

**Proposed Strategic Housing Development (Park West SHD) at
Park West Avenue and Park West Road, Park West, Dublin 12**

Building Life Cycle Report

Greenseed Ltd.

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1. Introduction

This report provides for a Building Lifecycle Report for the proposed Strategic Housing Development at Park West Avenue and Park West Road, Park West, Dublin 12.

This Building lifecycle report has been developed due to the revised guidelines for Sustainable Urban Housing: Design Standards for New Apartments, Guidelines for Planning Authorities) which were published in (March 2018, updated December 2020) outlines guidelines and policies required for development and maintenance of apartments and multi-residential units.

Clauses 6.11 to 6.14 of the Guidelines relate to the “Operations & Management of Apartment Developments”, and Clause 6.13 requires that apartment applications shall:

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

This Building Lifecycle Report aims at addressing the requirements of Section 6.13 by providing the following:

1. 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.
2. Demonstration of the sort of measures specifically considered to effectively manage and reduce costs for the benefit of the residents.

2. Details of The Proposed Development

The proposed development has a nett site area of 5.492 ha and will consists of 750 apartment units, 50 own door apartments, 247 square metres of retail use, 479 square metres of amenity space, 48 square meters of community space and 410 square meters for a creche.

The proposal consists of 7 no. residential blocks A, B, C, D, E, F & G located between the existing rail line and forming a streetscape with the existing hotel. Six apartment blocks B, C, D, E, F & G are 8 storeys in a U-shaped form around communal amenity courtyards. Block A is a 15-storey landmark corner building defining the edge of the Train Station Plaza.

The buildings generate a strong built urban edge to the perimeter streets and create a variety of character areas. The proposed scheme offers variety of apartment types and sizes to complement and enhance the existing residential offering in Park West. Importantly, the proposed scheme includes a significant component of 1, 2 & 3-bedroom apartments which creates variety in the evolving character of Park West while retaining a coherent urban form and addresses a real need for new apartments in the Dublin residential market while offering an opportunity for existing residents in Park West to trade up or step down without leaving their community.

The proposed development will also include for a large outdoor linear park, boundary treatments, public lightnings, designated car parking spaces, bike parking spaces, bin storage areas, ESB substations and switch rooms, commercial and residential waste facilities, link spaces between the apartments which are treated as pedestrian streets, surface water infrastructure and all associated site development and infrastructure works. The proposed development will also include provision of site boundary protection where required to facilitate development phasing.

3. Initial assessment of long-term running and maintenance costs

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

Our property management team also has the following responsibilities for the apartment development once constructed:

- Timely formation of an Owners Management Company (OMC) - which will be a company limited by guarantee having no share capital. All future purchasers will be obliged to become members of this OMC
- Preparation of annual service charge budget for the development's common areas
- Fair and equitable apportionment of the annual operational charges in line with MUD Act 2011
- Engagement of independent legal representation on behalf of the OMC in keeping with the MUD Act 2011-including completion of Developer OMC Agreement and transfer of common areas
- Transfer of documentation in line with Schedule 3 of MUD Act 2011
- Estate Management
- Third Party Contractors Procurement & Management
- OMC Reporting
- Accounting & Corporate Services
- Insurance Management
- After Hours Services
- Staff Administration

The property management team has several key responsibilities, primarily the compiling of the service charge budget for the development. The service charge budget covers items such as cleaning, landscaping, refuse management, utility bills, insurance, maintenance of mechanical, electrical, lift, life safety systems, security, property management fees etc., to the development common areas in accordance with the MUD Act 2011.

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

In line with requirements of the MUD Act 2011, the members of the OMC will determine and agree each year at a General Meeting of the members, the contribution to be made to the Sinking Fund, having regard to the BIF report produced.

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

4. Measures considered to effectively manage and reduce costs

4.1 Building services [EDC]

The following measures have been considered for the units to reduce operating costs for residents.

Measure	Description
BER Certificates	<p>A Building Energy Rating (BER) certificate shall be provided for each dwelling in the proposed development, stating the energy performance of the dwelling.</p> <p>A BER is calculated through energy use for space and hot water heating, ventilation, and lighting and occupancy.</p> <p>It is proposed to target an A2/A3 rating for the apartments this will equate to the following emissions.</p>
Fabric Energy Efficiency	<p>The U-values being investigated shall be in line with the requirements set out by the current regulatory requirements of the Technical Guidance Documents Part L, titled "Conservation of Fuel and Energy Buildings other than Dwellings".</p>
Energy Labelled White Goods	<p>The white good package planned for provision in the apartments shall have high energy efficiency rating.</p> <p>It is expected that the below appliance ratings will be provided:</p> <ul style="list-style-type: none"> • Oven - A plus • Fridge Freezer - A plus • Dishwasher - AAA • Washer/Dryer – B <p>The provision of high rated appliances in turn reduces the amount of electricity required for occupants.</p>
External Lighting	<p>The proposed lighting scheme within the development consists of 8m and 6m pole mounted fittings as indicated on the drawings.</p> <p>The luminaire selected is the CU Phusco P862 & P852 fitting, this fitting was selected for the following reasons:</p> <ul style="list-style-type: none"> • Low level lighting • Minimal upward light spill • Low voltage LED lamps • Pre-approved by Dublin County Council <p>The site lighting has been designed to provide a safe environment for pedestrians, cyclists and moving vehicles, to deter anti-social behaviour and to limit the environmental impact of artificial lighting on existing flora and fauna in the area. Each light fitting shall be controlled via an individual Photoelectric Control Unit (PECU). The operation of the lighting shall be on a dusk-dawn profile.</p> <p>Having PECU allows for the optimisation of lighting which minimises costs.</p>

