



# **KNOCKRABO PHASE 2 SHD, MOUNTANVILLE ROAD GOATSTOWN, DUBLIN 14**

## **MANAGEMENT STRATEGY AND LIFE CYCLE REPORT**

**FOR RESIDENTIAL DEVELOPMENT AT**

**KNOCKRABO PHASE 2, MOUNT ANVILLE ROAD, GOATSTOWN, DUBLIN 14**

**STRATEGIC HOUSING DEVELOPMENT SUBMISSION TO**

**AN BORD PLEANÁLA**

**ON BEHALF OF**

**KNOCKRABO INVESTMENTS DAC**

**OCTOBER 2021**

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# 1 Introduction

This report has been prepared on behalf of Knockrabo Investments DAC by Cushman & Wakefield with assistance from the wider design team.

The proposed development relates to Phase 2 of the development on the 'Knockrabo' lands. Phase 1 of 'Knockrabo' was granted under Dún Laoghaire-Rathdown County Council (DLRCC) Reg. Ref. D13A/0689/An Bord Pleanála (ABP) Ref. PLO6D.243799 and DLRCC Reg. Ref. D16A/0821 (Phase 1) and DLRCC Reg. Ref. D16A/0960 (Phase 1A) and comprises a total of 125 no. units.

The proposed development will consist of the amendment of the permitted 'Phase 2' residential development of 93 no. units, childcare facility and community/leisure uses (DLRCC Reg. Ref. D17A/1124) on a site of 2.75ha. The proposed development will provide for the reconfiguration and redesign of the approved residential development. The Knockrabo Way entrance road (constructed and unconstructed), the renovation of Cedar Mount House including childcare facility and community/leisure uses, the Coach House, Gate Lodge (West), the Gate House and all associated landscaping permitted under D17A/1124 which are outside the boundary of the current application are proposed to remain as previously granted.

The site is bounded to the south-east by Mount Anville Road; to the south by 'Mount Anville Lodge' and by the rear boundaries of 'Thendara' (a Protected Structure – RPS Ref. 812), 'The Garth' (a Protected Structure – RPS Ref. 819), 'Chimes', 'Hollywood House' (a Protected Structure – RPS Ref. 829); to the south-west by existing allotments; to the north by the reservation corridor for the Dublin Eastern By-Pass (DEBP); and to the east by the site of residential development 'Knockrabo'.

There are 3 no. Protected Structures located in the overall 'Knockrabo' landholding, but which are outside the application boundary. These include 'Cedar Mount' (a Protected Structure - RPS Ref. 783), 'Knockrabo Gate Lodge (West)' (a Protected Structure - RPS Ref. 796), including Entrance Gates and Piers, and 'Knockrabo Gate Lodge (East)' (a Protected Structure – RPS 740) including Entrance Gates and Piers. For clarity no works are proposed to any Protected Structures as part of this proposed development.

The development, with a total gross internal area of c. 23,097.2 sqm, will consist of the construction of 227 no. residential units in 4 no. apartment blocks ranging in height from Part 2 – Part 8 storeys including semi-basement podium.

The development will provide 76 no. 1 bed units, 145 no. 2 bed units and 6 no. 3 bed units as follows:

**Block E** (c. 1015.3 sqm GIA) is a 5-storey including semi-basement podium apartment block comprising of 8 no. units (1 no. one bed unit and 7 no. 2 bed units).

**Block F** (c. 8042.2 sqm GIA) is a Part 2 to Part 8 storeys including semi-basement podium apartment block comprising 84 no. units (53 no. 1 bed units and 31 no. 2 bed units).

**Block G** (c. 8626.5 sqm GIA) is a Part 6 including semi-basement podium to Part 8 storey including semi-basement podium apartment block comprising of 82 no. units (37 no. 1 bed units, 40 no. 2 bed units and 5 no. 3 bed units).

**Block H** (c. 5413.7 sqm GIA) is a Part 6 to Part 7 storey apartment block including semi-basement podium comprising 53 no. units (7 no. 1 bed units, 45 no. 2 bed units and 1 no. 3 bed unit).

Residential Tenant Amenities comprising c. 537.2 sqm are provided at Level 00 of Block G and H to serve all residential units within this application.

This report demonstrates the measures which have been considered to effectively manage and reduce costs

for the benefit of residents and the environment with an objective of improving the overall living experience for all residents, while adopting best practice in co-operative living to reduce impact on the environment. We have included a template for an Asset Register to aid assessment of the long term running and maintenance costs.

Section 6 of the Sustainable Urban Housing; Design Standards for New Apartments- Guidelines for Planning Authorities (2020) includes the below sections which relate to the “Operations & Management of Apartment Developments” and require a Building Life Cycle Report to be submitted.

