



CONROY CROWE KELLY
Architects & Urban Designers

BELCAMP

BUILDING LIFECYCLE REPORT

MAY 2022

Gerard Gannon Properties

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Executive Summary

This Building Lifecycle Report addresses requirements as outlined in the ‘Sustainable Urban Housing: Design Standards for New Apartments (Guidelines for Planning Authorities)’ as they relate to this proposed residential project.

Considered scheme design and choice of building materials, together with the effective management by the appointed Property Management Company and each homeowner playing their part, will help contribute towards a desirable, vibrant community into the future.

The document reviews the outline building specification for the proposed development and assesses the associated long-term running and maintenance cost per unit. The report includes detail of measures proposed to manage and reduce costs for the benefit of future residents.

The report considers the use of durable materials and finishes for external elevations (e.g. brickwork, self-coloured render and metal railings) so as to reduce the need for regular maintenance and/or replacement, outside of general housekeeping works. The choice of such high quality and long-lasting materials, will minimise maintenance costs for residents and occupiers into the future. A similar approach is proposed in the choice of building material for internal finishes, for electrical and plumbing installations, and for landscaping of public and private open space areas.

As the building design develops and material choices are confirmed, this document is to be updated to help inform the appointed property management company of expected running and maintenance costs for the development, and to aid more accurate scheduling of works and service charge budgets.

The ABP Inspector’s report made the following recommendations for the additional documentation for the SHD application for Lands at Belcamp, Dublin 17 (ABP-311570-21):

“2. A report that specifically addresses the proposed materials and finishes to the scheme including specific detailing of finishes, the treatment of balconies in the apartment buildings, landscaped areas, pathways, entrances, boundary treatment/s and neighbourhood / commercial centre. Particular regard, should be had to the requirement to provide high quality and sustainable finishes and details which seek to create a distinctive character for the development. The documents should also have regard to the long-term management and maintenance of the proposed development and a life cycle report for the apartments in accordance with section 6.3 of the Sustainable Urban Housing: Design Standards for New Apartments (2020).”

Introduction

This Building Lifecycle Report has been prepared by Conroy Crowe Kelly Architects on behalf of Gerrard Gannon Properties to accompany a Strategic Housing Development application for 2,527 new dwellings and local facilities on lands at Belcamp, Dublin 17, approx. 8km from Dublin City Centre. Although part of a single historic landholding, the site straddles the jurisdictions of Dublin City Council and Fingal County Council and is zoned for residential use.

The subject buildings referred to in this report are located on the lands in the jurisdictions of (FCC) Fingal County Council and consist of 1297 no. residential units. Please refer to the separate Life Cycle Report prepared by Wilson Architecture for the 1230 no. apartments on the (DCC) Dublin City Council Lands.

This document has been prepared with reference to the requirements of the recently revised 'Sustainable Urban Housing: Design Standards for New Apartments (Guidelines for Planning Authorities), published in December 2020.

These Guidelines direct that detail on the management and maintenance of apartment schemes be included in all planning applications where construction of apartments is proposed. This is set out in Sections 6.11 to 6.14 of the Apartment Guidelines, under "Operation & Management of Apartment Developments". Specifically, Section 6.13 of the Apartment Guidelines 2020 requires that applications for apartment developments 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 costs for the benefit of residents".

Over the following pages, this Building Lifecycle Report will address the requirements of Section 6.13 of the Apartment Guidelines as they relate to this planning application.