The following Low energy technologies are being considered for the development and during the design stage of the development in order to meet the requirements of Part L of the Building Regulations and to meet the upcoming Near Zero Energy Building standard if required. The specific combination from the list below will be decided on and then implemented to achieve the A2/A3 BER Rating.

Measure	Description
Condensing Boilers	If gas fired heating is adopted, condensing boilers shall be used as they have a higher efficiency, typically over 90%, than standard boilers.
Mechanical Ventilation Heat Recovery	<p>Centralised mechanical ventilation shall 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.</p> <p>Mechanical Heat Recovery Ventilation provides ventilation with low energy usage. The MVHR reduces overall energy and ensures a continuous fresh clean air supply.</p>
PV Solar Panels	<p>PV Solar Panels shall be considered in order to meet the renewable energy contribution required by Part L of the Building Regulations.</p> <p>The panels are typically placed on the South facing side of the building to maximise the solar exposure.</p> <p>PV Solar Panels offer the benefit of reducing fossil fuel consumption and carbon emissions to the environment. They also reduce the overall requirement to purchase electricity from the grid.</p>
Air Source Heat Pump	<p>As part of the overall energy strategy for a dwelling, the use of Air Source Heat Pumps will be assessed to determine their technical and commercial feasibility.</p> <p>These systems extract heat energy from the outside air and using a refrigerant cycle, raises the temperature of the heat energy using a refrigerant vapour compression cycle.</p> <p>Air source heat pumps use electrical energy from the grid to drive the refrigerant cycle but do so extremely efficiently. Modern heat pumps will typically provide 4 to 5 times more heat energy to the dwelling than the electrical energy they consume</p>
Combined Heat and Power	<p>Combined Heat and Power (CHP), is a technology being evaluated for the apartment developments within the scheme as part of a Community Heating System. This technology generates electricity and captures the waste heat from the generation unit that can be used within the heating systems in the development.</p> <p>CHP can achieve energy efficiencies by reusing waste heat from the unit to meet the space heating and domestic hot water needs of the apartments.</p>
E-car	<p>Within the parking areas, ducting shall be provided from a local landlord distribution board to designated E-car charging car park spaces. This will enable the management company the option to install a number of E-car charging points within the carpark to cater for E-car demand of the residence. Ducting and on street infrastructure will also be provided throughout the development to provide EV charging facilities in on-street parking spaces.</p> <p>This system operates on a single charge point access card. A full re-charge can take from one to eight hours using a standard charge point. Furthermore, all dwellings with on-curtilage parking will be wired to allow future installation of EV charging points by house purchasers.</p>

4.2 Building Services Life Cycle

4.2.1 Mechanical System

Mechanical Plant

Item	Detail
Location	Plantrooms
Description	Centralised Heating Plant – Specification to be determined
Lifecycle	<p>Annual Maintenance/ Inspection to Boilers / CHP. Annual Maintenance / Inspection to Pumps. Annual Maintenance / Inspection to Water Tanks. Annual Maintenance / Inspection to Booster-sets. Annual Maintenance / Inspection to DHS Tanks. Annual Maintenance / Inspection of district heating system pipework, valves, accessories and insulation.</p> <p>€25,000 for annual PPM inspections and servicing Cost for replacement equipment to be updated on completion of design matrix of equipment at detailed design stage.</p> <p>Replacement of equipment at (End of Life) EOL to be determined at detailed design stage.</p>
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 CIBSE recommended lifecycles.
Reference	N/A for this item

Soils and Waste

Item	Detail
Location	All Areas
Description	PVC / Cast iron Soils and Wastes Pipework
Lifecycle	<p>Annual inspections required for all pipework within landlord areas.</p> <p>€4,500 annual maintenance cost.</p> <p>Cost for replacement equipment to be updated on completion of design matrix of equipment at detailed design stage.</p>
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 CIBSE recommended lifecycles.
Reference	n/a for this item.

Water Services

Item	Detail
Location	Apartments, Cluster Kitchens, etc
Description	Copper Water Services Pipework and associated fittings and accessories.
Lifecycle	Annual inspections required for all pipework within landlord areas.

	<p>€4,500 annual maintenance cost.</p> <p>Cost for replacement equipment to be updated on completion of design matrix of equipment at detailed design stage.</p>
Required Maintenance	Annual Inspections, including legionella testing to be included as part of Development Planned Preventative Maintenance 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 CIBSE recommended lifecycles.
Reference	n/a for this item.

