BUILDING LIFECYCLE REPORT

KNOCKRABO LARGE-SCALE RESIDENTIAL DEVELOPMENT (PHASE 2):
KNOCKRABO, MOUNT ANVILLE ROAD, GOATSTOWN, DUBLIN 14

CLIENT:

KNOCKRABO INVESTMENTS DAC

aramark

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EXECUTIVE SUMMARY

1.0 EXECUTIVE SUMMARY – BUILDING LIFE CYCLE REPORT

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

With Phase 1 of 'Knockrabo' lands granted under Dún Laoghaire-Rathdown County Council (DLRCC) Reg. Ref. D13A/0689/An Bord Pleanála (ABP) Ref. PL06D.243799 and DLRCC Reg. Ref. D16A/0821 (Phase 1) and DLRCC Reg. Ref. D16A/0960 (Phase 1A) and comprises a total of 119 No. units, the following document reviews the specification set out for Phase 2 'Knockrabo' lands proposed large-scale residential development (LRD) at a site of c. 2.54 hectares, at Knockrabo, Mount Anville Road, Goatstown, Dublin 14 and explores the practical implementation of the design and material principles which have informed design of roofs, façades, internal layouts and detailing of the proposed development and building typologies.

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, and communal open space will contribute to lower maintenance costs for future residents and occupiers.

This report has been prepared on the basis of information available at planning stage. This report reflects the outline material descriptions contained within O'Mahony Pike Architects' LRD Phase 2 Design Statement and planning drawings received.

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 confirmation 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.

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DESCRIPTION OF DEVELOPMENT

2.0 DESCRIPTION OF DEVELOPMENT

A seven-year planning permission is sought for the following development:

The development with total of c.17,312.2 sq.m. gross internal area (GIA) will consist of the construction of 158 No. residential units (12 No. houses and 146 No. apartments (35 No. 1 beds, 81 No. 2 beds, 3 No. 3 beds and 27 No. 3 bed duplex units), a childcare facility (c.400 sq.m. GIA) and Community / Leisure Uses (c. 223 sq.m. GIA), as follows:

- Block E (c.1,077 sq.m. GIA): a 5-storey including semi-basement podium level apartment block, comprising 8 No. apartments (1 No. 1 bed and 7 No. 2 beds);
- Block F: (c.8,390.8 sq.m. GIA): a part 2 to part 8 storeys including semi basement podium apartment block, comprising 84 No. units (31 No. 1 beds, 50 No. 2 beds and 3 No. 3 bed duplex units);
- Block G: (c.2,022.1 sqm GIA): a part 4 to part 5-storey apartment block, comprising 20 No. units (3 No. 1 bed units, 14 No. 2 bed units and 3 No. 3 bed units); (with sedum roof/PV panels at roof level of Blocks E, F and G; a communal Roof Terrace of c. 198 sqm on Block F; and balconies/wintergardens on all elevations of Blocks E, F and G);
- Duplex Blocks: (c. 3,292.6 sqm GIA): 1 No. 3 storey and 1 No. 4 storey block, comprising a total of 32 No. units (8 No. 2 bed units and 24 No. 3 bed duplex units);
- 10 No. (new build) houses: 6 No. 4 bed 2.5-3 storey terraced/semi-detached units (ranging in size from c.162.1 sqm GIA to c.174.2 sq.m. GIA); 1 No. 3 bed 2 storey detached unit (126.2 sq.m. GIA); 1 No. 3 bed 2 storey mid terrace unit (c.127.4 sq.m. GIA); 1 No. 3 bed 2 storey end of terrace unit (c.127.9 sq.m. GIA); and 1 No. 1 - 2 storey 'Gate House' (c. 122.6 sq.m. GIA) to the west of proposed repositioned entrance to Cedar Mount from Mount Anville Road;
- The use of existing 'Coach House' as a residential dwelling and for internal / external repair / refurbishment works at ground and first floor levels, including the removal of 3 No. roof lights, 1 No. metal clad dormer roof window and external water tank; the construction of 2 No. single storey flat roof extensions (c.35.5 sq.m. GIA), revisions to the external facade including the addition of 1 No. new window ope on the south facade and rendered finish to all original facades, solar panels at roof level; removal / re-use of stone to form new garden wall; to provide 1 No. 2 bed house (c. 99.5 sq.m. GIA) with refurbished stone shed (c. 13.9 sq.m. for storage GIA).
- The use of Knockrabo Gate Lodge (West) (a Protected Structure) as a residential dwelling; and for repair / refurbishment works including demolition of existing section of extension on top of stone boundary wall; removal of 1 No. roof light and 1 No. internal partition wall; construction of replacement extension (c.77.5 sq.m. GIA) to provide 1 No. 3-bed unit (c. 128 sq.m. GIA) with solar panels at roof level, bin storage, landscaping, all repair works to the existing Gate and Piers, and all associated internal and external elevational changes.
- The proposed development comprises works to Cedar Mount (a Protected Structure) to provide: 1 No. Childcare Facility at Lower Ground Floor level (c.400 sq.m. GIA) with associated external play and bin storage areas; Community / Leisure Uses at Ground Floor Level (c. 223 sq.m. GIA), comprising Gym / Studio (c.35.6 sq.m. GIA), Library / Office (c. 35.9 sq.m. GIA), Meeting room (c.28.4 sq.m. GIA) and Conservatory room (c. 21.6 sq.m. GIA); and 2 No. 2 bed apartments at 1st floor level, (c.77.6 sq.m. GIA and c.88.2 sq.m. GFA). The works to Cedar Mount to consist of:

