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ENERGY
&
CLIMATE ACTION STATEMENT

FOR

O'FLYNN GROUP
BECKETT HOUSE,
BARRACK SQUARE
BALLINCOLLIG
CORK

RELATING TO A

LARGE SCALE RESIDENTIAL DEVELOPMENT

AT

MAGLIN, BALLINCOLLIG, CO. CORK

1st October 2025

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1.0 INTRODUCTION

This Energy Efficiency and Climate Change Adaption Plan has been prepared by Byrne Environmental Consulting Ltd on behalf of the O'Flynn Group to accompany an application for a proposed Large Scale Residential Development (LRD) at Maglin, Ballincollig, Co. Cork.

This report details the climate change adaption statement which describes how the development will be designed to respond to current and future climate change impacts by reducing the vulnerability of the development to adverse aspects of climate change.

This report identifies the energy standards which the development will comply with and details the overall strategy that will be adopted to achieve these energy efficiency targets.

The proposed development aims to comply with Ireland's Climate Action Plan 2024 and Part L of the Building Regulations, ensuring a sustainable and energy- efficient design that contributes to national carbon reduction targets.

The Irish government has set ambitious goals under the Climate Action Plan to achieve net-zero emissions by 2050. Buildings account for a significant portion of national energy consumption, and as such, new residential developments must incorporate low-carbon heating solutions, enhanced building fabric performance, and renewable energy technologies to minimize environmental impact.

The proposed development has been designed with consideration of these objectives by integrating high- efficiency insulation, airtight construction techniques, renewable energy sources, and low-carbon heating systems.

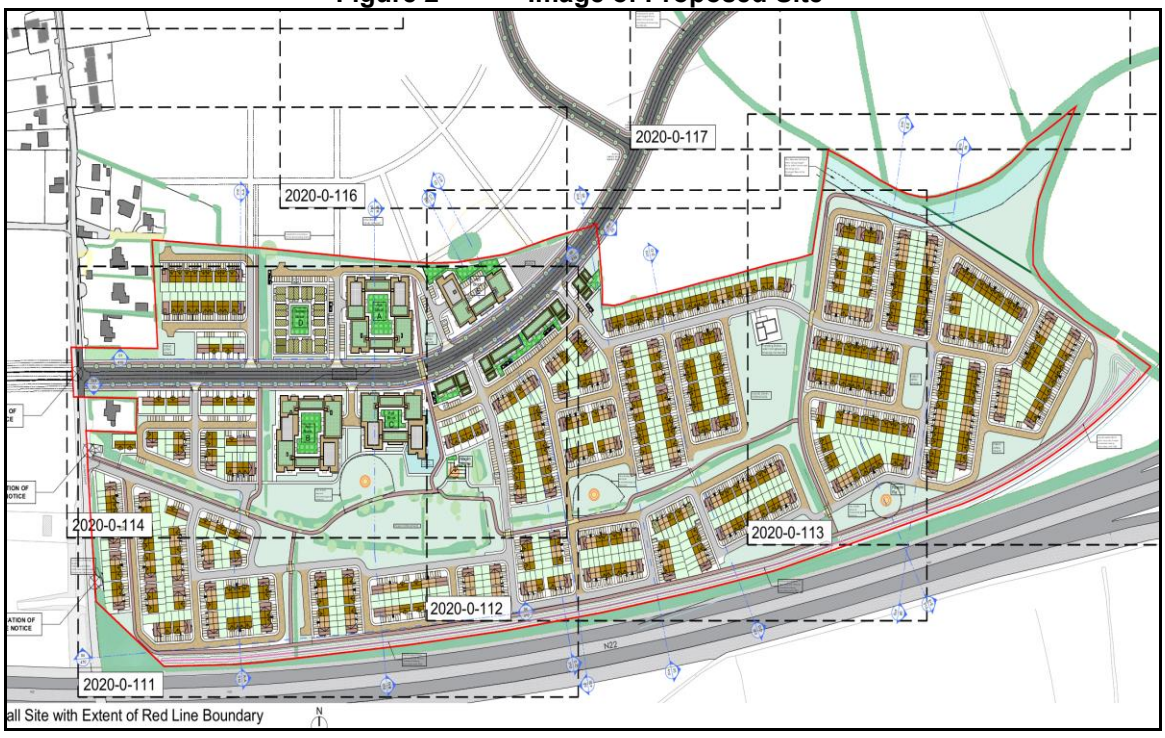
The strategy ensures that all residential units will meet Nearly Zero Energy Building (NZEB) standards, enhancing occupant comfort while reducing reliance on traditional fossil fuels.

