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Sustainability Statement

October 2010

1 Issue Register

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1.0	For comment	31/08/10	J Simpson CEng MCIBSE
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3 Introduction

3.1 Proposed Development

The Proposed Development consists of two new 2-bedroom and two new 3-bedroom terrace houses over four floors, with a new build office building at the site entrance over four floors.

The Proposed Development is located within the London Borough of Camden. This report demonstrates that the Proposed Development can be considered to be a sustainable development.

3.2 Sustainable Design and Construction Supplementary Planning Document

The Local Development Framework for Camden will set out planning strategy for managing growth and development in the future. This is currently under review, with the Inspector's report expected shortly. Relevant policies within the proposed Development Policies document have been referenced within this report.

The Sustainable Design and Construction Supplementary Planning Guidance (SPG), published by the Greater London Authority (GLA), has also been referenced within this report.

The following issues are to be considered within this report:

- Re-use of land and buildings;
- Maximising the use of natural systems;
- Conserving energy, materials and water resources;
- Reducing the impacts of noise, pollution, flooding and microclimatic effect;
- Ensuring development are comfortable and secure;
- Conserving and enhancing the natural environment and biodiversity; and
- Promoting sustainable water behaviour.

In particular, the proposed Policy DP22 – Promoting sustainable design and construction states:

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

> *a) demonstrate how sustainable development principles, including the relevant measures set out in paragraph 22.5 below, 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:*
>
> *c) adopting the government target that all new build housing will be zero carbon by 2016 (Code for Sustainable Homes Level 6), along with the stepped targets of Code 3 by 2010 and Code 4 by 2013;*

d) expecting developments (except new build) of 500sqm of residential floorspace or above or 5 or more dwellings to achieve 'excellent' in EcoHomes assessments from 2013 and at least 'very good' prior to 2013;

e) expecting non-domestic developments of 500sqm of floorspace or above to achieve 'very good' in BREEAM assessments, with the aim of increasing the target to a rating of at least 'excellent' in 2016, if feasible, and zero carbon from 2019, in line with the government's ambitions.

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.'

4 Re-use of land and buildings

The London Plan SPG identifies the following areas to be considered:

- Land, and
- Buildings.

4.1 Land

The land has not been identified as contaminated and therefore remedial measures are not required.

The Proposed Development meets the Essential Standards within the London Plan SPG as 100% of the development is on previously developed land. The development density has also been maximised as accessibility to public transport is high, and the scale of the development is in keeping with neighbouring buildings.

4.2 Buildings

Camden's *Policy DP13 – Employment premises and sites* states that:

> *'The Council will retain land and buildings that are suitable for continued business use and will resist a change to non-business unless:*
>
> *a. It can be demonstrated to the Council's satisfaction that a site is no longer suitable for its existing business use; and*
> *b. There is evidence that the possibility of reusing or redeveloping the site for similar or alternative business use has been fully explored over an appropriate period of time.*
>
> *Where a change of use is proposed, the Council will seek to maintain some business use on site, with a higher priority for retaining flexible space that is suitable for a variety of business uses.*
>
> *When it can be demonstrated that a site is not suitable for any business use other than B1(a) offices, the Council may allow a change to permanent residential uses or community uses, except in Hatton Garden where we will expect mixed use developments that include light industrial premises suitable for use as jewellery workshops.*
>
> *The Council will grant planning permission for mixed use developments on employment sites provided that:*
>
> *c. The level of employment floorspace is maintained or increased;*
> *d. Premises suitable for new, small or medium enterprises are provided;*
> *e. Floorspace suitable for either light industrial, industry or warehousing uses is re-provided where the site has been used for these uses or for offices in premises that are suitable for other business uses;*
> *f. The proposed non-employment uses will not prejudice continued industrial use in the surrounding area.*

The Council will support the provision of live/work premises provided they do not:

g. Result in the loss of any permanent residential units; or

h. Result in the loss of sites in business or employment use where there is potential for that use to continue.'

There is an existing warehouse on the site, which is currently vacant and partially demolished. The warehouse is in poor condition and unsuitable for an alternative use, and a modern and flexible business unit is proposed as part of the Proposed Development. The application is also being supported by an Employment Report prepared by Pater Goodman Merriman, which should be referred to for further information on this.

5 Maximising the use of natural systems

The London Plan SPG identifies the following areas to be considered:

- Local and urban design, and
- Adapting to climate change.

5.1 Local and urban design

The Proposed Development has been designed to minimise the need for mechanical ventilation, heating and cooling systems. The Proposed Development does not overshadow adjacent buildings, with only railway sidings to the north of the site, and does not affect the ability of adjacent buildings to optimise the benefits of the external climatic conditions on the internal comfort levels.

5.2 Adapting to climate change

The Proposed Development includes adequately-sized, safe, secure, convenient and weatherproof cycle storage for each dwelling. Cycle storage, and the Site's proximity to public transport nodes, would encourage non carbon based transport modes. A communal cycle store is accessed from the courtyard, and would provide weatherproof and secure storage for the development.

A good level of air tightness is proposed for the development, with a proposed air permeability of $4m^3/hr/m^2$ for the dwellings and $4m^3/hr/m^2$ for the commercial office building. This, combined with cross ventilation for all residential units and the office building, provides a good balance between ventilation to improve air quality indoors versus air tightness to improve energy efficiency performance.

In response to proposed Policy D22 requirements for incorporating climate change adaptation measures, the following measures are proposed:

- Green roofs to reduce roof surface temperatures of the office building and residential buildings during the summer, as well as attenuating surface water run-off;
- Planting within the communal garden to provide summer shading;
- Low water usage sanitary and kitchen fittings to reduce water consumption, as well as provision of external rainwater butts for gardening purposes; and
- Provision of basement within low flood risk area.

6 Conserving energy, materials and water resources

The London Plan identifies the following areas to be considered:

- Energy;
- Materials; and
- Water.

6.1 Energy

An Energy Assessment has been undertaken for the Proposed Development – the proposals for reducing energy are discussed in detail in the accompanying Energy Strategy, but the key areas are summarized below.

6.1.1 Maximising energy efficiency

The Proposed Development would feature energy saving measures such that compliance with Part L of the Building Regulations would be achieved without reliance on the contribution of renewables. As required under Part L, the residential apartments have been assessed under Part L1A, and the commercial office building under Part L2A.

The measures outlined below have been used in the Part L1A calculations, and exceed the requirements of Part L1A:

- Well-insulated building fabric with:
    - External walls at 0.22 W/m²K;
    - Roof at 0.14 W/m²K;
    - Ground floor at 0.20 W/m²K;
    - Glazing at 1.6 W/m²K;
    - Air permeability of 4 m³/hr. m² from air tests, but with value of 6 entered into calculations as required under the 2010 Part L1A methodology;
- Energy efficient lighting (100 %); and
- Efficient underfloor heating.

The measures outlined below have been used in the Part L2A calculations, and exceed the requirements of Part L2A:

- Well-insulated building fabric with:
    - External walls at 0.22 W/m²K;
    - Roof at 0.14 W/m²K;
    - Ground floor at 0.20 W/m²K;
    - Glazing at 1.6 W/m²K;
    - Air permeability of 4 m³/hr. m²;
- Energy efficient lighting at maximum of 2.2 W/m² per 100 lux; and
- Efficient heating production by high efficiency gas fired boilers, with local point-of-use electric water heaters.

The calculations demonstrate that the proposed implementation of the above efficiency measures would reduce the site's carbon dioxide emissions by 7.6% against the Target Emissions Rate.

6.1.2 Supplying energy efficiently

Combined heat and power (CHP) has been assessed in terms of feasibility. There is no economic or sustainable justification for over-sizing the CHP plant, and therefore the CHP unit size needs to be carefully matched to the demands of the development. The smallest commercially available CHP unit is too large for the scheme due to the limited number of residential dwellings, and therefore CHP is not considered to be viable for the Proposed Development.