    - At lower ground floor/ basement level, the removal of internal walls and sections of external and internal walls and access doors; insertion of openings through external and internal walls; repair of existing "loggia" (covered external corridor) on northern, north-western and north-eastern facades, with revised elevations

comprising glazed panels / glazed entrance doors located within loggia opes; the additional area (c. 58 sq.m. GIA) to form part of proposed Childcare Facility;

- At ground floor level removal of wooden staircase to 1st floor level and replacement with open-tread staircase, and construction of conservatory room (c. 21.6 sqm GIA) with flat roof on south - western side of Cedar Mount with sedum roof; removal of 1 No. WC;
- At 1st floor level removal of sections of internal walls; insertion of doors through internal walls;
- Re-instatement of 1 no. new chimney stack on the western end of the existing roof; replacement of rubble masonry finish with lime and sand plaster finish on all elevations relating to sections of original façade; removal of security bars from existing windows in front porch; replacement / reconfiguration of rainwater downpipes, hopper heads and associated roof outlets; Re-modelling of extension on northern side including replacement of timber / pressed metal cladding with brick / zinc cladding and glazing at ground and 1st floor levels, removal / replacement of external doors and windows; replacement of flat roof deck, parapet, eaves and roof-light with flat roof comprising brick / zinc clad parapet and removal of internal link at 1st floor level; repair works to external walls at ground floor level; Construction of rendered blockwork wall and steel handrail to terrace and associated repair works to section of existing parapet wall on eastern side of Cedar Mount; all hard and soft landscaping; revisions to garden wall and pillars on western side of Cedar Mount; and all associated internal and elevational changes; and
- The repositioning of existing access (including gates and piers) to Cedar Mount (a Protected Structure) on Mount Anville Road to the northeast with associated works to boundary wall to Mount Anville Road.

The development will also provide 130 No. car parking spaces consisting of 117 No. residential spaces (comprising 54 No. at podium level, 63 No. on-street and on curtilage spaces, 6 No. visitor spaces and 2 No. on-street car sharing spaces); and 5 No. non-residential spaces; provision of 366 No. bicycle parking spaces (consisting of: 288 No. residential spaces, 70 No. (residential) visitor spaces, 6 No. (non-residential) spaces and 2 No. visitor (non-residential) spaces); and 9 No. motorcycle parking spaces.

All other ancillary site development works to facilitate construction, site services, piped infrastructure, 1 No. sub-station, plant, public lighting, bin stores, bike stores, boundary treatments, provision of public, communal and private open space areas comprising hard and soft landscaping, site services all other associated site excavation, infrastructural and site development works above and below ground. In addition to the repositioned access to Cedar Mount (a Protected Structure) as referenced above, the development will be served by the permitted access road 'Knockrabo Way' (DLRCC Reg. Ref. D13A/0689; ABP Ref. PL.06D.243799, DLRCC Reg. Ref. D16A/0821 and DLRCC Reg. Ref. D16A/0960). The application does not impact on the future access to the Reservation for the Dublin Eastern Bypass.

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INTRODUCTION

3.0 INTRODUCTION

Aramark Property were instructed by Knockrabo Investments DAC, to provide a Building Lifecycle Report for their Phase 2 'Knockrabo' lands proposed large-scale residential development (LRD) at a site of c. 2.54 hectares, at Knockrabo, Mount Anville Road, Goatstown, Dublin 14.

The purpose of this report is to provide an initial 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 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 Sustainable Urban Housing: Design Standards for New Apartments - Guidelines for Planning Authorities (July 2023) issued under Section 28 of the Planning and Development Act, 2000 (as amended). Within the new guidelines, new guidance is being provided on residential schemes.

Section 6.12 of the Operation and Management of Apartment Developments (July 2023) 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."

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EXTERNAL BUILDING FABRIC SCHEDULE

4.0 EXTERNAL BUILDING FABRIC SCHEDULE

4.1 Roofing

4.1.1 Green Roofs (Manufacturer / Supplier TBC)

Location	Blocks E, F + G Roof Areas (maintenance access only)
Description	Extensive green roof system to engineer's specification.
Lifecycle	Average lifecycle of 15-35 years on most green roofs. Lifecycle will be extended with robust proven detailing to adjoining roof elements and appropriate and regular maintenance of the roof materials.
Required maintenance	Quarterly maintenance visits to include inspection of drainage layer and outlets and removal of any blockages to prevent ponding. Inspection of vegetation layer for fungus and decay. Carry out weeding as necessary. No irrigation necessary with sedum blankets.
Year	Bi-annually
Priority	Medium
Selection process	A green roof will add to the character of the overall scheme, as well as providing attenuation to storm water run-off and less burden on rainwater goods, increased thermal and sound insulation to the building and increased biodiversity. Natural soft finishes can provide visual amenity for residents where roof areas are visible or accessible from within areas of the scheme. Sedum roofs are a popular and varied choice for green roofs requiring minimal maintenance.
Reference	O'Mahony Pike Architects' LRD Phase 2 planning drawings & design statement.