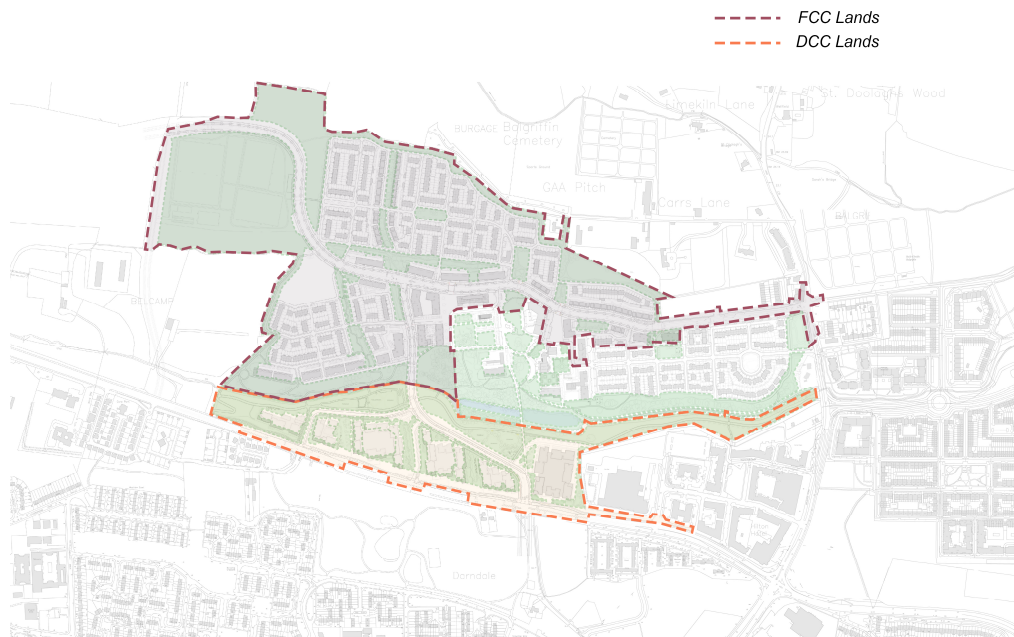


Figure 1 – Proposed Belcamp Site with FCC and DCC Lands Indicated.

Description of Proposed Development

This Strategic Housing Development application is submitted on behalf of Gerard Gannon Properties for development on lands at Belcamp, Dublin.17. The site is within easy reach of the city centre and is part of a growing metropolitan district in north Dublin.

Although part of a single historic landholding, the site straddles the jurisdictions of Dublin City Council and Fingal County Council and is zoned for residential use. The subject development in this report is situated within the Fingal County Council portion of the site a gross 50.7 Hectare site, which is the larger northern side of the site.

The proposed breakdown of the 1297no units is as follows:

- Apartment Blocks A, B, C, D, F, G, H, J, L, M, N & P with a total of 550 apartments over a range of 4 to 6 storeys.
- Duplex Blocks 1.1, 1.2, 1.3, 1.4, 1.5, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8 & 3.9 with a total of 274 duplex units all are 4 storeys
- House Types 1, 2, 3, 4, 5, 6, 7 & 8 with a total of 473 houses over a range of 2 to 3 storeys.

Commercial accommodation is provided to both the Fingal and DCC lands, with the main retail offering concentrated in the town square area. The buildings surrounding the square and walled garden are mixed use, with commercial activity occupying some or all the ground floor areas, opening out to the public spaces, with residential uses overhead.

Childcare facilities are proposed at two locations in the SHD lands, one in the Fingal lands to the north of the EWLRL, and one in the DCC lands within Block 2. Refer to the Wilson Architecture report for details of the Block 2 facility.

The new neighbourhood will accommodate new roads which are objectives of both Dublin City and Fingal Development Plans. These will act to alleviate local traffic congestion, and to provide for future enhanced east-west public transport links. These have been integrated into the scheme as DMURS compliant routes.

This application proposes seven Character Areas which radiate out from the central heritage areas around Belcamp Hall and its historic landscape elements. Each differently embraces the woods, decorative lakes, wooded valley, walled garden and views to the house, and these variations of context give local identity as well as common thread in a wider neighbourhood. This is its sense of place.

SECTION 1

1. ASSESSMENT OF LONG-TERM RUNNING AND MAINTENANCE COSTS

1.1 Management of the Owners' Management Company's assets

The applicant, Gerard Gannon Properties, have considered the long-term running and maintenance costs for future residents from the outset of the design process with a view to managing and minimising unreasonable expenditure on a per unit basis.