Gas Services

Item	Detail
Location	Plant Room
Description	Gas Detection Systems.
Lifecycle	<p>Annual Maintenance / Inspection Gas detection systems within landlord plant rooms.</p> <p>€500 annual maintenance cost.</p> <p>Cost for replacement equipment to be updated on completion of design matrix of equipment at detailed design stage.</p>
Required maintenance	Annual Service Inspections, testing and certification to be included as part of Development Planned Preventative Maintenance Programme
Year	Annually
Priority	N/A for Residential. High for Retail.
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 CIBSE recommended lifecycles.
Reference	n/a for this item.

Heating Services

Item	Detail
Location	Apartments
Description	Heat Interface Units (HIU)
Lifecycle	<p>Annual Inspection of Heat Interface Unit in each unit.</p> <p>€150 per unit annual maintenance cost.</p> <p>Cost of replacement equipment to be updated on completion of design matrix of equipment at detailed design stage.</p>
Required Maintenance	Annual Service Inspection 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 CIBSE recommended lifecycles.
Reference	N/A for this item

Ventilation Services

Item	Detail
Location	Apartment
Description	<i>Extract fan and grilles</i>
Lifecycle	<p><i>Annual inspection of extract fan and grilles. Annual Inspection of BMS link and operation of fan and boost / setback facility.</i></p> <p><i>€100 Per Unit annual maintenance cost.</i></p> <p><i>Cost for replacement equipment to be updated on completion of design matrix of equipment at detailed design stage.</i></p>
Required maintenance Year	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 design and management team to meet and exceed the CIBSE recommended lifecycles.
Reference	N/A for this item.

Ventilators

Item	Detail
Location	Apartment
Description	<ul style="list-style-type: none"> • AXS 140 combined AOV smoke ventilator and roof access hatch by Colt Ireland or similar approved. Type: Glazed & openable. Controls: Linear actuator. • Materials: Glazing: 28 mm insulating glass unit. • Finish as delivered: Principal components polyester powder coated. • Seals: Required. • Guards: Security. • Typical U-value: 1.3W/m2K • Fire/ smoke control performance: Connect fire alarm system (Size as required in approved Fire Safety Certificate) & over ride openable for roof maintenance. • Accessories/Special features: Insulated upstand. • Fixing: in accordance with manufactures details.
Required maintenance Year	Annual Service Inspections to be included as part of Development Planned Preventative Maintenance Programme
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 design and management team to meet and exceed the CIBSE recommended lifecycles.
Reference	N/A for this item

4.2.2 Electrical System

Electrical Infrastructure

Item	Detail
Location	Switch rooms / Risers
Description	Maintenance of Electrical Switchgear
Lifecycle	<p>Annual Inspection of Electrical Switchgear and switchboards. Thermographic imaging of switchgear 50% of switchgear every 3 years.</p> <p>€3,000 Annual Maintenance. €4,000 Every three years for Thermographic imaging.</p> <p>Cost for replacement equipment to be updated on completion of design matrix of equipment at detailed design stage.</p>

Required maintenance	Annual / Every three years to be included as part of Development Planned Preventative Maintenance Programme
Year	Annually
Priority	High
Selection process	All equipment to meet and exceed ESB, ETCI, CIBSE recommendations and be code compliant in all cases.
Reference	n/a for this item.

Light Services Internal

Item	Detail
Location	All Areas – Internal
Description	Lighting
Lifecycle	Annual Inspection of All Luminaires Quarterly Inspection of Emergency Lighting. €8,000 Annual Maintenance Cost. 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 IS3217
Reference	n/a for this item.

Lighting Services External

Item	Detail
Location	All Areas – Internal
Description	Lighting
Lifecycle	Annual Inspection of All Luminaires Quarterly Inspection of Emergency Lighting €5,000 Annual Maintenance Cost 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 PPM schedule.
Year	Annually / Quarterly
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 CIBSE recommended lifecycles.
Reference	n/a for this item.

Protective Services – Fire Alarm

Item	Detail
Location	All areas – Internal
Description	Fire alarm
Lifecycle	Quarterly Inspection of panels and 25% testing of devices as per IS3218 requirements. €8,000 Annual Maintenance Costs

	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 PPM schedule.
Year	Annually / Quarterly
Priority	High
Selection process	All equipment to meet requirements and be in accordance with the current IS3218
Reference	n/a for this item.

Protective Services – Fire Extinguishers

Item	Detail
Location	All Areas – Internal
Description	Fire Extinguishers
Lifecycle	Annual Inspection
Required maintenance	Annual with Replacement of all extinguishers at year 10
Year	
Priority	€5,000 Annual Maintenance Costs 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 I.S 291:2015 Selection, commissioning, installation, inspection and maintenance of portable fire extinguishers.
Reference	n/a for this item.