4.1.2 Roof Terraces (Manufacturer / Supplier TBC)

Location	Block F Roof Areas (maintenance access only)
Description	• Intensive green system to architects and engineer's specification. • Selected lightweight precast concrete / stone paving slabs on support system.
Lifecycle	Average lifecycle of 25 - 35 years on most roofs. As used across the industry nationally and in the UK, long lifecycle typically achieved by robust detailing to adjoining roof elements, regular inspection and maintenance regime to ensure the upkeep of roofing product / materials.
Required maintenance	Quarterly maintenance visits to include: • Inspection of drainage layer and outlets and removal of any blockages to prevent water build up. • Inspection of metalwork and fixings including railings, planters, flashings, decking and repair/replace as necessary. • Check for displacement of slabs and mortar decay and remove organic matter. Power-washing of hard surfaces.
Year	Quarterly / annual
Priority	Medium
Selection process	Paving slabs provide a robust and long-lasting roof terrace surface, requiring considerably less maintenance when compared to timber decking or gravel surfaces.
Reference	O'Mahony Pike Architects' LRD Phase 2 planning drawings & design statement.

4.1.3 Roof (Manufacturer / Supplier TBC)

Location	Selected Flat Roof Areas (maintenance access only)
Description	• Single layer membrane roof system to engineer's specification. • Selected membrane and pressed metal cappings.
Lifecycle	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 of the roof materials.
Required maintenance	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.
Year	Half-Yearly / Annual
Priority	Medium
Selection process	Membrane roof with appropriate built-up system will provide durability, lacks water permeability, and easily maintain without shutting down building operations during application.
Reference	O'Mahony Pike Architects' LRD Phase 2 planning drawings and design statement.

4.1.4 Pitched Roofs (Manufacturer / Supplier TBC)

Location	Pitched Roof Areas
Description	Selected Tiled Roof
Lifecycle	Lifecycle of 80 -100 years for tiled roofs. As used across the industry nationally, long lifecycle typically achieved by regular inspection and maintenance regime to ensure the upkeep of roofing tiles.
Required maintenance	Annual inspection internally and externally for slipped/cracked tiles, slates and flashings, leaks etc. Carry out localised repairs as required.
Year	Annual
Priority	Medium
Selection process	Tiled roofs 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.
Reference	O'Mahony Pike Architects LRD Phase 2 planning drawings & design statement.

4.1.5 Flashings

Location	All flashing locations
Description	Appropriate materials to be used for all flashing and counter flashings.
Lifecycle	Typical life expectancy of 70 years recorded for flashings. Recessed joint sealing requires regular inspections. Longer lifecycle achieved by regular inspection and maintenance regime to ensure upkeep of materials.
Required maintenance	Check joint fixings for flashing, ground survey annually and close-up inspection every 5 years. Re-secure as necessary.
Year	Ground level inspection annually and close-up inspection every 5 years
Priority	Medium
Selection process	Alternatives to lead has longest life expectancy of comparable materials such as copper (60 years) and zinc (50 years). Provided appropriate safety precautions are taken, lead is the recommended choice for large residential, commercial, or industrial builds. Lead is easily formed into the required shapes for effective weathering of building junctions according to standard Lead Sheet Association details.
Reference	N/A

4.2 Rainwater Drainage

Location	All buildings
Description	• *Rainwater outlets:* Suitable for specified roof membranes • *Pipework:* uPVC downpipes and gutters • *Below ground drainage:* To Engineers' design and specification • *Disposal:* To surface water drainage to Engineers' design • *Controls:* To Engineers' design and specification • *Accessories:* allow for outlet gradings, spigots, downspout nozzle, hopper heads, balcony and main roof outlets
Lifecycle	uPVC 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, typically longer lifecycle is achieved by regular inspection and maintenance regime to ensure the upkeep of materials.
Required maintenance	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).
Year	Annually, cleaning bi-annually
Priority	High
Selection process	As above, uPVC fittings compare well against cast iron (in terms of cost) and plastic (in terms of lifespan and aesthetic).
Reference	N/A

4.3 External Walls

4.3.1 Brick (Manufacturer / Supplier TBC)

Location	Façades
Description	'Red' and 'White' brickwork to select locations.
Lifecycle	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.
Required maintenance	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.
Year	Annual
Priority	Low
Selection process	Aesthetic, lightweight, cost-efficient and low maintenance cladding option, indistinguishable from traditional brick construction.
Reference	O'Mahony Pike Architects LRD Phase 2 planning drawings & design statement.

4.3.2 Metal (Manufacturer / Supplier TBC)

Location	Façades
Description	• Aluminium clad window and door frames to selected colour. • Metal cladding to Apartments penthouse and inset panels. • Zinc cladding to Cedar Mount House extension. • Selected Zinc Roof to new House Rear extension. • Metal Dormers to Pitched Roof Houses.
Lifecycle	Lifespan expectancy generally in excess of 40 years. As used across the industry nationally, typically longer lifecycle is achieved by regular inspection and maintenance regime to ensure the upkeep of materials.
Required maintenance	Metal cladding requires little maintenance and is resistant to corrosion. It can contribute to lower ongoing maintenance costs in comparison to exposed porous materials which may be liable to faster deterioration. Long term cleaning requirements should be taken into consideration.
Year	Inspection annually; cleaning 5 yearly
Priority	Low
Selection process	Metal cladding protects the building's structure from rainwater and weathering. Metal cladding systems are also chosen for their aesthetic impact, durability and weathering properties.
Reference	O'Mahony Pike Architects LRD Phase 2 planning drawings & design statement.

4.3.3 Render (Manufacturer / Supplier TBC)

Location	Façades
Description	• Lime render finish to Cedar Mount House original wall. • New render/Textured Dash Finish to Houses.
Lifecycle	Renders in general are expected to have a lifecycle of circa 25 years. Longer lifecycle achieved by regular inspection and maintenance regime.
Required maintenance	Regular inspections to check for cracking and de-bonding. Most maintenance is preventative. Coloured render requires less maintenance than traditional renders.
Year	Annually
Priority	Medium
Selection process	Appropriate detailing will contribute to a long lifespan for this installation. Render is a durable and low-maintenance finish.
Reference	O'Mahony Pike Architects LRD Phase 2 planning drawings & design statement.

