BRITISH LAND

NORTH EAST QUADRANT

SUSTAINABILITY STATEMENT AND ENERGY STRATEGY REPORT

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1.0 EXECUTIVE SUMMARY

This report has been prepared by Hoare Lea, on behalf of British Land, in support of the planning application for North East Quadrant, a new development within the London Borough of Camden. It presents the main features of the sustainability strategy for the project. This sustainability strategy responds specifically to UK national sustainable development policy and in particular to the requirements of the London Borough of Camden Unitary Development Plan and the London Plan Supplementary Planning Guidance on Sustainable Design and Construction. The main features of the Sustainability Strategy are:

BREEAM and EcoHomes

The project will achieve a BREEAM for Offices 'Very Good' rating and a EcoHomes 'Very Good' rating. Both pre-assessments are enclosed (see Appendix B) and demonstrate compliance with Camden Planning Guidance:

- More than 60% of credits available under the 'Energy' section are achieved;
- More than 60% of credits available under the 'Water' section are achieved;
- More than 40% of credits available under the 'Materials' section are achieved.

Energy and renewable energy

- Energy efficiency measures have been adopted and 10% of the site energy consumption will be generated by a biomass boiler and 3% by a CHP plant, leading to a 32% reduction in energy consumption and a 31% reduction in CO_2 emissions compared to the 'baseline scheme' based on good practice benchmarks (the difference between the energy figures and the CO_2 figures are due to the different CO_2 contents of the displaced and used fuels, i.e. gas, grid-supplied electricity, displaced electricity, biomass).
- It should be noted that CO_2 emissions above include all energy uses, not just energy uses covered by Part L. As CO_2 emissions not covered by Part L represent a large proportion of total CO_2 emissions, a total CO_2 emissions reduction of 31% between the Baseline Scheme and the Energy Efficient Scheme with CHP and renewables actually represents a Part L CO_2 emissions reduction of 37% and an improvement over Part L 2006 of 15%.

Water

- An average water use in new dwellings within the residential buildings of no more than 40 m^3 per bedspace per year (approx. 110 litres / head / day) will be targeted.
- Rainwater will be collected and recycled for irrigation. As greywater requires chemical treatment, it was decided to give preference to rainwater.
- A 50 % attenuation of the undeveloped site's surface water run-off at peak times will be achieved, thanks to an underground buffer tank. This figure has been agreed with the Environment Agency.

Materials and other resources

- 100% of timber and wood products will be sourced from sustainable sources or will utilise reused or recycled timber.

Waste management

- For the office buildings, tenants will be encouraged to minimise their waste as far as practicable, with recycling and composting being the preferred options for any waste produced by the building.
- For residential buildings, internal storage recycling bins will be provided in each apartment along with central storage.

Transport

- Public transport is excellent and includes many local bus, underground and rail services.
- A large number of cycle spaces will be provided both for the commercial and the residential development.
- The level of car parking provision reflects the desire to minimise the use of the private car as a means of transport to and from the development.

Biodiversity:

- A Biodiversity Action Plan (BAP) has been prepared for the site.

Others:

- 100% of the NEQ development is located on previously developed land and the proposed development application represents 46,462 m^2, more than 3 times the existing NIA. This increased density would contribute to the SPG aim of making the best use of all developable land by increasing density.
- The proposed development will meet the principles of inclusive design.
- British Land will sign up to the relevant Considerate Constructor Scheme, and extend that requirement by tender requirements to all contractors.

2.0 INTRODUCTION

This report has been prepared by Hoare Lea, on behalf of British Land, in support of the planning application for North East Quadrant, a new development within the London Borough of Camden. The planning application includes 31,871 m^2 NIA of office development, 11,553 m^2 NIA of residential accommodation 1,749 m^2 NIA of retail space, and 1,616 m^2 NIA of community use.

This report presents the main features of the sustainability strategy for the project.

This sustainability strategy responds specifically to UK national sustainable development policy and in particular to the requirements of the London Borough of Camden Unitary Development Plan and the London Plan Supplementary Planning Guidance on Sustainable Design and Construction. For clarity, this sustainability statement follows the structure of the London Plan SPG on Sustainable Design and Construction.

The sustainability strategy has also been driven by British Land's adopted framework: the 'Sustainability Brief'. It requires the review of the sustainability of all British land development projects at various stages of the design.

3.0 ENVIRONMENTAL ISSUES

Environmental issues are at the forefront of Global, European and local government policy. A detailed sustainability strategy has been developed for the building, which specifically takes into account government policy and the environmental issues outlined below.

- Climate Change
- Ozone Depletion
- Pollution
- Resource Efficiency
- Water Resource Depletion
- Sustainable Timber
- Waste
- Transport
- Biodiversity

Climate Change
The evidence for climate change is all around us as we experience milder winters, warmer summers, melting glaciers, changing sea temperatures and more extreme weather events. The overwhelming consensus of scientific opinion is that mankind's release of large amounts of carbon has caused a measurable increase in temperature. The resulting 'global warming' has the effect of changing the global climate. Gases recognised as having a 'greenhouse' or global warming effect include carbon dioxide, methane, CFCs, HCFCs and HFCs.

Ozone Depletion
Ozone depleting gases cause damage to the 'ozone layer'. CFCs, HCFCs and Halons are the major causes of ozone depletion. Damage to the ozone layer reduces its ability to prevent ultraviolet (UV) rays entering the earth's atmosphere. Under EU regulations, the use of CFCs has been banned since January 2001 and HCFCs will no longer be sold after 2010 and will be phased out of use by 2015.

Pollution
Many construction materials and equipment contain or emit substances, which are hazardous to health and/or the Environment. The emission to air or water of some substances such as heavy metals, dioxins, hydrocarbons and VOCs used during the construction and operation of a building can have serious environmental impacts on human health and plant and animal ecosystems.

Resource Efficiency
Buildings are major consumers of resources, both during construction and in their operation. They use land, consume minerals, fossil fuels and other natural materials.

Water
UK water resources are being depleted on account of a 70% rise in water consumption over the past 30 years. Existing water resources must be protected through strategies to reduce water consumption in buildings and minimise the depletion, disruption or pollution of watercourses and aquifers.

Sustainable Timber
Deforestation of tropical forests is a matter for global concern. Timber, whilst a renewable resource, is largely imported into the UK.

Waste
The construction industry accounts for 29% of all UK controlled waste arising each year, of which 70 million tonnes is construction and demolition (C&D) waste. 30% of (C&D) waste is dumped in landfill or otherwise disposed of. During operation, occupants generate domestic waste and office waste.

Transport
The transport of people between buildings accounts for 22% of national energy use. Transport energy and emissions are growing at 4% per year, mostly owing to the increase in personal transport.

Biodiversity
Although construction is generally perceived as being detrimental to the ecological value of a development site, design solutions can also enhance the ecological value of a site.

4.0 SUSTAINABILITY POLICY, REGULATIONS AND GUIDANCE

There is a vast number of national, regional and local documents that guide the process towards achieving sustainable development. Below are summaries of the most commonly used documents.

4.1 Government Policy

UK Government Strategy for Sustainable Development, 1999, revised 2005
In 1999, the UK Government published its initial strategy for sustainable development, *'A Better Quality of Life: A Strategy for Sustainable Development in the UK.'* This has four main objectives:

- social progress which recognises the needs of everyone;
- effective protection of the environment;
- prudent use of natural resources;
- maintenance of high and stable levels of economic growth and employment.

The Sustainable Development Task Force reviewed this Strategy and a revised UK Government Sustainable Development Strategy, *'Securing the Future',* was put into place on the 7th March 2005.

The Energy White Paper – Creating a Low Carbon Economy, 2003
The four key goals of UK energy policy are identified:

- reduce carbon dioxide emissions;
- maintain the reliability of energy supplies;
- promote competitive energy markets;
- ensure that every home is adequately and affordably heated.

A specific target is set to reduce carbon dioxide emissions by 60% by 2050.

The UK Air Quality Strategy, 1997, updated 2000, amended 2002
Local Authorities are required to carry out periodic reviews of air quality in their area. The strategy sets objectives for eight main air pollutants to protect health, vegetation and ecosystems.

The UK Waste Strategy, 2000
The Strategy sets challenging targets to be met by local authorities:

- to recover value from 45% of municipal waste by 2010, at least 30% through recycling or composting;
- to recover value from two thirds of municipal waste by 2015, at least half of that through recycling and composting.

The UK Transport Strategy, 2000
'Transport 2010 – The 10 Year Plan' (Department of Transport, 2000) is the Government's integrated transport strategy, which explains the need to extend choice and secure mobility in a way that supports sustainable development.

4.2 National planning policy

Planning Policy Statement PPS1 - Delivering Sustainable Communities, 2005
PPS1 sets out the Government's strategy on the delivery of sustainable development through the planning system. It states that development plans should aim to:

- reduce energy use;
- reduce pollution/carbon emissions (including reducing emissions from transport as well as buildings);
- promote the development of renewable energy resources;
- consider climate change impacts when reviewing the location and design of developments.

Planning Policy Statement PPS22 – Renewable Energy, 2004
PPS22 recognises that renewable energy sources will play a key role in reducing carbon emissions, improving diversity/security of UK energy supply and diversification of employment opportunities. Regional and local planning authorities are required to be positive to the development of renewable energy sources such as wind generation, hydropower, photovoltaics, passive solar design, biomass, energy crops and energy from waste.

4.3 National regulations

Part L Building Regulations, 2006
Part L of the Building Regulations, which covers the conservation of fuel and power, has been revised and released in April 2006. Carbon emissions in new buildings will have to be reduced by an average 18%-28% compared to 2002 standards. The Government proposes to amend the Part L regulations every 5 years (further revisions will therefore be made in 2011 and 2016). It is expected that each revision will aim to reduce carbon emissions from new buildings by 25% each time.

4.4 Regional sustainability strategy

The London Plan: Spatial Development Strategy for Greater London, 2004
The London Plan is the strategic plan for setting an integrated social, economic and environmental framework for the future development of London over the next 15 to 20 years.

The Mayor's Energy Strategy, 2004
The Energy Strategy sets the Mayor's proposals to change the way energy is supplied and used within London over the next 10 years and create a sustainable energy system by 2050. It aims to reduce London's CO_2 emissions and thus help to mitigate climate change. It hopes to achieve this by reducing the use of fossil fuels, encouraging greater energy efficiency and promoting renewable energy.

Developers are encouraged to use BREEAM (Building Research Establishment Environmental Assessment Method) as well as integrating energy efficiency improvements and efficient supply technologies such as combined heat and power (CHP).

The Mayor's Air Quality Strategy, 2002
Buildings represent an opportunity to reduce air pollution, and the Strategy targets buildings as a source of air pollutants from energy use, particularly heating. Potential for emission reductions are identified in the adoption of best practice for more energy efficient new buildings, and in using renewable energy technologies.

The Mayor's Waste Management Strategy, 2003
London aims to meet the targets for recovering value from 40% of municipal waste by 2005, from 45% by 2010 and from 67% by 2015 by prioritising reduction, re-use, recycling and composting.

The Mayor's Transport Strategy, 2001
The Transport Strategy has ten key transport priorities, those applicable to NEQ development are:
- Reducing traffic congestion;
- Reducing car dependency by increasing travel choice;
- Supporting local transport initiatives, including walking and cycling schemes, road safety improvements, better maintenance of roads.

The Mayor's Biodiversity Strategy, 2002
The objectives of the Biodiversity Strategy, which are applicable to NEQ development include:
- To ensure all Londoners have ready access to wildlife and natural green spaces;
- To provide local climatic benefits through amelioration of ambient noise and absorption of some pollutants;
- To deliver quality open spaces together with green footpaths and cycle ways.

4.5 Local sustainability strategy

London Borough of Camden's Unitary Development Plan, 2006
The London Borough of Camden adopted a Replacement Unitary Development Plan (UDP) in June 2006. Of particular relevance to the NEQ scheme are the requirements to:
- Seek a mix of uses in development, including a contribution to the supply of housing;
- Seek the fullest use of sites and prevent inefficient use of land (High density development will be expected at locations in the Central London Area, Town Centres and other locations well served by public transport);
- Improve quality of life and local amenity;
- Conserve energy and water resources.

London Borough of Camden's Supplementary Planning Guidance, 2002

The SPG includes a 'checklist' summary of design measures which should be considered from the earliest design stages of a new development scheme through to construction to ensure that the characteristics of a sustainable building are met as far as possible. The design measures within the checklist include:

- **Site planning, orientation and form** – Orientation, form and façade design should seek to minimise energy consumption.
- **Energy** – Energy efficient plant should be specified and the incorporation of renewable energy technologies into the design and CHP should be considered.
- **Resource recovery** – The reuse of demolition materials and recycled materials from other local sites should be encouraged and sufficient space should be allocated within the design of the building for the future recycling of waste materials.
- **Water** – Water consumption should be reduced through on-site treatment, recycling of grey water and on-site groundwater abstractions for cooling and WC flushing. Surface water run-off should be reduced through the use of sustainable drainage systems.
- **Ecological value** – It should be enhanced through the use of green roofs, climbing plants, window boxes and nesting cavities for birds and bats.
- **Green travel** – It should be encouraged by minimising parking spaces, providing secure cycle storage facilities and introducing a green travel plan for operation of the development;

The SPG also endorses BREEAM assessments and states that "*a favourable BREEAM assessment will be a material consideration in support of an application".*

London Borough of Camden's Draft Supplementary Planning Guidance, 2006

Following the council's adoption of the Replacement Unitary Development Plan (UDP) in June 2006, the London Borough of Camden has issued the draft revised supplementary planning guidance to support the policies outlined in the replacement UDP. The revised Camden Planning Guidance 2006 was issued for consultation in July 2006 and following consultation it is intended that the guidance is adopted for use as a material consideration in planning decisions.

4.6 BREEAM and Eco-Homes

The BREEAM (Building Research Establishment Environmental Assessment Method) and Eco-Homes schemes are being used as benchmarking tools in the design of new developments. The aim of BREEAM and Eco-Homes is to estimate the environmental impact of buildings and promote a programme of environmental improvement.

BREEAM for Offices 2005 and Eco-Homes award credits in relation to the following construction, design and procurement options:

- **Management** – commissioning, waste management, education and training of building users.
- **Health and Wellbeing** – natural ventilation, daylighting, occupant controls.
- **Energy** – carbon emissions, heating and lighting control, energy monitoring, use of daylight, provision of shading.
- **Transport** – car parking provision, cyclist facilities, public transport nodes, distance to local amenities, green transport plan.
- **Water** – leak detection, water meters, low flush toilets and grey water use.

- **Materials** – specification of building materials and prohibition of hazardous substances.
- **Land use and Ecology** – use of contaminated land and change in ecological value, protection of ecological features and protection of natural habitats.
- **Pollution** – pollution monitoring, ozone depleting substances, NOx emission rates, noise pollution.

British Land has a policy requirement for each of its new build office buildings to achieve a BREEAM rating of at least Very Good.

As part of the development's design process, carried out prior to the Planning Application, British Land appointed Waterman Environmental to undertake, with the design team, a BREEAM for offices 2004 Design and Procurement (D&P) Prediction Checklist and a EcoHomes 2004 Pre-Assessment Prediction Checklist.

Although the predicted scores must at this stage only be used as guidance to the design team and cannot be used to demonstrate compliance with BREEAM and EcoHomes, they indicate that both the residential and the office element of the scheme will be built to very high environmental standards.

The results were as follows:

- Triton Square Office Building: BREEAM Rating of '**Very Good**';
- Henry Street Office Building: BREEAM Rating of '**Very Good'**;
- Market Housing: EcoHomes Rating of '**Very Good'**;
- Intermediate Housing: EcoHomes Rating of '**Very Good'**;
- Social Housing: EcoHomes Rating of '**Very Good**'

BREEAM and EcoHomes pre-assessments also comply with Camden Planning Guidance:

- More than 60% of credits available under the 'Energy' section are achieved;
- More than 60% of credits available under the 'Water' section are achieved;
- More than 40% of credits available under the 'Materials' section are achieved.

The five Eco-Homes and BREEAM pre-assessments can be found in Appendix B.

During Stage D of the design licensed BREEAM and EcoHomes assessors will be commissioned to conduct a formal assessment of the scheme.

BREEAM and EcoHomes post construction reviews will also be submitted to the Council prior to occupation.

5.0 BRITISH LAND'S SUSTAINABILITY BRIEF

The purpose of British land's Sustainability Brief is to guide the design and construction process by:

- Promoting the establishment of sustainability objectives and targets for design and construction with the aim of continuous improvement;
- Raising the sustainability awareness of the Company's staff, joint venture partners and suppliers;
- Defining the processes, standards, guidance and responsibilities for managing sustainability issues at each stage in a development project.

British Land's Sustainability Brief requires a review of the sustainability of the project at various stages of the design. The latest review for NEQ, i.e. the Objectives and Targets Report, can be found in Appendix A.

6.0 SUSTAINABILITY STATEMENT

6.1 RE-USE OF LAND AND BUILDINGS

This section formally outlines how the development will practically meet the objectives of Section 2.1 (Re-use of land and buildings) of the Mayor of London's Supplementary Planning Guidance on Sustainable Design and Construction, May 2006.

Mayor's Essential Standard	*NEQ*
• **Re-use of land** - 100% of development on previously developed land, unless very special circumstances can be demonstrated • **Development Density, Open Space Provision, Public Transport Capacity -** Development density should be maximised based on local context (Policy 4B.7) design principles (Policy 4B.1) open space provision (Policy 3D.10) and public transport capacity (Policy 3D.10) • **Existing Building Re-use** - Existing buildings are re-used where practicable, where the density of development and residential amenity are optimised and where the building conforms or has the potential to meet the standards for energy, materials, biodiversity and water conservation set out in the SPG. *Mayor's Preferred Standard* • **Roof Space Re-use** - Existing roof space is re-used where practicable to create new outdoor spaces and enhance biodiversity alongside the integration of renewable energy.	• **Re-use of Land** - 100% of the NEQ development is located on previously developed land. • **Development Density** – The existing buildings on the site have a combined Net Internal Area (NIA) of 16,797 m^2. The planning application includes 31,871 m^2 NIA of office development, 11,553 m^2 NIA of residential accommodation 1,749 m^2 NIA of retail space, and 1,616 m^2 NIA of community use. In total, it represents 46,789 m^2, approximately 3 times the existing NIA. This increased density would contribute to the SPG aim of making the best use of all developable land by increasing density. • **Open Space Provision** – Terraces will be provided for the top-floor apartments of the residential buildings. Balconies will also be provided. Open space will be accessible between and around the buildings. • **Public Transport Capacity** – Public transport is excellent and includes many local bus, underground and rail services, thus encouraging the use of more sustainable transport modes: - the site is directly linked by a short journey by underground to most mainline stations in Central London - at London-wide level, 6 underground lines with nearly 100 trains per hour per direction serve the site - at a more local level, the site is served by 10 bus routes providing more than 80 buses per hour per direction during peak periods. The proposed development has pedestrian links with all transport modes in the vicinity of the site and these routes will be further improved.

Currently, public transport accounts for a 90% mode share of all staff trips to the Estate.

- **Existing Building Re-use** – Existing buildings are outdated in terms of their appearances, natural lighting and environmental performance. They are not suited to the intended purpose and the intended increased density.

- **Land contamination** – The implications of the development in relation to soil contamination are considered to be of low importance, as the development would be on previously developed commercial and residential land that has not been associated with intensive industrial use.

  In addition, the excavation of the basements of the existing buildings constructed in the 1960's, 1970's and early 1980's would have removed any potentially contaminated materials within the basement area on site. The construction of the proposed basements would involve excavation of a further 1.5m deeper below the level of the existing basements in some areas. This would remove a significant volume of potentially contaminated material that may still be present below the level of the existing basement. If contaminated material is found to be present on the site, appropriate safe handling practices, including the disposal of contaminated materials, will be implemented. The disposal of contaminated materials would be in accordance with Duty of Care Regulations, the Landfill Directive (2004) and the Hazardous Waste Regulations (2005).

  Finally, as there would be no private open space at ground level (i.e. there is only a garden/courtyard with managed access for residents), no contamination impacts are anticipated.

- **Roof Space Re-use** – Not applicable.

6.2 MAXIMISATION OF THE USE OF NATURAL SYSTEMS

This section formally outlines how the development will practically meet the objectives of Section 2.2 (Maximisation of the use of natural systems) of the Mayor of London's Supplementary Planning Guidance on Sustainable Design and Construction, May 2006.

Mayor's Essential Standard	*NEQ*
• **Principles of Good Design** - All developments to follow the principles of good design set out in London Plan policy 4B.1 • **Minimise mechanical building services systems** - Minimise need for and use of mechanical ventilation, heating and cooling systems	• The site is very dense and characterised by the presence of Euston Tower to the South of the development. • Principles of good design have been adopted. The energy demand of the building has been minimised through careful design of built form and services, making every effort to minimise the need for air mechanical ventilation, heating and cooling systems. **It has led to a 32% reduction in energy consumption and a 30% reduction in CO_2 emissions compared to the baseline scheme.** This is due to an energy efficient design and the incorporation of a renewable energy source (biomass) and CHP. Details on energy efficiency measures are given in section *2.3.1 Energy*, but the following passive design features can also be highlighted: - Glazed facades on Triton Square Office Building will maximise daylighting and reduce reliance on artificial lighting. These facades will all be equipped with solar control glass to reduce air-conditioning requirements. The South façade is a double skin façade which will minimise heating requirements in winter and air conditioning requirements in summer. - The presence of balconies on residential buildings will prevent high-angle solar rays to penetrate the rooms in summer while allowing passive solar heating in winter (low solar angles). • Cooling will be provided for the office buildings and apartments in Drummond Street Private Housing Building. These apartments are provided with artificial cooling since the tower does not allow an effective use of natural ventilation. Feasibility of absorption chillers will be investigated during detailed design. • A proportion of the roofs will be green roofs, which have several advantages including thermal insulation, reduction of rainwater run-off and biodiversity.

Adapting to climate change

Mayor's Essential Standard	*NEQ*
• **Building Flexibility / Future proofing** - Buildings provide for flexibility of uses during their projected operational lives. • **Climate Change Mitigation** - Buildings adapt to and mitigate for the effects of the urban heat island and the expected increases in hot dry summers and wet mild winters. • **Cyclists / Electric Vehicle Provision** - Design in facilities for bicycles and electric vehicles.	• **Building Flexibility / Future proofing** - The new buildings will provide flexible space capable of multiple uses. A grid structure has been used to provide a consistent and generic internal environment. • **Climate Change Mitigation** – On the open spaces outside, trees and vegetation will be planted to mitigate the effect of the urban heat island and of climate change. It should also be highlighted that Euston Tower will provide a lot of shading to the external spaces. • **Cyclist facilities** – Cyclist facilities will meet the following criteria: - a total of 189 cycle spaces will be provided within the basement of the office buildings and 247 cycle spaces in connection with the residential development. These figures fall within the requirements set out by the London Borough of Camden UDP, i.e. 176 for the office buildings and 247 for the residential buildings. - Showers and changing facilities with lockers will be provided for the office buildings. - A heated / ventilated space for wet clothes will be provided in residential units. • **Car parking provision** – The level of car parking provision reflects the desire to minimise the use of the private car as a means of transport to and from the development. - There will be 107 car park spaces for the residential developments, which represents less than 0.5 space per dwelling. - There will be 31 car parking spaces for the office building, which complies with the requirement of the UDP. • **Regent's Place Travel Plan** – The current Regent's Place Travel Plan, which will be used for the proposed development, offers arguably the most comprehensive and pioneering Travel Plan within Central London. The proportion of car users has halved in the years since the introduction of the Regent's Place Travel Plan in 2001. Statistics show that car use has dropped

as the main transport mode to work from 6% to 3%). Encouraging environmentally friendly transport modes and working practices is the main travel principle established in the first Travel Plan and will be adhered to in the revised Regent's Place Travel Plan. This will be available for new occupiers (business, residential, retail, and community) of the proposed NEQ development.

The following Regent's Place Travel Plan key initiatives can be highlighted :

- A Regent's Place Transport Forum has been set up to coordinate all travel and transport related issues at Regent's Place;
- A Travel Plan provides comprehensive information regarding public transport links;
- A Bicycle Users Group (BUG) has been set up to support and encourage cycling to site.

It should also be noted that NEQ is located on one of the few Tube lines where carriage of bicycles is permitted and that the local cycle routes form part of the London Cycle Network, which provides a comprehensive layout of cycle ways and advisory cycle routes.

The following options are currently being investigated to encourage more sustainable car usage:

- the possible introduction of a car sharing scheme;
- potential partnership with existing car share schemes in the area;
- the potential joining of a car club or pool car service;
- the promotion of sustainable car technology to current car users;
- the introduction of recharging points to cater for occupiers and residents who may choose to use electric vehicles.

Finally, in order to address whether there are more sustainable ways for making deliveries, consideration will be given to:

- estate-wide or joint ordering system;
- estate-wide recycling schemes;
- encouraging suppliers to use low emission vehicles when delivering to the estate.

6.3 CONSERVATION OF ENERGY, WATER AND OTHER RESOURCES

This section formally outlines how the development will practically meet the objectives of Section 2.3 (Conserve energy, water and other resources) of the Mayor of London's Supplementary Planning Guidance on Sustainable Design and Construction, May 2006.

6.3.1 ENERGY

Mayor's Essential Standard

- **Reduce Demand** - Carry out an energy demand assessment.
- **Energy Efficiency** - Maximise energy efficiency.
- **Low carbon and renewable energy systems.** Major commercial and residential developments to demonstrate that consideration has been given to the following ranking method for heating and where necessary, cooling systems
  - Passive Design;
  - Solar Water Heating;
  - Combined Heat and Power for heating and cooling (i.e. tri-generation), preferably fuelled by renewables;
  - Community Heating and Cooling;
  - Heat Pumps;
  - Gas Condensing Boilers.
- **CO_2 emissions** - Carbon emissions from the total energy needs (heat, cooling and power) of the development should be reduced by at least 10% by on-site generation renewable energy.
- **Light Pollution** - Wherever on site outdoor lighting is proposed as part of a development, it should be energy efficient, minimising light lost to sky.

Mayor's Preferred Standard

- **Low carbon and renewable energy systems.** All developments to demonstrate that consideration has been given to the following ranking method for heating and where necessary for cooling systems and should

NEQ

A detailed assessment of potential methods of conserving energy and the use of energy efficient and renewable technologies has been carried out. The results of this assessment are described in more detail in the NEQ Energy Strategy Report (see Appendix C).

- **Energy efficiency and reduced demand** – The strategic approach to the design of the development has been to reduce demand for energy consumption in the first instance prior to the consideration of integrating low carbon energy sources, since controlling demand is the most effective way of reducing carbon dioxide emissions.

  The following points outline the approaches and strategies that have been considered to improve energy efficiency:
  <u>Passive design measures:</u>
  - Low U-values for external walls, glazing, roofs and floors: the scheme is designed to exceed the requirements of the new Building Regulations (Part L1A and L2A, 2006);
  - Reduced shading coefficients/g values of Triton Square Office Building glazing;
  - High standards of airtightness (i.e. minimising air leakage and infiltration rates through gaps and openings);

  <u>High efficiency engineering systems:</u>
  - Heat recovery within each mechanical ventilation system;
  - Energy efficient lighting (including daylight controlled automatic dimming luminaires in the office area);
  - Class A rated fridges/freezers, Class A rated washing machines and dishwashers and Class B rated dryers (where provided);
  - Ventilation control in bathrooms and kitchens to reduce fan energy when

incorporate the highest feasible of the following options:
- Solar water heating;
- Combined Heat and Power for heating and cooling (i.e. trigeneration), preferably fuelled by renewables;
- Community Heating (New developments should always be connected to existing community heating networks preferably fuelled by renewables where feasible.)

- **Building Services Controls -** Lighting, heating and cooling controls should enable services to operate efficiently under different loadings and allow for localised control.

- **Zero Carbon Emission Development -** Major developments should be zero carbon emission developments (ZEDs).

- **Hydrogen Fuel Cell Technology -** Major developments should make a contribution to London's hydrogen and / or fuel cell technologies and infrastructure.

- **Light Pollution -** Wherever outdoor lighting or other electrically powered street furniture is proposed on site, it should be solar powered and minimise light lost to the sky.

not in use;
- Variable speed drives for circulation pumps;
- High efficiency motors incorporated into all building services;
- High efficiency boiler plant;
- Energy metering;
- Enhanced pipework and ductwork thermal insulation.

These changes and passive design features of the buildings have led to a 31% reduction in energy consumption and a 26% reduction in CO_2 emissions compared to the 'baseline scheme' based on good practice benchmarks from CIBSE Guide F on Energy Efficiency in Buildings (i.e. energy efficient scheme with no contribution from renewables and CHP vs baseline scheme).

- **Low-carbon and renewable energy systems -** A range of energy technologies have been appraised as potential on-site energy generation sources in relation to the development. These comprise:
  - Combined Heat and Power (CHP) plant;
  - Solar water heating panels;
  - Ground source heat pumps;
  - Biomass heating boilers;
  - Wind turbines;
  - Photovoltaic (PV) modules for electricity generation.

  The conclusion of the several desktop studies which have been carried out is that implementing a biomass boiler can deliver 10% of total annual energy use when serving the heating installations of the office buildings. On this basis it is proposed that a biomass boiler with a capacity of 500 kW is provided. This will meet 10% of predicted annual energy consumption by renewable means and reduce carbon emissions by approximately 6%. In addition, a 30kWe CHP plant will be provided and contribute to the Domestic Hot Water requirements and landlord's electrical requirements of the residential buildings.

  The incorporation of these Low-carbon and renewable energy systems will contribute to a 1.1% reduction in energy consumption and a 6.5% reduction in CO_2 emissions compared to the energy efficient scheme. (i.e. energy efficient scheme with biomass and CHP vs energy efficient scheme with no contribution from renewables and CHP).**10% of the site**

energy consumption will be generated by the biomass boiler and 3% by the CHP plant. The difference between the energy figures and the CO_2 figures are due to the different CO_2 contents of the displaced and used fuels, i.e. gas, grid-supplied electricity, displaced electricity, biomass.

British Land will further discuss with the London Climate Change Agency (LCCA) the possibility of reorganising plant layouts throughout the Regent's Place basement to ascertain whether adequate free space can be created to house a larger CHP and the necessary thermal storage vessels, and whether replacing existing chillers with absorption chillers on the new development and the existing buildings would be viable (this would allow tri-generation). The design team will assess these possibilities.'

- **Building Services Controls** – All building services controls will be designed to enable services to operate efficiently under different loads and allow for localised control.
- **Zero Carbon Emission Development** – The development will not be a Zero Carbon Emission Development.
- **Hydrogen Fuel Cell Technology** – Fuel cell technology has not been included in the NEQ energy strategy.
- **Light pollution** – A light pollution assessment has been carried out and shows that the proposed development will have a negligible effect upon the surrounding properties and comply with the ICE guidelines for the reduction of light pollution. A timer will also be provided for all external lighting to ensure that it can be automatically switched off between 2300 and 0700.

6.3.2 MATERIALS

Mayor's Essential Standard • **Sustainable Timber** - 50% timber and timber products should be sourced from Forest Stewardship Council (FSC) source and balance from a known temperate source. • **Ozone Depletion** - Insulation materials containing substances known to contribute to stratospheric ozone depletion or with the potential to contribute to global warming must not be used. • **Aggregate Resource Depletion** - Minimise use of new aggregates. ***Mayor's Preferred Standard*** • **Embodied Energy** - neither construction nor specification of material with high-embodied impact to be used (as defined by the summary ratings in the Green Guide to specification), unless a compelling whole life energy or technical case for its use exists. • **Sustainable Timber** - 90% timber and timber products from Forest Stewardship Council (FSC) source and balance from a known temperate source. • **Minimise Natural Resource Depletion** - No peat or natural weathered limestone used in buildings or landscaping. • **Maximise Recycling of Demolition Material** - Prior to demolition, appraisal of maximising recycling of materials by use of ICE's Demolition Protocol. • **Specification of locally sourced materials** - 50% of construction materials by mass used in the development to be sourced from a factory/plant/ quarry/wharf railhead or recycling centre within 35 miles of site wherever feasible.	***NEQ*** • **Sustainable Timber** – The potential for timber and timber products from temperate sources has been investigated for incorporation into the design. Preference will be given to the selection of FSC certified timber and PEFC certified timber. 100% of timber and wood products will be sourced from sustainable sources or will utilise reused or recycled timber. • **Ozone Depletion** – The final selection of insulation materials will aim at choosing those with a reduced Ozone Depletion Potential (ODP) and a reduced Global Warming Potential (GWP). • **Embodied Energy** – A review of the materials specified for the development has been undertaken using the Green Guide to Specification. At least 80% of roof specifications will achieve a Green Guide A rating. • **Minimise Natural Resource Depletion** – The avoidance of peat and natural weathered limestone in buildings or landscaping will be investigated at detailed design stage. • **Maximise Recycling of Demolition Materials** –Prior to demolition, the ICE's Demolition Protocol will be used to maximising recycling of materials. • **Specification of locally sourced materials**– This will be investigated in further detail during detailed design. • **Specification of materials with a low VOC** – Preference will be given to the selection of paints, floor finishes adhesives and varnishes with a volatile organic content (VOC) of less than 5%. • **Specification of natural materials** – Preference will be given to the selection of internal finishes and external landscaping manufactured using natural materials such as timber instead of MDF as they are non toxic, have a low embodied energy and are biodegradable.

• **Aggregate Resource Depletion** - Minimise the use of new aggregates. • **Recycled Content of Materials** - 10% total value of materials used to be derived from recycled and reused content in products and materials selected.	• **Specification of recyclable materials** – During detailed design, the recycled content toolkit devised by the Waste and Resources Action Programme (WRAP) will be used to assess how use of recycled and re-used materials can be maximised. • **Specification of inert materials** – Preference will be given to the specification of inert materials such as glass, ceramics and stone as they are non toxic and easily re-used or recycled. • A **monitoring mechanism** will be put in place to ensure that the above principles will be applied.

6.3.3 WATER

Mayor's Essential Standard • **Water consumption:** Residential developments to achieve average water use in new dwellings of less than 40 m^3 per bedspace per year (approx. 110 litres / head / day). • **Water metering** - 100% metering of all newly built property. ***Mayor's Preferred Standard*** • **Water consumption:** Residential developments to achieve average water use in new dwellings of less than 25 m^3 per bedspace per year (approx. 70 litres / head / day). • **Greywater Recycling** - Use of greywater for all non potable uses.	***NEQ*** The NEQ Water strategy has been developed to provide a water efficient design, which incorporates measures to reduce water consumption demand: • **Specification of water efficient appliances** – the following range of water efficient measures have been incorporated into the design of NEQ to reduce water consumption demand: - Low-flush toilets; - PIR controlled urinals; - Low flow taps and showerheads; - Water efficient white goods, when provided; - A water meter with pulsed output and a mains leak detection system will be implemented on all mains supplies to the buildings; The feasibility of implementing waterless urinals in the office buildings (Triton Square and Henry Street Office Buildings) will be investigated during detailed design. An average water use in new dwellings within the residential buildings of no more than 40 m^3 per bedspace per year (approx. 110 litres / head / day) will be targeted. • **Specification of rainwater recycling systems** – the roof and surface rainwater run-off will be attenuated using an underground water storage system. The harvested rainwater would be used for watering plants. However, the potential to use it for other purposes, including for flushing toilets and general cleaning tasks such as car washing will be investigated at a later stage. • **Specification of grey water / black water recycling systems** – the potential for grey water collection and recycling has been investigated, but preference has been given for a rainwater recycling scheme (see above) since rainwater recycling requires less chemical treatment.

- **Use of borehole water** – The feasibility of an open-loop ground source heat pump system, using groundwater for heating and cooling has been investigated in detail. The biomass option was preferred to this option as it would lead to a greater CO_2 emission reduction. These two technologies could not be provided together as they would compete for the thermal base load.

- **Designing low water use landscaping and gardens** – Design of landscaping will seek to minimise its water requirements (e.g. drought-resistant plants, water-retaining mulches, etc.). Automatic drip irrigation systems will be considered as they provide regular watering as required depending upon weather conditions and therefore reduce water requirements.

- **Water metering** - 100% metering of all newly built property will be provided.

6.4 REDUCTION OF THE IMPACTS OF NOISE, POLLUTION, FLOODING AND MICROCLIMATIC EFFECTS

This section formally outlines how the development will practically meet the objectives of Section 2.4 (Reduce the impacts of noise, pollution, flooding and microclimatic effects) of the Mayor of London's Supplementary Planning Guidance on Sustainable Design and Construction, May 2006.

6.4.1 NOISE

Mayor's Essential Standard	***NEQ***
• Demonstrate that adverse impacts of noise have been minimised, using measures at source or between source and receptor (including choice and location of plant or method, layout, screening and sound absorption) in preference to sound insulation at the receptor, wherever practicable.	• Planning of buildings and rooms has been designed in order to reduce noise problems. For instance, 'stacking' of conflicting uses has been avoided in the residential buildings. • Windows and ventilation systems will incorporate acoustic features to address noise, especially at night. • Building services such as air extract will be positioned away from sensitive locations. • Mitigation measures will be investigated during M&E design and construction phase to ensure that the baseline ambient noise levels are not negatively affected by the buildings and to evaluate how the plant noise can be attenuated.

6.4.2 AIR POLLUTION

Mayor's Essential Standard	***NEQ***
• All new gas boilers should produce low levels of NOx. • Incorporate measures to reduce and mitigate exposure to air pollution.	• **NOx emissions** – Gas boilers will produce low levels of NOx: they will have a minimum rating equivalent to NOX_3 and emissions will be less than 70mg/kWh. All plant will be readily accessible and easily maintained. All plant will be subject to a regular service agreement to maintain operational efficiency and to minimise harmful emissions.

Mayor's Preferred Standard Developments should be designed to minimise the impact on air quality, with respect to plant, vehicles and other sources of pollution	• **Refrigerant leaks** – An automatic refrigerant leak detection system will be provided. • **Cooling towers** – Cooling towers will be designed and operated in accordance with HSE Approved Code of Practice (ACGP) and Guidance L8 "Legionnaires Disease". • **Internal air pollution** – Air intakes / outlets will avoid major sources of external pollution in order to avoid internal air pollution.

6.4.3 WATER POLLUTION AND FLOODING

Mayor's Essential Standard • Use Sustainable Drainage Systems (SDS) measures, wherever practical. • Achieve 50% attenuation of the undeveloped site's surface water run off at peak times. ***Mayor's Preferred Standard*** • Achieve 100% attenuation of the undeveloped site's surface water run off at peak times.	***NEQ*** • **Sustainable Drainage** – Given the location of the development, its density, and the presence of a car park underground, implementing Sustainable Drainage Systems (SDS) is difficult. However, it should be noted that a total of 290 m^2 of green roof will be provided. These green roofs will help to attenuate rainwater run-off. • **Attenuation** – A 50 % attenuation of the undeveloped site's surface water run-off at peak times will be achieved, thanks to an underground buffer tank. This attenuation rate has been agreed with the Environment Agency. Water stored in the underground storage tank will be used for irrigation purposes. Additional features will be provided to protect water quality: oil separators/interceptors or filtration will be incorporated. The drainage systems will be clearly marked.

6.4.4 MICROCLIMATE

Mayor's Essential Standard	*NEQ*
• Mitigate any negative impact on the microclimate of existing surrounding public realm and buildings to meet the Lawson criteria for wind comfort and safety.	• **Wind** – Wind tunnel testing has been carried out to assess the impact that changes in windiness, caused by the proposed development, have on pedestrian safety and comfort in and around the development. The effect of the development on wind at street level was evaluated using the Lawson methodology and Lawson's evaluation criteria. Mitigation measures have been designed and tested to ensure suitable conditions at pedestrian level. With mitigation in place, worst season conditions in and around the proposed development are shown to be suitable for the intended uses of the area. The main mitigation measures are as follows - Along Henry Street deciduous box trees in a staggered arrangement to interfere with the wind flows along the street and an entrance pavilion provides direct shelter to the residential entrance; - In Triton Square, eight deciduous box trees; - Tree planting along Brook Street; - A solid canopy above the residential entrance along Drummond Street; - Porous canopies running around the outer edge of the terrace area and a porous screen to the West. • **Sunlight and Daylight** – A Sunlight and Daylight analysis had been carried out. It is evident that the presence of Euston Tower, immediately to the South of the site, has a considerable impact on the potential sunlight/daylight levels of the site. The analysis also found that some neighbouring building windows will lose some degree of sunlight in relation to the proposed development. The level of reduction in many cases is small and the retained level deemed to be acceptable. The site is, however, within a dense urban area, where some reduction in daylight below BRE Guidelines is inevitable. The daylight levels both internally are also considered to be acceptable.

- **Overshadowing** – The overshadowing analysis carried out shows that the proposed development will cast some shadows on to the areas to the North of the scheme. However, the additional overshadow is only a marginal increase on the existing situation. This is because of the height, bulk and massing of the existing surrounding properties, and in particular Euston Tower, which already significantly overshadows the area to the North of the site.

  The permanent overshadow results show the open amenity areas around and within the proposal will have no more than 40% of their area in permanent overshadow (on 21st March), which is acceptable in relation to the BRE overshadow criteria. Indeed, the areas with less than 25% permanent overshadow will be well sunlit for much of the year.

- **Views** – Strategic and local views have been examined in order to assess heights and massing of proposals and concluded that the optimum height was around 12-16 storeys high for Triton Square Office Building and 25 for Drummond Street Private Housing.

- **Electro-Magnetic-Radiation** – Test carried out in 2004 concluded the development will not cause any harmful effects.

6.5 ENSURING DEVELOPMENTS ARE COMFORTABLE AND SECURE FOR USERS

This section formally outlines how the development will practically meet the objectives of Section 2.5 (Ensure developments are comfortable and secure for users) of the Mayor of London's Supplementary Planning Guidance on Sustainable Design and Construction, May 2006.

Mayor's Essential Standard • **Indoor comfort** – Inert or low emission finishes, construction materials, carpets and furnishings should be used wherever practical. All plant and machinery should be accessible for easy maintenance. • **Design inclusive environments** – All developments should meet the principles of inclusive design, adopting the principles of SPG *'Accessible London: achieving an inclusive environment'*. All residential development should meet Lifetime Home Standards and 10% should meet wheelchair accessibility standards (London Plan Policy 3A.4). • **Secure design** – Developments should incorporate principles of 'secured by design'. ***Mayor's Preferred Standard*** • **Indoor comfort** – Design buildings for indoor comfort of users. • **Design inclusive environments** – All residential developments should be designed to meet wheelchair accessibility standards or be easily adaptable to meet wheelchair standards. Developments should be fully e-enabled.	***NEQ*** • **Indoor comfort** – Preference will be given to the selection of paints, floor finishes adhesives and varnishes with a volatile organic content (VOC) of less than 5%. Preference will be given to the specification of inert materials such as glass, ceramics and stone as they are non toxic and easily re-used or recycled. • **Designing inclusive environments** – The proposed development will meet the principles of inclusive design, adopting the principles of SPG *'Accessible London: achieving an inclusive environment'*. 100% of the affordable units will meet Lifetime Home Standards and 10% will meet wheelchair accessibility standards. The following measures have also been introduced to ensure that those with mobility difficulties can access all areas of the Estate: - pedestrian friendly environment; - pedestrian priority around the estate; - step free access to all buildings; - pavements with tactile surfacing; - carefully designed landscaping. • **Secure design** – The proposed development will incorporate principles of 'Secure by Design', in particular: - passive surveillance of streets, spaces, parking will be incorporated; - basement areas within the car park will be well illuminated. The development will also ensure that access to public transport is easy and safe. • **Access to plant** – All plant and machinery will be easily accessible for maintenance.