The Proposed Development is considered to be too small to successfully incorporate a community heating system. It is also considered that the small increase in heating plant efficiency due to the incorporation of a system would be cancelled out by the increase in energy consumption required to pump the heating water circuit.

6.1.3 Renewable sources of energy

The accompanying Energy Strategy has demonstrated in detail (part 9) that the incorporation of biomass, biomass CHP, ground source heat systems, and wind turbines are not technically or economically viable for the Proposed Development.

The use of photovoltaic cells and air source heat pumps is therefore considered to be the most appropriate solution for the Proposed Development. The combination of the air source heat pumps and photovoltaic panels proposed would reduce the annual carbon dioxide emissions of the whole scheme by 10,859 $kgCO_2$, which equates to a reduction of 18.9% against the energy baseline.

6.1.4 Energy Summary

The proposed Energy Strategy achieves the following:

- Reduction of 14.2 % against the 2010 TER for the residential units, which exceeds the mandatory energy requirements for Code 3 under the Code for Sustainable Homes Assessment;
- Proposals for the office building achieve 71.4 % of the Energy Credits under the BREEAM for Offices 2008 Assessment, which is more than the 60 % required by Camden.

6.2 Light Pollution

The Proposed Development is not considered to be a light-generating development, and therefore it is not considered that a detailed light-impact survey is required.

To improve energy efficiency, 100% of the lighting within the dwellings would be provided by low energy lighting. High efficiency lighting would be provided throughout the office building.

Any external lighting would be designed to reduce any unnecessary light spillage. Lighting would not spill into neighbouring residential properties or cause a hazard to drivers or other road users, and would comply with the guidance notes of the Institute of Lighting Engineers (ILE).

6.3 Materials

Wherever possible, the new materials used for the dwellings will be sustainably sourced to achieve an A or A+ rating under the Green Guide. Proposals for the office building achieve 46.2 % of the Materials Credits under the BREEAM for Offices 2008 Assessment, which is more than the 40 % required by Camden.

6.4 Water

To reduce the consumption of potable water in the home, the dwellings would be provided with flow restrictors on taps, efficient washing machines and dishwashers (where provided), and dual-flush systems for the WC. The water consumption in the proposed dwellings would be less than 105 litres per person per day, in order to achieve the Code Level 3 requirements within the Code for Sustainable Homes assessment.

Individual water meters would be provided for each new dwelling, and for the commercial unit, in order for each tenant to manage, and be charged for, their individual consumption.

External rainwater butts would be provided for the communal garden and courtyard for gardening purposes, to reduce reliance on potable water. The provision of green roofs on both the residential and commercial buildings would reduce the pressure placed on the combined storm water and sewer network, in accordance with proposed *Policy DP23 – Water*.

Proposals for the office building achieve 66.7 % of the Water Credits under the BREEAM for Offices 2008 Assessment, which is more than the 60 % required by Camden.

7 Reducing the impacts of noise, pollution, flooding and microclimatic effect

The London Plan identifies the following areas to be considered:

- Noise,
- Air pollution,
- Water pollution and flooding, and
- Microclimate.

7.1 Noise

There are no known existing sources of noise in close proximity to the site, and the proposed use is not considered as a noise generating development, and therefore no attenuation measures are considered necessary. A further review would be undertaken during the detailed design stage when considering the window specifications for the scheme.

Noise levels in the apartments shall be better than the minimum requirements of Part E of the Building Regulations, with airborne performance 3dB higher, and impact performance 3dB lower, than Part E requirements.

Construction work shall be carried out in accordance with the council's Environmental Code of Construction Practice, in order to reduce the noise and vibration impact on neighbouring properties. The construction works will be carefully managed so as to reduce impact.

The traffic generation associated with the development is likely to be low and it is not considered that it would have any significant impact on the surrounding highway network in terms of safety, capacity or parking stress.

The plant strategy proposed for the scheme has also been specified in order to reduce noise produced by the development.

7.2 Air Pollution

The significant reductions in energy consumption as a result of the extensive energy efficiency measures incorporated within the scheme, contribute to improving air quality. The materials to be specified for the development will have low embodied energy and will be sourced as close by to the site as possible, wherever feasible.

The landscaping around the scheme will be maximized to help filter air.

Cycle storage is provided for the scheme, with a secure and weatherproof enclosure provided to encourage cycle use, which will help reduce air pollution associated with transport.

The Contractor will be required to adopt best practice policies in respect of air (dust) pollution from site activities, and water (ground and surface) pollution on site.

Regular plant maintenance will be carried out on all plant and machinery in order to keep them operating efficiently.

The proposed strategy of efficient gas-fired boilers, photovoltaics and heat pumps has been selected in order to significantly reduce the amount of energy to be used within the development. Boiler flues would be designed in accordance with Building Regulations and manufacturers' requirements in order to minimize emissions.

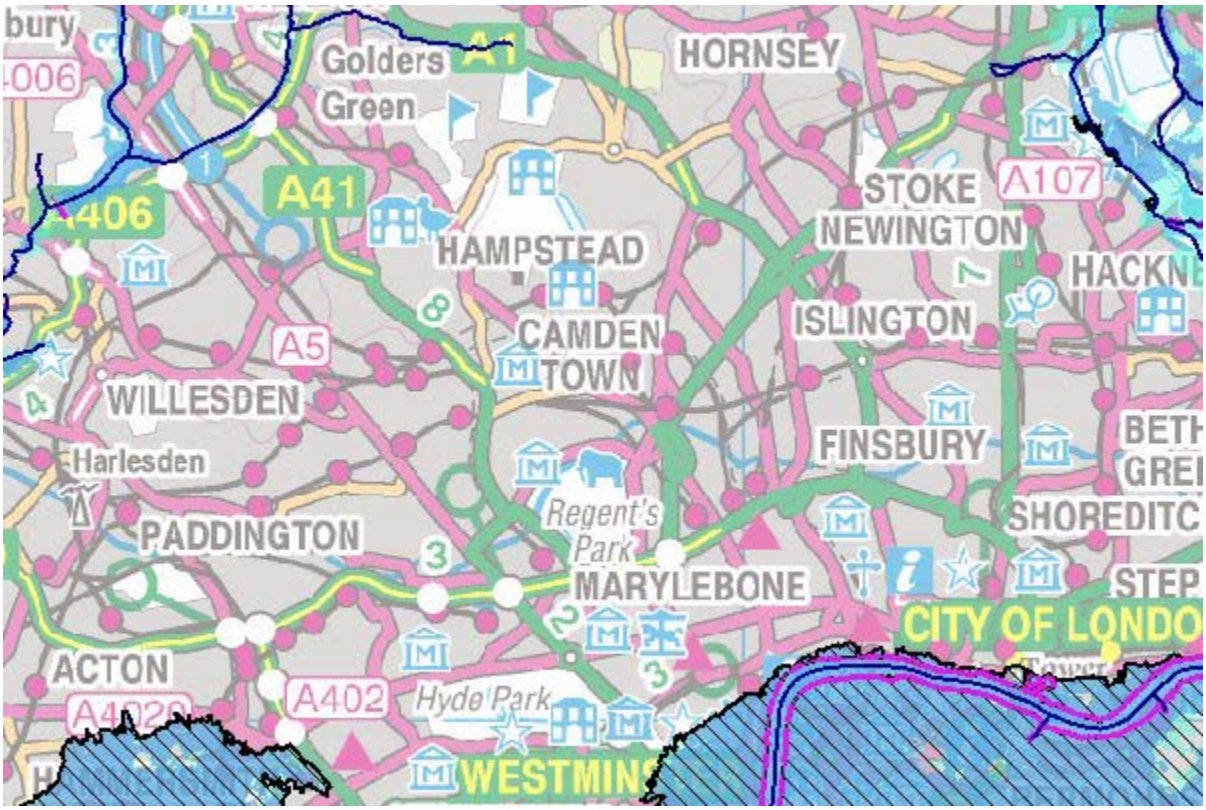
The ventilation systems within the dwellings and the office building will meet the minimum requirements of Part F of the Building Regulations.

