AUGUST 2020

Sustainability Statement

Godwin and Crowndale Estate, NW1 1PA

Iceni Projects Limited on behalf of
The London Borough of Camden

August 2020

ICENI PROJECTS LIMITED ON BEHALF OF THE LONDON BOROUGH OF CAMDEN

Sustainability Statement
GODWIN AND CROWNDALE ESTATE, NW1 1PA

Iceni Projects
London: Da Vinci House, 44 Saffron Hill, London, EC1N 8FH
Edinburgh: 11 Alva Street, Edinburgh, EH2 4PH
Glasgow: 177 West George Street, Glasgow, G2 2LB
Manchester: 68 Quay Street, Manchester, M3 3EJ

t: 020 3640 8508 **| w:** iceniprojects.com | **e:** mail@iceniprojects.com
linkedin: linkedin.com/company/iceni-projects | **twitter**: @iceniprojects

CONTENTS

1. INTRODUCTION

1.1 Iceni Projects Ltd was commissioned by the London Borough of Camden to produce a Sustainability Statement for the proposed development at the Godwin and Crowndale Estate.

Report Objective

1.2 This document details the sustainable design and construction measures adopted by the proposed development and gives an overview of the design proposals that will ensure the development operates in a sustainable manner over the lifespan of the scheme. The Sustainability Statement report headlines will provide a framework for the project team to operate consistently within sustainability guidelines set out by the London Borough of Camden.

1.3 The report is structured to meet these guidelines as follows:

- Section 2 discusses the planning context and policies which are relevant to sustainability;
- Section 3 discusses the development response to the policy drivers for sustainability; and
- Section 4 summarises the development's design response.

Site and Surroundings

1.4 The application site (Appendix A1) is situated on the Godwin and Crowndale Estate, to the north-west of Chalton Street, approximately 0.3 miles east of Mornington Crescent Underground Station.

1.5 The site currently comprises a car park and Multi-Use Games Area (MUGA) with the southern boundary of the Godwin and Crowndale Estate.

1.6 The site lies adjacent to the pedestrianised continuation of Chalton Street and close to the junction with Charrington Street. Part of the site is currently accessed through the existing open space of Godwin Court, whilst the existing enclosed car parking element of the site is accessed via the Crowndale Court access road.

The Proposed Development

1.7 The scheme proposes the redevelopment of the site to deliver a total of 10 new residential dwellings to provide additional social rented units for the Godwin and Crowndale Estate. The singe terrace of three storey dwellings each has four bedrooms.

1.8 The project is part of the Council's Community Investment Programme (CIP). The CIP is London Borough of Camden's 15-year plan (2010-2025) to invest money in schools, homes and community facilities. To help deliver the CIP vision, Camden are investigating procurement options for the provision of new housing to meet the housing need within the Borough. Initial studies have identified that modern methods of construction could offer substantial benefits to the Council in meeting this need. Off-site manufacturing in particular has been noted as providing a good fit to the Council's development drivers.

1.9 The proposed scheme is a pilot for the off-site manufacturing programme. If successful, it is anticipated that the methods, approaches and technical solutions developed for the pilot project will be applied to other development projects within the CIP, forming an off-site manufacturing programme of works. Additionally, the approach could also be scaled up to assist with the development of other larger CIP schemes.

1.10 The site was initially identified through a wider assessment of the estate and due to its location, urban context and restricted vehicular access, it was considered a good test for off-site manufacturing approaches to construction, delivering 10 family sized, social rent, car-free homes for the estate.

1.11 The objective of the proposals is to replace an underused MUGA and area of private car parking with 10 high-quality and sustainable family-sized dwellings along with associated public realm and landscaping improvements to the wider estate.

1.12 The images below show elevations of the scheme.

Figure 1.1 Front elevation

Figure 1.2 Rear elevation

1.13 Overall, the proposals would provide the following floor areas and unit mix.

Table 1.1 Development area and unit mix

Residential Unit	Mix	Proposed GIA (sqm)
Unit 1	4 bed 6 persons	137
Unit 2	4 bed 6 persons	113
Unit 3	4 bed 6 persons	113
Unit 4	4 bed 6 persons	113
Unit 5	4 bed 6 persons	113
Unit 6	4 bed 6 persons	113
Unit 7	4 bed 6 persons	113
Unit 8	4 bed 6 persons	113
Unit 9	4 bed 6 persons	113
Unit 10	4 bed 6 persons	117
TOTAL		1,412

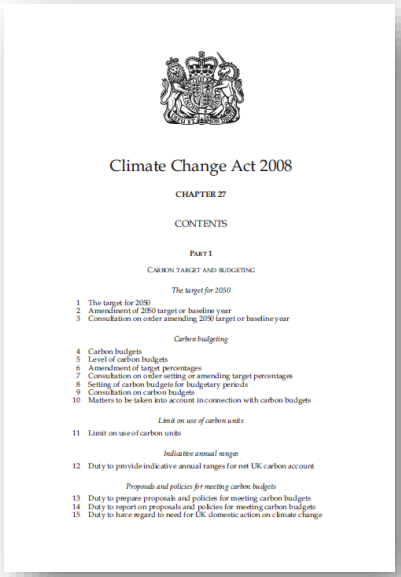
2. PLANNING AND REGULATORY CONTEXT

2.1 Built environment sustainability is incorporated within policy and regulation at a national, regional and local level, as set out below.

National

Climate Change Act 2008

2.2 On 26th November 2008, the UK Government published the Climate Change Act 2008; the world's first long-term legally binding framework to mitigate against climate change. Within this framework, the Act sets legally binding targets to increase greenhouse gas emission reductions through action in the UK and abroad from the 60% target set out in the Energy White Paper, to 80% by 2050.



Climate Change Act 2008

CHAPTER 27

CONTENTS

PART 1

CARBON TARGET AND BUDGETING

The target for 2050

1 The target for 2050
2 Amendment of 2050 target or baseline year
3 Consultation on order amending 2050 target or baseline year

Carbon budgeting

4 Carbon budgets
5 Level of carbon budgets
6 Amendment of target percentages
7 Consultation on order setting or amending target percentages
8 Setting of carbon budgets for budgetary periods
9 Consultation on carbon budgets
10 Matters to be taken into account in connection with carbon budgets

Limit on use of carbon units

11 Limit on use of carbon units

Indicative annual ranges

12 Duty to provide indicative annual ranges for net UK carbon account

Proposals and policies for meeting carbon budgets

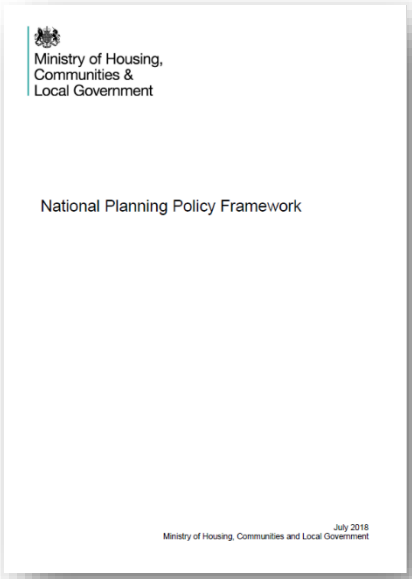
13 Duty to prepare proposals and policies for meeting carbon budgets
14 Duty to report on proposals and policies for meeting carbon budgets
15 Duty to have regard to need for UK domestic action on climate change

2.3 As required under Section 34 of the Climate Change Act, the Fifth Annual Carbon Budget was accepted by the Government in June 2016. This sets out a budget for UK emissions for the period 2028 – 2032.

2.4 Following a commitment in June 2019, the Climate Change Act has been amended to target net zero carbon emissions by 2050.

National Planning Policy Framework

2.5 The Ministry of Housing, Communities & Local Government determines national policies on different aspects of planning and the rules that govern the operation of the system. Accordingly, the National Planning Policy Framework (NPPF), which came into force in March 2012 and was updated in February 2019, aims to strengthen local decision making.



Ministry of Housing, Communities & Local Government

National Planning Policy Framework

July 2018
Ministry of Housing, Communities and Local Government

2.6 Paragraphs 10 and 11 of the NPPF confirms that the heart of this document is a "*presumption in favour of sustainable development*", and that development proposals that accord with an up-to-date development plan should be approved without delay.

2.7 Paragraph 7 states that the purpose of the planning system is to contribute to the achievement of sustainable development. At a very high level, the objective of sustainable development can be summarised as meeting the needs of the present without compromising the ability of future generations to meet their own needs.