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 the running and maintenance costs of the common areas of the development are kept within the agreed Annual operational budget. The property management company will enter a contract directly with the OMC for the ongoing management of the built development. This contract will be for a maximum period of 3 years and in the form prescribed by the PSRA.

The Property Management Company also has the following responsibilities for the apartment development once constructed:

- Timely formation of an Owners 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.
- Engagement of independent legal representation on behalf of the OMC in keeping with the MUD Act - including completion of Developer OMC
- Agreement and transfer of common areas.
- Transfer of documentation in line with Schedule 3 of 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

A service charge budget will be compiled to put in place funding requirements as costed in the Planned Preventative Maintenance programme and in the Building Investment Fund (BIF) report. The budget will be apportioned to unit owners in a fair and equitable way in accordance with the MUDs Act, with the collection of fees into dedicated Owners' Management Company (OMC) bank accounts.

The OMC will promote competitive tendering of running and maintenance services to help minimise charges for residents. The service suppliers will be discharged the payment for their services from these bank accounts. Monthly reports of operational and financial matters will be provided to the OMC executives and annual reports to the members at the general meeting.

SECTION 2

2.0 Measures to manage & reduce costs for the benefit of residents.

[The proposed layouts make efficient use of the land.](#) The buildings have been designed with a low number of stair and lift cores to increase efficiencies and ensuring that service charges and maintenance costs faced by residents into the future are kept at reasonable levels.

[The apartment design has followed the principles of the BRE guide - "Site Layout Planning for Daylight and Sunlight".](#) Good levels of sunlight will also be available in the development's amenity areas. When this guidance is followed the result is generally a site which is positioned and laid out in such a way which will provide adequate levels of sun lighting and daylighting while creating an ambience that will appeal to any building occupant and reduce the lighting costs.

[Lifecycle costs are also determined by the durability and maintenance requirements of materials.](#) We have selected the very highest standard of finishes across the project. Low maintenance cladding materials such as brick and self-finished render are proposed to minimise the impact of façade maintenance. Balconies are designed to be capable of fabrication offsite, resulting in higher standard of finish, reducing damage during construction and improved durability. Building materials proposed for use on apartment block elevations and in the public realm achieve a durable standard of quality that will not need regular fabric replacement or maintenance outside general day-to-day care. The choice of high quality and long-lasting materials such as brickwork, render, steel, glass and metal as well as hardscape in the semi-public and private realms will contribute to lower maintenance costs for future residents and occupiers.

[Energy performance and Carbon emissions](#) are at the core of 'The European Performance of Buildings Directive 2010' have been integrated into Irish legislation in the form of TGD Part L (2021) and the requirement to achieve an NZEB energy rating for new residential developments. The NZEB standard will apply to all new buildings occupied after the 31st December 2020 and therefore applies to this development. A Building energy Rating (BER) certificate will be provided which will provide detail of the energy performance and carbon emissions associated with the dwellings. It is proposed to target a BER Rating for each apartment of A2/A3 which will situate the developments energy performance within the NZEB classification and thus comply with the relevant legislation governing this aspect of the development. This will equate to the following emissions:

- A2 – 25-50 kWh/m²/yr. with CO₂ emissions approx. 10 kgCO₂/m²/yr.
- A3 – 51-75 kWh/m²/yr. with CO₂ emissions approx. 12 kgCO₂/m²/yr.


[This report reflects the outline material descriptions and examples of typical materials and systems used for schemes of this nature by Conroy Crowe Kelly Architects and their associated lifespans and maintenance requirements.](#) All information is therefore indicative subject to detailed design development. As the building design develops this document will be updated and a schedule will be generated from the items below detailing maintenance and replacement costs over the lifespan of the materials and development constituent parts. This will enable a robust schedule of building component repair and replacement costs which will be available to the property management company so that running and maintenance costs of the development are kept within the agreed annual operational budget.