2.0 THE PROPOSED DEVELOPMENT

The Proposed Development consists of the demolition of an existing farmhouse and associated outbuildings, the refurbishment of Maglin House and the existing gate lodge and the construction of 1,150 residential units consisting of a mix of 638 No. two, three, and four bed semi-detached and terraced houses, 104 No. one and two bedroom duplex units and 408 No. one, two and three bed apartments, 1 No. childcare facility, 3 No. Commercial/Retail units, the provision of landscaping and amenity areas and all associated infrastructure and services including vehicular and pedestrian/cycle access, roads, parking, lighting and drainage.

Figure 1 Site Location

Figure 2 Image of Proposed Site



3.0 THE BUILDING REGULATIONS

The *Building Regulations Part L 2022 - Dwellings* set building fabric and energy performance to achieve Nearly Zero- Energy Building. Nearly Zero-Energy Building (NZEB) means a building that has a very high energy performance as determined in accordance with Annex I of the *EU Energy Performance of Buildings Directive Recast (EPBD Recast).* The nearly zero or very low amount of energy required should be covered to a very significant extent by energy from renewable sources, including energy from renewable sources produced on-site or nearby.

Compliance with *Building Regulations Part L 2022 Dwellings*, is broken down into six distinct categories, known as Regulation 8; parts (a) to (f).

A summary of each of these parts as listed in Technical Guidance Document L 2022 is provided below together with a description of how the proposed development will comply with the required standards.

3.1 Regulation 8 Part (a) requires:

Providing that the energy performance of the building is such as to limit the calculated primary energy consumption and related carbon dioxide (CO2) to that of a nearly zero energy building within the meaning of the Directive insofar as is reasonably practicable.

Part (a) is the overarching compliance target which stipulates the required overall reduction in energy consumption and carbon emissions for new dwellings. This requires that the energy consumption and carbon emissions of every dwelling is assessed using the DEAP software and that reductions of 70% in energy consumption and 65% in carbon emissions are achieved. The baseline against which this reduction is to be measured is considered to be a dwelling which is constructed to perfectly comply with the 2005 version of Building Regulations Part L.

The subject dwellings are designed to have a minimum A2 BER rating which means that they will have an energy consumption of between 25-50kWh/m^2/year and generate c. 11.41 kgCO_2/year. This will be verified by a certified BER Assessor.

3.2 Regulation 8 Part (b) requires:

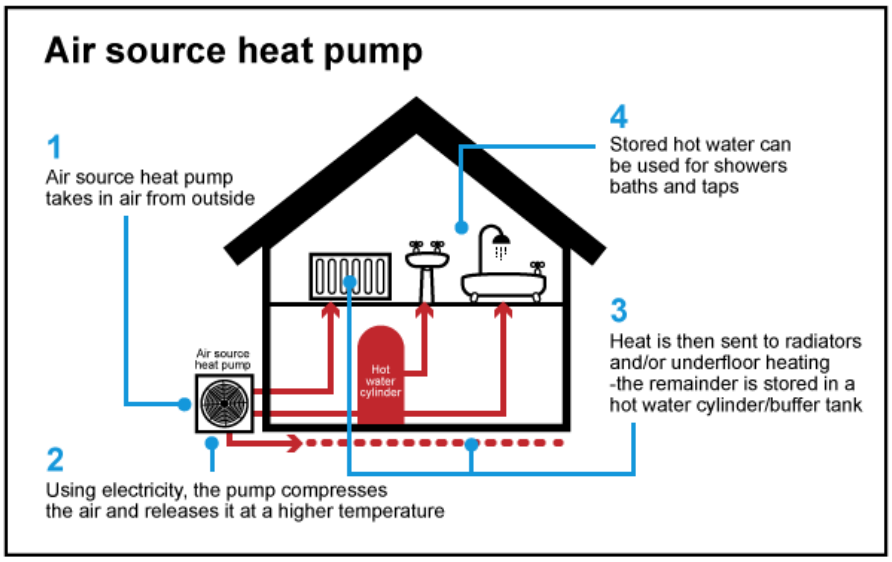
Providing that, the nearly zero or very low amount of energy required is covered to a very significant extent by energy from renewable sources, including energy from renewable sources produced onsite or nearby.