2.8 Achieving sustainable development means that the planning system has three overarching activities, which are interdependent and need to be pursued in mutually supportive ways, so that opportunities can be taken to secure net gains across each of the different objectives:

- **An Economic Role –** ensuring the provision of land and infrastructure needed to help build a *strong, responsive and competitive economy.*
- **A Social Role –** supplying the required amount of housing while at the same time ensuring and building *strong, vibrant and healthy communities.* Ensuring that the built environment is site around accessible local services which help support a community's *health, social and cultural well-being.*

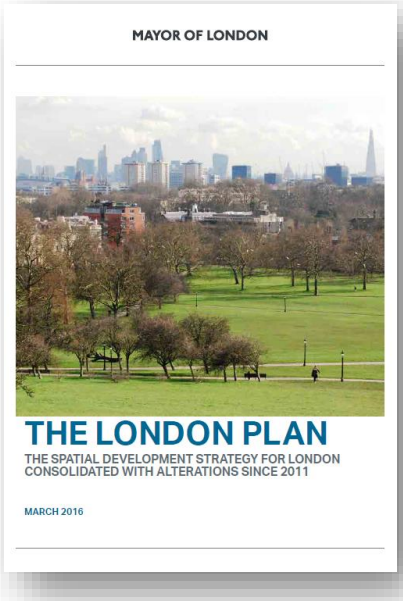
An Environmental Role – ensuring development contributes to the protection and enhancement of the *natural, built and historic environment* through the improvement of biodiversity, minimising the use of natural resources and production of pollution / waste, and guaranteeing sufficient adaptation to climate change.

Regional

2.9 Within Greater London, key sustainable development principles for economic, environmental and social improvement are set out below:

The London Plan (March 2016)

2.10 The London Plan is the overall strategic plan for London and includes policies for sustainable development and energy within Chapter 5 (London's response to climate change). Key policies of relevance to this scheme are as follows:



- **Policy 5.2 Minimising Carbon Dioxide Emissions.** This states that development proposals should make the fullest contribution to minimising carbon dioxide emissions in accordance with the following energy hierarchy:

  1. Be lean: use less energy

2. Be clean: supply energy efficiently

3. Be green: use renewable energy

- **Policy 5.3 Sustainable Design and Construction.** This states that development proposals should demonstrate that sustainable design standards are integral to the proposal, including its construction and operation, and ensure that they are considered at the beginning of the design process.

- **Policy 5.6 Decentralised Energy in Development Proposals.** This states that major development proposals should select energy systems in accordance with the following hierarchy:

  1. Connection to existing heating or cooling networks

  2. Site wide CHP network

  3. Communal heating and cooling

- **Policy 5.7 Renewable Energy.** This states that major development proposals should provide a reduction in expected carbon dioxide emissions through the use of on-site renewable energy generation, where feasible.

- **Policy 5.9 Overheating and Cooling.** This states that major development proposals should reduce potential overheating and reliance on air conditioning systems and demonstrate this in accordance with the following cooling hierarchy:

  1. Minimise internal heat generation through energy efficient design

  2. Reduce the amount of heat entering a building in summer through orientation, shading, albedo, fenestration, insulation and green roofs and walls

  3. Manage the heat within the building through exposed internal thermal mass and high ceilings

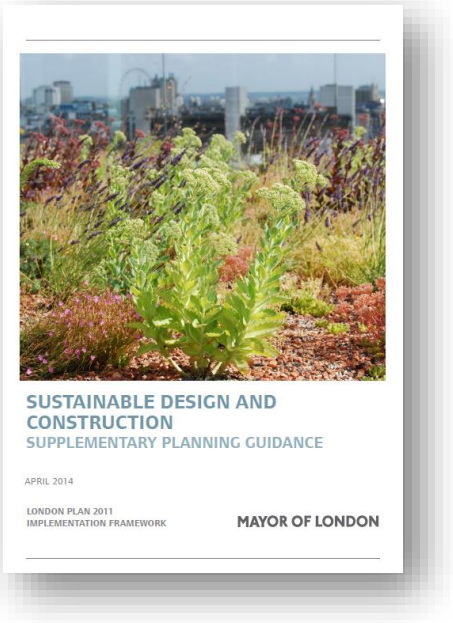
  4. Passive ventilation

  5. Mechanical ventilation

  6. Active cooling systems (ensuring they are the lowest carbon options)

Sustainable Design and Construction Supplementary Planning Guidance (SPG) (April 2014)

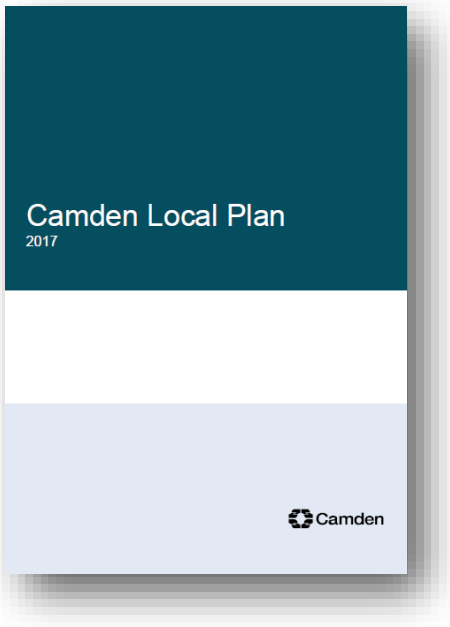
2.11 This document provides guidance on the implementation of London Plan policy 5.3 ‘Sustainable Design and Construction’ as well as a range of policies relating to environmental sustainability. The document contains best practice and priority targets for a wide range of issues related to sustainable design and construction, grouped into three categories: resource management, adapting to climate change and greening the city, and pollution management.



Local

2.12 In determining the local context, the London Borough of Camden policy is set out in the Camden Local Plan, adopted in July 2017.

Camden Local Plan (adopted July 2017)



2.13 The Camden Local Plan is the key strategic document in Camden's development plan. It sets out the vision for shaping the future of the Borough and contains policies for guiding planning decisions. Policies of relevance to this project in the context of sustainability and energy are as follows:

- **Policy CC1 (Climate Change Mitigation)** states that the Council will require all development to minimise the effects of climate change and encourage all developments to meet the highest feasible environmental standards that are financially viable during construction and occupation. The Council will:
    - Promote zero carbon development and require all development to reduce carbon dioxide emissions through following the steps in the energy hierarchy;
    - Require all major development to demonstrate how London Plan targets for carbon dioxide emissions have been met;
    - Ensure that the location of development and mix of land uses minimise the need to travel by car and help to support decentralised energy networks;
    - Support and encourage sensitive energy efficiency improvements to existing buildings;
    - Require all proposals that involve substantial demolition to demonstrate that it is not possible to retain and improve the existing building; and
    - Expect all developments to optimise resource efficiency.
- **Policy CC2 (Adapting to Climate Change)** states that the Council will promote and measure sustainable design and construction by:
    - Ensuring development schemes demonstrate how adaptation measures and sustainable development principles have been incorporated into the design and proposed implementation; and

- Encouraging new build residential development to use the Home Quality Mark and Passivhaus design standards.

- **Policy CC3 (Water and Flooding)** states that the Council will seek to ensues that development does not increase flood risk and reduces the risk of flooding where possible.

- **Policy CC4 (Air Quality)** states that the Council will ensure that the impact of development on air quality is mitigated and ensure that exposure to poor air quality is reduced in the borough.

- **Policy CC5 (Waste)** states that the Council will seek to make Camden a low waste borough.

- **Policy A3 (Biodiversity)** states that the Council will protect and enhance sites of nature conservation and biodiversity, and will protect, and seek to secure additional, trees and vegetation.

- **Policy D1 (Design)** states that the Council will seek to secure high quality design in development, requiring that development:

  - Is sustainable in design and construction, incorporating best practice in resource management and climate change mitigation and adaptation;

  - Is of sustainable and durable construction and adaptable to different activities and land uses;

  - Is inclusive and accessible for all;

  - Promotes health;

  - Responds to natural features and preserves gardens and other open space; and

  - Incorporates high quality landscape design and maximises opportunities for greening, for example through planting of trees and other soft landscaping.

