

CAHERANARDRISH LRD

Building Life Cycle Report

Proposed Large Scale Residential Development
Caheranardrish, Mungret, Co. Limerick



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1.0. INTRODUCTION

This Building Lifecycle Report was prepared for the proposed residential development at Caheranardrish, Mungret, Co. Limerick.

The purpose of this report is to provide an initial assessment of the 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 to effectively manage and reduce costs for the benefit of the residents. This is achieved by producing a Building Lifecycle Report.

This Building Lifecycle Report has been developed on foot of the revised guidelines for Planning Design Standards for Apartments - Guidelines for Planning Authorities 2025

Section 6.2 of the Apartment Guidelines requires that:

“planning applications for apartment development 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.”

2.0. DESCRIPTION OF DEVELOPMENT

The development will consist of a Large-scale Residential Development (LRD), comprising of 182no. residential dwellings as follows: 141no. houses consisting of 104no. detached/semi-detached dwellings (24no. 4-beds, 78no. 3-beds and 2no. 2-beds), 37no. townhouses (18no. 3-beds and 19no. 2-beds) and 41no. apartment units across 1no. triplex unit (2no. 2-beds and 1no. 1-bed) and a five-storey apartment building (13no. 2-beds and 25no. 1-beds) with a crèche with capacity to accommodate 70no. children at ground floor level.

The proposed development will include the provision for car parking, including EV charging points and bicycle parking. The proposed development will also include the provision of private, communal, and public open spaces; internal roads and pathways; pedestrian and cyclist routes; hard and soft landscaping and boundary treatments; waste storage; plant; signage; a new vehicular and pedestrian access onto the Mungret Park Road; public lighting; substations; all associated site development works; and all drainage and foul sewer infrastructure and network works including a pumping station and connections to the existing networks and nature-based suds measures.

3.0. EXECUTIVE SUMMARY – BUILDING LIFE CYCLE REPORT

Measures to effectively manage and reduce costs for the benefit of residents

The following document reviews the outline specification set out for the proposed residential development at Caheranardish, Mungret, Co. Limerick and explores the practical implementation of the design and material principles which has informed design of building roofs, façades, internal layouts and detailing of the proposed development.

Building materials proposed for use on 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, as well as both soft and hardscape in the public, semi-public and private realm will contribute to lower maintenance costs for future residents and occupiers.

Please note that detailed specifications of building fabric and services have not been provided at this stage. This report reflects the outline material descriptions contained within the planning drawing pack.

For any elements where information was not available, typical examples have been provided of building materials and services used for schemes of this nature and their associated lifespans and maintenance requirements. All information is therefore indicative subject to further information at detailed design stage.

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 in a summary document. 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, this will take the form of a Planned Preventative Maintenance Schedule (PPM)* at operational commencement of the development.

4.0. EXTERNAL BUILDING FABRIC SCHEDULE

4.1. Roofing

4.1.1. Roof (Manufacturer / Supplier TBC)

<i>Location</i>	Apartment Block Flat Roof Areas (maintenance access only)
<i>Description</i>	Kingspan Thermaroom built up roof to engineer's specification
<i>Lifecycle</i>	Average lifecycle of 15-25 years on most membrane roofs. Lifecycle will be extended with robust proven detailing to adjoining roof elements and appropriate and regular maintenance to ensure the upkeep of roofing product / materials.
<i>Required maintenance</i>	Half-yearly maintenance visits to include inspection of membrane material for puncture / cracks on sheeting; seams and flashing details; around drainage and ventilation outlets and removal of any vegetation/moss blockages to prevent ponding.
<i>Year</i>	Half-Yearly / Annual
<i>Priority</i>	Medium
<i>Selection process</i>	A membrane roof with appropriate built-up system will provide durability, lacks water permeability, and easily maintain without shutting down building operations during application.
<i>Reference</i>	Planning drawings & design statement.

