TEMPLAR HOUSE

SUSTAINABILITY STATEMENT

JULY 2015

NORTHWOOD INVESTORS

ASTUDIO

Northwood Investors

Templar House

Site Wide Sustainability Statement

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Contents

Executive Summary

Templar House is seeking to be as sustainable as possible through both a meticulous attention to architectural detail and excellence in engineering design.

All aspects of the of development have been assessed and reviewed to ensure that the environmental benefits of the design are in keeping with the location and setting of the site.

Energy efficiency has been fully addressed, by reviewing the most appropriate servicing strategies for each of the buildings and then combining this in a site-wide approach. The thermal performance of the residential units is optimised by high performance facade elements, including triple-glazed windows. This leads to incredibly low space heating demands, which in turn are met by high efficiency air source heat pumps. Hot water demand has been reduced by selecting fittings which restrict water use. The remaining domestic water heating demand is partially met via a site-wide energy-recovery scheme. Heat that would typically be rejected to the air from commercial office cooling plant would be used to pre-heat the hot water for the residences. This provides a carbon offset benefit to both the residential and commercial elements of the project. A site-wide photovoltaic array would provide electricity to the development which has no detrimental effects on the environment.

Water-efficiency is being achieved through efficient fittings. Further to this, rainwater would be harvested to flush toilets and reduce stress on the local potable water system and the local storm water drainage system. The project will be targeting a water conservation target of no more than 105 litres/day for internal use, equivalent to Code for Sustainable Homes (CfSH) Level 4.

Materials for the building façade have been fully reviewed with a large amount of consideration in choosing the most appropriate materials.

The dwellings would be light and airy, with generous floor-to-ceiling heights. This brings natural light deep into apartments, leading to great sense of well-being and reducing energy.

Despite the withdrawal of the Code for Sustainable Homes (CfSH) from regulation, Templar House will be targeting an energy performance equivalent to CfSH level **4**; a good achievement considering the site constraints and urban locale. The Commercial building would achieve ‘Excellent’ under BREEAM New Construction 2014.

1 Introduction

Background

Northwood Investors (hereafter 'the Applicant') is seeking planning permission for a mixed use scheme on a site known as 'Templar House" within the administrative boundary of the London Borough of Camden. The proposals, referred to as 'Templar House' (or the 'Development'), including 11,093m² of office area, 607m² retail space and 3,369m² residential accommodation.

This report is submitted in accordance with the London Borough of Camden's requirements for major developments to comply with their Local Development Framework (LDF) and the London Plan (2015) requirement for a Sustainable Design and Construction Statement to demonstrate that the proposal contributes to the goals of sustainable development.

The criteria for deciding when a Sustainability Statement should be prepared, and the intended scope and content of these statements, are set out in the London Plan Supplementary Planning Guidance (SPG) document: Sustainable Design and Construction (2014).

This report draws together information from a variety of studies carried out during the design process in order to show how sustainable development is addressed in the Templar House development. It does not propose any new information, but provides a systematic discussion of the sustainability issues associated with the scheme, highlighting the key decisions taken and describing how the scheme proposes to address each issue.

Report Structure

The remainder of this report is structured as follows:

Section 2: Site description/Development Proposals - provides information on the design, size and scale of the development;

Section 3: Response to London Plan requirements - provides a summary to the principles and requirements set out in the London Plan and the LDF;

Sections 4 - 13 - describes the sustainability credentials of the scheme under a number of key headings as a road map to achieving the goals of sustainable development;

Section 14: Conclusions - draws conclusions with regard to the balance of the social, economic and environmental considerations and impacts of the scheme, demonstrating how the six key goals of sustainable development, as set out in the London Plan Sustainable Design and Construction SPG are achieved through the scheme.

2 Current Site and Development Proposals

The Site

The site lies 500m to the east of Holborn Underground Station within the London Borough of Camden. It is bounded to the north by Eagle Street and to the south by High Holborn, which is the main arterial route linking the City to the West End.

The existing Templar House building is rectangular-shaped with two internal lift cores. The site is currently occupied by a 7-storey office block which has a total office floor area of 14,363m² GEA. The building is currently used for office purposes.