Renewable Services

Item	Detail
Location	Roof
Description	PV Array on roof Supporting the Part L requirements in conjunction with the CHP installation in the plantroom
Lifecycle	Quarterly Clean Annual Inspection €2,500 for Cleaning and inspections. Cost for replacement equipment to be updated on completion of design matrix of equipment at detailed design stage.
Required maintenance	Quarterly / Annual
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 CIBSE recommended lifecycles.
Reference	n/a for this item.

5. Building materials [DA]

5.1 Roofing

Green Roof

Location	At all Roofs to all Buildings
Description	Green roof system <ul style="list-style-type: none"> • Sedum Blanket on; • Extensive Roof Garden Growing Media on; • Drainage & Reservoir Layer on; • Protection Fleece on; • Roof Waterproofing System on; • Insulation layer on; • Screed layer on; • Precast RC roof slab to engineer's detail.
Lifecycle	Average lifecycle of 13-35 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. The green roofs have been selected in locations that are visible to the development occupants to enhance the aesthetic of the external areas.
Required Maintenance	Quarterly maintenance visits required. No irrigation system required with Sedum beds.
Priority	Medium
Selection process	Attenuation reduces the burden on rainwater systems, resulting in fewer elements that could require replacement or repair. Where overlooked, the natural soft finish is desirable and of benefit to residents wellbeing.

Roof terrace/Podium Level

Location	Low level roofs
Description	<ul style="list-style-type: none"> • Selected paving slabs on; • Pedestal support system on; • Roof Waterproofing System on; • Insulation layer on; • Screed layer on; • Precast RC roof slab to engineers' detail
Lifecycle	Average lifecycle of 78 years. Constructed with a long life-cycle reinforced concrete slab, wall and column system. These are heavy wearing materials, which are only susceptible to atmospheric pollution, carbonation of concrete, reinforcement corrosion etc. Generally, tend to be a long-lasting material if well maintained and were installed appropriately.
Required Maintenance	General repair works, watching out for water incursion and timely maintenance of same
Year	Annually
Priority	High
Selection process	Alternative technologies would include steel frame with timber decking or hybrid of these with concrete in-filling. Concrete maintains the longest lifespan of these compared to poorly detailed steel frame or joist systems.

Fall arrest system for roof maintenance access

Location	All roofs
Description	<ul style="list-style-type: none"> • Fall Protection System on approved anchorage device. • Roofing for mechanical attachment through the insulation to various decks.

	<ul style="list-style-type: none"> • Weathering to be strictly in accordance with membrane manufacturer's Specifications. • Overall system length: Refer to roof plans for indicative layouts. Final layouts and system lengths by appointed sub-contractor. • Intermediate support spacing as per manufacturer's specification. • Accessories/ Other requirements: items required to complete the installation, e.g. bends and curves in rigid rails, corner units for flexible cable systems, turntables, rotary exit units. • Installation: In accordance with BS 7883 by the system manufacturer or a contractor approved by the system manufacturer. • Structural anchors: Type recommended by the system manufacturer to suit the structure/ fabric into which they will be fixed.
Lifecycle	25-30 years dependent on quality of materials purposed. Generally steel finishes to skyward facing elements can be expected to maintain this life expectancy.
Required Maintenance	Check and reset tension on the line as per manufacturer's specifications. Check all hardware components for wear (shackles, eye bolts, turn buckles). Check elements for signs of wear and/or weathering. Lubricate all moving parts. Check for structural damage or modifications.
Year	Annually
Priority	High
Selection process	Fall protection systems are a standard life safety system, provided for safe maintenance of roofs and balconies where there is not adequate parapet protection. A FPS must comply with relevant quality standards.

Roof cowls

Location	All roofs
Description	<ul style="list-style-type: none"> • Roof Cowl System to be supplied with weather apron for flat roofs. • Stainless Steel goose neck tube to facilitate power supply to external roof level bolted to roof and weathered using proprietary weather apron.
Lifecycle	25-35 years
Required Maintenance	Check fixings annually, inspect for onset of leading-edge corrosion. If present epoxy powder coat finish and treat.
Year	Annually
Priority	Low
Selection process	Standard fitting for roof termination of mechanical ventilation system

Flashings

Location	All flashing locations
Description	Pressed metal/lead to be used for all flashing and counter flashings.
Lifecycle	Typical life expectancy of 72 years recorded for lead flashings. Recessed joint sealing will require regular inspections.
Required Maintenance	Check joint fixings for lead 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	Lead has longest life expectancy of comparable materials such as copper (63 years) and zinc (48 years). Lead is easily formed into the required shapes for effective weathering of building junctions according to Lead Sheet Association details.