### **Section 6.11**

*“Certainty regarding the long-term management and maintenance structures that are put in place for an apartment scheme is a critical aspect of this form of residential development. It is essential that robust legal and financial arrangements are provided to ensure that an apartment development is properly managed, with effective and appropriately resourced maintenance and operational regimes.”*

### **Section 6.12**

*“In this regard, consideration of the long-term running costs and the eventual manner of compliance of the proposal with the Multi- Unit Developments Act, 2011 are matters which should be considered as part of any assessment of a proposed apartment development.”*

**Section 6.13** of the Apartment Guidelines 2020 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. to demonstrate what measures have been specifically considered by the proposer to effectively manage and reduce costs for the benefit of residents.”*

This Building Life Cycle Report document sets out how we have addressed the requirements of Section 6.13 of Apartment Guidelines 2020.

## 2 An assessment of long-term maintenance and running expenses.

### 2.1 Property Management of the Common Areas of the development

Cushman & Wakefield have been engaged from the outset to ensure that all property management functions are dealt with for the development and that the operational and maintenance costs of the common areas are kept within the approved Annual Service Charge Budget. An Owners Management Company has been established by the developers for the purposes of holding the reversionary interest and common area title of the development. Cushman & Wakefield currently manage Phase 1 of the development and operate the service charge scheme to include the identification of services required for the estate to ensure the sustained and effective management of the estate and maintenance of all facilities in the development. Cushman & Wakefield will prepare work with the OMC to ensure the smooth inclusion of Phase 2 and ensure that the OMC can operate effectively and advise on the transparent and equitable apportionment of charges to each unit.

Cushman & Wakefield have entered into a contract directly with the Owners Management Company (OMC) for the ongoing management of the built development.

The contract will be for a maximum period of 3 years and in the format prescribed by the Property services Regulatory Authority (PSRA).



### 2.2 Responsibilities of the Property Management Agent

- Fair and equitable apportionment of the Annual operational charges in line with the Multi-Unit Development Act 2011 and reflecting the different needs and services provided to different unit types.
- 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 on a phased basis.
- Transfer of documentation required by Schedule 3 of the Multi-Unit Developments Act 2011.
- Identification of services required by the OMC for the benefit and enjoyment of individual properties and the estate by residents and owners
- Preparation of annual service charge budget for the development common areas.
- Estate Management.
- Third Party Contractors Procurement and management.
- Reporting to OMC in accordance with the MUD Act and to include reports to OMC directors and members
- Keeping proper books of account in accordance with the Companies Act 2014 and MUD Act 2011 and preparing a file for Audit by the OMC accountant at year end.
- Corporate Services to include convening of general meetings of members, establishing and maintaining the register of members of the OMC
- Insurance Procurement and Management to ensure that the OMC and its members interests are protected.
- After Hours Emergency Services.

- Staff Administration.
- Estate initiatives to facilitate the future needs of unit owners and adapt with technology that effect the living experience of owners and changes in the built environment

### 2.2.1 Common Areas are areas including:

- The external walls, foundations and roofs and internal load-bearing walls the entrance halls, landings, lifts, lift shafts, staircases and passages
- The access roads, footpaths, kerbs, paved, planted and landscaped areas, and boundary walls Architectural and water features
- All ducts and conduits, other than those within and serving only one unit in the development
- Cisterns, tanks, sewers, drains, pipes, wires, central heating boilers, other than such items within and serving only one unit in the development
- Residents Fitness Centre
- Resident and Community multi-use area
- Management Offices and security
- Other areas that are from time to time provided for common use

### 2.2.2 OMC Services and Obligations

The OMC through the offices of their Property Management Agent will provide services required to the estate and detailed in the title documents of all units. In addition to the prescribed services, the OMC is best positioned to provide additional services to improve the living experience for all residents on the estate. Cushman & Wakefield, as the appointed management agent will endeavor to introduce initiatives for approval by the OMC and its members designed to deliver a strategy of better living balanced with value for money.

The services identified for the proper maintenance and upkeep of the residential development at Knockrabo are;

- **Insurance**

All shared structures, land and property owned by the OMC and used by residents collectively must be insured against normal risks protecting shared and private property against all insurable risks. Cushman & Wakefield will procure a comprehensive all risks property damage policy on behalf of the OMC prior to the sale of the first apartment reflecting the full reinstatement value of the development as completed. In addition to buildings insurance the OMC will require public and employers liability insurance, directors and officers liability insurance, engineering insurance for lifts and other mechanical installations and contents insurance for its fitness centre, management office and common areas.