The project involves the demolition of an existing building and erection of two new buildings to provide a mix of uses comprising office, up to 48 residential units and retail together with, landscaping works, public realm improvements, plant, car and cycle parking and other ancillary works. The development is referred to in this report as 'Templar House'.

Development Proposals

For a detailed description of the development, please refer to the Design & Access Statement and plans accompanying this application.

3 Response to London Plan and London Borough of Camden requirements

London Plan

The report addresses the three main principles outlined in the 2014 amendments of the London Plan SPG: Sustainable Design and Construction. The principles are as follows:

1. **Resource management**
    - site layout and building design (Section **2**)
    - energy and carbon dioxide emissions (Section **6**)
    - water efficiency (Section **10**)
    - materials (including reuse of waste) (Section **13**)
    - nature conservation and biodiversity (Section **12**)

2. **Climate change adaptation**
    - overheating (Section **6**)
    - heat and drought resistant planting (Section **12**)

- urban greening, trees (Section **12**)
- surface water flooding, flooding and risk management (Section **10**)

3. **Pollution management**

- air pollution, noise pollution, light pollution, water pollution (surface and waste water treatment) (Section **9**)

In doing so, it also addresses the requirements of the London Plan as set out in Policy **5.3**

a. minimising carbon dioxide emissions across the site, including the building and services (such as heating and cooling systems)

b. avoiding internal overheating and contributing to the urban heat island effect

c. efficient use of natural resources (including water), including making the most of natural systems both within and around buildings

d. minimising pollution (including noise, air and urban runoff)

e. minimising the generation of waste and maximising reuse or recycling

f. avoiding impacts from natural hazards (including flooding)

g. ensuring developments are comfortable and secure for users, including avoiding the creation of adverse local climatic conditions

h. securing sustainable procurement of materials, using local supplies where feasible, and

i. promoting and protecting biodiversity and green infrastructure.

Naturally, other Policies in the London Plan have also been referenced in this report, namely:

- Policy **5.2**: Minimising carbon dioxide emissions
- Policy **5.6**: Decentralised energy in development proposals
- Policy **5.7**: Renewable energy
- Policy **5.9**: Overheating and cooling
- Policy **5.10**: Urban greening
- Policy **5.11**: Green roofs and development site environs
- Policy **5.12**: Flood risk management
- Policy **5.13**: Sustainable drainage
- Policy **5.14**: Water quality and wastewater infrastructure
- Policy **5.15**: Water use and supplies
- Policy **5.17**: Waste capacity

- Policy **5.18**: Construction, excavation and demolition waste
- Policy **6.3**: Assessing effects of development on transport capacity
- Policy **6.9**: Cycling
- Policy **6.10**: Walking
- Policy **6.13**: Parking

London Borough of Camden

The London Borough of Camden's Local Development Framework (LDF) is a 'portfolio' of documents which together provide a comprehensive local policy framework for the borough. The key document is the Core Strategy and was adopted in November 2010.

There are a number of Policies which are relevant to sustainability within the Core Strategy. These policies are summarised below.

Policy **CS11** – Promoting Sustainable and Efficient Travel

The Council will promote the delivery of transport infrastructure and the availability of sustainable transport choices in order to support Camden's growth, reduce the environmental impact of travel, and relieve pressure on the borough's transport network.

Policy **CS13** – Tackling Climate Change through Promoting Higher Environment Standards

Although climate change is not specific to Camden, the borough's highly built-up, inner urban environment means that we face specific environmental issues such as poor air quality and surface water flooding. The measures we can take to minimise the impacts of climate change and adapt to its effects need to consider and be appropriate to the borough's dense and historic character and sensitive environments. Where demonstrated, the Council will have regard to the costs and feasibility of measures to tackle climate change within developments.

Policy **CS18** - Dealing with our waste and encouraging recycling

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

a) aim to reduce the amount of waste produced in the borough and increase recycling and the re-use of materials to meet our targets of 40% of household waste recycled by 2010, 45% by 2015 and 50% by 2020;

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

c) deal with North London's waste by working with our partner boroughs in the North London Waste Authority to produce a North London Waste Plan, which will ensure that facilities are provided to meet the amount of waste allocated to the area in the London Plan;

d) safeguard Camden's existing waste site at Regis Road.