Finishings and paints with low VOC levels will be used wherever possible, to avoid releasing noxious chemicals or odours inside the buildings.

The domestic kitchens are not considered to be a nuisance for neighbouring occupiers. There are no A3 uses within the development, and therefore there are no commercial kitchen extract systems proposed.

7.3 Water pollution and flooding

According to low detail, national-scale flood mapping created on behalf of the Environment Agency, the site would appear to lie within Flood Zone 1.



The site therefore is considered as having a low annual probability of flooding.

Attenuation will be provided for the site, such that the peak rate of run-off into watercourses is no greater for the developed site than it is at the existing site. Permeable paving and grassed areas will be used wherever possible to increase the attenuation of surface water on the site. Green roofs are also proposed for both the residential and commercial aspects of the scheme, which would significantly attenuate surface water on the site.

During construction, any chemicals will be carefully stored to prevent spillages. Any oil stored on site will be stored within double-bunded tanks. The Contractor will be required to adopt best practice policies in respect of air (dust) pollution from site activities, and water (ground and surface) pollution on site).

The drainage systems for the Proposed Development shall meet the minimum requirements of Part H of the Building Regulations, and will meet Thames Water's design requirements for adoption.

As this is a mixed use residential and office development, there are no industrial processes or chemicals on the site.

7.4 Microclimate

The Proposed Development is a maximum of three storeys above ground, and therefore falls below the 10 storey threshold where a wind environmental assessment might be undertaken. Given the height of the Proposed Development, it is not considered that a wind tunnel effect would be created in the area.

8 Ensuring developments are comfortable and secure

The London Plan identifies the following areas to be considered:

- Indoor comfort,
- Design inclusive environment, and
- Secure design.

8.1 Indoor comfort

The Contractor would be required to adopt best practice policies in respect of air (dust) pollution from site activities, and water (ground and surface) pollution on site).

Regular plant maintenance would be carried out on all plant and machinery in order to keep them operating efficiently. All plant and machinery is fully accessible for easy maintenance.

Finishings and paints with low VOC levels would be used wherever possible, to avoid releasing noxious chemicals or odours inside the buildings.

Home User Guides would be provided for the owners/occupiers to cover information relevant to the 'non-technical' tenant/owner on the operation and environmental performance of their home. This guide would include information related to the following issues:

- Environmental strategy/design and features;
- Energy;
- Water use;
- Recycling and waste;
- Sustainable DIY; and
- Emergency information.

8.2 Design inclusive environment

The dwellings would incorporate the 16 principles of 'Lifetime Homes' in order to add to the comfort and convenience of the home, and support the changing needs of individuals and families at different stages of life.

8.3 Secure design

The Proposed Development would incorporate the principles of "secured by design".

9 Conserving and enhancing the natural environment and biodiversity

The London Plan identifies the following areas to be considered:

- Open space,
- Natural environment and biodiversity.

9.1 Open space

The Proposed Development does not result in the removal of any open space features, such as green space.

9.2 Natural environment and biodiversity

Using the Ecological Checklist within the Code for Sustainable Homes Assessment, the site can be considered to be of low ecological value. As such, the construction of the Proposed Development is not considered to have any negative impact on the ecological value of the site. There is limited scope for enhancing biodiversity on the site due to the limited external areas, but native planting would be used within the courtyard and communal garden, with species selected to minimize water requirements. The ecological potential of the green roofs proposed would also be maximized wherever feasible

10 Promoting sustainable waste behavior

The London Plan identifies the following areas to be considered:

- Waste.

10.1 Waste

Separate commercial and residential refuse/recycling storesare located at ground floor level within the scheme. These rooms provide sufficient space to securely and safely store waste and recycling bins. The bins are stored at ground level, with a flat route between the storage area and the collection point. The rooms are accessed from outside, with entrances close to the office building and dwellings for easy access by the occupants.

The proposed site use is for residential dwellings and an office building, and therefore there is a no potential for future contamination. There are no industrial activities proposed for the site where chemicals may be stored.

11 Conclusion

This report has responded to the relevant issues raised within the GLA Sustainable Design and Construction SPG and Camden's proposed development policies, and has provided details of how the Proposed Development incorporates sustainable measures in its design, construction and operation.

The residential aspect of the Proposed Development meets the Code Level 3 standard under the Code for Sustainable Homes assessment scheme (as detailed within the separate Preliminary Code for Sustainable Homes Assessment report), and incorporates a number of additional sustainable measures not mentioned in detail within this report. Full details can be found in the Preliminary Code for Sustainable Homes Assessment report.

The commercial aspect of the Proposed Development meets the 'Very Good' standard under the BREEAM for Offices 2008 assessment scheme (as detailed within the separate Preliminary BREEAM report).

The Proposed Development can be considered to be sustainable, using the criteria within Camden's proposed development policies and the GLA Sustainable Design and Construction SPG.

12 Appendix A – Code for Sustainable Homes Assessment

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Preliminary Code for Sustainable Homes Report

October 2010

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3 Introduction

3.1 Proposed Development

The Proposed Development consists of two new 2-bedroom and two new 3-bedroom terrace houses over four floors, with a new build office building at the site entrance over four floors. This report provides further details of the measures proposed to achieve Code Level 3 under the Code for Sustainable Homes Assessment.

The current score for the Proposed Development is 59.9% which equates to Code Level 3 at this stage.

3.2 Code for Sustainable Homes

The Code for Sustainable Homes was launched in December 2006 with the publication of 'Code for Sustainable Homes: A step change in sustainable home building practice" (DCLG 2006). This introduced a single national standard to be used in the design and construction of new homes in England, based on the BRE's EcoHomes© scheme. Adoption of the Code is intended to encourage continuous improvement in sustainable home building.

The Code for Sustainable Homes is a set of sustainable design principles covering performance in nine key areas listed below:

- Energy and CO_2;
- Water;
- Materials;
- Surface water run-off;
- Waste;
- Pollution;
- Heath and well being;
- Management; and
- Ecology.

In each of these categories, performance targets are proposed which are in excess of the minimum needed to satisfy Building Regulations, but are considered to be sound best practice, technically feasible, and within the capability of the building industry to supply.

The Code uses a rating system of one to six stars, and it differs from EcoHomes in several key regards outlined below:

- It is assessed at the level of an individual 'Dwelling';
- It contains minimum mandatory standards for energy, water, materials, waste and surface water run-off, which must be met before even the lowest level of the Code can be achieved;
- It demands higher minimum standards for energy and water to be met before the higher levels of the Code can be achieved; and
- It is performed in two stages with 'Final' Code certification taking place after a Post Construction Review has been carried out.

- In addition to the mandatory requirements, each design category scores a number of percentage points. The total number of percentage points establishes the 'star rating' for the dwelling.

3.3 Scoring System

Credits are available for each issue meeting the specified levels of performance. The number of credits available in each category does not necessarily reflect the relative importance of the issues being assessed. Before the final score is calculated each of the scores in the nine category areas has a weighting factor applied before the final score is calculated.

The Code uses a rating system of one to six stars, with six stars being the best. The final rating is determined by the Code assessor and quality assured and certified by BRE.

