BUILDING LIFE CYCLE REPORT

PROPOSED RESIDENTIAL DEVELOPMENT AT THE JUNCTION OF GRANGE ROAD, NUTGROVE AVENUE AND LORETO TERRACE, RATHFARNHAM, DUBLIN 14.

ADDITIONAL INFORMATION Reg. Ref. SD22A/0126

By

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INTRODUCTION

BUILDING LIFECYCLE REPORT

This building life cycle report has been prepared in response to Item 3 of the further information requested by South Dublin County Council for a new residential development on lands measuring approximately 0.26 hectares at the junction of Grange Road, Nutgrove Avenue and Loreto Terrace, Rathfarnham, Dublin 14.

The application is for a development of 38 residential units consisting of-

- 6 No. – Studios
- 9 No. - 1 Bed Apartments
- 23 No. – 2 Bed Apartments

Sections 6.11 to 6.14 of the document Sustainable Urban Housing; Design Standards for New Apartments- Guidelines for Planning Authorities relate to the "Operation and Management" of Apartment developments.

Section 6.13 of the Guidelines requires that apartment applications...

"...shall include a building lifecycle report, which in turn includes an assessment of long term running and maintenance costs as they would apply on a per residential unit basis at the time of application, as well as demonstrating what measures have been specifically considered by the proposer to effectively manage and reduce the costs for the benefit of residents"

- The report set out to address the stated requirements in Section 6.13, and is divided into the following sections-
- Section 1- assessment of Long Term Running and Maintenance Costs as they would apply on a per residential unit basis at the time of application.
- Section 2- Measure specifically considered by the proposer to effectively manage and reduce the costs for the benefit of residents

Section 1-

Assessment of Long Term Running and Maintenance Costs as they would apply on a per residential unit basis at the time of application.

Property Management Company and Owner's Management Company (OMC)

1.1 Property Management of the Common Areas of the Development

A property management company will be engaged at an early stage of the development to ensure that all property management functions are dealt with for the development and that running and maintenance costs of the common areas of the development are kept within the annual operational budget.

The property management company will enter into a contract directly with the OMC for the ongoing management of the built development. It is intended that this is a contract for a maximum of 3 years and in the form of prescribed by the PSRA.

The Property management will also have the following responsibilities for the apartment development once completed –

- Timely formation of an Owner's Management Company (OMC) which will be a company limited by guarantee having no share capital. All future purchasers will be obliged to become members of this OMC.
- Preparation of annual service charge budget for the development common areas.
- Fair and equitable apportionment of the annual operational charges in line with the MUD Act.
- Estate management
- Third Party Contractors procurement and management.
- OMC Reporting.
- Accounting Services.
- Corporate Services.
- Insurance Management.
- After Hours Services.
- Staff Administration.

1.2 Service Charge Budget

The property management company has a number of key responsibilities most notably, the compiling of the service charge budget for the development for agreement with the OMC.

The service charge budget covers items such as cleaning, landscaping, refuse management, utility bills, insurance, maintenance of mechanical/ electrical lifts/ life safety systems, security, property management fee etc., to the development common areas in accordance with the Multi Unit Developments Act 2011 (MUD Act).

This service charge budget also includes an allowance for a sinking fund and this allowance is determined following the review of the Building Investment Fund (BIF) report prepared by for the OMC. The BIF report once adopted by the OMC, determines an adequate estimated annual cost provision requirement bas on the needs of the development over a 30- year cycle period, The BIF report will identify those works which are necessary to maintain, repair, and enhance the premises over the 30 year life cycle period, as required by the Multi Unit Development Act 2011.

In line with the requirements of the MUD act the members of the OMC will determine and agree each year at a General Meeting of the members, the contribution to be made to the Sinking Fund, having regard to the BIF report produced.

Notwithstanding the above, it should be noted that the detail associated with each element heading, i.e. specification and estimate of the costs to maintain/ repair or replace, can only be determined after detailed design and the procurement/ construction of the development and therefore has not been included in this document.

Section 2-

Measure specifically considered by the proposer to effectively manage and reduce the costs for the benefit of residents

2.1 Energy and Carbon Emissions

The Following are an illustration of the energy measured that are planned for the units to assist in reducing costs for the occupants-

Measure	Description	Benefit
BER Certificates	A Building Energy Rating (BER) Certificate will be provided for each dwelling in the proposed development which will provide detail of the energy performance of the dwellings. A BER is calculated through energy use for space and hot water heating, ventilation, lighting and occupancy. It is proposed to target an A2/ A3 rating for the apartments, this will equate to the following emissions- A2- 25 to 30kwh/m² with CO2 emissions circa 10kgCO2/m²/ year A3- 51 to 75kwh/m² with CO2 emissions circa 12kgCO2/m²/ year	Higher BER ratings reduce energy consumption and running costs
Fabric Energy Efficiency	The U Values being investigated will be in line with the requirements set out by the current regulatory requirements of Technical Guidance Document Part L, "Conservation of Fuel and Energy Buildings other than dwellings". Thermal bridging at junctions	Lower U-values and improved air tightness is being considered to help minimise heat losses through the building fabric, lower energy consumption and thus minimise carbon emissions to the environment.