4 BREEAM Assessment

The Offices would be assessed under BREEAM New Construction 2014. The project has been registered (registration number BREEAM-0059-0307).

A pre-assessment has been completed, and a target scenario developed which includes assumptions on design development and construction initiatives. This target scenario includes credits worth 73%.

This target exceeds the 70% threshold for an Excellent rating and includes a small buffer against the potential loss of credits during design. It is expected therefore that the final score at post-construction would exceed the threshold for Excellent, but would be below the pre-assessment score.

The BREEAM calculation methodology for the NC 2014 scheme includes a mandatory performance requirement for energy consumption, demand and carbon reduction for an 'Excellent' rating. Preliminary modelling demonstrates that the required improvement in energy performance is achievable with the proposed mechanical systems, envelope performance and contribution from renewable technologies.

The target scenario for BREEAM Excellent is summarised in the table below. The current predicted rating is based on a combination of evidence in the current design and commitments by the Applicant to include specific elements in the scheme in the next stages of design.

The table below details the credits currently targeted under BREEAM NC 2014.

		Available	Targeted	Responsibility
Management				
Man 01	Project brief and design	4	4	Architect, Project Manager, Planning Consultant, Assessor
Man 02	Life cycle cost and service life planning	4	1	Client, Cost Consultant
Man 03	Responsible construction practices	6	6	Contractor
Man 04	Commissioning and handover	4	4	Client, Mechanical Engineer, Contractor
		18	15	
Health & Wellbeing				
Hea 01	Visual Comfort	4	2	Lighting Designer, Electrical Engineer, Architect
Hea 02	Indoor Air Quality	2	0	Mechanical Engineer
Hea 04	Thermal comfort	2	2	Mechanical Engineer

Hea 05	Acoustic Performance	1	1	Acoustician, Architect
Hea 06	Safety and Security	2	2	Transport Consultant, Architect
		11	7	
Energy				
Ene 01	Reduction of energy use and carbon emissions	12	5	Mechanical Engineer
Ene 02	Energy Monitoring	2	2	Electrical Engineer, Mechanical Engineer
Ene 03	External Lighting	1	1	Lighting Designer, Electrical Engineer
Ene 04	Low carbon design	3	2	Mechanical Engineer
Ene 06	Energy Efficient Transportation Systems	3	3	Lift Engineer, Electrical Engineer
		21	13	
Transport				
Tra 01	Public Transport Accessibility	3	3	Assessor
Tra 02	Proximity to amenities	1	1	Architect
Tra 03	Cyclist facilities	2	2	Architect, Transport Consultant
Tra 04	Maximum Car Parking Capacity	2	2	Architect, Transport Consultant
Tra 05	Travel Plan	1	1	Transport Consultant
		9	9	
Water				
Wat 01	Water Consumption	5	4	Architect, Public Health Engineer
Wat 02	Water Monitoring	1	1	Public Health Engineer
Wat 03	Leak Detection	2	2	Public Health Engineer
Wat 04	Water Efficient Equipment	1	1	Public Health Engineer, Landscape Architect
		9	8	
Materials				
Mat 01	Life Cycle Impacts	5	2	Architect, Structural Engineer
Mat 02	Hard Landscaping and Boundary Protection	1	1	Architect
Mat 03	Responsible Sourcing of Materials	4	1	Architect, Structural Engineer
Mat 04	Insulation	1	1	Architect, Mechanical Engineer
Mat 05	Designing for durability and resilience	1	1	Architect, Structural Engineer
Mat 06	Material efficiency	1	1	Structural Engineer
		13	7	
Waste				