- **Life Safety Systems, Fire Prevention and Protection**

The safety of residents is paramount. Each apartment building will be designed and built within strict regulatory requirements in respect of fire safety. The OMC will then have a duty of care to each resident to ensure that the building is maintained in accordance with its fire safety certificate and fire strategy. This will involve quarterly maintenance and inspection of fire alarm, emergency lighting and ventilation systems, daily and weekly checks by on-site personnel to ensure faults and failures are identified and corrected and an ongoing understanding of the fire strategy to ensure that the integrity of the fire safety certificate is never compromised by minor alterations to the building. Residents and owners will be advised to provide fire blankets and multi-purpose fire extinguishers to their apartments on an annual basis. Relevant signage and notices will assist compliance by residents in the operation of the buildings and evacuation plans will be provided as necessary.

- **Energy Consumption and Management**

As part of the sustainability strategy for Knockrabo, the development will enjoy communal CHP / District services providing heat and hot water to all apartments on a demand basis or individual exhaust air heat pump to provide localized heat and hot water. Common area lighting and power consumption will be monitored on a regular basis to strike a balance between comfort and efficiency. Where a communal heating and hot water system is installed consumption of individual apartment hot water and heat will be metered and re-charged to each resident to ensuring that each resident is aware of their consumption and contributes accordingly. All plant and equipment will be maintained in accordance with manufacturers guidance and guarantees to ensure that they are operated efficiently, and that the full life expectancy is delivered.

- **Waste Management**

The strategy for domestic waste will be based upon the Operational Waste Management Plan. The entire estate will use communal waste centres for all types of waste. This will enable the OMC optimize waste segregation and encourage residents to re-cycle and segregate as much waste as possible by providing multiple receptacles on site. The use of bin compactors will optimize the use of bins while reducing the number of bins. On site staff will manage waste storage areas keeping them free from lingering odours and vermin and ensuring that waste management areas are not unpleasant places for residents to visit and dispose of their waste and recycling. Waste and Recycling areas will be well managed with bins clearly identified to encourage segregation and prevent contamination.

- **Fitness Centre**

The resident's fitness centre will be unsupervised and as such each resident wishing to use same will be required to carry out an induction course prior to being granted access to the facility. The facility will be equipped as an unsupervised facility so that the risk to the OMC for misuse is minimized. Equipment will be self energized where possible to reduce energy consumption and the washroom facilities (heated from the CHP system) will have sensor regulated shower and wash hand basin to reduce unnecessary water and energy consumption. The fitness centre will be open from 6am until 10pm every day and monitored by CCTV in public areas. The fitness centre will be fitted out with specialist acoustic systems to absorb noise and vibration pollution to the apartments above.



- **Residents Multi-Function Area**

The residents multi-function area will be fitted out as a lounge / community area and available to residents for workspace during the day, community activities and meetings and any other uses that the OMC and residents believe will benefit the living experience at Knockrabo. High speed wireless broadband will be provided (shared with the fitness centre) to enable residents work, study or communicate remotely without the distraction of home comforts.

- **Maintenance**

Maintenance of all plant and equipment in accordance with statute, best practice and manufacturers warranties and guidance is essential for optimizing the operation of the estate and delivering comfort to residents. Maintenance contracts will be entered into for all such facilities to include lift maintenance, closed circuit television systems, access control, communal ventilation etc. In addition to maintenance contracts relevant consultants will be engaged to advise on best practice for maintenance and occasional review of contractors performance.

### ▪ Landscaping and Grounds

The landscaping plan has been designed to retain many mature trees in Knockrabo and to complement same with sympathetic planting, hard surfaces, water features and walkways. As part of the management strategy, particular attention will be taken to manage the existing and retained trees, keep the landscaped areas clear and free from debris and waste and generally enhance the natural environment for all owners and residents use and leisure. Ecological conservation measures will be adapted as part of the overall landscaping and grounds maintenance strategy with a view to encouraging diversity of fauna and wildlife at Knockrabo.



### 2.2.3 Service Charge Scheme

The preparation of a Service Charge Budget is a key function of the OMC and Property Management agent as it determines the services and service levels deliverable to the residents and OMC members for the coming year. The budget covers all items in connection to the maintenance, management, insurance, repair, upkeep, cleaning of common areas and equipment in accordance with the the Multi Unit Developments Act 2011 (“MUD” Act).

The Service Charge Budget will also detail different cost centres to reflect the enjoyment and consumption of services by different property types within the estate. This will enable the OMC to recover the costs from unit owners in an equitable and transparent manner.

The service charge budget will be prepared on a “normal year” basis ignoring warranties and guarantees available in the first year to establish a realistic service charge budget that should not vary greatly within the first three years of establishment. The budget will include a reasonable reserve fund, separate to the sinking fund, to provide for unforeseen expenditure and enable the OMC equalise its costs year to year without fluctuating the contributions from unit owners.

The Service Charge Scheme is in operation with Phase 1 and each year the budget is presented at an annual general meeting of all owners for approval prior to issuing of demands.

