CHARLTON RIVERSIDE PHASE 1

SUSTAINABILITY STATEMENT

Rockwell

On behalf of
Leopard Guernsey Anchor Propco Limited

Date
November, 2016

Project Number
UK11-23110

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EXECUTIVE SUMMARY

Ramboll Environ UK Ltd has been commissioned by Leopard Guernsey Anchor Propco Ltd. to prepare a Sustainability Statement to accompany a Full application for the demolition and redevelopment of land at VIP Trading Estate and the VIP Industrial Estate Anchor and Hope Lane, London SE7 7TE. The proposed development is for a residential led mixed used development, including 9 buildings, with 975 residential units, office space, ancillary residential facilities, flexible retail/restaurant/café/leisure use, community use and associated external public realm improvements.

The purpose of the Sustainability Statement is to provide details of how the proposed development has integrated sustainable design and construction principles and to demonstrate how the requirements of national, regional and local policies would be addressed.

The proposed development would be constructed to the current Building Regulations which govern the standards the proposed development would have to meet. Further requirements are set out in the National Planning Policy Framework, which outlines the Government's planning requirements. These national planning requirements are transposed at a regional and local level to reflect the needs and priorities of specific communities. The application site is located within the administrative boundary of the Royal Borough of Greenwich. As such, consideration has been given to the Royal Borough of Greenwich's planning policies which comprises the Core Strategy and Supplementary Planning Document, as well as national and regional policies provided in the National Planning Policy Framework and the London Plan (2016).

The Royal Borough of Greenwich is committed to achieving a lasting vision for the Borough through promoting sustainable development throughout the Borough whilst having regard to the future of the area and London as a whole. As a result, the planning policies for this area emphasise the importance of ensuring a strengthening of neighbourhoods and town centres; ensuring prosperity and a high quality of life and well-being of residents.

The proposed development's performance against policy, industry best practice and standards have been considered across the full lifecycle of the proposed development including design, construction and operation. Consideration has been given to issues such as energy, transport, materials, sustainable waste management, water resources, biodiversity, pollution, climate change adaptation, land use and socio-economics.

This Statement demonstrates that there is a clear commitment to integrating sustainable measures appropriate to the application site and nature of the development proposals.

Furthermore the proposed development would perform well against relevant regional and local sustainability policy and would deliver a sustainable built intervention that would maximise the productive use of an existing industrial urban site. As such the proposed development would contribute positively to the sustainability agenda.

1. INTRODUCTION

1.1 Overview

Ramboll Environ Ltd (Ramboll Environ) has been commissioned by Leopard Guernsey Anchor Propco Ltd ('the Applicant') to prepare a Sustainability Statement for a proposed development at the VIP Trading Estate and the VIP Industrial Estate Anchor and Hope Lane, London SE7 7TE ('the application site'). The proposed redevelopment comprises the redevelopment of two plots of land at VIP Trading Estate and VIP Industrial Estate with a residential led mixed used development, including employment space, retail, restaurant and community space, along with associated access, servicing space and landscaping. In this regard a Full Planning Application ('the Application') will be submitted to the Royal Borough of Greenwich ('RBG').

1.2 Scope of Statement

The requirement for the production of a Sustainability Statement is typically triggered by the Greater London Authority (GLA) when a proposed development is determined to be a 'strategic development' referable to the Mayor, under the Town and Country Planning (Mayor of London) Order 2008[1], as is the case for this proposed development. In addition, demonstration of how the proposed development is designed to meet sustainable design and construction standards is also required by the RBG, therefore a Sustainability Statement has been produced to accompany the Application.

The objective of this Sustainability Statement is to provide details of how the proposed development has integrated sustainable design and construction principles within the development proposals in line with planning policy requirements. Consideration of a broad range of sustainability issues (environmental, social and economic) has been made, across the full lifecycle of the proposed development from design, construction and operation.

1 Town and Country Planning (Mayor of London) Order 2008, 6 April 2008

2. SITE DESCRIPTION

2.1 Site Location

As shown in Figure 2.1, the application site is located at VIP Trading Estate and the VIP Industrial Estate, Anchor and Hope Lane, London, SE7 7TE at National Grid Reference (NGR) 541110E, 178940N (refer to Figure 2.1). The application site comprises two plots of land referred to as 'Plot A' to the north and 'Plot B' to the south which are further described below.

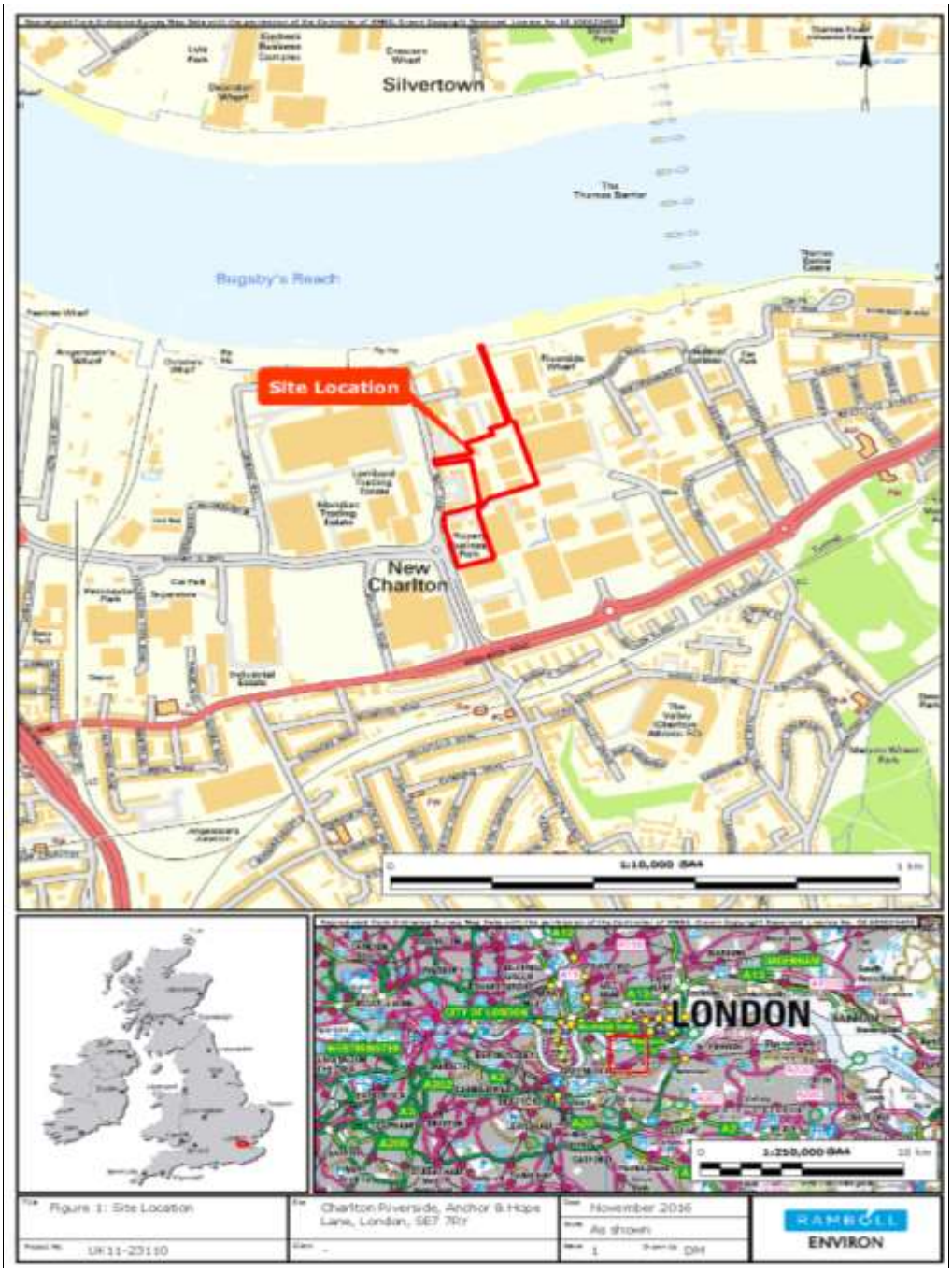


Figure 2.1: Site Location

2.2 Site Description

The application site is irregular in shape and covers an area of approximately 2.53 ha, as shown in Figure 2.2. As indicated above, the application site comprises two separate plots of land: Units 1-26 and Units A and B VIP Industrial Park to the north (herein referred to as 'Plot A') and a second plot of land located to the south-west comprising two commercial premises at VIP Trading Estate (herein referred to as 'Plot B'). A strip of land providing a direct access link to the southern bank of the River Thames extends from the north of Plot A. The location and extent of each plot is shown in Figure 2.2 and described in further detail below.

The surrounding land uses, as confirmed during a site inspection as part of a Preliminary Risk Assessment report produced by Ramboll Environ 2016[2], are detailed in Tables 2.1-2.2.