Wst 01	Construction Waste Management	4	2	Contractor, Structural Engineer, Architect
Wst 02	Recycled Aggregates	1	0	Structural Engineer
Wst 03	Operational Waste	1	1	Architect, Transport Consultant
Wst 04	Speculative Floor and Ceiling Finishes	1	1	Client
Wst 05	Adaptation to climate change	1	1	Structural Engineer
Wst 06	Functional adaptability	1	1	Architect
		9	6	
Land Use & Ecology				
LE 01	Site Selection	2	1	Architect
LE 02	Ecological Value of Site and Protection of Ecological Features	2	2	Ecologist
LE 03	Minimising impact on existing site ecology	2	2	Ecologist
LE 04	Enhancing site ecology	2	1	Ecologist, Landscape Architect
LE 05	Long Term Impact on Biodiversity	2	1	Ecologist, Contractor
		10	7	
Pollution				
Pol 01	Impact of Refrigerants	3	2	Mechanical Engineer
Pol 02	NOx emissions	3	3	Mechanical Engineer
Pol 03	Surface Water Run Off	5	3	Civil Engineer
Pol 04	Reduction of Night Time Light Pollution	1	1	Electrical Engineer, Lighting Designer
Pol 05	Noise Attenuation	1	1	Acoustician, Mechanical Engineer
		13	10	
Innovation				
Man 03	Responsible construction practices	1	1	Contractor
		10	1	

The project meets the BREEAM section sub-targets included in CPG3: Sustainability as follows:-

Category	Target	Project Score
Energy	60%	61.9%

Water	60%	88%
Materials	40%	54%

In order to achieve the target BREEAM rating upon completion of construction, the design team would continue to liaise with the appointed BREEEAM Assessor for the project, to monitor and document progress against each credit. The following approach would be taken to achieve the target rating:

- The Assessor would attend regular meetings with the design team to maintain familiarity with the BREEAM process and compliance criteria.
- A Design Stage Assessment would be carried out and submitted to the BRE upon completion of tender documentation, to validate the proposed design strategies.
- The Contractor appointed for the scheme would be responsible for achieving the targeted BREEAM rating on the development. The pre-assessment carried out at design stage demonstrates that a score exceeding the Excellent threshold is achievable, however the BREEAM system is designed to be flexible and therefore the developer may achieve the Excellent threshold using a different solution. A final BREEAM assessment would be undertaken at completion of construction to verify the project's rating.

5 Energy

A detailed Energy Strategy for the scheme was prepared in accordance with the energy related requirements set out in the latest version of the London Plan. This document is submitted alongside the Site Wide Sustainability Statement as part of the planning application

The Templar House energy strategy aims to enhance the development's sustainability credentials in line with the Mayor of London's hierarchy for reducing carbon emissions – Be Lean, Be Green, Be Clean.

The baseline of the energy analysis is compliance with Part L (2013). This compliant case is known as the 'Base Case' building. The reduction in overall energy demand is delivered through a series of 'Lean' measures, before moving on to meet the energy demand that remains by considering a selection of carbon-efficient 'Clean' and 'Green' measures.

The first objective is to minimise energy consumption by optimising passive design features (Be Lean). The thermal performance of building fabric and glazing have been carefully selected to minimise heating gains in summer and losses in winter. Residential apartments would benefit from the self-shading of the office development, which would limit solar gains and reduce the risk of overheating. The facade fenestration has been optimised so that it achieves a balance between the cooling demand and natural daylight in both the residential and commercial aspects of Templar House.

Once the energy consumption of the residential and office developments has been "designed out" as much as possible by efficient materials and construction, high performing equipment has been selected to meet the remaining heating and cooling demands as efficiently as possible (Be Green).

The commercial building's space cooling would be provided by highly efficient air cooled chillers. Space heating and domestic hot water would be provided by gas-fired boilers at basement level.

LED lighting would be introduced throughout the commercial development to reduce both electrical lighting power and internal heat loads. This would enable a reduction in the cooling demand met by the central chilled water plant and energy consumption of the site.

In addition to these systems, an opportunity has been recognised for a site-wide energy strategy that capitalises on the complimentary heating and cooling demands of the residential and commercial buildings. The high domestic hot water demand of the residential building would provide a suitable heat sink to absorb waste heat that would be rejected by the commercial building's cooling system. A water-water heat pump would recover this waste energy to preheat domestic hot water and reduce the load on residential boilers. Buffer vessels at basement level would store the recovered heat ready for use.

Finally, in accordance with the London Plan (2015) requirements, the feasibility of a full range of renewable energy technologies have been considered for inclusion in the scheme, including wind generation, solar thermal, photovoltaics, biomass heating and air/ground source heat pumps. By selecting the most appropriate technologies for the site, an opportunity for on-site renewable energy generation via has been recognised (Be Clean).