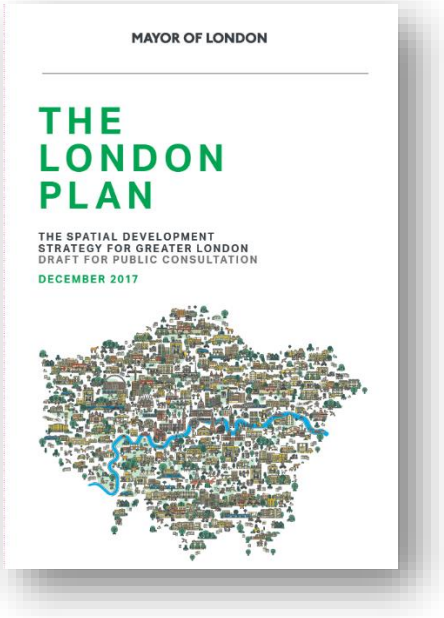
Camden Planning Guidance: Sustainability (July 2015, updated March 2018)

2.14 The Camden Planning Guidance (CPG) covers a range of topics, including sustainability (such as design, housing, amenity and planning obligations). The Sustainability CPG provides information on ways to achieve carbon reductions and more sustainable developments. It also highlights requirements and guidelines which support the policies outlined within the Camden Local Plan.

Other Considerations

The Draft London Plan (December 2017 and updated August 2018, published with consolidated changes July 2019)

2.15 The London Plan is legally part of each of London's Local Planning Authorities' Development Plan and must be taken into account when planning decisions are taken in any part of London. This draft update to the Plan was issued for public consultation between December 2017 and March 2018, and updated in August 2018. Although the update was issued as a draft, the GLA have already started giving weight to some policies. The Plan contains a new chapter dedicated to Sustainable Infrastructure, which includes updated policies relating to:



- Air quality;
- Greenhouse gas emissions;
- Energy infrastructure;
- Managing heat risk;
- Urban greening;
- The circular economy; and
- Sustainable drainage.

2.16 The zero-carbon target for major residential developments, which has been in place for London since October 2016, will also be applicable to major non-residential developments on the final adoption of the New London Plan, anticipated in early 2020.

3. SUSTAINABILITY STATEMENT

3.1 Although the proposed scheme is not referable to the Greater London Authority (GLA), the sustainability strategy for the proposed development has been assessed using the GLA supplementary planning guidance (SPG) 'Sustainable Design and Construction'. This enables a holistic sustainability approach for the proposed development. The principle of sustainable design and construction is referenced within the London Borough of Camden's Local Plan and therefore the GLA's 'Sustainable Design and Construction' SPG represents best practice guidance to meet high standards of sustainable design and construction.

Sustainable Design and Construction

3.2 In line with the categories highlighted within the Supplementary Planning Guidance (SPG) on Sustainable Design and Construction, the sustainability features of the proposed development are outlined below, with the exception of issues relating to energy and renewables, which are included in a separate report, accompanying this application.

Land

3.3 The site to be developed currently comprises a car park and Multi-Use Games Area (MUGA). The proposed development would therefore be situated entirely on previously developed land, and would form a natural extension of the existing Godwin and Crowndale Estate.

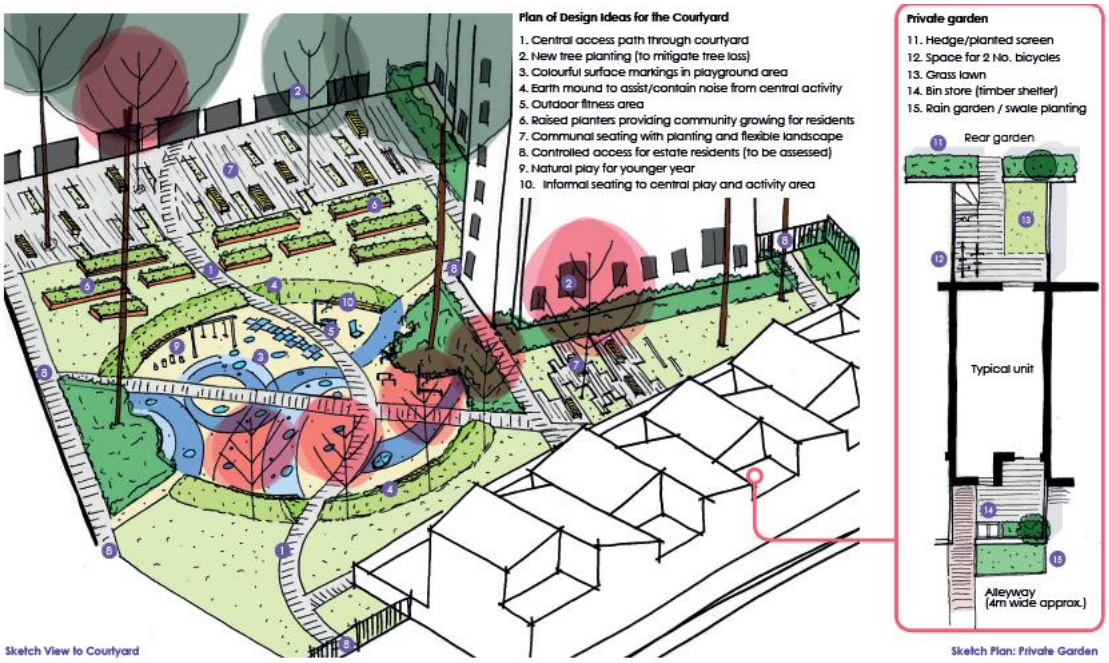
Figure 3.1 Existing site

Proposed site boundary

3.4 The density and scale of the proposed development has been developed based on guidance provided by the London Borough of Camden and the GLA's London Plan.

3.5 An indicative sketch of the planned landscaping to be incorporated across the proposed development is shown below. This will reduce hardstanding areas across the site as a whole.

Figure 3.2 Indicative landscape sketch



3.6 The landscape proposals will:

- Reinstate access to the courtyard from the existing building cores of Godwin Court;
- Provide a new path network across the courtyard;
- Deliver a central courtyard space created to encourage activity, including play, seating and fitness;
- Include flexible landscaping and seating adjacent to the community hall that may be used by residents to, for example, hold events;
- Incorporate an earth mound to assist in containing noise from the central activity area;
- Provide natural play opportunities for younger residents;
- Retain existing and introduce new trees to compliment the new development and to mitigate the planned losses; and,

- Provide raised planters to be used by both new and existing estate residents for community growing projects.

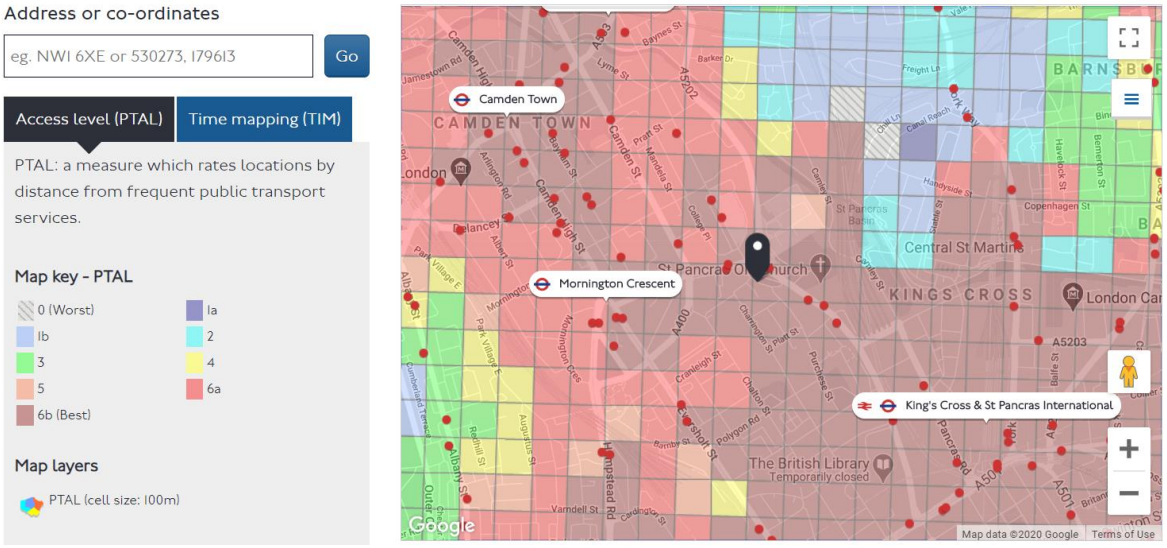
Site Layout and Building Design

3.7 The proposed redevelopment will replace an underused MUGA and hardstanding car park. Bringing these areas into use, in conjunction with the planned improvements to the existing courtyard associated with the Godwin and Crowndale Estate, will ensure the proposals make efficient use of the available space, and will activate the existing amenity space. The height, massing and materiality of the proposals has taken account of the local surroundings, and the proposed massing has been designed to add variation and interest within the elevations.

3.8 The impact of the proposals in terms of daylight availability and overlooking with respect to the Regent High School, which is located at the southern edge of the proposed development site, has been considered in particular detail. In order to ensure sufficient daylight is available to the proposed dwellings whilst ensuring the privacy of the school is maintained, windows that direct views away from the school are to be provided. Details of this design feature are provided in the Design and Access Statement submitted in support of this application.