4.1.2. Pitched Roofs (Manufacturer / Supplier TBC)

<i>Location</i>	Triplex-Apartment Building
<i>Description</i>	Contrasting Concrete Tiled Roof.
<i>Lifecycle</i>	Lifecycle of 80-100 years for concrete tiled roofs. As used across the industry nationally and in the UK, long lifecycle typically achieved by regular inspection and maintenance regime to ensure the upkeep of roofing tiles.
<i>Required maintenance</i>	Annual inspection internally and externally for slipped/cracked tiles, slates and flashings, leaks etc. Carry out localised repairs as required.
<i>Year</i>	Annual
<i>Priority</i>	Medium
<i>Selection process</i>	Concrete tiles are chosen for its aesthetic qualities and are durable and long-lasting materials which few other roofing materials can achieve. Pitched roofs by design ensure run-off of rainwater and therefore, less deterioration to roofing materials.
<i>Reference</i>	Planning drawings & design statement.

4.2. Rainwater Drainage (Manufacturer / Supplier TBC)

<i>Location</i>	Apartment Block and Triplex-Apartment Building
<i>Description</i>	• Rainwater outlets: Wade or equally approved suitable for specified roof membranes. • Pipework: Mixture of new cast aluminium and new uPVC to Engineer's design and specification. • Below ground drainage: To Engineers design and specification. • Disposal: To surface water drainage to Engineers design. • Controls: To Engineers design and specification. • <i>Accessories</i>: allow for outlet gradings, spigots, downspout nozzle, hopper heads, balcony and main roof outlets.
<i>Lifecycle</i>	Metal gutters and downpipes have an expected life expectancy of 40 years in rural and suburban conditions (25 years in industrial and marine conditions), this is comparable to cast iron of 50 years and plastic, less so at 30 years. As used across the industry nationally and the UK, typically longer lifecycle is achieved by regular inspection and maintenance regime to ensure the upkeep of materials.
<i>Required maintenance</i>	As with roofing systems routine inspection is key to preserving the lifecycle of rainwater systems. Regular cleaning and rainwater heads and gutters, checking joints and fixings and regularly cleaning polyester coated surfaces (no caustic or abrasive materials).
<i>Year</i>	Annually, cleaning bi-annually
<i>Priority</i>	High
<i>Selection process</i>	As above, metal fittings compare well against cast iron (in terms of cost) and plastic (in terms of lifespan and aesthetic).
<i>Reference</i>	N/A

4.3. External Walls

4.3.1. Brick (Manufacturer / Supplier TBC)

<i>Location</i>	Apartment Block and Triplex-Apartment Building
<i>Description</i>	Brick is used on the majority of elevations of the apartment block and triplex unit to enhance feature elements. Red and off-white brick is used depending on which character area the units are located.
<i>Lifecycle</i>	Selected colour bricks have a high embodied energy, they are an extremely durable material. Brickwork in this application is expected to have a lifespan of 50-80 years. The mortar pointing however has a shorter lifespan of 25-50 years. Longer lifecycle achieved by regular inspection and maintenance regime.
<i>Required maintenance</i>	In general, given their durability, brickwork finishes require little maintenance. Most maintenance is preventative: checking for hairline cracks, deterioration of mortar, plant growth on walls, or other factors that could signal problems or lead to eventual damage.
<i>Year</i>	Annual
<i>Priority</i>	Low
<i>Selection process</i>	Aesthetic, lightweight, cost-efficient and low maintenance cladding option, indistinguishable from traditional brick construction.
<i>Reference</i>	Planning drawings & design statement.

4.3.2. Render

<i>Location</i>	Apartment Block and Triplex-Apartment Building
<i>Description</i>	Contrasting Natural Render Finish. The apartment and triplex units are designed using a modest amount of render.
<i>Lifecycle</i>	Renders in general are expected to have a lifecycle of circa 25 years. Longer lifecycle achieved by regular inspection and maintenance regime.
<i>Required maintenance</i>	Regular inspections to check for cracking and de-bonding. Most maintenance is preventative. Coloured render requires less maintenance than traditional renders.
<i>Year</i>	Annually
<i>Priority</i>	Medium
<i>Selection process</i>	Appropriate detailing will contribute to a long lifespan for this installation. Insulated render is a durable and low-maintenance finish with the added benefit of this product being BBA certified against other render systems.
<i>Reference</i>	Planning drawings & design statement.