2.1 Building Design

Measure	Description	Benefit
Daylighting to units	Where possible, as outlined in 'Sustainable Urban Housing: Design Standards for New Apartments Guidelines for Planning Authorities (December 2020)' to have regard for quantitative performance approaches to daylight provisions 'outlined in guides like the BRE guide 'Site Layout Planning for Daylight and Sunlight' (2nd edition) or BS 8206-2: 2008 – 'Lighting for Buildings – Part 2: Code of Practice for Daylighting' when undertaken by development proposers which offer the capability to satisfy minimum standards of daylight provision'.	Reduces the requirement for continuous daylighting, thus reducing the expense of artificial lighting
Daylighting to circulation areas	Natural lighting provided via tall windows at both the front and rear elevations.	Reduces the requirement for continuous daylighting.
External Lighting	External lighting will comply with the latest standards and achieve: <ul style="list-style-type: none"> • Low-level lighting • Utilise low voltage LED lamps • Minimum upward light spill Each light fitting is to be controlled via an individual Photoelectric Control Unit (PECU). The operation of the lighting shall be on a dusk-dawn profile.	Lighting will be designed to achieve the required standards, provide a safe environment for pedestrians, cyclists, and vehicular traffic, provide surveillance and limit the impact on the artificial lighting on surrounding existing flora and fauna.

2.2 External Building Fabric Material Selection

Measure	Description	Benefit
Brickwork facade	Primary facade cladding material used. Lifecycle of 100+ years. Mortar pointing has shorter lifecycle of 25-50 years.	Extremely durable, with low maintenance requirements. Preventative maintenance by monitoring mortar joint deterioration ensures longevity of material.
Metal Cladding	Metal facade panels likely zinc on galvanised metal rainscreen support system used at penthouse level, with typical life expectancy of 80-100 years.	Aesthetic impact, durability and weathering. Annual inspection every 5 years.
Render	Generally, only to parts of internal courtyards and selected areas of street elevations. Pigmented render system with lifecycle of circa 30 years. Cleaning of algae and other staining is recommended annually by property maintenance team. To comply with BS 5262 1991.	Finish does not require repainting every 5 years.

Flat Roofs	<p>Selected Green Roof systems to apartment buildings.</p> 	<p>Improved aesthetic appearance</p> <p>The reduction in storm water run-off offered by green roofs is a major benefit.</p> <p>Better acoustic performance. The combination of soil, plants and trapped layers of air within green roof systems can play an important part in the overall soundproofing of the building. act as a sound insulation barrier. Indicative figures suggest that a green roof can reduce sound by as much as 8dB compared with a conventional roof system*.</p> <p>Green roof systems are recognised as providing greater thermal performance and roof insulation for the buildings they are laid on.</p> <p>Green roofs improve air quality by attracting particles to the vegetation and soil. Plants also absorb airborne pollutants through the leaves, removing them from the environment, and during the natural process of photosynthesis, plants convert carbon dioxide to oxygen, which improves the immediate air quality.</p> <p>Increased life expectancy of waterproofing</p> <p>Green roofs can significantly increase the life of the waterproofing membrane, protecting it from UV degradation and the extremes of climatic conditions.</p>
Pitched Roofs	Clay or concrete tiled roofing, solid and inert.	Durable and long lasting material requires minimal maintenance and repair.
Windows and Doors	All units double glazed with thermally broken frames in uPVC or Aluminium. Double or triple glazed.	Minimal ongoing maintenance
Steel Balconies with glass infill	Prefinished powder-coated with toughened glass infill and capability to be manufactured off site.	Minimal ongoing maintenance.