Table 2.1: Adjacent and Surrounding Land uses to Plot A

Direction	Description	Distance
North	Commercial units comprising Anchorage Point Industrial Estate	Adjacent – 100 m
East	Commercial and industrial units including a casting foundry and depot.	Adjacent – 100 m
South	Commercial and light industrial units comprising Ropery Business Park	Adjacent – 100 m
West	Electricity Substation	Adjacent
	Residential properties at Atlas Gardens and Derrick Gardens	Adjacent – 50 m
	Anchor and Hope Lane with a distribution centre and units comprising Lombard Trading Estate beyond	50 – 100 m

Table 2.2: Adjacent and Surrounding Land Uses to Plot B

Direction	Description	Distance
North	Residential properties at Atlas Gardens	Adjacent
East	Commercial and light industrial units comprising Ropery Business Park	Adjacent
South	Commercial and retail properties comprising Charlton Gate Business Park	Adjacent – 100 m
West	Anchor and Hope Lane	Adjacent
	Commercial units comprising Lombard Trading Estate and Anchor and Hope Business Park	10 – 100 m

[2] Ramboll Environ 2016. Charlton Riverside Preliminary Risk Assessment. Ramboll Environ 2016.

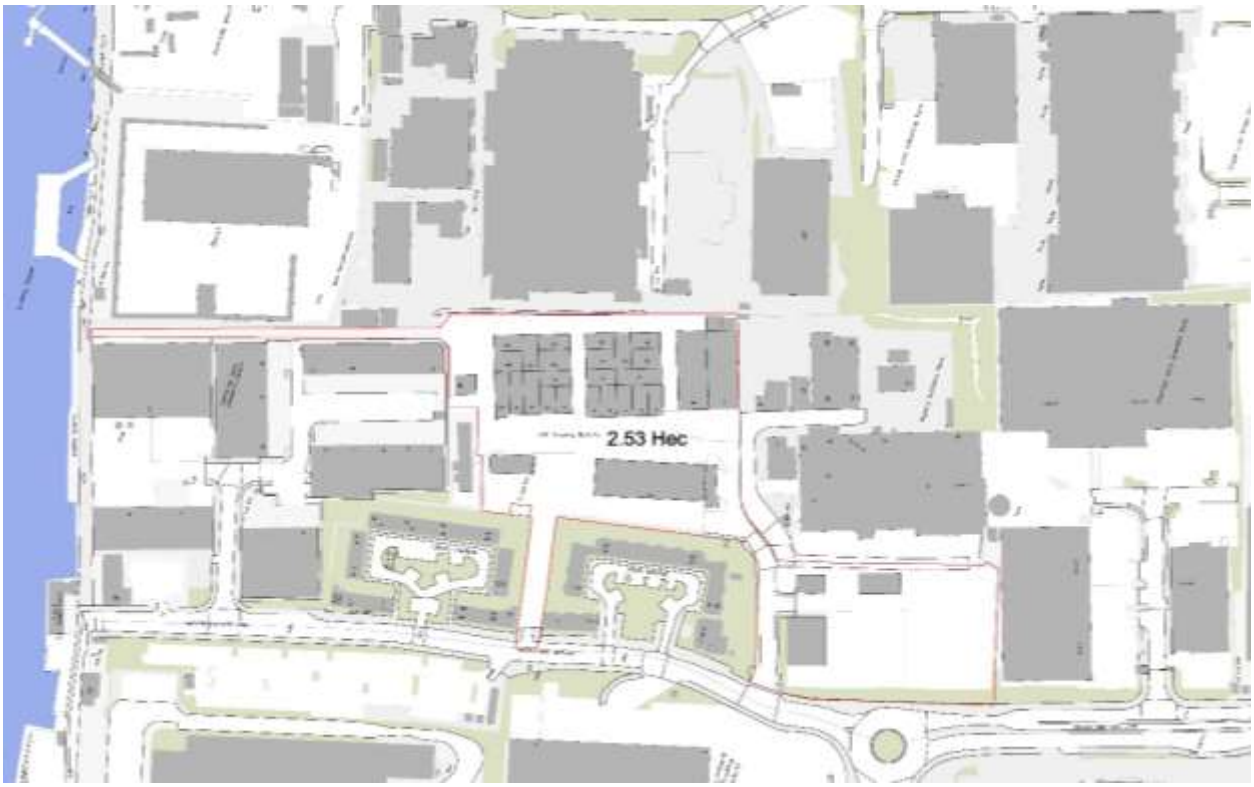


Figure 2.2: Site Redline Boundary Plan

The existing status of the application site was reviewed via desk based research and a site visit for purpose of a Preliminary Risk Assessment, as discussed within the Preliminary Risk Assessment report produced by Ramboll Environ 2016, summarised below.

Plot A

The northern plot of land (Plot A) is developed and comprises 28 commercial units. External areas at Plot A include a concrete surfaced access road, mixed concrete and asphalt surfaced areas to the front of each unit and asphalt surfaced car-parking areas. External hardstanding occupies approximately 40% of the application site area. The concrete and asphalt surfacing was observed to be in generally fair condition with some locally poor condition surfacing.

Plot B

The southern plot of land (Plot B) is developed and comprises two commercial units. External areas at Plot B include a concrete surfaced access road, concrete surfaced areas to the front of each unit and concrete/asphalt surfaced yard areas. The concrete and asphalt surfacing was observed to be in generally good condition. External hardstanding occupies approximately 65% of the application site area. Plot B is bordered by a strip of wooded landscaping along the western site boundary. Landscaped areas occupy approximately 15% of the Plot B site area.

The application site has a PTAL rating of 4 which reflects the good transport accessibility links of the area. The application site is approximately 350m from Charlton Station, with frequent services to Central London, including Cannon Street (24 minutes), Charing Cross (30-34 minutes) and London Bridge (17-20 minutes). Bus services running along Anchor and Hope Lane provide regular access to North Greenwich, Woolwich and beyond. Crossrail is due to open in 2018, with 12 trains per hour from

Woolwich. There is also an aspiration to provide a new River Bus pier at the Charlton Riverside. In addition bus services will be enhanced as the opportunity area is developed.

The application site has historical uses for a mix of industrial and commercial uses from the mid-1950s onwards. There are no listed buildings on site and the application site is not within a Conservation Area.

3. PROPOSED DEVELOPMENT

3.1 Overview

The redevelopment proposals have had due regard of prevailing planning policy, environmental opportunities and constraints associated with the existing application site and surrounding context. The proposed development includes the following elements:

- 975 residential units provided within 9 buildings ranging in height from 2 to 28 storeys, including extensive private gardens and roof terraces;
- 1,560 sqm (GIA) of office space;
- Ancillary residential facilities including gym, swimming pool, changing rooms totalling 864 sqm (GIA);
- 690 sqm (GIA) of flexible retail/restaurant/café/leisure use;
- 407 sqm (GIA) of community uses;
- Extensive external public realm improvements and landscaping with water features, green walls and 'edible streets' planting;
- 1.0 ha neighbourhood park and 1,250 sqm private garden in Plot A;
- Podium garden within Plot B includes 1,444 sqm public and 619 sqm private. Plot B GF public space is 3260 sqm;
- Two new green pedestrians/cycle links: north-south and east-west; and,
- Parking, services, plant and circulation.

The proposed development has an ambition to provide affordable housing with the proposed tenure and unit types as per tables 3.1-3.2 below with a total density of 387 dwellings/ha, or 1,121 habitable rooms/ha. The proposed development will include a total of 198 car parking spaces, of which 59 will be for disabled users, and 1,652 cycle parking spaces.

Table 3.1: Proposed Tenure Mix

Tenure	Units	Affordable split
Private	832 (85.3%)	n/a
Intermediate	40 (4.1%)	28%
Affordable rent	103 (10.6%)	72%
Total	**975**	

Table 3.2: Proposed Unit Sizes

Unit Type	Total
1 bed 1 person	168 (17.2%)
1 bed 2 person	227 (23.3%)
2 bed	306 (31.4%)
3 bed	253 (25.9%)
4 bed	21 (2.2%)
Total	**975**

3.2 Proposed Development Layout

The layout for the proposed development is shown in Figure 3.1.

Figure 3.1: Indicative Proposed Development Layout

3.3 Proposed Massing and Height

The height and massing of the proposed built structures would include 9 buildings, ranging in height from the tallest at 28 storeys (Plot B) to the lowest at 2 storeys (Plot A).

Height of each building (from top of parapet) is described below:

- Plot A Building AEN: 44.295m/ 47.845m AOD
- Plot A Building AEN: 52.650m/ 56.200m AOD
- Plot A Building A1: 55.105m/ 58.655m AOD
- Plot A Building A2: 49.045m/ 52.595m AOD
- Plot A Building AWN: 20.580m/ 24.130m AOD
- Plot A Building AWS: 20.580m/ 24.130m AOD
- Plot B Building B3: 90.580m/ 94.130m AOD
- Plot B Building BW: 29.980m/ 33.530m AOD
- Plot B Building BE: 39.750m/ 43.300m AOD

In addition there would be a basement level consisting of 6,716sqm GIA at -2.40m / +1.15 m AOD.

3.4 Proposed Development Access and Servicing

A number of access points would be provided to the proposed development. Pedestrian and cycle access would be provided from the Thames Path to the north; pedestrian, cycle and emergency access would be provided from Anchor and Hope Lane between Derrick Gardens and Atlas Gardens; the primary site access from Anchor and Hope Lane for vehicles would use the current access to the

application site which would be enhanced for pedestrians; and the Anchor and Hope Lane frontage would be opened up to be permeable for pedestrians and cyclists. Servicing for the northern plot would be from the main site access from Anchor and Hope Lane which then would lead to internal shared surface access routes. The southern plot would be serviced from a parallel service route from Anchor and Hope Lane.

