PUNCH
consulting engineers

Kinsale Road LRD, Kinsale Road, Cork

Scheme Sustainability Statement
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1 Introduction

1.1 Purpose of the Statement

This Scheme Sustainability Statement outlines the sustainability initiatives and strategies implemented in the proposed Large-scale Residential Development (LRD). The report addresses key aspects such as climate adaptation, sustainable drainage, energy efficiency, and environmental management, in line with national and local policies. The project is aligned with Cork City Council's commitment to sustainable development as detailed in the Cork City Development Plan 2022-2028, the National Planning Framework (NPF) 2040, and other relevant local and national policies.

1.2 Project Overview

This Sustainability Statement outlines the environmental, social, and economic sustainability measures integrated into the proposed residential and retail development located along Kinsale Road, Cork City. This statement will demonstrate how the project adheres to sustainable development principles through various design and operational strategies.

Figure 1-1: Site Location of the Proposed Development

2 Climate Adaptation Opportunities

2.1 Location and Siting

The project's location was strategically chosen to minimize flood risk and take advantage of natural landscape features that promote climate resilience. The siting considers prevailing wind patterns, solar exposure, and topography to enhance natural ventilation and lighting, in accordance with section 2 of the Sustainable Urban Housing: Design Standards for New Apartments - 2018, the proposed development is located in a Central and/or Accessible Urban Location. This is noted as the proposed development is within walking distance of the city centre and to/from high frequency (i.e. min 10-minute peak hour frequency) urban bus services.

2.2 Layout and Design

The layout is designed with climate adaptation in mind, orienting buildings to maximize natural light and passive heating while minimizing heat loss. The design adheres to Building Regulations Part L, using the values in the table below as the basis for design assessment, though these will be subject to the architect's construction details and sustainability targets. The U-values being considered will comply with the current regulatory requirements outlined in the Technical Guidance Documents Part L, "Conservation of Fuel & Energy other than Dwellings."

Table 2-1: Design U-Value

Building Fabric Element	Design U-Value Part L (2022)
Floor	0.18 W/m^{2}K
Roof (Flat)	0.20 W/m^{2}K
Roof (Pitched)	0.16 W/m^{2}K
External Walls	0.18 W/m^{2}K
Windows/Doors	1.40 W/m^{2}K

2.3 Drainage Proposals

The drainage proposals are designed to manage the increased rainfall and extreme weather events associated with climate change. Permeable paving, swales, and attenuation basins are incorporated to control surface water runoff, in accordance with the Cork City Development Plan 2022-2028. All new developments, including modifications or extensions to existing ones, must typically incorporate Sustainable Urban Drainage Systems (SUDS). Section 3 of this report will provide the SUDs strategy proposed for the proposed residential and retail development. It should be noted that the SUDs assessment aims to address runoff quantity, quality, and its impact on the existing habitat and water quality.

3 Sustainable Urban Drainage Systems (SUDs) Strategy

3.1 Water Quantity Management

The SUDS strategy ensures that surface water runoff is controlled to prevent flooding. This is achieved through green/blue roofs, rain gardens, bioretention areas, and permeable surfaces, which are designed to manage runoff volumes and rates according to The SuDS Manual - CIRIA C753 and Greater Dublin Strategic Drainage Study Regional Drainage Policies - Volume 2. Refer to Figure 4-1 to Figure 4-3 for examples of SUDS strategy measures proposed as part of the water quantity management measures. Refer to the Engineering Planning Report for further details.

3.2 Water Quality Protection

To improve water quality, the SUDS system proposed for this site incorporates features such as green/blue roofs, rain gardens, bioretention areas, and permeable surfaces remove pollutants from runoff before it enters the local watercourses. These measures meet the standards set by the Environmental Protection Agency (EPA) and The SuDS Manual - CIRIA C753.

3.3 Amenity Enhancement

The SUDS elements are integrated into the landscape design, providing aesthetic and recreational benefits. Features such as rain gardens and bioretention areas enhance the site's visual appeal and offer educational opportunities about water management.