6.6 CONSERVATION AND ENHANCEMENT OF THE NATURAL ENVIRONMENT AND BIODIVERSITY

This section formally outlines how the development will practically meet the objectives of Section 2.6 (Conserve and Enhance the Natural Environment and Biodiversity) of the Mayor of London's Supplementary Planning Guidance on Sustainable Design and Construction, May 2006.

6.6.1 OPEN SPACE

Mayor's Essential Standard	***NEQ***
• No net loss of publicly accessible open space. • Create appropriate new open, green, publicly accessible spaces where these can redress identified areas of deficiency of public space. ***Mayor's Preferred Standard*** • Net gain of publicly accessible open space.	• **Open space** – The vast majority of people accessing NEQ will do so on foot. The development proposals have been designed to provide an excellent environment for pedestrians. These pedestrian enhancements include removal of the existing barriers and the car park ramp, tree planting, creation of frontage activities, improved security and improved footway finishing. • **Landscape strategy** – The landscape strategy for the proposed development includes planting at Triton Square and along the western boundary of the site. Climbing plants would be planted along the boundary of the residential property. Species will be chosen based on wind and shade tolerance.

6.6.2 NATURAL ENVIRONMENT AND BIODIVERSITY

Mayor's Essential Standard	***NEQ***
• No net loss of biodiversity and access to nature on the development site. • Reduction in areas of deficiency in access to nature. ***Mayor's Preferred Standard*** • Net gain of biodiversity and access to nature on the development site.	• **Ecological value**– Currently, the entire site is either developed and/or hard surfaced. The environment is characterised by service roads and pedestrian piazza, with occasional planting (typically trees and ground cover). Within the application site boundary, there is very little in terms of ecological value; the site is bereft of wildlife habitat and is not designated in any way for its nature conservation interest. In summary, the site has no ecological significance and consequently the proposed development would not result in any detrimental ecological impact.

The immediate surroundings of the site are of ecological interest, due to the presence of Regent's Park to the West and St James's Garden to the East but the proposed development would not have a significant impact on the habitat of Regent's Park and St James's Garden as they are located at a distance in excess of 200 m from the site.

- **Biodiversity** – A commitment has been made to provide a positive minor increase in the ecological value of the site. The design team will act on the advice of a suitably qualified ecologist. A Biodiversity Action Plan (BAP) has been prepared for the site. This document lists measures which would be undertaken to improve and enhance the wildlife diversity.

  Tree planting will be included as part of the landscaping proposals. Species would be chosen on wind and shade tolerance. In addition to this, nesting boxes for the Black Redstart, the House Martin, the House Sparrow and the Peregrine Falcon will be incorporated into the scheme in suitable locations.

  It should be noted that a total of 290 m^2 of green roof will be provided, which will improve biodiversity and the ecological value of the site.

6.7 PROMOTION OF SUSTAINABLE WASTE BEHAVIOUR

This section formally outlines how the development will practically meet the objectives of Section 2.7 (Promoting sustainable waste behaviour) of the Mayor of London's Supplementary Planning Guidance on Sustainable Design and Construction, May 2006.

Mayor's Essential Standard • Minimise, re-use and recycle demolition waste on site where practical. • Specify use of reused or recycled construction materials. • Ensure recycling facilities are as easy to access as waste facilities. ***Mayor's Preferred Standard*** • Use prefabricated and standardised modulation components to minimise waste. If this is not feasible use low waste fabrication techniques. • Provide facilities to recycle 70% of commercial and industrial waste by 2020. • Incorporation of or access to new waste recovery facilities (anaerobic digestion, pyrolysis/gasification) especially to provide a renewable source of energy e.g. methane or hydrogen).	***NEQ*** • **Demolition Waste Management** – It is unlikely, given the presence of residential areas in close proximity, that on-site recycling of demolition waste would be adopted, due to the greatly enhanced risk of dust emissions and noise associated with the crushing plant required. It is instead envisaged that material for recycling would be exchanged for material processed off-site. • **Re-used or recycled construction materials** – During detailed design, the recycled content toolkit devised by the Waste and Resources Action Programme (WRAP) will be used to assess how use of recycled and re-used materials can be maximised. • **Waste management during operation** – Reduce and reuse Reducing waste (e.g. residents choosing goods with minimal packaging) and reusing waste (e.g. retails/offices donating some unwanted goods to local charity shops) principles should be applied to reduce the amount of waste to be treated in the first place, but they are the responsibility of the occupier/tenant. It should be noted that participating to the PC Reuse and Recycling Scheme would be a good opportunity for Camden businesses to support the local community by donating unwanted ICT equipment to be refurbished and put back into local use. Recycle – Retail and offices Tenants will be encouraged to minimise their waste as far as practicable, with recycling and composting being the preferred options for any waste produced by the building. Where waste cannot be recycled then recovering energy from waste will be sought by sending non-recyclable waste for incineration.

As a last resort non-recyclable and non-incinerable waste will be sent to landfill.

Separation and recycling will be actively promoted at NEQ with all tenants being encouraged to separate their waste at source into Wet and Dry categories for recycling or disposal.

- **Wet Waste** (contaminated food waste, fruit cores, tea bags, crisp bags, sweet wrappers, napkins, sandwich wrappers/containers);
- **Dry Waste** (plastic bottles and drink cartons, cardboard, paper, plastic and paper cups, aluminium and steel drink cans, books).

In addition, if the volumes of specific heavy waste are sufficient, further separation will be required of heavy or bulky recyclables.

- **Heavy Segregated Recyclables** (glass, metals, wood, construction waste, other bulk recyclables e.g. paper)

How the waste is managed at NEQ will depend on the percentage volumes of each waste stream produced. The largest waste stream (wet or dry) will be compacted in the basement. It is likely that the dry waste stream will be the largest volume therefore most general office waste will be managed through the basement. The wet waste and heavy recyclables would therefore be stored and collected to a timetable dictated by the volumes produced.

Removal and Disposal

Waste will only be disposed of via a licensed waste carrier. Combined dry waste compacted on site will be removed by the waste management contractor and processed at a Materials Recycling Facility (MRF) off site which should ensure that none of the dry waste ends up in landfill. Each type of waste product will then be separately recycled in the most cost effective manner. Wet waste will go direct to an incineration plant.

Fluorescent tubes and batteries are designated Hazardous Waste and will be collected by a specialist waste contractor.

Management and Tenant Responsibilities

Tenants will be responsible for ensuring waste is segregated into the appropriate categories and placed in the relevant bin or compactor. The Building Management Team will actively promote and police the recycling and waste management regime to prevent waste streams being contaminated and to reduce as far as possible the volume of commercial waste. Waste steams from each Tenant will be monitored and action taken if waste streams are being consistently contaminated.

Recycle – Residents

The aim is to achieve a high recycling rate for the development and therefore to provide residents with the facilities to separate household waste (both internally and externally).

In each apartment, internal storage recycling bins would be provided. The bins would be designed for this purpose, labelled for recycling and have a total capacity of at least 36 litres (minimum compartments size: 7 litres). It is proposed that they are located in a dedicated position, e.g. in the cupboard under the sink or any other cupboard in the kitchen, next to the non-recyclable waste bins.

Residents would take their bags already sorted into recycle and non-recycle types down to holding rooms at the basement level one. The caretaker collects the refuse from the holding rooms regularly and transfers it to the one central collection space at ground level via scissor lift. It is from this one position that the local authority make their collection of different refuse types. This space would be large enough to accommodate 10 to 15 Nr 1,100 litre wheeled bins for recyclable materials and 5 to 8 Nr. 1,100 litre wheeled bins for non-recyclable waste.

With these facilities, residents will be able to achieve a high recycling rate.

6.8 SUSTAINABLE CONSTRUCTION

This section formally outlines how the development will practically meet the objectives of Section 3 (Sustainable Construction), of the Mayor of London's Supplementary Planning Guidance on Sustainable Design and Construction May 2006.

Mayor's Essential Standard • Reduce waste during construction and demolition. • Reduce risk of statutory nuisance to neighbouring properties as much as possible through site management. • All developers should consider and comply with the Mayor and ALG's London BPG on the control of dust and emissions during construction and demolition. • Comply with protected species legislation. • All developers should sign up to the relevant Considerate Constructors Scheme or in the City of London to the Considerate Contractor Scheme. ***Mayor's Preferred Standard*** • All contractors should be required by tender requirements to sign up to the Mayor and ALG's London BPG on the control of dust emissions during construction and demolition. • All contractors should be required by tender requirements to sign up to the relevant Considerate Constructors Scheme or in the City of London to the Considerate Contractor Scheme.	***NEQ*** • Demolition, site preparation and construction will be phased over approx. 2 ½ years. Construction phasing is anticipated to be as follows: 1) demolition of all existing buildings; 2) construction of sub-structure to ground level; 3) construction of superstructure of all four buildings; 4) cladding and internal fit out to completion. • **Management** – British Land will sign up to the relevant Considerate Constructor Scheme, and extend that requirement by tender requirements to all contractors. The Considerate Constructors Scheme is a Code of Practice that seeks to: - minimise any disturbance or negative impact; - eradicate offensive behaviour and language on construction sites; - recognise and reward the constructor's commitment to raise standards of site management, safety and environmental awareness beyond statutory duties. The contractor will prepare and agree the Construction Environmental Management Plan (CEMP) with Camden Council for the construction phase. Contractors would be required to demonstrate that they would work within these provisions. • **Waste management** – The CEMP will include a site waste management plan. It will identify quantities and types of construction and demolition waste, demonstrate how off-site disposal of waste will be minimised and managed, how a better segregation for recovery of construction waste that is hazardous can be achieved and how the amount of waste sent to landfill can be reduced.

Quantity of waste will be reduced by specifying and purchasing only what is needed for the project and ensuring demolition waste is managed in line with the waste hierarchy .

Waste streams will be sorted to maximise recycling and re-use of waste and decrease landfill costs.

- **Noise** – The site is in a sensitive location adjacent to residential accommodation and open spaces. Environmental control would therefore be a priority and would influence demolition methodology. As a result, demolition would be a dismantling process rather than heavy demolition involving heavy percussive machinery. In many cases, the works would not be noisy by their motive; this applies to fit-out and preparatory work.

  The proposals to mitigate the noise/vibration during construction comprise the following:
  - Appropriate 'target criteria' would apply to detailed construction planning (expressed as residential façade noise levels 1 hr LA_{eq}:
    Monday-Friday: 0800 – 1800 : 75 dB(A)
    Saturday: 0800 – 1300 : 75 dB(A))
    Although it is not intended to work outside the core hours, appropriate criteria would be set at 65 dB(A) on evenings and Saturdays, where practical circumstances require it.
  - Vehicles and mechanical plant used for the purpose of the works would be required to be fitted with effective exhaust cylinders and to be maintained in good and efficient working order and operated in such a manner as to minimise sound emissions.

- **Dust and mud** – Provisions for dust and mud control may include the following:.
  - Wheel/body washing facilities to be provided and used as necessary
  - Vehicles carrying waste material off-site to be sheeted, if there is any risk of dust blow.

7.0 CONCLUSION

This report demonstrated that high standards of environmental sustainability will be achieved for the proposed development at NEQ This is demonstrated by the commitment to energy efficiency, water conservation, recycling and cycle storage facilities and design and construction processes that aim to limit environmental pollution.

APPENDIX A – BRITISH LAND'S SUSTAINABILITY OBJECTIVES AND TARGETS

Sustainability Objectives and Targets

General			
Development: / Reference:	**Regents Place North East Quadrant (NEQ) Commercial Office Building**	Reviewer name and date of review: **January 2006**	John Cannon - M&M James Llewellyn - WE Andrew Thrower - WPP Mike Cousins - WPP Fiona Walsh - Environ Ashley Bateson - HL Thomas Lefevre - HL
Type of Initial Sustainability Review (please tick)			Richard Cowan - M3 Consulting
Design	☑		Adam Muggleton - M3 Consulting
Construction	☐		Afo Kuti - M3 Consulting

Specific, Measurable, Affordable, Realistic, Time-related

Sustainability Brief Reference	Sustainability Objective	Sustainability Target	Opportunity / Outcome	Risks / Complexity	Costs	Recommendation	Outcome	Comments
A: Site and Neighbourhood								
A1: Biodiversity	Enhance biodiversity by introducing variety of flora species	Introduce at least five new indigenous species.		No additional risk	No	Adopt		
	Quantity of green spaces improved therefore enhancing habitat for biodiversity	Scheme to significantly improve quantity of green spaces within the public realm		Maintenance of Green spaces		Adopt		
	Access to green spaces improved within the public and private realm	Scheme significantly improves quality of green spaces within the public realm	Enhances lettability of Retail units	Maintenance		Adopt		

Specific, Measurable, Affordable, Realistic, Time-related								
Sustainability Brief Reference	**Sustainability Objective**	**Sustainability Target**	**Opportunity / Outcome**	**Risks / Complexity**	**Costs**	**Recommendation**	**Outcome**	**Comments**
	Nesting boxes	Introduce several nesting boxes for the black redstart in varying locations which will ensure that at least a few are considered desirable by the birds	Low	Low	Yes	Adopt for residential building		
A2: Environmental Conditions	Air Quality: Ensure there are no pollutant concentrations changes as a result of the development	Contractor to prepare and agree the Construction Environmental Management Plan (CEMP) with Camden for the construction phase.	Low	Medium	No	Adopt and develop at detailed design stage		To be developed at pre-construction stage.
	Noise: Ensure the baseline ambient noise levels are not negatively affected by the buildings plus plant noise attenuation measures	Mitigation measures for construction phase and M&E design to be adopted	Develop Neighbourhood plan and discuss noisy works with all stakeholders beforehand	High level of services for certain tenant types may make this hard to achieve		Consider Further		Working hours to meet local authority guidelines during noisy works

Specific, Measurable, Affordable, Realistic, Time-related

Sustainability Brief Reference	Sustainability Objective	Sustainability Target	Opportunity / Outcome	Risks / Complexity	Costs	Recommendation	Outcome	Comments
	Solar and Lighting: Ensure the proposed development has minimal adverse impact on the surrounding buildings and open area in terms of daylight and sunlight.	Massing of scheme altered in line with GI advice on ROL		Orientation of roof and overshadowing by local buildings negates solar collection measures, refer to Sunlight/ Daylight report in ES	No	Consider Further		Rights of Light studies have been conducted
A2: Environmental Conditions - Wind	Environmental Wind: Ensure wind conditions are appropriate for intended use.	Ensure landscape proposals are maintained for wind mitigation.	Improved retail environment	Additional Landscaping and Maintenance	Yes	Adopt		Several wind tunnel tests have been carried out.
A2: Environmental Conditions - EMR. (Electro- Magnetic Radiation)	Ensure development does not increase level of EMR	Test carried out by EMC in 2004 conclude the development will not cause any harmful effects	Low	Low	No	Adopt		
A3: Floodplain	Reduced run-off to sewer	Install holding tank to also be used for rainwater harvesting	Rainwater Harvesting	Finding a tank location	Yes	Consider Further		WPP to consider size of tank
A4: Heritage	Archaeology: The site no longer falls within the Archaeological Priority area. A desk based assessment was undertaken by MoLAS (July 2004)	Ensure MoLAS have opportunity to view site during excavations	Low	Low	No	Consider Further		
	Listed Buildings: There are no listed buildings on or adjacent the site and it does not lie within a conservation area.	None required	-	-	-	-	-	-

Specific, Measurable, Affordable, Realistic, Time-related

Sustainability Brief Reference	Sustainability Objective	Sustainability Target	Opportunity / Outcome	Risks / Complexity	Costs	Recommendation	Outcome	Comments
A5: Land Use	Ensure disposal of contaminated materials	Contaminated materials found on site disposed of in accordance with Duty of Care Regulations.	Low	Low	No	Adopt		No contaminated soil expected on site.
A6: Local Character, Distinctiveness & Pride	Enhance the physical and social context of the area. Maintain the high quality of public realm area as currently exists throughout Regents Place.	Follow the Framework Masterplan for Estate and impact on surrounding area carried out by TFP in 2003	Extension of Triton square to create an environment even more conducive to public events, building on the existing success of the space. Removal of existing car park ramp and re landscaping of Brook street strengthens North South link with Regents Estates.	Medium	Yes	Adopt		In line with TFP Framework Masterplan
	Address Community Needs: Framework Masterplan for Estate and impact on surrounding area carried out by TFP in 2003.	Community needs addressed with the positioning of a further Diorama facility and replacement WEP One Stop Shop on Drummond Street	Consolidation of Community spaces	Medium	Yes	Adopt		In line with TFP Framework Masterplan

Specific, Measurable, Affordable, Realistic, Time-related

Sustainability Brief Reference	Sustainability Objective	Sustainability Target	Opportunity / Outcome	Risks / Complexity	Costs	Recommendation	Outcome	Comments
	Address Scale and Massing Issues	The design team to investigate strategic and local views to assess optimum heights and massing for the development	The design team investigated strategic and local views in order to assess heights and massing of proposals and concluded that the optimum height was around 12-16 storey high for the office block and 26 storey for the residential	Low	Yes	Adopt		In line with TFP Framework Masterplan. The design team investigated strategic and local views in order to assess heights and massing of proposals and concluded that the optimum height was around 12-16 storey high for the office block and 26 storey for the residential
A7: Local Economy	Work with local partners to maximise the positive impacts of the employment at Regent's Place for local residents	- Provide funding for job finder facilitator - Link with King's Cross construction recruitment initiative	Challenge to standard trade procurement. Build on good community relationships	Local skills shortage	Yes	Adopt		To establish what % of total workforce is to be local

Specific, Measurable, Affordable, Realistic, Time-related

Sustainability Brief Reference	Sustainability Objective	Sustainability Target	Opportunity / Outcome	Risks / Complexity	Costs	Recommendation	Outcome	Comments
A8: Regeneration	Regeneration of area: Existing buildings outdated in terms of its appearance, natural lighting and environmental performance. The building provides an idiosyncratic street frontage that is impermeable, undistinguished and detracts from the character of the surrounding area.	Redevelopment of the site offers an opportunity to improve public amenity by creating active frontages to a remodelled Longford square with Triton square enlarged to form a vibrant social space that will be a focal point for a variety of community	Expand high quality public realm beyond site boundary	Medium	Yes	Adopt		
A9: Transport	Mitigate cumulative affect of new developments on transport	Cumulative Impact assessment carried out by Arup Transport. Where possible adopt Regents Place Green Travel to the site.	Enhance opportunity for use of Public Transport	Low	No	Adopt		
	For public transport to be the main mode of travel to/from the site	Encourage all personnel to use public transport and make personnel aware of the public transport facilities, with the promotion of sign posting and restricted carparking.		Low	Yes	Adopt		

Specific, Measurable, Affordable, Realistic, Time-related								
Sustainability Brief Reference	**Sustainability Objective**	**Sustainability Target**	**Opportunity / Outcome**	**Risks / Complexity**	**Costs**	**Recommendation**	**Outcome**	**Comments**
	To exceed adopted UDP cycle parking standards	To provide cycle parking in accordance with the emerging UDP. Total of 190 spaces will be provided for both the B1 and 247 spaces for the residential element. This is above the Adopted UDP standards and is within the emerging UDP standards.	Encourage cycling, enhancing health of tenants/ residents.	Low	Yes	Adopt		
	Pedestrian / Bicycle facilities: Potential to increase on road cycle parking	To find a suitable cycle parking location for visitors to the estate	Encourage healthy life styles	Restricted to the back of the site	Yes	Consider Further		
	Freight traffic: Off road loading of HGVs provided	Existing loading bay at Ground level relocated to Basement as part of Enabling works	Separation of personnel and vehicles reduces accident risk	Medium	Yes	Adopt		
	Communicate specific local travel information	To provide information on-line via 'Vicinitee site' and travel bulletin board in reception	Building relationship with Tenants as individuals	Tenants may not want it?	Yes	Consider Further		
	Introduce more effective traffic calming to Longford	Review with A6	Improved retail environment	Medium	Yes	Adopted		

Specific, Measurable, Affordable, Realistic, Time-related								
Sustainability Brief Reference	**Sustainability Objective**	**Sustainability Target**	**Opportunity / Outcome**	**Risks / Complexity**	**Costs**	**Recommendation**	**Outcome**	**Comments**
	Restrict on site car use	Car parking: 31 Car parking spaces provided for the commercial element and 106 spaces for the residential in line with the current Camden UDP and emerging UDP.	Potential to implement car pool and car sharing scheme for the commercial element	Medium		Adopt		
B: RESOURCE CONSUMPTION								
B1:Energy	Reduce energy consumption using lower energy comfort cooling e.g. chilled beams, mixed mode, etc	Adopt Good Practice, set target CO2 10% < Building Regulations L2A requirement (Commercial) and 10% < L2B requirement (Residential)	Reduced energy bills passed to tenants	Medium	Yes	Adopt		Targets to be confirmed
	Apply Renewables	Supply 10% of Energy requirements via renewable energy source	Reduced energy bills passed to tenants	High	Yes	Consider Further		Await info from HL

Specific, Measurable, Affordable, Realistic, Time-related

Sustainability Brief Reference	Sustainability Objective	Sustainability Target	Opportunity / Outcome	Risks / Complexity	Costs	Recommendation	Outcome	Comments
	Reduce embodied energy	To achieve a reduction in embodied energy of materials by utilising, recycled materials where appropriate, and minimise the quantity of higher engineering performance materials with higher embodied energy is	Demonstrate commitment to green planet living	Medium	Yes	Consider further in detail design		
B2: Materials	Use Sustainable Timber	Specify at least 75% of timber used in building to be FSC (Forest Stewardship Council) certified		Limited choice of procurement	Yes	Adopt		
	Value Engineering	Refine Design and use careful detailing to reduce material	Reduced Construction Cost	Low	No	Adopt		
	Maximise re-use / recycle existing materials	Utilisation of existing basement slab as piling mat	Saving Piling Mat	Medium	No	Adopt		
	Reduce materials use	Adopt modular construction techniques where feasible	Simplifies construction in many cases	Standard practice in many cases	Costs savings possible	Consider Further		
	Consider Zero Global Warming Potential (GWP) and Ozone Depletion Potential (ODP) of materials	Minimise both		Low	Yes	Consider Further		

Specific, Measurable, Affordable, Realistic, Time-related

Sustainability Brief Reference	Sustainability Objective	Sustainability Target	Opportunity / Outcome	Risks / Complexity	Costs	Recommendation	Outcome	Comments
B3: Waste Management	Adopt Recycling strategy and ensure adequate storage space is provided	Ensure adequate refuse storage area is provided for a 3 times / week collection. Ensure recycling area is provided for Cardboard, Paper & Glass.		Low	Yes	Adopt		
B4: Water	Roof Water harvesting	Design roof water collection system for use in irrigation	Reduce Water Bills	Consider energy used in pumping the water back to roof gardens if the collection tank is in basement	Yes	Adopt		Combine the collection tank with attenuation tank
	Monitoring water consumption for future targeting reductions	To commence from occupation	Further saving on water bills	Low	Yes	Adopt		
C: ENVIRONMENTAL QUALITY								
C1: Emission to Air	Consider low N0x boilers	To minimise emissions of Nox		Low	Yes	Adopt		
	Location of flues and air exhaust termination points	Mitigate exhaust air re-circulation into the buildings	High quality living/ working environment. Reduce sick building syndrome	Medium	No	Consider Further		
C2: Landscape	Quantity and quality of green spaces improved therefore enhancing habitat for biodiversity and improving local amenity	Scheme significantly improves quantity of green spaces within the public realm	Improved working environment	Medium	Yes	Adopt		

Specific, Measurable, Affordable, Realistic, Time-related

Sustainability Brief Reference	Sustainability Objective	Sustainability Target	Opportunity / Outcome	Risks / Complexity	Costs	Recommendation	Outcome	Comments
C3: Noise and Vibration	EMR emissions. Control noise + vibration emissions during construction and in final form	Apply CEMP Design to MR37 in office spaces	High quality office space	Medium	Yes	Adopt		
C4: Nuisance	Ensure there is no disturbance to the existing tenants on the estate	Provide proper segregation of construction site from the existing estate, including canteen facilities and access / egress routes			Yes	Adopt		
C5: Water	Consider Green Roof irrigation. Protect water Courses and prevent potholes	Install green roof to both residential and commercial elements	Improve biodiversity	Maintenance issues	Yes	Consider Further		4th floor terrace on commercial scheme to have areas of green roof
	Waste Water recycling	Assess methods of treatment of waste water prior to discharge. Rain water holding tanks as B4	Reduced water bills	Medium	Yes	Adopt		Attenuation tank in basement (WPP to provide the size of tank)
	Vehicle wheel washing facilities	At each site exit, wheel washing facilities will be put in place for the entirety of the construction phase		Medium	Yes	Adopt		
C6: Biodiversity	See A1							
C7: Heritage	See A4							
C8: Land	See A5							

Specific, Measurable, Affordable, Realistic, Time-related								
Sustainability Brief Reference	**Sustainability Objective**	**Sustainability Target**	**Opportunity / Outcome**	**Risks / Complexity**	**Costs**	**Recommendation**	**Outcome**	**Comments**
C9: Lighting	Non-intrusive external lighting	Consider the layout of site lighting during construction and final building external lighting scheme so that it does not intrude or interfere with the surrounding area residents and occupiers	Ensures a clean environment in and around the estate	Low	Yes	Adopt		
C10: Pest Control	Ensure pest Control measures are undertaken	Pest control measures to be undertaken during construction and continued afterwards as necessary				Adopt		Contractor to discuss with Broadgate Estates for current arrangements
D: USER AND OCCUPANT SATISFACTION								
D1: Access	Buildings to be DDA compliant	Specialist access consultant report compiled as part of planning application	Improves Job opportunities for Disabled	Medium	Yes	Adopt		Buildings to comply with Part M of building regs
D2: Amenities	Physical and Social context: Framework Masterplan for Estate and impact on surrounding area carried out by TFP in 2003.	Community needs addressed with the positioning of a further Diorama facility and replacement WEP One Stop Shop on Drummond Street. Ground floor restaurant provided to Triton Square.	Maintain close links with local community	Medium	Yes	Adopt		

Specific, Measurable, Affordable, Realistic, Time-related

Sustainability Brief Reference	Sustainability Objective	Sustainability Target	Opportunity / Outcome	Risks / Complexity	Costs	Recommendation	Outcome	Comments
	- Work in partnership with local community to identify requirements	maintain contact with WEP		Low	No	Adopt		Ground floor retail area in commercial building agreed with Diorama
D3: Comfort, Health & Well Being	Thermal comfort of selected internal environmental solution (chilled beams better than FCU's)							
	Fresh air provision	Exceed CIBSE and BCO recommended levels		Low	Yes	Adopt		
	Controls	Individual controls for each HVAC system terminal unit. Central building management system. Central lighting control system including occupancy detection, automatic daylight recognition and associated dimming capability to reduce energy consumption.		Medium	Yes	Adopt		

Specific, Measurable, Affordable, Realistic, Time-related								
Sustainability Brief Reference	**Sustainability Objective**	**Sustainability Target**	**Opportunity / Outcome**	**Risks / Complexity**	**Costs**	**Recommendation**	**Outcome**	**Comments**
	Air filtration	All fresh air supplied into the building to be filtered to BS EN 779 recommendations. All fresh air to be drawn from intakes that avoid introducing any significant levels of pollutants into the building.		Medium	Yes	Adopt		
	Construction workers health welfare issues	Exceed best practice on site for health & safety initiatives.	Reduced casualties	Medium	Yes	Adopt		Targets to be confirmed
	Lighting in offices to LG7	Comply with LG7 for office area lighting.		Low	Yes	Adopt		
	Maximise daylighting	Achieve an average daylight factor of at least 2% and preferably 5% in all office areas.		Some office areas will be challenging	No	Adopt		
	Views out of building	All potential office desk locations to have a view out of the building.		Some desk locations will be challenging	No	Adopt		

Specific, Measurable, Affordable, Realistic, Time-related

Sustainability Brief Reference	Sustainability Objective	Sustainability Target	Opportunity / Outcome	Risks / Complexity	Costs	Recommendation	Outcome	Comments
D4: Connectivity	Enhance pedestrian connectivity through design	As outlined in the masterplan the development is a key part of the strategic regeneration for the Estate and enhances the connectivity North-South and East-West. Extend Estate signage system to NEQ Area	Improve footfall to retail, enliven spaces	Security control out of hours	No	Adopt		
D5: Crime and Security	Ensure security issues are considered in design	Involve 'Secure by Design' in design process, Integrate with Regent's Park Estate initiatives.	Medium	Medium	No	Adopt		Wilkinson Eyre to contact the person in Met police for a review.
D6: Employment Issues	Consider local employment during construction	Recruit at least 10% of construction workers from borough of Camden.	Limited procurement options - Consider advertising employment opportunities in Bengali language (concentration of Bangladeshi community in the vicinity)	Limited skill base	Yes	Consider Further		To be discussed with the CM or Main Contractor
D7: Equal Opportunities and Diversity	Carry out proper stakeholder consultation	Consultation on proposals in Bengali. Involve local youth groups	Strengthen community links - concentration of Bangladeshi community in the vicinity	Low	Yes	Adopt		

Specific, Measurable, Affordable, Realistic, Time-related

Sustainability Brief Reference	Sustainability Objective	Sustainability Target	Opportunity / Outcome	Risks / Complexity	Costs	Recommendation	Outcome	Comments
D8: Health & Safety	Consider reward scheme to reduce accidents on site	Monitoring systems for accidents. Consider displaying man hour (worked without accident) clock on site hoarding	Agree site operative reward scheme	Medium	Yes	Adopt		- To be discussed with the CM or Main Contractor
D9: Human Rights and Ethics	Maintain community Arts Centre	Involve disadvantaged & disabled in Arts	Medium	Medium	Yes			Consider Further
D10: Public Realm	Remove public and servicing interface at grade level	All servicing to be transferred to basement level	Improve External public realm increased pedestrian safety	Medium	Yes	Adopt		
	Extend high quality public realm fabric outside the site	Implement Longford Square project		Pedestrian Safety	Yes	Consider Further		
D11: Training and Education	External Learning: Support external learning and development initiatives	Inclusion of OSS to Drummond street and potential sharing with ITEC.		Medium	Yes	Adopt		
E: STAKEHOLDER RELATIONS AND DIALOGUE								
E1: All Stakeholders	Keep all stakeholders updated on project progress	Project updates + live webcam facility to be provided on 'Vicinitee' (Broadgate Estates online portal for tenants) and British Land website	Improve Neighbour relations	Medium	Yes	Adopt		
E2: Agencies and Organisations	Consultation	Maintain close consultations & involvement with West Euston Partnership + local		Low	No	Adopt		

Specific, Measurable, Affordable, Realistic, Time-related								
Sustainability Brief Reference	**Sustainability Objective**	**Sustainability Target**	**Opportunity / Outcome**	**Risks / Complexity**	**Costs**	**Recommendation**	**Outcome**	**Comments**
E3: Community	Project progress update	Continued communication through the WEP		Low	No	Adopt		
E4: Employees	Keep all employees updated on project progress	- Use Vicinitee website for effective communication - Time lapse set-up		Low	No	Consider Further		
E5: User and Occupants	User Questionnaire	Bi- annual survey of needs	Better understanding of needs	Low	Yes	Consider Further		

APPENDIX B – BREEAM AND ECO-HOMES PRE-ASSESSMENTS

BREEAM for Offices 2005: Summary of Pre-Assessment Estimator

REGENT'S PLACE, NORTH EAST QUARTER - BUILDING W

BREEAM for Offices 2005: Summary of Pre-Assessment Estimator

REGENT'S PLACE, NORTH EAST QUARTER - BUILDING W

Client:

M3 Consulting

Author:

Name **Kate Bellew BSc MSc**

Signature

Position Consultant and Registered BREEAM Assessor

Checked by:

Name **Pallab Chatterjee BSc (Hons) MSc**

Signature

Position Senior Consultant and Registered BREEAM Assessor

Approved by:

Name **Elin Thomas BSc (Hons) MSc**

Signature

Position Divisional Director

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Summary Of BREEAM For Offices Pre-Assessment Estimator For Building W EN5031

Executive Summary

Waterman Environmental was commissioned by M3 Consulting, on behalf of British Land, to undertake a BREEAM Office 2005 Design and Procurement (D&P) Pre-Assessment Estimator for an 8 to 16 storey office building known as Building W, within the wider development Regent's Place, North East Quarter, London.

BREEAM is a voluntary, standard environmental assessment method by which the environmental impact of a building is assessed against a range of issues, and credits are awarded where the building achieves a benchmark performance. A building is awarded a BREEAM rating based on its overall performance expressed as 'Pass', 'Good', 'Very Good' or 'Excellent' depending on the total score achieved.

This report summarises the results of a BREEAM Office Pre-Assessment completed for the current scheme design, in order to provide a quick evaluation of the likely BREEAM rating to be achieved under a formal assessment.

The potential credits being awarded for each category based on the commitments made at the Pre-Assessment meeting held on 29 January 2007 are summarised below;

- Management – 90% of the credits achieved
- Health and Well Being – 66.7% of the credits achieved
- Energy – 64.7% of the credits achieved
- Transport – 92.9% of the credits achieved
- Water – 66.7% of the credits achieved
- Materials – 41.7% of the credits achieved
- Land Use and Ecology – 54.5% of the credits achieved
- Pollution - 58.3% of the credits achieved

Based on the information provided by the design team, the commitments made by them and a number of assumptions, the development known as Building W has a predicted BREEAM score of 67.29% and a rating of **'Very Good'**. Areas that are performing poorer than others are Materials; Land Use and Ecology; and Pollution. Improvement in these areas and others could ensure a rating of 'Excellent' is achieved.

1. Assessment Information

Nature of Assessment	BREEAM Office 2005 Design and Procurement Pre-Assessment Estimator
Name of Building	Building W, Regent's Place North East Quarter
Address of Building	Regent's Place North East Quarter, London
Client	M3 Consulting
Developer	British Land
Project Manager Contact	Richard Cowan
Project Manager Address	M3 Consulting, 7 Tokenhouse Yard, London EC2R 7AS
Architect's Contact	James Llewellyn of Wilkinson Eyre Architects
Architect's Address	24 Britton Street, London, EC1M 5UA
Building Services Engineer's Contact	Andrew Thrower of Watkins Payne Partnership
Contact Address	56 Grosvenor Street, London, W1K 3HZ ND
Occupancy	The offices are a speculative development and at this stage the type and occupants are unknown.
Details of the Development	The BREEAM assessment relates to the provision of an office building referred to as Building W which comprises three linked blocks of 10, 16 and 8 storeys in height. The building forms part of the wider mixed-use redevelopment referred to as Regent's Place, North East Quarter.

2. Introduction

A design team including Wilkinson Eyre Architects, and Watkins Payne Partnership as the Building Services Engineers, was commissioned by M3 Consulting, to prepare proposals for Building W. The new office building forms part of the wider mixed-use redevelopment referred to as Regent's Place, North East Quarter. .

The development is located off Euston Road in the London Borough of Camden. Building W comprises three linked blocks of 10, 16 and 8 storeys in height and will provide retail at ground floor with office accommodation above.

M3 Consulting, the project managers, , has instructed Waterman Environmental to complete a BREEAM Office 2005 Design and Procurement (D&P) Pre-Assessment Estimator for Building W. This report summarises the results of the Pre-Assessment Estimator, sets out the commitments and assumptions made by the design team during the exercise and highlights areas where the potential exists for additional points to be achieved. The Pre-Assessment Estimator meeting was held on 29 January with the following members of the design team present:

- Richard Cowan – M3 Consulting;
- Andrew Thrower - Watkins Payne Partnership (WPP);
- Guy Morgan - Munkenbeck and Marshall Architects (M and M); and
- Jane Llewellyn – Wilkinson Eye Architects

3. Methodology

The Building Research Establishment (BRE) has developed a voluntary, standard environmental assessment method (known as BREEAM), by which the environmental impact of a building is assessed against a range of issues, and credits are awarded where the building achieves a benchmark performance. BREEAM seeks to bring about reductions in the environmental impact of buildings through recognition of the business benefits, which can be achieved.

The method addresses impacts of a building on the global, local and indoor environments across a range of issues, grouped under the headings of:

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

A building is given a score to indicate its overall environmental performance. This is referred to as the 'BREEAM' rating which is expressed as 'Pass', 'Good', 'Very Good' and 'Excellent' depending on the total score awarded. A minimum score is required to achieve a 'Pass' rating, below which a BREEAM rating is not awarded.

A Pre-Assessment Estimator provides a quick evaluation of the BREEAM rating likely to be achieved under a formal assessment. The results can be used to feed into the design process in order to maximise the score achieved; and its completion is a means of monitoring the sustainability performance of the development against this established, independent benchmark. It should be noted that, as the Pre-Assessment Estimator is a simplified version of the full method, it only provides an estimate of the BREEAM rating. As a consequence, the final rating may vary following a formal assessment by a licensed BREEAM assessor.

4. Report Structure

The following section, Section 5, summarises the findings of the assessment in a table format and highlights the scores and the percentage achieved for each criteria. Section 6 provides a summary table of each of the issues assessed by the BREEAM method. The third column of the table in Section 6 denotes the number of credits available for each issue and the fourth column provides the percentage value for each credit. This allows the design team to calculate the score should they choose to alter the design and focus on other credits. The fifth column denotes the number of credits that are likely to be achieved in the full assessment. These credits have been awarded based on the commitments made by the design team during the pre-assessment meeting held on 29 January 2007. A brief description of the credit requirements is provided in the fifth column, followed by the 'design commitments and action' column which highlights actions for the design team in order to ensure that the points are achieved in the formal BREEAM Assessment. The seventh column identifies where there is the potential for additional credits and the final column provides information regarding the additional requirements for these credits to be awarded.

Section 7 of this report describes the performance of the building. This summarises how the scheme is expected to perform under the eight topic headings provided by BREEAM.

The probable BREEAM rating is provided in Section 7.2, with overall conclusions presented in Section 8.

5. Summary Table

This summary table, based on the assessment in Section 6, provides the score for each criteria and the percentage of the credit that is assumed will be achieved once the required information is provided.