The residential building's space heating and cooling would be provided by energy efficient air source heat pumps (ASHP). The Greater London Authority has classified ASHP as renewable energy technology, and this technology would contribute to the on-site renewable energy generation at Templar House. Residential domestic hot water would also be preheated by the ASHP system, with additional heat supplied by condensing low NOx boilers to achieve the temperatures required at the fittings. All the residential heating and cooling systems would be centralised to improve diversity and reduce storage heat losses.

Due to the site's central London location and dense urban surroundings, photovoltaic modules at roof level of the commercial building have been considered the most feasible technology to generate useable energy onsite.

These Lean, Green and Clean carbon reduction measures have enabled the Templar House project to target an 'Excellent' rating for BREEAM 2014 and carbon efficiency that is equivalent to Code for Sustainable Homes 'Level 4'. The current strategy achieves a reduction in carbon emissions against the 2013 Building Regulations Part L benchmark of 18.1% for the residential and commercial office accommodation.

In accordance with the London Plan sustainability requirements, the potential for linking the development with an existing district heating scheme has been considered. Currently this is not feasible, as there is no system locally. However, future connections to a district heating system would be provided to allow an efficient connection to a low carbon, district heating system once available. This ethos is also reflected in the design of centralised heating systems at Templar house to allow future connections.

6 Waste

This section summarises the key sustainable waste management features of the scheme once in operation. Construction related waste issues are covered in the construction effects section of this report.

LBC requires provision of two or four days' storage for waste output, depending on the frequency of collection. It is expected that commercial tenants would require a daily collection service and storage requirements for two days' waste are therefore proposed. This allows for resilience in case of disruption to waste collection.

Space would be provided in the basement area for both centralised recycling and composting facilities.

A detailed Waste Management Plan for the scheme has been prepared in accordance with the requirements of Camden Planning Guidance.

7 Microclimate: Daylight and Sunlight

A daylight and sunlight study was carried out by Gordon Ingram's Associates (GIA)

The design team have continued to optimise the daylight and sunlight performance of the scheme. This has resulted in internal layouts optimised for daylight distribution and façade details designed to allow for optimum daylight ingress.

All habitable rooms within the proposed scheme have been assessed for Average Daylight Factor (ADF), No Sky Line (NSL) and Room Depth Criterion (RDC).

8 Pollution

This section summarises the key pollution prevention features of the scheme. Pollution issues have been recognised as important considerations in achieving a sustainable scheme at the Templar House site.

8.1 Air Pollution

The London Borough of Camden experiences some of the worst air quality in the UK. This is primarily due to the density of development and its geographical location.

Road traffic is the main source of pollution, supplemented by commercial and domestic heating. Pollutants generated by traffic largely consist of NO_2, PM10, hydrocarbons and carbon monoxide.

The development lies within the London Borough of Camden. The local authority is designated as an air quality management area (AQMA) where concentrations of nitrogen dioxide (NO2) and fine particulate matter (PM10) are breaching the national air quality objectives

A detailed analysis of the potential air pollution effects, mitigation measures and resulting likely residual effects in relation to local air quality is provided in the Templar House Air Quality Assessment.

The local pollution resulting from heating sources could be limited as the majority of the developments heating demand would be met by high efficiency heat pumps and waste heat from the commercial office building. High temperature water to control legionella within the domestic hot water system would be met by high efficiency, low NOx gas-fired boilers.

8.2 Water Pollution

The proposed uses on the site are not expected to have any negative impact on local water quality. Filters and oil interceptors would be installed where appropriate (i.e. waste storage, car parks and plant areas), to ensure any contaminants due to operations on site could not impact on water resources via site run-off.

8.3 Light Pollution

External space lighting would be energy efficient and meet all lighting regulations to ensure that light loss to the sky is minimised.

External lighting lux levels would be specified in accordance with CIBSE Lighting Guide 6 ‘The Outdoor Environment’.

9 Water

9.1 Water resources

Water management issues and minimising the volume of water consumed have been recognised as an important consideration in achieving a sustainable Templar House scheme due to the severe water pressures London has. Therefore water resources were carefully considered in the design process.