A service charge budget should also include an allowance for a Sinking Fund and a Reserve Fund.



- **Sinking fund**

A fund formed by periodically setting aside money for the replacement of a wasting asset (for example, major items of plant and equipment, such as heating and air-conditioning plant, lifts, etc.). It is usually intended that a sinking fund will be set up and collected over the whole life of the wasting asset.

- **Reserve fund**

A fund formed to meet the anticipated future costs of maintenance and upkeep in order to avoid fluctuations, or an anticipated large, one-off increase in the amount of service charge payable each year (for example, regularly recurring items such as external cleaning and redecorations).

The allowance for the sinking fund and reserve fund within the service charge budget is determined by establishing the Asset Register. The Asset Register 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 and the costs required to achieve it. The Asset Register will form part of the initial report for the OMC.

- **Optimising Maintenance and Life Cycle**

The design of buildings and their facilities in Knockrabo incorporates various measures to maximise the useful life of assets, plant and equipment focusing on the living experience for all residents. Operational management of the various facilities will include monitoring of performance and continuous re-assessment to ensure that each assets life cycle is maximized. Monitoring run times, energy consumption and reactive maintenance patterns will influence the life cycle strategy of the building. The Sinking Fund strategy is a living document that is subject to change through the experience of use trends within the estate and monitoring technological advances and adopting same when it is economically viable.

A sample format of the typical Asset Report is set out in Appendix 1.

Please Note: the sample Asset Report is based on an estimation of the types of assets that will ultimately be incorporated into the developed scheme. The final specification and estimate of the costs to maintain, repair or replace, will only be determined after detailed design and the procurement and construction of the development as concluded.

- **OMC Structure**

Mountanville House Owners Management CLG has been established as the OMC for the multi-unit development at Knockrabo. The company is limited by guarantee with membership restricted to unit owners within the estate. Voting is on the basis of membership with each unit having a single vote. Owner directors have been elected to the board of the OMC together with representatives of the developer. No director will hold office for longer than three years without seeking re-election at a General Meeting of owners. The OMC will engage a firm of Chartered Accountant to Audit its accounts each year

- **Service Charges**

The company must establish a scheme for annual service charges to pay for the maintenance, insurance and repair of common areas within its control and for the provision of common services to unit owners. While the initial charge was set in consultation with the developer prior to the sale of the first unit, subsequent service charge budgets have been approved by a general meeting of the members. The Service Charge Budget for the coming year will be prepared and distributed with explanations prior to a general meeting of owners convened to approve the budget. The budget is approved once it is not objected to by over 75% of members present and eligible to vote otherwise the existing charge must remain in place.

The service charge may not be used to pay for matters that are the responsibility of a developer or builder unless this is agreed in writing by 75% of the members of the company. This approval may only be given if 65% of the units are sold and can only come into effect 3 years after the transfer of ownership of the common

areas to the owners' management company. Unit owners are obliged to pay the service charge (including developers in the case of unsold units). The service charge must be calculated on a transparent and fair basis and expenditure must be properly recorded.

- **Service Charge Apportionment**

The property management agent will review the development to determine the most equitable and transparent manner of apportionment of service charges. The apportionment will determine the contribution each unit owner makes to the OMC costs as detailed in the Service Charge Budget and which cost centres each unit will contribute towards.

The fair and equitable apportionment of service charges will assist in the perpetual collection of service charges and ensure that each unit owner contributes to those services that they enjoy or consume. As the development has a mix of apartments and houses, the methodology reflects the variance service enjoyments of each housing type.

The apportionment methodology will also apply to the Building Investment Fund costs and annual contribution to the Sinking Fund.

- **OMC Annual General Meeting & Annual Report**

Mountanville House Owners Management CLG is already in operation and holds Annual General Meetings each calendar year. The property management agent prepares an Annual Report on behalf of the OMC in accordance with the MUD Act together with audited accounts and prepare a service charge budget for presentation to the owners for approval. The Annual Report contains all details required under MUD Act to include a summary of fire safety processes in place, insurance details and information regarding the level of sinking fund etc. The Annual Report and Proposed Budget is distributed to unit owners not less than 10 days in advance of the meeting and notice will be issued with accounts 21 days in advance of the meeting.

- **House Rules**

The property management agent prepared House Rules prior to the sale of the first unit having regard for the title documents and the physical nature of the development with a view to the quiet enjoyment of the estate by all unit owners. The House Rules are distributed as part of the Owners Management Information Booklet both prior to sale to the purchasers solicitor and immediately after sale directly to the new owner. House Rules can be amended at General Meetings thereafter to reflect the views of the owners and the needs of the estate.

- **Owners Management Information Booklet**

The property management agent will prepare an Owners Management Information Booklet that will contain details on the OMC, service charge budget, apportionment, House Rules and other useful information regarding the operation of the OMC and services provided.