3.4 Biodiversity Support

In line with the National Biodiversity Action Plan, the SUDS strategy supports local biodiversity by creating habitats within the drainage features. Native planting within blue/green roofs, rain gardens, and bioretention areas attracts wildlife and promotes ecological diversity.

4 Green Infrastructure and Roofs

4.1 Green Roofs

Green roofs are incorporated to manage stormwater, reduce the urban heat island effect, and provide insulation. They are designed to support native vegetation, contributing to local biodiversity. The design follows guidelines set out in Green Roof Guidelines: Advice on Planning, Designing and Creating Green Roofs. It should be noted that all residential buildings will incorporate green roof infrastructure while the basement/podium area will incorporate a green/blue roof. Refer to Figure 4-1 for an illustration of indicative green/blue roof build up.

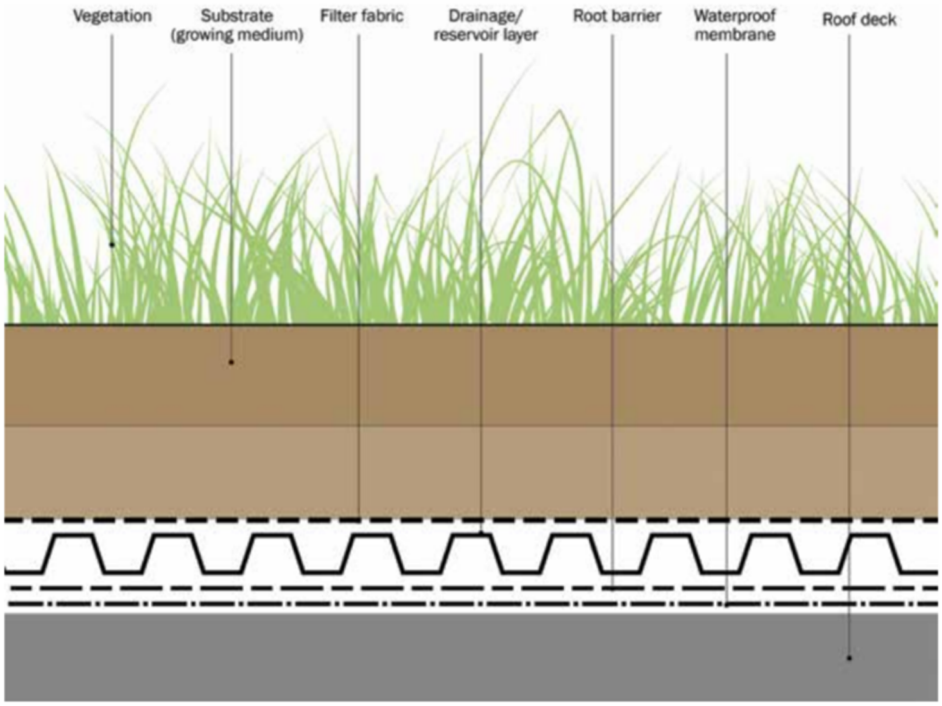

Figure 4-1: Indicative Green/Blue Roof Build up

4.2 Green Infrastructure

Additional green infrastructure, including rain gardens and bioretention areas, is integrated into the site to enhance drainage, improve air quality, and provide shade. These features contribute to the overall sustainability of the development by reducing the need for artificial cooling and heating. The use of green roofs and walls significantly influences the thermal performance of buildings. These features provide additional insulation, reducing heat loss in winter and heat gain in summer. Refer to Figure 4-2 and Figure 4-3 for an illustration of the components of a bioretention system and section through a simple rain garden with outlet pipe respectively.