The London Plan aims to reduce the impact on water resources by ensuring adequate sustainable water resources are available for major new development, minimising the use of treated water.

To reduce the water demand of the scheme, the following measures have been introduced:

- Greywater Harvesting for the residential building
- Specification of low flow fittings in both sections of the development
- Rainwater Harvesting for the Commercial Building

Wastewater would be collected from baths and showers within the apartments. This water would discharge into greywater treatment plant, which would be located in the basement beneath the residential building. Once treated, the water would be supplied back into the apartments to supply WCs and washing machines.

To maximise the efficiency of potable water-use on the development, we would look to specify sanitary ware and brassware with the following flow rates in the Residential section:

- Dual flush WCs. The cistern would provide 6 litres for a full flush and 3 litres for a part flush (this would require careful selection of the WC pan)
- Wash hand basin taps which have a maximum flow rate of 3 l/min
- Showers which have a maximum flow rate of 12 l/min
- Baths would have a capacity of 200 litres to overflow
- Kitchen taps which have a maximum flow rate of 5 l/min
- Dishwashers which provide 1 litre per place setting
- Washing machines which provide 7.5 litres/kg of dry load

To enable the development to achieve as many BREEAM points as possible for the water credits (WAT 01), we would look to specify sanitary ware and brassware with the following flow rates in the Commercial section:

- Dual flush WCs. The cistern would provide 4 litres for a full flush and 2 litres for a part flush (this would require careful selection of the WC pan)
- Urinal cisterns which provide 1 litre per flush

- Wash hand basin taps which have a maximum flow rate of 4 l/min
- Cycle changing showers which have a maximum flow rate of 9 l/min
- Kitchen taps which have a maximum flow rate of 6 l/min
- Dishwashers which provide 17 litre per use.

All flow rates listed above are a target for the development and, as the design progresses, there may be alternations to specific flow rates; however, the overall flow rates from the sanitary fittings would be no higher than stated above.

Greywater recycling is not as beneficial in commercial office developments as it is in residential developments. Therefore we propose to collect rainwater from the roof of the commercial building for re-use for flushing WCs within the commercial building. This has an additional benefit of attenuating the rainwater discharge to sewer as well as providing water for flushing WCs in the commercial building.

9.2 Sustainable Drainage

A sustainable urban drainage scheme (SUDs) would be implemented on the site which could include brown roofs being installed on both the residential and commercial sections of the development. This would result in the permeable area on the site increasing, which in turn would help us to meet the surface water runoff credits available in the BREEAM scheme BREEAM.

In addition, rainwater harvesting would be included in the design of the commercial section of the development and rainwater attenuation would be included for the residential section of the development.

The overall aim of the surface water drainage scheme is not to increase the instantaneous run-off to the sewer. By incorporating the above systems we would reduce the run off to sewers compared to the existing site.

As the design develops, further investigation could be undertaken to ascertain whether we can incorporate a site-wide strategy for storm-water storage/re-use.

10 Transport and Access

10.1 Pedestrian Proposals

The principles of pedestrian access on High Holborn and the existing routes surrounding the site remain for the proposed development. The entrance to the office development for staff/visitors would be from High Holborn with an office lobby area provided at the front of the building. The retail units would also be accessed from High Holborn.

The entrance to the development for the residents would be from Eagle Street. This entrance would provide access to the required lobby area for the residents of the proposed development.

10.2 Vehicular Parking

Disabled car parking for two vehicles would be provided at ground floor level for the commercial uses. One disabled parking space would be provided for office staff and visitors and one disabled parking space would be provided for retail staff. The residential element of the development would be car free in line with planning policy.

10.3 Cycle Parking

Cycle parking for the proposed development would be provided at the standards set in the GLA London Plan.[1] The final number of long stay cycle spaces has been stated below.

- Residential – 73 spaces;
- Office – 163 spaces:

Commercial cycle storage would be provided in the form of two-tier racks, located in two dedicated cycle stores at ground level. The majority of residential cycle parking (44 spaces) would also be provided in the form of two-tier racks in a dedicated residential cycle store at ground level. The remainder of the residential cycle parking (i.e. 29 spaces) would be provided within the dwellings. The cycle parking spaces located within dwellings would be accessible via the lifts to the residential dwellings.