- **Establishment of the Sinking fund**

Within 3 years of the transfer of ownership to it, the owners' management company must establish a sinking fund for spending on refurbishment, improvement or maintenance of a non-recurring nature of the multi-unit development. Unit owners are obliged to make contributions to it (including developers in the case of unsold units). The Act provides that the amount is to be €200 annually or such other amount as the members agree.

Contributions to the sinking fund must be held in a separate account.

### 3 Measures considered by the developer and design team to manage, mitigate and reduce the ongoing costs of the development costs for the benefit of residents and environment

#### 3.1 Energy and Carbon Emissions

The following are an illustration of the energy measures that are planned for the units to assist in reducing costs for the occupants.

Measure	Description	Benefit
<b>BER Certificates</b>	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 houses and 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	Higher BER ratings reduce energy consumption and running costs.
<b>Fabric Energy Efficiency</b>	The U-values being investigated will be in line with the requirements set out by the current regulatory requirements of the Technical Guidance Documents Part L, “Conservation of Fuel and Energy Buildings other than Dwellings”. Thermal bridging at junctions between construction elements will be minimised in accordance Paragraphs 1.2.4.2 and 1.2.4.3 within the Technical Guidance Documents Part L. Details will be in accordance with the ACD’s or will be modeled for thermal bridging analysis.	Lower U-values and improved air tightness will help minimise heat losses through the building fabric, lower the energy consumption and minimise carbon emissions to the environment.
<b>Energy Labelled White Goods</b>	The white goods package planned for the houses and apartments will be of a very high standard and have a high energy efficiency rating. It is expected that the below appliance ratings will be provided: <ul style="list-style-type: none"> <li>▪ Oven- A plus</li> <li>▪ Fridge Freezer- A plus</li> <li>▪ Dishwasher- AAA</li> <li>▪ Washer/Dryer- B</li> </ul>	The provision of high rated appliances reduces the amount of electricity required by occupants.
<b>Combined Heat &amp; Power</b>	The simultaneous generation of both usable heat and electric power from the same source will provide space heating and domestic hot water to	Heat and hot water will be provided either through a centralized CHP plant or by way of individual exhaust air heat pumps.

all apartments.

Each apartment will be fitted with an individual Heat Interface Unit which will measure consumption for each apartment.

**Heat Recovery Ventilation units** Heat Recovery Ventilation units providing fresh air and extracting stale air from apartments maintaining good air quality throughout the apartments. Heat Recovery Ventilation will be used for Knockrabo to provide ventilation with low energy usage and ensure a continuous fresh clean air supply.

Centralised mechanical ventilation will be provided to all dwellings to ensure that the air quality within the dwellings will be adequate. The inclusion of Heat Recovery Ventilation into the centralised ventilation system will be considered and assessed in order to minimise the energy usage within the dwelling.

**External Lighting** The proposed lighting scheme within the development consists of 8m and 6m pole mounted fittings as indicated on the drawings. The luminaire specified is an LED pole mounted luminaire with NEMA socket and photocell, this fitting was selected for the following reasons; The site lighting has been designed to provide a safe environment for pedestrians, cyclists and moving vehicles, to deter anti-social behavior and to limit the environmental impact of artificial lighting on existing flora and fauna in the area.

- Low level lighting
- Minimal upward light spill
- Low voltage LED lamps

Having PECU allows for the optimum operation of lighting which minimizes costs.

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.

**Internal Communal Lighting** Common area lighting is designed to enhance interior spaces and provide a comfortable and safe environment for residents. Internal light fittings will be standardized as much as possible to reduce obsolescence and the use of high quality LED fittings will reduce replacement and deliver lower running costs. Standardisation of light fittings using high-quality LED fittings and a lighting control system will result in lower running costs.

An intelligent lighting control system will ensure that areas enjoying natural light or lower usage will only illuminate when required. Stairwells enjoying natural light will be photocell enabled illuminating at dusk and remaining lit through darkness to provide place making area. The site lighting for Knockrabo 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 place making area. lighting for the comfort and wayfinding of residents.

**Electric Charging Points** **Car** The development will include e-car charging points within the resident's carpark to cater for E-car demand of the residence. A full re-charge can take from 1 to 8 hours using a standard charge point. Providing e-car charging points will allow occupants of Knockrabo to benefit from the ever-improving efficient electric car technologies.