Before a dwelling can start to be awarded points under the Code it must achieve minimum standards in the following categories:

- Embodied impacts of construction materials;
- Surface water runoff;
- Construction site waste management; and
- Household waste storage space and facilities.

There are also targets for carbon dioxide emissions and potable water consumption for each Code Level.

Rating	Requirements (equal to or greater than)
Level 1	36 %
Level 2	48 %
Level 3	57 %
Level 4	68 %
Level 5	84 %
Level 6	90 %

4 Preliminary Code Assessment

Issue		Credits	Dwelling
Energy			
Ene1	% DER improvement over TER Credits are awarded based on the percentage improvement of the Dwelling Emission Rate (DER) over the Target Emission Rate (TER) as calculated using SAP 2005. Minimum standards for each Code level apply.		
	10% improvement	1	
	14% improvement	2	
	18% improvement	3	
	22% improvement	4	
	25% improvement	5	6
	31% improvement	6	
	37% improvement	7	
	44% improvement	8	
	52% improvement	9	
	60% improvement	10	
	69% improvement	11	
	79% improvement	12	
	89% improvement	13	
	100% improvement	14	**(max 15)**
	True Zero Carbon	15	
Ene2	Building Fabric Credits are awarded based on the Heat Loss Parameter (HLP) obtained from the SAP 2005 calculations. This is based on the level of insulation provided in the dwellings.		1
	Less than or equal to 1.30	1	
	Less than or equal to 1.10	2	**(max 2)**
Ene3	Internal Lighting Credits are awarded based on the percentage of dedicated energy efficient lighting provided in habitable spaces within the dwelling.		2
	Greater than or equal to 40%	1	
	Greater than or equal to 75%	2	**(max 2)**

Ene4	Drying space One credit is awarded for the provision of either internal or external drying space with posts and footings, or fixings capable of holding 4m+ of drying line for 1-2 bed dwellings and 6m+ for dwellings with 3 bedrooms or greater.	1	1 **(max 1)**
Ene5	Energy Labelled White Goods Credits are awarded where each dwelling is provided with either information about the EU Energy Labelling Scheme or White Goods with the ratings stated below: EU Energy Labelling information OR A+ rated fridges and freezers and/or A rated washing machines & dishwashers AND B rated washer dryers and tumble dryers	1 1 1	2 **(max 2)**
Ene6	External Lighting Credits are awarded based on the provision of space lighting with dedicated energy efficient fittings and security lighting with appropriate control gear. Space Lighting – Code compliant Security Lighting – Code compliant	1 1	2 **(max 2)**
Ene7	Low or Zero Carbon Technologies Credits are awarded where either there is a 10% or 15% reduction in total carbon emissions that result from using low or zero carbon technologies. Note that where funding has not been granted through the Low Carbon Buildings Programme, a feasibility study is required that meets the Code requirements. 10% of demand or greater 15% of demand or greater	1 1	0 **(max 2)**
Ene8	Cycle Storage Credits are awarded where safe, secure and weather proof cycle storage is provided according to the Code requirements. Limited cycle storage Full cycle storage	1 1	2 **(max 2)**
Ene9	Home Office One credit is awarded for the provision of space for a home office. The location, space and services provided must meet the Code requirements.	1	1 **(max 1)**

Total Number of Energy Credits Achieved		**(max 29)**	17
Water			
Wat1	Internal Potable Water Use Credits are awarded based on the predicted average household water consumption, calculated using the Code Water Calculator Tool. Minimum standards for each code level apply. Less than 120 litres/person/day Less than 110 litres/person/day Less than 105 litres/person/day Less than 90 litres/person/day Less than 80 litres/person/day	 1 2 3 4 5	3 **(max 5)**
Wat2	External Potable Water Use One credit is awarded where a compliant system is specified for collecting rainwater for external irrigation purposes. Where no outdoor space is provided the credit can be achieved by default.	1	1 **(max 1)**
Total Number of Water Credits Achieved		**(max 6)**	4
Materials			
Mat1	Environmental Impact of Materials Mandatory Requirement: At least three of the five key building elements must achieve a Green Guide 2007 Rating of A+ to D. Tradable Credits: Points are awarded on a scale based on the Green Guide Rating of the specifications. The Code Materials Calculator can be used to predict a potential score.	1-15	9 **(max 15)**
Mat2	Responsible Sourcing of Materials – Basic Building Elements Credits are awarded where materials used in the key building elements are responsibly sourced. The Code Materials Calculator can be used to predict a potential score.	1-6	0 **(max 6)**
Mat3	Responsible Sourcing of Materials – Finishing Elements Credits are awarded where materials used in the finishing elements are responsibly sourced. The Code Materials Calculator can be used to predict a potential score.	1-3	0 **(max 3)**
Total Number of Materials Credits Achieved		**(max 24)**	9

Surface Water Run-off			
Sur1	Reduction of Surface Water Run-off from Site Mandatory Requirement: Peak run-off rates and annual run-off volumes post development must not exceed the previous conditions for the site. Tradable Credits: Where rainwater holding facilities/SUDs are used to provide attenuation of water run-off for the volumes required and in accordance with the Code criteria.	1-2	0 **(max 2)**
Sur2	Flood Risk Credits are awarded where developments are located in areas of low flood risk, or where in areas of medium or high flood risk appropriate measures are taken to prevent damage to the property and its contents in accordance with the Code criteria.	1-2	2 **(max 2)**
Total Number of Surface Water Run-off Credits Achieved		**(max 4)**	2
Waste			
Was1	Household Waste Storage Mandatory Requirement: The space provided for waste storage should be sized to hold the larger of either all external containers provided by the Local Authority or the minimum capacity calculated from BS 5906. Tradable Credits are awarded for adequate internal and/or external recycling facilities.	4	4 **(max 4)**
Was2	Site Waste Management Plan (SWMP)/Construction Waste Mandatory Requirements: A SWMP plan including the monitoring of waste generated on site and the setting of targets to promote resource efficiency must be produced and implemented. Tradable Credits: The SWMP should also include procedures and commitments for minimising waste and/or commitments to sort, reused and recycle construction waste.	1-2	2 **(max 2)**
Was3	Composting One credit is awarded where individual home composting facilities are provided, or where a community/communal composting service, either run by the Local Authority or overseen by a management plan is in operation.	1	0 **(max 1)**
Total Number of Waste Credits Achieved		**(max 7)**	6

Pollution			
Pol1	Global Warming Potential (GWP) of Insulants One credit is awarded where all insulating materials have a Global Warming Potential (GWP) of less than 5.	1	1 **(max 1)**
Pol2	NOx Emissions Credits are awarded on the basis of NOx emissions arising from the operation of the space heating system within the dwelling. Less than 100 mg/kWh Less than 70 mg/kWh Less than 40 mg/kWh	 1 2 3	0 **(max 3)**
Total Number of Pollution Credits Achieved		**(max 4)**	1
Health & Wellbeing			
Hea1	Daylighting Credits are awarded for ensuring key rooms in the dwelling have high daylight factors (DF) and a view of the sky. Where the kitchen has an average DF greater than 2 % Where the living room, dining room and study have an average DF greater than 1.5 % Where all above rooms have a view of the sky	 1 2 3	1 **(max 3)**
Hea2	Sound Insulation Credits are awarded where performance standards exceed those required in Building Regulations Part E. This can be demonstrated by carrying out pre-completion testing or through the use of Robust Details. Where airborne noise reduction is 3dB higher and impact noise is 3dB lower than Part E Where airborne noise reduction is 5dB higher and impact noise is 5dB lower than Part E Where airborne noise reduction is 8dB higher and impact noise is 8dB lower than Part E	 1 3 4	1 **(max 4)**
Hea3	Private Space One credit is awarded for the provision of an outdoor space that is at least partially private. The space must allow easy access to all occupants.	1	1 **(max 1)**