Due to a lack of public realm within the site boundary and the immediate surrounding area, it is not possible to provide short stay parking for visitors at London Plan standard levels. Instead, it is proposed that a contribution towards cycle improvements in the local area be agreed with the London Borough of Camden.

[1] London Plan cycle parking standards exceed London Borough of Camden (LBC) standards for all land uses for the quantum proposed for Templar House and so cycle parking provision at London Plan standards would also be compliant with LBC standards.

10.4 Highways Proposals

The existing vehicular access to the site is from Eagle Street. Eagle Street is a cul-de-sac which is accessed from Red Lion Street. Dane Street (a one-way street which connects with Red Lion Square) can be accessed from the western side of Eagle Street. The vehicular access point to the parking and servicing area is proposed to be from Eagle Street.

10.5 Servicing Proposals

At present, deliveries and waste collection take place on-street from Eagle Street. The servicing of all land uses within the proposed development would be undertaken off-street from a service yard accessed from Eagle Street (this excludes residential waste collection, which will continue to take place on-street from Eagle Street). The delivery/ servicing vehicles would enter and exit the service yard in forward gear.

Delivery vehicles would predominately be 6m vans and 8m HGVs (due to constraints associated with the width of the site, it is not possible to provide a service yard area which is sufficiently wide to be able to accommodate anything larger than an 8m HGV). Vehicular swept path analysis showing that an 8m vehicle can be accommodated in the service yard is contained within the transport strategy.

The estimated number of delivery vehicles generated as a result of the proposed development has been calculated based on other survey information from similar developments in London. The vehicle trips rates used are based on the gross internal areas (GIA) of the development and are as follows:

- 0.20 vehicles per 100m² GIA per day for B1 office land uses; and
- 0.07 vehicles per 100m² GIA per day for the residential land use.

The proposed development would comprise the following:

- 16,585m² GIA office space;
- 6,243m² GIA residential space; and
- Approximately 607m² GIA retail space.

The proposed development is estimated to generate 49 delivery and servicing trips a day. There is a peak of activity of five service vehicles between 09:00 and 10:00. The number of future service vehicle movements is not considered to be significant and is not envisaged to generate any capacity issues on the external highway network.

One 8m servicing bay is required to accommodate the estimated servicing trips generated by the proposed development.

11 Biodiversity

To ensure that the site ecology is protected and enhanced, a Suitably Qualified Ecologist has been consulted and their recommendations will be incorporated into the final scheme.

Ecological features will be incorporated into the design, adding ecological value to the site by providing habitats and resources for a variety of species (principally, invertebrates, birds, bats).

11.1 Habitats

An Extended Phase 1 Habitat Survey of the site was undertaken on 16th October 2014. The survey followed the methodology set out in the Joint Nature Conservancy Council's Handbook for Phase 1 Habitat Survey (2010)[2]. Species indicative of each habitat type were recorded.

The survey was 'extended' to assess the potential of the Site to support protected and notable species, including bats. Structures were inspected externally from the ground and assessed for their potential to support roosting bats in accordance with the Bat Conservation Trust's (BCT's) good practice guidelines.

The habitat types that were recorded within the site are listed below, in addition to their associated alphanumeric reference codes, as detailed in the JNCC Phase 1 Habitat Survey Guidelines:

- Buildings (J3.6);
- Bare ground (J4); and
- Broadleaved trees (A3.1).

The site is entirely comprised of a building and bare ground, with the exception of one London Plane *Platanus x acerifolia*, tree located at the front of the Site, on High Holborn.

The development would include a brown roof lying beneath PV panels covering an area of approximately 335 m² and including small invertebrate features such as log and rubble piles.

11.2 Breeding Birds

It is not thought that the site has the potential to support black redstart *Phoenicurus ochruros*, as this species is usually associated with brownfield sites with associated areas of sparse vegetation. Although the building inspected does possess some ledges that could provide nesting opportunities, the high levels of disturbance from traffic on High Holborn and current site users and lack of suitable foraging habitat mean that Site is not suitable for this species.