3.9 According to the Transport Assessment, produced by Iceni Projects in May 2020, the site has numerous public transport connections for London Overground, London Underground and the London bus network, with the site scoring a PTAL rating of 6b. Mornington Crescent underground station, located approximately 5-minutes' walking distance from the site, provides access to the Northern Line, whilst King's Cross St. Pancras and Euston stations, which provide access to London Underground, London Overground, National and International Rail services, are located approximately 1km from the proposed site. The site is well served by regular bus stops, including one adjacent to the site which is served by the 46 and 214 bus services.

Figure 3.3 Extract from TfL PTAL map



3.10 Given the excellent connectivity of the site, it is considered appropriate to provide a car-free development for the residential element. On-site provision for disabled car parking has been made, however, totalling one space, which is to replace a section of single yellow line on Chalton Street. This results in a parking ratio of 0.1 spaces per dwelling which will ensure a focus on travel by sustainable modes is maintained, and is therefore in support of the objectives of local, regional and national policy in promoting sustainable travel.

3.11 The proposals also include integrated cycle parking for residents, encouraging residents to adopt sustainable transport patterns. Bicycle storage for each residential dwelling will be provided at the ground floor level, in line with the requirements of Policy T1 of the Draft New London Plan.

Modern Methods of Construction

3.12 The proposed development site is intended to be a pilot for the London Borough of Camden's Off-site Manufacturing Programme. Should the methods employed in the construction and operation of the proposed development prove successful, approaches and technical solutions will be rolled out across other developments within the Council's Community Investment Programme (CIP).

3.13 Through employing off-site and modern manufacturing techniques, a number of benefits are expected to be delivered, including:

- Reduced costs, and therefore improved affordability, due to higher resource efficiency and shorter construction times compared to traditional construction methods;
- Improved efficiency, speed and certainty of delivery through a simplified and de-risked approach to construction;

- The safeguarding of the delivery of future CIP developments through the diversification of construction and delivery approaches;

- The building of a local knowledge base around off-site products, which will aid in retaining skills in design, the local labour force, and in upskilling the Council's development teams;

- Minimised disruption to neighbours and the local environment through the reduced time required on-site. This will aid in minimising congestion, air pollution, noise and vibration associated with construction traffic and activities;

- The development of a system and/or component-based approach that may be repeated on other sites;

- The delivery of new homes that are in line with the Lifetime Homes and London Design Guide standards, that are warrantable under the Buildoffsite Property Assurance Scheme (BOPAS) and which are compliant with the Building Regulations;

- Minimised waste generation throughout the delivery of the project due to factory-based manufacturing techniques; and

- The demonstration of environmental best practice with regard to the selection and sourcing of materials, construction methodologies, in-use energy efficiency and the incorporation of circular economy principles encouraging the maintenance and renewal of materials throughout the lifetime of the development.

Energy Strategy

3.14 A comprehensive energy and carbon dioxide (CO_2) emissions assessment has been carried out for the proposed development and is reported in a separate document, which accompanies this application. The strategy for emissions reduction and associated results are summarised below.

3.15 The energy performance of the scheme has been analysed and evaluated to target a best level of CO_2 emissions performance when assessed against Building Regulations Part L:2013 and associated policies, accounting for economic, technical and functional feasibility.

3.16 The proposed energy strategy is based upon the principles of the Energy Hierarchy on the basis that it is preferable to reduce carbon dioxide emissions through reduced energy consumption above decarbonisation through alternative energy sources.

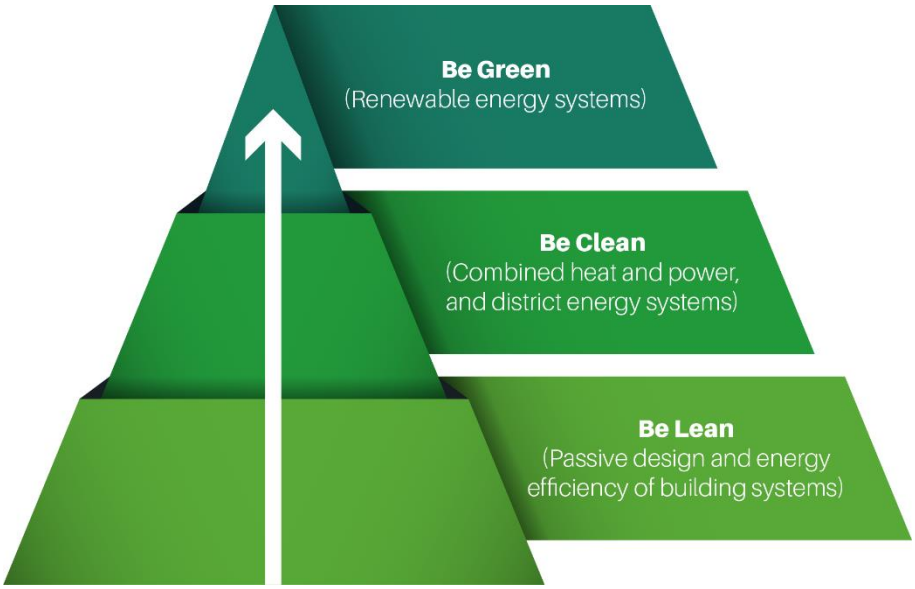
3.17 The tiers of the Energy Hierarchy are:

- Be Lean Reduce energy demand through the passive design and layout of the scheme, using natural lighting and ventilation

- Be Clean Supply energy efficiently using either combined heat and power or district energy systems

- Be Green Use renewable energy systems to further reduce emissions

Figure 3.4 The Energy Hierarchy



3.18 The proposed development has been designed to maximise the quantum of residential floorspace, whilst ensuring that the scheme is not overly dense and respects the scale and massing of surrounding buildings. The massing and orientation are therefore constrained somewhat by the site footprint shape and area, and the need to fit in with the surroundings.

3.19 The energy assessment has shown that the proposed development will adopt the Mayor of London's 'Energy Hierarchy' and shall deliver savings of 7.25 tCO_2 per year for the proposed dwellings, equating to a 54.8% reduction in carbon dioxide emissions over the Part L:2013 baseline through on-site means alone.

3.20 The measures proposed at each level of the Energy Hierarchy are set out below.

3.21 The domestic 'Be Lean' measures include:

- High levels of building fabric insulation to minimise heat loss

- A balanced proportion of façade glazing to ensure natural daylight provision without increasing overheating risk

- High levels of air tightness to reduce heat loss through infiltration

- The use of accredited construction details to minimise heat loss through thermal bridging

- Low energy LED lighting to minimise artificial lighting energy consumption
- Mechanical ventilation with heat recovery to provide fresh air, with heat recovered from extract air
- A high specification of heating controls to ensure operational efficiency

3.22 District and communal heat systems have not been deemed to be appropriate due to the relatively small scale of the development, estimated connection costs and utility constraints.

3.23 The 'Be Green' measures include:

- Employment of highly efficient air source heat pump (ASHP) systems

3.24 The level of site-wide emissions reduction achieved for each stage of the Energy Hierarchy is shown below.

Figure 3.5 Carbon dioxide emissions savings after each stage of the Energy Hierarchy