4.4. External Windows & Doors

<i>Location</i>	Apartment Block and Triplex-Apartment Building
<i>Description</i>	- Selected uPVC window and door frames to approved colour. - All units to be double-glazed with thermally efficient framework. - All opening sections in windows to be fitted with suitable restrictors. Include for all necessary ironmongery; include for all pointing and mastic sealant as necessary; fixed using stainless steel metal straps screwed to masonry reveals; include for all bends, drips, flashings, thermal breaks etc.
<i>Lifecycle</i>	uPVC has a typical lifespan of 30-40 years. As used nationwide and in the UK, typically longer lifecycle is achieved by regular inspection and maintenance regime to ensure the upkeep of materials.
<i>Required maintenance</i>	Check surface of windows and doors regularly so that damage can be detected. Vertical mouldings can become worn and require more maintenance than other surface areas. Lubricate at least once a year. Ensure regular cleaning regime. Check for condensation on frame from window and ensure ventilation.
<i>Year</i>	Annual
<i>Priority</i>	Medium
<i>Selection process</i>	uPVC is durable, energy efficient, sound-proof, resistant to corrosion and require low maintenance.
<i>Reference</i>	Planning drawings & design statement.

4.5. Balconies

4.5.1. Structure

<i>Location</i>	Apartment Block and Triplex-Apartment Building
<i>Description</i>	Precast concrete balcony system to engineer's details.
<i>Lifecycle</i>	Precast concrete structures have a high embodied energy; however, it is an extremely durable material. Concrete frame has a typical life expectancy of 80 years. As used across the industry nationally and the UK, longer lifecycle is achieved by regular inspection and maintenance regime to ensure the upkeep of materials.
<i>Required maintenance</i>	Relatively low maintenance required. Check balcony system as per manufacturer's specifications. Check elements for signs of wear and/or weathering. Check for structural damage or modifications.
<i>Year</i>	Annual
<i>Priority</i>	High
<i>Selection process</i>	Engineered detail; designed for strength and safety.
<i>Reference</i>	N/A

4.5.2. Balustrades and Handrails

<i>Location</i>	Apartment Block and Triplex-Apartment Building
<i>Description</i>	- Metal balustrades with metal handrails and fixings - Fixings in accordance with manufacturer's details.
<i>Lifecycle</i>	Metal items have a lifespan of 25-45 years. Longer lifecycle is achieved by regular inspection and maintenance regime to ensure the upkeep of materials.
<i>Required maintenance</i>	Annual visual inspection of connection pieces for impact damage or alterations.
<i>Year</i>	Annual
<i>Priority</i>	High
<i>Selection process</i>	Metal option will have a longer lifespan and require less maintenance than timber options (10-20 years).
<i>Reference</i>	N/A

5.0 INTERNAL BUILDING FABRIC SCHEDULE

5.1. Floors

<i>Location</i>	Apartment Block – Entrance lobbies / common corridors
<i>Description</i>	Selected anti-slip porcelain or ceramic floor tile complete with inset matwell.
<i>Lifecycle</i>	Lifespan expectation of 20-25 years in heavy wear areas, likely requirement to replace for modernisation within this period also.
<i>Required maintenance</i>	Visual inspection, intermittent replacement of chipped / loose tiles
<i>Year</i>	Annual
<i>Priority</i>	Low
<i>Selection process</i>	Durable, low maintenance floor finish. Slip rating required at entrance lobby, few materials provide this and are as hard wearing.
<i>Reference</i>	N/A

<i>Location</i>	Apartment Block – Stairwells, landings / half landings
<i>Description</i>	Selected anti-slip porcelain or ceramic floor tile complete with inset matwell.
<i>Lifecycle</i>	Lifespan expectation of 20-25 years in heavy wear areas, likely requirement to replace for modernisation within this period also.
<i>Required maintenance</i>	Visual inspection, intermittent replacement of chipped / loose tiles
<i>Year</i>	Annual
<i>Priority</i>	Low
<i>Selection process</i>	Durable, low maintenance floor finish.
<i>Reference</i>	N/A