3.5 Proposed Development Appearance

The proposed development has been designed to carefully reflect the surrounding conditions through the use of appropriate façade and design decisions for different elements within the proposed development, including: Brick, Artificial stone, Glass and Glass-fibre Reinforced Concrete.

3.6 Proposed Development Programme

The development proposals would be brought forward over one phase of approximately 265 weeks duration. Demolition would take place across both plots initially. Plot B construction works would commence first, with Plot A construction works following approximately 1.5-2 years later.

3.7 Proposed Landscaping Works

The proposed landscaping plan aims to deliver landscape and biodiversity enhancement, provide public spaces and encourage movement through the site. The landscaping scheme has been informed by the recommendations made within the Ecological Appraisal and local planning policy.

Landscaping design has adopted the concept of 'Living Streets' which aims to make spaces attractive for pedestrians encouraging people to walk and cycle as well as connect with nature and open spaces. Furthermore the concept of 'Working Space' was also considered, which aims to combine amenity space with one that also provides functions and services.

The following proposed landscaping and public realm design opportunities have been included in the proposed development's design:

- Improving connectivity and permeability across the proposed development;
- Increasing green space and biodiversity;
- Improving the public realm experience, promoting community and providing amenity space;
- Connecting with the river through views to and from the Thames and boosting leisure and recreational use of the Thames; and
- Using the landscaping to reduce surface run off.

4. SUSTAINABILITY

4.1 Introduction

The aim of the sustainability appraisal is to provide details of how the proposed development has integrated sustainable design and construction principles and to demonstrate how the requirements of national, regional and local policies will be addressed.

4.2 Sustainability Agenda

4.2.1 What is Sustainable Development?

At the core of the concept of sustainability is an approach to development that aims to balance different and sometimes competing needs with an understanding of the environmental, social and economic limitations we face.

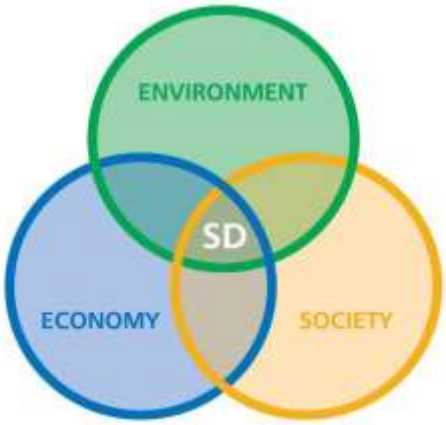
All too often, development is driven by one particular need which can lead to a failure to fully consider the wider or future impacts of the development. The goal of sustainable development is to seek to simultaneously progress the three 'pillars' of sustainability - the economic, social and environmental goals - in ways that develop and maintain a good quality of life for us all and enable future generations to do the same.

4.2.2 Drivers for Sustainability

The design of the proposed development has been informed by a number of key drivers namely:

- policy and legislation;
- sector and industry guidance; and
- corporate and financial factors.

The key drivers are considered in turn below, with reference to key policy, legislation and guidance documents that have helped to shape the sustainability strategy for the proposed development. It is against these drivers for sustainability, particularly local planning policy, that the scheme has been assessed.



4.3 Policy and Legislation

A review of current and emerging planning policies with regard to sustainable development has been undertaken and the key policy at national, regional and local levels of relevance to the proposed development can be summarised as follows:

- National Planning Policy Framework, 2012[3][4] (NPPF);
- London Plan, 2016[5];
- The Mayor's Sustainable Design and Construction Supplementary Planning Guidance (SPG), 2014[6], particularly the Mayor's Priorities and Best Practices where applicable;

[3] Department for Communities and Local Government. National Planning Policy Framework, 2012. DCLG
[4] A number of National Planning Policy Guidance Notes support the NPPF. However because the appraisal focuses on local issues these have not been reviewed in this report.
[5] Greater London Authority, 2016. London Plan Spatial Development Strategy for London, Consolidated with Alterations since 2011.

- Royal Greenwich Local Plan: Core Strategy with Detailed Policies 2014[7]; and,
- Greener Greenwich Supplementary Planning Document, 2014[8].

Of particular note, the RBG is committed to sustainable development whilst having regard to the future of London as a whole. As a result, the planning policies and development standards set for this area emphasise the importance of sustainable development, focusing on economic, social and environmental goals, whilst ensuring that a good quality of life is delivered for both present and future generations.

The provisions of the NPPF, London Plan, SPG, Local Development Framework Core Strategy and SPD have been considered and summarised in Appendix 1. The proposed development has also been assessed against the Greener Greenwich SPD sustainability checklist provided in Appendix 2. These are also addressed throughout the body of this section by reference to the specific sustainability objectives of the proposed development.

Additional consideration was given to the Charlton Riverside Masterplan SPD[9] which provides a master plan for the area and guidance for developments. Although there are no specific planning requirements, this master plan sets out strategic and detailed objectives for the Charlton Riverside area. Compliance with these objectives is recorded within Appendix 1.

4.4 Sector and Industry Guidance

A number of industry-specific drivers that promote the delivery of a sustainable built environment have been considered throughout the appraisal in order to ensure that a holistic approach is taken towards design development, which considers all aspects of environmental and sustainability performance including the following:

- UK Construction Industry Key Performance Indicators;
- The Waste Resources Action Programme ('WRAP') Recycled Content Toolkit and good practice guidance;
- Environment Agency Environmental Management guidance;
- Environment Agency's Pollution Prevention Guidelines (withdrawn 12/2015)[10];
- Environmental Certification such as Forestry Stewardship Council, BES6001 and ISO14001;
- BSRIA and CIBSE Guidelines for building services commissioning;
- Building Regulations and British Standards; and
- Building Research Establishment's Green Guide to Specification.

[6] Greater London Authority, 2014. Sustainable Design and Construction Supplementary Planning Guidance. GLA
[7] Royal Borough of Greenwich, 2014. Royal Greenwich local Plan: Core Strategy with Detailed Policies
[8] Royal Borough of Greenwich, 2014. Greener Greenwich Supplementary Planning Document. London Legacy Development Corporation 2016. Draft Planning Obligations, Supplementary Planning Document. LLDC
[9] Allies and Morrison Urban Practitioners, 2012. Charlton Riverside Masterplan SPD, 2012. Allies and Morrison Urban Practitioners
[10] Note, although now withdrawn, the EA PPG are still considered best practice guidance on preventing pollution

4.5 Corporate and Reputational Risk

The Applicant is committed to ensuring a high standard of environmental and sustainable performance within the proposed development and has actively engaged with their design team from the outset.

4.6 Financial

The sustainability strategy for the proposed development has been developed in conjunction with the commercial viability of the scheme. The financial aspect of the scheme would be influenced by the incorporation of sustainable design features to help minimise operational costs and reduce potential future risks.

4.7 Sustainability Appraisal

4.7.1 Approach and Methodology

An appraisal of the proposed development has been undertaken by reference to the national, regional and local planning policies, as summarised in Appendix 1, against the following sustainability objectives:

- Energy;
- Transport;
- Water Resources;
- Materials and Supply Chain;
- Waste;
- Biodiversity;
- Pollution;
- Climate Change Adaptation; and
- Economics and Social.

As is typical for sustainability appraisals across London, the appraisal is structured around a set of bespoke sustainability objectives which have been defined, taking account of local and regional policy objectives, industry aims (where relevant) and professional expertise. The objectives demonstrate the importance of each topic area in contributing to sustainable design, construction and operation of the proposed development.

4.7.2 Energy

Sustainability Objective
To address the causes of climate change and reduce the local and global impact on the environment by reducing emissions of greenhouse gases, in particular carbon dioxide. To promote the design, construction and operation of energy efficient buildings, whilst reducing reliance on non-renewable sources of energy.

An Energy Strategy has been developed for the proposed development, which contains technical details of the approach and measures integrated into the design to minimise regulated CO_2 emissions in line with the London Plan Energy Planning Guidance requirements. The Energy Strategy demonstrates how the overall energy consumption has been taken into consideration by reference to the Energy Hierarchy.

The Proposed Development has been designed to minimise energy consumption and associated carbon emissions and includes a Zero Carbon target for the residential units, with a minimum 35% reduction in regulated carbon emissions (below Part L 2013) and the remainder being achieved through an RBG cash in lieu contribution to the value of £60/tonne for 30 years.

The Energy Statement produced by Ramboll Environ[11] provides further details of the assessment methods, energy strategy and approach to heating/cooling. The following is a summary of the key sustainability features and energy efficiency measures which have been incorporated into the design of the proposed development:

- Design of internal layout to ensure good daylighting factors;
- Potential for solar control glazing on south, west and east elevations to reduce solar gains;
- Provision of natural ventilation through openable windows and trickle vents to reduce cooling demand;
- Exploit the benefits of the building and thermal mass properties;
- Reduce heat loss through specifying u-values beyond those within building regulations;
- High efficiency (LED) lighting installed with occupant control, timer switches, day light sensors and presence detection as appropriate for the spaces' function;
- Use of high efficient cooling with variable speed controllers on fans and pumps in the retail areas;
- Communal high efficiency boilers with fully insulated pipes, tanks and ducts for the residential units; and,
- Provision of sub metering across the proposed development covering at least 95% of all gas and electricity use.