Energy Labelled White Goods	The white goods package planned for provision in the apartments will be of a very high standard and have a high energy efficiency rating. It is expected that the following appliance standards will be provided- Oven- A+ Fridge Freezer- A+ Dishwasher- AAA Washer/ Dryer- B	The provision of high rated appliances in turn reduces the amount of electricity required for occupants.
External lighting	The lighting scheme within the development will be selected for the following reasons- Low Level lighting Minimal upward light spill Low voltage LED lamps Prep approved by South Dublin County Council	The site lighting will be 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 fauna and flora in the area. Having PECU allows for the optimum operation of lighting which minimises costs.

The following are low energy technologies that are being considered for the development and during the design stage of the development the specific combination from the list below will be decided upon and then implemented to achieve an A2/ A3 BER rating-

Measure	Description	Benefit
Condensing boilers	Condensing boilers are being investigated as they have a higher operating efficiency, typically over 90% than standard boilers and have the benefit of lower fuel consumption resulting from the higher operating efficiencies.	Higher BER ratings reduce energy consumption and running costs
Natural Ventilation	Natural ventilation is being evaluated as a ventilation strategy to minimise energy usage and noise levels	The main advantages of natural ventilation are- • Low noise impact for occupants and adjacent units • Completely passive therefore no energy required. • Minimal maintenance required. • Reduced environmental impact as minimal equipment disposal over life cycle. • Full fresh air resulting in healthier indoor environment
Mechanical Ventilation heat Recovery	Mechanical heat recovery ventilation will be considered to provide ventilation with low energy usage.	Mechanical Heat Recovery Ventilation provides ventilation with low energy usage. The MVHR reduces overall energy and ensures a continuous fresh air supply.
PV Solar Panels	PV solar panels are being considered which converts	PV solar panels offer the benefit of reducing fossil fuel consumption and carbon

	the electricity produced by the PV system (which is DC) into AC electricity. The panels are typically placed on the south facing side of the building for maximum heat gain and in some instances, can also be used to assist the heating system.	emissions to the environment. They also reduce the overall requirement to purchase electricity from the grid.
Combined Heat and Power	Combined heat and power (CHP) is a technology being evaluated. This technology generates electricity and captures the waste heat from the generation unit that can be used within the development.	CHP can achieve energy efficiencies by reusing waste heat from the unit to generate heat required for space heating and domestic hot water services in the apartment development.
ECAR charging points	Charing shall be provided from a local landlord distribution board to designated E-car charging car parking spaces. This will enable the management company the option to install a number of E-car charging points within the basement car park to cater for E-car demand of the residence. This system operates on a single charge point access card. A full re-charge can take from one to eight hours using a standard charge point.	Providing the option of E-car charging points will allow occupants to avail of the ever improving efficient electric car technologies.

2.2 Materials

The practical implementation of the Design and Material principles has informed design of the building facades, internal layouts and detailing of the proposed apartment buildings

2.2.1 Buildings

Apartments are designed in accordance with the Building Regulations, in particular Part D "materials and Workmanship", which includes all elements of the construction. The design principles and specification are applied to both the apartment units and the common parts of the building and specific measures taken include-

Measure Description	Benefit
Daylighting to circulation areas	Avoid the requirement for continuous artificial lighting
External Paved and Landscaped areas	All of these require low/ minimal maintenance
Housing Roof construction includes significant areas of traditional pitched roofs including traditional tiled/slate coverings	Minimise ongoing maintenance

2.2.2 Material Specification

Measure Description	Benefit
Consideration is given to the requirements of the building regulations and includes reference to BS 7543:2015, "Guide to Durability of Buildings and Building Elements, Products and Components", which provides guidance on the durability, design life and predicted service life of buildings and their parts. All common areas if the scheme, and their durability and performance are designed and specified in accordance with Figure 4: Phases of Life Cycle BS 7543:2015. The common parts are designed to incorporate the guidance, best practice, principles and mitigations of Annexes of BS 7543:2015 including- Annex A- Climatic Agents affecting durability	Ensures that the long term durability and maintenance of materials is an integral part of the design and specification of the proposed development.