External Windows & Doors

Location	Façades
Description	• Mixture of clear and obscure glazed windows with Aluminium coated frames to select finish. • All units to be double glazed with thermally broken frames. • 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.
Lifecycle	Aluminium has a typical lifespan of 30-40 years. As used nationwide, typically longer lifecycle is achieved by regular inspection and maintenance regime to ensure the upkeep of materials.
Required maintenance	Check surface of windows and doors regularly so that damage can be detected. Vertical moldings 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.
Year	Annual
Priority	Medium
Selection process	Aluminium is durable and low maintenance with an average lifespan of 30-40 years. Alu-clad timber windows compare favourably when compared to the above, extending timber windows typical lifespan of 35-50 years by 10-15 years.
Reference	N/A

4.4 Balconies

4.5.1 Structure

Location	Façades
Description	• Concrete balcony system to engineer's detail, or • Powder-coated steel frame balcony system to engineer's detail • Thermally broken farrat plate connections to main structure of building.
Lifecycle	• Metal structure has a typical life expectancy of 70 years dependent on maintenance of components. • 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.
Required maintenance	Relatively low maintenance required. Check balcony system as per manufacturer's specifications. Check all hardware components for wear. Check elements for signs of wear and/or weathering. Check for structural damage or modifications.
Year	Annual
Priority	High
Selection process	Engineered detail; designed for strength and safety.
Reference	N/A

4.5.2 Balustrades and Handrails

Location	Balconies (Blocks E, F + G)
Description	• Powder-coated Metal Balustrade / Handrailing system including fixings in accordance with manufacturer's details. • Approved balcony glass system. Guarding: Manufacturers standard - Tempered glass (safety glass). Fixings: In accordance with manufacturer's details.
Lifecycle	General metal and glass items have a lifespan of 25-45 years. As used across the industry nationally, long lifecycle is achieved by regular inspection and maintenance regime to ensure the upkeep of materials.
Required maintenance	Annual visual inspection of connection pieces for impact damage or alterations.
Year	Annual
Priority	High
Selection process	Metal and glass options will have a longer lifespan and require less maintenance than timber options (10-20 years).
Reference	N/A

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INTERNAL BUILDING FABRIC SCHEDULE

5.0 INTERNAL BUILDING FABRIC SCHEDULE

5.1 Floors

5.1.1 Common Areas

Location	Entrance lobbies / Common corridors
Description	• Selected anti-slip porcelain floor tile complete with inset matwell. • Selected loop pile carpet tiles.
Lifecycle	• 20-30 years lifespan for floor tiles in heavy wear areas. Likely requirement to replace for modernisation within this period also. • 10–15-year lifespan for carpet. Likely requirement to replace for modernisation within this period also.
Required maintenance	Visual inspection with regular cleaning, intermittent replacement of chipped / loose tiles
Year	• Annual for floor tiles. • Quarterly inspection and cleaning of carpets as necessary
Priority	Low
Selection process	Durable, low maintenance floor finish. Slip rating required at entrance lobby, few materials provide this and are as hard wearing. Using carpet allows flexibility to alter and change as fashions alter and change providing enhanced flexibility.
Reference	N/A

Location	Stairwells, landings / half landings
Description	Selected carpet covering. Approved anodised aluminium nosing's to stairs.
Lifecycle	• 10–15-year lifespan for carpet. Likely requirement to replace for modernisation within this period also. • 20-year lifespan for aluminium nosing's.
Required maintenance	Visual inspection with regular cleaning.
Year	Quarterly inspection and cleaning as necessary.
Priority	Low
Selection process	Using carpet allows flexibility to alter and change as fashions alter and change providing enhanced flexibility.
Reference	N/A

Location	Lift Lobbies
Description	Carpet/vinyl and porcelain tiles to match adjacent apartment common lobbies.
Lifecycle	• 20-30 years lifespan for floor tiles in heavy wear areas. Likely requirement to replace for modernisation within this period also. • 10–15-year lifespan for carpet. Likely requirement to replace for modernisation within this period also.
Required maintenance	Visual inspection with regular cleaning, intermittent replacement of chipped / loose tiles.
Year	Annual
Priority	Low
Selection process	Slip rating required for lifts, few materials provide this and are as hard wearing. Using carpet allows flexibility to alter and change as fashions alter and change providing enhanced flexibility.
Reference	N/A

5.1.2 Tenant Areas

Location	Resident Amenity (e.g. Creche, Library/Office, Gym/Studio, etc)
Description	• Timber laminate / parquet flooring, or • Carpet covering • Provide for inset matwell
Lifecycle	• Laminated / parquet timber flooring has an expected life expectancy of 25-35 years dependent on use. • 10-15 year lifespan for carpet. Likely requirement to replace for modernisation within this period also
Required maintenance	Visual inspection. Sweep clean regularly ensuring to remove any dirt. Clean up spills immediately and use only recommended floor cleaners.
Year	Annual
Priority	Low
Selection process	Materials chosen for aesthetics, durability and low maintenance.
Reference	N/A