<i>Location</i>	Apartment Block – Lift Lobby
<i>Description</i>	Vinyl and porcelain tiles to match adjacent apartment and lobbies.
<i>Lifecycle</i>	Lifespan expectation of 20-30 years in heavy wear areas, likely requirement to replace for modernisation within this period also.
<i>Required maintenance</i>	Visual inspection, intermittent replacement of chipped / loose tiles
<i>Year</i>	Annual
<i>Priority</i>	Low
<i>Selection process</i>	Slip rating required for lifts, few materials provide this and are as hard wearing.
<i>Reference</i>	N/A

5.2. Walls

<i>Location</i>	Apartment Block – Entrance lobbies / common corridors / stairs
<i>Description</i>	Selected paint finish with primer to skimmed plasterboard
<i>Lifecycle</i>	2-10 years for finishes; 40 years for plasterboard. Longer lifecycle achieved by regular inspection and maintenance regime to ensure the upkeep of materials.
<i>Required maintenance</i>	Regular maintenance required and replacement when damaged.
<i>Year</i>	Bi-annually
<i>Priority</i>	Low
<i>Selection process</i>	Decorative and durable finish.
<i>Reference</i>	N/A

5.3. Ceilings

<i>Location</i>	Apartment Block – Common areas
<i>Description</i>	Selected paint finish with primer to skimmed plasterboard ceiling on M/F frame. Acoustic ceiling to lift core and apartment lobbies. Moisture board to wet areas.
<i>Lifecycle</i>	2-10 years for finishes; 40 years for plasterboard. Longer lifecycle achieved by regular inspection and maintenance regime to ensure the upkeep of materials.
<i>Required maintenance</i>	Regular maintenance required and replacement when damaged
<i>Year</i>	Bi-annually
<i>Priority</i>	Low
<i>Selection process</i>	Decorative and durable finish.
<i>Reference</i>	N/A

5.4. Internal Handrails & Balustrades

<i>Location</i>	Apartment Block – Stairs and landings
<i>Description</i>	Metal balustrade option
<i>Lifecycle</i>	25-30 years typical lifecycle. Longer lifecycle achieved by regular inspection and maintenance regime to ensure the upkeep of materials.
<i>Required maintenance</i>	Regular inspections of holding down bolts and joints
<i>Year</i>	Annually
<i>Priority</i>	High
<i>Selection process</i>	Hard-wearing long-life materials against timber options
<i>Reference</i>	N/A

5.5. Carpentry & Joinery

5.5.1. Internal Doors and Frames

<i>Location</i>	Apartment Block – Common Areas
<i>Description</i>	- Selected white primed and painted/varnished solid internal doors, or hardwood veneered internal doors - All fire rated doors and joinery items to be manufactured in accordance with B.S. 476. Timber saddle boards. - Brushed aluminium door ironmongery or similar
<i>Lifecycle</i>	30 years average expected lifespan. Longer lifecycle achieved by regular inspection and maintenance regime to ensure the upkeep of materials.
<i>Required maintenance</i>	General maintenance in relation to impact damage and general wear and tear
<i>Year</i>	Annually
<i>Priority</i>	Low, unless fire door - High
<i>Selection process</i>	Industry standard
<i>Reference</i>	N/A

5.5.2. Skirtings & Architraves

<i>Location</i>	Apartment Block – Common Areas
<i>Description</i>	Painted timber/MDF skirtings and architraves
<i>Lifecycle</i>	30 years average expected lifespan. Longer lifecycle achieved by regular inspection and maintenance regime to ensure the upkeep of materials.
<i>Required maintenance</i>	General maintenance in relation to impact damage and general wear and tear
<i>Year</i>	Annually
<i>Priority</i>	Low
<i>Selection process</i>	Industry standard
<i>Reference</i>	N/A