Overall Credit Allocation	Environmental Weighting	Credits Available	Credits Assumed	% of the Credit Assumed	Credits Score
Management	0.15	10	9	90	13.5%
Health and Wellbeing	0.15	15	10	66.67	10.0%
Energy		17	11	64.71	
Transport		14	13	92.86	
Sub Total	0.25	31	24	77.42	19.35%
Water	0.05	6	4	66.67	3.33%
Materials	0.10	12	5	41.67	4.17%
Land Use and Ecology	0.15	11	6	54.55	8.18%
Pollution	0.15	12	7	58.33	8.75%
TOTAL					**67.29%**

6. Summary of BREEAM for Offices 2005 Pre-Assessment Estimator

Credit Ref. No.	Description of Credit	Credits Available	% Value	Probable Credits	Summary of Credit Requirements	Design Commitments	Potential Additional Credits	Additional Requirements
Man 1-2	Commissioning Monitor	1	1.5	1	Where evidence can be provided to demonstrate that a design team member(s) is appointed to monitor commissioning on behalf of the client, and that where there are complex systems a commissioning agent or manager is appointed.	Andrew Thrower of Watkins Payne Partnership stated during the pre-assessment meeting on the 29th January that Watkins Payne Partnership will be carrying out commissioning. Provide appointment document or specification to confirm Watkins Payne Partnership's responsibility for commissioning. It must list all relevant systems for which commissioning is required. Commissioning requirements must be passed on to all contractors. Where there are complex systems, a specialist commissioning agent or manager must be appointed.	0	N/A
Man 1-4	Commissioning Clauses	1	1.5	1	Where pre-commissioning, commissioning and quality monitoring are passed on to the appropriate contractors and all trades on site in accordance with BSRIA/CIBSE guidelines.	Watkins Payne Partnership to ensure the requirements for commissioning are passed on to all contractors. Details of commissioning responsibilities must be included in the specifications.	0	
Man 1-5	Building User Guide	1	1.5	1	Provision of a simple Building Users Guide as a separate section or document to the O&M manual.	Watkins Payne Partnership stated they would support the contractor in preparing a Building Users Guide in line with BRE requirements, see Appendix A. The developer will also require the contractor to prepare a Building User Guide.	0	N/A
Man 1-6	Construction Site Impacts	3	4.5	2	Commitment to ensure that contractors take steps to minimise construction impacts. Credits awarded where six of the following are achieved: 1. Set targets, monitor and report on: energy consumption or CO_2 arising from site activities 2. Monitor and report on transport to and from the site. 3. Construction waste monitored 4. Construction waste sorted & recycled 5. Establish best practice for minimising	Richard Cowan of M3 Consulting stated that the contractor will be required to comply with at least 6 of the 7 construction impacts. Appointment document or relevant specification clauses must require contractors to put relevant systems or procedures in place. Refer to Appendix B for detailed requirements of construction procedures required. The contractor will be required to provide evidence of registration with the Considerate Constructor Scheme as indicated in Appendix B.	0	

Credit Ref. No.	Description of Credit	Credits Available	% Value	Probable Credits	Summary of Credit Requirements	Design Commitments	Potential Additional Credits	Additional Requirements
					pollution to air from site operations in line with Environment Agency and BRE guidelines (Refs. 1 - 4). 6.Establish best practice for minimising pollution to ground & watercourses/ municipal systems in line with Environment Agency guidelines (Refs. 2 - 5) 7.Set targets, monitor and report on water consumption arising from site activities			
	Considerate Constructors Scheme	1	1.5	1	Commitment to comply with the Considerate Constructors Scheme and achieve best practice standards.	Commitment to register with the Considerate Constructor Scheme and achieve a 'total of at least 32 points, with over 3 points scored under each category.	0	N/A
	Sourcing of temporary timber	1	1.5	1	Sourcing of temporary timber from sustainably managed sources.	Commitment for all site timber to be sourced from FSC or alternative sustainable sources. This must be included in the relevant specification clause.	0	N/A
Man 1-7	Seasonal Commissioning	1	1.5	1	Seasonal commissioning to be carried out during the first year of occupation.	Andrew Thrower of Watkins Payne Partnership stated that seasonal commissioning will be undertaken. These requirements will include testing all building services under full and part load conditions and during periods of extreme (high or low) occupancy. Interviews with building occupants must be undertaken to identify problems and re-commissioning of systems must take place where necessary	0	N/A
Sub-total:		10	13.5	9			0	
Hea 0-1	Cooling Towers and Evaporative Condensers	1	1	1	Systems to be designed to CIBSE TM13 and HSE Approved Code of Practice (ACoP) and Guidance L8 (Ref. 9 and 10)	Watkins Payne Partnership confirmed that systems will be compliant with CIBSE TM13 and HSE Approved Code of Practice Guidance which will be included in the relevant specification clause.	0	N/A
Hea 0-2	Water systems – Legionellosis	1	1	1	Water systems are designed in compliance with HSE ACoP and CIBSE TM13.	Watkins Payne Partnership confirmed that systems will be compliant with CIBSE TM13 and HSE Approved Code of Practice Guidance which will be included in the relevant specification clause.	0	N/A
Hea 0-3	Potential for Natural Ventilation	1	1	0	Where external façade windows to all occupied areas are openable.	Credit not sought after.	0	N/A
Hea 0-4	Failsafe Humidification	1	1	1	Where steam humidification is installed or where no humidification is present.	Watkins Payne Partnership confirmed that no steam humidification is present. Written statement should be provided as confirmation.	0	N/A

Credit Ref. No.	Description of Credit	Credits Available	% Value	Probable Credits	Summary of Credit Requirements	Design Commitments	Potential Additional Credits	Additional Requirements
Hea 0-5	Internal Air Pollution	1	1	0	Where air intakes/outlets avoid major sources of external pollution and recirculation of exhaust air (i.e. air intakes/outlets over 10m apart and air intakes over 20m from sources such as roads and car parks).	The criteria for air intakes and outtakes are not achievable on this site. Credit not sought after.	0	N/A
Hea 0-6	Ventilation Rates	1	1	1	Fresh air is provided at a rate of 12l/s/person.	Watkins Payne Partnership confirmed that fresh air will be provided at a rate of 12l/s/person. This will also be required to be stated in Specifications.	0	N/A
Hea 0-7	Daylighting and View Out	1	1	0	Where at least 80% of net lettable office floor area is adequately lit. Where there is an average daylight factor of at least 2% AND uniformity ratio of at least 0.4, or a view of sky from desk height is achieved AND The room depth criterion $d/w + d/W_{in} < 2(1 - R_{fb})$ is satisfied. Second credit available where occupants have a 'view out' i.e. workstations are within 7m of a window.	Wilkinson Eyre Architects confirmed that the daylighting criteria are unlikely to be met. Due to the depth of the floor plan which is over 14m in width, the credit for view out is also unachievable.	0	N/A
Hea 0-8	Daylight Glare Control	1	1	0	Occupant controlled system of glare control (e.g. internal or external blinds) is fitted.	The scheme incorporates fixed louvers therefore no blinds will be provided.	0	N/A
Hea 0-9	High frequency lighting	1	1	1	Lighting for all occupied areas must have high frequency ballasts.	Watkins Payne Partnership confirmed that high frequency ballasts will be installed and this requirement will be included in the relevant lighting specification or indicated on a plan.	0	N/A
Hea 0-10	Electric Lighting Guide	1	1	1	Lighting design is compliant with the addendum to CIBSE Lighting Guide 3, 2001 (Ref.7) and has been designed to avoid glare and distracting screen reflections from electric lighting.	Watkins Payne Partnership confirmed that Lighting Guide 7 requirements will be met. Details to be included in the relevant lighting specification or indicated on a plan.	0	N/A
Hea 0-11	Lighting Zones	1	1	1	For offices, separate zones should be provided for: • For office and circulation spaces:	Andrew Thrower of Watkins Payne Partnership has stated that lighting will be zoned to 40m^2 and controls will be provided for the separate zones. The information required must be included in design	0	N/A

Credit Ref. No.	Description of Credit	Credits Available	% Value	Probable Credits	Summary of Credit Requirements	Design Commitments	Potential Additional Credits	Additional Requirements
					• For four or less workspaces in office areas (approx 40m²); and • Separately for workstations adjacent to windows/atria and other areas.	drawings and specifications. These should include confirmation of the control systems specified, details of installations and its zoning.		
Hea 0-12	Thermal Zoning	1	1	1	Local control for temperature in all separate rooms/areas to reflect differing load requirements including separate control of each perimeter area (i.e. within 7m of each external wall) and the central zone (i.e. over 7m from the external wall). Where long-lag systems are specified these are designed to service the base load only and responsive secondary heating is provided which is zoned as above.	Watkins Payne Partnership confirmed appropriate thermal zoning would be used. Details of the zoning would need to be included in the relevant specification and forwarded to the BREEAM assessor.	0	N/A
Hea 1-2	Thermal Comfort Modelling	1	1	1	Assessments of thermal comfort levels to be made at the design stage and results used to evaluate servicing options and thermal comfort levels. Thermal comfort levels should meet the requirements set out in CIBSE Guide A (Ref. 6).	Watkins Payne Partnership confirmed that thermal comfort studies will be provided at a later stage in the design process. Watkins Payne Partnership to provide details of the calculations undertaken.	0	N/A
Hea 1-3	Acoustic Performance – Internal Noise Levels	1	1	1	Ambient internal noise levels to achieve the following: • 35-40dB LaeqT in small offices, • 40-45dB LaeqT in medium offices, • 45-50 dB LaeqT in large offices;	The design team agreed that the requirements for a large office should be achievable. To achieve these points the appointment of acoustician is required and provision of calculations showing compliance with criteria.	0	N/A
Sub-total:		15	10	10			0	
Ene 0-2	Energy Sub-metering	1	0.81	1	Where direct sub metering is provided for substantive energy uses within the building covering lighting, small power and computer rooms. Catering facilities and any other major energy consuming plant must also be sub-metered if present.	Watkins Payne Partnership stated that sub-meters will be provided. To achieve this credit, plans must be provided to show the location and function of all relevant sub-meters which should also be referred to in the specifications.	0	N/A
Ene 0-3	Tenancy Sub-Metering	1	0.81	1	Where electrical sub metering of tenancy areas is installed in multi-occupant buildings or submetering by floor plate / department is installed in single occupancy buildings.	Watkins Payne Partnership confirmed that sub metering would be provided. Details to be included in the relevant specification clause and included on the plans.	0	N/A

Credit Ref. No.	Description of Credit	Credits Available	% Value	Probable Credits	Summary of Credit Requirements	Design Commitments	Potential Additional Credits	Additional Requirements
Ene 0-4	Fabric and Form	5	0.81 each	2	Credits awarded based on the predicted fabric loses minus gains (kWh/m²) based on the results of BRE's fabric and form calculator.	At this stage, an assumption has been made that 2 credits will be achieved.	0	N/A
Ene 1-1	CO_2 emissions	10	0.81 each	7	Credits awarded based on the predicted net CO_2 emissions ($kgCO_2/m^2/year$).	Andrew Thrower of Watkins Payne Partnership stated that the building will achieve a 15% improvement on the new Building Regulations 2006 part L2A. Andrew Thrower stated that this is approximately equivalent to less than 35 CO_2/m_2/year. 7 credits assumed. Watkins Payne Partnership to provide calculations to confirm.	0	N/A
Sub-total:		17	8.91	11			0	
Tra 0-1	Transport CO_2	10	8.1	10	Total Net CO_2 emissions arising from transport to and from the building.	Total Net CO_2 emissions arising from transport will be predicted using the BREEAM calculator. The estimated number of building users is expected to be approximately 2,600. Only 31 car parking spaces will be provided therefore this achieves 10 credits according to the transport calculator.	0	N/A
Tra 0-2	Cyclist Facilities	1	0.81	0	Provision of covered, secure and well lit cycle racks based on the following scale: • Where there is provision of cycling facilities for 10% of staff (≤500 staff); • Where there is provision of cycling facilities for 7% of staff (501 - 1000 staff); and • Where there is provision of cycling facilities for 5% of staff (>1000 staff) Storage facilities must be secure and covered. Showers must also be provided for staff use (1 shower for every 10 cycle racks).	Although provision is made for 184 cycle spaces not enough showers will be provided. To meet BREEAM requirements 18 showers will be required.	0	N/A
		1	0.81	1	At least one of the following must be achieved: • Compliant changing facilities with lockers in or adjacent to the changing rooms – at least 400mm high by 200m wide and 400mm deep, provision to be	Wilkinson Eyre Architects confirmed that adequate drying space will be provided. This must be shown on the plans.	0	N/A

Credit Ref. No.	Description of Credit	Credits Available	% Value	Probable Credits	Summary of Credit Requirements	Design Commitments	Potential Additional Credits	Additional Requirements
					at least equal with the number o cycle spaces; OR - Compliant drying space for wet clothes for staff use. -			
Tra 9-3	Commuting Public Transport	1	0.81	1	Where good access is available to pubic transport networks i.e. within 500m with at least a 15 minute service frequency to and from a local urban centre.	The site is close to tube stations and bus routes. Details of public transport provision including the location of transport nodes, distance from the entrance, frequency of service, to be provided to BREEAM assessor.	0	N/A
Tra 9-4	Public Transport Business Use	1	0.81	1	Where good access is available to pubic transport networks i.e. within 500m with at least a 30 minute service frequency to and from a major transport node.	The site is close to tube stations and bus routes. Details of public transport provision including the location of transport nodes, distance from the entrance, frequency of service, to be provided to BREEAM assessor.	0	N/A
Sub-total:		**14**	**10.53**	**13**			**0**	
Wat 9-1	Water Consumption	3	0.83 each	2	Specification of water efficient sanitary fittings including dual or low flush toilets, a shower with a flow rate of below 12 litres per minute, spray or flow regulator taps. Additional points are available where greywater or rainwater harvesting systems are installed.	Design team has stated that water efficient fittings will be installed. These include aerating taps, dual flush toilets and showers with a flow rate of between 9 and 15 litres/minute. Greywater systems will not be provided.	0	N/A
Wat 9-2	Water Meter	1	0.83	1	A water meter with pulsed output to be installed on all mains supplies to each building.	Watkins Payne Partnership confirmed that a water meter with pulsated output to enable future connection to a Building Management System (BMS) will be specified on the mains water supply to the building. Details to be included in the relevant specification.	0	N/A
Wat 9-3	Major Leak Detection	1	0.83	0	Installation of a mains leak detection system which is capable of identifying major leaks within the building and between the building and the site boundary.	Watkins Payne Partnership confirmed that a leak detection system will not be installed.	1	Additional credit could be achieved here if an appropriate leak detection is installed.
Wat 9-4	Sanitary Supply Shut off	1	0.83	1	Provision of a proximity detection shut off to the water supply for all WCs and urinals.	Watkins Payne Partnership confirmed that proximity detection shut off will be installed. This should be included in the plans and specifications.	0	N/A

Credit Ref. No.	Description of Credit	Credits Available	% Value	Probable Credits	Summary of Credit Requirements	Design Commitments	Potential Additional Credits	Additional Requirements
Sub-total:		**6**	**3.33**	**4**			**1**	
Mat 9-1	Asbestos	1	0.83	1	Where asbestos is excluded form any new works.	No asbestos will be included in the works. A specific clause excluding the use of asbestos particularly for the lift brakes (where its use is still legal) must be included in the specifications.	0	N/A
Mat 9-2	Recyclable waste storage	1	0.83	1	Provision of a central, dedicated space for the storage of recyclable waste materials. Space provided must be at least 2m^2 per 1000m^2 of net floor area, up to a maximum of 10m^2).	Watkins Payne Partnership confirmed that recycled storage facilities will be incorporated in the basement area. The allocated space must be at least 10m^2 (nett floor area of approximately 31,672m^2) and should be clearly identified on the plans.	0	N/A
Mat 1-1	Reuse of Façade	1	0.83	0	Re-use of at least 50% of the existing façade where at least 80% of the reused façade comprises in-situ re-used material.	New build, therefore this cannot be achieved.	0	N/A
Mat 1-2	Reuse of Structure	1	0.83	0	Retention of at least 80% of the existing structure.	New build, therefore this cannot be achieved.	0	N/A
Mat 1-3	Materials Specification:	1	0.83	0	External wall specifications to achieve 'A' rating in the Green Guide to Specification.	Wilkinson Eyre Architects confirmed that 'A' rating will be difficult to achieve for external wall elements.	0	N/A
		1	0.83	0	Window specifications to achieve an 'A' rating.	As above, this credit unlikely to be achieved.	0	N/A
		1	0.83	0	Roof specifications achieve an 'A' rating.	As above, this credit unlikely to be achieved.	0	N/A
		1	0.83	0	Upper floor slab specifications to achieve an 'A' rating.	As above, this credit unlikely to be achieved.	0	N/A
Mat 1-6	Recycled Aggregates	1	0.83	0	Where the amount of recycled aggregate specified is over 25% (by weight) of the total 'high-grade' aggregate uses (structural frame; floor slabs; roads etc). Recycled aggregates can either be: • Obtained on site; • Obtained from within 30km radius; • Obtained from a recycled source.	Recycled aggregate is not being used therefore credit withheld.	0	N/A
Mat 1-7	Sustainable timber	2	0.83 each	2	Commitment to sourcing timber and composite timber products used in structural and non-structural elements are either from sustainable sources or where reused or recycled timber is specified.	Richard Cowan of M3 Consulting has stated that the design team will be required to use 100% FSC timber as part of the developers requirements. Provide a copy of the specifications for confirmation.	0	
Mat 1-8	Floor Finishes	1	0.83	1	Where carpets/floor finishes will be installed in a show area of speculative offices, carpets/floor finishes are specified	No carpets or floor finishes will be installed. Provide written statement to confirm.	0	N/A

Credit Ref. No.	Description of Credit	Credits Available	% Value	Probable Credits	Summary of Credit Requirements	Design Commitments	Potential Additional Credits	Additional Requirements
					by the new tenants.			
Sub-total:		12	4.17	5			0	
Lan 1-1	Re use of Land	1	1.36	1	Where the site has previously been developed or used for industrial purposes in the last 50 years.	The existing site consists of 100% buildings and hard standing. A plan must be provided to confirm the existing uses on site.	0	N/A
Lan 1-2	Contaminated Land	1	1.36	0	Where adequate steps have been taken to remediate contaminated land.	No remediation of the site is required therefore credit withheld.	0	N/A
Eco 1-1	Ecological Value	1	1.36	0	Development of a site that has low ecological value and protection of all existing features of value.	The Site includes some existing trees which will be removed as part of the development therefore credit withheld.	0	N/A
Eco 1-2	Change in Ecological Value	5	1.36 each	3	Where the ecological value of a development site is either not substantially harmed or is enhanced beyond its previously existing state.	The site is 100% hard standing with the exception of some trees. The overall ecological value is not likely to change therefore 3 credits awarded. Wilkinson Eyre Architects to provide plans showing the area of existing hardstanding, new building footprint and landscaping to be provided. Richard Cowan of M3 Consulting has stated that EDCO Design London Ltd has been consulted to enhance the biodiversity of the site by at least 3 species.	1	Potential for an additional credit if ecologist advice is sought to improve the ecological value of the site and recommendation s for a positive change of at least 6 species. A report would be required to confirm any enhancement.
Eco 1-3	Ecological Enhancement	1	1.36	1	Where advice has been sought and acted on from a suitably qualified ecological consultant [accredited in accordance with BRE requirements i.e. full member of the Institute of Environmental Management and Assessment (IEMA), the Institute of Ecology and Environmental Management (IEEM).	An ecologist advice has been sought. To achieve this credit, a report must be provided to confirm that the ecologists recommendations for enhancement have been taken on board in the design.	0	N/A
Eco 1-4	Protection of Ecological Features	1	1.36	0	Protection of any important ecological features.	Credit withheld due to the removal of trees.	0	
Eco 1-5	Long Term Impact on Biodiversity	1	1.36	1	Where appropriate steps have been taken to minimise the long term impact of the development on biodiversity.	A commitment has been made to take steps to minimise the long term impact of the development. Advice from an appropriately qualified ecologist is required to achieve the detailed requirements outlined in Appendix C.	0	N/A

Credit Ref. No.	Description of Credit	Credits Available	% Value	Probable Credits	Summary of Credit Requirements	Design Commitments	Potential Additional Credits	Additional Requirements
Sub-total:		11	8.19	6			1	
Pol 0-2	Refrigerant Leak Detection.	1	1.25	1	A refrigerant leak detection system to be specified covering all high risk parts of the plant or no refrigerants specified. Systems should be contained in a moderately air tight enclosure or a mechanically ventilated room. There is also a requirement for automatic refrigerant pump down to be made to a heat exchanger with isolation tanks.	Watkins Payne Partnership confirmed that a refrigerant leak detection system will be installed covering high-risk parts of the plant. This would need to be included in the relevant specification clauses and drawings.	0	N/A
Pol 0-3	Refrigerant Recovery	1	1.25	1	Provision of an automatic refrigerant pump down to the heat exchanger (or dedicated storage tanks) with isolation valves, or no refrigerants are specified.	Watkins Payne Partnership confirmed that provision will be made for appropriate refrigerant recovery. Details must be included in the specifications and drawings.	0	N/A
Pol 0-4	NOx emissions of heating source.	4	1.25 each	2	Specification of low NOx boilers: 1 credit where emissions are ≤140 mg/kWh delivered heating energy; 2 credits where emissions are ≤ 89 mg/kWh delivered heating energy; 3 credits where emissions are ≤ 59 mg/kWh delivered heating energy; and 4 credits where emissions are ≤ 39 mg/kWh delivered heating energy.*	Watkins Payne Partnership confirmed that the high efficiency boilers will have emissions of less than 89 mg/kWh delivered heating energy.	1	Potential for an additional credit if NO_x levels are below 59mg/kWh delivered heating energy.
Pol 0-5	Water run-off	1	1.25	1	Where rainwater holding facilities and/or sustainable drainage techniques are used to provide attenuation of water runoff by 50% at peak times to either natural watercourse and/or municipal drainage systems.	Storage tanks located in the basement will provide between 60 and 65% attenuation of rainwater. Plans to confirm the provision of rainwater holding facilities and calculations to demonstrate the attenuation achieved would need to be provided.	0	N/A
Pol 0-6	Watercourse Pollution	1	1.25	1	Provision of oil separators/ interceptors or filtration in areas that are at risk form pollution (e.g. car parks, waste disposal facilities or plant areas.)	Watkins Payne Partnership confirmed that oil interceptors would be incorporated. The specifications would need to include a requirement for the appropriate type of oil interceptors to be used in accordance with the Environment Agency Guidance PPG3 (Ref. 11).	0	N/A
Pol 0-7	Refrigerant GWP	1	1.25	0	All refrigerant types have a Global Warming Potential (GWP) of below 5 or where no refrigerants are present.	Credit not sought after.	0	N/A

Credit Ref. No.	Description of Credit	Credits Available	% Value	Probable Credits	Summary of Credit Requirements	Design Commitments	Potential Additional Credits	Additional Requirements
Pol 0-8	Renewable Energy	1	1.25	1	At least 10% of either the heat demand or the electricity consumption in the building is supplied from local renewable energy sources.	Woodchip biomass boiler will be incorporated and is expected to achieve 10% of the buildings energy demand. Provide details of biomass boiler and calculations to confirm 10% energy demand is achieved.	0	N/A
Pol 0-9	Reduction of Night Time Light Pollution	1	1.25	0	External lighting to be in compliance with ILE Guidance Notes for the reduction of obtrusive light, 2005 (Ref. 12). All external lighting can be automatically switched off between 2300 and 0700. Where safety or security lighting is used between these hours, the lighting must comply with the lower levels set by the ILE Guidance Notes.	Credit not sought after.	1	Details of external lighting would need to be included in the plans and specifications.
Pol 1-1	Insulant Ozone Depletion Potential (ODP) and Global Warming Potential (GWP)	1	1.25	0	Where insulating materials specified have a GWP of below 5 and ODP of 0. Includes insulation products used in the following areas: • Building fabric including (but not exclusively): walls, roof, floor, window frames, doors, cavity closures and lintels; • Building services including (but not exclusively): chilled water pipework, refrigerant pipework, ductwork, hot and cold water pipes, and water tanks; and • Internal sound proofing.	Although there is no current commitment, insulation materials could potentially be specified to achieve this credit.	1	Details of the type of insulation used, manufacturer, and GWP would need to be provided to the BREEAM assessor for each of the building areas listed.
Sub-total:		12	8.75	7			3	
TOTAL:			67.29%				6.31%	

7. Summary of the Building Performance

7.1.1 Management

The building is expected to perform well under Management issues, achieving 9 credits out of a possible 10. The design team has made a commitment to minimise a number of impacts during construction by complying with the Considerate Constructor Scheme to 'better than industry standards', using sustainably sourced temporary timber and monitoring and reporting on a number of site activities. Provisions will be made for the commissioning stage including a commitment to undertake seasonable commissioning and ensuring all responsibilities for commissioning are passed on to all contractors. A commitment has also been made to provide a simple building users' guide.

7.1.2 Health & Wellbeing

The building is expected to achieve 10 credits out of a possible 16 in this section as a result of various design considerations. These include the specification of: high frequency ballasts; appropriate zoning for lighting, heating and cooling; absence of any humidification, lighting compliant with CIBSE Lighting Guide 7; water and air conditioning systems in compliance with HSE Approved Code of Practice and Guidance L8. The design will also allow for appropriate ventilation rates and indoor ambient noise levels. In addition, a commitment has been made to undertake thermal modelling to inform the building design and form. Points for daylighting and view out were lost due to the expanse of the floorplan and also since not all windows will be openable. Also, although the design incorporates fixed louvers, a credit was withheld due to the absence of occupant controlled blinds.

7.1.3 Energy

The building is expected to achieve 11 out of the 17 credits available for energy issues. The building design allows for energy sub-metering and electrical sub-metering for individual tenants. Due to the early stage of the design, assumptions have been made of the performance of the buildings fabric and form and also the predicted net carbon dioxide emissions. Additional credits may be achieved here although no potential credits have been assumed due to the stage of the design.

7.1.4 Transport

The building is expected to achieve 13 credits out of the 14 available in the Transport category due to the accessibility of the sites location and provision of drying space for cyclists. One credit was lost since the provision of showers is not sufficient to achieve the credit (1 shower per every 10 cycle spaces required). However, since the building is expected to perform 15% better than new Building Regulations, this will result in a large number of credits being obtained. No additional credits are likely to be achieved here unless there is space available for additional shower provision.

7.1.5 Water

The building is expected to achieve 4 credits out of the 6 available in the Water category, due to the provision of water efficiency measures including a water meter, low flow sanitary ware and sanitary shut-off devices. No additional credits are likely to be achieved here unless further consideration is given to installation of greywater systems or leak detection systems.

7.1.6 Materials

The building is expected to achieve 5 credits out of a possible 12 in the Materials category of the assessment due to the exclusion of asbestos, suitable storage for recyclable waste, use of sustainable timber and by not installing any floor finishes. Credits were lost due to the materials used in the design which are unlikely to achieve an 'A' rating as defined by BRE's Green Guide to Specification, also since the design is new build and therefore does not re-use an existing structure or façade. Potential points could also be achieved for the provision of adequate recyclable waste storage, the requirements for which should be reviewed further as the design progresses. No additional credits are likely to be achieved here without major changes to the design to incorporate 'A' rated materials.

7.1.7 Land Use and Ecology

The building is expected to score 6 credits out of a total possible 11 in the Land Use and Ecology section for the use of previously developed land and use of an appropriately qualified ecologist to provide ecological enhancements to the site and manage the long term biodiversity impacts. Additional credit could be achieved where enhancements to the ecological diversity to achieve a positive change of at least 6 species can be demonstrated.

7.1.8 Pollution

The building is expected to achieve 7 credits out of a maximum 12 available for Pollution. This section assesses the building against a wide range of issues and commitment has been made to incorporate various initiatives, including the use of biomass to supply at least 10% of the developments energy demand, use of petrol interceptors and attenuation of rainwater runoff, installation of a leak detection system, refrigerant recovery, lighting that is in compliance with Institute of Light Engineers (ILE) guidance notes for reduction of light pollution and boilers with dry NOx emissions of less than 89mg/kWh delivered heat energy.

Additional credits could be achieved through specifying boilers with a dry NOx emission of less than 59mg/kWh delivered heat energy, specification of: insulation materials which avoid the use of ozone depleting and global warming substances and external lighting that is compliant with ILE Guidance Notes.

7.2 Probable BREEAM for Offices Rating

	Minimum Score Required	BREEAM Rating
	25	PASS
Current Rating →	40	GOOD
	55	VERY GOOD
Potential Rating →	70	EXCELLENT

Based on the **'Probable Credits'** detailed by this 'Pre-Assessment Estimation', the likely BREEAM for Offices Rating of Building W, Regent's Place, North East Quarter is currently **'Very Good'** (with a probable score of 67.29 credits). There are potentially an additional 5 credits available in a variety of different BREEAM credit areas which would provide a score of 73.23 and a rating of **'Excellent'**.

It should be noted that the 'Pre-Assessment Estimator' provides only an estimate of a BREEAM rating. Predicted ratings are likely to change in some credit areas following the formal BREEAM assessment of the latest scheme details and the BRE QA audit.

Please also note that this 'probable score' also currently includes the assumptions detailed in the previous section that were agreed with design team members. Supporting evidence is required in all these cases for the formal BREEAM Assessment and, should firm evidence be unavailable in any area, that credit must be withheld.

8. Conclusion

Based on the information provided by the design team, the commitments made by them and the assumptions outlined above, the BREEAM Office 2005 Pre-Assessment Estimator has predicted a **BREEAM rating of 'Very Good'**. The design team must ensure that all the credits that have been committed to are met in order for the rating to be achieved. The design team must also be aware that all information must be documented in either specifications or drawings for these credits to be awarded at the formal assessment stage. In addition credits have been identified that can potentially increase the score to 73.23 which will achieve an **'Excellent'** rating.

9. References

1. Building Research Establishment (BRE), 2003, Control of Dust from Construction and Demolition Activities.
2. Environment Agency, PPG6: Working at demolition and construction sites.
3. Building Research Establishment (BRE), 2003, Pollution Control Guide Parts 1-5.
4. Environment Agency, PPG1: General Guide to the Prevention of Pollution.
5. Environment Agency, PPG5: Works in, near or liable to affect watercourse.
6. Chartered Institution of Building Services Engineers (CIBSE), 2004, Code for Lighting, Part 2.
7. Chartered Institution of Building Services Engineers (CIBSE), 2001, Lighting Guide 3: Addendum 2001, The Society o Light and Lighting 2001.
8. CIBSE, 1999, CIBSE Guide Volume A: Design Date.
9. CIBSE, 2002, CIBSE TM13: Minimising the risk of legionnaires disease
10. Approved code of practice and guidance L8 – 'Legionnaires' disease; The control of legionella bacteria in water systems'. HSC 3rd Ed. 2000..
11. Environment Agency, Pollution Prevention Guideline (PPG) 3 – Use and design of oil separators in surface water drainage systems.
12. Institute of Lighting Engineers, 2005, Guidance noire for the reduction of obtrusive light, GN01.

Summary Of BREEAM For Offices Pre-Assessment Estimator For Building W EN5031

Appendix A Building Users Guide

User Guide Contents

The list below indicates the type of information that should be included to meet the needs of the Facilities Management (FM) Team/Building Manager and the general users (staff).

1. Building Services Information

a) **General User** - Information on heating, cooling and ventilation in the building and how these can be adjusted, e.g. thermostat location and use, implications of covering heating outlets with files, bags etc., and use of lifts and security systems.
b) **FM** – As above plus, a non technical summary of the operation and maintenance of the building systems (including BMS if installed) and an overview of controls.

2. Emergency Information

a) **General User** - Include information on the location of fire exits, muster points, alarm systems and fire fighting systems.
b) **FM** – As above plus, details of location and nature of emergency and fire fighting systems, nearest emergency services, location of first aid equipment.

3. Energy & Environmental Strategy

This should give owners and occupiers information on energy efficient features and strategies relating to the building, and also provide an overview of the reasons for their use, e.g. economic and environmental savings. Information could include;

a) **General User** – Information on the operation of innovative features such as automatic blinds, lighting systems etc., and guidance on the impacts of strategies covering window opening and the use of blinds, lighting and heating controls.

b) **FM** - As above plus, information on airtightness and solar gain (e.g. the impact of leaving windows/doors open in an air-conditioned office, or use of blinds in winter with respect to solar gain); energy targets and benchmarks for the building type, information on monitoring such as the metering and sub-metering strategy, and how to read, record and present meter readings.

4. Water Use

a) **General User** – details of water saving features and their use and benefits, e.g. aerating taps, low flush toilets, leak detection, metering etc.

b) **FM** – As above plus, details of main components (including controls) and operation. Recommendations for system maintenance and its importance, e.g. risk of legionella.

5. Transport Facilities

a) **General User** – details of car-parking and cycling provision; local public transport information, maps and timetables; information on alternative methods of transport to the workplace, e.g. car sharing schemes; local 'green' transport facilities.

b) **FM** - As above plus, information on conditions of access, maintenance and appropriate use of car parking and cycling facilities, e.g. number of spaces provided. The above information does not need to be included in the user guide if there is a separate dedicated travel information space, accessible to the staff, and in compliance with BREEAM credit T10. However the guide must reference the travel information space, the information provided and its location."

6. Materials & Waste Policy

a) **General User** – Information on the location of recyclable materials storage areas and how to use them appropriately.

b) **FM** – As above plus, information on recycling, including recyclable building/office/fit out components, waste storage and disposal requirements; examples of Waste Management Strategies and any cleaning/maintenance requirements for particular materials and finishes.

7. Re-fit/Re-arrangement Considerations

a) **General User** – an explanation of the impact of re-positioning of furniture, i.e. may cover grilles/outlets, implications of layout change, e.g. installation of screens.

b) **FM** - As above plus, environmental recommendations for consideration in any refit. Relevant issues covered in BREEAM should be highlighted, e.g. the use of natural ventilation, use of Green Guide 'A' rated materials, re-use of other materials etc., the potential impact of increasing occupancy and any provision made in the original design to accommodate future changes.

8. Reporting Provision

a) **General User** – Contact details of FM/manager, maintenance team, and/or help desk facility; and details of any building user group if relevant.

b) **FM** – As above plus, contact details of suppliers/installers of equipment and services and their areas of responsibility for reporting any subsequent problems.

9. Training

Details of the proposed content and suggested suppliers of any training and/or demonstrations in the use of the building's services, features and facilities that will be needed. This could include;

a) **General User** - Training in the use of any innovative/energy saving features.

b) **FM** – As above plus, training in emergency procedures and setting up, adjusting, and fine tuning, the systems in the building.

10. Links & References

This should include links to other information including websites, publications and organisations. In particular, the 'Carbon Trust' programme should be referenced and links provided to its website and good practice guidance.

11. General

Where further technical detail may be required by the FM Team or manager there should be references to the appropriate sections in the Operation and Maintenance Manual.

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Appendix B Construction Site Impacts

1. Commitment to monitor, report and set targets for CO_2 production or energy use arising from site activities

a. Confirmation is required that monthly measurements of energy use will be recorded and displayed on site.
b. Appropriate target levels of energy consumption must be set and displayed (targets could be annual, monthly, or project targets).
c. As a minimum monitoring must include checking the meters and displaying some form of graphical analysis in the site office to show consumption over the project duration and how actual consumption compares to the targets set.
d. The design/site management team is to nominate an individual who will be responsible for the monitoring and collection of data.

2. Commitment to monitor and report CO_2 or energy arising from commercial transport to and from the site

Confirmation is required that a site monitoring system will be in place to monitor and record deliveries. This system will need to record:

a. The number of deliveries,
b. The mode of transport,
c. The kilometres/miles travelled for all deliveries.

3. Confirmation is required that the site's construction waste is being monitored. Confirmation can either be in the form of:

a. a site specific waste policy or procedure,
b. specification,
c. letter of appointment or
d. other formally written document.

Waste must either be:

a. Re-cycled on site or
b. sorted on site and collected for recycling locally.

5. Confirmation is required that the site's construction waste will be sorted into at least five categories (including ceramics, metals, packaging, concrete, insulation, plaster/cement, timber, chemicals and oils) and recycled / reused as appropriate.

This confirmation can be in the form of a site specific waste policy or procedure, specification, letter of appointment for a waste / recycling contractor, or other formally written document.

6. Commitment to monitor, report and set targets for water consumption arising from site activities

Confirm in writing, that monthly measurements of water consumption will be recorded and displayed on site.

a. Appropriate target levels of water consumption must be set and displayed.
b. As a minimum monitoring must include checking the meters and displaying some form of a graphical analysis in the site office to show consumption over the project duration and show actual consumption compares to targets set.

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c. The design/site management team is to nominate an individual who will be responsible for the monitoring and collection of data.

7. Commitments to adopt best practice policies in respect to air (dust) pollution

Confirmation is required of the site's procedures to minimise air / dust pollution. This can include:

a. 'dust sheets',
b. regular proposals to damp down the site in dry weather,
c. covers to skips etc

The site team must indicate how this information is disseminated to site operatives.

Note: the following publications provide good practice guidelines on construction related pollution.

13. Building Research Establishment (BRE), 2003, Control of Dust from Construction and Demolition Activities.

14. Environment Agency, PPG6: Working at demolition and construction sites.

15. Building Research Establishment (BRE), 2003, Pollution Control Guide Parts 1-5.

16. Environment Agency, PPG1: General Guide to the Prevention of Pollution.

8. Commitment to adopt best practice policies in respect to water (ground and surface) pollution

Confirmation is required of the site's procedures to minimise water pollution following best practice guidelines outlined in the following documents:

a. PPG 1 – General guide to the prevention of pollution. Environment Agency
b. PPG 5 – Works in, near or liable to affect watercourses. Environment Agency
c. PPG 6 – Working at demolition and construction sites. Environment Agency

The site team must also indicate how this information is disseminated to site operatives.

9. Commitment to source timber used during construction from sustainably managed sources

75% of timber used during construction, including formwork, site hoardings and other temporary site timber used for the purpose of facilitating construction, is to be procured from sustainably managed sources, such as FSC and PEFC.

d. Re-used timber from off site can be counted as equivalent but reusable formwork only complies if it meets the above criteria.
e. This credit can be awarded where all the timber used is reclaimed timber

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Appendix C Long Term Impact on Biodiversity

All the mandatory requirements, plus any three of the additional requirements listed below must be achieved.

Mandatory Requirements

A suitably qualified ecologist (as defined in Eco 1-3), appointed prior to commencement of activities on site, must confirm in writing that:

A) All the relevant UK and EU legislation relating to protection and enhancement of ecology has been complied with during the design and construction process.

(B) An appropriate management plan covering at least the first 5 years after project completion is produced. This is to be handed over to the building occupants and should include:

- management of any protected features on site;
- management of any new, existing or enhanced habitats; and
- a reference to the current or future site level Biodiversity Action Plan.

Additional Requirements

(C) The client must require the contractor to appoint a 'Biodiversity Champion' with authority to influence site activities and to ensure impacts on the site biodiversity are minimised in line with an ecologist's recommendations.

(D) The client must require the contractor to train the site workforce on how to protect the site ecology during the project. Specific training should be carried out for **all** the site work force to ensure they are aware of how to avoid damaging site ecology. The training should be based on the findings and recommendations for protection of features highlighted within an ecologist's report.

(E) The client must require the contractor to monitor and record actions taken to protect biodiversity, and their effectiveness throughout key stages of the construction. The requirement should commit the contractor to make such records available where publicly requested.

(F) The client must require that a new ecologically valuable habitat, appropriate to the local area, is created. This includes habitat that supports nationally, regionally or locally important biodiversity, and/or which is nationally, regionally or locally important. It includes any habitat listed in the UK Biodiversity Action Plan (UK BAP), Local Biodiversity Action Plan (LBAP), those protected within statutory sites (e.g. SSSIs) or those within nonstatutory sites identified in local plans. For further guidance, refer to credit Eco 1-2: 'Change in Ecological Value'.

(G) The client must require the contractor to programme the site work to minimise disturbance to wildlife. For example site preparation, ground works and landscaping have been or will be scheduled at an appropriate time of year to minimise disturbance to wildlife. Timing of works may have a significant impact on for example, breeding birds, flowering plants, seed germination, amphibians etc. Actions such as phased clearance of vegetation may help to mitigate ecological impacts. This item will be achieved where a clear plan has been produced detailing how activities will be timed to avoid any impact on site biodiversity.

(H) The client must require that actions to protect/enhance biodiversity take full account of the UK Biodiversity Action Plan(UK BAP), and use local biodiversity experts o help identify ecologically important habitats/species on site. Local biodiversity expertise should be sought at or before design stage, to help identify species of local biodiversity importance on site. It is likely that their recommendations will draw on the Local Biodiversity Action Plan (LBAP) where one e

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BREEAM for Offices 2005: Summary of Pre-Assessment Estimator

REGENT'S PLACE, NORTH EAST QUARTER - BUILDING M

BREEAM for Offices 2005: Summary of Pre-Assessment Estimator

REGENT'S PLACE, NORTH EAST QUARTER - BUILDING M

Client:

M3 Consulting

Author:

Name **Kate Bellew BSc MSc**

Signature

Position Consultant and Registered BREEAM Assessor

Checked by:

Name **Pallab Chatterjee BSc (Hons) MSc**

Signature

Position Senior Consultant and Registered BREEAM Assessor

Approved by:

Name **Elin Thomas BSc (Hons) MSc**

Signature

Position Associate Director

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Executive Summary

Waterman Environmental was commissioned by M3 Consulting, on behalf of British Land, to undertake a BREEAM Office 2005 Design and Procurement (D&P) Pre-Assessment Estimator for a 16 storey office building known as Building M, within the wider redevelopment Regent's Place, North East Quarter, London.

BREEAM is a voluntary, standard environmental assessment method by which the environmental impact of a building is assessed against a range of issues, and credits are awarded where the building achieves a benchmark performance. A building is awarded a BREEAM rating based on its overall performance expressed as 'Pass', 'Good', 'Very Good' or 'Excellent' depending on the total score achieved.

This report summarises the results of a BREEAM Office Pre-Assessment completed for the current scheme design, in order to provide a quick evaluation of the likely BREEAM rating to be achieved under a formal assessment.

The potential credits being awarded for each category based on the commitments made at the Pre-Assessment meeting held on 29 January 2007 are summarised below;

- Management – 90% of the credits achieved
- Health and Well Being – 66.7% of the credits achieved
- Energy – 64.7% of the credits achieved
- Transport – 100% of the credits achieved
- Water – 66.7% of the credits achieved
- Materials – 41.7% of the credits achieved
- Land Use and Ecology – 54.5% of the credits achieved
- Pollution – 58.3% of the credits achieved

Based on the information provided by the design team, the commitments made by them and a number of assumptions, the development known as Building M has a predicted BREEAM score of 68.09 % and a rating of '**Very Good**'. Areas that are performing poorer than others are Materials; Land Use and Ecology; and Pollution. Improvement in these areas and others could ensure a rating of 'Excellent' is achieved.

1. Assessment Information

Nature of Assessment	BREEAM Office 2005 Design and Procurement Pre-Assessment Estimator
Name of Building	Building M, Regent's Place North East Quarter
Address of Building	Euston Road, London Borough of Camden
Client	M3 Consulting
Developer	British Land
Project Manager Contact	Richard Cowan
Project Manager Address	M3 Consulting, 7 Tokenhouse Yard, London EC2R 7AS
Architect's Contact	Guy Morgan of Munkenbeck and Marshall Architects
Architect's Address	24 Britton Street, London, EC1M 5UA
Building Services Engineer's Contact	Andrew Thrower of Watkins Payne Partnership
Contact Address	56 Grosvenor Street, London, W1K 3HZ ND
Occupancy	The offices are a speculative development and at this stage the type and occupants are unknown.
Details of the Development	The BREEAM assessment relates to the provision of an office building referred to as Building M which comprises an office building of 16 storeys in height. The building forms part of the wider mixed-use redevelopment referred to as Regent's Place, North East Quarter.

2. Introduction

A design team including Munkenbeck and Marshall as the Architect and Watkins Payne Partnership as the Building Services Engineers, was commissioned by M3 Consulting, to prepare proposals for Building M, The new office building forms part of the wider mixed-use redevelopment referred to as Regent's Place, North East Quarter.

The development is located off Euston Road in the London Borough of Camden. Building M comprises an office block of 16 storeys in height and will provide retail at ground floor with office accommodation above. .

M3 Consulting, the project managers, has instructed Waterman Environmental to complete a BREEAM Office 2005 Design and Procurement (D&P) Pre-Assessment Estimator for Building M. This report summarises the results of the Pre-Assessment Estimator, sets out the commitments and assumptions made by the design team during the exercise and highlights areas where the potential exists for additional points to be achieved. The Pre-Assessment Estimator meeting was held on 20 January with the following members of the design team present:

- Richard Cowan – M3 Consulting;
- Andrew Thrower - Watkins Payne Partnership (WPP);
- Guy Morgan - Munkenbeck and Marshall Architects (M and M); and
- Jane Llewellyn – Wilkinson Eye Architects

3. Methodology

The Building Research Establishment (BRE) has developed a voluntary, standard environmental assessment method (known as BREEAM), by which the environmental impact of a building is assessed against a range of issues, and credits are awarded where the building achieves a benchmark performance. BREEAM seeks to bring about reductions in the environmental impact of buildings through recognition of the business benefits, which can be achieved.

The method addresses impacts of a building on the global, local and indoor environments across a range of issues, grouped under the headings of:

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

A building is given a score to indicate its overall environmental performance. This is referred to as the 'BREEAM' rating which is expressed as 'Pass', 'Good', 'Very Good' and 'Excellent' depending on the total score awarded. A minimum score is required to achieve a 'Pass' rating, below which a BREEAM rating is not awarded.

A Pre-Assessment Estimator provides a quick evaluation of the BREEAM rating likely to be achieved under a formal assessment. The results can be used to feed into the design process in order to maximise the score achieved; and its completion is a means of monitoring the sustainability performance of the development against this established, independent benchmark. It should be noted that, as the Pre-Assessment Estimator is a simplified version of the full method, it only provides an estimate of the BREEAM rating. As a consequence, the final rating may vary following a formal assessment by a licensed BREEAM assessor.

4. Report Structure

The following section, Section 5 summarises the findings of the assessment in a table format and highlights the scores and the percentage achieved for each criteria. Section 6 provides a summary table of each of the issues assessed by the BREEAM method. The third column of the table in Section 6 denotes the number of credits available for each issue and the fourth column provides the percentage value for each credit. This allows the design team to calculate the score should they choose to alter the design and focus on other credits. The fifth column denotes the number of credits that are likely to be achieved in the full assessment. These credits have been awarded based on the commitments made by the design team during the pre-assessment meeting held on 29 January 2007. A brief description of the credit requirements is provided in the fifth column, followed by the 'design commitments and action' column which highlights actions for the design team in order to ensure that the points are achieved in the formal BREEAM Assessment. The seventh column identifies where there is the potential for additional credits and the final column provides information regarding the additional requirements for these credits to be awarded.

Section 7 of this report describes the performance of the building. This summarises how the scheme is expected to perform under the eight topic headings provided by BREEAM.

The probable BREEAM rating is provided in Section 7.2, with overall conclusions presented in Section 8.

5. Summary Table

Table summary provides the score for each criteria and the percentage of the credit that is assumed will be achieved once the required information is provided.