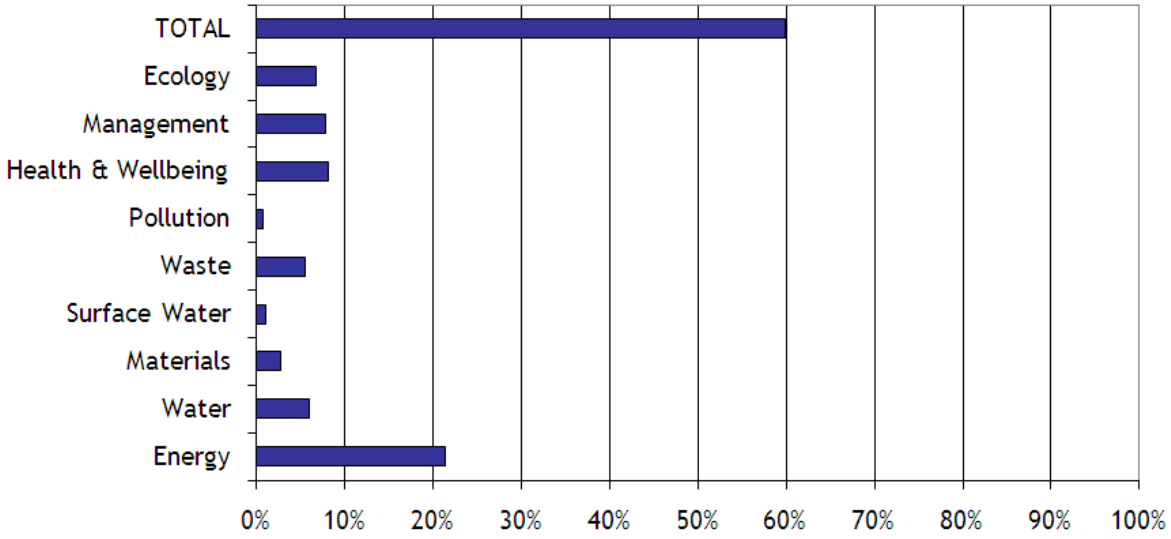
Hea4	Lifetime Homes Credits are awarded where the developer has implemented all of the principles of the Lifetime Homes scheme.	4	4 **(max 4)**
Total Number of Health & Wellbeing Credits Achieved		**(max 12)**	7
Management			
Man1	Home User Guide Credits are awarded where a simple guide is provided to each dwelling covering information relevant to the 'non-technical' home occupier, in accordance with the Code requirements. The guide must be available in alternative formats on request, and should cover the following topics: Operational issues Site and surroundings	2 1	3 **(max 3)**
Man2	Considerate Constructors Scheme Credits are awarded where there is a commitment to comply with best practice site management principles using either the Considerate Constructors Scheme or an alternative locally/nationally recognised scheme. Best Practice:- score between 24 and 31.5 Best Practice+:- score between 32 and 40	1 2	2 **(max 2)**
Man3	Construction Site Impacts Credits are awarded where procedures meeting the Code requirements are in place for the following: Monitor, report and set targets for CO2/energy use from site activities Monitor, report and set targets for CO2/energy use from site related transport Monitor, report and set targets for water consumption from site activities Adopt best practice policies in respect of air (dust) pollution from site activities Adopt best practice policies in respect of water (ground and surface) pollution At least 80 % of site timber is responsibly sourced One credit is achieved for meeting two of the six procedures above. Two credits are achieved for meeting four of the six procedures above.	1 2	2 **(max 2)**

Man4	Security Credits are awarded for complying with Section 2 – Physical Security from Secured by Design – New Homes. An Architectural Liaison Officer (ALO), or alternative, needs to be appointed early in the design process and their recommendations incorporated.	2	0 **(max 2)**
Total Number of Management Credits Achieved		**(max 9)**	7
Ecology			
Eco1	Ecological Value of Site One credit is awarded for developing land of inherently low value.	1	1 **(max 1)**
Eco2	Ecological Enhancement One credit is awarded where there is a commitment to enhance the ecological value of the development site.	1	0 **(max 1)**
Eco3	Protection of Ecological Features One credit is awarded where there is a commitment to maintain and adequately protect features of ecological value.	1	1 **(max 1)**
Eco4	Change of Ecological Value of Site Credits are awarded where the change in ecological value has been calculated in accordance with the Code requirements and is calculated to be: Minor negative change: between -9 and -3 species Neutral: between -3 and +3 species Minor enhancement: between +3 and +9 species Major enhancement: greater than 9	 1 2 3 4	 2 **(max 4)**
Eco5	Building Footprint Credits are awarded where the ratio of combined floor area of all dwellings on the site to their footprint is: Houses 2.5:1 OR Flats 3:1 Houses 3:1 OR Flats 4:1	 1 2	 1 **(max 2)**
Total Number of Ecology Credits Achieved		**(max 9)**	5

Total in all Sections	**(max 104)**	58

5 Results

The current score is 59.9%, which achieves Code Level 3 at this stage. The percentage of credits achieved in each section is shown in the graph below.



This therefore meets the requirements within *Policy DP22 – Promoting Sustainable Design & Construction* by achieving Code Level 3.

13 Appendix B – Preliminary BREEAM Report

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Preliminary BREEAM Report

October 2010

1 Issue Register

Revision	Reason for Issue	Date of Issue	Issued By
1.0	For comment	31/08/10	J Simpson CEng MCIBSE
2.0	For submission	23/10/10	J Simpson CEng MCIBSE

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3 Introduction

3.1 Proposed Development

The Proposed Development consists of two new 2-bedroom and two new 3-bedroom terrace houses over four floors, with a new build office building at the site entrance over four floors. This report provides further details of the measures proposed to achieve a 'Very Good' rating under the BREEAM for Offices Assessment. This report is for the commercial office building only – the residential units are discussed within the accompanying Preliminary Code for Sustainable Homes Assessment Report.

The current score for the proposed office building is 62.47 %, which equates to 'Very Good' at this stage.

3.2 BREEAM

BREEAM (Building Research Establishment's Environmental Assessment Method) is the world's leading and most widely used environmental assessment method for buildings. It sets the standard for best practice in sustainable design and has become the de facto measure used to describe a building's environmental performance.

The aims and objectives of BREEAM are:

Aims of BREEAM

- To mitigate the impacts of buildings on the environment
- To enable buildings to be recognised according to their environmental benefits
- To provide a credible, environmental label for buildings
- To stimulate demand for sustainable buildings

Objectives of BREEAM

- To provide market recognition to low environmental impact buildings
- To ensure best environmental practice is incorporated in buildings
- To set criteria and standards surpassing those required by regulations and challenge the market to provide innovative solutions that minimise the environmental impact of buildings
- To raise the awareness of owners, occupants, designers and operators of the benefits of buildings with a reduced impact on the environment
- To allow organisations to demonstrate progress towards corporate environmental objectives

Building projects are assessed at the design and post-construction stages using a system of environmental issues grouped within the following categories:

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

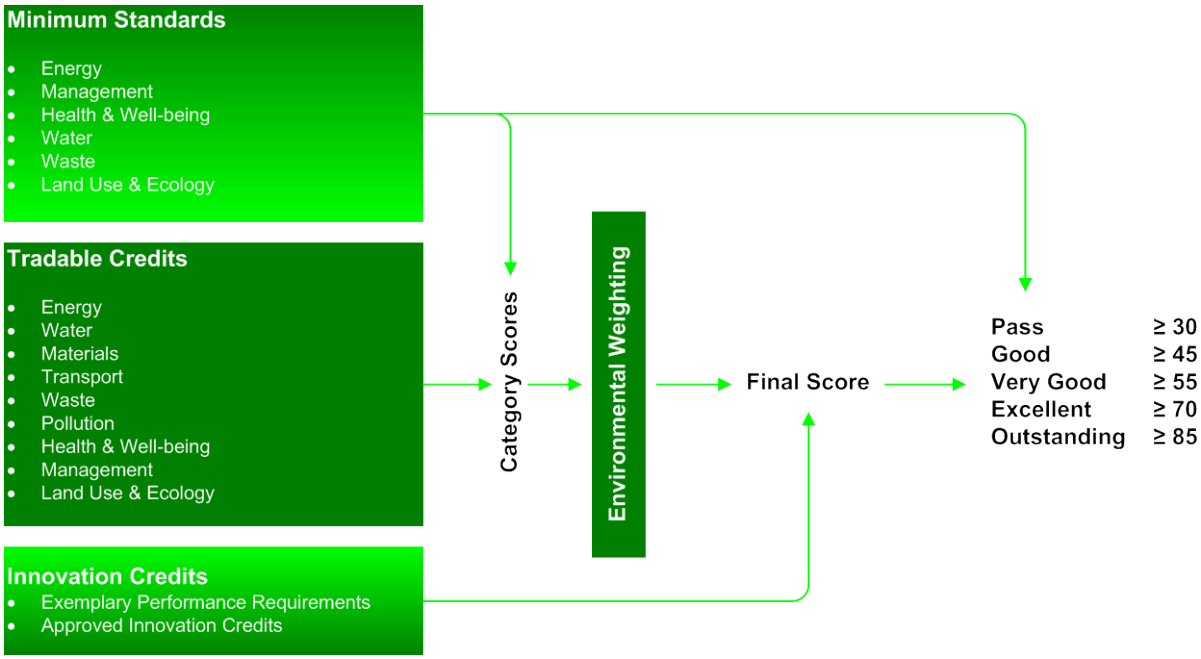
- Innovation

The assessment of the building results in a final report and BRE Global BREEAM certificate detailing the performance of the assessed building against the environmental issues covered by Standard. The building's performance is expressed as a BREEAM rating of PASS, GOOD, VERY GOOD, EXCELLENT or OUTSTANDING.

BREEAM is developed, operated and maintained by BRE Global Ltd and the operation and direction of the method is overseen by an independent Sustainability Board, representing a wide cross-section of construction industry stakeholders. Further information about BREEAM, including copies of the BREEAM standards, can be found at www.breeam.org

3.3 BREEAM Scoring & Rating

The diagram and text below describes how BREEAM scores and rates an assessed building:



The BREEAM categories contain a number of environmental issues, which reflect the options available when designing, procuring and constructing a building.

4 Preliminary BREEAM Assessment

Issue		Input Data	Credit Score
MANAGEMENT			
Man 1 2 Credits Available	**Commissioning** Is a design team member expressly appointed to monitor commissioning on behalf of the client? If so which members have which responsibilities? Is there an appointment of a specialist commissioning agent or manager by either the client or the contractor for the commissioning of complex systems? Is there an appointment of a specialist commissioning agent or manager by either the client or the contractor for the commissioning of complex systems? Will all commissioning be carried out in line with current Building Regulations and BSRIA/CIBSE guidelines where applicable? Will pre-commissioning, commissioning and quality monitoring be passed on to the appropriate contractors and all trades on site in accordance with these guidelines? Will seasonal commissioning of complex systems take place in the 1st year of occupation, under actual occupancy conditions and particularly during extremes of weather? Which specialist commissioning agent will have this responsibility? Will interviews with building occupants be carried out? For naturally ventilated buildings will thermal comfort, ventilation, and lighting be reviewed at 3, 6 and 9 month intervals after initial occupation, either by measurement or occupant feedback.	Yes Yes Yes No	1
Man 2 2 Credits Available	**Considerate Constructors** Is there a commitment from the contractor (or a requirement on the contractor) to use the Considerate Constructors Scheme or an alternative, independently assessed scheme Will they achieve a minimum score of 32, with at least 3 in each section?	Yes Yes	2
Man 3 4 Credits Available	**Construction Site Impacts** Will the contractor be required to; a. Monitor, report and set targets for CO^2 or energy arising from site activities; b. Monitor, report and set targets for CO^2 or energy arising from transport to and from site; c. Monitor, report and set targets for water consumption arising from site activities; d. Implement best practice policies in respect of air (dust) pollution arising from the site; e. Implement best practice policies in respect of water (ground and surface) pollution occurring on the site' f. Main contractor has an environmental materials policy, used for sourcing of construction materials to be utilised on site; g. Main contractor operates an Environmental Management System. Will at least 80% of site timber is responsibly sourced and 100% is legally sourced?	 Yes No Yes Yes Yes No No Yes	2

Man 4 1 Credit Available	**Building User Guide** Will there be provision of a simple building user guide covering information relevant for the non-technical building manager?	Yes	1
Man 8 1 Credit Available	**Security** Has an Architectural Liaison Officer or Crime Prevention Design Advisor from the local police force been consulted at the design stage, and their recommendations incorporated into the design of the building and its parking facilities (if relevant)?	No	0
HEALTH & WELLBEING			
Hea 1 1 Credit Available	**Daylighting** Does the building have adequate daylight requirements for 80% of the occupied space? What is the daylight factor? Is the room depth criterion satisfied? Please provide details (use BS recommendations).	No	0
Hea 2 1 Credit Available	**View Out** Are all occupants <7m from a window (an internal view), which is greater than 20% of the total inside wall area?	Yes	1
Hea 3 1 Credit Available	**Glare Control** Is an occupant controlled glare control system (e.g. internal or external blinds) to be provided to all occupied areas on all elevations? Please provide specification clauses and mark locations on drawings.	Yes	1
Hea 4 1 Credit Available	**High Frequency Lighting** Are all fluorescent and compact fluorescent lamps, to occupied areas, to be specified/installed with high frequency ballasts?	Yes	1
Hea 5 1 Credit Available	**Internal and external Lighting** Has internal and external lighting been specified in accordance with the appropriate maintained illuminance levels (in lux) recommended by CIBSE? Is the office lighting in compliance with CIBSE LG7?	Yes Yes	1
Hea 6 1 Credit Available	**Lighting Zones** Is the building speculative? Is zoning of lighting controls to be provided that allows for varying occupancy and/or uses within each space? Is this occupant controlled? Please provide details of the control system and the zoned areas. Does the lighting control system allow the future tenant to install occupancy controls per 4 workstations, with daylight sensors for the perimeter light fittings?	Yes Yes Yes	1
Hea 7 1 Credit Available	**Potential for natural ventilation** Are the occupied spaces of the building designed to be capable of providing fresh air entirely via a natural ventilation strategy?	Yes	1