The result of the design considerations equates to a 1% reduction in regulated carbon emissions in the residential units. The same proportion of savings are also likely to be achieved in the non-residential builds, although this has not been modelled due to the insufficient design detail being available at the time.

In order to future proof the proposed development and meet the London Plan requirements, an assessment of the potential to join existing and potential new district heating networks was undertaken. Although it is deemed unlikely to be achievable due to expense and technical requirements, design decisions were undertaken to allow future connection to district heating.

In order to meet the remaining regulated carbon emission reduction target it was deemed a site Wide Combined Heat and Power (CHP) system would be the most appropriate low carbon technology solution. The inclusion of the CHP system and solar PV panels would reduce the regulated carbon emissions by a further 42% and 10% respectively, equating to a total reduction of 53% below Part L 2013, 18% greater than the 35% reduction required. Further Low and Zero Carbon technologies assessments did not identify any additional energy sources which would be reasonable to install as part of the proposed development.

During construction, the main contractor would be required to monitor, meter and report on energy and water use from site activities and site transport against set targets. The main contractor would also promote best practices during the development of the application site to minimise energy use as far as practicable.

[11] Ramboll Environ 2016. Charlton Riverside Energy Assessment Report. 2016

The proposed development was modelled for the risk of overheating due to solar gains. The results showed that the proposed development's passive design features would result in the building's area weighted average building cooling demand to be lower than the 'notional' building; therefore in line with the requirements of the London Plan and GLA guidance.

On this basis, the proposed development would the requirements of:

- Policies 5.1, 5.2, 5.3, 5.6, 5.7 and 5.9 of the London Plan;
- the Mayor's Priorities and Best Practices in the Sustainable Design and Construction SPG – Energy and carbon dioxide emissions, Energy demand assessment, Use less energy, Efficiency energy supply, Renewable energy, Carbon dioxide off-setting and Monitoring energy use;
- RBG Core Strategy Policy E1; and,
- RBG SPD Policy 3.1 to 3.5.

4.7.3 Transport

Sustainability Objective

To reduce road congestion and transport related pollution levels by enabling walking, cycling and the use of good public transport networks.

The application site has pedestrian access from Anchor and Hope Lane to the west of the site, via street lighted footways with dropped kerbs and tactile paving. Vehicle access is also provided from Anchor and Hope Lane via a private access road. Cyclists have good access to the application site from the wider London cycle network and road system, including segregated traffic free routes. There is a signed on-road cycle route along Woolwich Road to the south, while the Thames Path (part of National Cycle Network 1) runs east to west along the north of the application site, providing a traffic free route.

The proposed Thames Path Quietway scheme to the north of the application site, due to be completed prior to site occupation, will offer an additional quiet cycling route to north Greenwich. Furthermore there is a proposal for further extension of Cycle Super Highway 4 (phase 3) which, when completed will provide further cycling capacity. Having good cycle links to local amenities, transport hubs and the wider area would provide an opportunity for the proposed development's occupants and users to use sustainable transport options.

The application site is also well served by public transport. The closest bus stop is to the north of the application site on Bugsby's Way (85 metres from the application site boundary), with additional stops a further 170 m, 250 m and 330 m distant. These bus stops provide access to several bus routes, towards North Greenwich, Thamesmead, Bexleyheath, Chislehurst and Belvedere. The peak hourly frequency per direction across these routes varies from 6 to 9, totalling 34 buses per hour. These bus routes also offer interconnection opportunities with DLR Services from Cutty Sark and Greenwich.

Located 350 m south of the application site, Charlton Station is the closest train station. It offers a service operated by Southeastern between London and Kent with a peak frequency of 8 trains per hour. London destinations include London Bridge, London Waterloo East, London Charing Cross and Cannon Street and there are many opportunities to interconnect with other public transport options including London Underground, bus routes, DLR and further rail services.

Upon completion Crossrail will offer further public transport options across central London with reduced times. The closest Crossrail station will be Woolwich, 3km to the south. It is expected this will

be easily accessible from the application site using local bus and train routes or active travel methods (cycling and walking).

The consequence of the available public transport options is that the application site achieves an average PTAL score of 4. The Transport Assessment undertaken by TPP in November 2016[12] also confirms that TfL believes the application site has potential for a PTAL score of 5 following the implementation of the Charlton Riverside Area Masterplan. As the application site is well located, with good sustainable travel and public transport options available, the occupants have the ability to use sustainable transport options for travel to and from the application site.

Once completed, the proposed development is designed to facilitate pedestrian and cyclist access and travel across the proposed development, through a highly permeable site. Additionally pedestrian/cyclist only access links will be provided including a new access route to the Thames Path. There are also proposed improvements to road crossings, with a new toucan crossing proposed, providing a safer link to the bus stop on Anchor and Hope Lane.

Car parking will be limited to 198 for the proposed development, of which 59 will be disabled bays. Through limiting car parking the proposed development will encourage alternative sustainable transport methods. To facilitate this, cycle parking will be provided with a total of 1,652 spaces for all site users.

Overall the proposed development is designed to facilitate sustainable transport including walking, cycling and public transport, with a low provision of facilities for cars, in line with sustainable objectives and policy. The application site benefits from good access links and will provide a safe and pleasant environment for users whilst being of benefit to the area through providing new and improved access links.

A model of the effects of construction traffic on the local highway network found that the additional construction traffic would be likely to be less than the traffic currently generated by the existing site. The following key sustainable transport features would be incorporated into the proposed development to mitigate any potential negative impacts of construction traffic:

- A Construction Logistics Plan and Delivery and Servicing Plan (DSP) would be produced and goods vehicles would comply with TfL's freight Operator Recognition Scheme;
- The main contractor would seek to source materials that are locally available as far as practicable;
- Deliveries would be monitored and controlled through setting specific delivery dates and times, consolidating deliveries where possible and using 'just in time' deliveries;
- Operationally, in addition to the provision of a Building User Guide, occupiers of the proposed development would benefit from the range of measures contained within the Travel Plan as described above.

On this basis, the proposed development would meet the requirements of:

- Policies 6.3, 6.9 and 6.13 of the London Plan;
- the Mayor's Priorities and Best Practices in the Sustainable Design and Construction SPG – Site layout and building design and Air Pollution;
- RBG Core Strategy Policy E(c), IM1, IM4, IM(a) and IM(b); and,
- RBG SPD Policy 8.3.

[12] Transport Planning Practice 2016. Leopard Guernsey Anchor Propco ltd, Anchor and Hope Lane Sites Transport Assessment. TPP 2016

4.7.4 Water Resources

Sustainability Objective

To minimise impacts upon water resources by conserving water resources through the use of water efficient components and water recycling systems, and to reduce flood risk through the management of surface water run-off.

The application site is located within Flood Zone 3a 'High Probability' (land assessed as having greater than a 1 in 100 (>1%)) annual probability of flooding. Although the application site is outside of the functional floodplain and is defended by the River Thames tidal flood defences offering protection up to the 1 in 1,000 (0.1%) annual probability flood event, these defences are not taken into account within the Flood Zone classification. Additionally the RBG Core Strategy identifies the Charlton Riverside as an area for regeneration and the Sequential Test is assumed to be passed.

The results of the Flood Risk Assessment carried out by Water Environment Limited[13] indicated that there is a potential for a breach in the Thames defences in a 1 in 200 year tidal event with potential 2.42 m flooding across the application site. As such all bedrooms have been designed to be above this height and residences would have access to safe refuge above the potential flood water height in the event of flooding. Additionally the EA flood warning service would provide residents with a flood warning in order to seek refuge in sufficient time.

The proposed development has been designed to attenuate a 1 in 100 year rainfall event (plus climate change) in relation to surface water, thus reducing the potential risk for surface water flooding. Groundwater is not considered a significant risk and there has been no historical events of sewer flooding on site, nor have the risks from other sources of flooding been deemed to be a significant risk. Although there would be a low risk of flooding in the case of a Thames defence breach, the proposed development design has been progressed to address the risk. The local plan confirms the proposed use is deemed acceptable for the area.

A preliminary below ground drainage strategy for the proposed development has been prepared which outlines the foul and storm water drainage requirements to satisfy the current drainage strategy for the wider London area. A final design will be developed in the later stages of the development process by the construction design team.

The following SuDs measures would be incorporated across the application site:

- Green roofs are proposed for all building's roofs;
- Use of swales in landscaping to provide storage for surface water run-off;
- Attenuation ponds to slow the flow of surface run-off and increase infiltration; and,
- Use of an underground storage tank to attenuate rainfall.

These SuDs measures would contribute to the overall drainage strategy by reducing the peak flows generated, reducing the total volume of runoff generated and providing an initial level of treatment to the storm water itself thus providing an improved quality of storm water discharge. Preliminary calculations indicate that surface water run-off would be 86% lower than pre-development rates, a much greater decrease than the 50% required within the London Plan.

The extent of the existing impermeable hardstanding areas would be significantly reduced with a potential reduction in the discharge rates to the existing drainage system equivalent to 86%. It is

[13] Water Environment Ltd, 2016. Anchor and Hope Lane Charlton Riverside SE7 7TE Flood Risk Assessment and SuDs Strategy. WF Ltd 2016

therefore not expected that storm water flow rates into the existing combined sewer would increase significantly such that the capacity of the infrastructure locally would be exceeded. A review of the drainage scheme would be undertaken during the design development stage to be submitted to Thames Water for approval.