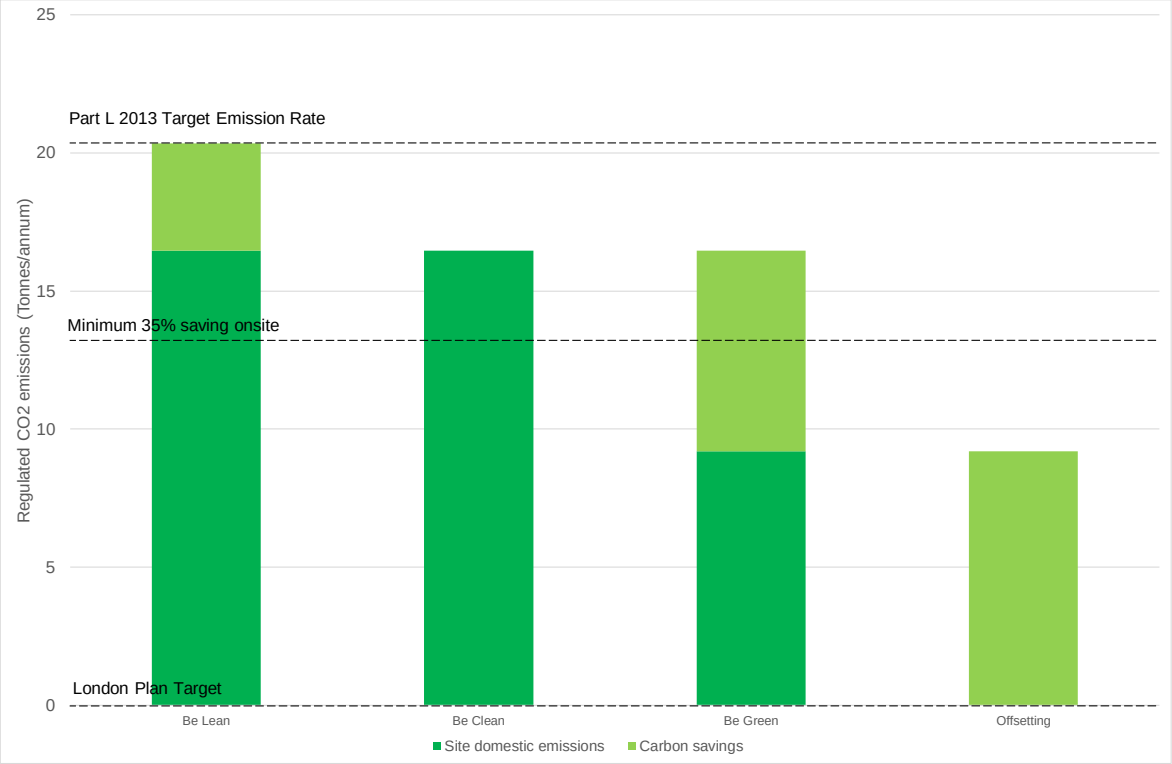


Table 3.1 Carbon dioxide emissions after each stage of the Energy Hierarchy

	Carbon dioxide emissions for domestic buildings
Baseline: Part L 2013 of the Building Regulations Compliant Development	20.34
After energy demand reduction	16.45
After renewable energy	9.20

Table 3.2 Regulated carbon dioxide savings from each stage of the Energy Hierarchy

	Regulated domestic carbon dioxide savings	
	(Tonnes CO_2 per annum)	**(%)**
Savings from energy demand reduction	3.89	19.1%
Savings from renewable energy	7.25	35.6%
Cumulative on-site savings	11.14	54.8%
Carbon shortfall	9.20	
	(Tonnes CO_2)	
Cumulative savings for offset payment	276	
Cash in-lieu contribution	£26.224	

3.25 The assessment concludes that the proposals have maximised all available opportunities for on-site regulated carbon emissions reduction. The proposed energy strategy achieves an on-site emissions reduction of 54.8%. 276 tonnes of CO_2 per annum of residential emissions from the development are proposed to be offset through a cash-in-lieu contribution.

Water Efficiency

3.26 As per the London Plan, the city often consumes more water than is available during dry weather. As the population of London grows, this situation will be further exacerbated with greater pressure on the supply of potable water.

3.27 In order to actively mitigate against this, water saving fittings and appliances shall be installed to target a water consumption rate of 105 litres or less per person per day, based on the DCLG water efficiency calculator for the residential elements. Full details of the water calculation are provided in Appendix A2.

3.28 The following form a basis for the residential element of the proposals, subject to changes at later detailed design stages:

- Low volume dual flush toilets of 6 / 3 litres;
- Water consumption levels not higher than 3 litres / minute in wash hand basins and 4 litres / minute in kitchen sink taps;
- Bath with a capacity to overflow not higher than 180 litres; and,
- Showers with a flow rate of 8 litres / minute using a flow restrictor.

3.29 Washing machines and dishwashers are unlikely to be specified by the developers, and their water consumption has not been specified. However, further reductions in water consumption can be achieved by specifying a washing machine with a water consumption lower than 18 l/kg and dishwashers with a water consumption no higher than 4.5 litres per place setting.

Materials and Waste

3.30 Selection of materials is determined by a variety of factors such as the architectural context, design rationale, embodied carbon and maintenance requirements. For the proposed development, consideration will be given to the lifecycle environmental performance with materials selected in consideration of the BRE's Green Guide to Specification, aiming for A or B rated materials wherever possible.

3.31 During detailed design of the building fabric, consideration will be given to minimising the environmental impact of materials, by selecting non-toxic and robust materials to ensure longevity and a minimal impact on the health of occupants.

3.32 In order to minimise the amount of waste sent to landfill during the enabling works and construction phase, the scheme will aim to divert non-hazardous construction waste away from landfill.

3.33 Timber will be selected and purchased in consideration of sustainability certification. It is intended that all structural timber elements along with any timber used for temporary uses, such as scaffolding, will be sustainably sourced (e.g. from FSC and/or PEFC sources).

3.34 During the construction phase, the principal contractor will be required to implement the submitted Site Waste Management Plan (SWMP) which will detail who will be responsible for resource management, what types of waste will be generated, how the waste will be managed (e.g. reduced, reused or recycled), which contractors will be used and how the quantity of waste generated by the project will be measured. Demolition contractors will incorporate best practice measures to maximise the recovery of materials from the demolition site for reuse or recycling, along the guidance set out by the Institute of Civil Engineers' (ICE) 'Demolition Protocol'.

3.35 To encourage a greater proportion of the operational waste to be diverted from landfill, it is proposed to provide a dedicated space of sufficient size and in convenient locations. Internal and external storage will be considerate of the Building Regulations, Council and other relevant requirements.

3.36 As outlined above, the use of modern methods of construction (MMC) will provide an opportunity to improve material efficiency and reduce the generation of waste during the construction stage. By moving the manufacturing process of a building's elements into a controlled factory environment, the assembly of and application of finishes to the components can take place in optimal conditions, thus reducing the potential generation of waste associated with errors, accidents or snagging. Packaging waste associated with the delivery of separate elements to a site is also reduced through applying this method of construction. The use of MMC will also aid in reducing the amount of carbon emissions released during the manufacture and transport of the building components, thus reducing the embodied carbon associated with the new dwellings.

Nature conservation and biodiversity

3.37 The site in its current state comprises a hardstanding car park and a Multi-Use Games Area (MUGA) as well as the existing landscaped courtyard associated with the Godwin and Crowndale Estate.

3.38 As demonstrated in Figure 3.2 above, the proposals include soft landscaping and planting to be provided within both the courtyard and the private gardens at the ground floor level. Due to the hardstanding nature of a large portion of the existing site, the provision of new planting as part of the proposed private gardens and improvements to the existing courtyard, it is anticipated that existing biodiversity on the site will be maintained and enhanced post-development.

3.39 Furthermore, a number of existing green and open spaces are present within the locality of the proposed development site, such as the Godlington Crescent Gardens, Oakley Square Gardens, and Harrington Square Gardens, as shown in Figure 3.5 below. The incorporation of the measures

to be included as part of the landscaping strategy, as well as the additional planting planned for the private gardens, will aid in providing green links between these existing green spaces, therefore contributing to the maintenance and enhancement the existing local biodiversity.

Figure 3.6 Existing green and open spaces

Approximate site location

Tackling Increased Temperature and Drought

3.40 In order to protect the development against overheating in the future, a number of key design features have been proposed to ensure the proposals are resilient to increased temperatures which may be experienced as a result of climate change and the urban heat island effect. A full overheating analysis has been undertaken using dynamic thermal modelling as part of the Energy Strategy accompanying this application. A summary of the measures included to reduce overheating risk is provided below.

3.41 The design of the dwellings has been developed in line with the GLA's recommended 'Cooling Hierarchy' approach, detailed in London Plan policy 5.9. This applies a similar principle to the thorough decision-making process of the Energy Hierarchy, with the aim of reducing CO_2 emissions from cooling and minimising the risk of overheating where no cooling is present:

Minimisation of internal heat generation through energy efficient design

- Heat gain from lighting is kept to a minimum as a result of an energy-efficient lighting design solution.

- The availability of natural light is maximised by optimising the light transmittance of the glass elements of the façade.

- Heat gains from equipment will be minimised through the specification of low energy systems.
- Heat distribution pipework will be fully insulated to prevent unwanted heat loss.
- The scheme will use individual air source heat pumps, which is a low temperature distribution system, leading to lower internal heat gains from distribution pipework.

Reduction of the amount of heat entering the building in summer

- The building's facades have a limited amount of glazing to mitigate direct solar heat gain while optimising daylight penetration.
- The use of blinds will provide solar shading and glare protection to houses.

Management of the heat within the building through exposed thermal mass and high ceilings

- Generous floor to ceiling heights of 2.7m (ground and first floors) and up to 3.4m (second floor) will allow internal heat to rise and stratify above occupied areas.
- The habitable rooms are distributed across three storeys allowing heat to rise and exit the building due to the stack effect.