Location	All wet areas (e.g., WC's)
Description	Selected anti-slip ceramic floor tile.
Lifecycle	Lifespan expectation of 20-25 years in heavy wear areas, likely requirement to replace for modernisation within this period also.
Required maintenance	Visual inspection, intermittent replacement of chipped / loose tiles.
Year	Annual
Priority	Low
Selection process	Slip rating required at entrance lobby, few materials provide this and are as hard wearing.
Reference	N/A

5.2 Walls

5.2.1 Common Areas

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

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

5.2.2 Tenant Areas

Location	Resident Amenity (e.g. Creche, Library/Office, Gym/Studio, etc)
Description	Selected paint finish with primer to skimmed plasterboard
Lifecycle	2-10 years for finishes; 40 years for plasterboard. Longer lifecycle achieved by regular inspection and maintenance regime to ensure the upkeep of materials.
Required maintenance	Regular maintenance required and replacement when damaged.
Year	Bi-annually
Priority	Low
Selection process	Decorative and durable finish.
Reference	N/A

Location	Wet areas (e.g. WC's)
Description	Selected ceramic wall tile to plasterboard (moisture board to wet areas).
Lifecycle	Typical life expectancy of 35-40 years, less in wet room areas to 20-25 years.
Required maintenance	Bi-annual inspection to review damage, local repairs as necessary, particular detailed inspection in wet room areas.
Year	Annually
Priority	Medium
Selection process	Wet room application requires moisture board and tiling.
Reference	N/A

5.3 Ceilings

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

Location	Resident Amenity (e.g. Creche, etc)
Description	Selected paint finish with primer to skimmed moisture board ceiling.
Lifecycle	2-10 years for finishes; 40 years for plasterboard. Longer lifecycle achieved by regular inspection and maintenance regime to ensure the upkeep of materials.
Required maintenance	Regular maintenance required and replacement when damaged.
Year	Bi-annually
Priority	Low
Selection process	Decorative and durable finish.
Reference	N/A

5.4 Internal Handrails & Balustrades

Location	Stairs & landings
Description	Mild steel painted balustrade and handrail.
Lifecycle	Over 40 years typical lifecycle. Longer lifecycle achieved by regular inspection and maintenance regime to ensure the upkeep of materials.
Required maintenance	Regular inspections of holding down bolts and joints
Year	Annually
Priority	High
Selection process	Hard-wearing long-life materials against timber options
Reference	N/A

5.5 Carpentry & Joinery

5.5.1 Internal Doors and Frames

Location	All buildings
Description	• 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 (Fire Tests). Timber saddle boards. • Brushed aluminium door ironmongery or similar
Lifecycle	30 years average expected lifespan. Longer lifecycle achieved by regular inspection and maintenance regime to ensure the upkeep of materials.
Required maintenance	General maintenance in relation to impact damage and general wear and tear
Year	Annual
Priority	Low, unless fire door High
Selection process	Industry standard
Reference	N/A

5.5.2 Skirtings & Architraves

Location	All buildings
Description	Painted timber / Medium-density fibreboard (MDF) skirtings and architraves
Lifecycle	30 years average expected lifespan. Longer lifecycle achieved by regular inspection and maintenance regime to ensure the upkeep of materials.
Required maintenance	General maintenance in relation to impact damage and general wear and tear
Year	Annual
Priority	Low
Selection process	Industry standard
Reference	N/A

5.5.3 Window Boards

Location	All Buildings
Description	Painted timber / Medium-density fibreboard (MDF) window boards
Lifecycle	30 years average expected lifespan
Required maintenance	General maintenance in relation to impact damage and general wear and tear
Year	Annual
Priority	Low
Selection process	Industry standard
Reference	N/A

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BUILDING SERVICES

6.0 BUILDING SERVICES

6.1 Mechanical Systems

6.1.1 Mechanical Plant

Location	Residential / Houses + Duplex Units
Description	Space Heating is proposed to consist primarily of Air Source Heat Pumps. (ASHP). Space Heating is proposed to consist of Electric Panel Radiators. Further details to be provided by Mechanical & Electrical (M&E) Consultant at detailed design stage.
Lifecycle	• Annual Maintenance / Inspection to Heating System • Annual Maintenance of Air Source Heat Pumps • Annual Maintenance / Inspection to Heating and Water 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.
Required maintenance	Annual Service Inspections to be included as part of Development Planned Preventative Maintenance (PPM) Programme
Year	Annually
Priority	Medium
Selection process	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 Chartered Institution of Building Services Engineers of Ireland's (CIBSE) recommended lifecycles.
Reference	N/A

Location	Residential / Apartments
Description	Space Heating is proposed to consist primarily of Air Source Heat Pumps (ASHP). Space Heating is proposed to consist of Electric Panel Radiators. Further details to be provided by Mechanical & Electrical (M&E) Consultant at detailed design stage.
Lifecycle	• Annual Maintenance / Inspection to Heating System • Annual Maintenance of Air Source Heat Pumps • Annual Maintenance / Inspection to Heating and Water 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.
Required maintenance	Annual Service Inspections to be included as part of Development Planned Preventative Maintenance (PPM) Programme
Year	Annually
Priority	Medium
Selection process	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 Chartered Institution of Building Services Engineers of Ireland's (CIBSE) recommended lifecycles.
Reference	N/A

6.1.2 Soils and Wastes

Location	All Areas / Kitchens / Bathrooms etc
Description	Soils and Wastes Pipework – uPVC and High-Density Polyethylene. (HDPE)
Lifecycle	• 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.
Required maintenance	Annual Service Inspections to be included as part of Development Planned Preventative Maintenance (PPM) Programme
Year	Annually
Priority	Medium
Selection process	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 Chartered Institution of Building Services Engineers of Ireland's (CIBSE) recommended lifecycles.
Reference	N/A