6.0 BUILDING SERVICES

6.1 Mechanical Systems

6.1.1 Mechanical Plant Areas

<i>Location</i>	Apartment Block and Triplex-Apartment Building
<i>Description</i>	Water Heating plant is proposed to consist primarily of Exhaust Air Heat Pumps with back up heater. Full specification to be further details to be provided by the M&E Consultant at detailed design stage.
<i>Lifecycle</i>	• Annual Maintenance Exhaust Air Heat Pump and Hot Water Heat Pump • Annual Maintenance / Inspection to Pumps. • Annual Maintenance / Inspection to Water Tanks. • Annual Maintenance / Inspection to Water Booster - sets. • Annual Maintenance / Inspection to DHS Tanks. • Cost for replacement equipment to be updated on completion of design matrix of equipment at detailed design stage. • Replacement of equipment at (End of Life) EOL to be determined at detailed design stage.
<i>Required maintenance</i>	Annual Service Inspections to be included as part of Development Planned Preventative Maintenance Programme
<i>Year</i>	Annually
<i>Priority</i>	Medium
<i>Selection process</i>	All equipment to be detailed as part of the detailed design section of the development. This equipment will be selected in conjunction with the design and management team to meet and exceed the CIBSE recommended lifecycles.
<i>Reference</i>	N/A

6.1.2. Soils and Wastes

<i>Location</i>	Apartment Block and Triplex-Apartment Building
<i>Description</i>	PVC Soils and Wastes Pipework
<i>Lifecycle</i>	• Annual inspections required for all pipework within landlord areas. • Cost for replacement equipment to be updated on completion of design matrix of equipment at detailed design stage.
<i>Required maintenance</i>	Annual Service Inspections to be included as part of Development Planned Preventative Maintenance Programme
<i>Year</i>	Annually
<i>Priority</i>	Medium
<i>Selection process</i>	All equipment to be detailed as part of the detailed design section of the development. This equipment will be selected in conjunction with the design and management team to meet and exceed the CIBSE recommended lifecycles.
<i>Reference</i>	N/A

6.1.3. Water Services

<i>Location</i>	Apartment Block and Triplex-Apartment Building
<i>Description</i>	EAHP for domestic Hot Water Copper Water Services Pipework and associated fittings and accessories.
<i>Lifecycle</i>	• Annual Inspection of EAHP and Cylinder • Annual inspections required for all pipework within landlord areas. • Cost for replacement equipment to be updated on completion of design matrix of equipment at detailed design stage.
<i>Required maintenance</i>	Annual Inspections, including legionella testing to be included as part of Development Planned Preventative Maintenance Programme
<i>Year</i>	Annually
<i>Priority</i>	High
<i>Selection process</i>	All equipment to be detailed as part of the detailed design section of the development. This equipment will be selected in conjunction with the design and management team to meet and exceed the CIBSE recommended lifecycles.
<i>Reference</i>	N/A

6.1.4. Ventilation Services

<i>Location</i>	Apartment Block and Triplex-Apartment Building
<i>Description</i>	Centralised Mechanical Extract Ventilation System (MEV) Ducting & Grilles
<i>Lifecycle</i>	• Annual inspection of MEV and grilles • Annual Inspection of operation of fan and boost / setback facility. • Cost for replacement equipment to be updated on completion of design matrix of equipment at detailed design stage.
<i>Required maintenance</i>	Annual Service Inspections to be included as part of Development Planned Preventative Maintenance Programme
<i>Year</i>	Annually
<i>Priority</i>	Medium
<i>Selection process</i>	All equipment to be detailed as part of the detailed design section of the development. This equipment will be selected in conjunction with the design and management team to meet and exceed the CIBSE recommended lifecycles.
<i>Reference</i>	N/A

6.2 Electrical / Protective Services

6.2.1 Electrical Infrastructure

<i>Location</i>	Switch Rooms / Risers
<i>Description</i>	Maintenance of Electrical Switchgear
<i>Lifecycle</i>	- Annual Inspection of Electrical Switchgear and switchboards. - Thermographic imaging of switchgear 50% of MV Switchgear Annually and LV switchgear every 3 years. - Cost for replacement equipment to be updated on completion of design matrix of equipment at detailed design stage.
<i>Required maintenance</i>	Annual / Every three years to be included as part of Development Planned Preventative Maintenance Programme
<i>Year</i>	Annually
<i>Priority</i>	High
<i>Selection process</i>	All equipment to meet and exceed ESB, ETCI, CIBSE recommendations and be code compliant in all cases.
<i>Reference</i>	N/A