2.3 Internal Building Fabric Material Selection

Measure	Description	Benefit
Floors – apartment stair cores and entrances	Selected anti-slip porcelain or ceramic floor tile with inset mat well at entrance doors as required. Life span of 20-25 years.	Low maintenance and easily cleaned.
Floors – lobbies/corridors	Selected carpet inlay on underlay. 13 years life span typically. Regular cleaning by property maintenance team.	Attractive aesthetic for residents and flexibility to change in the future.
Walls	Selected contract vinyl wall paper feature or selected paint finish with primer. Wall protection at heavy traffic areas with plasterboard substrate adjacent to lift cores where furniture moving will damage wall fabric. Finish lifespan of 2-10 years, regular maintenance required.	Attractive aesthetic for residents and flexibility to change appearance in the future.
Ceilings	Selected paint finish with primer to skimmed plasterboard ceiling.	Decorative and durable finish.
Internal balustrades and handrails	Painted metal balustrade or proprietary glazed panel system face fixed to stair stringer/landing edge with polished stainless steel brackets and clamps to manufacturers installation details.	Durable finish.
Internal Doors and Frames	Selected primed and painted solid internal doors. Glass and aluminium door system to glazed entrances.	Durable finish with regular inspection and maintenance.

2.4 Energy and Building Services

Measure	Description	Benefit
Nearly Zero Energy Building specifications (nZEB)	<p>NZEB and TGD Part L The NZEB “Nearly Zero Energy Buildings” directive in conjunction with the TGD Part L document sets out clearly that all new dwellings built in Ireland will comply with the following:</p> <ul style="list-style-type: none"> • A Maximum Permitted Energy Performance Coefficient (MPEPC) of no greater than 0.3 • A Maximum Permitted Carbon Performance Coefficient (MPCPC) of no greater than 0.35 <p>These changes apply to works, or buildings in which material alteration or change of use or major renovation takes place.</p>	<p>Reduce primary energy demand by 70% viz. 2005 standards. Increased use of renewable energy sources such as heat pumps and PV panels will reduce the CO2 emissions associated with fossil fuel combustion.</p>