### 3.2 Materials & Buildings

Apartment Buildings 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:

Item	Details	Benefits
<b>Long Term Maintenance and Service Life</b>	<p>Consideration in the selection of materials 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. Particular attention has been paid to the materials used in those parts of the public realm and building facades in order to complement the surrounding area, Monkstown and streets beyond.</p>	<p>The long-term durability and maintenance of materials is an integral part of the design and specification of Knockrabo development. All common parts of the proposed building and, the durability and performance of these are designed and specified to optimise their life expectancy and enhance the living experience of all residents</p>
<b>Cladding</b>	<p>The façades are a combination of natural brick and acid etched stone cladding. By having two contrasting materials, the form of the building is broken down into two separate elements, presenting a high-quality finish. Both products are robust with low maintenance and a low risk of damage as well as a life expectancy of over 50 years. At the lower levels robust cladding shall be used around the street realm to ensure a quality treatment to the visited areas, with good detailing ensuring minimal staining on façades.</p>	<p>The selected cladding façade options for Knockrabo have a long-life expectancy and require low / minimal maintenance.</p>
<b>Windows &amp; Curtain Walling</b>	<p>Knockrabo will have high performance powder coated aluminium double glazed thermally broken windows and curtain walling system. The windows will achieve the best ‘U’ value with high quality glazing ensuring good transparency and solar energy transmittance with optimal acoustic attenuation.</p>	<p>The choice of windows for Knockrabo will require low / minimal maintenance, as well as manage heat gain and external noise and reduce condensation to glazing and frames.</p>
<b>Green Roofs</b>	<p>A Green roof system is proposed to be incorporated for all apartment buildings.</p>	<p>Green roofs aid in the SUDS strategy for Knockrabo and attenuation generally reduces the burden on vulnerable rainwater goods, resulting in fewer elements that could require ongoing maintenance, replacement or repair.</p>

**Hard Landscaping**

The new street realm will be landscaped with high quality materials that are robust with high slip resistance.

All materials will be designed to a high standard, will be robust and withstand a long-life.

Shared surface areas will clearly identify priority to pedestrians and cyclists and deliver clear traffic calming measures.

Furniture and equipment (e.g. play, exercise, fencing etc.) will be durable and robust with multifunctional uses.

The use of robust high-quality paving materials at Knockrabo is intended to provide materials that reduce the need for ongoing maintenance costs.

Other materials such as for play, seating, fencing etc. are sustainable and robust material types that are designed to reduce the frequency and need for repair and maintenance over time at Knockrabo.

**Soft Landscaping**

Knockrabo currently enjoys a tranquil setting amongst mature trees. Much of the existing character of the estate will be retained together with trees, gentle roadways and woodland walks. Additional planting will be delivered to enhance the tranquil atmosphere and provide pleasant walks for all residents.

Adapting the existing landscape of Knockrabo to incorporate new apartments while retaining and creating pedestrian and shared access is a positive feature that will add significantly to the living experience for all residents.

Tree management and retention will feature strongly in the landscaping management, this will further enhance the living experience for residents in providing mature walks and tranquil surroundings for their use.



### 3.3 Health and Well-Being

The table below outlines measures related to health and well-being that have been incorporated into the Knockrabo to manage and reduce the long-term costs for residents and enhance the overall living experience.

Health can cover physical, mental, emotional and social health factors. Wellbeing is strongly linked to happiness and life satisfaction.

Item	
<b>Activity Usability Areas</b>	<p>&amp; There are several activity areas provided in Knockrabo to include:</p> <ul style="list-style-type: none"> <li>▪ Residents fitness centre;</li> <li>▪ Residents children’s playground;</li> <li>▪ Outdoor living and dining areas;</li> <li>▪ Outdoor barbecue area;</li> <li>▪ Residents multi-function lounge</li> <li>▪ Seating areas of varying sizes for groups of people, around the planted spaces.</li> <li>▪ Woodland walks through the estate and connecting to adjacent lands</li> </ul> <p>The range of activity and usability areas incorporated into the internal and external common areas to Knockrabo promoting the health &amp; well-being of residents.</p>
<b>Mobility Management Plan</b>	<p>The overall aim of the MMP for the proposed development is to minimise the proportion of single occupancy vehicle trips, including commuter-based trips, which have the greatest influence on traffic congestion, as well as leisure trips.</p> <p>The MMP for Knockrabo will promote health, social and economic benefits of sustainable travel; including:</p> <ul style="list-style-type: none"> <li>▪ To improve the travel options for residents;</li> <li>▪ To increase awareness of the available sustainable travel modes;</li> <li>▪ To minimise the incentives for private car usage;</li> <li>▪ To manage car use.</li> </ul>
<b>Personal Health &amp; Fitness</b>	<p>Active travel encouraged as part of the MMP enables people to enjoy health benefits as part of their daily routine. Choosing a sustainable travel mode can reduce the stress associated with commuting, bringing benefits to health, mood and job.</p> <p>Walking is of course free of charge and delivers additional health benefits and cycling can be undertaken at a very modest cost in comparison with car ownership.</p> <p>The measures implemented within the Mobility Management Plan will raise awareness and support residents of Knockrabo to become more active and healthier, fitter and more productive by encouraging physical exercise as part of residents’ day-to-day travel behaviour.</p> <p>There are also added financial benefits to using sustainable modes of transport as opposed to private car trips.</p>

**Environmental Benefits**

Climate change is one of the most significant challenges facing the world today. If emissions at a local level, like unaddressed, it has the potential for far reaching economic and societal impacts both locally and internationally. Globally, transport is the fastest growing source of greenhouse gas emissions, particularly carbon dioxide.