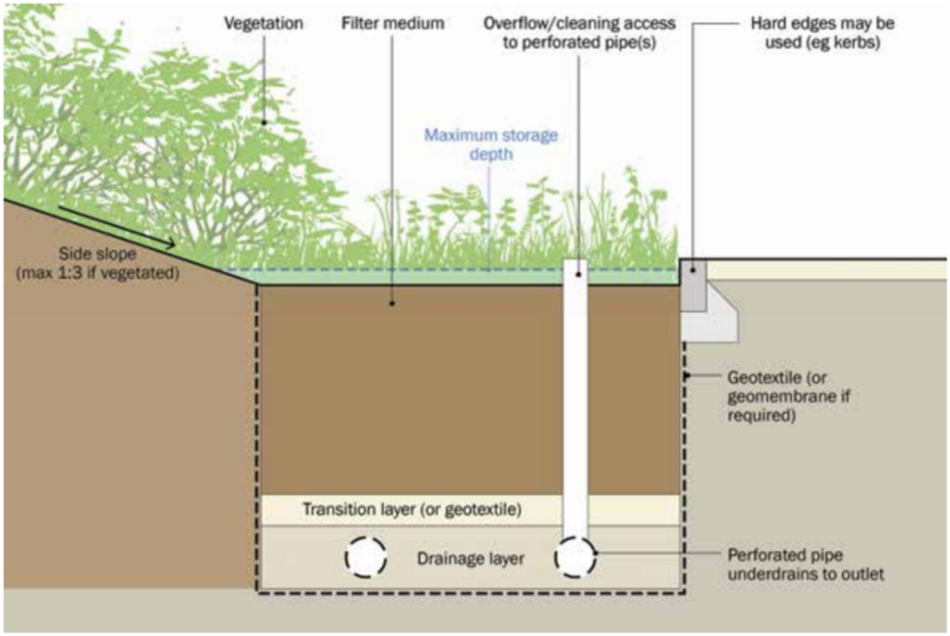

Figure 4-2: Components of a bioretention system

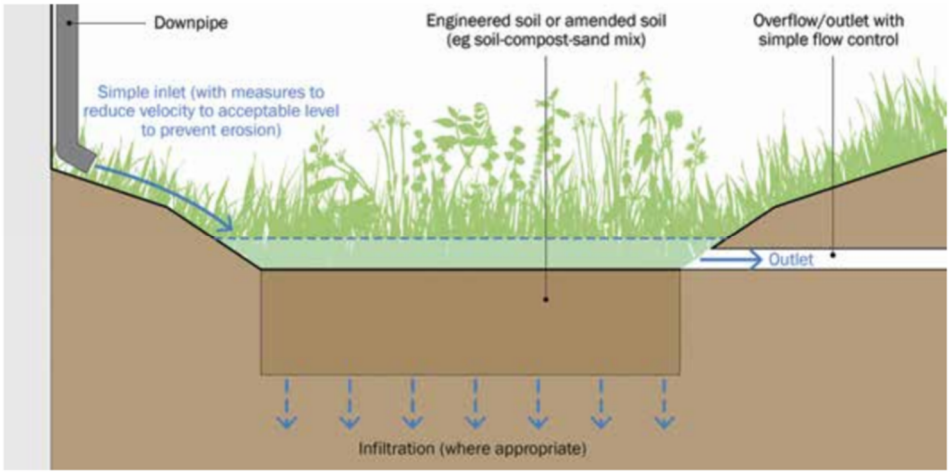

Figure 4-3: Section through a simple rain garden with outlet pipe

5 Energy Efficiency Measures

5.1 Thermal Insulation

High-performance thermal insulation is used throughout the development to minimize energy consumption for heating and cooling. In accordance with Building Regulations Part L, all domestic water pipework to be insulated with Class 'O' foil back insulation and clearly labelled.

5.2 Passive Ventilation and Cooling

The ventilation for the apartments shall be provided by the EAHP and be classed as mechanically ventilated. The central extract shall operate on the principle of mechanical extract ventilation (MEV). MEV will be commissioned with two dedicated extract flow rates for the unit, one for background ventilation and one for boost ventilation. The background ventilation rate will be maintained 24/7 in order to ventilate the unit and maintain the heat pump operation volume flow rate. The boost ventilation will be activated by a drop-in air or water temperature and raise the volume flow rate to a maximum pre-set value. All habitable rooms will be provided with passive air inlets providing fresh air to the respective spaces and to comply with the requirements of TGD Part F.