BER targets	<p>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, and lighting and occupancy. It is proposed to target an A2/A3 rating for the apartments this will equate to the following emissions. A2 – 25-50 kwh/m2/yr with CO2 emissions circa 10kgCO2/m2 year A3 – 51-75 kwh/m2/yr with CO2 emissions circa 12kgCO2/m2 /year</p>	Higher BER ratings reduce energy consumption and running costs																														
Fabric Energy Efficiency	<p>U Values for the development will be in line with the current regulatory requirements of Technical Guidance Document Part L, “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 within the Technical Guidance Documents Part L. See Table 1 of Part L, Building Regulations</p>	<table border="1"> <caption>Table 1 Maximum elemental U-value (W/m²K)^{1, 2}</caption> <thead> <tr> <th>Column 1 Fabric Elements</th> <th>Column 2 Area-weighted Average Elemental U-value (Um)</th> <th>Column 3 Average Elemental U-value – individual element or section of element</th> </tr> </thead> <tbody> <tr> <td colspan="3">Roofs</td> </tr> <tr> <td>Pitched roof</td> <td></td> <td></td> </tr> <tr> <td>- Insulation at ceiling</td> <td>0.16</td> <td rowspan="2">0.3</td> </tr> <tr> <td>- Insulation on slope</td> <td>0.16</td> </tr> <tr> <td>Flat roof</td> <td>0.20</td> <td></td> </tr> <tr> <td colspan="3">Walls</td> </tr> <tr> <td>Ground floors³</td> <td>0.18</td> <td>0.6</td> </tr> <tr> <td>Other exposed floors</td> <td>0.18</td> <td>0.6</td> </tr> <tr> <td>External doors, windows and rooflights</td> <td>1.4^{4,5}</td> <td>3.0</td> </tr> </tbody> </table> <p>Notes: 1. The U-value includes the effect of unheated voids or other spaces. 2. For alternative method of showing compliance see paragraph 1.3.2.3. 3. For insulation of ground floors and exposed floors incorporating underfloor heating, see paragraph 1.3.2.2. 4. Windows, doors and rooflights should have a maximum U-value of 1.4 W/m²K. 5. The NSAI Window Energy Performance Scheme (WEPS) provides a rating for windows combining heat loss and solar transmittance. The solar transmittance value g_{SEP} measures the solar energy through the window.</p>	Column 1 Fabric Elements	Column 2 Area-weighted Average Elemental U-value (Um)	Column 3 Average Elemental U-value – individual element or section of element	Roofs			Pitched roof			- Insulation at ceiling	0.16	0.3	- Insulation on slope	0.16	Flat roof	0.20		Walls			Ground floors ³	0.18	0.6	Other exposed floors	0.18	0.6	External doors, windows and rooflights	1.4 ^{4,5}	3.0	Lower U-values and improved air tightness will help minimise heat losses through the building fabric, lower energy consumption and thus minimise carbon emissions to the environment.
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Target Building Fabric Efficiency	<p>It is possible to <u>exceed</u> the requirements of the current building regulations. The current target U-Values are identified below:</p> <table border="1"> <thead> <tr> <th>Element</th> <th>Required U-values for New Buildings (W/m²k)</th> <th>Target U-values for this development (W/m²k)</th> </tr> </thead> <tbody> <tr> <td>Roof</td> <td>0.20</td> <td>0.15</td> </tr> <tr> <td>External Walls</td> <td>0.18</td> <td>0.18</td> </tr> <tr> <td>Ground Floors</td> <td>0.18</td> <td>0.15</td> </tr> <tr> <td>Glazing</td> <td>1.40</td> <td>1.40</td> </tr> </tbody> </table> <p>In order to ensure that a sufficient level of air tightness is achieved, air permeability testing will be specified, with the responsibility being placed on the main contractor to carry out testing and achieve the targets identified in the tender documents.</p> <p>A design air permeability target of 3 m³/m²/hr has been identified</p> <p>Air testing specification will require testing to be carried out by an independent third party (National Standards Authority of Ireland or equivalent certification body).</p>	Element	Required U-values for New Buildings (W/m ² k)	Target U-values for this development (W/m ² k)	Roof	0.20	0.15	External Walls	0.18	0.18	Ground Floors	0.18	0.15	Glazing	1.40	1.40	Reduction in the consumption of fuel and the associated carbon emissions and operating costs															
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Lighting Efficiency	<p>The proposed lighting within the development will be LED 100pc;</p> <ul style="list-style-type: none"> • Low level lighting • Minimal upward light spill • Low voltage LED lamps • Pre-approved by Fingal County Council <p>Each light fitting shall be controlled via an individual Photoelectric Control Unit (PECU). The operation of the lighting shall be on a dusk-dawn profile</p>	<p>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.</p>
<p>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 on and then implemented to achieve the A2/A3 BER Rating and NZEB compliance.</p>		
Natural Ventilation	<p>Natural ventilation is being evaluated as a ventilation strategy to minimise energy usage and noise levels.</p>	<p>The main advantages of natural ventilation are:</p> <ul style="list-style-type: none"> • Low noise impact for occupants and adjacent units. • Completely passive therefore no energy required with associated. • Minimal maintenance required. • Reduced environmental impact as minimal equipment disposal over life cycle.
Air Source Heat Pumps	<p>An air-to-water heat pump system is being considered for each dwelling as the optimal balance of practicality, efficiency and contribution of renewable energy. Each heat pump system shall be listed on the HARP database or have IS EN14511-2, IS EN 255-2 or EN 15879 test certificates (or otherwise as required by changes to the Regulations). The hot water storage will form part of the composite heat-pump systems, with certified loss factors. Space heat distribution will be via low-temperature radiators generally, and the space and hot water system will have full time and temperature controls.</p>	<p>Air source heat pumps use electrical energy from the grid to drive the refrigerant cycle but do so extremely efficiently. Modern heat pumps will typically provide 4 to 5 times more heat energy to the dwelling than the electrical energy they consume.</p>
PV Solar Panels	<p>PV Solar Panels are being considered which converts 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</p>	<p>PV Solar Panels offer the benefit of reducing fossil fuel consumption and carbon emissions to the environment.</p>

