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Client: BLACKWIN LIMITED

Project: CALMOUNT ROAD - WAREHOUSING / LOGISTICS, OFFICE AND CAFÉ / RESTUARANT DEVELOPMENT

Title: DESCRIPTION OF THE PROPOSED UTILITIES & ENERGY SUSTAINABILITY REPORT

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P3	Issued for Planning	ST	FB	NP	NP	04/04/22
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P1	PRE-PLANNING – For Comment	ST	CG	NP	NP	28/02/22

INTRODUCTION

Blackwin Limited, intend to apply for planning permission for development at a site at Calmount Road and Ballymount Avenue, Ballymount Industrial Estate, Dublin 12.

The proposed development consists of the following:

- Construction of 5 no. warehouse / logistics units (Units 1, 2 3, 4 and 6), including ancillary office use and entrance / reception areas over two levels, with maximum heights of c. 17.09 metres and a combined total gross floor area (GFA) of 20,158 sq.m;
- Each warehouse / logistics unit includes car parking to the front, and service yards, including HGV loading bays, to the rear of each unit. Signage zones are proposed for each unit. A total of 200 no. car parking spaces and 110 no. cycle spaces are provided for the 5 no. warehouse / logistics units;
- Construction of 3 no. 3 storey own-door office buildings (Block 5A, 5B and 5C) with maximum heights of c. 13.45 metres and a combined GFA of 4,194 sq.m. Signage zones are proposed at the entrances to the buildings. A total of 77 no. car parking spaces and 50 no. cycle parking spaces are provided for the proposed office buildings;
- Construction of a café/restaurant unit with a maximum height of c. 6.09m and a GFA of 213 sq.m to be located in the south western section of the site. The proposal includes signage for the unit, associated outdoor seating and a bin store. 14 no. car parking spaces and 10 no. cycle spaces are provided for the café/restaurant unit;
- The proposal includes 5 no. ESB substation buildings;
- The development is to be accessed off Ballymount Avenue and Calmount Road and includes for alterations and upgrades to the public footpaths and road. The development provides for vehicular and service access points, associated internal access roads, circulation areas and footpaths; and
- The proposal includes landscaping and planting, entrance signage, boundary treatments, lighting, PV panels, green roofs, underground foul and storm water drainage network, including connections to the foul and surface water drainage network on the public roads, attenuation areas and all associated site works and development.

We have divided the report into two sections: Utility Infrastructure and Energy & Sustainability.

Figure 1- Aeriel view of the Application Site

1 SECTION 1: UTILITY INFRASTRUCTURE

The utility infrastructure to serve the proposed Warehouse/ Logistic, Office and Café/ Restaurant Development will be tied into the existing service provider network systems within the Ballymount area. The new entrance to the proposed Warehouse/ Logistic and Café/ Restaurant development is from Calmount Road and for the own door office units from Balymount Avenue. It is envisaged services will enter the development at the site entrances availing of existing services already in place.

The site services drawing (refer to dwg P048-PMEP-00-00-DR-ME-01) is provisional only and is subject to approval/discussion with each utility provider. The service connections will be provided by or behalf of the statuary undertaker under their statutory powers.

The site services drawing has been populated to include ESB, TELCO, EIR and Gas services and quantity indicated are an estimation based on previous experience with the various utility providers.

(Note: The description of utility services to the development as outlined below is subject to utility applications being completed and final design from each service provider issued).

1.1 ELECTRICITY (ESB NETWORKS)

ESB Networks have been contacted and an existing ESB network map for the area surrounding the proposed development has been obtained.

There are existing ESB Networks infrastructure in the vicinity of the site including:

There are existing overhead Medium Voltage (MV) power lines that cross the north-west of the proposed site, which is distributing to two points of distribution as indicated on the M&E services drawing (refer to dwg P048-PMEP-00-00-DR-ME-01).

The development incorporates dedicated ESB substation for each building/ office block area and allows for all substations to be interconnected by means of ring feed providing redundancy within the ESB network.

In compliance with the current ESB guidelines, the location and design of the proposed buildings has been considered. However, based on the location of the development, the existing overhead line needs to be relocated / re-routed to allow for one of the Warehouse/ Logistic units to be built. We do not envisage any implications with the overhead line and the proposed relocated / re-routed MV Feeds.

All MV and LV distribution will be in the form of XLPE (cross-linked polyethylene) cabling compared to the use of PVC (polyvinyl chloride). XLPE has a higher current capacity, longer service life, flexible, withstand higher operating temperatures and more environment friendly compared to PVC.

1.2 BROADBAND (EIR)

EIR have been contacted and an existing EIR map for the area surrounding the proposed development has been obtained.

There is existing EIR Networks infrastructure in the vicinity of the site. A formal application cannot be made at this stage but will be made as soon as the planning permission is granted.

The EIR infrastructure will allow for multiple broadband providers. 2No. independent ducted routes have been allowed for to ensure for more than one service provider.