Passive ventilation

- Openable windows on multiple aspects will provide a passive ventilation strategy that utilises crossflow ventilation to maximise the potential for natural ventilation within the scheme.
- Trickle ventilation will be provided for ground floor spaces.

Mechanical and active cooling

- Cooling is not proposed.

3.42 An overheating assessment of a sample of the dwellings has been carried out using dynamic thermal modelling (fully detailed in the Energy Strategy). This assessment has employed the guidance set out in CIBSE TM59 to reliably model overheating in residential properties. The overheating assessment made use of the Design Summer Years for London specified in CIBSE TM49 to predict overheating risk for three different weather scenarios.

- DSY1. 1989: a moderately warm summer (current design year for London).
- DSY2. 1976: a year with a prolonged period of sustained warmth.
- DSY3. 2003: a year with a very intense single warm spell.

3.43 To account for the urban heat island effect in the locality of the development, weather data from London Weather Centre has been employed as the basis for the analysis, as this location most closely matches Camden as an urban location.

3.44 The risk of overheating has been assessed using the guidance contained in CIBSE TM52, which details the limits of thermal comfort.

3.45 All dwellings pass the TM59 overheating criteria for the DSY1 weather file. For the DSY2 scenario, a single bedroom is predicted to fail by a single hour. For the DSY3 scenario, a single living room is predicted to fail by four hours. These failures are considered to be marginal and not of a significant nature.

3.46 If overheating was found to be an issue in the future for these dwellings, the following mitigation measures should be explored:

- Retrofitted solar control film to minimise solar gain;
- Additional external shading to limit solar gain;
- Improved blinds to reduce solar gain;
- Increased MVHR flow rates for additional purge ventilation; and
- Use of free-standing fans in extreme cases.

Increasing Green Cover and Trees

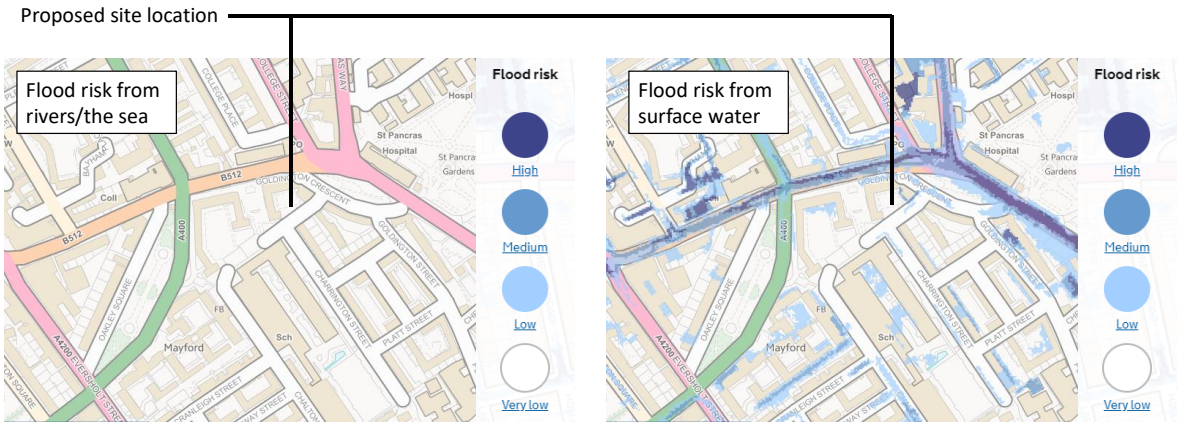
3.47 An Arboricultural Survey and Impact Assessment was undertaken for the proposed development site by Abeco in April 2019. This survey identified 39 individual trees, of which it is recommended that four are removed in order to facilitate the proposed development. To mitigate this loss, it is recommended that a scheme of soft landscaping is developed, taking into consideration the quality and type of soil present on the site, as well as the projected sizes and heights of the selected species. Furthermore, it is recommended that native and/or ecologically valuable species are preferentially included within the proposed landscaping scheme.

3.48 As part of the proposed Landscape Strategy, shown above in Figure 3.2, new planting will be included within the private gardens of the proposed dwellings, and as part of the improvements to be made to the communal courtyard and the public realm. Flexible landscaping and planting will be incorporated across the courtyard space, with existing trees retained where possible. This will be supported by new planting to mitigate any losses of trees, as well as new boundary planting, raised planters and the provision of hedges/planted screens along the frontages of the proposed dwellings.

Flooding

3.49 Figure 3.6 below confirms that the proposed site is located in Flood Zone 1 and is not at risk of flooding from rivers or the sea, reservoirs or surface water.

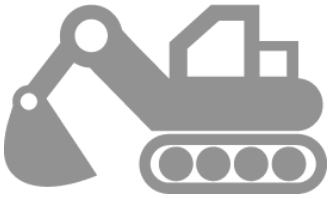
Figure 3.7 Extract from the Environment Agency's online flood map



3.50 Whilst there is no projected risk of surface water flooding within the proposed site boundaries, there are some areas of medium to high risk within the surrounding road network. Whilst this risk is anticipated to be contained within the road network, the use of landscaping and the integration of planted swales and rain gardens is proposed to contribute to the management of surface water on the site in order to reduce burden on the surrounding drainage infrastructure.

Land Contamination

3.51 A Phase II Geotechnical and Geo-environmental Investigation of the site has been completed by Land Science in June 2019. This provides details of site investigations conducted to assess the potential contamination of the site.



3.52 The results of the investigation found that, whilst excavations are generally likely to remain stable, risk assessments should be prepared, appropriate safety measures should be provided, and piled foundations suitable for use in ground with a high volume change potential should be employed.

3.53 Whilst no issues related to radon gas were identified on the site, it is noted that water supply pipe work should be protected from aggressive soil contaminants. In addition, elevated concentrations of lead and mercury were detected in some soil samples. It is therefore recommended that either remediation or further investigation in consultation with the local authority contaminated land officer is carried out with respect to these soil contaminants. It is also advised that a Remediation Method Statement is prepared and submitted to the relevant regulatory bodies.

3.54 In terms of the disposal of excavated soils, the results of the preliminary chemical analysis indicate that the made ground present within the proposed soft landscaped gardens is classified as

hazardous. As a result, it is recommended that further testing is undertaken by the principal contractor as part of a materials management plan. It is considered that the natural soils present on the site may be handled as inert waste.

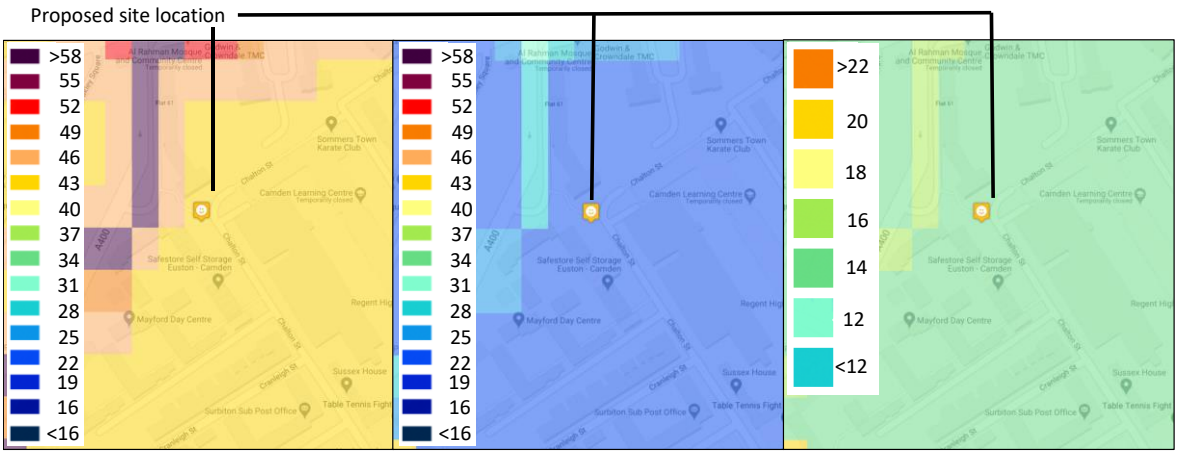
Air Pollution

3.55 The Environment Act 1995 requires all Local Authorities to review air quality within their districts. If it appears that any air quality 'Objective' prescribed in the regulations and in the National Air Quality Strategy is not likely to be achieved, then the local authority must designate the affected area as an Air Quality Management Area (AQMA).

3.56 The site location, and the whole of the London Borough of Camden, is specified as an AQMA due to excessive levels of nitrogen dioxide (NO_2) and particulate matter (PM_{10}) due to road transport.