Changes to reduce greenhouse gas emissions at a local level, like Knockrabo, can combine to have a real impact on overall emissions to benefit the health of residents

**Welcome Travel Pack**

The Welcome Travel Pack will include a variety of sustainable transport information, including:

- Information on the health benefits of walking and cycling;
- Advice on ways to reduce the need to travel and details of club cars and shared bicycle schemes in the area
- Details of the benefits of journey sharing, such as reduced congestion, better air quality, reduction in traffic noise and cost savings to the individuals taking part; and
- Provide information on the financial and environmental costs associated with driving.

The implementation of the Welcome Travel Pack for Knockrabo will highlight many of the measures in the proposed development to encourage residents to travel sustainably

**Walking**

The proposed development will have multiple access points to integrate into Goatstown, Dundrum and Stillorgan together with public transport opportunities. Several locations such as supermarkets, schools, cinemas, public transport stations and multiple shops and restaurants are easily accessible by good quality footways. It is expected that the surrounding network of pedestrian infrastructure is suitable to accommodate additional trips on-foot generated by the proposed development.

Walking is of course free of charge and is the most sustainable form of travel and improves the health of individuals.

**Cycling**

The proposed development is well situated with regards to cycling facilities with cycle lanes, on and off-road routes and cycle parking racks located within the vicinity of the development. High quality and aesthetically pleasing secure bicycle storage will be provided for all residents to encourage bicycle use and discourage the transportation of bicycles through internal common areas. Ample visitor bicycle storage will be provided.

Cycling can be undertaken at a very modest cost in comparison with car ownership. Secure visitor bicycle storage will encourage visitors to travel by bicycle.



## Open Space

The open space will enjoy a good level of natural surveillance from the apartments above so that users of the open space will feel comfortable and safe.

By creating a strong relationship between the private and public space at Knockrabo, residents will be encouraged to feel a strong sense of ownership over the public realm.

This will serve to reinforce the safety and security of the public realm by ensuring that anti-social behaviour will not go unchallenged.



### 3.4 Landscape

Measure Description	Benefit
<ul style="list-style-type: none"> <li>Use of robust, high quality paving and decking materials, with robust and proven details</li> <li>Use of durable and robust equipment (e.g. play, exercise, fencing etc.) to be used throughout.</li> </ul>	<ul style="list-style-type: none"> <li>Requires no on-going maintenance.</li> <li>Requires no on-going maintenance.</li> </ul>

### 3.5 Waste Management

The following measures illustrate the intentions for the management of Waste.

Measure	Description	Benefit
<b>Construction Management Plan</b>	<b>Waste</b> A construction and waste management plan will be completed prior to commencement on site. The management plan will cover waste management, licensing etc.	The report will ensure that the construction phase will be managed to comply with best practice.
<b>Operational Management Plan</b>	<b>Waste</b> Operational waste has been reviewed by Cushman & Wakefield. All bin storage is on grade, with communal bin stores for the Multi-Unit buildings.	The report will ensure that the operational waste can be managed in an efficient and cost effective manner.
<b>Storage of Non- Recyclable Waste and Recyclable Household Waste</b>	Domestic waste management strategy: <ul style="list-style-type: none"> <li>Grey, Brown, Green and glass bin distinction</li> <li>Competitive tender for waste management collection</li> <li>Weekly collection of all communal waste bins</li> <li>Well lit, clean, ventilated communal bin stores with guidance regarding recycling and waste area usage</li> </ul>	Encourages the proper segregation of waste, achieving economies of scale and educating residents on recycling and composting
<b>Composting</b>	Organic waste bins to be provided throughout.	Helps reduce potential waste charges.



### 3.6 Management

Consideration has been given to ensure the homeowners have a clear understanding of their property.

Measure	Description	Benefit
Home User Guide	<p>Once a purchaser completes their sale, a homeowner file will be provided which will include:</p> <ul style="list-style-type: none"> <li>Homeowner manual – this will provide important information for the purchaser on details of their new property. It includes details of the property such as Meter Point Reference Number (MPRN) and the Gas Point Reference Number (GPRN), utilities and communication providers, Contact details for all relevant suppliers and User Instructions for appliances and devices in the property. The manual will also contain details in respect of the owners management company and service charge budget for the first year.</li> <li>A Residents Pack prepared by the OMC which will typically provide information on contact details for the Managing agent, emergency contact information, transport links, operational details, communal facilities and a clear set of rules and regulations.</li> </ul>	Residents and owners are instructed from the outset as to the optimum function of their own property and the wider functions and facilities of the OMC to encourage the enjoyment of the estate and its features.