To manage the residual risk of groundwater or surface water ingress, flood resistance and resilience techniques would be incorporated into the basement and lower ground floor of the proposed development, in line with the current recommendations from the DEFRA/EA guidance[14].

The following key sustainable features and water efficiency measures have been incorporated in the design of the buildings:

- Surface water run-off from hard surfaces would receive an appropriate level of treatment and attenuation on-site, including Sustainable Drainage Systems (SuDs);
- Biodiversity roofs to hold the first 5 mm of rainfall on site;
- Although only shell and core at this stage the commercial units would have water efficient fittings (where installed), leak detection system and shut off valves installed to comply with BREEAM Wat 01 and 04;
- Installation of water meter on incoming mains water supply; and
- Drought-resistant and/or precipitation reliant species as part of the soft landscaping strategy.

The proposed development would be in accordance with the water use reduction targets and responsible sourcing of materials as set out in:

- Policies 5.3, 5.12 and 5.13 of the London Plan;
- the Mayor's Priorities and Best Practices in the Sustainable Design and Construction SPG – Flooding and Water pollution;
- RBG Core Strategy Policy OS(g), E2, E3 and IM1; and,
- RBG SPD Policy 4.1.

4.7.5 Materials and Supply Chain

Sustainability Objective

To reduce social and environmental impacts from consumption of resources by using sustainably produced and local products.

The following key sustainable materials and supply chain measures have been incorporated in the design of the proposed development:

- At least three of the five key building elements would achieve a Green Guide 2008 Rating of A+ to D;
- All timber would be sourced in accordance with UK Government's Timber Procurement Policy;
- Elemental and Component Life cycle cost analysis has been carried out during design stage;
- In line with BREEAM credit Mat 06 opportunities for material efficiency savings were investigated and implemented where appropriate; and,
- Materials for building fabric and services insulation, and major building elements would be responsibly sourced.

[14] CLG, 2007: Improving the Flood Performance of New Buildings – Flood Resilient Construction.

The design team would seek to specify materials with a low environmental impact and consideration would be given to the major building elements, which would be informed by the British Research Establishment's (BRE's) Green Guide to Specification.

Where possible, the materials specification and products used would be informed by whether materials:

- achieve the highest Green Guide to Specification rating;
- have low embodied energy that require little processing during manufacturing;
- are locally sourced or on-site to minimise transport impacts (e.g. crushed aggregates);
- comprise high recycled content particularly for steel, glass, cladding and flooring products;
- include reclaimed materials;
- have been selected based on their durability and robustness, their suitability to the area setting and their thermal mass properties;
- are durable and resistant to climate change impacts and pedestrian/vehicular/trolley movements;
- are re-used, recycled, refilled, recharged or reconditioned; and
- are accredited to environmental standard such as Forestry Stewardship Council, Environmental Management System Certification including ISO14001 or BES6001, and the EU Energy rating for goods.

In addition, consideration has been given to the selection of materials that respond and adapt to climate change. The purpose of this has been to recognise and encourage measures taken to mitigate the impact of varying weather conditions arising from climate change over the lifespan of the buildings. Materials that offer structural and fabric resilience from solar radiation, moisture, wind and temperature variation have been prioritised.

Accordingly, the proposed development would be in accordance with the CO_2 emissions reduction targets and responsible sourcing of materials as set out in:

- Policies 5.3, 5.20 and 7.6 of the London Plan;
- the Mayor's Priorities and Best Practices in the Sustainable Design and Construction SPG - Site layout and building design, materials and waste;
- RBG Core Strategy Policy H5, E1 and E(d); and,
- RBG SPD Policy 6.1 and 6.2.

4.7.6 Waste

Sustainability Objective

To minimise waste generation during the construction and operation of a development and to divert waste from landfill by adopting the Waste Hierarchy approach and promoting waste reduction and recycling.

The following key sustainable waste measures have been incorporated in the design of the buildings:

- Pre-demolition audit undertaken to identify any materials currently present on site which can be re-used or recycled;
- Diversion of waste from land fill during construction in line with BREEAM credit Wst 01;

- Design of the proposed development to 'design-out' waste, such as consideration of pre-fabrication off-site as far as practicable;
- Allocation of storage space for residential recyclable waste; and
- Provision of designated and appropriately sized storage areas for commercial and retail recycling and operational wastes.

In addition, a Construction Environmental Management Plan (CEMP) would be prepared which would set out the approach that would be taken to implement the works and the mitigation that would be put in place to reduce the impact of the works on the environment, neighbours and the surrounding area (taking into consideration the guidance on Construction Management Plans set out in the Mayor's guidance). The CEMP would outline measures in relation to the following issues:

- Welfare;
- Logistics and Travel Management;
- Air Quality and Carbon Reduction; and
- Considerate Constructors Scheme (CCS).

In line with best practice, a Site Waste Management Plan (SWMP) would also be prepared by the main contractor to minimise construction waste, with procedures in place to divert 85% of waste from landfill.

Specific requirements for waste minimisation would then be set out in the SWMP, which would apply to the preferred Waste Hierarchy as shown in Figure 4.1.

Figure 4.1: The Waste Hierarchy

A Service and Waste Management Plan and a Waste Management Strategy (as described in the Transport Assessment submitted) would be prepared to minimise waste during the operation of the proposed development, which would include:

- A route for waste collection vehicles;
- Locations of proposed bin store;
- Carry distances for residents and waste collection operatives to be in accordance with Manual for Streets design standards; and
- A strategy for residential and commercial waste and recycling collection.

Furthermore the waste storage requirements for the whole proposed development would be in line with best practice and would meet required RBG and the Mayor's standards.

The following construction materials supply chain measures aimed at reducing waste generation would be adopted:

- Avoiding over-ordering of material;
- Determining when and where materials would be required and requesting 'just in time' deliveries;
- Minimising the time between delivery and installation and hence the risk of damage and waste;
- Selecting products with minimal packaging and requiring suppliers to use returnable transit packaging (e.g. return of storage pallets) where possible;
- Having appropriate storage areas ready; and
- Determining where special handling is required.

On this basis, the proposed development would meet the requirements of:

- Policies 5.3, 5.18, 5.20 and 7.6 of the London Plan;
- the Mayor's Priorities and Best Practices in the Sustainable Design and Construction SPG – Materials and waste ;
- RBG Core Strategy Policy IM2; and,
- RBG SPD Policy 7.1 and 7.2.

4.7.7 Biodiversity

Sustainability Objective

To conserve and enhance the biodiversity of the region by conserving and enhancing areas valued for their diversity of wildlife, habitats, and landscape value.

An Extended Phase 1 habitat survey of the application site was carried out by Aspect Ecology in September 2015 and has been reported in an Ecological Appraisal[15].

There are several designated sites of environmental importance nearby, of up to Site of Special Scientific Interest (SSSI). Most notable are the Gilbert's Pit a SSSI approximately 500m away, designated a SSSI for the geological interest the site supports. Furthermore 820 m to the south east there are the Local Nature Reserve (LNR) designated areas of Maryon Wilson Park & Gulbert's Pit. The application site itself is not subject to any statutory ecological designations, with all surrounding designated sites being separated by existing development and therefore unlikely to be affected by the proposed development.

The Ecology report confirms that there are no records of rare, notable or protected species on application site. The observed ecological features are summarised in Table 4.1 below.

Table 4.1 Summary of Habitat Evaluation

Habitat	Value	Importance Level
Buildings and Hardstanding	Negligible	Site

[15] Aspect Ecology, 2015. Charlton Riverside, Greenwich,

Table 4.1 Summary of Habitat Evaluation		
Ruderal Vegetation	Negligible	Site
Ornamental Planting	Negligible	Site
Scattered Scrub	Detrimental	Local
Trees	Moderate	Local
Spoil	Negligible	Site
Invasive Species;	Detrimental	Local

The most notable habitat present was the line of mature London Plane trees along the western boundary of the application site, which were noted as being mature or veteran age class. As such, these trees were considered as having ecological value and should be protected within the proposed development's construction and operation.

During the survey work observations of faunal use across the application site and potential presence of protected or notable fauna species were undertaken. The survey results showed there was no evidence of any UK Priority Species, with negligible potential for roosting bats noted, nor is the application site noted as being suitable for badgers, water voles, otters, other mammals, amphibians or reptiles. The survey also noted a small number of bird species and invertebrates but none were noted as being of significant ecological value.

The results of the Ecology survey shows how the application site is currently of low ecological value and therefore redevelopment of the application site would not have a significant negative impact on local, regional or national ecology. Through the mitigation and ecological enhancements discussed below the proposed development would have a positive impact on ecology of the application site and surrounding area in line with the Local Core Strategy and SPD policies.

The Ecological Appraisal provided recommended actions to mitigate any potential impacts of the proposed development and to enhance the current site ecology. These recommendations would be incorporated into the development plans. It has been recommended that:

- Trees currently present within the application site are retained and protected appropriately;
- Pollution prevention methods be incorporated to control potential run-off pollution, through following the former EA Pollution Prevention Guidelines;
- Undertake further survey of building with potential for roosting bats (if more than 12 months have elapsed since initial survey);
- Avoid vegetation clearing work during bird nesting season (1st March to 31st August) and, if not practicable, potential nesting habitats should be checked by a competent ecologist prior to removal.