Annex B- Guidance on materials and durability Annex C- Design Life data sheets	
Use of brickwork and pigmented render systems to envelope	Requires no ongoing maintenance. Repainting of rendered areas as required within a 10-15-year period. Detailing of guttering systems to minimize any potential water staining to brick and render finishes
Factory finished and uPVC windows and aluminium doors, and powder coated steel railings to balconies.	Requires no ongoing maintenance

Measure	**Description**	**Benefit**
BER Certificate	A Building Energy Rating (BER) Certificate will be provided for each apartment in the proposed development which will provide detail of the energy performance of the apartments. A BER is calculated through energy use for space and hot water heating, ventilation, lighting and occupancy. It is proposed to target an A2/ A3 rating for the apartments, this will equate to the following emissions- A2- 25 to 30kwh/m² with CO2 emissions circa 10kgCO2/m²/ year A3- 51 to 75kwh/m² with CO2 emissions circa 12kgCO2/m²/ year	Higher BER ratings reduce energy consumption and running costs

2.3 Landscaping

Element	Measure Description	Benefit
Paving and decking Materials	Use of robust, high quality paving and decking materials, with robust proven details	Requires no ongoing maintenance
Materials	Sustainable, robust materials, with high slip resistance to be used for paving. Durable and robust equipment (e.g. play, exercise, fencing, etc.) to be used throughout.	Robust materials and elements reduce the frequency of required repair and maintenance
Site Layout and Design	Generous and high quality mature landscaping, with ecological corridors prioritising pedestrians.	Natural attenuation and landscape maintenance preferable.

2.4 Waste Management

Measure	Description	Benefit
Construction and Operational Waste Management Plan	Domestic waste management strategy- Grey, brown and green bin distinction Competitive tender for waste management collection	The report demonstrates how the scheme complies with best practice
Storage of Non-Recyclable Waste and Recyclable Household Waste	Organic waste bins to be provided throughout	Helps reduce potential waste charges
Composting		Helps reduce potential waste charges

2.5 Human Health and Wellbeing

Measure	Description	Benefit
Natural/ day light	The design, separation distances and layout of apartment blocks and housing have been designed to optimise the ingress of natural daylight/ sunlight to the proposed apartments to provide good levels of natural light	Reduces reliance on artificial lighting, thereby reducing costs
Accessibility	All units will comply with the requirements of Building Regulations, Technical Guidance Documents Parts K and M	Reduces the level of adaptation, and associated costs potentially necessitated by residents' future circumstances.
Security	The scheme is designed to incorporate passive surveillance with the following security strategies likely to be adopted- CCTV monitoring details Secure bicycle stands Overlooked communal open space	Helps to reduce potential security/ management cost
Natural Amenity	Local Park, Pocket parks and existing trees and hedgerows.	Facilitates community interaction, socialising and play- resulting in improved well being
Noise Control	The results of the environmental noise survey study suggest the noise environment will not require additional constraints to be imposed on the majority of the proposed project outside of the normal criteria applicable to a development of the scale and nature of that proposed.	To mitigate any potential negative impacts associated with air borne noise

2.6 Management

Consideration has been given to ensuring that homeowners have a clear understanding of their property-

Measure	Description	Benefit
Home User Guide	Once a purchaser completes their sale, a homeowner box will be provided which will include- Homeowner Manual- This will provide important information for the purchaser on details of the property. Typically it includes details of the property such as MPRN and GPRN information in relation to connection with utilities and communication providers. Contact details for all relevant suppliers and user instructions for appliances and devices in the property. Residents' Pack- prepared by the OMC which will typically provide information on contact details for the managing agent, emergency contact information, transport links in the area and a clear set of rules and regulations	Residents are as informed as possible so that any issues can be addressed in a timely and efficient manner.

2.7 Transport

Measure	Description	Benefit
Access to Public Transport (Bus Services)	Bus stops situated on Grange Road served by Dublin Bus route 16 to Dublin City Centre every 15mins.	Availability, proximity and ease of access to high quality public transport services contribute to reducing the reliance on the private motor vehicle for all journey types.
Permeable Connections	The development is fully interconnected by pedestrian and cycling links both within the scheme and to adjoining existing residential developments, noting in particular the cycle and pedestrian connections to Grange Road and Nutgrove Ave.	Ensures the long term attractiveness of walking and cycling to a range of local education, retail and community facilities and services.
Bicycle Storage	Secure high quality secure bicycle parking both for short- and long-term parking requirements.	Accommodates the uptake of cycling and reducing the reliance on the private motor vehicle.
ECAR facilities	Ducting provided from a local landlord distribution board to designated e-car charging car spaces.	To accommodate the growing demand for e-cars which assist in decarbonising society and reducing oil dependency.