Client: CASTDALE LTD

Project: RESIDENTIAL DEVELOPMENT at GLENCAIRN,

MURPHYSTOWN WAY

DUBLIN 18

Title: DESCRIPTION OF THE PROPOSED UTILITIES &

ENERGY SUSTAINABILITY REPORT

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Revision	Purpose	Originated	Checked	Reviewed	Authorised	Date
P8	*Planning*	RF	RH	RH	NP	29/08/18

1 INTRODUCTION

The proposed residential development at Glencairn, Murphystown Way, Dublin 18 consists of detached, semi-detached, terrace houses and apartment blocks and a creche.

The utility infrastructure to serve the proposed Glencairn Residential development will be tied into the existing service provider network systems along Murphystown Way. The Irish metro/rail track crosses the entrance to the proposed development. Utility providers have made provision by means of ducts to serve the development which are already in place. It is envisaged services will enter the development at the site entrance availing of existing services already in place.

The site services drawing (refer to dwg P014-PMEP-00-00-DR-ME-01) is provisional only and is subject to approval/discussion with each utility provider. The site services drawing has been populated to include ESB, Gas, Virgin Media and EIR 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).

2 GAS

There is an existing 180 4 bar GNI (Gas Network Ireland) main pipe along the Murphystown Way. A connection has been installed from the existing gas main to the site entrance and is capped at the site entrance. High pressure gas mains will be brought into the development and terminate in a district regulating installation (DRI) unit. It is envisaged that 1No district regulating installation (DRI) unit will be required, a provisional location has been selected (refer to dwg P014-PMEP-00-00-DR-ME-01).

From the DRI unit, low pressure gas main will be distributed throughout the development. The houses will have GNI meters positioned on the external walls and apartment blocks will have centralised meter locations. These centralised meter locations shall be located in basement areas or at ground level within dedicated meter rooms.

3 ELECTRICITY

Provision for 6No 125mm red MV ducts has been provided at the site entrance. ESB services will be brought from the site entrance and terminate in the ESB sub-stations within the proposed development. It is envisaged that 3No ESB sub stations will be required to serve the development. The sub-stations will be centrally located to the surrounding areas to limit ESB runs. A 125mm ESB duct will be provided from the sub-station to the ESB mini-pillars and client meter cabinets as indicated on the site services drawing (refer to dwg P014-PMEP-00-00-DR-ME-01). Services to the home will be from a local mini-pillar (1 no mini-pillar serves up to 10No homes). ESB services will terminate within the meter cabinet positioned on the external wall of each house.

An ESB cabinet will be provided at each apartment block to include an ESB cut-out point. Services will be ducted from the cabinet to centralised meter locations within the basement areas (refer to dwg P014-PMEP-00-00-DR-ME-01).

4 EIR

Provision for 4No 100mm communication ducts has been installed at the site entrance and will be distributed within the proposed development. EIR services will comprise of JB4 chambers and ducting as indicated (refer to dwg P014-PMEP-00-00-DR-ME-01). All chambers will be suitably traffic rated for the area in which they are being installed. A 36mm EIR duct will be provided from the nearest chamber to the home (a maximum of 12No houses per chamber). EIR Services will terminate within the EIR ETU box positioned on the external walls of each house.

EIR cabinets will be provided within each apartment block and EIR services will be brought into the basement and terminate within the EIR distribution unit and distributed to each apartment from this locations (refer to dwg P014-PMEP-00-00-DR-ME-01).

5 VIRGIN MEDIA

Provision for 4No 100mm communication ducts has been installed at the site entrance and will be distributed within the proposed development. VM services comprise of FW3 chambers, Node cabinets and ducting. Node cabinets are required to amplify the signal within the development. Each node pillar requires a 15amp LV supply.

All chambers will be suitably traffic rated for the area in which they are being installed. A 50mm VM duct will be provided from the nearest chamber to the home (a maximum of 10No houses per chamber). VM Services will terminate within the VM ETU box positioned on the external walls of each house.

Virgin Media cabinets will be provided for each apartment block with services distributed to each apartment from this location (refer to dwg P014-PMEP-00-00-DR-ME-01).

6 SITE LIGHTING

Each light fitting will be controlled via an individual Photoelectric Control Unit (PECU). All lamps selected will have a DALI ballast 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. This clock is standard in all external light fittings and it determines when the lamp will be switch on/off based on time and date. All lighting will be pre-set to dim by 30% post curfew to limit the amount of light pollution.

Refer to the site lighting layout and lux levels drawings are detailed on P014-PMEP-00-00-DR-E-01 & P014-PMEP-00-00-DR-E02.

7 ENERGY & SUSTAINABILITY

This section outlines the proposed energy efficiency and sustainability objectives under consideration for the proposed residential development.

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 one or more of these options to be implemented.
The sustainable options being investigated assist in achieving reduced overall energy consumption and usage within the buildings.

The development will also comply with Part L of the Building Regulations.

7.1 Condensing Boilers

Condensing boilers are being evaluated as they have a higher operating efficiency, than standard boilers which results in lower fuel consumption. The net result is lower greenhouse gas emissions per kilowatt of output to the environment.

7.2 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.

7.3 Mechanical Ventilation Heat Recovery

Mechanical Ventilation Heat Recovery (MVHR) will be considered in order to provide ventilation with low energy usage. The MVHR reduces overall energy, and ensures a continuous fresh clean air supply.

7.4 Air to water Heat Pumps

An air to water heat pump is being considered to provide space heating and domestic hot water. 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.

7.5 Exhaust Air Heat Pumps

An exhaust air heat pump is being considered to provide mechanical ventilation, space heating and domestic hot water. An exhaust air heat pump (EAHP) extracts heat from the building and transfers the heat to the supply air, domestic hot water and/or space heating system (underfloor heating / radiators).

An exhaust air heat pump will extract heat from the buildings via a ventilation system. Air is drawn through ducts to the heat pump from the bathrooms, utility and kitchen areas. The heat from the exhaust air is then absorbed and used to heat domestic hot water and space heating. The cold waste air is discharged to outside through another duct. The additional heat generated internally from lighting, people and domestic appliances is also utilised through heat recovery.

7.6 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 1.2.4.2 and 1.2.4.3 outlined in the Technical Guidance Documents Part L.

7.7 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 inverted to the main circuit breaker or fuse board, which supplements the electrical demand within the dwelling. This can result in cost saving in regard 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

7.8 Combined Heat & Power

The use of Combined Heat and Power (CHP), is being evaluated as a potential source of energy for the apartments within the proposed Glencairn Residential Development.

CHP is an energy efficient technology that generates electricity and captures the heat that would otherwise be wasted to provide useful thermal energy—such hot water—that can be used for space heating, and/or domestic hot water.

This technology is being considered to provide space heating and domestic hot water for the apartments.

7.9 ECAR Charging Points

Within the Glencairn development the provision of ecar charging points are being considered. Electrification of transport is vital to decarbonise society and reduce oil dependency. Ecar was established in 2010 by the ESB to support the changing infrastructure for electric vehicles across Ireland.

- Houses – Provision for the installation of a fully functional electric vehicle charging point will be provided to all residential homes.

- Apartment blocks – Provision for the installation of a fully functional electric vehicle charging point will be provided in the apartment blocks as agreed with the management company. A management company will maintain and operate the e-car functionality. Power supplies to the e-car chargers will be provided from a local landlord distribution board.

7.10 Conclusion

Based on the initial review, there is sufficient utility infrastructure in the area for the proposed Glencairn Residential Development.

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