6.1.3 Water Services

Location	Residential / Houses + Duplex Units
Description	Water Heating is proposed to consist of a Pre-Packaged Air Source Heat Pump Hot Water Cylinder. (ASHPHWC) for Domestic Hot Water. Further details to be provided by Mechanical & Electrical (M&E) Consultant at detailed design stage.
Lifecycle	• Annual Maintenance / Inspection of Air Source Heat Pump Hot Water Cylinders. (ASPHHWC) • Annual Inspection required of all pipework within landlord areas. • Cost for replacement equipment to be updated on completion of design matrix of equipment at detailed design stage.
Required maintenance	Annual Service Inspections to be included as part of Development Planned Preventative Maintenance (PPM) Programme
Year	Annually
Priority	High
Selection process	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 Chartered Institution of Building Services Engineers of Ireland's (CIBSE) recommended lifecycles.
Reference	N/A

Location	Residential / Apartments
Description	Water Heating is proposed to consist of a Pre-Packaged Air Source Heat Pump Hot Water Cylinder. (ASHPHWC) for Domestic Hot Water. • The water services installation within the landlord and core areas shall be as per the M&E Design. • Within the apartments, the water services installation will be complete using Pre-insulated Multi-Layered Alu-Plex type system.
Lifecycle	• Annual Maintenance / Inspection of Air Source Heat Pump Hot Water Cylinders. (ASPHHWC) • Annual Inspection required of all pipework within landlord areas.

	• Cost for replacement equipment to be updated on completion of design matrix of equipment at detailed design stage.
Required maintenance	Annual Service Inspections to be included as part of Development Planned Preventative Maintenance (PPM) Programme
Year	Annually
Priority	High
Selection process	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 Chartered Institution of Building Services Engineers of Ireland's (CIBSE) recommended lifecycles.
Reference	N/A

6.1.4 Ventilation Services

Location	Residential / Houses + Duplex Units
Description	Mechanical Extract Ventilation (MEV) to M&E Design.
Lifecycle	• Annual inspection of extract fan / and grilles • Annual Inspection of operation of fan and boost / setback facility if provided on units. • Cost for replacement equipment to be updated on completion of design matrix of equipment at detailed design stage.
Required maintenance	Annual Service Inspections to be included as part of Development Planned Preventative Maintenance Programme
Year	Annually
Priority	Medium
Selection process	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 Chartered Institution of Building Services Engineers of Ireland's (CIBSE) recommended lifecycles.
Reference	N/A

Location	Residential / Apartments
Description	Ducted Heat Recovery Ventilation Units (DHRV) shall be provided within each apartment. • Cooker Hoods shall be installed in the kitchens.
Lifecycle	• Annual Inspection of Ducted Heat Recovery Ventilation Unit (DHRV) • Annual Inspection of extract fan / and grilles • Annual Inspection of operation of fan and boost / setback facility if provided on units. • Cost for replacement equipment to be updated on completion of design matrix of equipment at detailed design stage.
Required maintenance	Annual Service Inspections to be included as part of Development Planned Preventative Maintenance Programme
Year	Annually
Priority	Medium
Selection process	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 Chartered Institution of Building Services Engineers of Ireland's (CIBSE) recommended lifecycles.
Reference	N/A

6.2 Electrical / Protective Services

6.2.1 Electrical Infrastructure

Location	Switch rooms / Risers
Description	Maintenance of Electrical Switchgear
Lifecycle	• Annual Inspection of Electrical Switchgear and switchboards. • Thermographic imagining of switchgear 50% of Medium Voltage (MV) Switchgear Annually and Low Voltage (LV) switchgear every 3 years. • Cost for replacement equipment to be updated on completion of design matrix of equipment at detailed design stage.
Required maintenance	Annual / Every three years to be included as part of Development Planned Preventative Maintenance (PPM) Programme
Year	Annually
Priority	High
Selection process	All equipment to meet and exceed Electricity Supply Board (ESB), IS10101:2020, Chartered Institution of Building Services Engineers of Ireland's (CIBSE) recommendations and be code compliant in all cases.
Reference	N/A

6.2.2 Lighting Services internal

Location	All Areas – Internal
Description	Lighting – Light-Emitting Diode (LED) throughout with Presence detection in circulation areas and locally controlled in apartments.
Lifecycle	• 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.
Required maintenance	Annual / Quarterly Inspections certification as required per above remedial works.
Year	Annually / Quarterly
Priority	High
Selection process	All equipment to meet requirements and be in accordance with the current National Standards Authority of Ireland (NSAI) Irish Standard for Emergency Lighting I.S.3217:2013 + A1 2017, Building Regulations Technical Guidance Document Part M and Disability Access Certificate (DAC) Requirements.
Reference	N/A

6.2.3 Lighting Services External

Location	All Areas – External
Description	Lighting – All Light-Emitting Diode (LED) with Vandal Resistant Diffusers where exposed.
Lifecycle	• 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.
Required maintenance	Annual / Quarterly Inspections certification as required as per the Planned Preventative Maintenance (PPM) schedule.
Year	Annually / Quarterly
Priority	High
Selection process	All equipment to meet requirements and be in accordance with the current National Standards Authority of Ireland (NSAI) Irish Standard for Emergency Lighting I.S.3217:2013 + A1 2017, Building Regulations Technical Guidance Document Part M and Disability Access Certificate (DAC) Requirements.
Reference	N/A

