

HEAD OFFICE:

BAILEYGOMM Limited
39 High Street
Ware
Hertfordshire
SG12 9BA

Tel: 01920 468951

mail@baileygomm.co.uk

www.baileygomm.co.uk

SUSTAINABILITY STRATEGY

FOR

**LAND ADJACENT TO 300 KINGS ROAD
KINGS ROAD
READING
RG1 4HP**

REVISION: 1.0

DATE: 19 APRIL 2018

**CLIENT: TITAN PROPERTY
DEVELOPMENTS LTD**

NORTHERN OFFICE:

BAILEYGOMM Limited
Shotton Lane
Windmill Industrial Estate
Cramlington
NE23 3JU

Tel: 01670 593120

CONTENTS

PROJECT REVISION SHEET	2
1. INTRODUCTION	3
2. REDUCING CARBON EMISSIONS.....	3
3. SUMMARY	4

PROJECT REVISION SHEET**Land Adjacent To 300 Kings Road, Kings Road, Reading RG1 4HP****Sustainability Strategy****Revision: 1.0****Date of issue: 19 April 2018****Prepared by: BAILEYGOMM**

Revision	Details:	First issue	Author:	D Jackson
1.0	Date:	19.04.2018	Checked:	S Roberts-Eagles

Revision	Details:		Author:	
	Date:		Checked:	

1. INTRODUCTION

This statement outlines the energy efficiency, and low carbon and renewable energy technologies that will be considered to reduce the carbon footprint of the planned development at Kings Road, Reading. The development involves the construction of a new 14 Apartment Building, consisting of 1 Bed, 2 Bed & 3 Bed apartments including car parking provision.

The primary energy strategy guidance applicable to the site is the Reading Council Core Strategy (Adopted January 2008), in particular Section 4 Sustainable Construction, Policy CS1: Sustainable Construction and Design. This section states the requirement of the council with regards to carbon reduction:

“All developments of more than 10 dwellings or 1000m² floorspace incorporate on-site generation of energy from renewable sources and energy efficient design measures (including the use of CHP where appropriate) to off-set at least 20% of predicted carbon dioxide emissions from the estimated energy usage of the completed and occupied development”

To this end, the development will aim to achieve at least a 20% saving in CO₂ averaged over the entire development.

2. REDUCING CARBON EMISSIONS

The following hierarchy will be used to structure the approach to reducing energy use at Kings Road to effectively reduce carbon emissions:

- 1) **Be Lean** – Using less energy, in particular by adopting sustainable design and construction measures;
- 2) **Be Clean** – Supplying energy efficiently
- 3) **Be Green** – Using renewable energy.

Be Lean - Energy Efficiency Measures

To ensure the development will meet the required CO₂ it is important to employ low energy design principles to the fabric and fixed services before evaluating the use of low and zero carbon technologies.

The buildings will incorporate the following energy efficiency measures:

- Low energy LED lighting
- Double glazing
- Low air permeability
- Maximised daylighting
- Passive solar gains
- High efficiency Gas Boilers
- Intermittent Extract Fans
- Low Flow Water Fittings, providing a maximum consumption of 125 litres/person/day
- Accredited Construction Details

Be Clean – Supplying Energy Efficiently

This section evaluates the use of decentralised systems to provide clean energy to the development.

An assessment of the local district heating map through the Association for Decentralised Energy shows there are no local district heating supplies.

Due to the size of the development CHP is not a practical option due to cost & space restraints, CHP would require both space and maintenance which is not feasible due to the size of the site. There is a lack of base load as most apartments use combi-boilers, so the payback period for the CHP would be extended to the point where it would not be feasible.

Be Green – Using Renewable Energy

The energy mix may also include a form of renewable energy, to meet the 20% carbon reduction. Each renewable technology and its feasibility are briefly quantified below.

It is felt biomass and wind power would not be feasible. Biomass requires frequent deliveries and space for storage, which would potentially disturb the residents of both areas of the site. Wind power would not be feasible due to noise associated with its operation. Both of these technologies are more suited to an industrial site.

Air Source and Ground Source Heat Pumps both provide low grade heat, so their use would need to be carefully assessed as a large portion of energy will be used for hot water generation which generally requires high grade heat. It may also be difficult to seamlessly integrate a heat pump into individual heating systems.

Solar Thermal Water heating would be feasible for the two flats on the top floor but would not be able to serve the entire building.

Photovoltaics would be feasible on the site. Panels could be installed on the roof with the energy produced serving all flats in the case of photovoltaics.

3. SUMMARY

During the details design stage a full Part L model will be produced to accurately calculate the required energy mix.

To allow a full assessment of the correct low and zero carbon technologies to employ for the development, each technology will be assessed for its Potential Energy generation, Payback, Noise & Land use, Feasibility of exporting energy, Life cycle costs/ Maintenance issues and available grants with a conclusion presented for each technology.

CHP & Ground/Air source Heat Pumps are not feasible due to the lack of space, while Solar Thermal Water Heating is only feasible for the top two flats.

A CHP unit would also require a baseload to be designed, due to the development only being 14 apartments, the resultant baseload would be too small for a CHP unit.

From Review, PV Panels would be the best renewable source of energy for the site to use.

We have run some preliminary calculations and have allowed for one PV Panel per apartment, this allows the building, as a whole, to pass the 20% carbon reduction required by Reading Council.