Provision for 2 No 100mm communication ducts will be installed at the site entrance and will be distributed within the proposed development. EIR services will comprise a JB4 chamber and ducting as indicated (refer to dwg P048-PMEP-00-00-DR-ME-01). All chambers will be suitably traffic rated for the area in which they are being installed.

1.3 SITE LIGHTING

Each light fitting will be controlled via an individual Photoelectric Control Unit (PECU). All lamps selected will have an energy efficient, DALI type, drivers and as a result are dimmable. Dimming of the lamp will be controlled via an astronomical clock which is built into the circuit board of the luminaire and including motion sensing.

Refer to the site lighting layout and lux levels drawings, detailed on P048-PMEP-00-00-DR-E-01 & P048-PMEP-00-00-DR-E-02 respectfully. The light fittings on Calmount road and Ballymount avenue are existing and are not considered in this report.

For details of the proposed site lighting design, please refer to the Site Lighting Report and the site lighting drawings included with this application.

1.4 GAS SUPPLY (GAS NETWORKS IRELAND)

There is an existing gas main located along the road / footpath of Calmount Road and Ballymount avenue.

No connection is planned for the various developments although a provisional main pipe location has been selected to run up to each site for future connections to the new facilities (refer to dwg P048-PMEP-00-00-DR-ME-01).

A connection will be installed from the existing gas main on Calmount Road and Ballymount avenue to a designated location agreed with Gas provider, a provisional location will be selected accordingly.

2 SECTION 2: ENERGY & SUSTAINABILITY

This section outlines the proposed energy efficiency and sustainability objectives under consideration for the proposed Warehouse/Logistics industrial Unit development and associated office development.

The project is to be designed and constructed to achieve LEED Gold Certification and therefore all design and construction activity must be carried out to LEED requirements to ensure goal compliance. The proposed energy and sustainable objectives will contribute to the measures for targeting the LEED Gold Certification.

The options set out are all potentially viable options and it is envisaged that there is sufficient flexibility in the planning assessment to allow for majority of these options to be implemented.

The sustainable options being investigated assist in achieving reduced overall energy consumption and usage within the building and within the overall site. The development will also comply with Nearly Zero Energy Building (NZEB) Standards and Part L of the Building Regulations.

2.1 NATURAL VENTILATION

Natural ventilation is being evaluated as a ventilation strategy to minimise energy usage.
The main advantages of natural ventilation are:

- Low noise impact for occupants and adjacent units;
- Completely passive, therefore no energy required with associated installations;
- Minimal maintenance required;
- Reduced environmental impact as minimal equipment disposal over life cycle;
- Full fresh air intake resulting in healthier indoor environment.

2.2 MECHANICAL VENTILATION HEAT RECOVERY

An alternative to natural ventilation being considered is Mechanical Ventilation Heat Recovery (MVHR). The MVHR provides continuous fresh air supply to the relevant areas and recovers heat from the waste air being exhausted from the areas. This reduces the energy consumption that would be needed for tempering and re-heating incoming supply air. The supply air is ducted to the ceiling mounted fan coil units where it is mixed and distributed into the office areas.

2.3 VRF AIR CONDITIONING

The space comfort services within the office is proposed to be met via an HVRF air condition system. This shall provide both heating and cooling to ducted AC units located in the ceiling void within the office areas.

An external VRF condenser shall provide the heating and cooling through refrigerant gas to an internal hybrid branch controller (HBC). With water from the HBC to the indoor units.

Fan Coil units shall be located to provide adequate zone control in open plant spaces, with individual FCU's for cellular offices and meeting rooms.

Each fan coil will also have a condensate drain piping system with is also routed through the false ceiling. Each fan coil unit shall consist of three/four, ducted branches, which shall supply heated/chilled air to the office space, via a plenum box and 4-way / swirl type supply grille.

2.4 AIR TO WATER HEAT PUMPS

An air to water heat pump is being considered to provide space heating to WC's, stair cores and domestic hot water to all areas of the development considering all offices areas. An air source heat pump is a system which transfers heat from outside to inside a building. The air to water heat pump absorbs heat from outside air and releases it inside the building, via radiators, underfloor heating and/or domestic hot water supply. Air Source heat pumps have an efficiency of around 300%, making them highly energy efficient heating source.

2.5 VARIABLE SPEED DRIVES

Variable Speed Drives (VSDs) are being considered as they are an energy efficient method of running pumps and fans resulting in reduced energy consumption and thus lower carbon emissions to the environment.

2.6 ELEMENTAL U-VALUES AND AIR INFILTRATION

Lower U-values and improved air tightness will minimise heat losses through the building fabric, reducing energy consumption and thus minimise carbon emissions to the environment. The U-values being evaluated

will, at minimum, be in line with those required by the current regulatory requirements of the Technical Guidance Documents Part L, titled *"Conservation of Fuel and Energy Buildings other than Dwellings"*.

Thermal bridging at junctions between construction elements and at other locations will be minimised in accordance with Paragraphs 1.3.3.1 and 1.3.3.2 outlined in the Technical Guidance Documents Part L.