ECAR Charging Points	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. 10% of the residential parking spaces should have EV charging points, and ducting provision for retro fitting the balance.	Providing the option of E-car charging points will allow occupants to avail of the ever-improving efficient electric car technologies.
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2.5 Landscape Material Selection

Measure	Description	Benefit
Paving and Decking Materials	Use of robust high-quality materials and detailing to be durable for bikes, play, etc.	Ensures the longevity of materials.
External fixtures	All external metal fittings galvanised and powder coated to minimise painting requirements. Durable and robust furniture and equipment (e.g. play, fencing etc.) to be used throughout.	Required ongoing maintenance significantly reduced through use of robust materials installed to high standards and robust detailing.
Site Layout & Landscaping Design	High quality landscaping both hard surface (for the cycle /car parking and pavements) and soft landscaping with planting and trees. The landscaping will be fully compliant with the requirements for Part M / K of the Technical Guidance Documents and will provide level access and crossings for wheelchair users and pedestrians with limited mobility. Designated car parking including accessible & visitor car parking reduces the travel distances for visitors with reduced mobility. The landscape design approach is to provide a variety of high-quality durable communal recreation areas for residents within the blocks which feature a range of quality tree, shrub and herbaceous planting. Hard landscape paving and decking materials will be robust and durable and installed using proven details to minimise maintenance requirements.	Plenty of room for cycles and pedestrians along with car spaces provide a good balance between pedestrians and car users. Wheelchair user-friendly. A landscape maintenance company will be retained by the OMC(s) to ensure regular maintenance improves the quality of the living environment for all residents.
Soft Landscape Materials	Planting proposals have been formulated to complement the local setting as well as being fit for purpose in respect of private and public realm uses and spatial constraints imposed by garden sizes and the width of planting strips.	Reduction in the frequency of required soft landscape maintenance

Sustainability & Biodiversity	Gerard Gannon Properties are active business supporters of the All-Ireland Pollinator Plan and were the first residential development company to sign up. It is of great importance to Gannons that all their developments embraces the Plan's objectives and implements these and other positive actions supporting bio-diversity on the ground.	Enhanced sustainability of long-term estate management
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2.6 Waste Management

Measure	Description	Benefit
Construction and Operational Waste Management Plan	The application is accompanied by a Construction and Operational Waste Management Plan by the applicants.	The report demonstrates how the scheme complies with best practice
Storage of Non-Recyclable Waste and Recyclable Household Waste	Domestic waste management strategy: General waste, mixed recyclable, glass and organic bin distinction	Helps reduce potential waste charges
Composting	Organic waste bins to be provided throughout	Helps reduce potential waste charges



Image 1. Example of a waste management / recycling / storage area in an apartment scheme.

2.7 Human Health and Wellbeing

How human health and well-being has been considered:

Measure	Description	Benefit
Natural / day light	The design, separation distances and layout of the apartment blocks have been designed to optimise the ingress of natural daylight/ sunlight to the proposed dwellings 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: <ul style="list-style-type: none"> • CCTV monitoring details • Secure bicycle stands • Overlooked communal courtyard • Controlled access between Public Spaces and Residents Communal Spaces. • Routine access fob audits. • Appropriately lit external spaces. 	Helps to reduce potential security/ management cost
Natural Amenity	<ul style="list-style-type: none"> • Public plaza area, and enhanced public streetscape • External courtyards and terraces • Overlooking green spaces and biodiversity routes, 	Facilitates community interaction, socialising and play resulting in improved wellbeing. Proximity and use of external green spaces promotes a healthy lifestyle.