3.57 Figure 3.7 below shows the levels of NO_2, PM_{10} and $PM_{2.5}$ measured at the site in 2016. The images below indicate that, whilst the levels of PM_{10} and $PM_{2.5}$ present at the site in 2016 would have been below the National Air Quality Objective (NAQO) guidelines, the concentrations of NO_2 were only marginally below the annual mean objective.

Figure 3.8 Maps indicating annual levels of NO_2 (left), PM_{10} (middle) and $PM_{2.5}$ (right) exposure



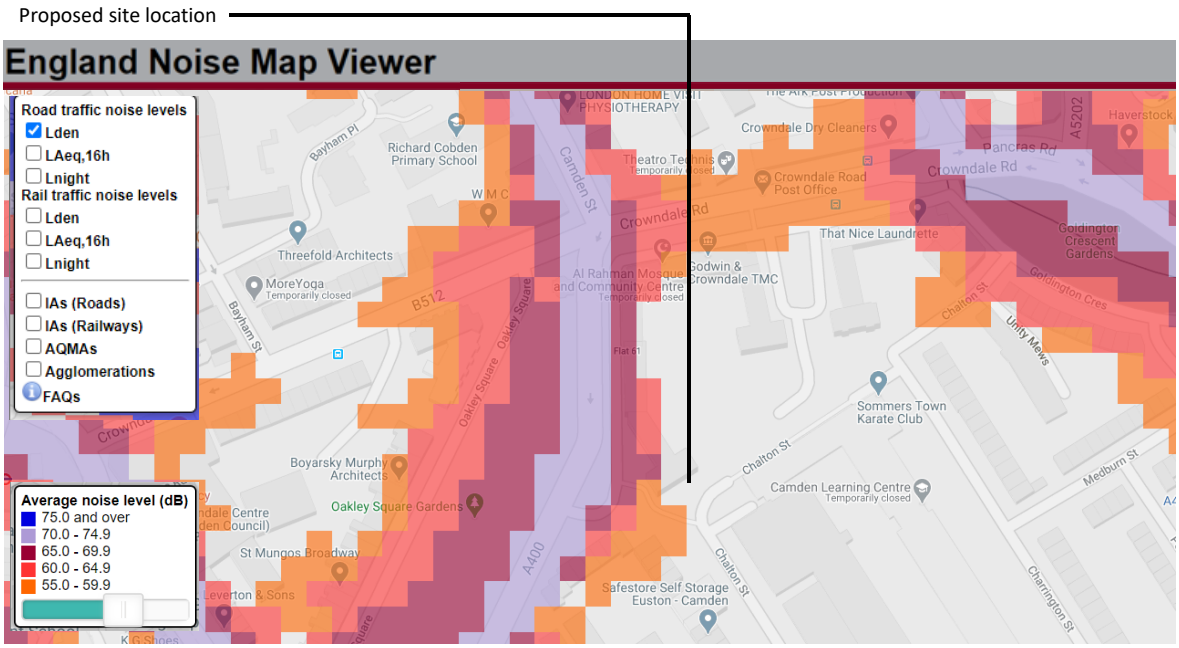
3.58 In order to minimise the contribution of the development to localised air pollution, electric air source heat pumps (ASHPs) will be employed to serve both the space and water heating demands of the new dwellings, meaning no fossil fuels will be used for the building systems. Furthermore, transport emissions will be mitigated through the delivery of a car-free development and the provision of integrated cycle storage for all 10 units, which will encourage the use of more sustainable modes of transport. This will therefore aid in reducing the reliance of the future residents on the use of private, traditional combustion engine vehicles.

3.59 Through the implementation of the measures outlined above, there will be zero impact on air pollution as a result of the proposals. In this way, the proposed development will have a neutral impact in terms of local air quality.

Noise and Vibration

3.60 Figure 3.8 below demonstrates the potential exposure of future site users to excessive noise levels. It can be seen that, whilst the development site itself is not considered to be affected by high noise levels, it is located within close proximity to transport noise sources. Oakley Square (A400) is situated to the east, and Crowndale Road (B512) is located to the north of the site, beyond the existing buildings of the Godwin and Crowndale Estate.

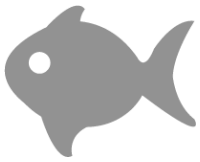
Figure 3.9 Road traffic noise map



3.61 To minimise the contribution of the proposed development to local noise levels, air source heat pump (ASHP) systems that are quiet in operation will be installed to serve both the space and heating demands of the proposed dwellings. The use of the specified system, in conjunction with the placement of the external components of the systems away from existing dwellings, will aid in reducing the impact of the proposals in terms of noise pollution.

3.62 In addition to this, as detailed above, the proposed Landscape Strategy is to incorporate an grass mound in order to mitigate noise arising from the use of the facilities and equipment to be provided within the central space of the courtyard. This will aid in minimising disruption to both existing and future residents.

Water Pollution



3.63 The Phase II Geotechnical and Geo-environmental Investigation found that there is no groundwater present on the site within a 15m depth. However, it should be noted that the reduction in the area of hardstanding and the provision of new soft landscaping on the site will aid in reducing surface water runoff rates for the everyday rainfall event when compared to the current site situation.

3.64 Additional measures should also be considered during construction to minimise the risk of ground and surface water pollution, where appropriate, including:

- Use of oil separators;
- Clear marking and signage of drainage stems;
- Bunding of any on-site fuel or oil delivery areas;
- Bunding of areas for cleaning activities; and
- Implementation of appropriate best practice methods in line with the GLA's SPG The Control of Dust and Emissions from Construction and Demolition (July 2014).

4. SUMMARY

4.1 This Sustainability Statement provides an overview as to how the proposed development at the Godwin and Crowndale Estate contributes to sustainable development in the context of the strategic, design and construction considerations.

4.2 Consideration has been given to the London Borough of Camden's Local Plan and the Greater London Authority's London Plan in the formulation of this statement. The overall development has been assessed using the GLA's supplementary planning guidance (SPG) 'Sustainable Design and Construction', providing a holistic sustainability approach for the building.

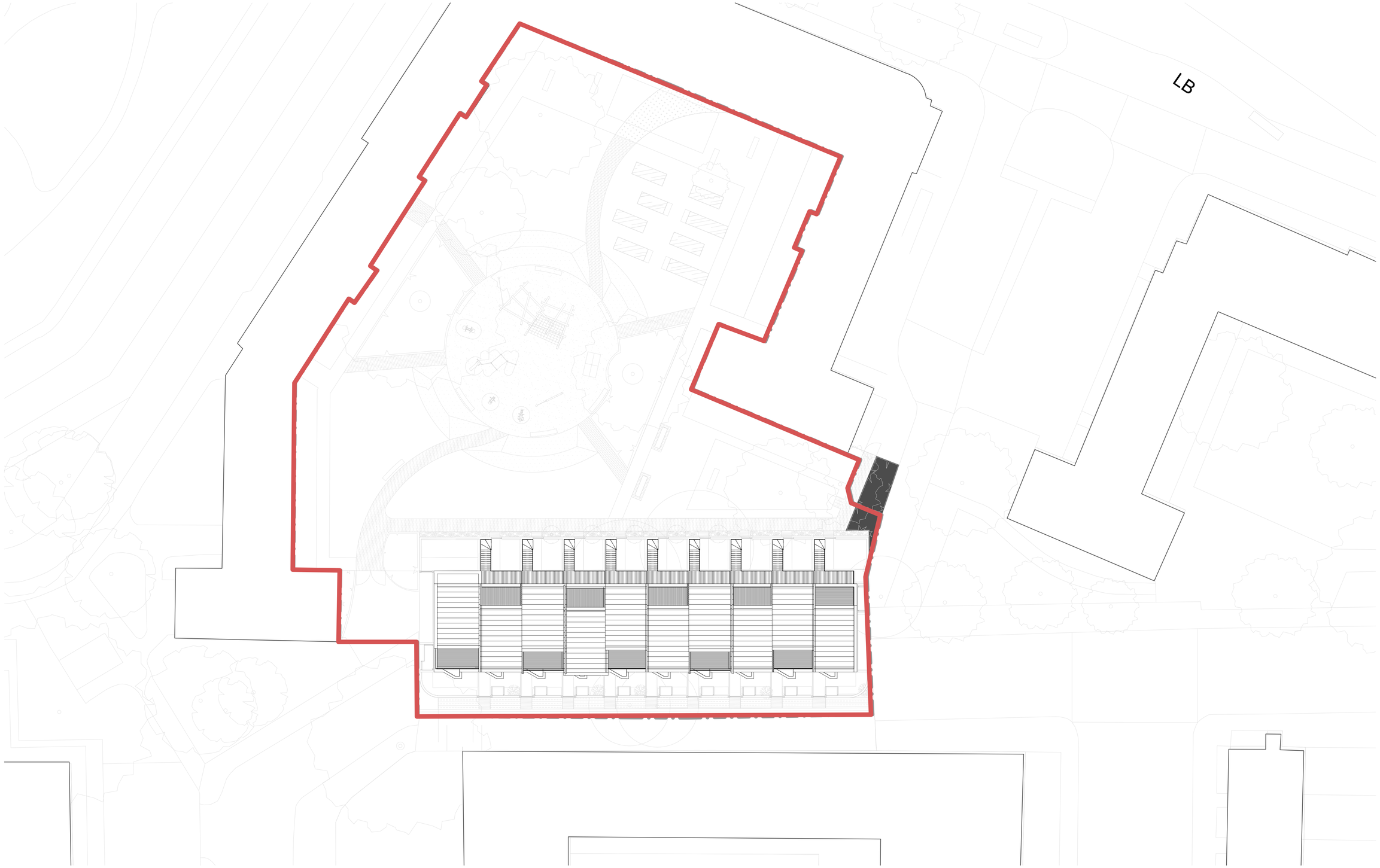
4.3 Section 3 of this statement demonstrates that the siting and design of the proposals support relevant policy relating to sustainable development. This shows that the proposed development:

- will develop a brownfield site, replacing an underused Multi-use Games Area (MUGA) and a private, hardstanding car park;
- is in a location with good access to public transport;
- will promote cycling and walking, and deter private car ownership;
- will employ Modern Methods of Construction (MMC), which will aid in minimising the environmental impacts of the proposals during construction, by reducing the time required on-site, and therefore minimising air and noise pollution associated with construction activities, as well as reducing waste arisings through the use of factory manufacturing techniques;
- will achieve the GLA's zero-carbon target, with an on-site CO_2 emissions reduction of 54.8% compared to the Part L:2013 baseline through energy efficient design, and the use of electric air source heat pumps (ASHPs) to provide space and water heating;
- will minimise internal water consumption to 105 litres per person per day;
- will aim to divert the demolition and construction waste from landfill where possible;
- will minimise the risk of overheating within the proposed development by following the GLA's recommended 'Cooling Hierarchy' approach;
- will incorporate measures to improve site biodiversity, including the retention of existing trees where possible supported by new tree and biodiverse planting;
- will reduce surface water runoff rates through the reduction of the area of hardstanding on-site, the provision of new landscaping, and the employment of planted raingardens and swales; and

- will have a negligible effect on local air quality, noise pollution, and water contamination.

4.4 Overall, the proposals for the scheme are in line with the principles of sustainable development as well as the policy requirements of the NPPF, the London Borough of Camden and the GLA, and will provide a development that seeks to promote these principles in operation.

A1. SITE PLAN



General Notes

1. Drawing indicates design intent only.
2. The contractor is responsible for taking and scheduling all dimensions on site.
3. Do not scale from drawings.
4. Report all discrepancies to the architect before proceeding.

Key Plan / Section

4m 8m 12m 16m 20m

N

INDICATIVE

Revision	Date	Description

Client

London Borough of Camden

SURFACE TO AIR

Unit 210, Metropolitan Wharf Building, 70 Wapping Wall, London, E1W 3SS
T +44 (0)203 727 3300 E info@surface-to-air.com
Registered office in England and Wales No: 05302392

Project

Godwin & Crowndale

Drawing Title

Proposed Site Plan

Scale: 1 : 200 @ A1 | Status: For Information | Checked By: Checker

Project	Origin	Role	Zones	Level	Type	Class	Number	Suitability	Revision
1674	S2A	A	01	XX	DR	00	100	S3	

01/04/2020 13:01:48

A2. WATER USAGE CALCULATOR

breglobal

Job no:	19-S003
Date:	14/08/2020
Assessor name:	
Registration no:	N/A
Development name:	Godwin and Crowndale Estate

PRINTING: before printing please make sure that in "Page Setup" you have selected the page to be as "Landscape" and that the Scale has been set up to 70% (maximum)

WATER EFFICIENCY CALCULATOR FOR NEW DWELLINGS - (BASIC CALCULATOR)

	House Type:	Type 1		Type 2		Type 3		Type 4		Type 5		Type 6		Type 7		Type 8		Type 9		Type 10	
	Description:	Typical Unit																			
Installation Type	**Unit of measure**	Capacity/ flow rate	Litres/ person/ day	Capacity/ flow rate	Litres/ person/ day	Capacity/ flow rate	Litres/ person/ day	Capacity/ flow rate	Litres/ person/ day	Capacity/ flow rate	Litres/ person/ day	Capacity/ flow rate	Litres/ person/ day	Capacity/ flow rate	Litres/ person/ day	Capacity/ flow rate	Litres/ person/ day	Capacity/ flow rate	Litres/ person/ day	Capacity/ flow rate	Litres/ person/ day
Is a dual or single flush WC specified?		Dual		Select option:		Select option:		Select option:		Select option:		Select option:		Select option:		Click to Select		Click to Select		Click to Select	
WC	Full flush volume	6	8.76		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00
	Part flush volume	3	8.88		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00
Taps (excluding kitchen and external taps)	Flow rate (litres / minute)	3	6.32		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00
Are both a Bath & Shower Present?		Bath & Shower		Select option:		Select option:		Select option:		Select option:		Select option:		Select option:		Select option:		Select option:		Select option:	
Bath	Capacity to overflow	180	19.80		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00
Shower	Flow rate (litres / minute)	8	34.96		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00
Kitchen sink taps	Flow rate (litres / minute)	4	12.12		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00
Has a washing machine been specified?		No		Select option:		Select option:		Select option:		Select option:		Select option:		Select option:		Select option:		Select option:		Select option:	
Washing Machine	Litres / kg		17.16		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00
Has a dishwasher been specified?		No		Select option:		Select option:		Select option:		Select option:		Select option:		Select option:		Select option:		Select option:		Select option:	
Dishwasher	Litres / place setting		4.50		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00
Has a waste disposal unit been specified?		No	0.00	Select option:	0.00	Select option:	0.00	Select option:	0.00	Select option:	0.00	Select option:	0.00	Select option:	0.00	Select option:	0.00	Select option:	0.00	Select option:	0.00
Water Softener	Litres / person / day		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00
	Calculated Use		112.5		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0
	Normalisation factor		0.91		0.91		0.91		0.91		0.91		0.91		0.91		0.91		0.91		0.91
Code for Sustainable Homes	**Total Consumption**		**102.4**		**0.0**		**0.0**		**0.0**		**0.0**		**0.0**		**0.0**		**0.0**		**0.0**		**0.0**
	Mandatory level		**Level 3/4**		-		-		-		-		-		-		-		-		-
Building Regulations 17.K	External use		5.0		5.0		5.0		5.0		5.0		5.0		5.0		5.0		5.0		5.0
	Total Consumption		**107.4**		**0.0**		**0.0**		**0.0**		**0.0**		**0.0**		**0.0**		**0.0**		**0.0**		**0.0**
	17.K Compliance?		**Yes**		-		-		-		-		-		-		-		-		-

A3. GENERAL NOTES

A3.1 The report is based on information available at the time of the writing and discussions with the client during any project meetings. Where any data supplied by the client or from other sources have been used it has been assumed that the information is correct. No responsibility can be accepted by Iceni Projects Ltd for inaccuracies in the data supplied by any other party.

A3.2 The review of planning policy and other requirements does not constitute a detailed review. Its purpose is as a guide to provide the context for the development and to determine the likely requirements of the Local Authority.

A3.3 No site visits have been carried out, unless otherwise specified.

A3.4 This report is prepared and written in the context of an agreed scope of work and should not be used in a different context. Furthermore, new information, improved practices and changes in guidance may necessitate a re-interpretation of the report in whole or in part after its original submission.

A3.5 The copyright in the written materials shall remain the property of Iceni Projects Ltd but with a royalty-free perpetual licence to the client deemed to be granted on payment in full to Iceni Projects Ltd by the client of the outstanding amounts.

A3.6 The report is provided for sole use by the client and is confidential to them and their professional advisors. No responsibility whatsoever for the contents of the report will be accepted to any person other than the client, unless otherwise agreed.

A3.7 These terms apply in addition to the Iceni Projects Ltd "Standard Terms of Business" (or in addition to another written contract which may be in place instead thereof) unless specifically agreed in writing. (In the event of a conflict between these terms and the said Standard Terms of Business the said Standard Terms of Business shall prevail.). In the absence of such a written contract the Standard Terms of Business will apply.