6.2.4 Protective Services – Fire Alarm

Location	All areas – Internal
Description	Fire alarm
Lifecycle	• Quarterly Inspection of panels and 25% testing of devices as per IS3218:2013 + A1 2019 requirements. • Cost for replacement equipment to be updated on completion of design matrix of equipment at detailed design stage.
Required maintenance	Annual / Quarterly Inspections certification as required as per the Planned Preventative Maintenance (PPM) schedule.
Year	Annually / Quarterly
Priority	High
Selection process	All equipment to meet requirements and be in accordance with the current National Standards Authority of Ireland (NSAI) Irish Standard for Fire Alarm Installations I.S.3218:2013 + A1 2019 and the Fire Cert
Reference	N/A

6.2.5 Protective Services – Fire Extinguishers

Location	All Areas – Internal
Description	Fire Extinguishers and Fire Blankets
Lifecycle	Annual Inspection
Required maintenance	Annual with Replacement of all extinguishers at year 10
Year	Annually
Priority	Cost for replacement equipment to be updated on completion of design matrix of equipment at detailed design stage.
Selection process	All fire extinguishers must meet the requirements of the National Standards Authority of Ireland (NSAI) Irish Standard for Portable Fire Extinguishers I.S 291:2015 + A1 2022 in relation to the selection, commissioning, installation, inspection and maintenance of portable fire extinguishers.
Reference	N/A

6.2.6 Protective Services – Apartment Sprinkler System (Where Applicable by Fire Cert)

Location	Residential / Apartments.
Description	Apartment Sprinkler System
Lifecycle	Weekly / Annual Inspection
Required maintenance	Weekly Check of Sprinkler Pumps and plant and annual testing and certification of plant by specialist.
Year	All
Priority	Cost for replacement equipment to be updated on completion of design matrix of equipment at detailed design stage.
Selection process	The Apartment sprinkler system shall be installed in accordance with European Standard BS EN 12845:2015 – Fixed firefighting systems. Automatic sprinkler systems. Design, installation, and maintenance.
Reference	N/A

6.2.7 Protective Services – Dry Risers (Where Applicable by Fire Cert)

Location	Common Area Cores of Apartments
Description	Dry Risers
Lifecycle	Weekly / Annual Inspection
Required maintenance	Visual Weekly Checks of Pipework and Landing Valves with Annual testing and certification by specialist.
Year	Annually
Priority	Cost for replacement equipment to be updated on completion of design matrix of equipment at detailed design stage.
Selection process	The system shall be installed in accordance with the Irish Standard IS 391:2020: EN – Fire Hydrant System Equipment & Effective Fire Safety in the Design, Management and Use of Buildings.
Reference	N/A

6.2.8 Fire Fighting Lobby Ventilation (To Fire Consultants Design and Specification)

Location	Common Area Lobbies
Description	Smoke Extract / Exhaust Systems
Lifecycle	• Regular Tests of the system • Annual inspection of Fans • Annual inspection of automatic doors and Automatic Opening Vents (AOV) • All systems to be backed up by life safety systems.
Required maintenance	Annual Service Inspections to be included as part of Development Planned Preventative Maintenance (PPM) Programme.
Year	Weekly / Annually
Priority	Medium
Selection process	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 Chartered Institution of Building Services Engineers of Ireland's (CIBSE) recommended lifecycles.
Reference	N/A

6.2.9 Sustainable Services

Location	Residential / Houses + Duplex Units
Description	Heat Pump Hot Water Cylinders (ASHPHWC)
Lifecycle	• Annual Maintenance of Air Source Heat Pump Hot Water Cylinders. (ASHPHWC) • Cost for replacement equipment to be updated on completion of design matrix of equipment at detailed design stage.
Required maintenance	Annual Service Inspections to be included as part of Development Planned Preventative Maintenance (PPM) Programme
Year	Annually
Priority	Medium
Selection process	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 Chartered Institution of Building Services Engineers of Ireland's (CIBSE) recommended lifecycles.
Reference	N/A

Location	Residential / Apartments
Description	Heat Pump Hot Water Cylinders (ASHPHWC)
Lifecycle	• Annual Maintenance of Air Source Heat Pump Hot Water Cylinders. (ASHPHWC) • Cost for replacement equipment to be updated on completion of design matrix of equipment at detailed design stage.
Required maintenance	Annual Service Inspections to be included as part of Development Planned Preventative Maintenance (PPM) Programme
Year	Annually
Priority	Medium
Selection process	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 Chartered Institution of Building Services Engineers of Ireland's (CIBSE) recommended lifecycles.
Reference	N/A

Location	Car Charging
Description	Electric Car Charging infrastructure within the development to comply with planning conditions and supporting the Part L / NZEB requirements. Full Details to be provided at detailed stage.
Lifecycle	• Annual Inspection • Cost for replacement equipment to be updated on completion of design matrix of equipment at detailed design stage.
Required maintenance	Annual Service Inspections to be included as part of the Development Planned Preventative Maintenance (PPM) Programme
Year	Annually
Priority	Medium
Selection process	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 Chartered Institution of Building Services Engineers of Ireland's (CIBSE) recommended lifecycles.
Reference	N/A

Location	Roof
Description	Photovoltaic (PV) Solar Panel Thermal Array on roof supporting the Part L / NZEB requirements. Full Details to be provided at detailed stage.
Lifecycle	• Quarterly Clean • Annual Inspection • Cost for replacement equipment to be updated on completion of design matrix of equipment at detailed design stage.
Required maintenance	Quarterly / Annual Service Inspections to be included as part of the Development Planned Preventative Maintenance (PPM) Programme
Year	Annually
Priority	Medium
Selection process	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 Chartered Institution of Building Services Engineers of Ireland's (CIBSE) recommended lifecycles.
Reference	N/A

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APPENDIX 1

7.0 APPENDIX 1 – SCHEDULE FOR COSTS EVALUATION

7.1 Schedule for Cost Evaluation

The Schedule for Costs Evaluation provides a framework to allow costs per apartment, quantified from the development, to be applied. At detailed design stage, schedule of areas and quantity of items is provided by the Architect and Quantity Surveyor to allow quantification of the lifecycle replacement costs during the lifespan of the building.