Rainwater Drainage

Location	All Roofs
Description	<ul style="list-style-type: none"> • <i>Rainwater outlets</i>: Suitable for green roof systems • <i>Pipework</i>: Cast Aluminium/Upvc downpipes

	<ul style="list-style-type: none"> • <i>Below ground drainage:</i> To M&E/ Structural design and specification • <i>Disposal:</i> To surface water drainage to Structural Engineer's design. • <i>Controls:</i> To M&E/ Structural Engineer's design and specification.
Lifecycle	Aluminium rainwater pipes and downpipes have an expected life expectancy of 40 years in suburban conditions. This is comparable to cast iron of 51 years, and plastic at a mere 30 years.
Required Maintenance	As with roofing systems, routine inspection is required in order to preserve the lifecycle of rainwater systems. Regular cleaning of rainwater inlets and outlets, checking of joints and fixings, and cleaning of surfaces is required.
Year	Annually, cleaning bi-annually
Priority	High
Selection process	As above, aluminium fittings and systems perform well in comparison to cast iron (in terms of cost), and plastic (in terms of lifespan and aesthetic).

5.2 External Walls

Concrete

Location	Walls
Description	External concrete work shall be finished to engineer's specification
Lifecycle	While concrete has a high embodied energy, it is an extremely durable material. Concrete frame has a typical life expectancy of 81 years.
Required Maintenance	In general concrete requires little maintenance. Most maintenance is preventative: checking for hairline cracks, plant growth on walls, or other factors that could signal problems or lead to eventual damage.
Year	Annual
Priority	Low
Selection process	Concrete is a durable/structural product which is chosen for its structural properties, in general.

Brickwork Finish

Location	Walls
Description	<ul style="list-style-type: none"> • Brickwork outer leaf, insulated cavity concrete blockwork/RC concrete inner leaf, with sand/cement scratch coat, metal clips and plaster board with smooth skim finish. • Mortar joints in brickwork to be white finish with a flush joint.
Lifecycle	While bricks have a high embodied energy, they are an extremely durable material. Brickwork in this application is expected to have a lifespan of 86 years or more. The mortar pointing however has a shorter lifespan of 25-50 years.
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	Fair-faced brick is an attractive finish that bears well against other finishing products such as render to blockwork wall in terms of lifespan (86 vs 53 years). The brickwork does require re-pointing however at 25-50 years.

SFS (Steel Framing System)

Location	Walls
Description	Steel Framing System with selected brick/concrete tile elements/render finish on insulation layer on cement board sheathing layer on external-grade metal studs

	with insulation and 2no. layers of plaster board with air tightness membrane between, smooth skim finish to inside.
Lifecycle	Steel framing systems are expected to have a lifespan of 83 years.
Required Maintenance	In general steel-framed walls require little maintenance. Most maintenance is preventative: checking for hairline cracks, plant growth on walls, or other factors that could signal problems or lead to eventual damage.
Year	Annual
Priority	Low
Selection process	Steel framing is a durable and adaptable structural product and can be more time and cost effective to traditional methods of construction.

Render finish

Location	Walls
Description	Acrylic finish render system on insulation layer on concrete blockwork/RC concrete leaf with sand/cement scratch coat, metal clips and plaster board with smooth skim finish.
Lifecycle	Renders in general are expected to have a lifecycle of circa 25 years.
Required Maintenance	Regular inspections to check for cracking and de-bonding. Most maintenance is preventative.
Year	Annual
Priority	Medium
Selection process	Acrylic render is an attractive finish with the added benefit of this product being BBA certified against other render systems. Appropriate detailing will contribute to a long lifespan for this installation

Location	Walls
Description	Sand/cement render coat on blockwork outer leaf, insulation layer on concrete blockwork/RC concrete leaf with sand/cement scratch coat, metal clips and plaster board with smooth skim finish.
Lifecycle	Renders in general are expected to have a lifecycle of circa 25 years.
Required Maintenance	Regular inspections to check for cracking and de-bonding. Most maintenance is preventative.
Year	Annual
Priority	Medium
Selection process	Appropriate detailing will contribute to a long lifespan for this installation.

External Cladding

Location	Walls
Description	Decorative facade type cladding system. Cladding sheets fixed to insulated metal panels, on factory-fitted vapour seal, on galvanised metal system, to secondary and primary structural system. Elegant lines are achieved on the cladding system as a result of a double standing seam. Systems may be installed by on-site fabrication, or with the use of pre-profiled panels.
Lifecycle	A typical life expectancy of over 35 years.
Required Maintenance	Metal rainscreen cladding requires little maintenance and is resistant to corrosion. Long term cleaning programme should be considered. Longitudinally seamed joints ensure the structure and internal fabric is rainproof.
Year	Inspection annually, cleaning 5 annually
Priority	Low
Selection process	Metal rainscreen cladding systems protects the building's structure from rainwater and weathering. Selection is a result of the ability of the cladding's many positive attributes; <ul style="list-style-type: none"> • High aesthetic value • Environmentally friendly building product • Wide scope for design and detail

	<ul style="list-style-type: none"> • Simple and efficient installation • Accentuates the edges of buildings • Environmentally friendly
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Doors and Windows