Hea 8 1 Credit Available	**Internal air pollution** Please identify any air inlets on the drawings. Is there minimum 10m spacing between air intakes and exhausts, and minimum 20m spacing between air intakes and sources of pollution? Is fresh air provided in general office areas at 12 litres per second per person?	No Yes	0
Hea 9 1 Credit Available	**Volatile organic compounds** Are emissions of VOCs and other substances from key internal finishes and fittings specified to be in compliance with best practice levels?	Yes	1
Hea 10 1 Credit Available	**Thermal comfort** Have appropriate methods been used to assess thermal comfort levels and to make decisions on the servicing requirements of a building both at feasibility/outline design and detailed design stages? Are thermal comfort levels in line with CIBSE Guide A requirements?	No	0
Hea 11 1 Credit Available	**Thermal zoning** Is local occupant control to be available for temperature adjustment in each area to reflect differing load requirements? Please provide details of the control system and the zoned areas.	Yes	1
Hea 12 1 Credit Available	**Microbial contamination** Are all water systems designed to meet the requirements of HSE Approved Code of Practice (ACoP) and Guidance, L8, "Legionnaires disease; The control of legionella bacteria in water systems", 2000? Is humidification to be provided for the building? Is this humidification to be provided by means of a steam humidifier?	Yes No No	1
Hea 13 1 Credit Available	**Acoustic performance** Are the following design ambient internal noise levels specified: - ≤ 40 dB LAeqT in single occupancy, cellular offices; - 40-50 dB LAeqT in multiple occupancy offices; - ≤ 40 dB LAeqT in general spaces (staffrooms, restrooms); - ≤ 35 dB LAeqT in spaces designed for speech e.g. seminar/lecture rooms; - ≤ 50 db LAeqT in informal cafe/canteen areas. Please provide contact details of the acoustician who will be carrying out the post project testing and a written commitment to carry out remedial works.	No	0
ENERGY			
Ene 1 15 Credits Available	**Reduction of CO_2 Emissions** What is the buildings CO_2 index (EPC Rating), taken from the Energy Performance Certificate?	27	9
Ene 2 1 Credit Available	**Sub-metering of substantial energy uses** Does the building have direct sub-metering for all substantive energy uses (including space heating and domestic hot water)? If yes, please indicate on the drawings and provide details of what the meters serve.	Yes	1

Ene 3 1 Credit Available	**Sub-metering of high energy load and tenancy areas** Does the building have accessible sub-meters covering the energy supply to all tenanted, or in the case of single occupancy buildings, relevant function areas or departments within the building, and are the meters labelled with the end energy consuming use?	Yes	1
Ene 4 1 Credit Available	**External Lighting** Is all external lighting for the building, access ways and pathways to be a minimum of 50 lamp lumens/circuit Watt when the lamp has a colour rendering index (Ra) greater than or equal to 60 OR 60 lamp lumens/circuit Watt when the lamp has a colour rendering index (Ra) less than 60? Is all lighting to car parking areas, associated roads and floodlighting, where provided, to have a minimum of 70 lamp lumens/circuit Watt when the lamp as a colour rendering index (Ra) greater than or equal to 60 OR 80 lamp lumens/circuit Watts when the lamp has a colour rendering index less than 60? Is all external light fittings for signs and uplighting, where provided, to have a minimum of 60 lamp lumens/circuit Watt when the lamp wattage is greater than or equal to 25W OR 50 lamp lumens/circuit Watt when the lamp wattage is less than 25W? Are the external luminaries controlled through a time switch, or daylight sensor, to prevent operation during daylight hours?	Yes Yes Yes Yes	1
Ene 5 3 Credits Available	**Low or zero carbon technologies** Has a feasibility study been carried out considering renewable and low emission energy technologies and have the results been implemented? If yes, please provide details. If there are any renewable and low energy sources, what percentage reduction in the building's CO_2 emissions has been achieved from these?	Yes 17.3	3
Ene 8 2 Credits Available	**Lifts** Has an analysis of transport demand and patterns for the building been carried out by the design to determine the optimum number and size of lifts and counterbalancing ratio on the basis of anticipated passenger demand? Has the energy consumption for at least two types of lift or lift strategy 'fit for purpose' been estimated, and the system with the lowest energy consumption specified? Of the following energy-efficiency features, are the three that offer the greatest potential energy saving specified? a. The lifts operate in a stand-by mode during off-peak and idle periods; b. Where lift motors use a drive controller capable of variable-speed, variable-voltage, variable-frequency control of the drive motor; c. The lift has a regenerative unit so that energy generated by the lift is returned back to the grid or used elsewhere on site; d. The lift car uses energy-efficient lighting and display lighting (>60 lumens/watt or fittings that consume less than 5W).	N/A N/A N/A	

TRANSPORT			
Tra 1 3 Credits Available	**Provision of public transport** Please confirm the public transport Accessibility Index for the building.	 10	 3
Tra 2 1 Credit Available	**Proximity to amenities** Is the building within 500m of the following amenities? a. Grocery shop and/or food outlet; b. Post box; c. Cash machine.	 Yes Yes Yes	 1
Tra 3 2 Credits Available	**Cyclist Facilities** What is the NIA of the building? (m²) Is the building located within a major city and close to major transport nodes, or within a remote rural location? Total number of cycle spaces required for 1st credit to be awarded. Total number of cycle spaces provided. Total number of showers required. Total number of showers provided. Are lockers and changing facilities provided (with the number of lockers at least equal to the number of cycle spaces provided), or drying spaces provided for wet clothes?	 419 No 4 0 1 0 No	 0
Tra 4 1 Credit Available	**Pedestrian and cyclist safety** Where external site areas form part of the assessed site and these areas contain vehicle access roads, parking and/or pedestrian access to the building, have adequate cycle lanes and pedestrian pathways been provided? Does the building not have any external areas, with internal access directly from the public highway/footpath?	 No No	 0
Tra 5 1 Credit Available	**Travel Plan** Is there a travel plan for the site? If yes, please provide a copy of the plan or details of what the plan will include. Please also provide details of how the plan has influenced the design.	 No	 0
Tra 6 2 Credits Available	**Maximum car parking capacity** How many building users are there to every car parking space?	 14	 2
WATER			
Wat 1 3 Credits Available	**Water Consumption** Please select the proposed WCs from the adjacent list. Please select the proposed urinals from the adjacent list. Please select the proposed wash hand basins from the adjacent list. Please select the proposed showers from the adjacent list. Predicted water consumption (m³/person/year)	 6/4 litre dual flush WCs No urinals Aerating taps No showers 2.80	 2
Wat 2 1 Credit Available	**Water Meter** Is there a water meter installed on all mains supply to the building? Does it have pulsed output? Please indicate this on the layout drawing.	 Yes	 1

Wat 3 1 Credit Available	**Major Leak Detection** Is there leak detection equipment on all mains supplies? Does it have an audible detection system? Can it be adjusted to detect different flow rates? Please provide details of the leak detection specification.	No	0
Wat 4 1 Credit Available	**Sanitary supply shut off** Is there proximity detection for all urinals and WCs? Please provide details of the sanitary supply shut off specification.	Yes	1
MATERIALS			
Mat 1 4 Credits Available	**Materials specification (major building elements)** What are the specifications for the following elements? Please provide details of the following: - specification for the upper floor slabs -specification for the external walls -specification for the roof -specification for the windows What is the total number of points calculated by the BREEAM Materials Calculator?	5.12	2
Mat 2 1 Credit Available	**Hard landscaping and boundary protection** Is at least 80% of the combined area of external hard landscaping and boundary protection specified to achieve an A or A+ rating, as defined by the Green Guide to Specification?	Yes	1
Mat 3 1 Credit Available	**Re-use of building façade** Is this a completely new building? If not, is at least 50% of the new building's total façade comprises re-used façade and at least 80% by mass of the reused façade comprise in-situ re-used materials? Please provide drawings and calculations showing the area and mass of any reused façade.	Yes N/A	0
Mat 4 1 Credit Available	**Re-use of building structure** Is this a completely new building? If not, is at least 8-% of an existing primary structure, and the volume of the reused structure comprises at least 50% of the final structure's volume.	Yes N/A	0
Mat 5 3 Credits Available	**Responsible sourcing of materials** Please provide specification information for the materials used in the following elements: roof, frame, walls (external), floors (ground, upper), foundation/substructure, windows, doors. Have any of the materials been reused? Are any of the materials from a recognised certified source? Additionally 100% of any timber must be legally sourced. What is the total number of points achieved by the calculator?	0	0
Mat 6 2 Credits	**Insulation** Using the Insulation Index Calculator, what score is achieved?	2.0	