Overall Credit Allocation	Environmental Weighting	Credits Available	Credits Assumed	% of the Credit Assumed	Credits Score
Management	0.15	10	9	90	13.5%
Health and Wellbeing	0.15	15	10	66.67	10.0%
Energy		17	11	64.71	
Transport		14	14	100	
Sub Total	0.25	31	25	80.65	20.16%
Water	0.05	6	4	66.67	3.33%
Materials	0.10	12	5	41.67	4.17%
Land Use and Ecology	0.15	11	6	54.55	8.18%
Pollution	0.15	12	7	58.33	8.75%
TOTAL					**68.09%**

6. Summary of BREEAM for Offices 2005 Pre-Assessment Estimator

Credit Ref. No.	Description of Credit	Credits Available	% Value	Probable Credits	Summary of Credit Requirements	Design Commitments	Potential Additional Credits	Additional Requirements
Man 1-3	Commissioning Monitor	1	1.5	1	Where evidence can be provided to demonstrate that a design team member(s) is appointed to monitor commissioning on behalf of the client, and that where there are complex systems a commissioning agent or manager is appointed.	Andrew Thower of Watkins Payne Partnership stated during the pre-assessment meeting on the 29th January that Watkins Payne Partnership will be carrying out commissioning. Provide appointment document or specification to confirm Watkins Payne Partnership's responsibility for commissioning. It must list all relevant systems for which commissioning is required. Commissioning requirements must be passed on to all contractors. Where there are complex systems, a specialist commissioning agent or manager must be appointed.	0	N/A
Man 1-4	Commissioning Clauses	1	1.5	1	Where pre-commissioning, commissioning and quality monitoring are passed on to the appropriate contractors and all trades on site in accordance with BSRIA/BSEE guidelines.	Watkins Payne Partnership to ensure the requirements for commissioning are passed on to all contractors. Details of commissioning responsibilities must be included in the specifications.	0	
Man 1-5	Building User Guide	1	1.5	1	Provision of a simple Building Users Guide as a separate section or document to the O&M manual.	Watkins Payne Partnership stated they would support the contractor in preparing a Building Users Guide in line with BRE requirements, see Appendix A. The developer will also require the contractor to prepare a Building User Guide.	0	N/A
Man 1-6	Construction Site Impacts	3	4.5	2	Commitment to ensure that contractors take steps to minimise construction impacts. Credits awarded where six of the following are achieved: 1. Set targets, monitor and report on: energy consumption or CO_2 arising from site activities 2. Monitor and report on transport to and from the site. 3. Construction waste monitored 4. Construction waste sorted & recycled 5. Establish best practice for minimising	Richard Cowan of MG Consulting stated that the contractor will be required to comply with at least 6 of the 7 construction impacts. Appointment document or relevant specification clauses must require contractors to put relevant systems or procedures in place. Refer to Appendix B for detailed requirements of construction procedures required. The contractor will be required to provide evidence of registration with the Considerate Constructor Scheme as indicated in Appendix B.	0	

Credit Ref. No.	Description of Credit	Credits Available	% Value	Probable Credits	Summary of Credit Requirements	Design Commitments	Potential Additional Credits	Additional Requirements
					pollution to air from site operations in line with Environment Agency and BRE guidelines (Refs. 1 - 4). 6.Establish best practice for minimising pollution to ground & watercourses/ municipal systems in line with Environment Agency guidelines (Refs. 2 - 5) 7.Set targets, monitor and report on water consumption arising from site activities			
	Considerate Constructors Scheme	1	1.5	1	Commitment to comply with the Considerate Constructors Scheme and achieve best practice standards.	Commitment to register with the Considerate Constructor Scheme and achieve a total of at least 32 points, with over 3 points scored under each category.	0	N/A
	Sourcing of temporary timber	1	1.5	1	Sourcing of temporary timber from sustainably managed sources.	Commitment for all site timber to be sourced from FSC or alternative sustainable sources. This must be included in the relevant specification clause.	0	N/A
Wan 1-7	Seasonal Commissioning	1	1.5	1	Seasonal commissioning to be carried out during the first year of occupation.	Andrew Thrower of Watkins Payne Partnership stated that seasonal commissioning will be undertaken. These requirements will include testing all building services under full and part load conditions and during periods of extreme (high or low) occupancy. Interviews with building occupants must be undertaken to identify problems and re-commissioning of systems must take place where necessary	0	N/A
Sub-total:		10	13.5	9			0	
Hea 0-1	Cooling Towers and Evaporative Condensers	1	1	1	Systems to be designed to CIBSE TM13 and HSE Approved Code of Practice (ACoP) and Guidance L8 (Ref. 9 and 10)	Watkins Payne Partnership confirmed that systems will be compliant with CIBSE TM13 and HSE Approved Code of Practice Guidance which will be included in the relevant specification clause.	0	N/A
Hea 0-2	Water systems - Legionellosis	1	1	1	Water systems are designed in compliance with HSE ACoP and CIBSE TM13.	Watkins Payne Partnership confirmed that systems will be compliant with CIBSE TM13 and HSE Approved Code of Practice Guidance which will be included in the relevant specification clause.	0	N/A
Hea 0-3	Potential for Natural Ventilation	1	1	0	Where external façade windows to all occupied areas are openable.	Credit not sought after.	0	N/A
Hea 0-4	Failsafe Humidification	1	1	1	Where steam humidification is installed or where no humidification is present.	Watkins Payne Partnership confirmed that no steam humidification is present. Written statement should be provided as confirmation.	0	N/A

Credit Ref. No.	Description of Credit	Credits Available	% Value	Probable Credits	Summary of Credit Requirements	Design Commitments	Potential Additional Credits	Additional Requirements
Hea 0-5	Internal Air Pollution	1	1	0	Where air intakes/outlets avoid major sources of external pollution and recirculation of exhaust air (i.e. air intakes/outlets over 10m apart and air intakes over 20m from sources such as roads and car parks).	The criteria for air intakes and outtakes are not achievable on this site. Credit not sought after.	0	N/A
Hea 0-6	Ventilation Rates	1	1	1	Fresh air is provided at a rate of 12l/s/person.	Watkins Payne Partnership confirmed that fresh air will be provided at a rate of 12l/s/person. This will also be required to be stated in Specifications.	0	N/A
Hea 0-7	Daylighting and View Out	1	1	0	Where at least 80% of net lettable office floor area is adequately lit. Where there is an average daylight factor of at least 2% AND uniformity ratio of at least 0.4, or a view of sky from desk height is achieved AND The room depth criterion $d/w + d/H_w < 2(1 - R_b)$ is satisfied. Second credit available where occupants have a 'view out' i.e. workstations are within 7m of a window.	Munkenbeck and Marshall Architects confirmed that daylighting criteria could be met therefore potential for an additional credit. Since the floor plan is over 14m in width, the credit for view out is unachievable.	1	Calculations would need to be provided to demonstrate BRE's criteria for day lighting is achieved.
Hea 0-8	Daylight Glare Control	1	1	0	Occupant controlled system of glare control (e.g. internal or external blinds) is fitted.	The scheme incorporates fixed louvers therefore no blinds will be provided.	0	N/A
Hea 0-9	High frequency lighting	1	1	1	Lighting for all occupied areas must have high frequency ballasts.	Watkins Payne Partnership confirmed that high frequency ballasts will be installed and this requirement will be included in the relevant lighting specification or indicated on a plan.	0	N/A
Hea 0-10	Electric Lighting Guide	1	1	1	Lighting design is compliant with the addendum to CIBSE Lighting Guide 3, 2001 (Ref.7) and has been designed to avoid glare and distracting screen reflections from electric lighting.	Watkins Payne Partnership confirmed that Lighting Guide 7 requirements will be met. Details to be included in the relevant lighting specification or indicated on a plan.	0	N/A
Hea 0-11	Lighting Zones	1	1	1	For offices, separate zones should be provided for: • For office and circulation spaces;	Andrew Thrower of Watkins Payne Partnership has stated that lighting will be zoned to 40m^2 and controls will be provided for the separate zones. The information required must be included in design	0	N/A

Credit Ref. No.	Description of Credit	Credits Available	% Value	Probable Credits	Summary of Credit Requirements	Design Commitments	Potential Additional Credits	Additional Requirements
					• For four or less workspaces in office areas (approx 40m²); and • Separately for workstations adjacent to windows/atria and other areas.	drawings and specifications. These should include confirmation of the control systems specified, details of installations and its zoning.		
Hea 8-12	Thermal Zoning	1	1	1	Local control for temperature in all separate rooms/areas to reflect differing load requirements including separate control of each perimeter area (i.e. within 7m of each external wall) and the central zone (i.e. over 7m from the external wall). Where long-lag systems are specified these are designed to service the base load only and responsive secondary heating is provided which is zoned as above.	Watkins Payne Partnership confirmed appropriate thermal zoning would be used. Details of the zoning would need to be included in the relevant specification and forwarded to the BREEAM assessor.	0	N/A
Hea 1-2	Thermal Comfort Modelling	1	1	1	Assessments of thermal comfort levels to be made at the design stage and results used to evaluate servicing options and thermal comfort levels. Thermal comfort levels should meet the requirements set out in CIBSE Guide A (Ref. 8).	Watkins Payne Partnership confirmed that thermal comfort studies will be provided at a later stage in the design process. Watkins Payne Partnership to provide details of the calculations undertaken.	0	N/A
HW1-3	Acoustic Performance – Internal Noise Levels	1	1	1	Ambient internal noise levels to achieve the following: • 35-40dB LaeqT in small offices; • 40-45dB LaeqT in medium offices; • 45-50 dB LaeqT in large offices;	The design team agreed that the requirements for a large office should be achievable. To achieve these points the appointment of acoustician is required and provision of calculations showing compliance with criteria.	0	N/A
Sub-total:		15	10	10			0	
Ene 8-2	Energy Sub-metering	1	0.81	1	Where direct sub metering is provided for substantive energy uses within the building covering lighting, small power and computer rooms. Catering facilities and any other major energy consuming plant must also be sub-metered if present.	Watkins Payne Partnership stated that sub-meters will be provided. To achieve this credit, plans must be provided to show the location and function of all relevant sub-meters which should also be referred to in the specifications.	0	N/A
Ene 8-3	Tenancy Sub-Metering	1	0.81	1	Where electrical sub-metering of tenancy areas is installed in multi-occupant buildings or submetering by floor plate / department is installed in single occupancy buildings.	Watkins Payne Partnership confirmed that sub metering would be provided. Details to be included in the relevant specification clause and included on the plans.	0	N/A

Credit Ref. No.	Description of Credit	Credits Available	% Value	Probable Credits	Summary of Credit Requirements	Design Commitments	Potential Additional Credits	Additional Requirements
Ene 8-4	Fabric and Form	5	0.81 each	2	Credits awarded based on the predicted fabric loses minus gains (kWh/m²) based on the results of BRE's fabric and form calculator.	At this stage, an assumption has been made that 2 credits will be achieved.	0	N/A
Ene 1-1	CO_2 emissions	10	0.81 each	7	Credits awarded based on the predicted net CO_2 emissions ($kgCO_2/m^2/year$).	Andrew Thrower of Watkins Payne Partnership stated that the building will achieve a 15% improvement on the new Building Regulations 2006 part L2A. Andrew Thrower stated that this is approximately equivalent to less than 35 $CO_2/m_2/year$. 7 credits assumed. Watkins Payne Partnership to provide calculations to confirm.	0	N/A
Sub-total:		17	8.91	11			0	
Tra 8-1	Transport CO_2	10	8.1	10	Total Net CO_2 emissions arising from transport to and from the building.	Total Net CO_2 emissions arising from transport will be predicted using the BREEAM calculator. The estimated number of building users is expected to be approximately 167. Only 1 car parking space will be provided therefore this achieves 10 credits according to the transport calculator.	0	N/A
Tra 8-2	Cyclist Facilities	1	0.81	1	Provision of covered, secure and well lit cycle racks based on the following scale: • Where there is provision of cycling facilities for 10% of staff (≤500 staff); • Where there is provision of cycling facilities for 7% of staff (501 – 1000 staff); and • Where there is provision of cycling facilities for 5% of staff (>1000 staff) Storage facilities must be secure and covered. Showers must also be provided for staff use (1 shower for every 10 cycle racks).	Provision will be made for 8 cycle spaces and 4 showers which will comply with BRE's criteria. These would need to be included in the plans and specifications.	0	N/A
		1	0.81	1	At least one of the following must be achieved: • Compliant changing facilities with lockers in or adjacent to the changing rooms – at least 400mm high by 200m wide and 400mm deep, provision to be	Munkenbeck and Marshall confirmed that drying space will be provided. This must be shown on the plans.	0	N/A

Credit Ref. No.	Description of Credit	Credits Available	% Value	Probable Credits	Summary of Credit Requirements	Design Commitments	Potential Additional Credits	Additional Requirements
					at least equal with the number o cycle spaces; OR; • Compliant drying space for wet clothes for staff use. •			
Tra 8-3	Commuting Public Transport	1	0.81	1	Where good access is available to pubic transport networks i.e. within 500m with at least a 15 minute service frequency to and from a local urban centre.	The site is close to tube stations and bus routes. Details of public transport provision including the location of transport nodes, distance from the entrance, frequency of service, to be provided to BREEAM assessor.	0	N/A
Tra 8-4	Public Transport Business Use	1	0.81	1	Where good access is available to pubic transport networks i.e. within 500m with at least a 30 minute service frequency to and from a major transport node.	The site is close to tube stations and bus routes. Details of public transport provision including the location of transport nodes, distance from the entrance, frequency of service, to be provided to BREEAM assessor.	0	N/A
Sub-total:		14	11.34	14			0	
Wat 8-1	Water Consumption	3	0.83 each	2	Specification of water efficient sanitary fittings including dual or low flush toilets, a shower with a flow rate of below 12 litres per minute, spray or flow regulator taps. Additional points are available where greywater or rainwater harvesting systems are installed.	Design team has stated that water efficient fittings will be installed. These include aerating taps, dual flush toilets and showers with a flow rate of between 9 and 15 litres/minute. Greywater systems will not be provided	0	N/A
Wat 8-2	Water Meter	1	0.83	1	A water meter with pulsed output to be installed on all mains supplies to each building.	Watkins Payne Partnership confirmed that a water meter with pulsated output to enable future connection to a Building Management System (BMS) will be specified on the mains water supply to the building. Details to be included in the relevant specification.	0	N/A
Wat 8-3	Major Leak Detection	1	0.83	0	Installation of a mains leak detection system which is capable of identifying major leaks within the building and between the building and the site boundary.	Watkins Payne Partnership confirmed that a leak detection system will not be installed.	1	Additional credit could be achieved here if an appropriate leak detection is installed.
Wat 8-4	Sanitary Supply Shut off	1	0.83	1	Provision of a proximity detection shut off to the water supply for all WCs and urinals.	Watkins Payne Partnership confirmed that proximity detection shut off will be installed. This should be included in the plans and specifications.	0	N/A

Credit Ref. No.	Description of Credit	Credits Available	% Value	Probable Credits	Summary of Credit Requirements	Design Commitments	Potential Additional Credits	Additional Requirements
Sub-total:		**6**	**3.33**	**4**			**1**	
Mat 8-1	Asbestos	1	0.83	1	Where asbestos is excluded form any new works.	No asbestos will be included in the works. A specific clause excluding the use of asbestos particularly for the lift brakes (where its use is still legal) must be included in the specifications.	0	N/A
Mat 8-2	Recyclable waste storage	1	0.83	1	Provision of a central, dedicated space for the storage of recyclable waste materials. Space provided must be at least 2m^2 per 1000m^2 of net floor area, up to a maximum of 10m^2).	Watkins Payne Partnership confirmed that recycled storage facilities will be incorporated in the basement area. The allocated space must be at least 10m- [nett floor area of approximately 31,672m^2]and should be clearly identified on the plans.	0	N/A
Mat 1-1	Reuse of Façade	1	0.83	0	Re-use of at least 50% of the existing façade where at least 80% of the reused façade comprises in-situ re-used material.	New build, therefore this cannot be achieved.	0	N/A
Mat 1-2	Reuse of Structure	1	0.83	0	Retention of at least 80% of the existing structure.	New build, therefore this cannot be achieved.	0	N/A
Mat 1-3	Materials Specification:	1	0.83	0	External wall specifications to achieve 'A' rating in the Green Guide to Specification.	Munkenbeck and Marshall confirmed that 'A' rating will be difficult to achieve for external wall elements.	0	N/A
		1	0.83	0	Window specifications to achieve an 'A' rating.	As above, this credit unlikely to be achieved.	0	N/A
		1	0.83	0	Roof specifications achieve an 'A' rating.	As above, this credit unlikely to be achieved.	0	N/A
		1	0.83	0	Upper floor slab specifications to achieve an 'A' rating.	As above, this credit unlikely to be achieved.	0	N/A
Mat 1-6	Recycled Aggregates	1	0.83	0	Where the amount of recycled aggregate specified is over 25% (by weight) of the total 'high grade' aggregate uses (structural frame; floor slabs; roads etc). Recycled aggregates can either be: • Obtained on site; • Obtained from within 30km radius; • Obtained from a recycled source.	Recycled aggregate is not being used therefore credit withheld.	0	N/A
Mat 1-7	Sustainable timber	2	0.83 each	2	Commitment to sourcing timber and composite timber products used in structural and non-structural elements are either from sustainable sources or where reused or recycled timber is specified.	Richard Cowan of M3 Consulting has stated that the design team will be required to use 100% FSC timber as part of the developers requirements. Provide a copy of the specifications for confirmation.	0	
Mat 1-8	Floor Finishes	1	0.83	1	Where carpets/floor finishes will be installed in a show area of speculative offices, carpets/floor finishes are specified	No carpets or floor finishes will be installed. Provide written statement to confirm.	0	N/A

Credit Ref. No.	Description of Credit	Credits Available	% Value	Probable Credits	Summary of Credit Requirements	Design Commitments	Potential Additional Credits	Additional Requirements
					by the new tenants.			
Sub-total:		12	4.17	5			0	
Lan 1-1	Re use of Land	1	1.36	1	Where the site has previously been developed or used for industrial purposes in the last 50 years.	The existing site consists of 100% buildings and hard standing. A plan must be provided to confirm the existing uses on site.	0	N/A
Lan 1-2	Contaminated Land	1	1.36	0	Where adequate steps have been taken to remediate contaminated land.	No remediation of the site is required therefore credit withheld.	0	N/A
Eco 1-1	Ecological Value	1	1.36	0	Development of a site that has low ecological value and protection of all existing features of value.	The Site includes some existing trees which will be removed as part of the development therefore credit withheld.	0	N/A
Eco 1-2	Change in Ecological Value	5	1.36 each	3	Where the ecological value of a development site is either not substantially harmed or is enhanced beyond its previously existing state.	The site is 100% hard standing with the exception of some trees. The overall ecological value is not likely to change therefore 2 credits awarded. Munkenbeck and Marshall to provide plans showing the area of existing hardstanding, new building footprint and landscaping to be provided. Richard Cowan of M3 Consulting has stated that EDCO Design London Ltd has been consulted to enhance the biodiversity of the site by at elast 3 species.	1	Potential for an additional credit if ecologist advice is sought to improve the ecological value of the site and recommendation s for a positive change of at least 6 species. A report would be required to confirm any enhancement.
Eco 1-3	Ecological Enhancement	1	1.36	1	Where advice has been sought and acted on from a suitably qualified ecological consultant (accredited in accordance with BRE requirements i.e. full member of the Institute of Environmental Management and Assessment (IEMA), the Institute of Ecology and Environmental Management (IEEM)).	An ecologist advice has been sought. To achieve this credit, a report must be provided to confirm that the ecologists recommendations for enhancement have been taken on board in the design.	0	N/A
Eco 1-4	Protection of Ecological Features	1	1.36	0	Protection of any important ecological features.	Credit withheld due to the removal of trees.		
Eco 1-5	Long Term Impact on Biodiversity	1	1.36	1	Where appropriate steps have been taken to minimise the long term impact of the development on biodiversity.	A commitment has been made to take steps to minimise the long term impact of the development. Advice from an appropriately qualified ecologist is required to achieve the detailed requirements outlined in Appendix C.	0	N/A

Credit Ref. No.	Description of Credit	Credits Available	% Value	Probable Credits	Summary of Credit Requirements	Design Commitments	Potential Additional Credits	Additional Requirements
Sub-total:		11	8.18	6			1	
Pol 9-2	Refrigerant Leak Detection.	1	1.25	1	A refrigerant leak detection system to be specified covering all high risk parts of the plant or no refrigerants specified. Systems should be contained in a moderately air tight enclosure or a mechanically ventilated room. There is also a requirement for automatic refrigerant pump down to be made to a heat exchanger with isolation tanks.	Watkins Payne Partnership confirmed that a refrigerant leak detection system will be installed covering high-risk parts of the plant. This would need to be included in the relevant specification clauses and drawings.	0	N/A
Pol 9-3	Refrigerant Recovery	1	1.25	1	Provision of an automatic refrigerant pump down to the heat exchanger (or dedicated storage tanks) with isolation valves, or no refrigerants are specified.	Watkins Payne Partnership confirmed that provision will be made for appropriate refrigerant recovery. Details must be included in the specifications and drawings.	0	N/A
Pol 9-4	NOx emissions of heating source.	4	1.25 each	2	Specification of low NOx boilers: 1 credit where emissions are ≤140 mg/kWh delivered heating energy; 2 credits where emissions are ≤ 89 mg/kWh delivered heating energy; 3 credits where emissions are ≤ 59 mg/kWh delivered heating energy; and 4 credits where emissions are ≤ 39 mg/kWh delivered heating energy."	Watkins Payne Partnership confirmed that the high efficiency boilers will have emissions of less than 89 mg/kWh delivered heating energy.	1	Potential for an additional credit if NO_x levels are below 59mg/kWh delivered heating energy.
Pol 9-5	Water run-off	1	1.25	1	Where rainwater holding facilities and/or sustainable drainage techniques are used to provide attenuation of water runoff by 50% at peak times to either natural watercourse and/or municipal drainage systems.	Storage tanks located in the basement will provide between 60 and 65% attenuation of rainwater. Plans to confirm the provision of rainwater holding facilities and calculations to demonstrate the attenuation achieved would need to be provided.	0	N/A
Pol 9-6	Watercourse Pollution	1	1.25	1	Provision of oil separators/ interceptors or filtration in areas that are at risk form pollution (e.g. car parks, waste disposal facilities or plant areas.)	Watkins Payne Partnership confirmed that oil interceptors would be incorporated. The specifications would need to include a requirement for the appropriate type of oil interceptors to be used in accordance with the Environment Agency Guidance PPG3 (Ref. 11).	0	N/A
Pol 9-7	Refrigerant GWP	1	1.25	0	All refrigerant types have a Global Warming Potential (GWP) of below 5 or where no refrigerants are present.	Credit not sought after.	0	N/A

Credit Ref. No.	Description of Credit	Credits Available	% Value	Probable Credits	Summary of Credit Requirements	Design Commitments	Potential Additional Credits	Additional Requirements
Pol 6-8	Renewable Energy	1	1.25	1	At least 10% of either the heat demand or the electricity consumption in the building is supplied from local renewable energy sources.	Woodchip biomass boiler will be incorporated and is expected to achieve 10% of the buildings energy demand. Provide details of biomass boiler and calculations to confirm 10% energy demand is achieved.	0	N/A
Pol 8-8	Reduction of Night Time Light Pollution	1	1.25	0	External lighting to be in compliance with ILE Guidance Notes for the reduction of obtrusive light, 2005 (Ref. 12). All external lighting can be automatically switched off between 2300 and 0700. Where safety or security lighting is used between these hours, the lighting must comply with the lower levels set by the ILE Guidance Notes.	Credit not sought after.	1	Details of external lighting would need to be included in the plans and specifications.
Pol 1-1	Insulant Ozone Depletion Potential (ODP) and Global Warming Potential (GWP)	1	1.25	0	Where insulating materials specified have a GWP of below 5 and ODP of 0. Includes insulation products used in the following areas: • Building fabric including (but not exclusively): walls, roof, floor, window frames, doors, cavity closures and lintels; • Building services including (but not exclusively): chilled water pipework, refrigerant pipework, ductwork, hot and cold water pipes, and water tanks; and • Internal sound proofing.	Although there is no current commitment, insulation materials could potentially be specified to achieve this credit.	1	Details of the type of insulation used, manufacturer, and GWP would need to be provided to the BREEAM assessor for each of the building areas listed.
Sub-total:		12	8.75	7			3	
TOTAL			67.92%				6.95%	

7. Summary of the Building Performance

7.1.1 Management

The building is expected to perform well under Management issues, achieving 9 credits out of a possible 10. The design team has made a commitment to minimise a number of impacts during construction by complying with the Considerate Constructor Scheme to 'better than industry standards', using sustainably sourced temporary timber and monitoring and reporting on a number of site activities. Provisions will be made for the commissioning stage including a commitment to undertake seasonable commissioning and ensuring all responsibilities for commissioning are passed on to all contractors. A commitment has also been made to provide a simple building users' guide.

7.1.2 Health & Wellbeing

The building is expected to achieve 10 credits out of a possible 15 in this section as a result of various design considerations. These include the specification of: high frequency ballasts; appropriate zoning for lighting, heating and cooling; absence of any humidification, lighting compliant with CIBSE Lighting Guide 7; water and air conditioning systems in compliance with HSE Approved Code of Practice and Guidance L8. The design will also allow for appropriate ventilation rates and indoor ambient noise levels. In addition, a commitment has been made to undertake thermal modelling to inform the building design and form. Points for daylighting and view out were lost due to the expanse of the floorplan and also since not all windows will be openable. Also, although the design incorporates fixed louvers, a credit was withheld due to the absence of occupant controlled blinds.

7.1.3 Energy

The building is expected to achieve 11 out of the 17 credits available for energy issues. The building design allows for energy sub-metering and electrical sub-metering for individual tenants. Due to the early stage of the design, assumptions have been made of the performance of the buildings fabric and form and also the predicted net carbon dioxide emissions. Additional credits may be achieved here although no potential credits have been assumed due to the stage of the design.

7.1.4 Transport

The building is expected to achieve 14 credits out of the 14 available in the Transport category due to the accessibility of the sites location, provision of drying space and showers for cyclists. No additional credits available.

7.1.5 Water

The building is expected to achieve 4 credits out of the 6 available in the Water category, due to the provision of water efficiency measures including a water meter, low flow sanitary ware and sanitary shut-off devices. No additional credits are likely to be achieved here unless further consideration is given to installation of greywater systems or leak detection systems.

7.1.6 Materials

The building is expected to achieve 5 credits out of a possible 12 in the Materials category of the assessment due to the exclusion of asbestos, suitable storage for recyclable waste, use of sustainable timber and by not installing any floor finishes. Credits were lost due to the materials used in the design which are unlikely to achieve an 'A' rating as defined by BRE's Green Guide to Specification, also since the design is new build and therefore does not re-use an existing structure or façade. Potential points could also be achieved for the provision of adequate recyclable waste storage, the requirements for which

should be reviewed further as the design progresses. No additional credits are likely to be achieved here without major changes to the design to incorporate 'A' rated materials.

7.1.7 Land Use and Ecology

The building is expected to score 6 credits out of a total possible 11 in the Land Use and Ecology section for the use of previously developed land and use of an appropriately qualified ecologist to provide ecological enhancements to the site and manage the long term biodiversity impacts. Additional credit could be achieved where enhancements to the ecological diversity to achieve a positive change of at least 6 species can be demonstrated.

7.1.8 Pollution

The building is expected to achieve 7 credits out of a maximum 12 available for Pollution. This section assesses the building against a wide range of issues and commitment has been made to incorporate various initiatives, including the use of biomass to supply at least 10% of the developments energy demand, use of petrol interceptors and attenuation of rainwater runoff, installation of a leak detection system, refrigerant recovery, lighting that is in compliance with Institute of Light Engineers (ILE) guidance notes for reduction of light pollution and boilers with dry NOx emissions of less than 89mg/kWh delivered heat energy.

Additional credits could be achieved through specifying boilers with a dry NOx emission of less than 59mg/kWh delivered heat energy, specification of: insulation materials which avoid the use of ozone depleting and global warming substances and external lighting that is compliant with ILE Guidance Notes.

7.2 Probable BREEAM for Offices Rating

	Minimum Score Required	BREEAM Rating
	25	PASS
Current Rating	40	GOOD
	55	VERY GOOD
Potential Rating	70	EXCELLENT

Based on the **'Probable Credits'** detailed by this 'Pre-Assessment Estimation', the likely BREEAM for Offices Rating of Building M, Regent's Place, North East Quarter is currently **'Very Good'** (with a probable score of 68.09 credits). There are potentially an additional 6 credits available in a variety of different BREEAM credit areas which would provide a score of 75.04 and a rating of **'Excellent'**.

It should be noted that the 'Pre-Assessment Estimator' provides only an estimate of a BREEAM rating. Predicted ratings are likely to change in some credit areas following the formal BREEAM assessment of the latest scheme details and the BRE QA audit.

Please also note that this 'probable score' also currently includes the assumptions detailed in the previous section that were agreed with design team members. Supporting evidence is required in all these cases for the formal BREEAM Assessment and, should firm evidence be unavailable in any area, that credit must be withheld.

8. Conclusion

Based on the information provided by the design team, the commitments made by them and the assumptions outlined above, the BREEAM Office 2005 Pre-Assessment Estimator has predicted a **BREEAM rating of 'Very Good'**. The design team must ensure that all the credits that have been committed to are met in order for the rating to be achieved. The design team must also be aware that all information must be documented in either specifications or drawings for these credits to be awarded at the formal assessment stage. In addition credits have been identified that can potentially increase the score to 75.04 which will achieve an **'Excellent'** rating

9. References

1. Building Research Establishment (BRE), 2003, Control of Dust from Construction and Demolition Activities.
2. Environment Agency, PPG6: Working at demolition and construction sites.
3. Building Research Establishment (BRE), 2003, Pollution Control Guide Parts 1-5.
4. Environment Agency, PPG1: General Guide to the Prevention of Pollution.
5. Environment Agency, PPG5: Works in, near or liable to affect watercourse.
6. Chartered Institution of Building Services Engineers (CIBSE), 2004, Code for Lighting, Part 2.
7. Chartered Institution of Building Services Engineers (CIBSE), 2001, Lighting Guide 3: Addendum 2001, The Society o Light and Lighting 2001.
8. CIBSE, 1999, CIBSE Guide Volume A: Design Date.
9. CIBSE, 2002, CIBSE TM13: Minimising the risk of legionnaires disease.
10. Approved code of practice and guidance L8 – 'Legionnaires' disease; The control of legionella bacteria in water systems'. HSC 3rd Ed. 2000.
11. Environment Agency, Pollution Prevention Guideline (PPG) 3 – Use and design of oil separators in surface water drainage systems.
12. Institute of Lighting Engineers, 2005, Guidance noire for the reduction of obtrusive light, GN01.

Summary Of BREEAM For Offices Pre-Assessment Estimator For Building M EN5031

Appendix A Building Users Guide

User Guide Contents

The list below indicates the type of information that should be included to meet the needs of the Facilities Management (FM) Team/Building Manager and the general users (staff).

1. Building Services Information

a) **General User** - Information on heating, cooling and ventilation in the building and how these can be adjusted, e.g. thermostat location and use, implications of covering heating outlets with files, bags etc., and use of lifts and security systems.
b) **FM** – As above plus, a non technical summary of the operation and maintenance of the building systems (including BMS if installed) and an overview of controls.

2. Emergency Information

a) **General User** - Include information on the location of fire exits, muster points, alarm systems and fire fighting systems.
b) **FM** – As above plus, details of location and nature of emergency and fire fighting systems, nearest emergency services, location of first aid equipment.

3. Energy & Environmental Strategy

This should give owners and occupiers information on energy efficient features and strategies relating to the building, and also provide an overview of the reasons for their use, e.g. economic and environmental savings. Information could include;

a) **General User** – Information on the operation of innovative features such as automatic blinds, lighting systems etc., and guidance on the impacts of strategies covering window opening and the use of blinds, lighting and heating controls.

b) **FM** - As above plus, information on airtightness and solar gain (e.g. the impact of leaving windows/doors open in an air-conditioned office, or use of blinds in winter with respect to solar gain); energy targets and benchmarks for the building type, information on monitoring such as the metering and sub-metering strategy, and how to read, record and present meter readings.

4. Water Use

a) **General User** – details of water saving features and their use and benefits, e.g. aerating taps, low flush toilets, leak detection, metering etc.

b) **FM** – As above plus, details of main components (including controls) and operation. Recommendations for system maintenance and its importance, e.g. risk of legionella.

5. Transport Facilities

a) **General User** – details of car-parking and cycling provision; local public transport information, maps and timetables; information on alternative methods of transport to the workplace, e.g. car sharing schemes; local 'green' transport facilities.

b) **FM** - As above plus, information on conditions of access, maintenance and appropriate use of car parking and cycling facilities, e.g. number of spaces provided. The above information does not need to be included in the user guide if there is a separate dedicated travel information space, accessible to the staff, and in compliance with BREEAM credit T10. However the guide must reference the travel information space, the information provided and its location."

6. Materials & Waste Policy

a) **General User** – Information on the location of recyclable materials storage areas and how to use them appropriately.

b) **FM** – As above plus, information on recycling, including recyclable building/office/fit out components, waste storage and disposal requirements; examples of Waste Management Strategies and any cleaning/maintenance requirements for particular materials and finishes.

7. Re-fit/Re-arrangement Considerations

a) **General User** – an explanation of the impact of re-positioning of furniture, i.e. may cover grilles/outlets, implications of layout change, e.g. installation of screens.

b) **FM** - As above plus, environmental recommendations for consideration in any refit. Relevant issues covered in BREEAM should be highlighted, e.g. the use of natural ventilation, use of Green Guide 'A' rated materials, re-use of other materials etc., the potential impact of increasing occupancy and any provision made in the original design to accommodate future changes.

8. Reporting Provision

a) **General User** – Contact details of FM/manager, maintenance team, and/or help desk facility; and details of any building user group if relevant.

b) **FM** – As above plus, contact details of suppliers/installers of equipment and services and their areas of responsibility for reporting any subsequent problems.

9. Training

Details of the proposed content and suggested suppliers of any training and/or demonstrations in the use of the building's services, features and facilities that will be needed. This could include;

a) **General User** - Training in the use of any innovative/energy saving features.

b) **FM** – As above plus, training in emergency procedures and setting up, adjusting, and fine tuning, the systems in the building.

10. Links & References

This should include links to other information including websites, publications and organisations. In particular, the 'Carbon Trust' programme should be referenced and links provided to its website and good practice guidance.

11. General

Where further technical detail may be required by the FM Team or manager there should be references to the appropriate sections in the Operation and Maintenance Manual.

Summary Of BREEAM For Offices Pre-Assessment Estimator For Building M EN5031

Appendix B Construction Site Impacts

1. Commitment to monitor, report and set targets for CO_2 production or energy use arising from site activities

a. Confirmation is required that monthly measurements of energy use will be recorded and displayed on site.
b. Appropriate target levels of energy consumption must be set and displayed (targets could be annual, monthly, or project targets).
c. As a minimum monitoring must include checking the meters and displaying some form of graphical analysis in the site office to show consumption over the project duration and how actual consumption compares to the targets set.
d. The design/site management team is to nominate an individual who will be responsible for the monitoring and collection of data.

2. Commitment to monitor and report CO_2 or energy arising from commercial transport to and from the site

Confirmation is required that a site monitoring system will be in place to monitor and record deliveries. This system will need to record:

a. The number of deliveries,
b. The mode of transport,
c. The kilometres/miles travelled for all deliveries.

3. Confirmation is required that the site's construction waste is being monitored. Confirmation can either be in the form of:

a. a site specific waste policy or procedure,
b. specification,
c. letter of appointment or
d. other formally written document.

Waste must either be:

a. Re-cycled on site or
b. sorted on site and collected for recycling locally.

5. Confirmation is required that the site's construction waste will be sorted into at least five categories (including ceramics, metals, packaging, concrete, insulation, plaster/cement, timber, chemicals and oils) and recycled / reused as appropriate.

This confirmation can be in the form of a site specific waste policy or procedure, specification, letter of appointment for a waste / recycling contractor, or other formally written document.

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Appendices

6. Commitment to monitor, report and set targets for water consumption arising from site activities

Confirm in writing, that monthly measurements of water consumption will be recorded and displayed on site.

a. Appropriate target levels of water consumption must be set and displayed.
b. As a minimum monitoring must include checking the meters and displaying some form of a graphical analysis in the site office to show consumption over the project duration and show actual consumption compares to targets set.
c. The design/site management team is to nominate an individual who will be responsible for the monitoring and collection of data.

7. Commitments to adopt best practice policies in respect to air (dust) pollution

Confirmation is required of the site's procedures to minimise air / dust pollution. This can include:

a. 'dust sheets',
b. regular proposals to damp down the site in dry weather,
c. covers to skips etc

The site team must indicate how this information is disseminated to site operatives.

Note: the following publications provide good practice guidelines on construction related pollution.

13. Building Research Establishment (BRE), 2003, Control of Dust from Construction and Demolition Activities.

14. Environment Agency, PPG6: Working at demolition and construction sites.

15. Building Research Establishment (BRE), 2003, Pollution Control Guide Parts 1-5.

16. Environment Agency, PPG1: General Guide to the Prevention of Pollution.

8. Commitment to adopt best practice policies in respect to water (ground and surface) pollution

Confirmation is required of the site's procedures to minimise water pollution following best practice guidelines outlined in the following documents:

a. PPG 1 – General guide to the prevention of pollution. Environment Agency
b. PPG 5 – Works in, near or liable to affect watercourses. Environment Agency
c. PPG 6 – Working at demolition and construction sites. Environment Agency

The site team must also indicate how this information is disseminated to site operatives.

9. Commitment to source timber used during construction from sustainably managed sources

75% of timber used during construction, including formwork, site hoardings and other temporary site timber used for the purpose of facilitating construction, is to be procured from sustainably managed sources, such as FSC and PEFC.

d. Re-used timber from off site can be counted as equivalent but reusable formwork only complies if it meets the above criteria.
e. This credit can be awarded where all the timber used is reclaimed timber

Summary Of BREEAM For Offices Pre-Assessment Estimator For Building M EN5031

Appendix C Long Term Impact on Biodiversity

All the mandatory requirements, plus any three of the additional requirements listed below must be achieved.

Mandatory Requirements

A suitably qualified ecologist (as defined in Eco 1-3), appointed prior to commencement of activities on site, must confirm in writing that:

A) All the relevant UK and EU legislation relating to protection and enhancement of ecology has been complied with during the design and construction process.

(B) An appropriate management plan covering at least the first 5 years after project completion is produced. This is to be handed over to the building occupants and should include:

- management of any protected features on site;
- management of any new, existing or enhanced habitats; and
- a reference to the current or future site level Biodiversity Action Plan.

Additional Requirements

(C) The client must require the contractor to appoint a 'Biodiversity Champion' with authority to influence site activities and to ensure impacts on the site biodiversity are minimised in line with an ecologist's recommendations.

(D) The client must require the contractor to train the site workforce on how to protect the site ecology during the project. Specific training should be carried out for **all** the site work force to ensure they are aware of how to avoid damaging site ecology. The training should be based on the findings and recommendations for protection of features highlighted within an ecologist's report.

(E) The client must require the contractor to monitor and record actions taken to protect biodiversity, and their effectiveness throughout key stages of the construction. The requirement should commit the contractor to make such records available where publicly requested.

(F) The client must require that a new ecologically valuable habitat, appropriate to the local area, is created. This includes habitat that supports nationally, regionally or locally important biodiversity, and/or which is nationally, regionally or locally important. It includes any habitat listed in the UK Biodiversity Action Plan (UK BAP), Local Biodiversity Action Plan (LBAP), those protected within statutory sites (e.g. SSSIs) or those within nonstatutory sites identified in local plans. For further guidance, refer to credit Eco 1-2: 'Change in Ecological Value'.

(G) The client must require the contractor to programme the site work to minimise disturbance to wildlife. For example site preparation, ground works and landscaping have been or will be scheduled at an appropriate time of year to minimise disturbance to wildlife. Timing of works may have a significant impact on for example, breeding birds, flowering plants, seed germination, amphibians etc. Actions such as phased clearance of vegetation may help to mitigate ecological impacts. This item will be achieved where a clear plan has been produced detailing how activities will be timed to avoid any impact on site biodiversity.

(H) The client must require that actions to protect/enhance biodiversity take full account of the UK Biodiversity Action Plan(UK BAP), and use local biodiversity experts o help identify ecologically important habitats/species on site. Local biodiversity expertise should be sought at or before design stage, to help identify species of local biodiversity importance on site. It is likely that their recommendations will draw on the Local Biodiversity Action Plan (LBAP) where one exists.

EcoHomes 2005 Pre-Assessment Estimator

REGENT'S PLACE NORTH EAST QUARTER, LONDON - SOCIAL HOUSING

EcoHomes 2005 Pre-Assessment Estimator

REGENT'S PLACE NORTH EAST QUARTER, LONDON - SOCIAL HOUSING

Client:

M3 CONSULTING

Author:

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Signature Pallab Chatterjee

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Checked by:

Name **Steve Brindle BSc (Hons) MSc AIEMA**

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Approved by:

Name **Joanna Bagley BSc (Hons) AIEMA**

Signature

Position Associate Director

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Contents

Regent's Place North East Quarter, London - Social Housing EN5031

Executive Summary

Waterman Environmental was commissioned by M3 Consulting, on behalf of British Land, to undertake an EcoHomes 2005 Design and Procurement (D&P) Pre-Assessment Estimator for the social element of the new residential development of Regent's Place North Eastern Quarter, London.

EcoHomes is a voluntary, standard environmental assessment method by which the environmental impact of a residential building is assessed against a range of issues, and credits are awarded where the building achieves a benchmark performance. A building is awarded an EcoHomes rating based on its overall performance expressed as 'Pass', 'Good', 'Very Good' or 'Excellent' depending on the total score achieved.

This report summarises the results of an EcoHomes Pre-Assessment completed for the current scheme design, in order to provide a quick evaluation of the likely EcoHomes rating to be achieved under a formal assessment. M3 Consulting and British Land would like to achieve a 'Very Good' rating and aspire to achieving an 'Excellent' rating.

Based on the information provided, the commitments made by the design team and a number of assumptions, the development known as Regent's Place North Eastern Quarter, London has a predicted EcoHomes score of 69.4% and a rating of **'VERY GOOD'**.

The potential credits being awarded for each category based on the commitments made at the Pre-Assessment meeting are summarised below:

- Energy – 85% of the credits achieved;
- Transport – 100% of the credits achieved;
- Pollution – 71.4% of the credits achieved;
- Materials – 51.6% of the credits achieved;
- Water – 66.7% of the credits achieved;
- Land Use and Ecology – 66.7% of the credits achieved;
- Health and Wellbeing – 50% of the credits achieved.

The area that is performing poorer than the others is Health and Wellbeing. Improvements in this area could ensure a rating of 'Excellent' is achieved.

1. Assessment Information

Nature of Assessment	EcoHomes 2005 Design and Procurement Pre-Assessment Estimator
Name of Building	Regent's Place North East Quarter
Address of Building	Regent's Place North East Quarter, London
Client	M3 Consulting
Developer	British Land
Project Manager Contact	Richard Cowan
Project Manager Address	7 Tokenhouse Yard, London EC2R 7AS
Architect's Contact	Guy Morgan of Munkenbeck and Marshall Architects
Architect's Address	North Building, Gainsborough Studios, One Poole Street, London N1 5EB
Building Services Engineer's Contact	Andrew Thrower of Watkins Payne Partnership
Contact Address	51 Staines Road West, Sunbury-on-Thames, Middlesex TW16 7AH
Gross External Area	30, 296m^2
Occupancy	171 units of which 70 are affordable (social and intermediate).
Details of the Development	The development consists of a new build apartment block, 24 storeys in height, containing one bedroom, two bedroom and three bedroom units.