The following ecological enhancement measures have been suggested in line with BREEAM Land Use and Ecology Credits and RBG policies:

- Suitable control measures for on-site invasive species to eliminate any listed invasive species, such as Japanese knotweed;
- Planting of native local species where practicable;

- Creating of native wildflower grassland;
- Use of Sustainable urban Drainage systems (SuDs) on site to help attenuate run-off and provide ecologically valuable areas;
- Installation of bird and bat boxes to improve nesting opportunities on site; and
- Inclusion of green roofs within the proposed development

Overall the application site is currently of a low ecological value, but through careful management of the trees present on site and inclusion of new ecologically valuable areas the proposed development would be likely to have a net positive impact on the ecology of the application site and surrounding area. On this basis, the proposed development would meet the requirements of:

- Policies 5.3 and 7.19 of the London Plan;
- the Mayor's Priorities and Best Practices in the Sustainable Design and Construction SPG – Site layout and building design and Nature conservation and biodiversity ; and
- RBG Core Strategy Policy OS1, OS4, OS(f) and OS(g); and,
- RBG SPD Policy 5.1 and 5.2.

4.7.8 Pollution

Sustainability Objective

To reduce inequalities in the health of the population by improving air quality, and preventing noise, light and ground water pollution.

The application site is located within an urban environment, affected by poor air quality and road traffic noise.

The following key sustainable pollution measures have been incorporated in the design of the proposed development:

- Minimisation of vehicular emissions to air by means of the following measures:
  - Providing limited car parking provisioning on-site, principally for electric vehicles
  - Providing a minimum of 1,652 cycle parking spaces on-site
  - Providing information to occupants on the availability of more sustainable modes of transport
- Proposed dwellings would benefit from natural cross ventilation where possible to improve air flow and ventilation;
- On-site residential exposure to road traffic noise and pollutants would be minimised by means of appropriate glazing and ventilation specification;
- Adoption of energy Hierarchy principles as outlined in the energy section above;
- Use of a low NO_x CHP and back up boilers with appropriately sized and located exhaust chimneys above the highest tower on site;
- Green/biodiverse roofs and walls would be included across the application site to manage surface water run-off and contribute to the reduction of airborne pollutants;
- Impermeable surfaces across the application site would be decreased to further manage surface water run-off;
- Adoption of measures to minimise surface water pollution, including site wide SuDs strategy to control and retain run-off onsite; and

- Use of insulating materials that have a Global Warming Potential (GWP) of less than 5.

As part of construction activities, the main contractor would be required to sign up to the Considerate Constructors Scheme and achieve a score of 'Very Good' or above. Additionally, the main contractor would be required to adopt best construction practices and methods in executing the construction works so as to avoid or reduce impacts associated with air quality, ground and surface water, as well as noise and vibration, as far as possible. Where appropriate, the main contractor would adopt and refer to key documents such as the EA Pollution Prevention Guidelines. Any noise and air quality emissions would be effectively controlled by employing best practice measures through a CMS/CEMP.

Air quality assessment and modelling undertaken by Ramboll Environ[16] assessed the impacts on air quality for the nearby sensitive receptors from the demolition, construction and operation of the proposed development, as well as the associated traffic. As detailed in the full report there would be a potential negative effect of dust, PM_{10} and pollutants, however the mitigation methods proposed would lower the significance of any potential risks to negligible levels. Traffic associated with the proposed development or combined with other consented developments would have a negligible impact on air quality, as the proposed development would be largely car free during its operation and it would not result in an increase in road vehicle generated emissions of pollutants.

The proposals would include an energy centre, housing a 337 kWth, 210 kWe scale gas fired CHP units and low NOx gas fired boilers to provide heating and hot water to the proposed development. Exhaust emissions from these units would be emitted from a shared flue located on the tallest element of the proposed development and 1.8 m above the roof height. These systems would include a 3-way catalytic converters and as such would not produce PM emissions and the predicted NO_x emissions would not exceed any annual daily or hourly objectives.

An Air Quality Neutral Assessment has been undertaken to compare the predicted emissions arising from the proposed development with the emission benchmarks given in the Air Quality Neutral Guidance[17]. The results of this assessment demonstrated that emissions from the proposed development would meet the criteria and would be below the London Council's APEC Category A for NO_x and PM $_{10.}$ Therefore there are no grounds for planning refusal due to air quality.

The noise assessment[18] of the proposed development demonstrated that there would be an acceptable noise climate for future residents through the use of proposed mitigation and enhancement measures to control construction noise and vibration effects on local sensitive receptors. Noise emissions from the development itself (from vehicle movements, mechanical services plant and from construction and demolition) were also not expected to lead to unacceptable impacts on existing sensitive receptors, provided that mitigation measures were used as per the noise and vibration assessment.

Overall there might be some minor residual effects on specific receptors from construction noise and vibrations, with piling operations resulting in minor or negligible vibration effects. It is worth noting that this would be a worst case scenario and Continuous Flight Auger piling is proposed as it has the lowest noise and vibration levels compared to impact piling. The operational noise expected from fixed plant was modelled as not significant, provided standard noise control measures were used. Therefore through use of appropriate mitigation measures the construction and operation of the proposed development would not have any significant negative noise or vibration impacts on sensitive receptors

16 Ramboll Environ 2016.Environmental Statement Main Report Air Quality Assessment Chapter Charlton Riverside. 2016
17 Greater London Authority, 2013. Air Quality Neutral Planning Support
18 Ramboll Environ, 2015. Noise and Vibration Assessment. 2016

The results of a Phase I Desk Study undertaken by Soil Consultants can be found in the Report on Pre-application Ge-environmental Investigation[19]. This report identified that no particular high risk features (such as fuel tanks, above or below ground), materials (such as chemical containers) or land use would be located within the application site or in its immediate vicinity. However, the application site and its surroundings have contained numerous works and there will be a risk that some of these could have caused ground contamination.

A Phase II investigation would be undertaken and would include: soil sampling, monitoring, water sampling, contamination testing, gas monitoring and asbestos inspection. Excavation and appropriate removal of material from the creation of the basement area of the proposed development would also be undertaken.

On this basis, the operation of the buildings would not result in a significant increase in air quality emissions, noise, transport or water (surface and ground) pollution.

The proposed development would therefore be is in accordance with:

- Policies 5.3, 5.13, 7.14 and 7.15 of the London Plan;
- the Mayor's Priorities and Best Practices in the Sustainable Design and Construction SPG – Land contamination, Air Pollution, Noise, Light Pollution and Water Pollution;
- RBG Core Strategy Policy E1, E(a), E(b), E(c), CH2; and,
- RBG SPD Policy 8.1, 8.2 and 8.3.

4.7.9 Wellbeing

Sustainability Objective

To consider the wellbeing of building occupants, site users and neighbouring site users within and around the built environment.

The following key sustainable health and wellbeing measures have been incorporated in the design of the proposed development and external areas:

- The proposed development would be able to show full compliance with British Standard daylighting requirements for all the residential uses within the scheme and residential units would be well lit;
- Non-residential spaces would be designed to BREEAM Excellent standards;
- Dwellings have been designed to provide visual privacy and avoid overlooking;
- The specification of sound insulation would ensure that the buildings achieve an appropriate standard of acoustic performance above Building Regulations Part E requirements;
- The provision and easy access of communal amenity spaces would create a series of spaces for residents to enjoy, which would include designated areas for play;
- All residential units would be designed to Lifetime Homes specifications;
- Appropriate thermal zoning and a control strategy would be delivered to improve the thermal performance of the dwellings and commercial space as appropriate within the fit out, to allow control of internal thermal comfort by occupants;
- Materials would be specified to protect the building from internal and external pedestrian and vehicular movement, and to be highly durable;
- Secured by Design Principles would be implemented in line with the recommendations from the Architectural Liaison Officer to ensure safety on the site, the opportunity to reduce crime and fear

[19] Soil Consultants, August 2015. Report on Pre-application Ge-environmental Investigation.

of crime and to create a safer and more secure environment for the residents and the local community;
- Provision of ancillary residential facilities including a gym and swimming pool, alongside space for community uses would encourage community engagement and cohesion;
- Community areas and children play areas would provide access to outdoor space; and,
- Highly permeable site with good access to local amenities including shops, health care, entertainment and green space.

During construction, the main contractor would adhere to all relevant legislation (i.e. Health and Safety), as well as signing up to the Considerate Constructors Scheme. Site staff would undergo a site induction which would include details of health and safety, safe working practices and other best practices.

The proposed development would be in accordance with creating safe and healthy working environments as set out in:

- Policies 5.9 and 7.3 of the London Plan;
- the Mayor's Priorities and Best Practices in the Sustainable Design and Construction SPG – Land and Sustainable design and construction; and,
- RBG Core Strategy Policy H(e), OS(b), CH1 and CH2.

4.7.10 Land Use and Socio Economic

Sustainability Objective

To create and sustain vibrant communities, addressing a deficiency in the provision of services to the local community and recognising the needs of everyone.

The proposed development is consistent with national and local policy objectives. In particular, the application site is located within the designated Charlton Riverside Master Plan area and the proposed development has been designed and developed in line with this guidance. The proposed development accords with the Core Strategy and SPD which, in line with the London Plan, aims to ensure that new residential developments respond to RBG's housing and employment needs. Furthermore, the proposed development would deliver the optimum use of a previously developed site with a mixed use development of a density based on local context and design principles.