2.8 Transport & Accessibility

Transport considerations for increasing the uptake of the use of public transport, cycling and walking and reducing the ownership of private cars and reducing oil dependency:

Measure	Description	Benefit
Access to Public Transport	<p>This site is considered to be an 'Intermediate Urban Location' under 2.4 of the guidelines. Much of the site is within the 10 minute walk band of Malahide Road QBC.(800m to 1000m). It is to be provided with a central bus spine which will be within 400/500m of most dwellings. Clongriffin Dart is about a 10 minute cycle, while the city centre is 30mins by bike.</p> <p>The provision for a dedicated on-site bus lane has been provided for future bus routes.</p>	Availability, proximity to bus and railway services reduces the reliance on the private motor.
Bicycle Storage	<p>The provision of high-quality secure & covered bicycle parking facilities, for both short term and long-term parking requirements are provided. Secure covered cycle parking is provided in compliance with Sustainable Urban Housing: Design Standards for New Apartments (December 2020), at a ratio of one cycle space per bedroom for all apartment and duplex blocks. Additional visitor parking at a rate of one cycle space per two dwellings is provided to the external curtilage of buildings and convenient to entrances. A total of 1687 residents and 441 visitors spaces are provided in the FFC portion of the scheme.</p>	Accommodates the uptake of cycling and reducing the reliance on the private motor vehicle.
Connections	<p>Provision and subsequent maintenance of dedicated pedestrian and cycle infrastructure on-site, and their connectivity with adjoining third party lands and off-site networks, providing connectivity and continuation of the cycle routes, subsequently providing convenient access to local services including shops, schools, restaurants, and doctor's surgeries.</p>	Ensure the long-term attractiveness of walking and cycling to a range of local education, retail and community facilities and services.

2.9 Management

Consideration has been given to ensuring the residents have a clear understanding of the subject properties especially the efficiency and use of the M+E systems within the buildings.

Measure	Description	Benefit
Home User Guide	<p>The management of the property will ultimately be the responsibility of the owners and operators of this scheme.</p> <p>A resident's pack prepared by the operational management company. This will ensure residents are appropriately informed, so any issues can be addressed in a timely and efficient manner and ensure the successful operation of this scheme.</p>	Residents are as informed as possible so that any issues can be addressed in a timely and efficient manner.

APPENDIX A

Items Included in a typical BIF

In accordance with the MUDs Act, the OMC(s) will allocate a certain portion of funds towards a sinking fund, to adequately resource long-term replacement of components. The Building Investment Fund table below illustrates what could be incorporated in the calculation of a Sinking Fund:

Element	Life Expectancy
Roofs	
Replacement felt roof covering incl. insulation to main roofs	18
Replacement parapet, fascia details	18
Replace roof access hatches	25
Specialist Roof Systems - Fall arrest	25
Waterproofing details to penthouse paved areas	12
Elevations	
Brick Re-pointing	80
Metal Panels - recoating	25
Minor repairs to render areas	18
Replace exit/entrance doors	25
Replace rainwater goods	25
Replace balcony floor finishes	25
External Areas/Car Parking	
External handrails and guarding	18
Surface finishes	18
Check drains for accumulation of debris and other sediments	6
Repaint parking spaces and numbering	7
Replace bike stands	25
Replace access control at entrances	12
M&E Services	
Internal re-lamping common areas	7
Replace internal light fittings	18
Replace external light fittings	18
Replace smoke detector heads	18
Replace manual break glass units	18
Replace fire alarm panel	18
Replace lift car and controls	25
Replace AOVs	25
Emergency lighting	20
External mains water connection	20
Exterior	
External boundary treatments - Recoat powder coated finishes to railings	60
Replace external signage	18
Replace cobble lock areas	18
15-year overhaul of soft landscaping generally	15
Replace CCTV provision	12
External Handrails and balustrade	18

APPENDIX B

Phases of the Life Cycle of BS7543; 2015

Figure 4 Phases of the life cycle