2. Introduction

A design team, including Munkenbeck and Marshall Architects as the Architects and Watkins Payne Partnership as the Building Services Engineers, was commissioned by M3 Consulting on behalf of British Land, for the development of Regent's Place North East Quarter.

The new building will be a mixed use 16 storey office and 24 storey residential development with retail units on the ground floor. The residential units will include one bedroom, two bedroom and three bedroom units. The site is on Drummond Street and Hampstead Road and currently has existing buildings with mixed office and residential use.

M3 Consulting, the project managers of the building, has instructed Waterman Environmental to complete an EcoHomes 2005 Pre-Assessment Estimator for the scheme in order to achieve a desired rating of 'Very Good' and to understand the requirements to achieve an 'Excellent'. This report summarises the results of the Pre-Assessment Estimator, sets out the commitments and assumptions made by the design team during the exercise and highlights areas where the potential exists for additional points to be achieved. The Pre-Assessment Estimator meeting was held on 29 January 2007 with the following members of the design team present:

- Richard Cowan – M3 Consulting;
- Andrew Thrower - Watkins Payne Partnership (WPP); and
- Guy Morgan - Munkenbeck and Marshall Architects (M and M).

3. Methodology

The Building Research Establishment (BRE) has developed a voluntary, standard environmental assessment method known as EcoHomes for all dwelling units. The tool assesses the environmental impact of a building against a range of issues and credits are awarded where the building achieves a benchmark performance. EcoHomes seeks to bring about reductions in the environmental impact of buildings through recognition of the business benefits, which can be achieved.

The method addresses impacts of a building on the global, local and indoor environments across a range of issues, grouped under the headings of:

- Energy;
- Transport;
- Water;
- Materials;
- Land Use and Ecology; and
- Pollution;
- Health and Wellbeing.

A building is given a score to indicate its overall environmental performance. This is referred to as the EcoHomes rating which is expressed as 'Pass' (36%), 'Good' (48%), 'Very Good' (58%) and 'Excellent' (70%) depending on the total score awarded. A minimum score is required to achieve a 'Pass' rating, below which an EcoHomes rating is regarded as unclassified.

A Pre-Assessment Estimator provides a quick evaluation of the EcoHomes rating likely to be achieved under a formal assessment. The results can be used to feed into the design process in order to maximise the score achieved; and its completion is a means of monitoring the sustainability performance of the development against this established, independent benchmark. It should be noted that, as the Pre-Assessment Estimator is a simplified version of the full method, it only provides an estimate of the likely EcoHomes rating. As a consequence, the final rating may vary following a formal assessment by a licensed assessor.

4. Report Structure

The following section, Section 5 summarises the assessment in a table format and highlights the scores and the percentage achieved for each criteria. Section 6, provides a more detailed table of each of the issues assessed by the EcoHomes method. The third column of the table denotes the number of credits available for each issue and the next column provides the percentage value for each credit. This will allow the design team to calculate the score should they choose to alter the design and focus on other credits. The fifth column denotes the number of credits that are likely to be achieved in the full assessment. These credits have been awarded based on the commitments made by the design team during the pre-assessment meeting held on 29 January 2007. A brief description of the credit requirements is provided in the sixth column, followed by the 'design commitments and actions' column which highlights actions for the design team in order to ensure that the credit is achieved at the final assessment stage. The seventh column identifies where there is the potential for additional credits and the final column provides information regarding the additional requirements for these credits to be awarded.

Section 7 of this report describes the performance of the building. This summarises how the scheme is expected to perform under the seven topic headings provided by EcoHomes and highlights areas where improvements to the predicted EcoHomes rating could be made.

The probable and potential EcoHomes rating is provided in Section 8, with overall conclusions presented in Section 9.

5. Summary Table

The table summary below provides the score for each criteria and the percentage of the credit that were awarded during the pre-assessment meeting held on 29 January 2007. These credits have been awarded on the assumption that they will be achieved once the required information is provided at the final EcoHomes assessment stage.

Credit Allocation Table

Overall Credit Allocation	Environmental Weighting	Credits Available	Credits Assumed	% of the Credit Assumed	Credits Score
Energy		20	17	85	
Transport		8	8	100	
Sub Total	0.3	28	24	85.7	26.8
Pollution	0.15	7	5	71.4	10.7
Materials	0.15	31	16	51.6	7.7
Water	0.10	6	4	66.7	6.67
Land Use and Ecology	0.15	9	6	66.7	10.0
Health and Wellbeing	0.15	8	4	50	7.5
TOTAL					69.37 %

6. Summary of EcoHomes Pre-Assessment Estimator

Credit Ref. No.	Description of Credit	Credits Available	% value	Probable Credits	Summary of Credit Requirements	Design Commitments and Actions	Potential Additional Credits	Additional Requirements
	ENERGY							
Ene 1	Carbon Dioxide Emissions	1 2 3 4 5 6 7 8 9 10 Max 10	1.07 2.14 3.21 4.29 5.36 6.43 7.50 8.57 9.64 10.71	7	Points are awarded on the basis of SAP 2005 related average CO_2 emissions in accordance with the following criteria: • Less than or equal to 60 kg/m^2/yr • Less than or equal to 50 kg/m^2/yr • Less than or equal to 45 kg/m^2/yr • Less than or equal to 35 kg/m^2/yr • Less than or equal to 30 kg/m^2/yr • Less than or equal to 27 kg/m^2/yr • Less than or equal to 25 kg/m^2/yr • Less than or equal to 20 kg/m^2/yr • Less than or equal to 10 kg/m^2/yr • Less than or equal to 0 kg/m^2/yr	Andrew Thrower of WPP stated during the pre-assessment meeting on 29 January 2007 that the development will be 10 to 15% more efficient than new Part L Building Regulations. This is likely to achieve CO_2 emissions of less than or equal to 25 kg/m^2/yr, therefore 7 credits have been assumed. For credits to be awarded at the assessment stage, a SAP assessment must be undertaken by an accredited SAP assessor. Andrew Thrower has stated that WPP will carry out the SAP assessments. Once complete WPP must provide the assessor with the SAP worksheets in order to calculate the credit. In addition WPP must ensure that dedicated low energy light fittings will be provided for the lounge, kitchen and hallway. Fitting types must be such that ONLY fluorescent strip lamps or dedicated compact fluorescent lamps will be accepted. Appropriate drawings or specifications must be provided to confirm the details and the location of the low energy lighting.	0	N/A
Ene 2	Building Envelope Performance	1 2	1.07 each		Percent improvement across the site in average U-value compared with relevant building regulations. If built to: • England and Wales 2002 Building regulations part L1 • Scotland Part J of the Technical Standards (6th amendment) – 3% improvement – 6% improvement	Andrew Thrower of WPP stated during the pre-assessment meeting on 29 January 2007 that the cladding will achieve a 15% improvement compared to 2002 Building regulations part L1. 5 credits have been assumed. For credits to be awarded, a SAP assessment must be undertaken by an accredited SAP assessor. SAP worksheets should be given to the EcoHomes assessor in order to calculate	0	N/A

Credit Ref. No.	Description of Credit	Credits Available	% value	Probable Credits	Summary of Credit Requirements	Design Commitments and Actions	Potential Additional Credits	Additional Requirements
		3 4 5 Max 5		5	– 9% improvement – 12% improvement – 15% improvement	the credit.		
Ene 3	Drying Space	1	1.07	1	Points are awarded for providing space and posts, footings and fixings for drying clothes in a secure environment for each unit on the site. This may be external or internal.	Andrew Thrower of WPP stated during the pre-assessment meeting on 29 January 2007 that internal drying space will be provided. To obtain this credit a line fixing over the bath must be provided with an extract fan with humidistat. This information must be highlighted in design drawings and specifications.	0	N/A
Ene 4	Eco Labelled White Goods	1 1 OR 1 Max 2	1.07 each	2	Provision of eco labelled white goods with the following energy ratings: • All fridges, freezers, fridge-freezers with an 'A' rating • All washing machines, and dishwashers where supplied, with an 'A' rating and washer dryers and tumble dryers with a rating of 'B' or higher OR No white goods provided but info on Eco labelling provided to future residents. NOTE: For developments containing a percentage of affordable homes, two credits are available where 100% of the speculatively built homes have 'A' rated appliances, and 100% of social homes have information provided.	Richard Cowan of M3 Consulting stated during the pre-assessment meeting on 29 January 2007 that 'A' rated white goods will be provided only in the private units. However all affordable units will be provided with information about energy labelling. 2 credits have been assumed provided that the 100% of the market dwellings will receive 'A' rated fridge-freezers, washing machines and dishwashers. Credits will be awarded once an appropriate clause from the specification is provided confirming product and performance criteria for the white goods.	0	N/A
Ene 5	External Lighting	1 1	1.07 each	2	Space lighting: • all space lighting is specifically designed to accommodate only compact fluorescent lamps (CFL) Security lighting: • all intruder lighting to be 150 watts maximum and be fitted with PIR and day light sensor and • all other type of security lighting to	Andrew Thrower of WPP stated during the pre-assessment meeting on 29 January 2007 that all external lighting will meet requirements. 2 credits assumed. Clause from specification and drawings are required to confirm the type of lighting, location and details. Provide manufacturer's literature to confirm type of fittings.	0	N/A

Credit Ref. No.	Description of Credit	Credits Available	% value	Probable Credits	Summary of Credit Requirements	Design Commitments and Actions	Potential Additional Credits	Additional Requirements
		Max 2			accommodate CFLs or fluorescent strips only and be fitted with dawn to dusk sensors or timers			
Sub-total:		20	17.12%	17			0	
	TRANSPORT							
Tra 1	Public Transport	1 2 Max 2	1.07 each	2	60% of the development within: 1000m of a 30 min peak and an hourly off peak service OR 500m of a 15 min peak and a half hourly off peak service	The residential development of NEQ is within 500m of Warren Street tube station and Great Portland Street tube station. In addition there are at least eight bus routes along Euston Road. 2 credits have been assumed. To award credits, the assessor will require a site plan clearly marking the distance from the front door of the residential development to the underground stations and the nearest bus stops via safe pedestrian routes.	0	N/A
Tra 2	Cycle Storage	1 OR 2 Max 2	1.07 each	2	Provision of cycle storage for: 50% of dwellings OR 95% of dwellings The provision is determined by the number of bedrooms within a dwelling: • 1 and 2 bedroom flat/house – storage for 1 cycle • 3 bedroom flats/houses – storage for 2 cycles • 4 bedrooms and above – storage for 4 cycles. The storage provision should be safe and weather-proof.	The residential development consists of 70 affordable units of which 60 are one and two bedroom flats and 10 are three bedroom flats. The development will be providing 77 cycle spaces for the affordable units which achieve the EcoHomes requirement of 76 spaces for 95% of the dwellings. Therefore 2 credits have been assumed. For the credits to be awarded, drawings are required to confirm the position of the cycle racks, and the specification must confirm the number of racks provided, that the storage area is covered and has adequate security protections. Keys should only be issued to those using the store and fixings should allow both the wheel and the frame to be locked securely.	0	N/A
Tra 3	Local Amenities	1 1	1.07 each	3	Proximity to local amenities: • Within 500m of a food shop and post box • Within 1000m of 5 of the following:	The design team stated during the pre-assessment meeting that the building will meet all requirements. 3 credits assumed.	0	N/A

Credit Ref. No.	Description of Credit	Credits Available	% value	Probable Credits	Summary of Credit Requirements	Design Commitments and Actions	Potential Additional Credits	Additional Requirements
		1 Max 3			food shop* postal facility, bank/ cash machine, pharmacy, primary school, medical centre, leisure centre, community centre, public house, children's play area, place of worship, outdoor open access public area • Safe pedestrian routes to the local amenities *if not used for the 1st credit	M and M to provide a site plan identifying the location of all amenities and distances from the front door of the building. Distances should be measured as a walking route via safe pedestrian crossings and NOT as a straight line.		
Tra 4	Home Office	1	1.07	1	Provision of a space and services which allows the occupants to set up a home office in a quiet room. The required space and services are, as a minimum: • two double sockets. • two telephone points or equivalent (e.g. broadband) one telephone point. • window and adequate ventilation. • minimum size (1.8m wall length) to allow a desk and filing cabinet. • for three or more bedroom units, the space should be in a room other than the kitchen, living room, master bedroom or bathroom. • for one / two bedroom or studio homes, the space may be in the living room, in the 2nd bedroom or any other suitable area in the home such as a large hall or dining area.	Andrew Thrower of WPP stated during the pre-assessment meeting on 29 January 2007 that facilities for a home office will be provided. Credit assumed. For the credit to be awarded, drawings and specifications should be provided to confirm that the home office location meets the minimum requirements. Confirm that the site will have access to broadband.	0	N/A
Sub-total:		8	8.56%	8			0	
	POLLUTION							
Pol 1	Insulation ODP and GWP	1	2.14	0	Specifying insulating materials, that avoid the use of substances that have a global warming potential (GWP) of 5 or more (and have a ODP of zero), in either manufacture or composition, for the following elements: • roof (including loft access) • wall – internal and external (including doors, lintels and all	This credit is currently not sought.	1	Provide specification and drawings confirming the location and type of insulation used. Provide details to confirm the insulation has a zero ODP and GWP of less than 5. Note: Examples of insulation materials with a GWP with less

Credit Ref. No.	Description of Credit	Credits Available	% value	Probable Credits	Summary of Credit Requirements	Design Commitments and Actions	Potential Additional Credits	Additional Requirements
					acoustic insulation) • floor (including foundations). • Hot water cylinder, pipe insulation and other thermal store.			than 5 include mineral wool and glass fibre; however companies such as Celotex and Kingspan do manufacture products which meet this criteria.
Pol 2	**NO_x Emissions**	1 2 3 Max 3	2.14 each	3	95% of dwellings throughout the development must be served by heating and hot water systems with an average NO_x emission rate of less than or equal to the levels listed below: • Less than or equal to 150 NO_x mg/kWh; or • Less than or equal to 100 NO_x mg/kWh; or • Less than or equal to 70 NO_x mg/kWh.	Andrew Thrower of WPP stated during the pre-assessment meeting on 29 January 2007 that central community boilers in the plant room will have a NO_x emission rate of less than or equal to 70 NO_x mg/kWh. Therefore 3 credits have been assumed. Details of the boiler to be used will be required, including manufacturer's details, make, model and dry NO_x level / class of boiler.	0	N/A
Pol 3	**Reduction of Surface Runoff**	1 1 Max 2	2.14 each	2	Where rainwater holding facilities and/ or sustainable drainage techniques are used to provide attenuation of water run-off to either natural watercourses and/or municipal drainage systems, by 50% at peak times from: • Hard Surfaces • Roofs	Andrew Thrower of WPP stated during the pre-assessment meeting on 29 January 2007 that all rain water from the roofs and hard surfaces will be collected in a central collection system in the basement thus attenuating approximately 60 to 65% of the water run-off to either natural water courses or the municipal drainage system. Two credits have therefore been assumed. Provide drawings and specifications confirming run-off attenuation devices and location. Provide calculations to confirm the type and storage volumes of the attenuation measures and the amount of attenuation achieved.	0	N/A
Pol 4	**Zero Emission Energy Source**	1	2.14 each	0	If at least 10% of EITHER • the heat (space and hot water) demand OR • the non heating electrical demand within the development is supplied from local renewable energy sources.	This credit is not sought.	0	N/A
Sub-total:		7	10.7%	5			1	

Credit Ref. No.	Description of Credit	Credits Available	% value	Probable Credits	Summary of Credit Requirements	Design Commitments and Actions	Potential Additional Credits	Additional Requirements
	MATERIALS							
Mat 1	**Timber: Basic Building Elements**	0 2 2 4 4 6	0.48 each	6	Percentage of certified* timber and timber products and/ or recycled/ reused elements: • 30% and origin of remaining timber Non Temperate • 30% and origin of remaining timber Temperate • 60% and origin of remaining timber Non Temperate • 60% and origin of remaining timber Temperate • 75% and origin of remaining timber Non Temperate • 75% and origin of remaining timber Temperate *CSA, FSC, MTCC, PEFC, SFI or any combination of these subject to the requirement for a full third party chain of custody.	Richard Cowan of M3 Consulting stated during the pre-assessment meeting on 29 January 2007 that the developer, British Land requires all timber to be sourced from sustainable sources such as FSC. 6 credits assumed. Provide specification confirming that all timber must be obtained from FSC or equivalent sources together with letters of intent from all suppliers confirming that the chain of custody requirements will be met. The volumes of the timber used for each element must also be provided to confirm that 100% of the timber to be used will be FSC.	0	N/A
Mat 2	**Timber: Finishing Elements**	0 1 1 2 2 3	0.48 each	3	Percentage of certified* timber and timber products and/ or recycled/ reused elements: • 30% and origin of remaining timber Non Temperate • 30% and origin of remaining timber Temperate • 60% and origin of remaining timber Non Temperate • 60% and origin of remaining timber Temperate • 75% and origin of remaining timber Non Temperate • 75% and origin of remaining timber Temperate *CSA, FSC, MTCC, PEFC, SFI or any combination of these subject to the requirement for a full third party chain of custody.	Richard Cowan of M3 Consulting stated during the pre-assessment meeting on 29 January 2007that the developer, British Land requires all timber to be sourced from sustainable sources such as FSC. 6 credits assumed. Provide specification confirming that all timber must be obtained from FSC or equivalent sources together with letters of intent from all suppliers confirming that the chain of custody requirements will be met. The volumes of the timber used for each element must also be provided to confirm that 100% of the timber to be used will be FSC.	0	N/A

Credit Ref. No.	Description of Credit	Credits Available	% value	Probable Credits	Summary of Credit Requirements	Design Commitments and Actions	Potential Additional Credits	Additional Requirements
Wat 3	Recycling of Household Waste	2 2 6 Max 6	0.48 each	6	Provision of internal storage only OR Provision of external storage (or Local Authority collection scheme) only OR Provision of internal AND external storage (or Local Authority collection scheme)	Richard Cowan of M3 Consulting stated during the pre-assessment meeting on 29 January 2007 that the social units will contain internal storage bins for recycling and that the London Borough of Camden operates a collection scheme for recycled material. 6 credits assumed. To achieve these credits information must be provided confirming that a collection scheme is in operation. M and M to provide drawings confirming the position of the recycling bins in the individual apartments. M and M also to provide type of storage to be specified. Note: the following internal storage will be required for EcoHomes: 3 internal storage bins with a minimum total capacity of 30 litres; where no individual bin is smaller than 7 litres; bins must have a dedicated position within the apartment.	0	N/A
Wat 4	Environmental Impact of Materials	3 3 3 3 2 1 1 Max 16	0.48 each	1	The following elements obtaining an 'A' rating from the Green Guide for Housing Specification, for 80% by area of the element, for each of the following elements: • Roof; • External walls; • Internal walls – party walls and internal partitions; • Floors – upper and ground floor; • Windows; • External surfacing – driveways, paths and patios; and • Boundary protection.	There is no boundary protection and this credit can be awarded by default. The materials used for the building envelope are predominately 'B' rated according to the Green Guide to Housing therefore the other credits cannot be awarded. A site plan will be required to confirm that there is no site boundary protection for this credit to be awarded.	0	N/A
Sub-total:		31	7.7%	16			0	

Credit Ref. No.	Description of Credit	Credits Available	% value	Probable Credits	Summary of Credit Requirements	Design Commitments and Actions	Potential Additional Credits	Additional Requirements
	WATER							
Wat 1	Internal Water Use	1 2 3 4 5 Max 5	1.67 each	3	• Less than 50m³ per bedspace per year • Less than or equal to 45m³ per bedspace per year • Less than or equal to 40m³ per bedspace per year • Less than or equal to 35m³ per bedspace per year • Less than or equal to 30m³ per bedspace per year	Andrew Thrower of WPP stated during the pre-assessment meeting on 29 January 2007 that water efficient sanitary fittings such as dual flush, aerating taps and showers with low flow rate will be provided. 3 credits have been assumed. The credits can be awarded if the following measures are undertaken: 6/4 litre dual flush WCs; aerating taps; between 6 and ≤ 9 litre flow rate for showers; small bath of 50 litres/use. Details of the fittings should be shown on the drawings and stated in the specifications.	0	N/A
Wat 2	External Water Use	1	1.67	1	Rainwater collection system for watering gardens and landscaped areas, e.g. water butts, central rainwater collection system.	Andrew Thrower of WPP stated during the pre-assessment meeting on 29 January 2007that all rain water from the roofs and hard surfaces will be collected in a central collection system in the basement thus attenuating approximately 60 to 65% of the water run-off to either natural water courses or the municipal drainage system. Richard Cowan of M3 Consulting stated that the collected water will be used for irrigation purposes. To achieve the credit, provide specifications and drawings confirming the type and location of the rainwater collection system. Ensure that the collection system is a minimum 200 litres, and a minimum 1 litre capacity for each square meter of land allocated to the dwelling.	0	N/A
Sub-total:		6	6.68%	4			0	
	ECOLOGY							
Eco 1	Ecological Value of Site	1	1.67	0	For developing land of inherently low ecological value.	The existing site contains trees that will be transferred to another site as a part of the demolition works. Credit not achievable.	0	N/A

Credit Ref. No.	Description of Credit	Credits Available	% value	Probable Credits	Summary of Credit Requirements	Design Commitments and Actions	Potential Additional Credits	Additional Requirements
Eco 2	Ecological Enhancement	1	1.67	1	Enhancing the ecological value of the site through consultation with an accredited expert. The ecologist must be FULL member of either: • Association of Wildlife Trust Consultancies (AWTC) • Chartered Institution of Water and Environmental Management (CIWEM) • Institute of Ecology and Environmental Management (IEEM) • Institute of Environmental Management and Assessment (IEMA) • Landscape Institute (LI)	Richard Cowan of M3 Consulting stated during the pre-assessment meeting on 29 January 2007 that a Registered Ecological Consultant has been consulted for enhancement of the site. 1 credit has been assumed. For the credit to be awarded the ecologist must be a FULL member of one of the institutes stated and a copy of the Ecology Report must be provided with details of the ecological site survey and the planned works by the developer based on that survey. Developer must adopt all key recommendations and over 30% of additional recommendations made by the ecologist.	0	
Eco 3	Protection of Ecological Features	1	1.67	0	Ensuring the protection of any existing ecological features on the site.	Existing trees on the site are to be removed as a part of the development. Credit not achievable.	0	N/A
Eco 4	Change of Ecological Value of Site	1 2 3 4 Max 4	1.67 each	3	• For a change of ecological value of between –9 and –3 natural species • For a change of ecological value of between –3 and +3 natural species • For a change of ecological value of between +3 and +9 natural species • For a change of ecological value of greater than +9 natural species.	Richard Cowan of M3 Consulting stated during the pre-assessment meeting on 29 January 2007 that a Registered Ecological Consultant has been consulted for enhancement of the site. Site enhancement includes new landscaping on ground level and green roofs. The ecological consultant David Coomes of EDCO Design has stated by e-mail, sent 1 February 2007, that 5 new species will be introduced to the residential site, excluding green roofs and roof gardens 3 credits have been assumed which refers to a change of ecological value between +3 and +9 natural species. Plans of the site and surrounding area both of the existing and the proposed layout must be provided. These should any natural and built features and any proposed planting schemes. A list of new species to be introduced must be provided by the ecologist.	0	N/A

Credit Ref. No.	Description of Credit	Credits Available	% value	Probable Credits	Summary of Credit Requirements	Design Commitments and Actions	Potential Additional Credits	Additional Requirements
Eco 5	Building Footprint	1 OR 2 Max 2	1.67 each	2	Where 60% of dwellings in the development have a Floor area: Footprint ratio greater than 2.5:1 Where 80% of dwellings in the development have a Floor area: Footprint ratio greater than 2.5:1	The building is 24 storeys high and will achieve 2 credits. M and M to provide the total floor area for the whole building including the office and commercial element. M and M to provide the building footprint and provide drawings showing dimensioned floor plans.	0	N/A
Sub-total:		9	8.35%	6			0	
	HEALTH & WELLBEING							
Hea 1	Daylighting	1 1 1 Max 3	1.88 each	1	Provision of adequate daylighting, according to BS 8206:pt2 in: • In the kitchen • In living rooms, dining rooms and studies • View of sky in all above rooms	Richard Cowan of M3 Consulting stated during the pre-assessment meeting on 29 January 2007 that daylighting calculations will be undertaken. The design team stated that the position of the flats will allow the living rooms and dining rooms to achieve a daylight factor of 1.5%. Therefore 1 credit has been assumed. Calculations are required to confirm that the daylight factor of 1.5% is achieved in the living rooms, dining rooms and studies. Site layout should also be provided to achieve this credit.	0	N/A
Hea 2	Sound Insulation	1 1 1 1 Max 4	1.88 each	2	Where pre-completion testing is carried out to comply or improve on performance standards in Approved Document E (2003 Edition, Building Regulations England and Wales). • 2 tests* meeting part E requirements • 3 tests* meeting part E requirements • 3 tests* airborne 3dB higher and impact 3dB lower than part E requirements • 3 tests* airborne 5dB higher and impact 5dB lower than part E requirements * for every ten dwellings in a group or	Richard Cowan of M3 Consulting stated during the pre-assessment meeting on 29 January 2007 that acoustic consultants will be undertaking 3 sets of pre-completion testing to meet Part E. 2 credits assumed. These credits will be awarded once written statement by the acoustic consultants has been provided to confirm pre-completion testing will be undertaken meeting part E requirements.	1	Recommendations made by the acoustics consultant to achieve the airborne sound insulation values that are at least 3 dB higher, and impact sound insulation values that are at least 3 dB lower, than part E, must be provided.

Credit Ref. No.	Description of Credit	Credits Available	% value	Probable Credits	Summary of Credit Requirements	Design Commitments and Actions	Potential Additional Credits	Additional Requirements
					subgroup.			
Hea 3	Private Space	1	1.88	1	Provision of outside space that is at least partially private.	Richard Cowan of MG Consulting stated during the pre-assessment meeting on 29 January 2007 that a semi-private communal area will be provided as well as balconies and roof terraces. M and M to confirm the size of the space meets the following requirements: - Private space: 1.5 m^2/bedspace (i.e. number of occupants the home is designed for), minimum 3m^2/ home - Shared space: minimum 1m^2/bedspace (i.e. number of occupants estimated to live in the homes served by the space). The space must be accessible to the residents only. Provide drawings to confirm.	0	N/A
Sub-total:		6	7.52%	4			1	
TOTAL		89	69.4%	59			2 (4.02%)	

7. Summary of the Building Performance

7.1.1 Energy

The building is expected to perform well under Energy issues (16 credits out of a possible 20 can potentially be awarded). There is a commitment for the building to achieve less than 26 kg/m^2/yr for carbon dioxide emissions and for a building envelope performance improvement of at least 15% compared to 2002 Building Regulations part L1. The developers will provide all social and intermediate units with information regarding energy efficient white goods and will provide energy efficient internal and external lighting.

7.1.2 Transport

The building is expected to achieve maximum 8 out of 8 credits on Transport related issues. This is primarily due to the excellent location of the development since it is within 500m of Warren Street and Great Portland Street tube stations and is a ten minutes walk from Euston station. The site is also serviced by at least eight bus routes along Euston Road. In addition, the design team are committed to providing cycle storage for 95% of the dwellings and space for home office provision in all units.

7.1.3 Pollution

The building is expected to achieve 5 credits out of a maximum 7 available for Pollution. This section assesses the building against a wide range of pollution issues, and commitment has been made to incorporate various initiatives, including the use of an efficient boiler and the attenuation of rainwater from roofs and hard surfaces, to be collected in a central storage system.

Potential credit: An additional credit can be achieved if the design team were to use insulating material with a zero Ozone Depleting Potential (ODP) and a Global Warming Potential (GWP) of less than 5. This credit is recommended to achieve an 'Excellent' rating.

7.1.4 Materials

The building achieves 10 credits out of a possible 31 in the materials category. The complete materials specification and the percentage areas covered have yet to be provided for the building elements. However, based on discussions with the architect a general description of the materials revealed that the majority of materials proposed used would achieve a 'B' rating according to the 'Green Guide to Housing Specification'. The design team has committed to using 100% FSC timber as a part of the developers requirements. The design will also integrate the dedicated space for internal recycling bins in all the units.

7.1.5 Water

The building is expected to score at least 4 out of 6 credits in the Water category. The design team has committed to providing water efficient sanitary fittings such as dual flush WCs, aerating taps and showers with a flow rate between 6 and 9 litres. The design will also be providing a central rainwater collection system for watering the gardens.

7.1.6 Land Use and Ecology

The building is expected to perform well under the Land Use and Ecology category scoring 6 credits out of a possible 9. The proposed building has the advantage of being developed on a site that consists of existing buildings and hard landscaping, however the site does contain trees of over 1m height and therefore according to the EcoHomes Ecological Value checklist, cannot be regarded as having low of ecological value. The developer is endeavouring to improve the landscape of the site and has employed

the assistance of an ecologist to enhance the biodiversity of the site. It is proposed to include extensive landscaping, green roofs and roof gardens.

7.1.7 Health and Wellbeing

The building is expected to score 4 credits out of a total possible 8 in the Health and Wellbeing section. The units are expected to achieve a daylight factor of at least 1.5% in the living rooms and dining rooms. Private space will also be provided in the form of private gardens and communal gardens for the residents only. Currently the scheme is committing to undertaking sound insulation pre-completion testing and will include for 3 tests meeting part E requirements.

Potential credit: The design may consider committing to achieving airborne sound insulation values that are at least 3dB higher, and impact sound insulation values that are 3dB lower, than the performance standards in Approved Document **E**(2003 Edition). This credit is recommended to achieve an 'Excellent' rating.

8. Probable EcoHomes Rating

Current Predicted Rating

Points Score	EcoHomes Rating
36	PASS
48	GOOD
58	VERY GOOD
70	EXCELLENT

Based on the **'Probable Points'** detailed in this report, the likely EcoHomes rating of Regent's Place North East Quarter is currently **'Very Good'** (with a score of 69.4%).

9. Conclusion

Based on the information provided by the design team, the commitments made by them and the assumptions outlined above, the EcoHomes 2005 Pre-Assessment has predicted a rating of **'Very Good'**. The design team must ensure that all the credits that have been committed to are met in order for the rating to be achieved. The design team must also be aware that **all** information must be documented in either specifications or drawings for these credits to be awarded at the formal assessment stage.

In addition credits have been identified that can potentially increase the score to 73.4%, which will achieve an **'Excellent'** rating. The additional requirements will include exceeding sound insulation requirements and using insulating materials with a GWP less than 5.

EcoHomes 2005 Pre-Assessment Estimator

REGENT'S PLACE NORTH EAST QUARTER, LONDON - INTERMEDIATE HOUSING

EcoHomes 2005 Pre-Assessment Estimator

REGENT'S PLACE NORTH EAST QUARTER, LONDON - INTERMEDIATE HOUSING

Client:

M3 CONSULTING

Author:

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Signature Pallab Chatterjee

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Position Associate Director

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Contents

Regent's Place North East Quarter, London - Intermediate Housing EN5031

Executive Summary

Waterman Environmental was commissioned by M3 Consulting, on behalf of British Land, to undertake an EcoHomes 2005 Pre-Assessment Estimator for the Intermediate element of the new residential development of Regent's Place North Eastern Quarter, London.

EcoHomes is a voluntary, standard environmental assessment method by which the environmental impact of a residential building is assessed against a range of issues, and credits are awarded where the building achieves a benchmark performance. A building is awarded an EcoHomes rating based on its overall performance expressed as 'Pass', 'Good', 'Very Good' or 'Excellent' depending on the total score achieved.

This report summarises the results of an EcoHomes Pre-Assessment completed for the current scheme design, in order to provide a quick evaluation of the likely EcoHomes rating to be achieved under a formal assessment. M3 Consulting and British Land would like to achieve a 'Very Good' rating and aspire to achieving an 'Excellent' rating.

Based on the information provided, the commitments made by the design team and a number of assumptions, the development known as Regent's Place North Eastern Quarter, London has a predicted EcoHomes score of 69.4% and a predicted rating of **'VERY GOOD'**.

The potential credits being awarded for each category based on the commitments made at the Pre-Assessment meeting are summarised below:

- Energy – 85% of the credits achieved;
- Transport – 100% of the credits achieved;
- Pollution – 71.4% of the credits achieved;
- Materials – 51.6% of the credits achieved;
- Water – 66.7% of the credits achieved;
- Land Use and Ecology – 66.7% of the credits achieved;
- Health and Wellbeing – 50% of the credits achieved.

The area that is performing poorer than the others is Health and Wellbeing. Improvements in this area could ensure a rating of 'Excellent' is achieved.

1. Assessment Information

Nature of Assessment	EcoHomes 2005 Design and Procurement Pre-Assessment Estimator
Name of Building	Regent's Place North East Quarter
Address of Building	Regent's Place North East Quarter, London
Client	M3 Consulting
Developer	British Land
Project Manager Contact	Richard Cowan
Project Manager Address	7 Tokenhouse Yard, London EC2R 7AS
Architect's Contact	Guy Morgan of Munkenbeck and Marshall Architects
Architect's Address	North Building, Gainsborough Studios, One Poole Street, London N1 5EB
Building Services Engineer's Contact	Andrew Thrower of Watkins Payne Partnership
Contact Address	51 Staines Road West, Sunbury-on-Thames, Middlesex TW16 7AH
Gross External Area	30, 296m^2
Occupancy	171 units of which 70 are affordable (social and intermediate).
Details of the Development	The development consists of a new build apartment block, 24 storeys in height, containing one bedroom, two bedroom and three bedroom units.

2. Introduction

A design team, including Munkenbeck and Marshall Architects as the Architects and Watkins Payne Partnership as the Building Services Engineers, was commissioned by M3 Consulting on behalf of British Land, for the development of Regent's Place North East Quarter.

The new building will be a mixed use 16 storey office and 24 storey residential development with retail units on the ground floor. The residential units will include one bedroom, two bedroom and three bedroom units. The site is on Drummond Street and Hampstead Road and currently has existing buildings with mixed office and residential use.

M3 Consulting, the project managers of the building, has instructed Waterman Environmental to complete an EcoHomes 2005 Pre-Assessment Estimator for the scheme in order to achieve a desired rating of 'Very Good' and to understand the requirements to achieve an 'Excellent'. This report summarises the results of the Pre-Assessment Estimator, sets out the commitments and assumptions made by the design team during the exercise and highlights areas where the potential exists for additional points to be achieved. The Pre-Assessment Estimator meeting was held on 29 January 2007 with the following members of the design team present:

- Richard Cowan – M3 Consulting;
- Andrew Thrower - Watkins Payne Partnership (WPP); and
- Guy Morgan - Munkenbeck and Marshall Architects (M and M).

3. Methodology

The Building Research Establishment (BRE) has developed a voluntary, standard environmental assessment method known as EcoHomes for all dwelling units. The tool assesses the environmental impact of a building against a range of issues and credits are awarded where the building achieves a benchmark performance. EcoHomes seeks to bring about reductions in the environmental impact of buildings through recognition of the business benefits, which can be achieved.

The method addresses impacts of a building on the global, local and indoor environments across a range of issues, grouped under the headings of:

- Health and Wellbeing;
- Energy;
- Transport;
- Water;
- Materials;
- Land Use and Ecology; and
- Pollution.

A building is given a score to indicate its overall environmental performance. This is referred to as the EcoHomes rating which is expressed as 'Pass' (36%), 'Good' (48%), 'Very Good' (58%) and 'Excellent' (70%) depending on the total score awarded. A minimum score is required to achieve a 'Pass' rating, below which an EcoHomes rating is regarded as unclassified.

A Pre-Assessment Estimator provides a quick evaluation of the EcoHomes rating likely to be achieved under a formal assessment. The results can be used to feed into the design process in order to maximise the score achieved; and its completion is a means of monitoring the sustainability performance of the development against this established, independent benchmark. It should be noted that, as the Pre-Assessment Estimator is a simplified version of the full method, it only provides an estimate of the likely EcoHomes rating. As a consequence, the final rating may vary following a formal assessment by a licensed assessor.

4. Report Structure

The following section, Section 5 summarises the assessment in a table format and highlights the scores and the percentage achieved for each criteria. Section 6, provides a more detailed table of each of the issues assessed by the EcoHomes method. The third column of the table denotes the number of credits available for each issue and the next column provides the percentage value for each credit. This will allow the design team to calculate the score should they choose to alter the design and focus on other credits. The fifth column denotes the number of credits that are likely to be achieved in the full assessment. These credits have been awarded based on the commitments made by the design team during the pre-assessment meeting held on 29 January 2007. A brief description of the credit requirements is provided in the sixth column, followed by the 'design commitments and actions' column which highlights actions for the design team in order to ensure that the credit is achieved at the final assessment stage. The seventh column identifies where there is the potential for additional credits and the final column provides information regarding the additional requirements for these credits to be awarded.

Section 7 of this report describes the performance of the building. This summarises how the scheme is expected to perform under the seven topic headings provided by EcoHomes and highlights areas where improvements to the predicted EcoHomes rating could be made.

The probable and potential EcoHomes rating is provided in Section 8, with overall conclusions presented in Section 9.

5. Summary Table

The table summary below provides the score for each criteria and the percentage of the credit that were awarded during the pre-assessment meeting held on 29 January 2007. These credits have been awarded on the assumption that they will be achieved once the required information is provided at the final EcoHomes assessment stage.