The passive air inlets will feature washable filters, silencers, volume control and wind pressure protection. Smoke ventilation shall be provided to each Apartment Block in compliance with the Fire Safety Certificate requirements and TGD Part B. This shall generally include naturally ventilated smoke shafts with control dampers at each floor level and an AOV at the top of each shaft. AOV's, specified by the Architect will be provided at the top of the firefighting stairwells with power provided to each AOV. The smoke ventilation system shall be integrated with the building fire alarm system.

5.3 Passive Solar Design

In accordance with Solar Design Guidelines for Ireland, the buildings are oriented and designed to maximize solar gain during the winter and minimize overheating during the summer. This includes the use of large south-facing windows, shading devices, and light-coloured materials to reflect heat.

6 Circular Economy and Waste Management

An Outline Operational Waste Management Plan will be submitted as part of this planning application. It is noted that this plan will provide a comprehensive description of how this development should provide a circular economy and waste management that should reflect the waste management hierarchy, with waste prevention and minimisation being the first priority succeeded by reuse and recycling.

During construction of the proposed development, there are numerous opportunities for the beneficial reuse and recycling of materials. The subsequent use of recycled materials in the proposed development also reduces the quantities of waste which ultimately needs to be consigned to landfill sites.

7 Noise and Air Pollution Management

7.1 Construction Stage Management

In line with the Environmental Noise Regulations 2018, noise and air pollution during construction will be managed using measures such as low-noise machinery, dust suppression systems, and restricted working hours. While there is no official Irish guidance on maximum permissible noise levels during construction, local authorities typically regulate construction activities by setting limits on working hours and, at their discretion, imposing noise limits.

In the absence of specific noise guidelines, appropriate noise criteria for a development of this scale will be established in consultation with Cork City Council (CCC). These criteria will define the maximum permissible noise levels at nearby properties during construction, as well as any restrictions on working hours. Most construction activity is expected to take place during normal working hours.

Please refer to the Noise and Vibration Impact Assessment report prepared by CLV Consulting, which accompanies this planning submission, for details on the construction phase impact as well as mitigating measures.

7.2 Operational Stage Management

To manage noise and air pollution during the operation of the building, the design includes soundproofing measures, high-efficiency HVAC systems, and air quality monitoring.

The ventilation for the apartments shall be provided by the Exhaust Air Heat Pump (EAHP) and be classed as mechanically ventilated. The central extract shall operate on the principle of mechanical extract ventilation (MEV). MEV will be commissioned with two dedicated extract flow rates for the unit, one for background ventilation and one for boost ventilation.

The background ventilation rate will be maintained 24/7 in order to ventilate the unit and maintain the heat pump operation volume flow rate. The boost ventilation will be activated by a drop-in air or water temperature and raise the volume flow rate to a maximum pre-set value. All habitable rooms will be provided with passive air inlets providing fresh air to the respective spaces and to comply with the requirements of Technical Guidance Document (TGD) Part F. the passive air inlets will feature washable filters, silencers, volume control and wind pressure protection.

Smoke ventilation shall be provided to each Apartment Block in compliance with the Fire Safety Certificate requirements and TGD Part B. This shall generally include naturally ventilated smoke shafts with control dampers at each floor level and an Automatic Opening Vents (AOV) at the top of each shaft.

AOV specified by the Architect will be provided at the top of the firefighting stairwells with power provided to each AOV. The smoke ventilation system shall be integrated with the building fire alarm system.

8 Conclusion

This report has demonstrated how the proposed Large-scale Residential Development (LRD) located at the Old Vita Cortex Site along Kinsale Road in Cork City integrates sustainability principles across its design, construction, and operational stages. The strategies outlined ensure that the development not only meets but exceeds the requirements set out by relevant sustainability standards and regulations, contributing to a resilient and environmentally responsible built environment.