Location	All Buildings
Description	Selected Aluminium/uPVC/timber composite window system – All units to be double/triple glazed with thermally-broken, aluminium-clad, timber frames.
Lifecycle	Timber windows have a typical lifespan of 35 – 50 years, aluminium cladding can extend this lifespan by 10-15 years.
Required Maintenance	<ul style="list-style-type: none"> • External aluminium requires minimal maintenance and cleaning is recommended twice a year. • Glass units should be cleaned a minimum 4 times per year. When cleaning, a soft brush and cleaning agent required. • Window hardware will require occasional care. All mobile hardware parts are recommended to be oiled twice a year. • Furthermore, ensure that gliding tracks on windows are kept clean and free of dirt. • Rubber gaskets are relatively maintenance free aside from ordinary cleaning. If carrying out remedial works, care is to be taken not to damage the rubber gaskets as they will lose their flexibility and compromise the seal and tightness of the window unit when closed.
Year	Annually, cleaning bi-annually
Priority	Medium
Selection process	Timber windows, especially when alu-clad compare favourably when compared against Aluminium (44 years), uPVC (37 years) and Steel windows (50 years)

5.3 Balconies

Metal

Location	Balconies
Description	<ul style="list-style-type: none"> • Propped cantilevered balconies at selected locations – Metal frame to engineer's detail, galvanised, primed with painted finish to selected colour. • Thermally broken farrat-plate connections back to main concrete structure of building. • Pre oiled Cedar ribbed treated deck boards on steel substructure to engineer's specification. • Galvanised tray formed between steel substructure to engineer's specification. • Fibre cement board with open joints to be provided to the balcony soffits.
Lifecycle	70 years dependent on maintenance of components
Required Maintenance	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

Concrete

Location	Concrete Balconies
Description	<ul style="list-style-type: none"> • Fully cantilevered concrete balconies at selected locations • Thermally broken concrete to concrete connectors back to main concrete structure of building – to Engineers Detail. • Resin finish to concrete deck.
Lifecycle	While concrete has a high embodied energy, it is an extremely durable material. Concrete frame has a typical life expectancy of 81 years.
Required Maintenance	Regular visual inspections of slab junction at connections and general concrete slabs
Year	Annual
Priority	High
Selection process	Engineered detail; designed for strength and safety

Balcony Balustrades and Handrails

Location	All balcony balustrades and handrails
Description	<p><i>Glazed balustrade:</i></p> <ul style="list-style-type: none"> • Approved glass balustrade. • Guarding: Manufacturer's standard - Frameless tempered glass (safety glass) • Handrails: Manufacturer's standard - Powder coated aluminium handrails. • Fixing: In accordance with manufacturers details. <p><i>Brick balustrade:</i></p> <ul style="list-style-type: none"> • To be constructed to match brickwork, with brick detailing and selection to match. <p><i>Metal Balustrade Option:</i></p> <ul style="list-style-type: none"> • Galvanised, primed with painted finish.
Lifecycle	General glass and metal items with a lifespan of 25-45 years.
Required Maintenance	Regular visual inspection of connection pieces for impact damage or alterations.
Year	Annual
Priority	High
Selection process	Long lifespan in comparison to timber options. Simple and effective installation combines to achieve a pleasing aesthetic. Engineered detail ensures strength and safety.

5.4 Floors

Common areas – apartment stair cores & Entrances

Location	Ground Floor entrance Lobby
Description	<p>Internal flooring in common areas;</p> <ul style="list-style-type: none"> • Selected anti-slip porcelain or ceramic floor tile. • Provide for inset matwell.
Lifecycle	Lifespan expectation of 20-25 years in heavy wear areas, likely requirement to replace for modernisation within this period also
Required Maintenance	Regular maintenance required, with use of damp cloth to remove stains and replacement or adequate repair when damaged. 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

Location	Lift core and apartment lobbies
Description	Selected carpet inlay on underlay.
Lifecycle	Lifespan expectation of 20-25 years in heavy wear areas for the tiling, 13-year lifespan for carpet. Likely requirement to replace for modernisation within this period also.
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

Location	Stairs
Description	Selected carpet finish on underlay with approved nosings.
Lifecycle	13-year lifespan for carpet. Likely requirement to replace for modernisation within this period also.
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

Location	Lifts
Description	Tiles to match adjacent apartment lobbies
Lifecycle	Lifespan expectation of 20-25 years in heavy wear areas for the tiling
Required Maintenance	Visual inspection, 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

5.5 Walls

Common areas – apartment stair cores & entrances

Location	Ground floor entrance lobby
Description	Selected contract vinyl wall paper feature. OR Selected paint finish with primer to skimmed plasterboard
Lifecycle	2-10 years for finishes; 39 years for plasterboard
Required Maintenance	Regular maintenance required, damp cloth to remove stains and replacement when damaged
Year	Bi-annually
Priority	Low
Selection process	Used as a feature in common areas against paint

Location	Lift core and apartment lobbies
Description	Selected contract vinyl wallpaper, class O rated OR Selected paint finish with primer to skimmed plasterboard
Lifecycle	2-10 years for finishes; 39 years for plasterboard
Required Maintenance	Regular maintenance required, damp cloth to remove stains and replacement when damaged
Year	Bi-annually