Credit Allocation Table

Overall Credit Allocation	Environmental Weighting	Credits Available	Credits Assumed	% of the Credit Assumed	Credits Score
Energy		20	17	85	
Transport		8	8	100	
Sub Total	0.3	28	24	85.7	26.8
Pollution	0.15	7	5	71.4	10.7
Materials	0.15	31	16	51.6	7.7
Water	0.10	6	4	66.7	6.67
Land Use and Ecology	0.15	9	6	66.7	10.0
Health and Wellbeing	0.15	8	4	50	7.5
TOTAL					69.37 %

6. Summary of EcoHomes Pre-Assessment Estimator

Credit Ref. No.	Description of Credit	Credits Available	% value	Probable Credits	Summary of Credit Requirements	Design Commitments and Actions	Potential Additional Credits	Additional Requirements
	ENERGY							
Ene 1	Carbon Dioxide Emissions	1 2 3 4 5 6 7 8 9 10 Max 10	1.07 2.14 3.21 4.29 5.36 6.43 7.50 8.57 9.64 10.71	7	Points are awarded on the basis of SAP 2005 related average CO_2 emissions in accordance with the following criteria: • Less than or equal to 60 kg/m^2/yr • Less than or equal to 50 kg/m^2/yr • Less than or equal to 45 kg/m^2/yr • Less than or equal to 35 kg/m^2/yr • Less than or equal to 30 kg/m^2/yr • Less than or equal to 27 kg/m^2/yr • Less than or equal to 25 kg/m^2/yr • Less than or equal to 20 kg/m^2/yr • Less than or equal to 10 kg/m^2/yr • Less than or equal to 0 kg/m^2/yr	Andrew Thrower of WPP stated during the pre-assessment meeting on 29 January 2007 that the development will be 10 to 15% more efficient than new Part L Building Regulations. This is likely to achieve CO_2 emissions of less than or equal to 25 kg/m^2/yr, therefore 7 credits have been assumed. For credits to be awarded at the assessment stage, a SAP assessment must be undertaken by an accredited SAP assessor. Andrew Thrower has stated that WPP will carry out the SAP assessments. Once complete WPP must provide the assessor with the SAP worksheets in order to calculate the credit. In addition WPP must ensure that: dedicated low energy light fittings will be provided for the lounge, kitchen and hallway. Fitting types must be such that ONLY fluorescent strip lamps or dedicated compact fluorescent lamps will be accepted. Appropriate drawings or specifications must be provided to confirm the details and the location of the low energy lighting.	0	N/A
Ene 2	Building Envelope Performance	1 2	1.07 each		Percent improvement across the site in average U-value compared with relevant building regulations. If built to: • England and Wales 2002 Building regulations part L1 • Scotland Part J of the Technical Standards (6th amendment) – 3% improvement – 6% improvement	Andrew Thrower of WPP stated during the pre-assessment meeting on 29 January 2007 that the cladding will achieve a 15% improvement compared to 2002 Building regulations part L1. 5 credits have been assumed. For credits to be awarded, a SAP assessment must be undertaken by an accredited SAP assessor. SAP worksheets should be given to the EcoHomes assessor in order to calculate	0	N/A

Credit Ref. No.	Description of Credit	Credits Available	% value	Probable Credits	Summary of Credit Requirements	Design Commitments and Actions	Potential Additional Credits	Additional Requirements
		3 4 5 Max 5		5	– 9% improvement – 12% improvement – 15% improvement	the credit.		
Ene 3	Drying Space	1	1.07	1	Points are awarded for providing space and posts, footings and fixings for drying clothes in a secure environment for each unit on the site. This may be external or internal.	Andrew Thrower of WPP stated during the pre-assessment meeting on 29 January 2007 that internal drying space will be provided. To obtain this credit a line fixing over the bath must be provided with an extract fan with humidistat. This information must be highlighted in design drawings and specifications.	0	N/A
Ene 4	Eco Labelled White Goods	1 1 OR 1 Max 2	1.07 each	2	Provision of eco labelled white goods with the following energy ratings: • All fridges, freezers, fridge-freezers with an 'A' rating • All washing machines, and dishwashers where supplied, with an 'A' rating and washer dryers and tumble dryers with a rating of 'B' or higher OR No white goods provided but info on Eco labelling provided to future residents. NOTE: For developments containing a percentage of affordable homes, two credits are available where 100% of the speculatively built homes have 'A' rated appliances, and 100% of social homes have information provided.	Richard Cowan of MD Consulting stated during the pre-assessment meeting on 29 January 2007 that 'A' rated white goods will be provided only in the private units. However all affordable units will be provided with information about energy labelling. 2 credits have been assumed provided that the private dwellings will receive white goods and all affordable dwellings will receive information. Credits will be awarded once an appropriate clause from the specification is provided confirming product and performance criteria, information to be provided to the affordable dwellings and manufacturer's information for the white goods.	0	N/A
Ene 5	External Lighting	1 1	1.07 each	2	*Space lighting* • all space lighting is specifically designed to accommodate only compact fluorescent lamps (CFL) *Security lighting* • all intruder lighting to be 150 watts maximum and be fitted with PIR and day light sensor and • all other type of security lighting to	Andrew Thrower of WPP stated during the pre-assessment meeting on 29 January 2007that all external lighting will meet requirements. 2 credits assumed. Clause from specification and drawings are required to confirm the type of lighting, location and details. Provide manufacturer's literature to confirm type of fittings.	0	N/A

Credit Ref. No.	Description of Credit	Credits Available	% value	Probable Credits	Summary of Credit Requirements	Design Commitments and Actions	Potential Additional Credits	Additional Requirements
		Max 2			accommodate CFLs or fluorescent strips only and be fitted with down to dusk sensors or timers			
Sub-total:		20	17.12%	17			0	
	TRANSPORT							
Tra 1	Public Transport	1 OR 2 Max 2	1.07 each	2	80% of the development within: 1000m of a 30 min peak and an hourly off peak service OR 500m of a 15 min peak and a half hourly off peak service	The residential development of NEQ is within 500m of Warren Street tube station and Great Portland Street tube station. In addition there are at least eight bus routes along Euston Road. 2 credits have been assumed. To award credits, the assessor will require a site plan clearly marking the distance from the front door of the residential development to the underground stations and the nearest bus stops via safe pedestrian routes.	0	N/A
Tra 2	Cycle Storage	1 OR 2 Max 2	1.07 each	2	Provision of cycle storage for: 50% of dwellings OR 95% of dwellings The provision is determined by the number of bedrooms within a dwelling: • 1 and 2 bedroom flat/house – storage for 1 cycle • 3 bedroom flats/houses – storage for 2 cycles • 4 bedrooms and above – storage for 4 cycles. The storage provision should be safe and weather-proof.	The residential development consists of 70 affordable units of which 60 are one and two bedroom flats and 10 are three bedroom flats. The development will be providing 77 cycle spaces for the affordable units which achieve the EcoHomes requirement of 76 spaces for 95% of the dwellings. Therefore 2 credits have been assumed. For the credits to be awarded, drawings are required to confirm the position of the cycle racks, and the specification must confirm the number of racks provided, that the storage area is covered and has adequate security protections. Keys should only be issued to those using the store and fixings should allow both the wheel and the frame to be locked securely.	0	N/A
Tra 3	Local Amenities	1 1	1.07 each	3	Proximity to local amenities: • Within 500m of a food shop and post box • Within 1000m of 5 of the following:	The design team stated during the pre-assessment meeting that the building will meet all requirements. 3 credits assumed.	0	N/A

Credit Ref. No.	Description of Credit	Credits Available	% value	Probable Credits	Summary of Credit Requirements	Design Commitments and Actions	Potential Additional Credits	Additional Requirements
		1 Max 3			food shop* postal facility, bank/ cash machine, pharmacy, primary school, medical centre, leisure centre, community centre, public house, children's play area, place of worship, outdoor open access public area • Safe pedestrian routes to the local amenities *If not used for the 1st credit	M and M to provide a site plan identifying location of all amenities and distances from the front door of the building. Distances should be measured as a walking route via safe pedestrian crossings and NOT as a straight line.		
Tra 4	Home Office	1	1.07	1	Provision of a space and services which allows the occupants to set up a home office in a quiet room. The required space and services are, as a minimum: • two double sockets. • two telephone points or equivalent (e.g. broadband) one telephone point. • window and adequate ventilation. • minimum size (1.8m wall length) to allow a desk and filing cabinet. • for three or more bedroom units, the space should be in a room other than the kitchen, living room, master bedroom or bathroom. • for one / two bedroom or studio homes, the space may be in the living room, in the 2nd bedroom or any other suitable area in the home such as a large hall or dining area.	Andrew Thrower of WPP stated during the pre-assessment meeting on 29 January 2007that facilities for a home office will be provided. Credit assumed. For the credit to be awarded, drawings and specifications should be provided to confirm that the home office location meets the minimum requirements. Confirm that the site will have access to broadband.	0	N/A
Sub-total:		8	8.56%	8			0	
	POLLUTION							
Pol 1	Insulation ODP and GWP	1	2.14	0	Specifying insulating materials, that avoid the use of substances that have a global warming potential (GWP) of 5 or more (and have a ODP of zero), in either manufacture or composition, for the following elements: • roof (including loft access) • wall – internal and external (including doors, lintels and all	This credit is currently not sought.	1	Provide specification and drawings confirming the location and type of insulation used. Provide details to confirm the insulation has a zero ODP and GWP of less than 5. Note: Examples of insulation materials with a GWP with less

Credit Ref. No.	Description of Credit	Credits Available	% value	Probable Credits	Summary of Credit Requirements	Design Commitments and Actions	Potential Additional Credits	Additional Requirements
					acoustic insulation) • floor (including foundations). • Hot water cylinder, pipe insulation and other thermal store.			than 5 include mineral wool and glass fibre; however companies such as Celotex and Kingspan do manufacture products which meet this criteria.
Pol 2	NO_x Emissions	1 2 3 Max 3	2.14 each	3	95% of dwellings throughout the development must be served by heating and hot water systems with an average NO_x emission rate of less than or equal to the levels listed below: • Less than or equal to 150 NO_x mg/kWh; or • Less than or equal to 100 NO_x mg/kWh; or • Less than or equal to 70 NO_x mg/kWh.	Andrew Thrower of WPP stated during the pre-assessment meeting on 29 January 2007 that central community boilers in the plant room will have a NO_x emission rate of less than or equal to 70 NO_x mg/kWh. Therefore 3 credits have been assumed. Details of the boiler to be used will be required, including manufacturer's details, make, model and dry NO_x level / class of boiler.	0	N/A
Pol 3	Reduction of Surface Runoff	1 1 Max 2	2.14 each	2	Where rainwater holding facilities and/ or sustainable drainage techniques are used to provide attenuation of water run-off to either natural watercourses and/or municipal drainage systems, by 50% at peak times from: • Hard Surfaces • Roofs	Andrew Thrower of WPP stated during the pre-assessment meeting on 29 January 2007 that all rain water from the roofs and hard surfaces will be collected in a central collection system in the basement thus attenuating approximately 60 to 65% of the water run-off to either natural water courses or the municipal drainage system. Two credits have therefore been assumed. Provide drawings and specifications confirming run-off attenuation devices and location. Provide calculations to confirm the type and storage volumes of the attenuation measures and the amount of attenuation achieved.	0	N/A
Pol 4	Zero Emission Energy Source	1	2.14 each	0	If at least 10% of EITHER • the heat (space and hot water) demand OR • the non heating electrical demand within the development is supplied from local renewable energy sources.	This credit is not sought.	0	N/A
Sub-total:		7	10.7%	5			1	

Credit Ref. No.	Description of Credit	Credits Available	% value	Probable Credits	Summary of Credit Requirements	Design Commitments and Actions	Potential Additional Credits	Additional Requirements
	MATERIALS							
Mat 1	Timber: Basic Building Elements	0 2 2 4 4 6	0.48 each	6	Percentage of certified* timber and timber products and/ or recycled/ reused elements: • 30% and origin of remaining timber Non Temperate • 30% and origin of remaining timber Temperate • 60% and origin of remaining timber Non Temperate • 60% and origin of remaining timber Temperate • 75% and origin of remaining timber Non Temperate • 75% and origin of remaining timber Temperate *CSA, FSC, MTCC, PEFC, SFI or any combination of these subject to the requirement for a full third party chain of custody.	Richard Cowan of MG Consulting stated during the pre-assessment meeting on 29 January 2007 that the developer, British Land requires all timber to be sourced from sustainable sources such as FSC. 6 credits assumed. Provide specification confirming that all timber must be obtained from FSC or equivalent sources together with letters of intent from all suppliers confirming that the chain of custody requirements will be met. The volumes of the timber used for each element must also be provided to confirm that 100% of the timber to be used will be FSC.	0	N/A
Mat 2	Timber: Finishing Elements	0 1 1 2 2 3	0.48 each	3	Percentage of certified* timber and timber products and/ or recycled/ reused elements: • 30% and origin of remaining timber Non Temperate • 30% and origin of remaining timber Temperate • 60% and origin of remaining timber Non Temperate • 60% and origin of remaining timber Temperate • 75% and origin of remaining timber Non Temperate • 75% and origin of remaining timber Temperate *CSA, FSC, MTCC, PEFC, SFI or any combination of these subject to the requirement for a full third party chain of custody.	Richard Cowan of MG Consulting stated during the pre-assessment meeting on 29 January 2007that the developer, British Land requires all timber to be sourced from sustainable sources such as FSC. 6 credits assumed. Provide specification confirming that all timber must be obtained from FSC or equivalent sources together with letters of intent from all suppliers confirming that the chain of custody requirements will be met. The volumes of the timber used for each element must also be provided to confirm that 100% of the timber to be used will be FSC.	0	N/A

Credit Ref. No.	Description of Credit	Credits Available	% value	Probable Credits	Summary of Credit Requirements	Design Commitments and Actions	Potential Additional Credits	Additional Requirements
Mat 3	Recycling of Household Waste	2 2 6 Max 6	0.48 each	6	Provision of internal storage only OR Provision of external storage (or Local Authority collection scheme) only OR Provision of internal AND external storage (or Local Authority collection scheme)	Richard Cowan of MG Consulting stated during the pre-assessment meeting on 29 January 2007 that the intermediate units will contain internal storage bins for recycling and that the London Borough of Camden operates a collection scheme for recycled material. 6 credits assumed. To achieve these credits information must be provided confirming that a collection scheme is in operation. M and M to provide drawings confirming the position of the recycling bins in the individual apartments. M and M also to provide type of storage to be specified. Note: the following internal storage will be required for EcoHomes: 3 internal storage bins with a minimum total capacity of 30 litres; where no individual bin is smaller than 7 litres; bins must have a dedicated position within the apartment.	0	N/A
Mat 4	Environmental Impact of Materials	3 3 3 3 2 1 1 Max 16	0.48 each	1	The following elements obtaining an 'A' rating from the Green Guide for Housing Specification, for 80% by area of the element, for each of the following elements: • Roof; • External walls; • Internal walls – party walls and internal partitions; • Floors – upper and ground floor; • Windows; • External surfacing – driveways, paths and patios; • Boundary protection.	There is no boundary protection and this credit can be awarded by default. The materials used for the building envelope are predominately 'B' rated according to the Green Guide to Housing therefore the other credits cannot be awarded. A site plan will be required to confirm that there is no site boundary protection for this credit to be awarded.	0	N/A
Sub-total:		31	7.7%	16			0	

Credit Ref. No.	Description of Credit	Credits Available	% value	Probable Credits	Summary of Credit Requirements	Design Commitments and Actions	Potential Additional Credits	Additional Requirements
	WATER							
Wat 1	Internal Water Use	1 2 3 4 5 Max 5	1.67 each	3	• Less than 50m³ per bedspace per year • Less than or equal to 45m³ per bedspace per year • Less than or equal to 40m³ per bedspace per year • Less than or equal to 35m³ per bedspace per year • Less than or equal to 30m³ per bedspace per year	Andrew Thrower of WPP stated during the pre-assessment meeting on 29 January 2007 that water efficient sanitary fittings such as dual flush, aerating taps and showers with low flow rate will be provided. 3 credits have been assumed. The credits can be awarded if the following measures are undertaken: 6/4 litre dual flush WCs; aerating taps; between 6 and ≤ 9 litres flow rate for showers; small bath of 50 litres/use. Details of the fittings should be shown on the drawings and stated in the specifications.	0	N/A
Wat 2	External Water Use	1	1.67	1	Rainwater collection system for watering gardens and landscaped areas, e.g. water butts, central rainwater collection system.	Andrew Thrower of WPP stated during the pre-assessment meeting on 29 January 2007that all rain water from the roofs and hard surfaces will be collected in a central collection system in the basement thus attenuating approximately 60 to 65% of the water run-off to either natural water courses or the municipal drainage system. Richard Cowan of MG Consulting stated that the collected water will be used for irrigation purposes. To achieve the credit, provide specifications and drawings confirming the type and location of the rainwater collection system. Ensure that the collection system is a minimum 200 litres, and a minimum 1 litre capacity for each square meter of land allocated to the dwelling.	0	N/A
Sub-total:		6	6.68%	4			0	
	ECOLOGY							
Eco 1	Ecological Value of Site	1	1.67	0	For developing land of inherently low ecological value.	The existing site contains trees that will be transferred to another site as a part of the demolition works. Credit not achievable.	0	N/A

Credit Ref. No.	Description of Credit	Credits Available	% value	Probable Credits	Summary of Credit Requirements	Design Commitments and Actions	Potential Additional Credits	Additional Requirements
Eco 2	**Ecological Enhancement**	1	1.67	1	Enhancing the ecological value of the site through consultation with an accredited expert. The ecologist must be FULL member of either: • Association of Wildlife Trust Consultancies (AWTC) • Chartered Institution of Water and Environmental Management (CIWEM) • Institute of Ecology and Environmental Management (IEEM) • Institute of Environmental Management and Assessment (IEMA) • Landscape Institute (LI)	Richard Cowan of M3 Consulting stated during the pre-assessment meeting on 29 January 2007 that a Registered Ecological Consultant has been consulted for enhancement of the site. 1 credit has been assumed. For the credit to be awarded, the ecologist must be a FULL member of one of the institutes stated and a copy of the Ecology Report must be provided with details of the ecological site survey and the planned works by the developer based on that survey. Developer must adopt all key recommendations and over 30% of additional recommendations made by the ecologist.	0	
Eco 3	**Protection of Ecological Features**	1	1.67	0	Ensuring the protection of any existing ecological features on the site.	Existing trees on the site are to be removed as a part of the development. Credit not achievable.	0	N/A
Eco 4	**Change of Ecological Value of Site**	1 2 3 4 Max 4	1.67 each	3	• For a change of ecological value of between –9 and –3 natural species • For a change of ecological value of between –3 and +3 natural species • For a change of ecological value of between +3 and +9 natural species • For a change of ecological value of greater than +9 natural species.	Richard Cowan of M3 Consulting stated during the pre-assessment meeting on 29 January 2007 that a Registered Ecological Consultant has been consulted for enhancement of the site. Site enhancement includes new landscaping on ground level and green roofs. The ecological consultant David Coomes of EDCO Design has stated by e-mail, sent 1 February 2007, that 5 new species will be introduced to the residential site, excluding green roofs and roof gardens 3 credits have been assumed which refers to a change of ecological value between +3 and +9 natural species. Plans of the site and surrounding area both of the existing and the proposed layout must be provided. These should any natural and built features and any proposed planting schemes. A list of new species to be introduced must be provided by the ecologist.	0	N/A

Credit Ref. No.	Description of Credit	Credits Available	% value	Probable Credits	Summary of Credit Requirements	Design Commitments and Actions	Potential Additional Credits	Additional Requirements
Eco 5	**Building Footprint**	1 2 Max 2	1.67 each	2	Where 60% of dwellings in the development have a Floor area: Footprint ratio greater than 2.5:1 Where 80% of dwellings in the development have a Floor area: Footprint ratio greater than 2.5:1	The building is 24 storeys high and is likely to achieve 2 credits. M and M to provide the total floor area for the whole building including the office and commercial element. M and M to provide the building footprint and provide drawings showing dimensioned floor plans.	0	N/A
Sub-total:		9	8.35%	6			0	
	HEALTH & WELLBEING							
Hea 1	**Daylighting**	1 1 1 Max 3	1.68 each	1	Provision of adequate daylighting, according to BS 8206 pt2 in: • In the kitchen • In living rooms, dining rooms and studies View of sky in all above rooms	Richard Cowan of M3 Consulting stated during the pre-assessment meeting on 29 January 2007 that daylighting calculations will be undertaken. The design team also stated that the position of the flats will allow the living rooms and dining rooms to achieve a daylight factor of 1.5%. Therefore 1 credit has been assumed. Calculations are required to confirm that the daylight factor of 1.5% is achieved in the living rooms, dining rooms and studies. Site layout should also be provided to achieve this credit.	0	N/A
Hea 2	**Sound Insulation**	1 1 1 1 Max 4	1.68 each	2	Where pre-completion testing is carried out to comply or improve on performance standards in Approved Document E (2003 Edition, Building Regulations England and Wales). • 2 tests* meeting part E requirements • 3 tests* meeting part E requirements • 3 tests* airborne 3dB higher and impact 3dB lower than part E requirements • 3 tests* airborne 5dB higher and impact 5dB lower than part E requirements * for every ten dwellings in a group or	Richard Cowan of M3 Consulting stated during the pre-assessment meeting on 29 January 2007 that acoustic consultants will be undertaking 3 sets of pre-completion testing to meet Part E. 2 credits assumed. These credits will be awarded once written statement by the acoustic consultants has been provided to confirm pre-completion testing will be undertaken meeting part E requirements.	1	Recommendations made by the acoustics consultant to achieve the airborne sound insulation values that are at least 3 dB higher, and impact sound insulation values that are at least 3 dB lower, than part E, must be provided.

Credit Ref. No.	Description of Credit	Credits Available	% value	Probable Credits	Summary of Credit Requirements	Design Commitments and Actions	Potential Additional Credits	Additional Requirements
					subgroup.			
Hea 3	**Private Space**	1	1.88	1	Provision of outside space that is at least partially private.	Richard Cowan of MG Consulting stated during the pre-assessment meeting on 29 January 2007 that a semi-private communal area will be provided as well as balconies and roof terraces. M and M to confirm the size of the space meets the following requirements: - Private space: 1.5 m^2/bedspace (i.e. number of occupants the home is designed for), minimum 3m^2) home - Shared space: minimum 1m^2/bedspace (i.e. number of occupants estimated to live in the homes served by the space). The space must be accesible to the residents only. Provide drawings to confirm.	0	N/A
Sub-total:		8	7.52%	4			1	
TOTAL		89	89.4%	59			2 (4.02%)	

7. Summary of the Building Performance

7.1.1 Energy

The building is expected to perform well under Energy issues (16 credits out of a possible 20 can potentially be awarded). There is a commitment for the building to achieve less than 25 kg/m^2/yr for carbon dioxide emissions and for a building envelope performance improvement of at least 15% compared to 2002 Building Regulations part L1. The developers will provide all social and intermediate units with information regarding energy efficient white goods and will provide energy efficient internal and external lighting.

7.1.2 Transport

The building is expected to achieve maximum 8 out of 8 credits on Transport related issues. This is primarily due to the excellent location of the development since it is within 500m of Warren Street and Great Portland Street tube stations and is a ten minutes walk from Euston station. The site is also serviced by at least eight bus routes along Euston Road. In addition, the design team are committed to providing cycle storage for 95% of the dwellings and space for home office provision in all units.

7.1.3 Pollution

The building is expected to achieve 5 credits out of a maximum 7 available for Pollution. This section assesses the building against a wide range of pollution issues, and commitment has been made to incorporate various initiatives, including the use of an efficient boiler and the attenuation of rainwater from roofs and hard surfaces, to be collected in a central storage system.

Potential credit: An additional credit can be achieved if the design team were to use insulating material with a zero Ozone Depleting Potential (ODP) and a Global Warming Potential (GWP) of less than 5. This credit is recommended to achieve an 'Excellent' rating.

7.1.4 Materials

The building achieves 16 credits out of a possible 31 in the materials category. The complete materials specification and the percentage areas covered have yet to be provided for the building elements. However, based on discussions with the architect a general description of the materials revealed that the majority of materials proposed would achieve a 'B' rating according to the 'Green Guide to Housing Specification'. The design team has committed to using 100% FSC timber as a part of the developers requirements. The design will also integrate the dedicated space for internal recycling bins in all the units.

7.1.5 Water

The building is expected to score at least 4 out of 6 credits in the Water category. The design team have committed to providing water efficient sanitary fittings such as dual flush WCs, aerating taps and showers with a flow rate between 6 and 9 litres. The design will also be providing a central rainwater collection system for watering the gardens.

7.1.6 Land Use and Ecology

The building is expected to perform well under the Land Use and Ecology category scoring 6 credits out of a possible 9. The proposed building has the advantage of being developed on a site that consists of existing buildings and hard landscaping, however the site does contain trees of over 1m height and therefore according to the EcoHomes Ecological Value checklist, cannot be regarded as having low of ecological value. The developer is endeavouring to improve the landscape of the site and has employed

the assistance of an ecologist to enhance the biodiversity of the site. It is proposed to include extensive landscaping, green roofs and roof gardens.

7.1.7 Health and Wellbeing

The building is expected to score 4 credits out of a total possible 8 in the Health and Wellbeing section. The units are expected to achieve a daylight factor of at least 1.5% in the living rooms and dining rooms. Private space will also be provided in the form of private gardens and communal gardens for the residents only. Currently the scheme is committing to undertaking sound insulation pre-completion testing and will include for 3 tests meeting part E requirements.

Potential credit: The design may consider committing to achieving airborne sound insulation values that are at least 3dB higher, and impact sound insulation values that are 3dB lower, than the performance standards in Approved Document E(2003 Edition). This credit is recommended to achieve an 'Excellent' rating.

8. Probable EcoHomes Rating

Points Score	EcoHomes Rating
36	PASS
48	GOOD
58	VERY GOOD
70	EXCELLENT

Current Predicted Rating

Based on the **'Probable Points'** detailed in this report, the likely EcoHomes rating of Regent's Place North East Quarter is currently **'Very Good'** (with a score of 69.4%).

9. Conclusion

Based on the information provided by the design team, the commitments made by them and the assumptions outlined above, the EcoHomes 2005 Pre-Assessment has predicted a rating of **'Very Good'**. The design team must ensure that all the credits that have been committed to are met in order for the rating to be achieved. The design team must also be aware that all information must be documented in either specifications or drawings for these credits to be awarded at the formal assessment stage.

In addition credits have been identified that can potentially increase the score to 73.4%, which will achieve an **'Excellent'** rating. The additional requirements will include exceeding sound insulation requirements and using insulating materials with a GWP less than 5.

EcoHomes 2005 Pre-Assessment Estimator

REGENT'S PLACE NORTH EAST QUARTER, LONDON - MARKET HOUSING

EcoHomes 2005 Pre-Assessment Estimator

REGENT'S PLACE NORTH EAST QUARTER, LONDON - MARKET HOUSING

Client:

M3 CONSULTING

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Contents

Executive Summary

Waterman Environmental was commissioned by M3 Consulting, on behalf of British Land, to undertake an EcoHomes 2005 Design and Procurement Estimator for the Market element of the new residential development of Regent's Place North Eastern Quarter, London.

EcoHomes is a voluntary, standard environmental assessment method by which the environmental impact of a residential building is assessed against a range of issues, and credits are awarded where the building achieves a benchmark performance. A building is awarded an EcoHomes rating based on its overall performance expressed as 'Pass', 'Good', 'Very Good' or 'Excellent' depending on the total score achieved.

This report summarises the results of an EcoHomes Pre-Assessment completed for the current scheme design, in order to provide a quick evaluation of the likely EcoHomes rating to be achieved under a formal assessment. M3 Consulting and British Land would like to achieve a 'Very Good' rating and aspire to achieving an 'Excellent' rating.

Based on the information provided, the commitments made by the design team and a number of assumptions, the development known as Regent's Place North Eastern Quarter, London has a predicted EcoHomes score of 69.4% and a predicted rating of **'VERY GOOD'**.

The potential credits being awarded for each category based on the commitments made at the Pre-Assessment meeting are summarised below:

- Energy – 85% of the credits achieved;
- Transport – 100% of the credits achieved;
- Pollution – 71.4% of the credits achieved;
- Materials – 51.6% of the credits achieved;
- Water – 66.7% of the credits achieved;
- Land Use and Ecology – 66.7% of the credits achieved;
- Health and Wellbeing – 50% of the credits achieved.

The area that is performing poorer than the others is Health and Wellbeing. Improvements in this area could ensure a rating of 'Excellent' is achieved.

1. Assessment Information

Nature of Assessment	EcoHomes 2005 Design and Procurement Pre-Assessment Estimator
Name of Building	Regent's Place North East Quarter
Address of Building	Regent's Place North East Quarter, London
Client	M3 Consulting
Developer	British Land
Project Manager Contact	Richard Cowan
Project Manager Address	7 Tokenhouse Yard, London EC2R 7AS
Architect's Contact	Guy Morgan of Munkenbeck and Marshall Architects
Architect's Address	North Building, Gainsborough Studios, One Poole Street, London N1 5EB
Building Services Engineer's Contact	Andrew Thrower of Watkins Payne Partnership
Contact Address	51 Staines Road West, Sunbury-on-Thames, Middlesex TW16 7AH
Gross External Area	30, 296m^2
Occupancy	171 units of which 101 are market dwellings.
Details of the Development	The development consists of a new build apartment block, 24 storeys in height, containing one bedroom, two bedroom and three bedroom units.

2. Introduction

A design team, including Munkenbeck and Marshall Architects as the Architects and Watkins Payne Partnership as the Building Services Engineers, was commissioned by M3 Consulting on behalf of British Land, for the development of Regent's Place North East Quarter.

The new building will be a mixed use 16 storey office and 24 storey residential development with retail units on the ground floor. The residential units will include one bedroom, two bedroom and three bedroom units. The site is on Drummond Street and Hampstead Road and currently has existing buildings with mixed office and residential use.

M3 Consulting, the project managers of the building has instructed Waterman Environmental to complete an EcoHomes 2005 Pre-Assessment Estimator for the scheme in order to achieve a desired rating of 'Very Good' and to understand the requirements to achieve an 'Excellent'. This report summarises the results of the Pre-Assessment Estimator, sets out the commitments and assumptions made by the design team during the exercise and highlights areas where the potential exists for additional points to be achieved. The Pre-Assessment Estimator meeting was held on 29 January 2007 with the following members of the design team present:

- Richard Cowan – M3 Consulting;
- Andrew Thrower - Watkins Payne Partnership (WPP); and
- Guy Morgan - Munkenbeck and Marshall Architects (M and M).

3. Methodology

The Building Research Establishment (BRE) has developed a voluntary, standard environmental assessment method known as EcoHomes for all dwelling units. The tool assesses the environmental impact of a building against a range of issues and credits are awarded where the building achieves a benchmark performance. EcoHomes seeks to bring about reductions in the environmental impact of buildings through recognition of the business benefits, which can be achieved.

The method addresses impacts of a building on the global, local and indoor environments across a range of issues, grouped under the headings of:

- Health and Wellbeing;
- Energy;
- Transport;
- Water;
- Materials;
- Land Use and Ecology; and
- Pollution.

A building is given a score to indicate its overall environmental performance. This is referred to as the EcoHomes rating which is expressed as 'Pass' (36%), 'Good' (48%), 'Very Good' (58%) and 'Excellent' (70%) depending on the total score awarded. A minimum score is required to achieve a 'Pass' rating, below which an EcoHomes rating is regarded as unclassified.

A Pre-Assessment Estimator provides a quick evaluation of the EcoHomes rating likely to be achieved under a formal assessment. The results can be used to feed into the design process in order to maximise the score achieved; and its completion is a means of monitoring the sustainability performance of the development against this established, independent benchmark. It should be noted that, as the Pre-Assessment Estimator is a simplified version of the full method, it only provides an estimate of the likely EcoHomes rating. As a consequence, the final rating may vary following a formal assessment by a licensed assessor.

4. Report Structure

The following section, Section 5 summarises the assessment in a table format and highlights the scores and the percentage achieved for each criteria. Section 6, provides a more detailed table of each of the issues assessed by the EcoHomes method. The third column of the table denotes the number of credits available for each issue and the next column provides the percentage value for each credit. This will allow the design team to calculate the score should they choose to alter the design and focus on other credits. The fifth column denotes the number of credits that are likely to be achieved in the full assessment. These credits have been awarded based on the commitments made by the design team during the pre-assessment meeting held on 29 January 2007. A brief description of the credit requirements is provided in the sixth column, followed by the 'design commitments and actions' column which highlights actions for the design team in order to ensure that the credit is achieved at the final assessment stage. The seventh column identifies where there is the potential for additional credits and the final column provides information regarding the additional requirements for these credits to be awarded.

Section 7 of this report describes the performance of the building. This summarises how the scheme is expected to perform under the seven topic headings provided by EcoHomes and highlights areas where improvements to the predicted EcoHomes rating could be made.

The probable and potential EcoHomes rating is provided in Section 8, with overall conclusions presented in Section 9.

5. Summary Table

The table summary below provides the score for each criteria and the percentage of the credit that were awarded during the pre-assessment meeting held on 29 January 2007. These credits have been awarded on the assumption that they will be achieved once the required information is provided at the final EcoHomes assessment stage.

Credit Allocation Table

Overall Credit Allocation	Environmental Weighting	Credits Available	Credits Awarded	% of the Credit Awarded	Credits Score
Energy		20	17	85	
Transport		8	8	100	
Sub Total	0.3	28	24	85.7	26.8
Pollution	0.15	7	5	71.4	10.7
Materials	0.15	31	16	51.6	7.7
Water	0.10	6	4	66.7	6.67
Land Use and Ecology	0.15	9	6	66.7	10.0
Health and Wellbeing	0.15	8	4	50	7.5
TOTAL					69.37 %

6. Summary of EcoHomes Pre-Assessment Estimator

Credit Ref. No.	Description of Credit	Credits Available	% value	Probable Credits	Summary of Credit Requirements	Design Commitments and Actions	Potential Additional Credits	Additional Requirements
	ENERGY							
Ene 1	Carbon Dioxide Emissions	1 2 3 4 5 6 7 8 9 10 Max 10	1.07 2.14 3.21 4.29 5.36 6.43 7.50 8.57 9.64 10.71	7	Points are awarded on the basis of SAP 2005 related average CO_2 emissions in accordance with the following criteria: • Less than or equal to 60 kg/m^2/yr • Less than or equal to 50 kg/m^2/yr • Less than or equal to 45 kg/m^2/yr • Less than or equal to 35 kg/m^2/yr • Less than or equal to 30 kg/m^2/yr • Less than or equal to 27 kg/m^2/yr • Less than or equal to 25 kg/m^2/yr • Less than or equal to 20 kg/m^2/yr • Less than or equal to 10 kg/m^2/yr • Less than or equal to 0 kg/m^2/yr	Andrew Thrower of WPP stated during the pre-assessment meeting on 29 January 2007 that the development will be 10 to 15% more efficient than new Part L Building Regulations. This is likely to achieve CO_2 emissions of less than or equal to 25 kg/m^2/yr, therefore 7 credits have been assumed. For credits to be awarded at the assessment stage, a SAP assessment must be undertaken by an accredited SAP assessor. Andrew Thrower has stated that WPP will carry out the SAP assessments. Once complete WPP must provide the assessor with the SAP worksheets in order to calculate the credit. In addition WPP must ensure that dedicated low energy light fittings will be provided for the lounge, kitchen and hallway. Fitting types must be such that ONLY fluorescent strip lamps or dedicated compact fluorescent lamps will be accepted. Appropriate drawings or specifications must be provided to confirm the details and the location of the low energy lighting.	0	N/A
Ene 2	Building Envelope Performance	1 2	1.07 each		Percent improvement across the site in average U-value compared with relevant building regulations. If built to: • England and Wales 2002 Building regulations part L1 • Scotland Part J of the Technical Standards (6th amendment) – 3% improvement – 6% improvement	Andrew Thrower of WPP stated during the pre-assessment meeting on 29 January 2007 that the cladding will achieve a 15% improvement compared to 2002 Building regulations part L1. 5 credits have been assumed. For credits to be awarded, a SAP assessment must be undertaken by an accredited SAP assessor. SAP worksheets should be given to the EcoHomes assessor in order to calculate	0	N/A

Credit Ref. No.	Description of Credit	Credits Available	% value	Probable Credits	Summary of Credit Requirements	Design Commitments and Actions	Potential Additional Credits	Additional Requirements
		3 4 5 Max 5		5	– 9% improvement – 12% improvement – 15% improvement	the credit.		
Ene 3	Drying Space	1	1.07	1	Points are awarded for providing space and posts, footings and fixings for drying clothes in a secure environment for each unit on the site. This may be external or internal.	Andrew Thrower of WPP stated during the pre-assessment meeting on 29 January 2007 that internal drying space will be provided. To obtain this credit a line fixing over the bath must be provided with an extract fan with humidistat. This information must be highlighted in design drawings and specifications.	0	N/A
Ene 4	Eco Labelled White Goods	1 1 OR 1 Max 2	1.07 each	2	Provision of eco labelled white goods with the following energy ratings: • All fridges, freezers, fridge-freezers with an 'A' rating • All washing machines, and dishwashers where supplied, with an 'A' rating and washer dryers and tumble dryers with a rating of 'B' or higher OR No white goods provided but info on Eco labelling provided to future residents. NOTE: For developments containing a percentage of affordable homes, two credits are available where 100% of the speculatively built homes have 'A' rated appliances, and 100% of social homes have information provided.	Richard Cowan of M3 Consulting stated during the pre-assessment meeting on 29 January 2007 that 'A' rated white goods will be provided in all the market dwellings. 2 credits have been assumed provided that the 100% of the market dwellings will receive 'A' rated fridge-freezers, washing machines and dishwashers. Credits will be awarded once an appropriate clause from the specification is provided confirming product and performance criteria for the white goods.	0	N/A
Ene 5	External Lighting	1 1	1.07 each	2	Space lighting: • all space lighting is specifically designed to accommodate only compact fluorescent lamps (CFL) Security lighting: • all intruder lighting to be 150 watts maximum and be fitted with PIR and day light sensor and • all other type of security lighting to	Andrew Thrower of WPP stated during the pre-assessment meeting on 29 January 2007 that all external lighting will meet requirements. 2 credits assumed. Clause from specification and drawings are required to confirm the type of lighting, location and details. Provide manufacturer's literature to confirm type of fittings.	0	N/A

Credit Ref. No.	Description of Credit	Credits Available	% value	Probable Credits	Summary of Credit Requirements	Design Commitments and Actions	Potential Additional Credits	Additional Requirements
		Max 2			accommodate CFLs or fluorescent strips only and be fitted with dawn to dusk sensors or timers			
Sub-total:		20	17.12%	17			0	
	TRANSPORT							
Tra 1	Public Transport	1 OR 2 Max 2	1.07 each	2	80% of the development within: 1000m of a 30 min peak and an hourly off peak service OR 500m of a 15 min peak and a half hourly off peak service	The residential development of NEQ is within 500m of Warren Street tube station and Great Portland Street tube station. In addition there are at least eight bus routes along Euston Road. 2 credits have been assumed. To award credits, the assessor will require a site plan clearly marking the distance from the front door of the residential development to the underground stations and the nearest bus stops via safe pedestrian routes.	0	N/A
Tra 2	Cycle Storage	1 OR 2 Max 2	1.07 each	2	Provision of cycle storage for: 50% of dwellings OR 95% of dwellings The provision is determined by the number of bedrooms within a dwelling: • 1 and 2 bedroom flat/house – storage for 1 cycle • 3 bedroom flats/houses – storage for 2 cycles • 4 bedrooms and above – storage for 4 cycles. The storage provision should be safe and weather-proof.	The residential development consists of 101 market units of which 97 are one and two bedroom flats and 4 are three bedroom flats. The development will be providing 112 cycle spaces for the market units which exceed the EcoHomes requirement of 100 spaces for 95% of the dwellings. Therefore 2 credits have been assumed. For the credits to be awarded, drawings are required to confirm the position of the cycle racks, and the specification must confirm the number of racks provided, that the storage area is covered and has adequate security protections. Keys should only be issued to those using the store and fixings should allow both the wheel and the frame to be locked securely.	0	N/A
Tra 3	Local Amenities	1 1	1.07 each	3	Proximity to local amenities: • Within 500m of a food shop and post box • Within 1000m of 5 of the following:	The design team stated during the pre-assessment meeting that the building will meet all requirements. 3 credits assumed.	0	N/A

Credit Ref. No.	Description of Credit	Credits Available	% value	Probable Credits	Summary of Credit Requirements	Design Commitments and Actions	Potential Additional Credits	Additional Requirements
		1 Max 3			food shop" postal facility, bank/ cash machine, pharmacy, primary school, medical centre, leisure centre, community centre, public house, children's play area, place of worship, outdoor open access public area • Safe pedestrian routes to the local amenities *If not used for the 1st credit	M and M to provide a site plan identifying the location of all amenities and distances from the front door of the building. Distances should be measured as a walking route via safe pedestrian crossings and NOT as a straight line.		
Tra 4	Home Office	1	1.07	1	Provision of a space and services which allows the occupants to set up a home office in a quiet room. The required space and services are, as a minimum: • two double sockets. • two telephone points or equivalent (e.g. broadband) one telephone point. • window and adequate ventilation. • minimum size (1.8m wall length) to allow a desk and filing cabinet. • for three or more bedroom units, the space should be in a room other than the kitchen, living room, master bedroom or bathroom. • for one / two bedroom or studio homes, the space may be in the living room, in the 2nd bedroom or any other suitable area in the home such as a large hall or dining area.	Andrew Thrower of WPP stated during the pre-assessment meeting on 29 January 2007 that facilities for a home office will be provided. Credit assumed. For the credit to be awarded, drawings and specifications should be provided to confirm that the home office location meets the minimum requirements. Confirm that the site will have access to broadband.	0	N/A
Sub-total:		8	8.56%	8			0	
	POLLUTION							
Pol 1	Insulation ODP and GWP	1	2.14	0	Specifying insulating materials, that avoid the use of substances that have a global warming potential (GWP) of 5 or more (and have a ODP of zero), in either manufacture or composition, for the following elements: • roof (including loft access) • wall – internal and external (including doors, lintels and all	This credit is currently not sought.	1	Provide specification and drawings confirming the location and type of insulation used. Provide details to confirm the insulation has a zero ODP and GWP of less than 5. Note: Examples of insulation materials with a GWP with less

Credit Ref. No.	Description of Credit	Credits Available	% value	Probable Credits	Summary of Credit Requirements	Design Commitments and Actions	Potential Additional Credits	Additional Requirements
					acoustic insulation) • floor (including foundations). • Hot water cylinder, pipe insulation and other thermal store.			than 5 include mineral wool and glass fibre; however companies such as Celotex and Kingspan do manufacture products which meet this criteria.
Pol 2	**NO_x Emissions**	1 2 3 Max 3	2.14 each	3	95% of dwellings throughout the development must be served by heating and hot water systems with an average NO_x emission rate of less than or equal to the levels listed below: • Less than or equal to 150 NO_x mg/kWh; or • Less than or equal to 100 NO_x mg/kWh; or • Less than or equal to 70 NO_x mg/kWh.	Andrew Thrower of WPP stated during the pre-assessment meeting on 29 January 2007 that central community boilers in the plant room will have a NO_x emission rate of less than or equal to 70 NO_x mg/kWh. Therefore 3 credits have been assumed. Details of the boiler to be used will be required, including manufacturer's details, make, model and dry NO_x level / class of boiler.	0	N/A
Pol 3	**Reduction of Surface Runoff**	1 1 Max 2	2.14 each	2	Where rainwater holding facilities and/ or sustainable drainage techniques are used to provide attenuation of water run-off to either natural watercourses and/or municipal drainage systems, by 50% at peak times from: • Hard Surfaces • Roofs	Andrew Thrower of WPP stated during the pre-assessment meeting on 29 January 2007 that all rain water from the roofs and hard surfaces will be collected in a central collection system in the basement thus attenuating approximately 60 to 65% of the water run-off to either natural water courses or the municipal drainage system. Tow credits have therefore been assumed. Provide drawings and specifications confirming run-off attenuation devices and location. Provide calculations to confirm the type and storage volumes of the attenuation measures and the amount of attenuation achieved.	0	N/A
Pol 4	**Zero Emission Energy Source**	1	2.14 each	0	If at least 10% of EITHER • the heat (space and hot water) demand OR • the non heating electrical demand within the development is supplied from local renewable energy sources.	This credit is not sought.	0	N/A
Sub-total:		7	10.7%	5			1	

Credit Ref. No.	Description of Credit	Credits Available	% value	Probable Credits	Summary of Credit Requirements	Design Commitments and Actions	Potential Additional Credits	Additional Requirements
	MATERIALS							
Mat 1	**Timber: Basic Building Elements**	0 2 2 4 4 6	0.48 each	6	Percentage of certified* timber and timber products and/ or recycled/ reused elements: • 30% and origin of remaining timber Non Temperate • 30% and origin of remaining timber Temperate • 60% and origin of remaining timber Non Temperate • 60% and origin of remaining timber Temperate • 75% and origin of remaining timber Non Temperate • 75% and origin of remaining timber Temperate *CSA, FSC, MTDC, PEFC, SFI or any combination of these subject to the requirement for a full third party chain of custody.	Richard Cowan of M3 Consulting stated during the pre-assessment meeting on 29 January 2007 that the developer, British Land requires all timber to be sourced from sustainable sources such as FSC. 6 credits assumed. Provide specification confirming that all timber must be obtained from FSC or equivalent sources together with letters of intent from all suppliers confirming that the chain of custody requirements will be met. The volumes of the timber used for each element must also be provided to confirm that 100% of the timber to be used will be FSC.	0	N/A
Mat 2	**Timber: Finishing Elements**	0 1 1 2 2 3	0.48 each	3	Percentage of certified* timber and timber products and/ or recycled/ reused elements: • 30% and origin of remaining timber Non Temperate • 30% and origin of remaining timber Temperate • 60% and origin of remaining timber Non Temperate • 60% and origin of remaining timber Temperate • 75% and origin of remaining timber Non Temperate • 75% and origin of remaining timber Temperate *CSA, FSC, MTDC, PEFC, SFI or any combination of these subject to the requirement for a full third party chain of custody.	Richard Cowan of M3 Consulting stated during the pre-assessment meeting on 29 January 2007 that the developer, British Land requires all timber to be sourced from sustainable sources such as FSC. 6 credits assumed. Provide specification confirming that all timber must be obtained from FSC or equivalent sources together with letters of intent from all suppliers confirming that the chain of custody requirements will be met. The volumes of the timber used for each element must also be provided to confirm that 100% of the timber to be used will be FSC.	0	N/A

Credit Ref. No.	Description of Credit	Credits Available	% value	Probable Credits	Summary of Credit Requirements	Design Commitments and Actions	Potential Additional Credits	Additional Requirements
Mat 3	**Recycling of Household Waste**	2 2 6 Max 6	0.48 each	6	Provision of internal storage only OR Provision of external storage (or Local Authority collection scheme) only OR Provision of internal AND external storage (or Local Authority collection scheme)	Richard Cowan of M3 Consulting stated during the pre-assessment meeting on 29 January 2007 that the market units will contain internal storage bins for recycling and that the London Borough of Camden operates a collection scheme for recycled material. 6 credits assumed. To achieve these credits information must be provided confirming that a collection scheme is in operation. M and M to provide drawings confirming the position of the recycling bins in the individual apartments. M and M also to provide type of storage to be specified. Note: the following internal storage will be required for EcoHomes: 3 internal storage bins with a minimum total capacity of 30 litres; where no individual bin is smaller than 7 litres; bins must have a dedicated position within the apartment.	0	N/A
Mat 4	**Environmental Impact of Materials**	3 3 3 3 2 1 1 Max 16	0.48 each	1	The following elements obtaining an 'A' rating from the Green Guide for Housing Specification, for 80% by area of the element, for each of the following elements: • Roof; • External walls; • Internal walls – party walls and internal partitions; • Floors – upper and ground floor; • Windows; • External surfacing – driveways, paths and patios; • Boundary protection.	There is no boundary protection and this credit can be awarded by default. The materials used for the building envelope are predominately 'B' rated according to the Green Guide to Housing therefore the other credits cannot be awarded. A site plan will be required to confirm that there is no site boundary protection for this credit to be awarded.	0	N/A
Sub-total:		31	7.7%	16			0	

Credit Ref. No.	Description of Credit	Credits Available	% value	Probable Credits	Summary of Credit Requirements	Design Commitments and Actions	Potential Additional Credits	Additional Requirements
	WATER							
Wat 1	**Internal Water Use**	1 2 3 4 5 Max 5	1.67 each	3	• Less than 50m³ per bedspace per year • Less than or equal to 45m³ per bedspace per year • Less than or equal to 40m³ per bedspace per year • Less than or equal to 35m³ per bedspace per year • Less than or equal to 30m³ per bedspace per year	Andrew Thrower of WPP stated during the pre-assessment meeting on 29 January 2007 that water efficient sanitary fittings such as dual flush, aerating taps and showers with low flow rate will be provided. 3 credits have been assumed. The credits can be awarded if the following measures are undertaken: 6/4 litre dual flush WCs; aerating taps; between 6 and ≤ 9 litre flow rate for showers; small bath of 50 litres/use. Details of the fittings should be shown on the drawings and stated in the specifications.	0	N/A
Wat 2	**External Water Use**	1	1.67	1	Rainwater collection system for watering gardens and landscaped areas, e.g. water butts, central rainwater collection system.	Andrew Thrower of WPP stated during the pre-assessment meeting on 29 January 2007 that all rain water from the roofs and hard surfaces will be collected in a central collection system in the basement thus attenuating approximately 60 to 65% of the water run-off to either natural water courses or the municipal drainage system. Richard Cowan of M3 Consulting stated that the collected water will be used for irrigation purposes. To achieve the credit, provide specifications and drawings confirming the type and location of the rainwater collection system. Ensure that the collection system is a minimum 200 litres, and a minimum 1 litre capacity for each square meter of land allocated to the dwelling.	0	N/A
Sub-total:		6	6.68%	4			0	
	ECOLOGY							
Eco 1	**Ecological Value of Site**	1	1.67	0	For developing land of inherently low ecological value.	The existing site contains trees that will be transferred to another site as a part of the demolition works. Credit not achievable.	0	N/A

Credit Ref. No.	Description of Credit	Credits Available	% value	Probable Credits	Summary of Credit Requirements	Design Commitments and Actions	Potential Additional Credits	Additional Requirements
Eco 2	**Ecological Enhancement**	1	1.67	1	Enhancing the ecological value of the site through consultation with an accredited expert. The ecologist must be FULL member of either: • Association of Wildlife Trust Consultancies (AWTC) • Chartered Institution of Water and Environmental Management (CIWEM) • Institute of Ecology and Environmental Management (IEEM) • Institute of Environmental Management and Assessment (IEMA) • Landscape Institute (LI)	Richard Cowan of M3 Consulting stated during the pre-assessment meeting on 29 January 2007 that a Registered Ecological Consultant has been consulted for enhancement of the site. 1 credit has been assumed. For the credit to be awarded the ecologist must be a FULL member of one of the institutes stated and a copy of the Ecology Report must be provided with details of the ecological site survey and the planned works by the developer based on that survey. Developer must adopt all key recommendations and over 30% of additional recommendations made by the ecologist.	0	
Eco 3	**Protection of Ecological Features**	1	1.67	0	Ensuring the protection of any existing ecological features on the site.	Existing trees on the site are to be removed as a part of the development. Credit not achievable.	0	N/A
Eco 4	**Change of Ecological Value of Site**	1 2 3 4 Max 4	1.67 each	3	• For a change of ecological value of between –9 and –3 natural species • For a change of ecological value of between –3 and +3 natural species • For a change of ecological value of between +3 and +9 natural species • For a change of ecological value of greater than +9 natural species.	Richard Cowan of M3 Consulting stated during the pre-assessment meeting on 29 January 2007 that a Registered Ecological Consultant has been consulted for enhancement of the site. Site enhancement includes new landscaping on ground level and green roofs. The ecological consultant David Coomes of EDCO Design has stated by e-mail, sent 1 February 2007, that 5 new species will be introduced to the residential site, excluding green roofs and roof gardens 3 credits have been assumed which refers to a change of ecological value between +3 and +9 natural species. Plans of the site and surrounding area both of the existing and the proposed layout must be provided. These should any natural and built features and any proposed planting schemes. A list of new species to be introduced must be provided by the ecologist.	0	N/A

Credit Ref. No.	Description of Credit	Credits Available	% value	Probable Credits	Summary of Credit Requirements	Design Commitments and Actions	Potential Additional Credits	Additional Requirements
Eco 5	**Building Footprint**	1 2 Max 2	1.67 each	2	Where 60% of dwellings in the development have a Floor area: Footprint ratio greater than 2.5:1 Where 80% of dwellings in the development have a Floor area: Footprint ratio greater than 2.5:1	The building is 24 storeys high and is likely to achieve 2 credits. M and MI to provide the total floor area for the whole building including the office and commercial element. M and MI to provide the building footprint and provide drawings showing dimensioned floor plans.	0	N/A
Sub-total:		9	8.35%	6			0	
	HEALTH & WELLBEING							
Hea 1	**Daylighting**	1 1 1 Max 3	1.88 each	1	Provision of adequate daylighting, according to BS 8206:pt2 in: • In the kitchen • In living rooms, dining rooms and studies View of sky in all above rooms	Richard Cowan of M3 Consulting stated during the pre-assessment meeting on 29 January 2007 that daylighting calculations will be undertaken. The design team stated that the position of the flats will allow the living rooms and dining rooms to achieve a daylight factor of 1.5%. Therefore 1 credit has been assumed. Calculations are required to confirm that the daylight factor of 1.5% is achieved in the living rooms, dining rooms and studies. Site layout should also be provided to achieve this credit.	0	N/A
Hea 2	**Sound Insulation**	1 1 1 1 Max 4	1.88 each	2	Where pre-completion testing is carried out to comply or improve on performance standards in Approved Document E (2003 Edition, Building Regulations England and Wales). • 2 tests* meeting part E requirements • 3 tests* meeting part E requirements • 3 tests* airborne 3dB higher and impact 3dB lower than part E requirements • 3 tests* airborne 5dB higher and impact 5dB lower than part E requirements * for every ten dwellings in a group or	Richard Cowan of M3 Consulting stated during the pre-assessment meeting on 29 January 2007 that acoustic consultants will be undertaking 3 sets of pre-completion testing to meet Part E. 2 credits assumed. These credits will be awarded once written statement by the acoustic consultants has been provided to confirm pre-completion testing will be undertaken meeting part E requirements.	1	Recommendations made by the acoustics consultant to achieve the airborne sound insulation values that are at least 3 dB higher, and impact sound insulation values that are at least 3 dB lower, than part E, must be provided.