Available	What is the total number of points achieved due to the responsible sourcing of the insulation?	1	2
Mat 7 1 Credit Available	**Designing for robustness** Have suitable durability and protection measures or design features been specified to prevent damage to the vulnerable parts of the key building areas from vehicular, trolley and pedestrian traffic? These must include, but not be limited to: a. Protection from the effects of high pedestrian traffic in main entrances, public areas and thoroughfares; b. Protection against any internal vehicular/trolley movement within 1m of the internal building fabric in storage, delivery, corridor and kitchen areas; c. Protection against, or prevention from, any potential vehicular collision where vehicular parking and maneuvering occurs within 1m of the external building facade for all car parking areas and within 2m for all delivery areas.	Yes	1
WASTE			
Wst 1 4 Credits Available	**Construction site waste management** What is the target benchmark for resource efficiency to be noted within the Site Waste Management Plan (i.e. m3 of waste per 100m2 or tonnes of waste per 100m²? Is at least 75% by weight, or 65% by volume, of non-hazardous construction waste generated by the project been diverted from landfill, and either: a. Reused on site; b. Reused on other sites; c. Salvage/reclaimed for reuse; d. Returned to the supplier via a 'take-back' scheme; e. Recovered from site by an approved waste management contractor and recycled.	20 Yes	1
Wst 2 1 Credit Available	**Recycled aggregates** Is the amount of recycled aggregate specified over 25% by weight of the total high grade aggregate uses? If yes, is the aggregate either obtained on site, obtained from sites within a 30km radius, or obtained from a recycled, non construction post-consumer/post-industrial by-product source?	No	0
Wst 3 1 Credit Available	**Recyclable waste storage** What is the NIA of the building? (m²) Is catering to be provided? Required size dedicated recyclable waste store (m²) Proposed size of dedicated recyclable waste store (m²)	419 No 10 11.2	1
Wst 6 1 Credit Available	**Floor finishes** If the building is speculative, will carpets be installed in a show area only which is less than 25% of the net lettable floor area? If the building is not speculative, has the tenant specified floor finishes?	Yes N/A	1
LAND USE & ECOLOGY			
LE 1 1 Credit Available	**Re use of land** Is at least 75% of the proposed development's footprint on an area of land which has previously been developed or used for industrial purposes in the last 50 years?	Yes	1

LE 2 1 Credit Available	**Contaminated land** Is the site defined as significantly contaminated? If yes, please provide details of the site survey report, contamination and any remediation measures taken, or to be undertaken. Does the report identify the degree of contamination and make recommendations for the treatment, containment or removal in line with the CLEA procedure? Has the Client/Contractor confirmed that the report recommendations and CLEA requirements have been, or will be, implemented in full?	No N/A N/A	0
LE 3 1 Credit Available	**Ecological value of site AND Protection of ecological features** Does the site contain any of the following: ponds, streams, rivers, wetlands, meadows, species-rich grasslands, trees or hedges (with a height > 1m or a trunk diameter > 100mm)? Has a report been produced by a suitably qualified ecologist confirming that the site is of low ecological value? Are there any existing features of ecological value on the site? Have appropriate methods of protection been proposed for these features during demolition, site preparation and construction?	No No No N/A	1
LE 4 2 Credits Available	**Mitigating ecological impact** Ecological value of existing site (species) Ecological value of proposed site (species) Change in ecological value of the site.	0 0 0	2
LE 5 3 Credits Available	**Enhancing site ecology** Has an Ecology Report been produced by a suitable qualified ecologist to advise and report on enhancing and protecting the ecological value of the site, and the recommendations been implemented? Has the ecologist advised that there is a positive increase in the ecological value of the site of up to 6 species? Has the ecologist advised that there is a positive increase in the ecological value of the site of 6 species or greater?	No N/A N/A	0
LE 6 2 Credits Available	**Long term impact on biodiversity** Has a suitably qualified ecologist confirmed that all relevant UK and EU legislation relating to protection and enhancement of ecology has been, or will be, complied with during the design and construction process? Has an appropriate management plan been produced covering at least the first 5 years after project completion? Is the contractor required to nominate a 'Biodiversity Champion' with the authority to influence site activities? Is the contractor required to train all relevant site work-force on how to protect site ecology during the project? Is the contractor required to record actions taken to protect biodiversity and monitor their effectiveness throughout key stages of construction? Is a new ecologically valuable habitat to be created? Is the contractor required to programme site works to minimise disturbance to wildlife?	No No No No No No No	0
POLLUTION			
Pol 1 1 Credit Available	**Refrigerant GWP-Building Services** Are there any refrigerants present? If yes do they have a global warming potential (GWP) of less than 5?	No N/A	1

Pol 2 2 Credits Available	**Preventing refrigerant leaks** Are any refrigerants present? If yes, does the building have a refrigerant leak detection system? Does the building have a refrigerant recovery system that has an automatic pump down and storage system for refrigerants?	 No N/A N/A	2
Pol 4 3 Credits Available	**NO_x emissions from heating source** Please provide details of the maximum dry NO_x emissions from delivered space heating energy (mg/kWh)	 40	3
Pol 5 3 Credits Available	**Flood risk** If a flood risk assessment has been carried out, please confirm the annual probability of flooding. If the site has a medium annual probability of flooding, are the ground level of the building, car parking and access above the design flood level for the site's location, and Sustainable Urban Drainage techniques are specified to minimise the risk of localised flooding? Are Sustainable Urban Drainage techniques specified to minimise the risk of localised flooding?	 Low N/A No	2
Pol 6 1 Credit Available	**Minimising watercourse pollution** Are oil separators/interceptors to be specified for areas at risk from pollution, i.e. vehicle maneuvering areas, car parks, waste disposal facilities, delivery facilities, and plant rooms?	 No	0
Pol 7 1 Credit Available	**Reduction of night time light pollution** Does the external lighting design comply with the guidance in the Institution of Lighting Engineers (ILE) Guidance notes for the reduction of obtrusive light, 2005? Can the external lighting (except for safety and security lighting) can be automatically switched off between 2300 and 0700 via a timer? Is safety and security lighting provided and to be used between 2300 and 0700? If yes, does this part of the lighting system comply with the lower levels of lighting recommended during these hours in Table 1 of the ILE's guidance notes?	 Yes Yes Yes Yes	1
Pol 8 1 Credit Available	**Noise attenuation** Are there any existing noise-sensitive areas or buildings within 800m radius of the assessed development? Has a noise impact assessment been carried out in accordance with BS 4142:1997, and the rating level of the noise sources from the site/building (with attenuation measures) calculated to be equivalent to or less than the background noise level?	 Yes No	0

5 Results

The current score is 62.47 %, which achieves a 'Very Good' at this stage. The percentage of credits achieved in each section is shown in the table below.

Overall Credit Allocation	Env Weighting	Available	Achieved	Percentage Section Credits Achieved	Overall Weighted Percentage
Management	12.0%	10	7	70.00	**8.40**
Health & Wellbeing	15.0%	13	9	69.23	**10.38**
Energy	19.0%	21	15	71.43	**13.57**
Transport	8.0%	10	6	60.00	**4.80**
Water	6.0%	6	4	66.67	**4.00**
Materials	12.5%	13	6	46.15	**5.77**
Waste	7.5%	7	3	42.86	**3.21**
Land Use & Ecology	10.0%	10	4	40.00	**4.00**
Pollution	10.0%	12	10	83.33	**8.33**
				Total	**62.47**

Table 1 – Results of preliminary BREEAM Assessment

It can be seen from the table above that both the Energy and Water sections score over 60 %, and the Materials section scores over 40 %, as required under *Policy DP22 – Promoting Sustainable Design and Construction.*

The proposed measures also meet the target for 'Very Good' BREEAM rating required under this policy.