6.2.2 Lighting Services Internal

<i>Location</i>	All Areas – Internal
<i>Description</i>	Lighting – LED throughout with Presence detection in circulation areas and locally controlled in apartments.
<i>Lifecycle</i>	- Annual Inspection of All Luminaires - Quarterly Inspection of Emergency Lighting. - Cost for replacement equipment to be updated on completion of design matrix of equipment at detailed design stage.
<i>Required maintenance</i>	Annual / Quarterly Inspections certification as required per above remedial works.
<i>Year</i>	Annually / Quarterly
<i>Priority</i>	High
<i>Selection process</i>	All equipment to meet requirements and be in accordance with the current IS3217, Part M and DAC Requirements.
<i>Reference</i>	N/A

6.2.3 Lighting Services External

<i>Location</i>	All Areas – External
<i>Description</i>	Lighting – All LED with Vandal Resistant Diffusers where exposed.
<i>Lifecycle</i>	• Annual Inspection of All Luminaires • Quarterly Inspection of Emergency Lighting • Cost for replacement equipment to be updated on completion of design matrix of equipment at detailed design stage.
<i>Required maintenance</i>	Annual / Quarterly Inspections certification as required as per the PPM schedule.
<i>Year</i>	Annually / Quarterly
<i>Priority</i>	High
<i>Selection process</i>	All equipment to meet requirements and be in accordance with the current IS3217, Part M and DAC Requirements.
<i>Reference</i>	N/A

6.2.4 Protective Services – Fire Alarm

<i>Location</i>	Apartment Block and Triplex-Apartment Building
<i>Description</i>	Fire alarm
<i>Lifecycle</i>	• Quarterly Inspection of panels and 25% testing of devices as per IS3218 requirements. • Cost for replacement equipment to be updated on completion of design matrix of equipment at detailed design stage.
<i>Required maintenance</i>	Annual / Quarterly Inspections certification as required as per the PPM schedule.
<i>Year</i>	Annually / Quarterly
<i>Priority</i>	High
<i>Selection process</i>	All equipment to meet requirements and be in accordance with the current IS3218 and the Fire Cert
<i>Reference</i>	N/A

6.2.5 Protective Services – Fire Extinguishers

<i>Location</i>	Apartment Block
<i>Description</i>	Fire Extinguishers and Fire Blankets
<i>Lifecycle</i>	• Annual Inspection • Cost for replacement equipment to be updated on completion of design matrix of equipment at detailed design stage.
<i>Required maintenance</i>	Annual with Replacement of all extinguishers at year 10
<i>Year</i>	Annually
<i>Priority</i>	High
<i>Selection process</i>	All fire extinguishers must meet the requirements of I.S 291:2015 Selection, commissioning, installation, inspection and maintenance of portable fire extinguishers.
<i>Reference</i>	N/A

6.2.6 Protective Services – Apartment Sprinkler System (to be confirmed by Fire Cert / Fire Consultant)

<i>Location</i>	Apartment Block
<i>Description</i>	Apartment Sprinkler System
<i>Lifecycle</i>	• Weekly / Annual Inspection • Cost for replacement equipment to be updated on completion of design matrix of equipment at detailed design stage.
<i>Required maintenance</i>	Weekly Check of Sprinkler Pumps and plant and annual testing and certification of plant by specialist.
<i>Year</i>	All
<i>Priority</i>	High
<i>Selection process</i>	The Apartment sprinkler system shall be installed in accordance with BS 9251:2005 – Sprinkler Systems for Residential and Domestic Occupancies – Code of Practice
<i>Reference</i>	N/A

