



BUILDING SERVICES DESIGN

Energy and Sustainability Statement

For Proposed Development :

**Industrial Units : Stadium Trade & Business Park
Reading**

SVM-BSD Project Ref : 200515

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ISSUE & REVISION RECORD

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SVM-BSD have been appointed to prepare an energy and sustainability statement for the warehouse reinstatement project (Units 1A, 1B, 1C and 1D) at Stadium Way, Reading Stadium Trade & Business Park, Reading, RG30 6BX.

The purpose of this report is to classify the buildings low carbon, energy performance intentions which will reduce energy consumption, meet the energy demand efficiently and promote the most appropriate low or zero carbon technology energy solutions for the development.

This document has been issued to demonstrate compliance with the Target Emission Rate (TER) set by Building Regulations part L (2013) and the carbon reduction requirements stipulated by Reading Borough Council Carbon Plan : 2015 – 2020.

The Reading Borough Council Carbon Plan : 2015 – 2020, sets out the following target in relation to building energy performance and carbon emissions:

“New buildings must achieve a reasonable reduction in carbon emissions of at least 20 per cent measured against the relevant Target Emission Rate (TER) set out in the Building Regulations 2010 (as amended) (Part L). This will be achieved through the provision of appropriate renewable and low carbon energy technologies on site and/or in the locality of the development and improvements to the energy performance of the building. Where it can clearly be shown that this is not possible, offsite offsetting measures in line with the energy hierarchy will be provided.”

The Industrial unit/s will be constructed to achieve a reasonable reduction in carbon emissions of at least 20 per cent measured against the relevant Target Emission Rate (TER) set out in the Building Regulations 2010 (as amended) (Part L). This will be achieved through the provision of appropriate energy efficient and low carbon energy technologies on site and/or in the locality of the development and will also include improvements to the energy performance of the building. Where it can clearly be shown that this is not possible, offsite offsetting measures in line with the energy hierarchy will be delivered.

Please refer to the proposed building layout below and the associated floor area's for each unit :

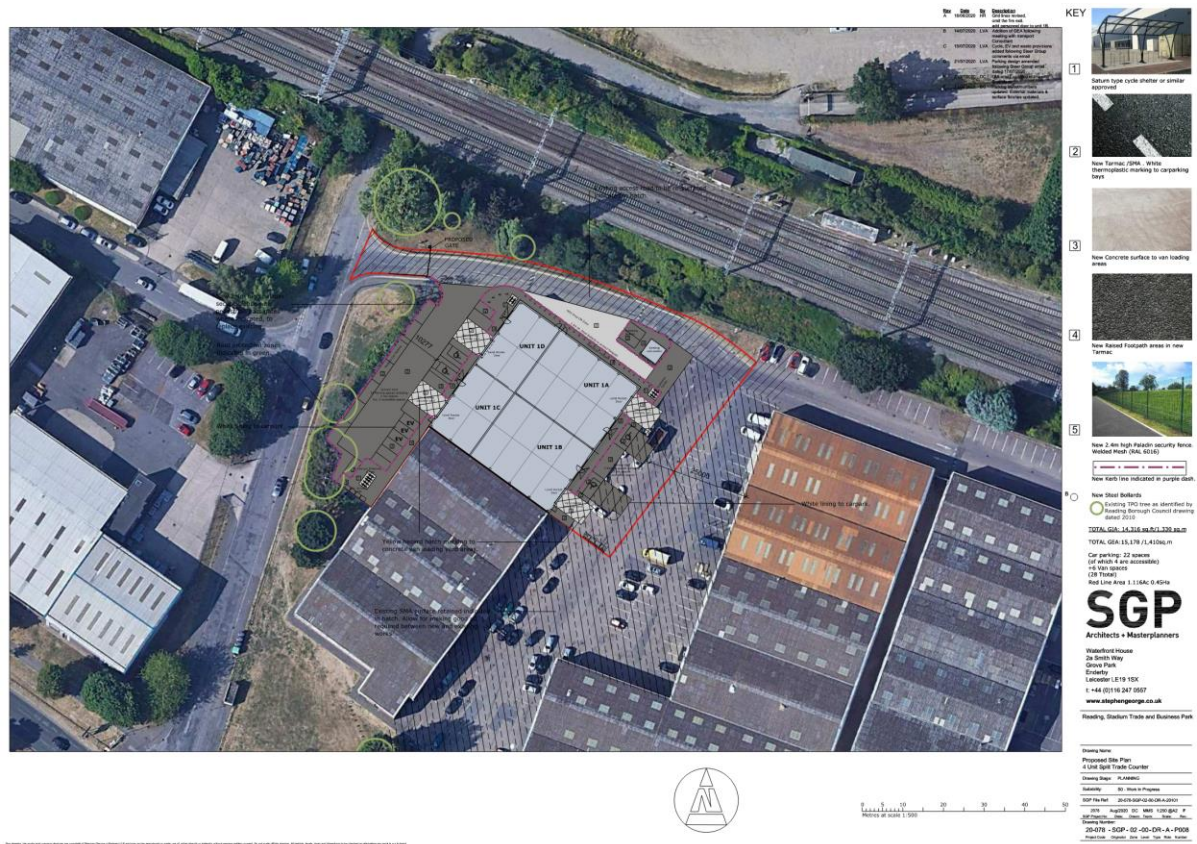


Fig. 1 Proposed General Arrangement – Ground level : Main Industrial unit split into 4Nr separate Tenant demises.