The proposed development would generate employment opportunities during the construction phase, which would benefit the local area, and the construction industry as a whole. Longer term employment would be provided as part of the proposed development through the provision of the proposed office, commercial and retail space on-site. These building uses would support jobs within the local economy and promote a mixed use development to connect residents with new employment, commercial and retail facilities.

Furthermore, local community participation was sought by means of public consultation events hosted on the 24th, 28th and 29th September 2016 and on the 24th November 2016. Feedback from local residents was used to help inform the design process, as is more fully set out in the Statement of Community Involvement accompanying the planning application.

The proposed development would provide optimum use of a previously developed site, with the scale of development in keeping with the application site's local context and setting, with a mix of uses in and around the application site. As such the proposed development would include landscaped publicly

accessible amenity space, communal resident's amenity space and commercial space which would create a sense of community for occupants and nearby residents.

The proposed development would lead to a more efficient use of the application site, compared to the previous uses, with a mixed use development including residential buildings and commercial and retail floorspace. The application site is in a desirable area, with good transport access and retail and community facilities nearby and which offers the opportunity to create a valued and desirable range of dwellings in the area, in line with the RBG Riverside Charlton Masterplan and planning policies.

The proposed development would deliver a maximum of 975 residential units, which would help to meet the identified housing need within the area. It would provide a range of unit types and sizes to respond to the varying housing needs within the RBG. The proposed development has been designed having regard to the London Housing Design Guide Interim Edition August 2010, and Lifetime Homes principles. In accordance with policy, 10% of the proposed development is designed for wheelchair accessibility. The proposed development would include family homes and affordable housing, providing opportunities for a mixed and diverse range of end users. Additionally the design includes principles of 'Secured by Design' and the recommendations of the RBG's Security Liaison Officer.

The density of the proposed development would ensure that the potential of the application site is optimised for both residential and commercial use, while being sensitive to the application site's surroundings. The use of basements and provision of amenity spaces and access routes would gain further uses out of a confined and valuable land footprint in an area identified as having potential for growth.

On this basis, the proposed development would accord with:

- the Mayor's Priorities and Best Practices in the Sustainable Design and Construction SPG – Land and Sustainable design and construction ; and
- RBG Core Strategy Policy H1, H2, H3, EA1, OS(g), Ch1 and CH2.

4.8 Conclusions

The sustainability appraisal has been directed by a range of 'drivers' including planning and legislation, industry best practice, corporate commitments made by the Applicant, as well as financial drivers.

The RBG is committed to sustainable development whilst having regard to the future of London as a whole. As a result, the planning policies and development standards set for this area emphasise the importance of sustainable development, focusing on economic, social and environmental goals - in ways that develop and maintain a good quality of life for both present and future generations.

It is important that the proposed development contributes to local sustainability aims, as well as meets national and regional objectives for sustainable development.

The sustainability appraisal demonstrates that the proposed development would meet a number of key policy objectives, and considers a broad range of sustainability aspects relating to: energy, transport, materials, sustainable waste management water resources, biodiversity, pollution, climate change adaptation, land use and socio economics.

In summary, sustainability has informed the design process by identifying opportunities and constraints for sustainable development, and the proposed development is therefore considered to respond to both local and regional planning policy requirements.

APPENDIX 1
KEY PLANNING POLICIES

Planning Policy	Considera-tion	Reference
NPPF		
Development should proactively drive and support sustainable economic development to deliver the homes and thriving local places that the country needs	✓	Land Use & Socio-Economic Stand-alone Design and Access Statement
Development should always seek to secure high quality design and a good standard of amenity	✓	Land Use & Socio-Economic Stand-alone Design and Access Statement
Development should take account of the different roles and character of different areas, promoting the vitality of our main urban areas	✓	Land Use & Socio-economic Stand-alone Design and Access Statement
Development should support the transition to a low carbon future in a changing climate, taking full account of flood risk and coastal change, and encourage the reuse of existing resources	✓	Energy Climate Change Adaption Energy Strategy
Development should contribute to conserving and enhancing the natural environment and reducing pollution	✓	Biodiversity Ecological Appraisal Landscaping Details;
Development should encourage the effective use of land by reusing land that has been previously developed (brownfield land)	✓	Land Use & Socio-Economic Stand-alone Design and Access Statement
Development should actively manage patterns of growth to make the fullest possible use of public transport, walking and cycling	✓	Transport Stand-alone Transport Statement and Strategy
London Plan		
Policy 3.3: Increasing housing supply	✓	Land Use & Socio-Economic
Policy 3.9 Mixed and balanced communities	✓	Land Use & Socio-Economic
Policy 4.3 Mixed use development and offices	✓	Land Use & Socio-Economic
Policy 5.2: Minimising Carbon Dioxide Emissions	✓	Energy Energy Strategy
Policy 5.3: Sustainable Design and Construction	✓	Energy Water Resources Materials and Supply Chain Waste Biodiversity
Policy 5.6: Decentralised Energy in Development Proposals	✓	Energy

Policy 5.7: Renewable Energy	✓	Energy
Policy 5.9: Overheating and Cooling	✓	Energy
Policy 5.12: Flood Risk Management	✓	Water Resources
Policy 5.13: Sustainable Drainage	✓	Water Resources
Policy 5.18: Construction, Excavation and Demolition Waste	✓	Materials and Supply Chain Waste
Policy 5.20: Aggregates	✓	Materials and Supply Chain Waste
Policy 6.3 Assessing Effects of Development on Transport Capacity	✓	Transport Stand-alone Transport Statement and Strategy
Policy 6.9 Cycling	✓	Transport Stand-alone Transport Statement Stand-alone Design and Access Statement
Policy 6.13 Parking	✓	Transport Stand-alone Transport Statement Stand-alone Design and Access Statement
Policy 7.3 Designing out Crime	NA	NA
Policy 7.6 Architecture	✓	Materials and Supply Chain Stand-alone Design and Access Statement
Policy 7.19 Biodiversity and Access to Nature	✓	Ecological Appraisal
GLA's Sustainable Design and Construction SPG 2014 – Mayor's Priorities and Best Practice		
1) Resource Management		
Land: Optimising the reuse of land (Mayor's Priority)	✓	Land Use & Socio-Economic Stand-alone Design and Access Statement
Site layout and building design (Mayor's Priority and Best Practice)	✓	Waste Stand-alone Design and Access Statement
Energy and carbon dioxide emissions (Mayor's Priority)	✓	Energy Strategy
Energy demand assessment (Mayor's Priorities)	✓	Energy Strategy
Use less energy (Mayor's Priority and Best Practice)	✓	Energy Strategy
Efficient energy supply (Mayor's Priority)	✓	Energy Strategy

Renewable energy (Mayor's Priority)	✓	Energy Strategy
Carbon dioxide off-setting (Mayor's Priority)	✓	Energy Strategy
Monitoring energy use (Mayor's Priority)	✓	Energy Strategy
Water efficiency (Mayor's Priority and Best Practice)	✓	Water Resources
Materials and waste: Design, Construction and Operational Phase (Mayor's Priority and Best Practice)	✓	Materials and Supply Chain Waste
Nature conservation and biodiversity (Mayor's Priority)	✓	Biodiversity Ecological Appraisal
2) Climate Change Adaptation		
Tacking increased temperature and drought: Overheating, Heat and drought resistant planting, resilient foundations, urban greening and trees (Mayor's Priority and Best Practice)	✓	Energy Water Resources Biodiversity Pollution Climate Change Adaption
Flooding: Surface water flooding and sustainable drainage, flood resilience and resistance of buildings in flood risk areas, flood risk management, other sources of flooding (Mayor's Priority)	✓	Water Resources
3) Pollution Management		
Land contamination (Mayor's Priority)	✓	Water Resources Pollution
Air quality (Mayor's Priority)	✓	Transport
Noise (Mayor's Priority)	✓	Transport Pollution
Light pollution (Mayor's Priority)	✓	Energy
Water pollution: Surface water run-off (Mayor's Priority)	✓	Water Resources

Local Policy		
Greenwich Core Strategy 2014		
Policy H1 - New Housing	✓	Land Use and Socio Economic, Wellbeing
Policy H2 - Housing Mix	✓	Land Use and Socio Economic, Wellbeing
Policy H3 - Affordable Housing	✓	Land Use and Socio Economic, Wellbeing
Policy H5 - Housing Design	✓	Land Use and Socio Economic, Wellbeing
Policy H(a) - Protection of Existing Housing	✓	Land Use and Socio Economic, Wellbeing
Policy H(e) - Children's play areas	✓	Land Use and Socio Economic, Wellbeing
Policy EA1 - Economic Development	✓	Land Use and Socio Economic, Wellbeing
Policy EA2 - Charlton Riverside	✓	Land Use and Socio Economic
Policy EA(a) - Local Employment Sites	✓	Land Use and Socio Economic, Wellbeing
Policy EA(c) - Skills and Training	✓	Land Use and Socio Economic, Wellbeing
Policy OS1 - Open Space	✓	Biodiversity, Land Use and Socio Economic
Policy OS2 - Metropolitan Open Land	✓	
Policy OS4 - Biodiversity	✓	Biodiversity
Policy OS(b) - Community Open Space	✓	Biodiversity, Land Use and Socio Economic
Policy OS(f) - Ecological Factors	✓	Biodiversity
Policy OS(g) - Green and River Corridors	✓	Biodiversity
Policy E1 - Carbon Emissions	✓	Energy, Pollution
Policy E2 - Flood Risk	✓	Water Resources
Policy E3 - Residual Flood Risk	✓	Water Resources
Policy E(a) - Pollution	✓	Pollution
Policy E(c) - Air Pollution	✓	Pollution
Policy E(d) - Hazardous Materials	✓	Pollution, Waste
Policy E(e) - Contaminated Land	✓	Pollution
Policy E(f) - Living Roofs and Walls	✓	Biodiversity