6.2.7 Protective Services – Dry Risers

<i>Location</i>	Apartment Block
<i>Description</i>	Dry Risers
<i>Lifecycle</i>	• Weekly / Annual Inspection • Cost for replacement equipment to be updated on completion of design matrix of equipment at detailed design stage.
<i>Required maintenance</i>	Visual Weekly Checks of Pipework and Landing Valves with Annual testing and certification by specialist.
<i>Year</i>	Weekly / Annually
<i>Priority</i>	High
<i>Selection process</i>	The system shall be installed in accordance with BS 5041 & BS 9999
<i>Reference</i>	N/A

6.2.8 Fire Fighting Lobby Ventilation

<i>Location</i>	Apartment Block
<i>Description</i>	Smoke Extract / Exhaust Systems
<i>Lifecycle</i>	• Regular Tests of the system • Annual inspection of Fans • Annual inspection of automatic doors and AVOs • All systems to be backed up by life safety systems.
<i>Required maintenance</i>	Annual Service Inspections to be included as part of Development Planned Preventative Maintenance Programme
<i>Year</i>	Weekly / Annually
<i>Priority</i>	Medium
<i>Selection process</i>	All equipment to be detailed as part of the detailed design section of the development. This equipment will be selected in conjunction with the design and management team to meet and exceed the CIBSE recommended lifecycles.
<i>Reference</i>	N/A

6.2.9 Sources of Renewable Energy

<i>Location</i>	Roof
<i>Description</i>	PV Array on roof supply each residential unit with renewable electrical energy, supporting Part L/NZEB requirements in conjunction with Exhaust Air Source Heat Pumps. Full Details to be provided at detailed stage.
<i>Lifecycle</i>	• Quarterly Clean • Annual Inspection • Cost for replacement equipment to be updated on completion of design matrix of equipment at detailed design stage.
<i>Required maintenance</i>	Quarterly / Annual
<i>Year</i>	Annually
<i>Priority</i>	Medium
<i>Selection process</i>	All equipment to be detailed as part of the detailed design section of the development. This equipment will be selected in conjunction with the design and management team to meet and exceed the CIBSE recommended lifecycles.
<i>Reference</i>	N/A

7.0 PUBLIC SPACES AND ACCESS ROUTES

7.1 Hard Landscape Treatments

The specification of materials and finishes for the site have been carefully considered to deliver a combination of:

- Robustness and fitness for purpose
- Quality in respect of visual effect and function
- Definition of place such as for key public spaces, crossing points, home zones and recreational destinations
- Legibility in terms of changes of function of space, contribution towards traffic calming and guidance for the visually impaired.
- Cost effectiveness
- Visual cohesion which is achieved by using a limited but effective palette of materials.

Proposed materials and finishes are as follows:

- Roads – hot rolled asphalt.
- Shared Surfaces – hot rolled asphalt with variations in colour and texture provided by the inclusion of coloured aggregates or resin bonded surface finishes.
- Neighbourhood Footpaths – Smooth concrete surface finish
- Greenway Shared Pedestrian / Cyclist Paths - Bitumen macadam with coloured aggregate
- Areas – Ballylusk self-compacting gravel
- Apartment Plaza Spaces – Combination of large and small unit quality concrete paving products from Tobermore or similar.
- Pedestrian Crossings - hot rolled asphalt with variations in colour and texture provided by the inclusion of coloured aggregates or resin bonded surface finishes.

7.2 Soft Landscape Treatments

Planting proposals have generally been formulated to complement the local landscape setting. Native trees have been selected in significant numbers for planting along boundaries and across open spaces, while a mixture of native and non-native species have been chosen to be compatible with available spaces such as along roads and in close proximity to houses.

Shrub and groundcover planting provides additional sense of seasonality, diversity and visual interest and includes pollinator species to enhance site biodiversity in line with the All-Ireland Pollinator Plan.

7.3 Maintenance and Management

Consideration of management and maintenance issues has been integral to the design development process. Tree species selection has focused on providing species suitable for size for the available garden, street and public open spaces thus avoiding onerous management operations in future years.

Groundcover planting arrangements are visually effective and will enhance biodiversity but will not be overly complex. Excessive shrub and groundcover planting is also avoided with a view to aiding the maintenance and management process and maintaining good visibility across all public areas of the site.

Hard landscape materials have also been selected with quality, robustness and ease of maintenance in mind as outlined above