Credit Ref. No.	Description of Credit	Credits Available	% value	Probable Credits	Summary of Credit Requirements	Design Commitments and Actions	Potential Additional Credits	Additional Requirements
					subgroup.			
Hea 3	**Private Space**	1	1.88	1	Provision of outside space that is at least partially private.	Richard Cowan of M3 Consulting stated during the pre-assessment meeting on 29 January 2007 that a semi-private communal area will be provided as well as balconies and roof terraces. M and M to confirm the size of the space meets the following requirements: - Private space: 1.5 m^2/bedspace (i.e. number of occupants the home is designed for), minimum 3m^2/ home - Shared space: minimum 1m^2/bedspace (i.e. number of occupants estimated to live in the homes served by the space). The space must be accessible to the residents only. Provide drawings to confirm.	0	N/A
Sub-total:		8	7.52%	4			1	
TOTAL		89	69.4%	59			2 (4.02%)	

7. Summary of the Building Performance

7.1.1 Energy

The building is expected to perform well under Energy issues (10 credits out of a possible 20 can potentially be awarded). There is a commitment for the building to achieve less than 25 kg/m^2/yr for carbon dioxide emissions and will have a building envelope performance improvement of at least 15% compared to 2002 Building Regulations part L1. The developers will provide all market dwellings with 'A' rated energy efficient white goods and will provide energy efficient internal and external lighting.

7.1.2 Transport

The building is expected to achieve maximum 8 out of 8 credits on Transport related issues. This is primarily due to the excellent location of the development since it is within 500m of Warren Street and Great Portland Street tube stations and is a ten minutes walk from Euston station. The site is also serviced by at least eight bus routes along Euston Road. In addition, the design team are committed to providing cycle storage for 95% of the dwellings and space for home office provision in all units.

7.1.3 Pollution

The building is expected to achieve 5 credits out of a maximum 7 available for Pollution. This section assesses the building against a wide range of pollution issues, and commitment has been made to incorporate various initiatives, including the use of an efficient boiler and the attenuation of rainwater from roofs and hard surfaces, to be collected in a central storage system.

Potential credit: An additional credit can be achieved if the design team were to use insulating material with a zero Ozone Depleting Potential (ODP) and a Global Warming Potential (GWP) of less than 5. This credit is recommended to achieve an 'Excellent' rating.

7.1.4 Materials

The building achieves 16 credits out of a possible 31 in the materials category. The complete materials specification and the percentage areas covered have yet to be provided for the building elements. However, based on discussions with the architect a general description of the materials revealed that the majority of materials proposed would achieve a 'B' rating according to the 'Green Guide to Housing Specification'. The design team has committed to using 100% FSC timber as a part of the developers requirements. The design will also integrate the dedicated space for internal recycling bins in all the units.

7.1.5 Water

The building is expected to score at least 4 out of 6 credits in the Water category. The design team has committed to providing water efficient sanitary fittings such as dual flush on the WCs, aerating taps and showers with a flow rate between 6 and 9 litres. The design will also be providing a central rainwater collection system for watering the gardens.

7.1.6 Land Use and Ecology

The building is expected to perform well under the Land Use and Ecology category scoring 6 credits out of a possible 9. The proposed building has the advantage of being developed on a site that consists of existing buildings and hard landscaping, however the site does contain trees of over 1m height and therefore according to the EcoHomes Ecological Value checklist, cannot be regarded as having low of ecological value. The developer is endeavouring to improve the landscape of the site and has employed

the assistance of an ecologist to enhance the biodiversity of the site. It is proposed to include extensive landscaping, green roofs and roof gardens.

7.1.7 Health and Wellbeing

The building is expected to score 4 credits out of a total possible 8 in the Health and Wellbeing section. The units are expected to achieve a daylight factor of at least 1.5% in the living rooms and dining rooms. Private space will also be provided in the form of private gardens and communal gardens for the residents only. Currently the scheme is committing to undertaking sound insulation pre-completion testing and will include for 3 tests meeting part E requirements.

Potential credit: The design may consider committing to achieving airborne sound insulation values that are at least 3dB higher, and impact sound insulation values that are 3dB lower, than the performance standards in Approved Document **E**(2003 Edition). This credit is recommended to achieve an 'Excellent' rating.

8. Probable EcoHomes Rating

Current Predicted Rating

Points Score	EcoHomes Rating
36	PASS
48	GOOD
58	VERY GOOD
70	EXCELLENT

Based on the **'Probable Points'** detailed in this report, the likely EcoHomes rating of Regent's Place North East Quarter is currently **'Very Good'** (with a score of 69.4%).

9. Conclusion

Based on the information provided by the design team, the commitments made by them and the assumptions outlined above, the EcoHomes 2005 Pre-Assessment has predicted a rating of **'Very Good'**. The design team must ensure that all the credits that have been committed to are met in order for the rating to be achieved. The design team must also be aware that all information must be documented in either specifications or drawings for these credits to be awarded at the formal assessment stage.

In addition credits have been identified that can potentially increase the score to 73.4%, which will achieve an **'Excellent'** rating. The additional requirements will include meeting sound insulation requirements and using insulating materials with a GWP less than 5.

APPENDIX C – ENERGY STRATEGY REPORT

BRITISH LAND

NORTH EAST QUADRANT

ENERGY STRATEGY REPORT

8th February 2007

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REVISION	DESCRIPTION	DATE	ISSUED BY	REVIEWED BY
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5	Fifth issue	13.09.06	T. Lefevre	A. Bateson
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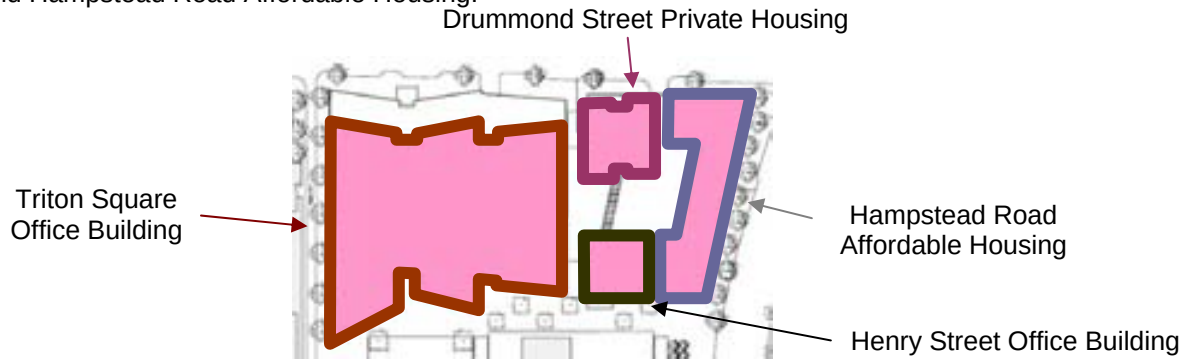
9	Ninth issue	08.02.07	T. Lefevre	A. Bateson

CONTENTS

1.0 EXECUTIVE SUMMARY

This report describes the proposed energy strategy for the North East Quadrant (NEQ) project to be developed by British Land in the London Borough of Camden. The planning application includes 31,871 m^2 NIA of office development, 11,553 m^2 NIA of residential accommodation, 1,749 m^2 NIA of retail space, and 1,616 m^2 NIA of community use. The development consists of four buildings: Triton Square Office Building, Henry Street Office Building, Drummond Street Private Housing and Hampstead Road Affordable Housing.



The Mayor's Energy Strategy for London requires that large developments appraise the feasibility of sourcing 10% of annual energy consumption from renewable energy technologies. In addition, the London Borough of Camden Unitary Development Plan (adopted 2006) states that '*the Council expects major developments to incorporate renewable energy production equipment to provide at least 10% of predicted energy requirements*' (Paragraph 1.64). It also highlights that '*Combined Heat and Power, through its far greater energy efficiency, also has enormous potential for reducing carbon dioxide emissions*'. This report addresses how the design for the North East Quadrant scheme responds to the ambitions of the London Borough of Camden Unitary Development Plan and the Mayor's Energy Strategy for London.

In order to reduce the baseline scheme carbon dioxide emissions, energy efficiency measures have been applied. A range of energy technologies have also been appraised as potential on-site energy generation sources in relation to the development. These comprise:

- Combined Heat and Power (CHP) plant.
- Solar water heating panels;
- Ground source heat pumps;
- Biomass heating boilers;
- Wind turbines;
- Photovoltaic (PV) modules for electricity generation.

The conclusion of the several desktop studies which have been carried out is that implementing a biomass boiler can deliver 10% of total annual energy use when serving the heating installations of the office buildings (i.e. Triton Square and Henry Street). On this basis it is proposed that a biomass boiler with a capacity of 500 kW is provided. In addition, a 30kWe CHP plant will be provided and contribute to the Domestic Hot Water requirements and landlord's electrical requirements of the residential buildings (i.e. Drummond Street and Hampstead Road).

The changes between the Baseline Scheme and the Energy Efficient Scheme with renewables and CHP have led to a 32% reduction in energy consumption and a 31% reduction in CO_2 emissions. It should be noted that CO_2 emissions above include all energy uses, not just energy uses covered by Part L. As CO_2 emissions not covered by Part L represent a large proportion of total CO_2 emissions, a total CO_2 emissions reduction of 31% between the Baseline Scheme and the Energy Efficient Scheme with CHP and renewables actually represents a Part L CO_2 emissions reduction of 37% and an improvement over Part L 2006 of 15%.The difference between the energy figures and the CO_2 figures are due to the different CO_2 contents of the displaced and used fuels (i.e. gas, grid-supplied electricity, displaced electricity, biomass).

British Land will further discuss with the London Climate Change Agency (LCCA) the possibility of reorganising plant layouts throughout the Regent's Place basement to ascertain whether adequate free space can be created to house a larger CHP and the necessary thermal storage vessels, and whether replacing existing chillers with absorption chillers on the new development and the existing buildings would be viable (this would allow tri-generation).
The design team will assess these possibilities.'

Table 1: Summary of the selection of Low or Zero Carbon Technologies for NEQ

Technology	Selected	Comments
Combined Heat and Power (CHP)	Yes	A 30 kWe unit to serve the residential buildings (i.e. Drummond Street and Hampstead Road).
Solar water heating panels	No	Not appropriate for NEQ due to the roof area available and to the overshadowing effect of Euston Tower. Could only contribute to a small proportion of the site's energy requirements (i.e. 1.0-1.8%).
Ground source heat pumps	No	Could contribute to 10% of the site energy requirements but would lead to a lesser reduction of CO_2 emissions than Biomass heating. Would also be riskier and more disruptive during the construction process.
Biomass heating boilers	Yes	A 500 kW biomass boiler will be provided and contribute to 10% of the site's energy requirements.
Wind turbines	No	Not appropriate, as the number of wind turbines required (i.e. 160) would be technically and architecturally difficult to integrate.
Photovoltaic (PV) modules	No	Not appropriate for NEQ due to the roof area available and to the overshadowing effect of Euston Tower. Could only contribute to a small proportion of the site's energy requirements (i.e. 0.5%).

Table 2: Summary of the impact of energy saving measures and Low or Zero Carbon technologies on Energy Consumption and CO_2 emissions for NEQ

	Baseline Scheme		**Energy Efficient Scheme**		**Energy Efficient Scheme with CHP and renewables**		**Change** (energy efficient scheme with CHP and renewables VS baseline)	
	kWh	$kgCO_2$	kWh	$kgCO_2$	kWh	$kgCO_2$	kWh	$kgCO_2$
Heating	5,079,000	985,000	2,360,000	458,000	2,367,000*	299,000	**- 53%**	**- 70%**
Cooling	906,000	382,000	2,173,000	917,000	2,173,000	917,000	**+ 40%**	**+ 40%**
Electricity (other than cooling)	7,598,000	3,206,000	4,780,000	2,017,000	4,670,000	1,955,000	**- 37%**	**- 39%**
TOTAL	**13,583,000**	**4,574,000**	**9,463,000**	**3,392,000**	**9,210,000**	**3,187,000**	**- 32%**	**- 31%**

** of which 950,000 kWh would be generated from biomass*

The increase in cooling-related energy consumption is due to the improved accuracy of the thermal model compared to benchmarks used to establish the baseline cooling-related energy consumption.

2.0 REPORT STRUCTURE

For clarity, the approach to energy efficiency and the integration of renewable energy sources and Combined Heat and Power (CHP) is split up into three sections:

- The first section presents the assessment of energy consumption and CO_2 emissions for the baseline scheme (without energy efficiency measures and with no contribution from Low or Zero Carbon Technologies);
- The next section is dedicated to the energy efficiency measures that have been adopted, and the effect they have on energy consumption and CO_2 emissions : this scheme is named the 'energy efficient scheme';
- The final section is dedicated to Low or Zero Carbon technologies that could be implemented at the site.

3.0 ENERGY DEMAND ASSESSMENT – BASELINE SCHEME

Energy consumption benchmarks have been used to calculate the baseline scheme energy consumption and CO_2 emissions. These benchmarks are generally based on good practice figures from the CIBSE Guide F on Energy Efficiency in Buildings. They represent the energy consumption to be expected from various types of space / buildings in the UK, when good practice design and good management principles have been applied. These benchmarks have been used since the beginning of the design, which was initiated long before Part L 2006 came into force.
It should be noted that these figures include all energy uses in the building, not only those covered by Part L.

3.1 Benchmarks

Table 3: Energy consumption benchmarks for North East Quadrant Development
Baseline scheme – no contribution from energy efficiency measures and low carbon energy sources

Space	Heating consumption (gas supplied) (kWh/m^2/yr)	Cooling consumption (kWh/m^2/yr)	Electricity consumption (other than cooling) (kWh/m^2/yr)	Benchmark source
Offices	97	18	181	Benchmarks for a good practice prestige air-conditioned office (Energy Efficiency in Buildings, Guide F, CIBSE).
Breakout/ conference space	100	33	34	Benchmarks for a good practice lecture room (Energy Efficiency in Buildings, Guide F, CIBSE), assuming that cooling represents 50% of the electricity consumption.
Retail	96	79	316	Retail space consumption figures assumed to be a weighted average of good practice supermarket (80%) and high street bank (20%) (Energy Efficiency in Buildings, Guide F, CIBSE). Assuming that cooling represents 20% of the electricity consumption.
Café	20	15	57	Estimate based on Starbucks' Corporate Social Responsibility Report, 2004. Based on data from 2,460 stores (gas) and 4,137 stores (electricity). Assuming that cooling represents 20% of the electricity consumption.
Diorama	125	0	22	Benchmarks for a good practice community centre (Energy Efficiency in Buildings, Guide F, CIBSE).
Restaurant	1100	130	520	Benchmarks for a good practice restaurant. (Energy Efficiency in Buildings, Guide F, CIBSE), assuming that cooling represents 20% of the electricity consumption.
Circulation, lobbies, storage in officel buildings	0	8	32	Estimate for good practice circulations, lobbies and storage spaces in office buildings, assuming that cooling represents 20% of the electricity consumption.
WCs in office buildings	0	0	50	Estimate for good practice WCs in office buildings.
Plant / Car Park	0	0	15	Benchmarks for typical practice car parks (Energy Efficiency in Buildings, Guide F, CIBSE).
Residential (without comfort cooling)	105	0	50	Estimate based on a typical modern dwelling.
Residential (with comfort cooling)	105	13	50	Estimate based on a typical modern dwelling.
Circulations and basement in residences	0	0	30	Estimate for good practice circulations in residences.

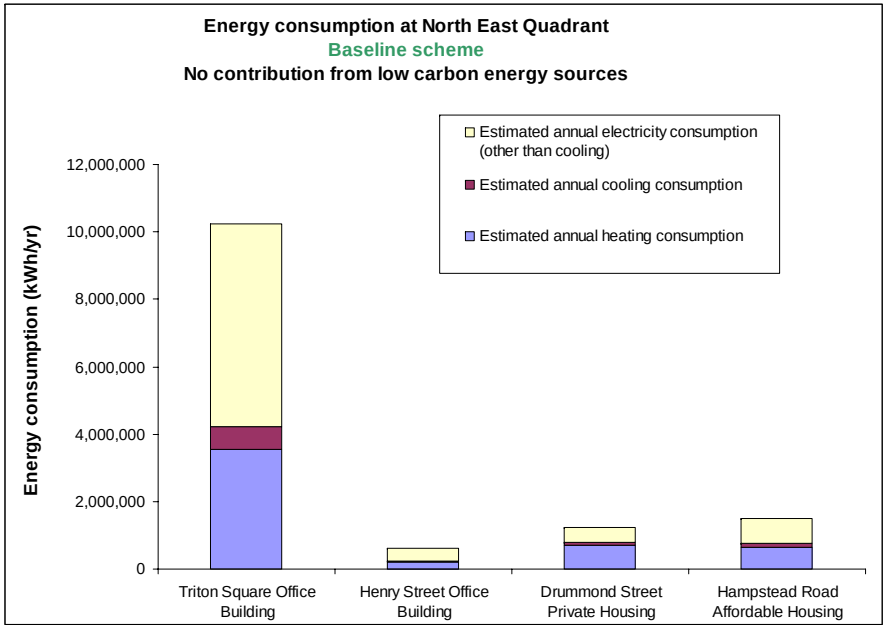
3.2 Assessment of energy consumption and CO_2 emissions – Baseline scheme

Energy consumption

Table 4: Energy consumption breakdown – Baseline scheme

Building	Estimated annual HEATING consumption (kWh/yr)	Estimated annual COOLING consumption (kWh/yr)	Estimated annual ELECTRICITY consumption (other than cooling) (kWh/yr)	TOTAL annual energy consumption (kWh/yr)
Triton Square Office Building	3,545,000	664,000	6,012,000	**10,231,000**
Henry Street Office Building	193,000	41,000	382,000	**615,000**
Drummond Street Private Housing	695,000	86,000	449,000	**1,230,000**
Hampstead Rd Affordable Housing	637,000	115,000	755,000	**1,510,000**
TOTAL				**13,583,000**

Figure 1: Energy consumption breakdown – Baseline scheme



As shown in Table 4 and on the bar chart, the energy consumption of Triton Square Officee Building accounts for the main part of the energy use at North East Quadrant (baseline scheme).

CO_2 emissions

An assessment of the predicted baseline scheme carbon dioxide emission for the development has been calculated using the following carbon dioxide emission factors (source: ADL2A, Part L 2006):

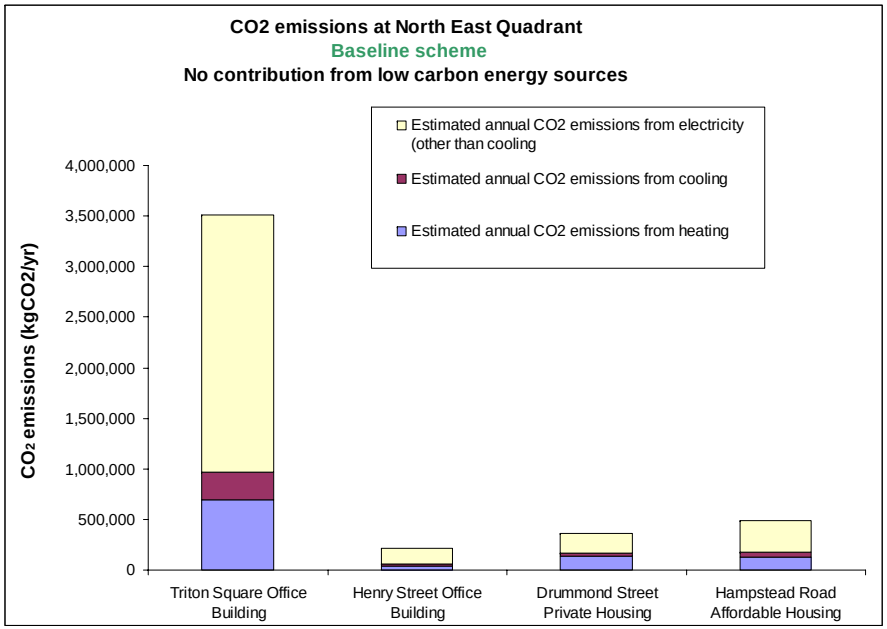
- **Natural gas:** 0.194 $kgCO_2/kWh$
- **Grid supplied electricity:** 0.422 $kgCO_2/kWh$

Table 5, below, shows the baseline scheme estimated CO_2 emissions breakdown by building.

Table 5: CO_2 emission breakdown – Baseline scheme

Building	Estimated CO_2 emissions from HEATING ($kgCO_2/yr$)	Estimated CO_2 emissions from COOLING ($kgCO_2/yr$)	Estimated CO_2 emissions from ELECTRICITY (other than cooling) ($kgCO_2/yr$)	TOTAL annual CO_2 emissions ($kgCO_2/yr$)
Triton Square Office Building	690,000	280,000	2,537,000	**3,506,000**
Henry Street Office Building	37,000	17,000	161,000	**216,000**
Drummond Street Private Housing	135,000	36,000	189,000	**361,000**
Hampstead Rd Affordable Housing	124,000	49,000	318,000	**491,000**
TOTAL				**4,574,000**

Figure 2: CO_2 emission breakdown – Baseline scheme



4.0 ENERGY DEMAND ASSESSMENT – ENERGY EFFICIENT SCHEME

4.1 Energy efficiency measures

The strategic approach to the design of the development has been to reduce demand for energy consumption in the first instance prior to the consideration of integrating low carbon energy sources, since controlling demand is the most effective way of reducing carbon dioxide emissions.

The following points outline the approaches and strategies that have been considered to improve energy efficiency:

- Low U-values for external walls, glazing, roofs and floors: the scheme is designed to exceed the requirements of the new Building Regulations (Part L1A and L2A, 2006);
- Reduced shading coefficients/g values of Triton Square Office Building glazing;
- High standards of airtightness (i.e. minimising air leakage and infiltration rates through gaps and openings);
- Heat recovery within each mechanical ventilation system;
- Energy efficient lighting (including daylight controlled automatic dimming luminaires in the office area);
- Class A rated fridges/freezers, Class A rated washing machines and dishwashers and Class B rated dryers (where provided);
- Ventilation control in bathrooms and kitchens to reduce fan energy when not in use;
- Variable speed drives for circulation pumps;
- High efficiency motors incorporated into all building services;
- High efficiency boiler plant;
- Energy metering;
- Enhanced pipework and ductwork thermal insulation.

In addition, the developer aims to get an EcoHomes ‘Very Good’ rating and a BREEAM ‘Very Good’ rating.

4.2 Adjusted benchmarks

The energy efficiency measures have been implemented and have led to an adjustment in the benchmarks. Therefore, some benchmarks from CIBSE Guide F were:

- reduced by a margin which reflected the impact of energy efficiency measures,
- or replaced by an even more reliable source: the output of the thermal model for Triton Square Office Buildings (using IES software), or the output of the SAP calculations for the residential buildings.

It should be noted that these figures include all energy uses in the building, not only those covered by Part L.

Table 6: Energy consumption benchmarks for North East Quadrant Development
Energy efficient scheme – no contribution from low carbon energy sources

Space	Heating consumption (gas supplied) ($kWh/m^2/yr$)	Cooling consumption (elec. supplied) ($kWh/m^2/yr$)	Electricity consumption (other than cooling) ($kWh/m^2/yr$)	Benchmark source
Offices	25	59	98	For heating, cooling, fans, pumps and lighting: Based on the preliminary thermal modelling results using the TAS model provided by Watkins Payne (i.e. 25 kWh/m^2 for heating, 59 kWh/m^2 for cooling, fans, pumps and lighting). For office equipment, computer room and other electricity: Based on benchmarks for a good practice prestige air-conditioned office (i.e. 18 kWh/m^2 for office equipment, 70 kWh/m^2 for computer room and 10 kWh/m^2 for other electricity).
Breakout/ conference space	100	33	34	Benchmarks for a good practice lecture room (Energy Efficiency in Buildings, Guide F, CIBSE), assuming that cooling represents 20% of the electricity consumption.
Retail	96	79	316	Retail space consumption figures assumed to be a weighted average of good practice supermarket (80%) and high street bank (20%). (Energy Efficiency in Buildings, Guide F, CIBSE), assuming that cooling represents 20% of the electricity consumption.
Café	20	15	57	Estimate based on Starbucks' Corporate Social Responsibility Report, 2004. Based on data from 2,460 stores (gas) and 4,137 stores (electricity), assuming that cooling represents 20% of the electricity consumption.
Diorama	62	0	11	Benchmarks for a good practice community centre (Energy Efficiency in Buildings, Guide F, CIBSE), reduced by 50% given the energy efficient envelope and services.
Restaurant	792	94	374	Benchmarks for a good practice restaurant (Energy Efficiency in Buildings, Guide F, CIBSE), reduced by 28%, and assuming that cooling represents 20% of the electricity consumption.
Circulation, lobbies, storage in officel buildings	0	8	32	Estimate for good practice circulation, lobbies and storage spaces in office buildings, assuming that cooling represents 20% of the electricity consumption.
WCs in office buildings	0	0	50	Estimate for good practice WCs in office buildings.
Plant / Car Park	0	0	15	Benchmarks for typical practice car parks.
Residential (without comfort cooling)	85	0	40	Estimate based on a typical modern dwelling using SAP calculations.
Residential (with comfort cooling)	85	10	40	Estimate based on a typical modern dwelling using SAP calculations.
Circulations and basement in residences	0	0	30	Estimate for good practice circulations in residences.

4.3 Assessment of energy consumption and CO_2 emissions – Energy efficient scheme

Principles of energy efficient design have been incorporated into the outline design proposals. Table 7, below, shows North East Quadrant Development estimated energy consumption breakdown (i.e. Energy Efficient Scheme).

Energy consumption

Table 7: Energy consumption breakdown – Energy efficient scheme

Building	Estimated annual HEATING consumption (kWh/yr)	Estimated annual COOLING consumption (kWh/yr)	Estimated annual ELECTRICITY consumption (other than cooling) (kWh/yr)	TOTAL annual energy consumption (kWh/yr)
Triton Square Office Building	1,206,000	1,868,000	3,473,000	**6,547,000**
Henry Street Office Building	50,000	123,000	217,000	**389,000**
Drummond Street Private Housing	562,000	66,000	383,000	**1,011,000**
Hampstead Rd Affordable Housing	542,000	115,000	707,000	**1,365,000**
TOTAL				**9,313,000**

Figure 3: Energy consumption breakdown – Energy efficient scheme

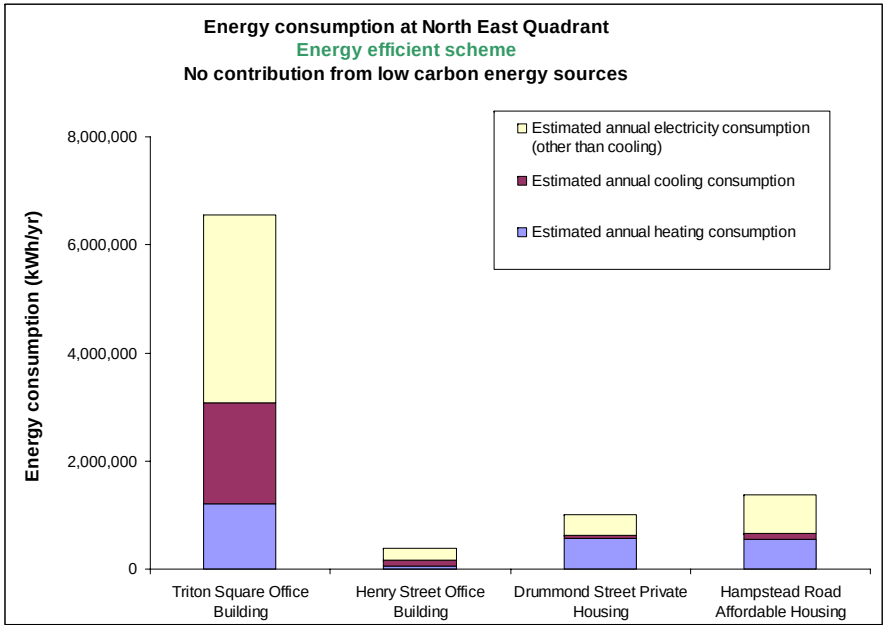


Table 7 confirms the findings of the baseline scheme analysis: the energy consumption of Triton Square Office Building accounts for the main part of the energy use at North East Quadrant.

CO_2 emissions

An assessment of the predicted energy efficient scheme carbon dioxide emission for the development has been calculated using the following carbon dioxide emission factors (source: ADL2A, Part L 2006):

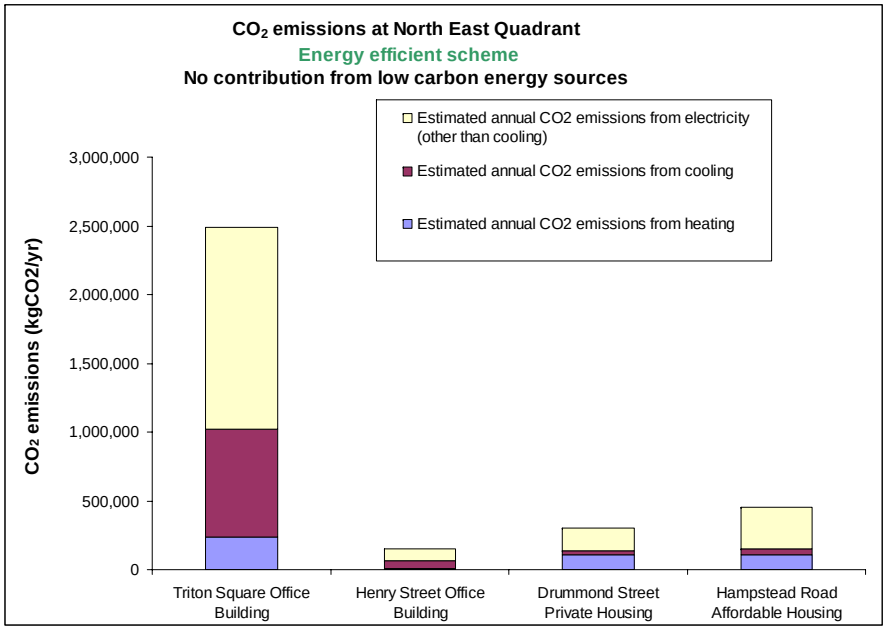
- **Natural gas:** 0.194 $kgCO_2/kWh$
- **Grid supplied electricity:** 0.422 $kgCO_2/kWh$

Table 8, below, shows North East Quadrant Development estimated CO_2 emissions breakdown by building (i.e. Energy Efficient Scheme).

Table 8: CO_2 emission breakdown – Energy efficient scheme

Building	Estimated CO_2 emissions from HEATING ($kgCO_2/yr$)	Estimated CO_2 emissions from COOLING ($kgCO_2/yr$)	Estimated CO_2 emissions from ELECTRICITY (other than cooling) ($kgCO_2/yr$)	TOTAL annual CO_2 emissions ($kgCO_2/yr$)
Triton Square Office Building	234,000	789,000	1,465,000	**2,421,000**
Henry Street Office Building	10,000	52,000	92,000	**153,000**
Drummond Street Private Housing	109,000	28,000	162,000	**299,000**
Hampstead Rd Affordable Housing	105,000	49,000	298,000	**452,000**
TOTAL				**3,392,000**

Figure 4: CO_2 emission breakdown – Energy efficient scheme



4.4 Comparison between the baseline scheme and the energy efficient scheme

Table 9: Comparison between the baseline scheme and the energy efficient scheme

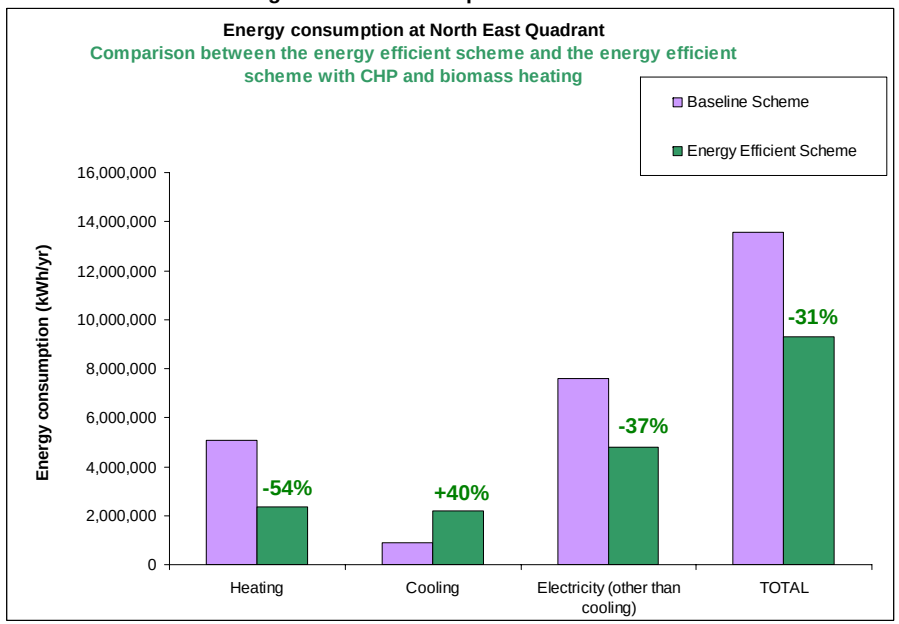
	Baseline Scheme		Energy Efficient Scheme		Change	
	kWh	$kgCO_2$	kWh	$kgCO_2$	kWh	$kgCO_2$
Heating	5,079,000	985,000	2,360,000	458,000	- 54%	- 54%
Cooling	906,000	382,000	2,173,000	917,000	+ 40%	+ 40%
Electricity (other than cooling)	7,598,000	3,206,000	4,780,000	2,017,000	- 37%	- 37%
TOTAL	**13,583,000**	**4,574,000**	**9,463,000**	**3,392,000**	**- 31%**	**- 26%**

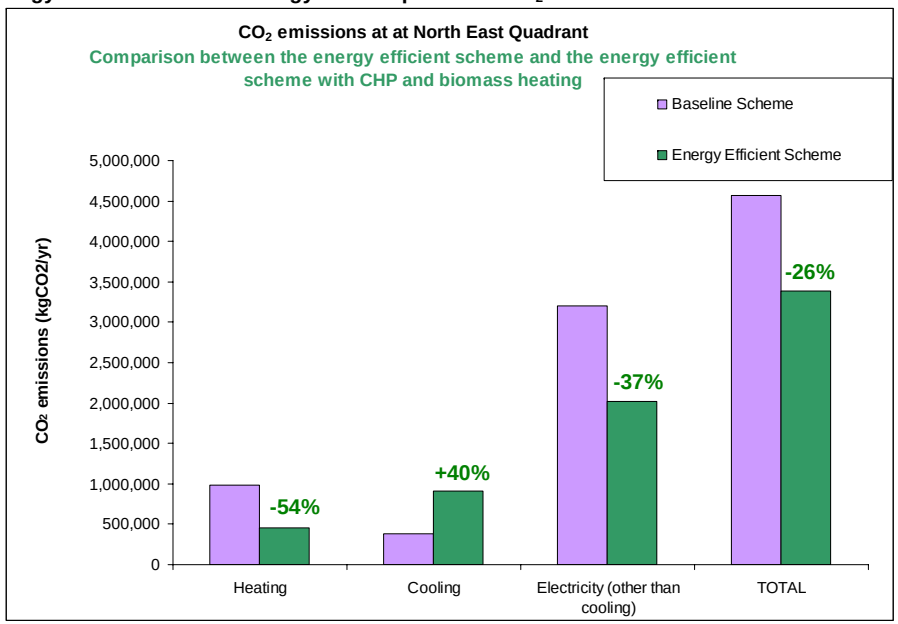
The increase in cooling-related energy consumption should not be interpreted as a result of a reduced energy efficiency.

In fact, as the IES thermal model provides more reliable information than the energy consumption benchmarks, it should be perceived as an adjusted figure reflecting the real building more accurately.

The changes between the Baseline Scheme and the Energy Efficient Scheme have led to a 31% reduction in energy consumption and a 26% reduction in CO_2 emissions.

Figures 5 and 6: Comparison between the baseline scheme and the energy efficient scheme: Energy consumption and CO_2 emissions





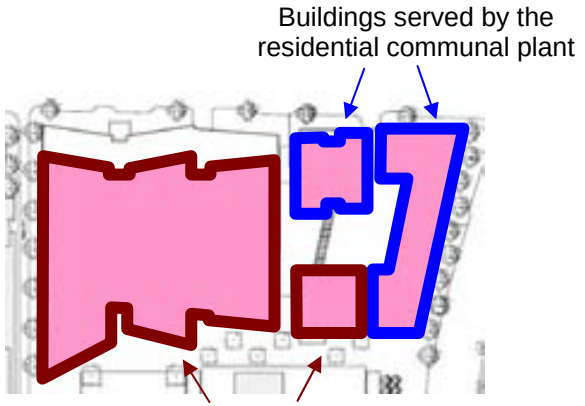
5.0 APPRAISAL OF RENEWABLE ENERGY SOURCES AND CHP

5.1 Heating and cooling systems – Future proofing

Instead of providing individual boilers to the residential units, the choice was made to provide one communal plant for the residential buildings. There will also be a communal plant for the commercial buildings.

Communal heating has several advantages compared to individual heating:

- The central plant rooms (i.e. commercial central plant and residential central plant) will be centrally and efficiently maintained: the owners and tenants of individual apartments / office space will not need to be concerned about maintaining or servicing their own boilers.
- The absence of a boiler and storage tank creates additional storage space for the residents.
- Gas is not brought into each apartment therefore removing associated safety issues and inspection check obligations.
- It is estimated that the running costs of the communal heating scheme are lower than for a conventional system.

