

DESCRIPTION OF PROPOSED UTILITIES & SUSTAINABILITY STATEMENT

Description of proposed utilities & Sustainability Statement for the Proposed strategic housing development at Dunshaughlin East, Dunshaughlin, Co. Meath.

Document No: 17008-E-ES-200
Issue: Planning Application
Date: 17th December 2018
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1. INTRODUCTION

The development consists of 913 No. residential units. The residential units comprise of semi-detached houses, duplex units and apartment blocks. The neighbourhood centers comprise of gym/healthcare space, community facility, retail units and crèche facilities. The utility infrastructure to serve SHD development shall be tied into the existing service provider network system installed within the development to the south of the SHD site. It is envisaged services shall be brought to this phase via the main vehicular access road within the development.

2. ESB

ESB network distribution is the only source of electricity within the development. Provision for 2No 125mm red duct shall be provided to allow for ESB services to be brought from previous phases of development to the south in the SHD development. It is envisaged that 2No ESB unit subs are sufficient to serve the development. Each unit sub shall be centrally located to the surrounding areas to limit ESB runs. A 125mm ESB duct shall be provided from the sub-station to the ESB mini-pillars and cabinet location. Services to the home shall be via a mini-pillar, 1 no minipillar serves up to 8No homes. Services shall terminate within the ESB meters positioned on the external party walls of each house. An ESB cabinet shall be provided at each apartment block to include an ESB cut-out point. Services shall be ducted from the cabinet to a centralised meter location within the basement areas.

3. EIR

EIR services provide communications to the development (ie. broadband, phone, TV etc.). Provision for 2No 110mm EIR ducts shall be provided to allow for EIR services to be brought from previous phases of development to the south in the SHD development. EIR services comprise of chambers and ducting. As the development is shared surface chamber type will vary depending on location. All chamber shall be suitably traffic rated for the area in which they are being installed. A 36mm EIR duct shall be provided from the nearest chamber to the home, a maximum of 10No houses per chamber. EIR Services shall terminate within the EIR ETU box positioned on the external party walls of each house. An EIR cabinet shall be provided within each apartment block and services shall be distributed to each apartment from this location.

4. VIRGIN MEDIA

Virgin media services provide communications to the development (ie. broadband, phone, TV etc.). Provision for 2No 110mm VM PVC ducts shall be provided to allow for VM services to be brought from previous phases of development to the south in the SHD development. VM services comprise of chambers, Node cabinets and ducting. Node cabinets are required to amplify the signal within the development. Each node pillar requires a 15amp LV supply.

As the development is shared surface chamber type will vary depending on location. All chamber shall be suitably traffic rated for the area in which they are being installed. A 50mm VM duct shall be provided from the nearest chamber to the home, a maximum of 10No houses per chamber. VM Services shall terminate within the VM ETU box positioned on the external party walls of each house. A virgin media cabinet shall be provided within each apartment block and services shall be distributed to each apartment from this location.

5. SITE LIGHTING

The site lighting has been designed to provide a safe environment for pedestrians, cyclists and moving vehicles, to deter anti-social behaviour and to limit the environmental impact of artificial lighting on existing flora and fauna in the area. All lamps selected shall have a DALI ballast and as a result are dimmable. Dimming of the lamp shall be controlled via an astronomical clock which is built into the circuit board of the luminaire. This clock is standard in all external light fittings and it determine when the lamp should be switched on/off based on time and date. All lighting shall have a pre-setting to dim by 30% post curfew to limit the amount of upward sky glow at night.

6. SUSTAINABILITY STATEMENT

Our office are the mechanical and electrical design engineers for the proposed residential scheme SHD on the Dublin side of the R147 outside Dunshaughlin town. We have considerable design experience on residential schemes which achieve all of the energy efficiency of the Part L Regulations in tandem with the architectural details.

By the time the proposed scheme is completed, subject to planning, it will be very close to the activation date for the new 2017 Part L Building Regulations, which are aligned with near zero passive dwelling standards. There is an emphasis on the embodied qualities of the dwellings to maximise their performance and minimise their energy footprint. Passive house principles will be adopted to reduce the energy demand with features including:

- superior levels of insulation,
- increased levels of air tightness,
- improved Low E windows
- Use of refined building details that reduce heat loss and minimise thermal bridging.

With the greatly improved levels of air tightness achieved a heat recovery ventilation (HRV) system is also proposed to be installed in the proposed units to minimise the heat loss associated with fresh air delivery into the units. The system installed tempers the incoming fresh air with the outgoing stale discharge.

All of the above factors combine to deliver houses and apartments that are the benchmark for communal accommodation and fall within the definition of Passive house performance. From a space heating measure the houses need to consume less than 1.5 litre of heating oil, per square meter, to be considered passive. This equates to circa 15 kWh/m².yr. To achieve such high performance levels the proposed apartments will deliver the following enhancements of the 2011 Part L Building Regulations:

- Air tightness 60% better than Regulations
- Windows 30% better than Regulations

Throughout the scheme PV panels will be installed to deliver the renewable energy target and will be installed on a per unit basis with a dedicated cluster of panels wired back to the consumer board. The power off the PV panels will be streamed with the incoming grid supply and used as the lead energy source. Typically the PV panel output will be used for the background electrical loads (heat recovery ventilation, fridges, small appliance charging etc.). Over the course of a year the output off the PV panels would be the equivalent of €200 of grid demand.

To deliver the most energy efficient dwellings the majority of the principals are embodied in the design and construction of the envelope and the mechanical systems therein. At the prevailing best practice, which the SHD will deliver, the economical and practical benefits of insulation, air tightness and thermal bridging have now plateaued and the savings to be achieved on space heating demand are negligible. This is reflected in the fact that twice as much energy will be used to generate hot water as opposed to heating the dwelling and this ratio is more pronounced in apartments, with their reduced exposed envelope. As reflected in the BER rating process the electrical installation has little bearing other than low energy lights but these efficiencies will be extended to common areas and under ground parking with occupancy sensors for the lights (low energy) to minimise common area energy demand.

With consideration to the future provisions will be made on site for the installation of e-car charging points. For the houses / duplex units ducting will be installed to the assigned parking space. In the apartments it is not practical to cable back to the apartments and the supplies will come off the landlord supplies and the charging points will have readers that will facilitate billing back to the user.

The majority of the units on site will achieve an A2 BER rating with a cumulative energy demand of less than 50 kWh/m².yr. While the scheme will not be certified as passive it will deliver the associated levels of efficiency and cost effectiveness.