Priority	Low
Selection process	Used as a feature in common areas against paint

Internal handrails & balustrades

Location	All buildings
Description	Proprietary glazed panel system face fixed to stairs stringer / landing slab edge via polished stainless-steel brackets and clamps fixed to concrete slab to manufacturer's details & specifications. OR Metal balustrade option.
Lifecycle	25-30 years typical lifecycle
Required Maintenance	Regular inspections looking are holding down bolts and joints
Year	Annually
Priority	High
Selection process	Hard-wearing long-life materials against timber options

5.6 Carpentry and Joinery

Stairs

Location	All Buildings
Description	Stairs stringer / landing slab edge to be finished with thick plate bolted to slab with stainless steel fixings.
Lifecycle	While concrete has a high embodied energy, it is an extremely durable material. Concrete frame has a typical life expectancy of 81 years.
Required Maintenance	Regular visual inspections of slab junction at connections and general concrete slabs
Year	Annual
Priority	High
Selection process	Concrete is selected here for its high durability, against similar timber and/or metal systems

Internal doors and frames

Location	All Buildings
Description	Selected white primed and painted solid internal doors. All fire rated doors and joinery items to be manufactured in accordance with B.S. 476. Timber saddle boards.
Lifecycle	31 years average expected lifespan
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

Skirtings & architraves

Location	All Buildings
Description	Skirtings and architraves. Painted MDF
Lifecycle	31 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

Window Boards

Location	All Buildings
Description	Window boards. Painted MDF
Lifecycle	31 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

6. Landscaping

Landscape materials consist of a range of hard, play and soft materials that are robust in nature whilst aesthetically attractive. All landscape works other than street frontage to the south of the site are within privately managed areas.

6.1 Hard Landscape

Materials for surfacing consist of a range of asphalt finishes to roads, shared surface areas and footpaths. Concrete footpaths are used to streets and feature concrete paving is proposed as a robust but attractive material throughout the development and particularly to create the proposed promenade and plaza spaces to the centre of the site adjacent to the proposed bio-retention area. There are also some areas of feature stone paving and pre-cast concrete unit paving in places. All public roads and pavements are in keeping with materials adoptable by Dublin County Council and are therefore long lasting and easy to maintain.

Site furniture – bike stands, seating and railings are all galvanized or stainless steel with hardwood or composite timber elements, or powder coated finishes designed to have a long life in the public domain.

There are a limited number of boundaries as the site interfaces with open public realm on most of the boundaries. Where required, fencing will consist of low-level railings – galvanised or stainless steel – and 1.8m+ mesh / paladin or palisade/railing style fencing where secure boundaries are required. On the northern boundary, robust timber fencing is proposed along the boundary with the railway line.

All of these materials will require minimum maintenance other than cleaning and will have a long functioning life.

6.2 Play Areas

A range of natural and mixed material play equipment is proposed across the play areas catering for residents in courtyards and the wider public in the plaza. All play features/surfaces will be installed by a reputable specialist play contractor in accordance with EN 1176 and EN 1177 and a RoSPA certificate will be issued.

As well as standard or traditional play equipment installed in accordance with the above safety standards, a range of natural play features are proposed, including:

- Boulders – typically rounded Leinster granite boulders maximum 600mm in height by 1-2m in length or width, 1-2 tonnes in weight. Boulders to be set in concrete to avoid movement.
- Logs to be salvaged tree trunks 3-5 m long and 70-90cm in diameter. Laid on the ground or partly elevated (bridges, balancing and sitting), but no higher than 600mm above ground level and fixed to avoid rolling.
- Stepping logs to be round Robinia (or equivalent) columns fixed in concrete foundations in the ground to a range of above ground heights 150mm – 500mm.

Surfacing of play areas to be Play Bark or Wet-Pour safety surface to EN 1177. Grass areas and associated landform will be gently contoured to facilitate mowing by ride-on mowers. Steep mounds that are not suitable for mowing will be avoided.

Nonetheless play areas will require regular inspections and maintenance by a specialist contractor to ensure they operate safely and in accordance with best practice.

6.3 Soft Landscape

This consists of areas of grass, ornamental and native shrub planting and individual or groups of trees.

Areas of grass sometimes will be mown regularly in accordance with best practice and to maintain neat or encourage wildlife here appropriate.

Native planting is designed to provide robust shrub and tree areas and habitat. Once established maintenance will be confined to cutting back as required to keep within bounds and maintain its bushy habit.

Ornamental plantings in the public domain are limited and confined to areas of the central open space associated with seating and play areas. These will require more intensive management to keep in optimum condition.

Trees in open spaces and streets will, once established, require little more than formative pruning to shape and facilitate optimum shape and habit for an urban setting.

Plant species have been selected that will not require mechanical irrigation, which can be wasteful, as they are adapted to the Irish climate.

All the above will be managed within the normal competencies of a landscape contractor. Maintenance and Management operations will follow sustainable practices, encouraging natural growth habits, and minimizing chemical inputs.