The London Plane tree and the building on the site provide limited opportunities for nesting birds. All nesting birds are protected under the Wildlife and

[2] JNCC. (2010); 'Handbook for Phase 1 Habitat Survey.' Joint Nature Conservation Committee, Peterborough.

Countryside Act 1981[3] (as amended) (WCA). To avoid an offence, demolition and clearance work should be undertaken outside of the bird breeding season (which falls between March and August inclusive) or under the supervision of a suitably qualified ecologist if within these times

The devolvement will integrate at least four bird boxes within the façade of the new buildings that are suitable for local species of importance such as house sparrow *Passer domesticus* and swift *Apus apus*.

11.3 Bats

During the assessment of the Site, the building appeared to be well-sealed, with only a few minor holes and crevices in the brickwork which did not appear to be deep or lead to any voids. The Site itself lacked suitable commuting corridors or foraging habitat for bats and was well-lit. However, it is located close to several open spaces (Lincoln Inn Fields, Gray's Inn Gardens and Bloomsbury Square Gardens) and is adjacent to a small area of green roof. The building on Site was considered to have a negligible potential to support roosting bats, in accordance with the Bat Conservation Trust (BCT) Guidelines[4].

Where possible, construction works should not be undertaken during the sensitive dusk and dawn times between April to September inclusive. Any construction taking place at night time should use appropriate downward facing lighting at a Lux level of 0-2.

[3] Her Majesty's Stationery Office (HMSO), (1981); 'Wildlife and Countryside Act 1981.'
[4] Bat Conservation Trust (BCT), (2012); 'Bat Surveys; Good Practice Guidelines. Second Edition.'

12 Materials

The London Plan and supporting policy documents highlight materials and their life cycle impacts as a key priority for achieving sustainable development in the built environment.

A preliminary Materials Audit has been carried out using the BREEAM methodology for credit Mat 01 (Life Cycle Impacts). This predicts that 2 of the 5 available materials credits would be achieved for the project, contributing to 2.08% to the overall BREEAM score for the project.

13 Construction Effects

All construction sites have the potential to cause temporary nuisance and other disruption to site users, neighbouring occupiers, road users, pedestrians, wildlife and other sensitive receptors in the vicinity of the site.

Demolition and construction sites have the potential to cause temporary disturbance and nuisance to neighbouring occupants, highway users and other sensitive receptors. A Construction Management Plan is to be prepared in accordance with Camden Planning Guidance detailing how any impacts associated with the Templar House works in the vicinity of the site will be managed.

14 Conclusion

In conclusion this document sets out the clear sustainability commitments and aspirations of the Templar House Scheme.

All aspects of the of dwellings and commercial building have been assessed and reviewed to ensure that the environmental benefits of the development are in keeping with the location and setting of the site.

Energy efficiency has been fully addressed, by reviewing the most appropriate design optimisation for each of the buildings and then combining this in a site-wide approach. The thermal performance of the residential units is excellent, combining an optimised facade with triple-glazed windows. This leads to incredibly low space heating demands that would also be met by high efficiency air source eat pumps. This results in a low consumption of fuel to provide this heat. Hot water demand has been reduced through fittings which restrict water use. Rather uniquely in London, heat-usually rejected to the air from cooling-plant serving the commercial office development would be used to pre-heat the hot water for the residences. This is beneficial to both the residential and commercial elements of the project in terms of their individual energy demands. A site-wide photovoltaic array would provide electricity to the development which has no detrimental effects on the environment.

Water-efficiency is being achieved through efficient fittings and, most importantly in London, rainwater would be harvested to flush toilets and reduce stress on the local potable water system and the local storm water drainage system.

Materials for the building façade are beautiful and, throughout the design, a large amount of consideration has gone into in choosing the most appropriate materials.

The dwellings would be light and airy, with generous floor-to-ceiling heights. This brings natural light deep into apartments, leading to great sense of well-being and reducing energy.

All dwellings would generate carbon emissions equivalent to achieving a Code for Sustainable Homes level **4**; a good achievement considering the site constraints and urban locale. The Commercial building would achieve ‘Excellent’ under BREEAM NC 2014.