Floor areas :

Unit 1A	4,779 sq Ft / 444 mtrs sq
Unit 1B	4,779 sq Ft / 444 mtrs sq
Unit 1C	2,379 sq Ft / 221 mtrs sq
Unit 1D	2,379 sq Ft / 221 mtrs sq

The site will also benefit from 22Nr car parking spaces of which 4Nr are accessible and 3Nr electric vehicle charging points. In addition, the site also includes 6No. commercial vehicle (van) parking spaces.

This energy statement has considered the total regulated energy use for the site (single unit and / or four smaller units option) and associated carbon emissions.

A hierarchical approach has been adopted to structure the proposed energy and carbon reductions associated with the industrial units as summarised below:

- The project design will classify the baseline energy demand & carbon dioxide emissions. The energy assessment shall include a computation of the building's energy demand and carbon dioxide emissions as per the national calculation methodology set out by the part L of the building regulations. The baseline is set by Building Regulations Part ADL2A ADL2B: 2013 target emission rate.
- **Be Lean:** The project design and installation will reduce the demand for energy and subsequent carbon dioxide emissions through low energy design efficiencies including but not limited to energy management, high efficiency building fabric and associated services.
- **Be Clean:** The project will reduce the carbon dioxide emissions by using LED low energy lighting with associated lighting control, natural ventilation, inverter drives (roller shutter doors and toilet extract, water management) and energy management.
- **Be Green:** The project will reduce the Carbon Dioxide emissions through the enhanced building fabric initiatives (U values and G values) whilst also benefitting from rooflights. With reference to this project the building fabric U values and G values (windows, doors and roof lights), provide natural light which saves energy that would otherwise be required by the artificial lighting systems. The high-performance roof lights provide good levels of natural light balanced whilst avoiding excessive solar gain. With this in mind, the amount of heat entering the building has been considered and the polycarbonate roof panels provide a low solar heat gain coefficient (g-value) to avoid exceeding the solar gain benchmark.

The baseline carbon emissions are set by building Regulations Part L (2013) : Target Emission Rate (TER). The TER particular to this project is determined from a notional building with identical geometry, location and orientation to the actual building, built to a specification set-out in part L of the building regulations (Table 5 ADL2A 2013).

The demand for energy will be reduced by improving the building fabric and efficiency of the building services such that the development will exceed the performance required by 2013 part L compliant site. The following, low energy design initiatives and energy efficiency measures will be incorporated into the building design and utilized to reduce energy:

Low energy design principles will be utilized and will incorporate at least the following energy efficiency measures: -

- Very Low U-Values for walls, floors, roofs, etc, well below Building Regulations minimum. The suggest U-values are as follows: -

Element	U-value	G-value	Light transmittance
External Wall.	0.20 w/ m ² k from slab to 3,000mm AFFL and 0.26w/ m ² k from 3,000mm AFFL to start of roof		
Ground Floor.	0.22 w/ m ² k		
Roof.	0.18 w/ m ² k		
Polycarbonate Roof lights.	1.3 w/ m ² k		30%
Roller shutter doors.	0.15 w/ m ² k		
Polycarbonate glazing.	0.15 w/ m ² k	0.36 w/ m ² k	19%

- Low energy high efficacy LED luminaries with Intelligent lighting controls.
 - Daylight dimming of luminaries in all areas with access to daylight.
 - External LED lighting with appropriate colour rendition to mitigate disruptive glare and light pollution. The external lighting will use photocell control and timeclock over ride. The external lighting will not operate between 11:00pm and 7:00am.
 - Occupancy control as appropriate to each space.
- High efficiency electric panel heating in easily accessible toilets and toilet lobby areas only.
- The electrical installations and associated building attendances will include sub metering in compliance with Building Regulations : Part 'L'.

- High efficiency electrical point of use water heating to serve welfare space and toilet accommodation.
- Natural ventilation throughout and energy efficient toilet extract fans operated via the PIR with 20min run on timer.
- Water metering (with pulsed output) and water management systems will be employed.
- Electric vehicle charging points will be provided.

With reference to the project building design, including high efficiency building materials, roof lights and low energy high efficiency building services (LED lighting with associated intelligent lighting control, natural ventilation, water management, metering (in compliance with Building Regulations Part : 'L2B') the proposed design is inclusive of minimum efficient standards in conformity with current Regulations and the Building Services Compliance Guide has target the property as **EPC : B (81 to 91 points)**.

With the above in mind, the Landlord will provide a tenant handbook which will clarify Tenant Cat B fit out requirements in compliance with energy efficiency initiatives and low carbon design.

This report has used best practice principles to create a sustainable energy solution and carbon reduction of 20% when compared to the Building Regulations 2013 Target Emission Rate.