### 3.7 Transport

Measure	Measure Description	Benefit
Access to Public Transport (Bus & DART Services)	A total of seven Dublin Bus services including nitelink services, Aircoach serves Dublin Airport and the Luas service operates from Dundrum station within close proximity to the subject site.	The proximity, frequency and range of destinations served by these transport services enhance the accessibility levels of the proposed residential development in addition to providing a viable and practical sustainable alternative to journeys undertaken by private motor car.
Permeable Connections	Provision and subsequent maintenance of dedicated pedestrian and cycle infrastructure onsite, and connectivity with adjoining third party lands and the off-site networks.	Ensure the long-term attractiveness of walking and cycling to a range of local education, retail and community facilities and services.

**Bicycle Storage**

The provision of high quality secure bicycle parking facilities, for both short term and long-term parking requirements.

Accommodates the uptake of cycling and reducing the reliance on the private motor vehicle.

**Motorcycle Parking**

The implementation of secure, attractive, best practice motorcycle parking facilities for residents.

Reduces the reliance on the private motor vehicle in parallel with reducing oil dependency.



## 4 Sample Asset Register

ASSET REGISTER			
Ref	Element	Life Expectancy	Yearly estimate of costs year 1 to year 30
<b>1.00</b>	<b>Roofs</b>		
1.01	Green / Blue Roof with insulation – manufacturers guarantee	40	
1.02	Replacement parapet details	20	
1.03	Replace roof access hatches	25	
1.04	Specialist Roof Systems- Fall arrest	25	
<b>2.00</b>	<b>Elevations</b>		
2.01	Decorate rendered panels to apartments	18	
2.02	Minor repairs and preparation for decorations of rendered areas	18	
2.03	Replace exit/ entrance doors	25	
2.04	Replace Rainwater goods	25	
2.05	Recoat powder coated Finishes to balconies	20	
2.06	Periodic replacement and overhauling of external fixings	5	
2.07	Replace Balcony floor finishes	25	
2.08	Paint external rendered elevations	3	
<b>3.00</b>	<b>Stair cores &amp; lobbies</b>		
3.01	Decorate Ceilings	7	
3.02	Decorate Walls	7	
3.03	Decorate Joinery	7	
3.04	Replace fire doors	25	
3.05	Replace carpets (stairwells & lobbies)	12	
3.06	Replace entrance mats	10	
3.07	Replace nosing's	12	
3.08	Replace ceramic floors tiles	20	
3.09	Fixed Furniture & Equipment- Provisional Sum	18	
<b>4.00</b>	<b>M&amp;E Services</b>		
4.01	General- Internal relamping	7	
4.02	Replace Internal light fittings	18	
4.03	Replace External light fittings (lights at entrance lobbies)	18	
4.04	Replace smoke detector heads	18	
4.05	Replace manual break glass units	18	
4.06	Replace Fire alarm panel	18	

4.07	Replace lift car and controls	25	
4.08	Replace AOV's	25	
4.09	Replace security access control installation	15	
4.10	Sump pumps replacement	15	
4.11	External Mains Water connection	20	
4.12	Electrical Mains and Sub Mains distribution	20	
4.13	Emergency Lighting	20	
<b>5.00</b>	<b>Exterior</b>		
5.01	Entrance Gate - motor renewal	12	
5.02	Entrance Gate & pedestrian gate – redecoration	60	
5.03	External boundary treatments - Recoat powder coated Finishes to railings	60	
5.04	Replace cobble lock areas	18	
5.05	15-year cutback & thinning of trees. Overhaul landscaping generally	15	
5.06	Replace CCTV provision	12	
5.07	External Handrails and balustrade	18	
<b>6.0</b>	<b>Residents Fitness Centre, Multi-Function Centre &amp; Management Office</b>		
<b>6.01</b>	Decorate Ceilings	7	
<b>6.02</b>	Decorate Walls	7	
<b>6.03</b>	Decorate Joinery	7	
<b>6.04</b>	Replace fire doors	25	
<b>6.05</b>	Replace carpets and acoustic floor coverings	12	
<b>6.06</b>	Replace tiled floors and walls	15	
<b>6.07</b>	Changing rooms, washrooms and showers	15	
<b>6.08</b>	Gym Equipment	10	
<b>6.09</b>	Fixed Furniture & Equipment- Provisional Sum	18	
<b>6.10</b>	Management Office Desks and Chairs	10	
<b>6.11</b>	Management Office IT	5	
<b>6.12</b>	Intruder Alarms	15	