2.7 POINT OF USE ELECTRIC WATER HEATERS

The use of point of use electric heaters would mitigate the standing heat losses associated with centralised hot water storage systems and their pipework. This in turn reduces the load on the primary heat source.

2.8 BUILDING ENERGY MANAGEMENT SYSTEMS

A Building Energy Management Systems (BEMS), is being considered for the automatic monitoring and control of a range of building services including heating, ventilation, fire and general alarms, electric vehicle charging and lighting. A BEMS can provide potential energy and cost savings of:

- Optimising the efficient operation of plant
- Monitoring and data logging energy usage of the building
- Increasing energy awareness by the building's users
- Prioritizing low / green energy systems over fossil fuel energy sources

2.9 PV SOLAR PANELS

PV solar panels offer the benefit of reducing fossil fuel consumption and carbon emissions to the environment and converts the electricity produced by the PV system (which is DC) into AC electricity.

The inverter converts the electricity generated from the PV Panels from DC to AC. Electricity is then brought from the inverter to the main circuit breaker or fuse board, which supplements the electrical demand within the dwelling. This can result in cost saving with regards to the overall energy consumption within the dwelling.

The panels are typically placed on the South facing side of the building for maximum heat gain.

Future allowances will be considered for a PV installation for the Warehouse/ Logistic and Office buildings, within the development. This will allow for future readiness (tenant) or improve/ assist on achieving the NZEB and Part L requirements.

2.10 SMART METERING

Smart metering will be allowed for all MV and LV distribution DBs with the function of interfacing and communicating to the site's building energy management system (BEMS).

2.11 LIGHTING

The proposed lighting installation is in line with the measures outlined in this document along with IS EN 13201-1 2015 & IS EN 13201-2 2015, the Society of Light & Lighting Guide 06, Technical Guidance Document for Reduction of Obtrusive Light & Light Pollution and South Dublin County Council (SDCC) Public Lighting Specification.

As a result, the choice of the most appropriate LED street lighting in addition to lighting controls to provide the site lighting requirements will be based on the following:

- LED Fittings: LEDs have extremely good colour rendering capability, long lifespans, and excellent energy performance. Where possible throughout the site, the use of LEDs shall take preference over other light sources as a means of providing controllable, suitable and energy efficient lighting.

We are also evaluating a number of lighting control methods such as:

- Time Control System: These controls can be set up to switch on and off the lighting based on the expected occupancy levels within areas and have an override available using a light switch
- Daylight harvesting control: This type of control is based on photocell control, which detects the amount of light available. They can be used in corridors, reception areas and other open areas to turn lights on, off and/or dim as required.
- Dimming function: Similarly, to Daylight Linked Controls and using photocell control, the photocell is connected to the luminaires to maintain a pre-set lux level at the working plane areas throughout the day. This is especially useful in the warehouse areas where there is the opportunity of natural light contribution from translucent sheeting/ panels.

2.12 POWER FACTOR CORRECTION

Most electrical plants/ installations have inductive loads. These inductive loads increase the power factor (drops below 1) and creates reactive power in the system. Reactive power is losses and adds no value to the electrical system but only increases the Apparent power in the system. Thus, increasing the load that the Utility provider must supply and the consumer must pay for and gets no use from it.

Power Factor Correction compensates for the lagging current by applying a leading current, whereby reducing the power factor to close to unity and reducing costs and losses in cables, transformers and protection devices. Power factor correction >0.95 will be installed on the incoming side of the installation and located at the main distribution board.

2.13 E-CAR CHARGING POINTS

E-car chargers will be complete with the latest version of the open charge point protocol (OCPP) and will also support a user identification system such as radio frequency identification (RFID). The system will operate on a single or double charge point charger. A full re-charge can take from one to eight hours using a standard charge point.
Besides the minimum requirements for the E-car charging ready (10%), all staff parking spaces is planned future ready for E-car charging. All necessary wireways (ducts, trenches, etc) will be catered for the present and future installation.

HGV charging has been considered for 50% at all dock doors of the development. All wireways and infrastructure will be installed internally.

CONCLUSION

Section 1: UTILITY INFRASTRUCTURE:

Based on the initial review, there is sufficient utility infrastructure in the area for the Warehouse/ Logistic, Office and Café/ Restaurant development at Calmount Road and Ballymount Avenue, Ballymount Industrial Estate, Dublin 12.

Section 2: ENERGY & SUSTAINABILITY:

The potential energy efficient options detailed above are all being evaluated at present. The options listed above will be assessed and confirmed at detail design stage.

The proposed energy and sustainable options must be carried out to LEED requirements to ensure goal compliance targeting the LEED Gold Certification.

Ensuring compliance with the requirements of Part L 2021, the proposed energy strategy as detailed in this report is intended to achieve a provisional BER certification of "A" rating. Demonstrating Part L compliance, in accordance with NEAP, the proposed development BER rating has been assessed using the *IES VE 2021 - VE Compliance: 7.0.013.0.*

Baring in mind that the BERs could change/ be revised, in the future, due to software updates and improvements to design methodology and revised electricity energy inputs.