6.4 Linear Park

The proposed linear park that runs east-west through the site performs a number of functions within the landscape. First and foremost it contains a series of hard and soft landscape amenity spaces for residents to enjoy. These are designed to facilitate exercise, relaxation, social or cultural events, sports and play, circulation and general enhanced quality of life for resident. Some of the other functions include the provision of stormwater attenuation in a bio-retention area, creation of habitat within the bio-retention area and through significant tree and shrub planting (predominantly native), accommodation of cycle parking for residents and visitors and provision of play spaces and multi-use games area. All of these spaces and facilities, along with sculptures, canopy elements and bridges as well as bespoke paving and sustainable water management proposals are integrated into a linear park that will create a unique sense of place.

The space has been designed with sustainable maintenance to the fore. Most of the planting is intended to be naturalistic and 'wild' in character and will therefore not require frequent or intensive maintenance.

7. Waste Management

Waste Management Statement for Construction & Operation

This document illustrates how, always, industry best practises will be employed during the life cycle of the development.

Mitigation measures proposed during the Construction phase include:

- On site segregation of all waste materials into appropriate categories including:
 - Made ground, soil, subsoil, bedrock
 - Concrete, bricks, tiles, ceramics, plasterboard
 - Metals
 - Dry recyclables, e.g. cardboard, plastic timber
- All waste materials will be stored in skips or other suitable receptacles in a designated area of the site
- Wherever possible, left over materials (e.g. timber off cuts) and any suitable demolition materials shall be re-used on site
- Any potentially contaminated soil to be removed from site will be tested to confirm its contamination status and subsequent management requirements
- All waste leaving the site will be recycled, recovered or reused where possible, with the exception of those waste streams where appropriate facilities are currently not available.
- All waste leaving the site will be transported by suitable permitted contractors and taken to suitably licensed or permitted facilities
- All waste leaving the site will be recorded and copies of relevant documentation maintained.

During the operational phase, In order to minimise the disposal of waste material to landfill, the mantra of 'reduce, reuse, recycle' will be promoted throughout the development. In addition, the following mitigation measures will be employed:

- Suitable waste materials will be stored in bins or other receptacles in designated, easily accessible locations.
- Waste leaving the site will be transported by suitable permitted contractors and taken to suitably permitted/licensed facilities
- Where necessary, waste leaving the site will be recorded and copies of relevant documentation maintained.
- Where necessary, waste from the development will be segregated and stored in designated centralised waste storage areas.
- These mitigation measures will ensure the waste arising from the Development is dealt with in compliance with the provisions of the Waste Management Act 1996 (as amended 2001), and associated Regulations, the litter Act of 1997 and the Dublin Waste Management Plan (2005-2010) and achieve optimum levels of waste reduction, re-use and recycling.

8. Infrastructure and transportation details

8.1 Existing Infrastructure

Existing Cycling and Pedestrian Facilities

There are good quality pedestrian and cycle facilities in the immediate vicinity of the subject development lands. To the south of the subject site pedestrians and cyclists can benefit from the provision of footways and cycle lanes on Park West Avenue. The location of the site means that it will connect seamlessly with existing and proposed development, as well as connecting to the Train Station via a future pedestrian crossing on the brow of the bridge/road.

The subject site benefits from excellent public transport accessibility levels including both rail and bus-based services. Dublin Bus operates a route that serves the subject site locale including the number 79a (Aston Quay – Parkwest).

8.2 Proposed Transport Infrastructure

- Cycle Network Proposals

The proposed network of roads, paths and cycle routes will ensure full permeability throughout the scheme and ensure future connectivity to phases 2 & 3 of the LAP site 6 and adjacent developments/ facilities beyond.

- Road Infrastructure Proposals

The proposed roads and paths will bring the user into a well-defined Local Square/ Park with publicly accessible uses and are representative of the desire line for pedestrians wishing to access the Train from neighbouring developments.

9. Health & Well Being

Measure	Description	Benefit
Natural / Day Light	The buildings have been favourably orientated to maximise good levels of natural light where possible.	Reduces reliance on artificial lighting thereby reducing costs. Access to natural light creates feelings of positivity and wellbeing for one's self.
Accessibility	All units will comply with Part M/K of Technical Guidance Documents.	Reduces the level of adaption, and associated costs, potentially necessitated by future residents' future circumstances.
Security	The scheme is designed to incorporate passive surveillance with the following security strategies likely to be adapted; <ul style="list-style-type: none"> • CCTV monitoring • Secure bike stands • Routine access fobs Adequate public lighting and boundary treatments. A provision of site boundary protection where required to facilitate development phasing.	Helps to reduce security and management costs. Increases the safety of residents entering and exiting the grounds.
Natural Amenity	Public Open Space, and community amenity courtyard around U-shaped blocks and a Local Square with neighbourhood amenities.	Facilitates community interaction between resident, socialising and play – resulting in improved wellbeing and better passive surveillance of spaces.
	Connections to local amenity via green corridor, internal roads and the open spaces.	Proximity and use of parks promote a healthy lifestyle.