	1			
Water	Wat 01 Water consumption	4			
	Wat 02 Water monitoring	1	7	7.5%	6.6%
	Wat 03 Water leak detection and prevention	2			
Materials	Mat 01 Life cycle impacts	3			
	Mat 02 Hard landscaping and boundary protection	1			
	Mat 03 Responsible sourcing	2			
	Mat 04 Insulation	1	8	14.5%	10.0%
	Mat 05 Designing for durability and resilience	1			
	Mat 06 Material efficiency	1			
Waste	Wst 01 Construction waste management	4			
	Wst 03 Operational waste	1			
	Wst 04 Speculative Floor Finishes	1	8	9.5%	8.4%
	Wst 05 Adaptation to climate change	1			
	Wst 06 Functional adaptability	1			
Land Use &	LE 01 Site selection	1			
Ecology	LE 02 Ecological value of site and protection of		_		
	ecological features	2	7	11.0%	6.6%
	LE 03 Mitigating ecological impact	2			
Pollution	Pol 02 NOx Emissions	1			
	Pol 03 Surface water run off	3	_		
	Pol 04 Reduction of night time light pollution	1	8	11.0%	5.%
	Pol 04 Noise Attenuation	1			
Innovation	Inn 01 Innovation	1	1	10.0%	1.0%
	BREEAM - Excellent		tal Points S		74.6%