Policy CH1 - Cohesive Communities	✓	Land Use and Social Economic, Wellbeing
Policy CH2 - Healthy Communities	✓	Land Use and Social Economic, Wellbeing
Policy IM2 - Waste Apportionment	✓	Waste
Policy IM4 - Sustainable Travel	✓	Transport
Policy IM(a) - Impact on the Road Network	✓	Transport
Policy IM(b) - Walking and Cycling	✓	Transport
Policy IM(c) - Parking Standards	✓	Transport
Greener Greenwich SPD 2014		
Energy		
3.1 Energy Efficiency (Be Lean)	✓	Energy
3.2 Decentralised Energy (Be Clean)	✓	Energy
3.3 Renewable Energy (Be Green)	✓	Energy
3.4 Offsetting Carbon Emissions	✓	Energy
3.5 Adapting to Climate Change	✓	Energy
Water		
4.1 Water Supply and Use	✓	Water Use
Biodiversity	✓	
5.1 Protecting Biodiversity	✓	Biodiversity
5.2 Living Roofs and Walls	✓	Biodiversity
Materials		
6.1 Environmental Impact	✓	Energy, Waste
6.2 Sourcing	✓	Energy, Waste
Waste		
7.1 Construction, Demolition and Excavation **Waste**	✓	Waste
7.2 Operational Waste	✓	Waste
Charlton Riverside Master Plan 2012		
Strategic Objectives		
Integrate Charlton Riverside with the existing Charlton community	✓	Land Use and Socio Economic, Wellbeing

Transform the image of Charlton and to introduce a sustainable mix of uses in a high quality environment focussed around an enhanced and expanded Barrier Park	✓	Land Use and Socio Economic
Contribute towards the development of the Thames Gateway as a great place to invest, live and work	✓	Land Use and Socio Economic
Connect into the transport network	✓	Transport
Create a thriving new neighbourhood set within its landscape	✓	Land Use and Socio Economic, Wellbeing
Stitch together the retail and residential neighbourhoods within Charlton Riverside	✓	Land Use and Socio Economic, Wellbeing
Detailed Objectives		
Improved connections to the wider Charlton area to form one integrated neighbourhood	✓	Transport, Land Use and Socio Economic
New jobs within different sectors (creative industries, food and drink, leisure and others)	✓	Land Use and Socio Economic
Increased/higher skilled jobs in industrial uses through the replacement of old and poor quality space with new stock to accommodate the continuing change in industry from manufacturing based uses to service/distribution uses and also some intensification of existing uses	✓	Land Use and Socio Economic
Investment in up-to-date business space, improved transport provision and the overall environment by the public sector can help to lever in funding from the private sector	✓	Land Use and Socio Economic, Transport
A focus on jobs for local people, which could build upon jobs provided by other developments in the vicinity	✓	Land Use and Socio Economic
Improvements to the Thames Path, increasing safety and the connectivity of the pathway.	✓	Land Use and Socio Economic, Transport

Up to date accommodation to attract start up/SME/serviced workshop space operators such as Spacia to encompass diversification of business types in the area and foster innovation and entrepreneurism.	✓	Land Use and Socio Economic
A sustainable, highly mixed-use 'quarter' within the Westminster Industrial Estate by introducing residential and food/drink uses along the lines of the OXO example building and to ensure buildings do not remain vacant	✓	Land Use and Socio Economic
Strengthened appeal to SME's particularly to local businesses which could have positive knock-on effects for local neighbourhoods	✓	Land Use and Socio Economic
New well designed and fit for purpose homes for existing residents in the locality	✓	Land Use and Socio Economic, Wellbeing
The provision of high quality family housing in both the private and public sectors	✓	Land Use and Socio Economic, Wellbeing
Creation of a better environment for all uses	✓	Land Use and Socio Economic, Transport, Biodiversity, Pollution, Wellbeing
Creation of a high quality leisure destination encompassing a continual riverfront Thames Path, quality mixed tenure residential accommodation, an enhanced environment and draw for the Thames Barrier and new uses such as food and drink creating a focus on the remaining historic buildings such as the Westminster Industrial Estate	✓	Transport, Biodiversity

APPENDIX 2
GREENER GREENWICH SUSTAINABILITY CHECKLIST

Subject	Key considerations	Details expected	Applies to	Compliant	Relevant Evidence
	Can a mid-point score for the relevant standard defined in the Local Plan be achieved?	BREEAM Pre-Assessment	All development		BREEAM-Pre-Assessment
Energy	How does the development design ensure that energy will be used efficiently?	Energy Strategy or Statement in accordance GLA guidance	All major development (1)		Stand-alone energy strategy
	Has the feasibility and viability of decentralised energy been assessed?			Yes	
	Has the feasibility and viability of a range of renewable energy technology been assessed?				
	Are development proposals to a listed building, heritage asset or located in a conservation area?	Developers should contact Royal Greenwich's Conservation Officers to discuss possible options.(2)	Listed buildings, heritage assets and developments in a conservation areas	Yes	NA
Water	How does the development design ensure that water will be used efficiently?	BREEAM Pre-Assessment	All development	Yes	BREEAM Pre-Assessment & Water chapter
Biodiversity	Are there any priority species or habitats on the site?	Phase 1 Survey	All development	Yes	Ecology report, Biodiversity section
	What is the nature and scale of the priority species and habitats on the site?	Extended Phase 1 Survey	All development where a Phase 1 Survey has identified priority species or habitats	Yes	Ecology report, Biodiversity section

Subject	Key considerations	Details expected	Applies to	Compliant	Relevant Evidence
	How will priority species and habitats be protected and enhanced?	Ecological Management Plan	All development where an Extended Phase 1 Habitat Survey has recommendations to be implemented	Yes	
	Are the specifications in accordance with the GRO Code of Practice and Environment Agency Green Roof Toolkit?	Living Roof/Wall specifications	All development where a living roof is proposed	Yes	Ecology report, Biodiversity section
Materials	Do the materials to be used have a low environmental impact?	BREEAM Pre-Assessment	All development	Yes	BREEAM Pre-Assessment
	Have local suppliers been considered?	Sustainable sourcing rationale	All development	Yes	BREEAM Pre-Assessment, Materials section
	Is the timber to be used in the development independently verifiable as sustainable and legal?	Chain of Custody certification	To secure BREEAM credits	Yes	BREEAM Pre-Assessment, Materials section
Waste	What measures will be implemented to reduce site waste?	Site Waste Management Plan	All major development	Yes	SWMP, Waste section
	How does the development design ensure that waste arisings will be minimised?	BREEAM Pre-Assessment	All development	Yes	BREEAM Pre-Assessment, Waste section

Subject	Key considerations	Details expected	Applies to	Compliant	Relevant Evidence
Pollution	Is further site investigation required?	Phase 1 Desktop Investigation	Where contaminative use was known or likely or a sensitive end use is proposed	Yes	Preliminary Risk assessment, Pollution section
	What remediation strategy options are available?	Phase 2 Intrusive Site Investigation	Where contaminated land has been identified	N/A	TBC
	What are the most appropriate sustainable remediation proposals for the site?	Remediation Strategy and Remediation Method Statement	For sites where remediation of contaminated land is required	Yes	Preliminary Risk assessment, Pollution section
	How will the remediation works be undertaken and validated?			Na	TBC
	What remediation works were completed successfully?	Validation Report	Where remediation works have been undertaken	Na	TBC
	What is the quality control of imported soils (if any)?			Na	TBC
	How does the development design ensure that the impact of noise will be minimised?	Noise Assessment	All development	Yes	Noise Assessment report, pollution section
	How does the development design ensure that the impact on air quality will be minimised?	Air Quality Assessment	Where a planning application is subject to an environmental impact assessment or significant impacts on air quality are likely	Yes	Air Quality Assessment report, Pollution section
	What is the existing air quality?			Yes	Air Quality Assessment report, Pollution section

Subject	Key considerations	Details expected	Applies to	Compliant	Relevant Evidence
	What is the future air quality likely to be without the development?			Yes	Air Quality Assessment report, Pollution section
	What is the future air quality likely to be with the development?			Yes	Air Quality Assessment report, Pollution section
	Has a detailed site-specific Flood Risk Assessment been undertaken?	Flood Risk Assessment	All development except those located in Flood Zone 1 and are less than one hectare in size and not at risk from other sources of flooding or where there is not a known drainage issue	Yes	Flood Risk Assessment report, Water Resources section
Flood Risk	How does the development include appropriate application of SuDS?	SuDS site survey	All development	Yes	Flood Risk Assessment report, Water Resources section