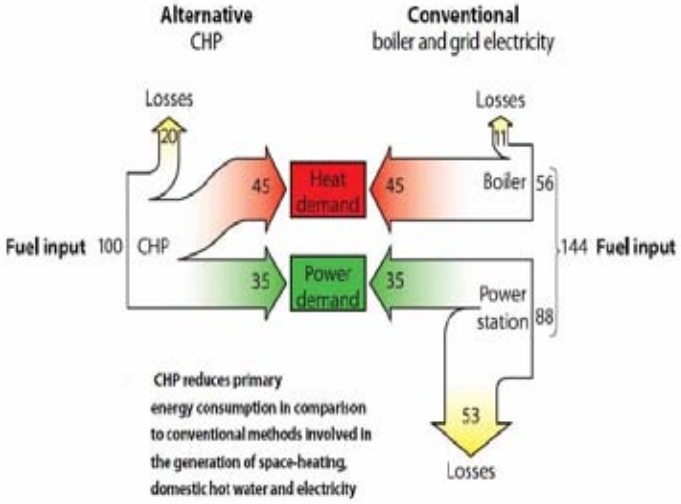


Finally, having only two communal plant rooms will bring flexibility in the future in terms of energy source and will allow an increased use of renewable energy sources in the future.

However, it was decided not to group the two plant rooms together (i.e. having one single energy centre for the whole development) in order to accommodate the possibility of the two types buildings being sold independently in the future.

5.2 Appraisal of a low carbon energy source: CHP

This section covers a low carbon, or 'clean' energy source, Combined Heat and Power (CHP). This low carbon energy source can help to reduce total project carbon dioxide emissions, as shown in this figure.



Combined Heat and Power (CHP) is the on-site generation of electricity and the utilisation of the heat that is a by-product of the generation process. Due to the utilisation of heat from electricity generation and the avoidance of transmission losses because electricity is generated on site, CHP typically achieves a 30 per cent reduction in primary energy usage compared with power stations and heat only boilers.

CHP is considered here to be a gas-fired engine or gas turbine. In such a scheme, the CHP unit would sit alongside the main central gas-fired boilers and act as the lead boiler. It is generally advised to size the CHP plant to cover part or all of the base thermal load (i.e. the domestic hot water load) and to ensure that the electrical output can be used.

Table 10 below summarises the domestic hot water energy consumption of each space.

Table 10: Estimate of Domestic Hot Water (DHW) requirements for each building

Building	DHW energy consumption (kWh/yr)
Triton Square Office Building	141,000
Henry Street Office Building	10,000
Drummond Street Private Housing	298,000
Hampstead Rd Affordable Housing	220,000

Assumptions *- DHW: 5% of gas duty for retail spaces, 30% of gas duty for restaurants and cafés, 10% of gas duty for Diorama; 80% of electricity duty for WCs, 50% of gas duty for residences.*

The table above shows that potentially all buildings except Henry Street Office Building have a sufficient DHW load to allow the implementation of a CHP unit.

However, as the strategy is based on renewable energy sources serving Triton Square and Henry Street Office Buildings (i.e. the biggest CO_2 emitters), a CHP could not be implemented at these buildings as it would have competed with the renewable technologies for the base thermal load. Therefore, it was decided to implement the CHP unit at the residential buildings.

Moreover, a review of the potential base electrical load within the residential buildings has been carried out. It indicated that the residential electrical base loads (Drummond Street Private Housing and Hampstead Road Affordable Housing) would be equivalent to approximately 30kW. This base electrical load principally relate to landlord's area lighting, car park ventilation and general allowance for miscellaneous power demands.

Therefore, a 30 kWe CHP unit could be implemented in the communal plant of the residential buildings. Based on the energy efficient scheme, this CHP unit would achieve the following contributions:

- it would generate 2.9% of the site energy requirements;
- it would reduce CO_2 emissions by 0.8%.

Table 11: CHP – Feasibility study

System size considered	Annual thermal output (kWh/yr)	Annual elec. output (kWh/yr)	Proportion of annual energy use	Net annual CO_2 reduction	Sizing and performance notes
1 no. 30kWe	164,000	110,000	**2.9%**	**0.8%**	Electrical capacity considered is 30kWe per unit. Thermal capacity is 45kW per unit. Fuel input 100kW (natural gas) per unit. Assuming the CHP plant would run 10 hours a day throughout the year.

British Land will further discuss with the London Climate Change Agency (LCCA) the possibility of reorganising plant layouts throughout the Regent's Place basement to ascertain whether adequate free space can be created to house a larger CHP and the necessary thermal storage vessels, and whether replacing existing chillers with absorption chillers on the new development and the existing buildings would be viable (this would allow tri-generation).
The design team will assess these possibilities.'

5.3 Appraisal of renewable energy sources

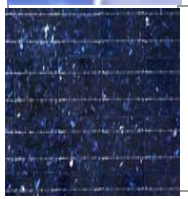
A number of renewable energy sources are considered for North East Quadrant Development:

Solar Water Heating.
Solar water heating systems use heat from the sun to pre-heat domestic hot water. Solar water heating systems are generally composed of solar thermal collectors and a fluid system to move the heat from the collector to a storage tank to stock the heat for subsequent use. The system requires solar panels on the roof, ideally south facing, linked to hot water storage cylinders. Further information on the types of solar panels available and indicative costs are included in Appendix A of this report.

Ground Source Heat Pumps
Ground source heat pumps can be used to extract heat from the ground by circulating a fluid through a system of pipes to a heat exchanger which transfers the energy to the distribution network. This can provide space heating and/or pre-heat domestic hot water. Ground source heat pumps have the advantage that they can act as a source of both heating and cooling for the buildings. Ground source heat pumps are either open-loop (abstracting and rejecting water to the aquifer below the site) or closed-loop. Further information is listed in Appendix A.

Biomass
Biomass heating systems combust biomass material in a biomass boiler in order to heat water in the same way that gas boilers combust gas. Biomass materials include all land and water based vegetation, e.g. wood chips, wood pellets, wood waste, fast growing coppice trees such as willow. The carbon dioxide emitted from burning biomass is balanced by that absorbed during the fuel's production. Biomass heating therefore approaches a carbon neutral process. Biomass boilers require storage adjacent to the boiler to be provided. The fuel is then delivered on a regular basis. Further information on the types of boilers available and indicative costs are included in Appendix A.

Wind Power
Wind turbines use the wind's lift forces to turn a rotor which in turn generates electricity. Wind power is used in large scale wind farms for national electrical grids as well as in small individual turbines or building integrated turbine. Further information on the types of turbines available and indicative costs are included in Appendix A of this report.



Photovoltaic Electricity Generation
Photovoltaic modules are devices or banks of devices that use the photovoltaic effect to generate electricity directly from sunlight. Until recently, their use has been limited due to high manufacturing costs. In buildings current applications include PV on the roof, PV curtain walling systems and PV louvred external shading devices. Further information on the types of photovoltaic modules available and indicative costs are included in Appendix A of this report.

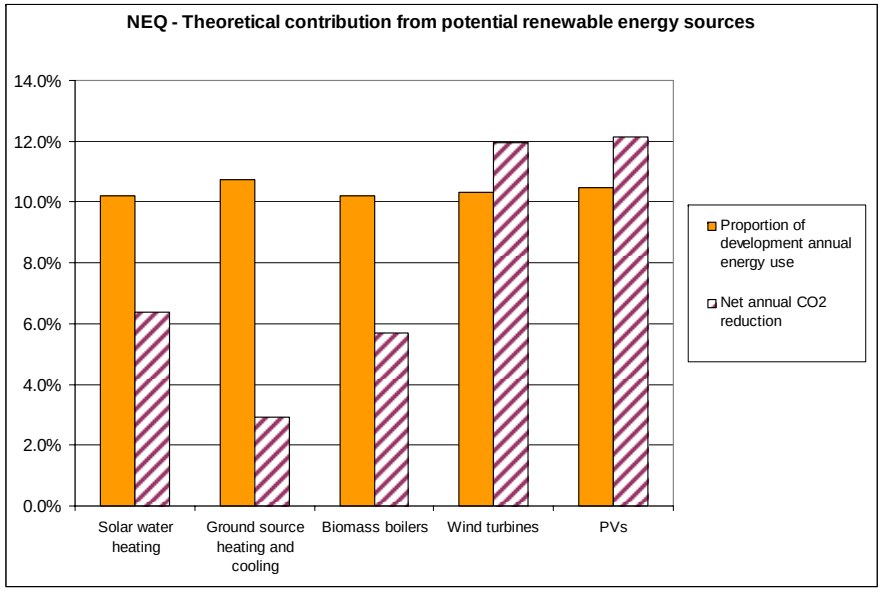
A preliminary analysis has been undertaken to evaluate the size/number of the various renewable energy technologies to meet a nominal target of 10% of the overall energy use. The outcome of this preliminary analysis is summarised in Table 12 below.

Assumptions on sizing and cost estimates of renewable energy technologies and Combined Heat and Power (CHP) can be found in Appendix A.

Table 12: Theoretical contribution from potential renewable energy sources

Energy source	Annual thermal output (kWh/yr)	Annual elec. output kWh/yr)	% of site annual energy use	Net annual CO_2 reduction	Sizing and performance notes
Solar water heating Panels (1,900 m^2)	950,000	0	**10.2%**	6.4%	Area of solar panels selected to deliver 10% of the site energy consumption. Thermal output assumed to be 500kWh/m^2.
Ground source heating and cooling (400 kW)	600,000 + 400,000*	0	**10.7%**	2.9%	Ground source heat pumps sized to suit 10% renewable energy contribution. Assumed COP of 4 and 1,500 operating hours in winter and 1,000 operating hours in summer.
Biomass boiler (500 kW)	950,000	0	**10.2%**	5.7%	Biomass boiler sized to suit 10% renewable energy contribution. Assumed 1,900 operating hours during the year.
Micro vertical axis wind turbines (160 No 6kW)	0	960,000	**10.3%**	11.9%	Micro vertical axis wind turbines selected to suit the constraints of the urban location. Number of wind turbines required calculated to suit 10% renewable energy contribution. Electrical output assumed to be 6,000 kWh per wind turbine.
Solar PV modules (13,000 m^2)	0	975,000	**10.5%**	12.1%	Area of PV modules required calculated to suit 10% renewable energy contribution. Annual power output 750kWh per kW peak output.

Figure 7 : Theoretical contribution from potential renewable energy sources



** 400,000 kWh represents the annual chilled water output from the ground source heat pump system.*

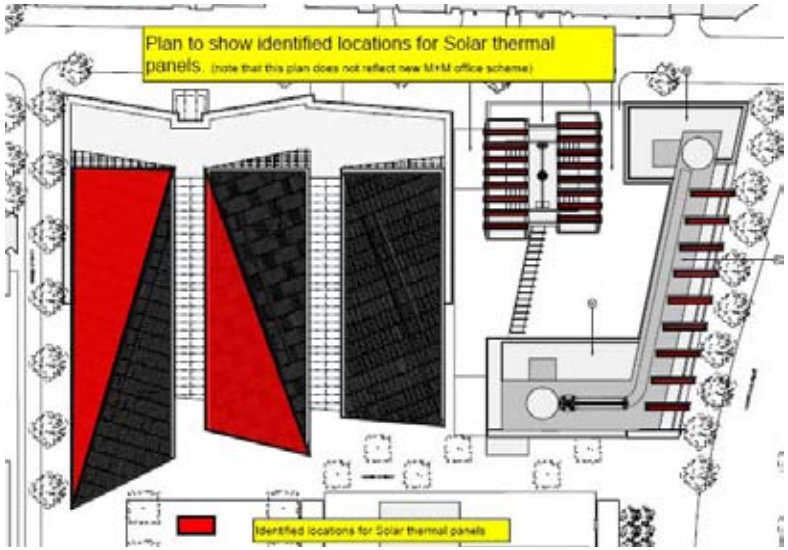
However, there are building integration and economic issues to take into account. The potential integration of renewable energy sources has the following implications:

- **Solar water heating panels** – Solar panels could be mounted on the roof or actually form part of the roof fabric. They should be facing southeast to southwest and not be shaded in order to maximise annual thermal output.

  The potential location of solar panels are limited due to the roof shapes and forms and also due to the major potential overshadowing effect from Euston Tower to the South of the development. An analysis of potential locations for solar thermal panels has led to the conclusion that the likely contribution from solar thermal panels would not exceed 1% of the site energy requirements (i.e. 220 m^2 of solar thermal panels). The maximum contribution from solar thermal panels would be 1.8% of the site energy requirements (i.e. 400 m^2 of solar thermal panels) but would require the implementation of solar thermal panels on sloping roofs facing northwest / northeast, leading to a reduction in their efficiency.

  Therefore it was concluded that **solar water heating would not be appropriate for NEQ**, as it could only contribute to 1.0-1.8% of the site energy requirements.

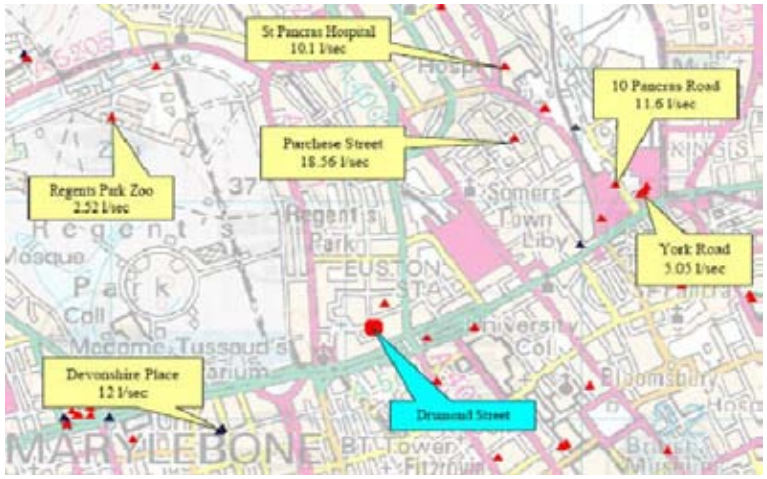
Figure 8 : Potential locations for solar thermal panels



- **Ground source heat pumps** – In theory, it would be technically feasible to meet around 10% of annual energy demand by providing a ground source coupling system. A desktop study has been carried out by a borehole specialist to investigate the feasibility of an open-loop ground source heat pump system, which depends on being able to abstract aquifer water for heat exchange. It concluded that in the strata surrounding Drummond Street, ground water appears to flow reasonably well through the Upper Chalk and should be able to provide a sufficient flow rate for a 400kW ground source heat pump to generate 10% of the site annual energy requirements.

  However, given the risks carried by the fact that the feasibility of this system can only be verified by making a test borehole, given the impact it would have on the construction period and given the reduced CO_2 emissions this system would lead to, it was concluded that **a ground source heating and cooling system would not be appropriate for NEQ.**

Figure 9 : Flow rates from existing boreholes near the site



- **Biomass boiler** – Potentially, a 500 kW biomass boiler could meet 10% of the site energy requirements. Unlike a natural gas boiler system that relies on a piped gas supply, a biomass system relies on a store of fuel that needs to be topped up regularly by lorry deliveries. This issue was not considered to be critical as there are several sources of wood chips both within a 20-mile radius and within a 50-mile radius of the site (see green points on figure 10).

  A wood fuel store has been provided in the basement of the development. Its sizing has been carried out assuming wood chips would be the preferred fuel. If it turns out that the preferred fuel is wood pellets, the wood fuel store would be large enough as wood pellets have a greater energy density than wood chips.

  Finally, the emissions associated with the burning of wood fuel would be minimised to ensure compliance with the Clean Air Act.

  Biomass is the preferred option for NEQ. It would only serve the heating installations of Triton Square and Henry Street Office Buildings. It would **contribute to 10% of the whole site energy requirements** and would **reduce the whole site CO_2 emissions by 5.7%.**

  Note on the biomass boiler capacity:
  It should be highlighted that 500 kW is the optimum capacity for the biomass boiler. An option was investigated to increase the capacity of the biomass boiler to further increase its energy contribution and the CO_2 reduction it would help to achieve. However, given the thermal loads of the office buildings, it was concluded that 500 kW was the optimum capacity and that increasing this capacity would carry a risk of oversizing the biomass boiler.

Figure 10 :Potential sources of wood chips within a 20-mile and a 50-mile radius of the site

- **Wind turbines** – Theoretically, wind power could contribute to 10% of the site energy requirements, but it would require 160 micro vertical axis wind turbines to be mounted on the roofs. This would be technically and architecturally difficult. Therefore, **wind turbines would not be appropriate for NEQ**.

- **PV modules** – Installing 13,000 m^2 of PV modules on the roofs of North East Quadrant would be both difficult from an architectural perspective and not efficient (overshadowing from Euston Tower). As explained on the section dedicated to solar water heating, the area of roof available is limited. If this area was to be covered by PV modules, it would only generate 0.3% of the site energy requirements and reduce CO_2 emissions by 0.4%. Therefore, **PV modules would not be appropriate for NEQ**.

5.4 Conclusion

This analysis demonstrated that:

- Biomass is the best option for NEQ as it would contribute to 10% of the site energy requirements and reduce CO_2 emission by 5.7%.
- Ground source heating and cooling could also contribute to 10% of the site energy requirements but would lead to a lesser reduction of CO_2 emissions and would be riskier and more disruptive during the construction process.
- Solar water heating and PV modules are not appropriate for NEQ due to the roof area available and to the overshadowing effect of Euston Tower. They could only contribute to a small proportion of the site's energy requirements.
- Wind turbines are not appropriate, as the number required (i.e. 160) would be technically and architecturally difficult to integrate.

A CHP unit will also be provided for the residential buildings.

5.5 Comparison between the energy efficient scheme and the energy efficient scheme with CHP and renewables

The combined impact of CHP and biomass heating at NEQ is summarised in the following table:

Table 13: Comparison between the energy efficient scheme and the energy efficient scheme with CHP and renewables

	Energy Efficient Scheme		Energy Efficient Scheme with CHP and renewables		Change	
	kWh	$KgCO_2$	kWh	$KgCO_2$	kWh	$KgCO_2$
Heating	2,360,000	458,000	2,367,000*	299,000	0%	- 35%
Cooling	2,173,000	917,000	2,173,000	917,000	0%	0%
Electricity (other than cooling)	4,780,000	2,017,000	4,670,000	1,955,000	- 2%	- 3%
TOTAL	**9,463,000**	**3,392,000**	**9,210,000**	**3,187,000**	**- 1.1%**	**- 6.5%**

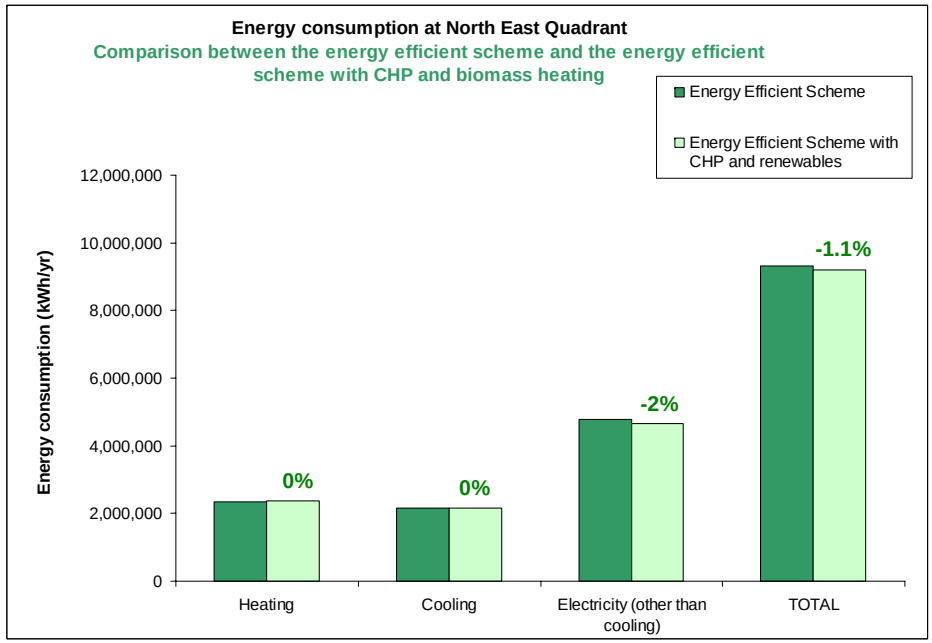
** of which 950,000 kWh would be produced from biomass*

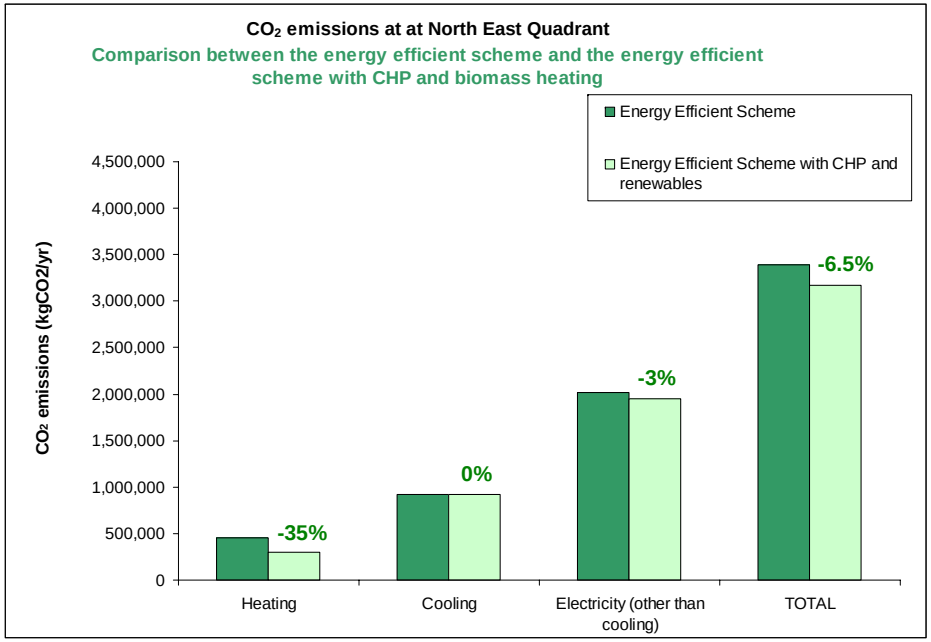
The following carbon dioxide factors have been used (source: ADL2A, Part L 2006):

- **Natural gas:** 0.194 $kgCO_2/kWh$
- **Grid supplied electricity:** 0.422 $kgCO_2/kWh$
- **Grid displaced electricity:** 0.568 $kgCO_2/kWh$

The changes between the Energy Efficient Scheme and the Energy Efficient Scheme with CHP and renewables have led to a 1.1% reduction in energy consumption and a 6.5% reduction in CO_2 emissions. 10% of the site energy consumption will be generated by the biomass boiler and 3% by the CHP plant. The difference between the energy figures and the CO_2 figures are due to the different CO_2 contents of the displaced and used fuels (i.e. gas, grid-supplied electricity, displaced electricity, biomass).

Figures 11 and 12: Comparison between the energy efficient scheme and the energy efficient scheme with CHP and renewables (Energy consumption and CO_2 emissions)





7.0 CONCLUSIONS

The conclusion of the several desktop studies which have been carried out is that implementing a biomass boiler can deliver 10% of total annual energy use when serving the heating installations of the office buildings (i.e. Triton Square and Henry Street). On this basis it is proposed that a biomass boiler with a capacity of 500 kW is provided. In addition, a 30kWe CHP plant will be provided and contribute to the Domestic Hot Water requirements and landlord's electrical requirements of the residential buildings (i.e. Drummond Street and Hampstead Road).

Table 1: Summary of the selection of Low or Zero Carbon Technologies for NEQ

Technology	Selected	Comments
Combined Heat and Power (CHP)	Yes	A 30 kWe unit to serve the residential buildings
Solar water heating panels	No	Not appropriate for NEQ due to the roof area available and to the overshadowing effect of Euston Tower. Could only contribute to a small proportion of the site's energy requirements (i.e. 1.0-1.8%).
Ground source heat pumps	No	Could contribute to 10% of the site energy requirements but would lead to a lesser reduction of CO_2 emissions than Biomass heating. Would also be riskier and more disruptive during the construction process.
Biomass heating boilers	Yes	A 500 kW biomass boiler will be provided and contribute to 10% of the site's energy requirements.
Wind turbines	No	Not appropriate, as the number of wind turbines required (i.e. 160) would be technically and architecturally difficult to integrate.
Photovoltaic (PV) modules	No	Not appropriate for NEQ due to the roof area available and to the overshadowing effect of Euston Tower. Could only contribute to a small proportion of the site's energy requirements (i.e. 0.5%).

Table 2: Summary of the impact of energy saving measures and Low or Zero Carbon technologies on Energy Consumption and CO_2 emissions for NEQ

	Baseline Scheme		**Energy Efficient Scheme**		**Energy Efficient Scheme with CHP and renewables**		**Change** (energy efficient scheme with CHP and renewables VS baseline)	
	kWh	$kgCO_2$	kWh	$kgCO_2$	kWh	$kgCO_2$	kWh	$kgCO_2$
Heating	5,079,000	985,000	2,360,000	458,000	2,367,000*	299,000	**- 53%**	**- 70%**
Cooling	906,000	382,000	2,173,000	917,000	2,173,000	917,000	**+ 40%**	**+ 40%**
Electricity (other than cooling)	7,598,000	3,206,000	4,780,000	2,017,000	4,670,000	1,955,000	**- 37%**	**- 39%**
TOTAL	**13,583,000**	**4,574,000**	**9,463,000**	**3,392,000**	**9,210,000**	**3,187,000**	**- 32%**	**- 31%**

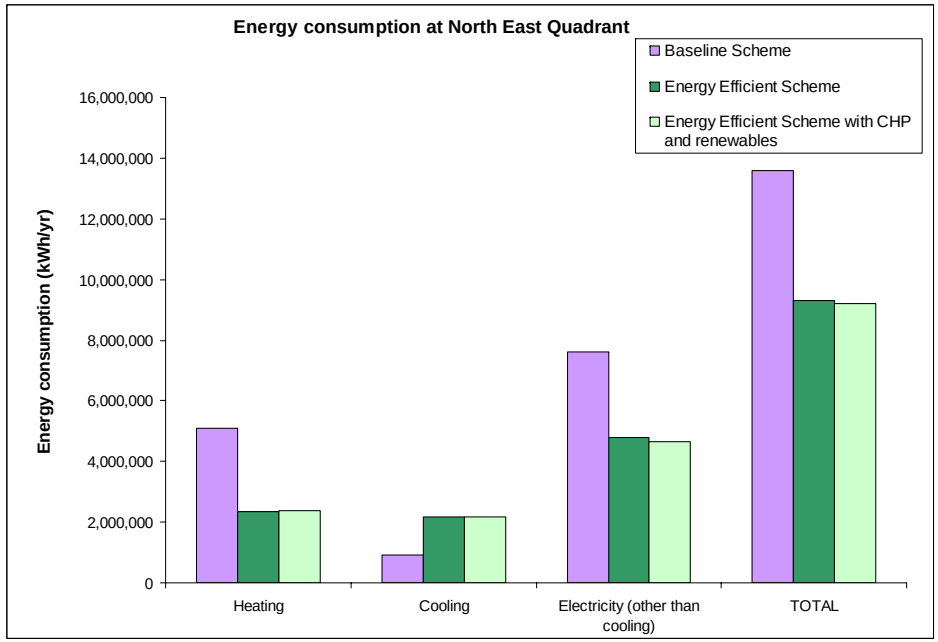
** of which 950,000 kWh would be generated from biomass*

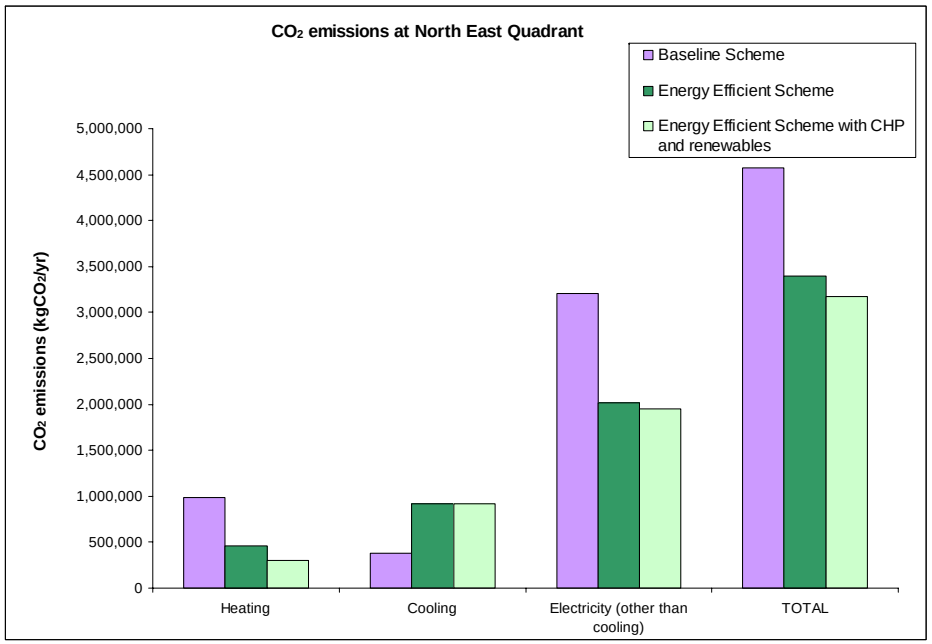
The increase in cooling-related energy consumption is due to the improved accuracy of the thermal model compared to benchmarks used to establish the baseline cooling-related energy consumption.

Impact of energy efficiency measures, biomass and CHP

The changes between the Baseline Scheme and the Energy Efficient Scheme with renewables and CHP have led to a 32% reduction in energy consumption and a 31% reduction in CO_2 emissions. 10% of the site energy consumption will be generated by the biomass boiler and 3% by the CHP plant.

Figures 16 and 17: Energy consumption and CO_2 emissions at NEQ





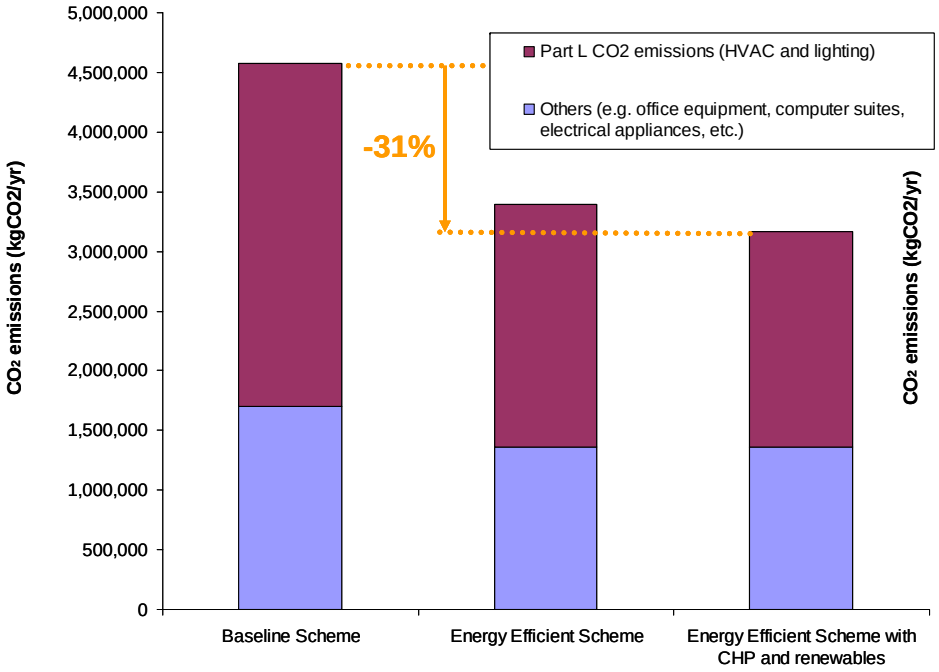
Clarification on benchmarks and Part L

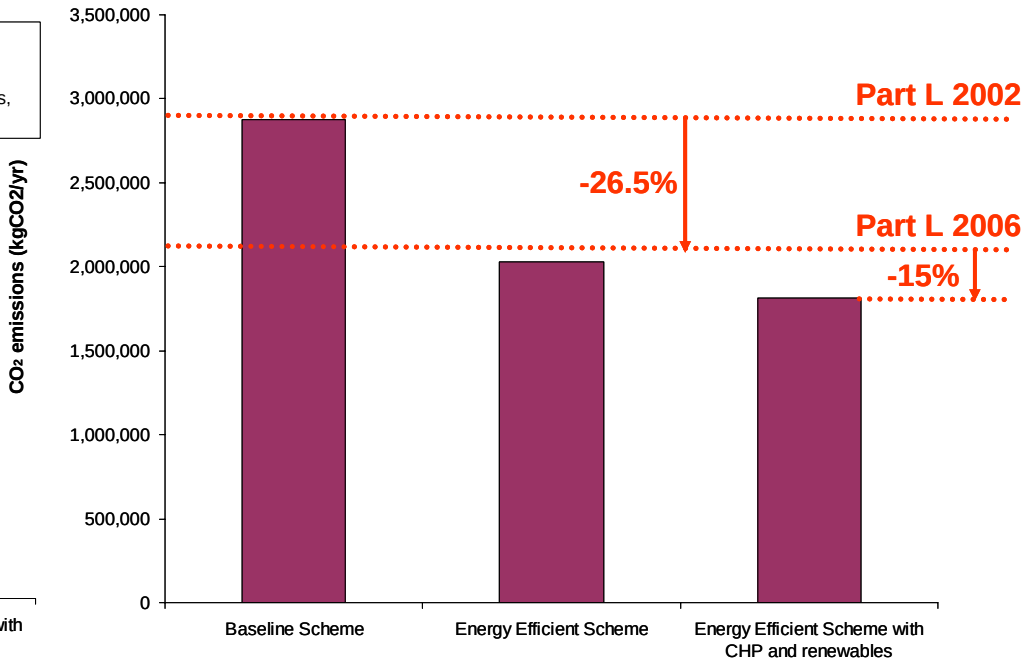
It should be noted that:

- The Baseline Scheme represents the starting point of the Design. It is based on good practice benchmarks from CIBSE Guide F on Energy Efficiency in Buildings.
- The Energy Efficient Scheme and the Energy Efficient Scheme with CHP and renewables are based on a combination of results from thermal modelling and SAP cals, benchmarks, and calculations.

- It should be noted that CO_2 emissions above include all energy uses, not just energy uses covered by Part L. As CO_2 emissions not covered by Part L represent a large proportion of total CO_2 emissions, a total CO_2 emissions reduction of 31% between the Baseline Scheme and the Energy Efficient Scheme with CHP and renewables actually represents a Part L CO_2 emissions reduction of 37% and an improvement over Part L 2006 of 15%. See Figures 18 and 19 below.

Figures 18 and 19: Energy consumption and CO_2 emissions at NEQ / Part L





British Land will further discuss with the London Climate Change Agency (LCCA) the possibility of reorganising plant layouts throughout the Regent's Place basement to ascertain whether adequate free space can be created to house a larger CHP and the necessary thermal storage vessels, and whether replacing existing chillers with absorption chillers on the new development and the existing buildings would be viable (this would allow tri-generation). The design team will assess these possibilities.

APPENDIX A

RENEWABLE ENERGY SOURCES AND CHP

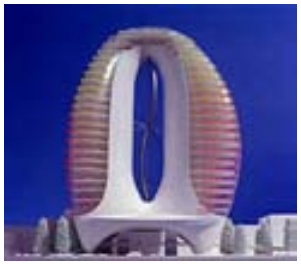
WIND GENERATION

There are three basic types to consider:

- Horizontal axis (propeller type)

- Vertical axis (helical type)

- Building integrated type (building design is adapted to suit the wind turbine)



- Building integrated systems are still at prototype stage.

Preliminary cost estimate

Assumed installed cost rate is £3,000/kW (Source: Enercon Cost Esimates /GLA Renewable Energy Toolkit Benchmarks).

Technical life expectancy

20-25 years.

Typical maintenance requirements

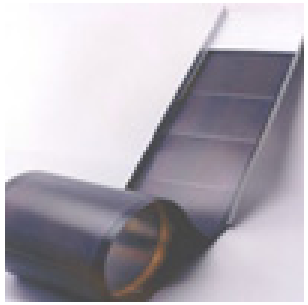
Low maintenance. Occasional lubrication of bearings. Service check every couple of years.

PHOTOVOLTAICS (PVs)

There are two types to consider: both types are viable

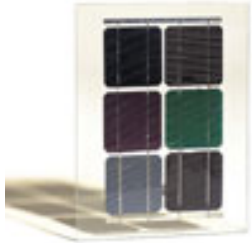
a) Solid PV cells – these can be roof or façade mounted (although solar modules fitted on a south facing façade have only 75% the output of roof mounted modules)


Thin film PV types are more flexible. They can be curved or flat.

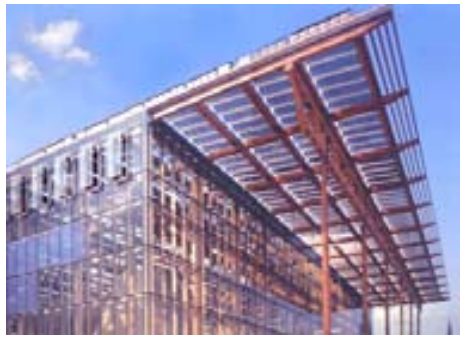



b) PVs integrated into glazing – the gaps around the PV cells allow some daylight penetration. This can be used for partial shading in a glazed roof.


Typical PV colours are dark blue, grey or green:



Example of PV cells laminated in glass and used as external shading:



Preliminary cost estimate

Assumed installed cost rate of solar PV is £8,000/kW peak duty.

0.1kW peak duty is equivalent to $1m^2$

Technical life expectancy

20 years.

Typical maintenance requirements

Low maintenance. Visual inspection on monthly to ensure PV modules are clean and clear of obstructions. Check electrical connections 1-2 times/year.

SOLAR WATER HEATING

a) Roof mounted solar water heating tubes or flat panels – these could feasibly be mounted at roof level:

b) Solar thermal roof system (forms rain screen cover) – these could feasibly be installed as part of roof cover:

Preliminary cost estimate

Assumed installed cost rate per unit area of solar thermal panel is £700/m^2 (Source: GLA Renewable Energy Toolkit).

Technical life expectancy

25 years.

Typical maintenance requirements

Low maintenance. Annual maintenance check to ensure that:

- the collector surface is clean,
- there is no corrosion;
- sensors and fixings are properly in place,
- controls settings are properly set;
- fluid quality is good.

The system should be drained every five years.

BIOMASS HEATING

A biomass boiler uses a natural fuel such as wood chips or wood pellets for combustion. Since it uses a natural resource that can be replanted it is considered as a renewable energy source.

The primary disadvantage is that it requires large amounts of fuel storage (which will need to be fed by deliveries of biomass fuel) and requires a suitable flue design.

Potential logistic issue: need to secure delivery contract for wood chips or wood pellets.

Biomass Boiler

Wood pellets:

Wood chip storage and wood pellet storage is shown below:

Note: Biomass CHP is considered not viable due to lack of suitably sized products on market and poor UK experience at this scale.

Preliminary cost estimate

Assumed installed cost £250/kW (Source: GLA Renewable Energy Toolkit) + £100k for fuel storage.

Technical life expectancy

20-25 years.

Typical maintenance requirements

Biomass boilers require more frequent cleaning than gas boilers.

Biomass boilers must be capable of being taken out of service for cooling and cleaning while maintaining the building heating supply.

GROUND SOURCE HEAT PUMPS

Several options are possible depending on local geology and hydrology.

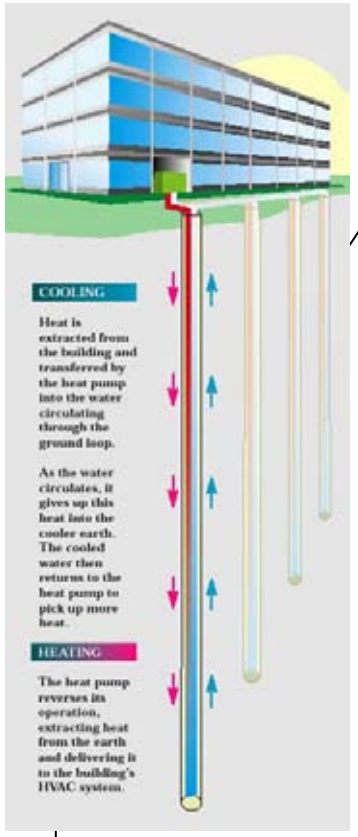
Various types of ground source heat pump arrangements are available including:

I. Vertical boreholes
II. Horizontal coils, typically less than few metres below ground, requires large area
III. Slinky coils, e.g. around perimeter of building
IV. Aquifer or water coupled

Horizontal coil heat pump system, typically 1m-3m deep

Water coupling options:

The use of two wells can allow inter-seasonal storage of heating and cooling (Also known as Aquifer Thermal Energy Storage):



Vertical borehole heat pump system, typically 75m-150m deep

Depth of boreholes: 75m to 150m.
Separation between boreholes: 100m-300m

Preliminary cost estimate

£1,800/kW. (From GLA Renewables Toolkit)

Assumed cost of heating/cooling plant for ground source system is similar to displaced costs for conventional plant and therefore not included.

Technical life expectancy

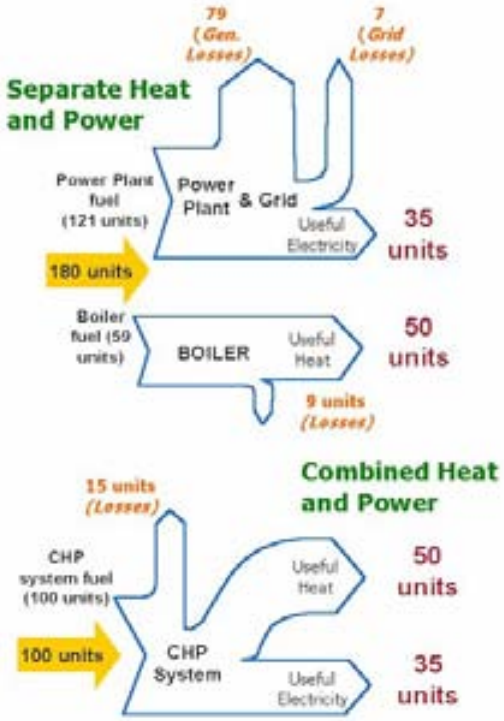
Similar to the pumps, so can be extended each time the pumps are replaced.

Typical maintenance requirements

Low maintenance. No maintenance is required for the ground pipes, and the heat pump requires standard mechanical equipment maintenance.

COMBINED HEAT AND POWER (CHP)

Combined heat and power (CHP) plant generates power for on-site consumption and recovers heat that can be used in the heating and hot water system.



Preliminary cost estimate

Cost for plant:
£65k for 30 kWe packaged micro-gas turbine CHP unit (from manufacturers cost sheet) plus allow £10k for ancillary equipment.

Technical life expectancy

15-20 years.

Typical maintenance requirements

A CHP unit requires standard mechanical equipment maintenance.