Further to this, once detailed design is confirmed, annual cost of maintenance will also be calculated to include with the schedule, to complete the overall costs evaluation.

The schedule will be modified to suit when developer's Architect and Quantity Surveyor provide requisite schedules of areas and quantity and cost of items for the development.

The sampled schedule attached lays out all Building Fabric and Building Services Elements, associated specification and locations. These are then quantified as cost per unit, alongside maintenance costs with VAT rate, and broken into Annual Costs, and many specific commentaries, for the eventual end user of the property.

SAMPLE Life Cycle Costs

Summary of Costs

Element - Building Fabric	Specification	Location(s)	Areas / Quantity	Cost Per unit	Maintenance Cost	Total Cost	Vat Rate	Vat Inclusive Cost	Anticipated Life Span (Yrs)	Annual Cost	Vat Rate	Vat Inclusive Cost	Comments
Floor Finishes	Carpet	Staircores / Common Areas					13.5%		12	€ -	13.5%		
Floor Finishes	Tiles	Common Areas / Apartments					13.5%		25	€ -	13.5%		
Floor Finishes	Timber	Apartment					13.5%		12	€ -	13.5%		
Wall Finishes	Paint	Staircores / Common Areas					13.5%						
Wall Finishes	Paint	Common Areas / Apartments					13.5%						
Wall Finishes	Paint	Apartment					13.5%						
Roof Coverings	Felt Roof, Green Roof	Roof					13.5%		25	€ -	13.5%		
Common Area Doors	TBC	Multiple Locations					13.5%		30	€ -	13.5%		
Apartment Doors	TBC	Multiple Locations					13.5%		30	€ -	13.5%		
External Doors	TBC	Multiple Locations					13.5%		20				
Windows	TBC	Apartments					13.5%		60	€ -	13.5%		
External Cladding	TBC	External					13.5%		60	€ -			
External Walls	TBC	External					13.5%		60	€ -			
Loose furniture	Loose furniture	Apartments					23.0%		12	€ -	23.0%		
Fixtures and Fittings	Kitchens, Wardrobes, etc	Apartments					13.5%		12	€ -	13.5%		
White Goods	Kitchen Appliances	Apartments					23.0%		7	€ -	23.0%		
External Furniture	Seats, Tables, Playground	External					13.5%		20	€ -			
Balcony	Flooring, Handrails, Balustrade, etc	External											
Element - Building Services													
Distribution Network	Pipework Distribution	Basemen					13.5%		60	€ -	13.5%		
Gas Fired CHP / ASHP	Gas Fired CHP Units	Basement							15				
Gas Fired Boilers		Basement							25				
Buffer Vessel		Basement					13.5%		15	€ -	13.5%		
Main Board	Electrical Main Board	Basement					13.5%		30	€ -	13.5%		
Electrical Boards	Landlord Boards	Various Levels					13.5%		20	€ -	13.5%		
Water Tanks	Replacement Cold Water , Mains Water and Fire	Basement					13.5%		35	€ -	13.5%		
Booster Pumps	Booster Pumps associated with the above	Basement					13.5%		15	€ -	13.5%		
Smoke Extract - Impulse Fans	Basement Carparks	Basement					13.5%		25	€ -	13.5%		
Lifts	Lift Replacement	All Cores					13.5%		35	€ -	13.5%		
Lighting - Landlord	Car Park , External , Staircores	Basement					13.5%		30	€ -	13.5%		
Standby Generators	Replacement of Landlord Generator	External					13.5%		40	€ -	13.5%		
Fire Alarm	Landlord Fire Alarm	Various					13.5%		20	€ -	13.5%		
Apartment Boards	Apartment Boards	Apartment					13.5%		20	€ -	13.5%		
Apartment HIU	Heat Interface Unit	Apartment					13.5%		20	€ -	13.5%		
Apartment HRU	Ventilaiton Heat Recovery Unit	Apartment					13.5%		20	€ -	13.5%		
Site Lighting	External Lighting	Site											

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CONCLUSION & CONTACT DETAILS

8.0 CONCLUSION & CONTACT DETAILS

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, and communal open space will contribute to lower maintenance costs for future residents and occupiers.

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DOCUMENT CONTROL SHEET

Client:	KNOCKRABO INVESTMENTS DAC
Project Title:	KNOCKRABO LARGE-SCALE RESIDENTIAL DEVELOPMENT (PHASE 2)
Document Title:	BUILDING LIFECYCLE REPORT

Rev.	Status	Author	Reviewed By	Issue Date
AP 01.	DRAFT	Conor Fahey	Dean Brassington	04/06/2024
AP 02.	FINAL	Conor Fahey	Dean Brassington	05/06/2024
AP 03.	ISSUED	Conor Fahey	Dean Brassington	27/08/2024
AP 04.	RE-ISSUED	Conor Fahey	Dean Brassington	17/10/2024


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