This requires that all new dwellings are provided with a renewable energy source. The regulations state that 20% of the total energy consumed within the dwelling must be provided from renewable thermal sources (solar thermal, biomass, heat pumps) or renewable electrical sources (Photovoltaic, Micro-wind).

In practical terms, for a multiple unit development, this requirement is usually met by incorporating PV panels at roof level, incorporating air source heat pump technology or by adding an element of biomass or micro-Combined Heat & Power (CHP) to a district heating scheme.

The proposed residential dwellings will be served by an air to water heat pump system to provide heating and hot water requirements. The proposed air to water heat pumps will reduce the energy demand for individual units by up to 20%. Heating shall be controlled by thermostats within each dwelling which further enhance the reduction in energy consumption.

Figure 3 Image of Heat Pump Heating System



3.3 Regulation 8 Part (c) requires:

Limiting heat loss and, where appropriate, availing of heat gain through the fabric of the building.

This requires that the fabric of the building is designed to minimise heat loss from the building and that the air permeability of the structure limits the unwanted passage of air into the building.

All buildings will meet or exceed the minimum U-Values which are as follows.
Pitched roof 0.16 W/m2K
Flat roof 0.20 W/m2K
Walls 0.18 W/m2K
Floor 0.18 W/m2K
Windows 1.4 W/m2K

The u-values of individual elements can be relaxed if required provided that compensatory measures are taken on other elements and that the overall area weighted u-value for the entire dwelling is the same as it would have been if all individual elements had complied.

The thermal bridging details of junctions in the envelope of the building (floor-wall; wall-window; wall-roof, etc) must also be designed and constructed in accordance with the guidance set out in *Limiting Thermal Bridging and Air Infiltration – Acceptable Construction Details*.

Every dwelling must also be subjected to an air pressure test to determine the air tightness. All dwellings must achieve and air tightness of less than 5m^3/m^2/hour when tested at 50 Pascals. In multiple dwelling developments with repeating apartment types, testing can be conducted on a representative sample of units in accordance with Table 1.5.4.3 of *TGD Part L 2022 Dwellings.*

The proposed residential dwellings be constructed using building elements with the required U-Values. Air permeability limits and shall be tested in the different buildings for air tightness once fully constructed to demonstrate compliance with the 5m^3/m^2/hour limit. Air Tightness shall be achieved as follows:

- **Use of high-performance membranes and tapes at junctions and openings.**

- **Sealing all service penetrations (e.g., pipework, cables) with airtight grommets or sealants.**
- **Continuous insulation to avoid air leakage through structural elements.**
- **Conducting blower door tests during construction to verify compliance.**
- **Using mechanical ventilation systems to ensure controlled airflow without uncontrolled leaks.**
- **Thermal bridging minimization in line with Acceptable Construction Details (ACD).**

3.4 Regulation 8 Parts (d & e) require:

Providing and commissioning energy efficient space and water heating systems with efficient heat sources and effective controls.

Providing that all oil and gas fired boilers shall meet a minimum seasonal efficiency of 90%.

These require that gas or oil-fired boilers are at least 90% efficient and that heating controls allow independent time control of the heating (2 zones for dwellings larger than 100m2) and hot water. Heating in each zone should also be controlled by room thermostats (in the case of heating) and cylinder thermostats (in the case of hot water).

The proposed residential dwellings will include room thermostats linked to the heat pump and thermostat controls on the hot water cylinder.

3.5 Regulation 8 Parts (f) require

Providing to the dwelling owner sufficient information about the building, the fixed building services and their maintenance requirements so that the building can be operated in such a manner as to use no more fuel and energy than is reasonable.

This requires that information is provided to the dwelling owner which relates to the effective and efficient operation of the systems installed in that dwelling. Instructions on how to control the heating & hot water systems based on time and temperature requirements.

Further to purchase of a dwelling, the new homeowner will be provided with an information pack detailing instruction on the operation of all heating and ventilation controls within the building. The O'Flynn Group have a Customer Relations Team who assist new homeowners in understanding how they should operate their homes in the most efficient manner.

3.6 L2A & S.I No 393 of 2021 Regulation 5 Part (f) – Electric Vehicle Charging requires:

(a) A multi-unit building containing one, or more than one, dwelling that is new shall have installed ducting infrastructure (consisting of conduits for electrical cables) for each car parking space, to enable the subsequent installation of recharging points for electric vehicles where the parking space is:

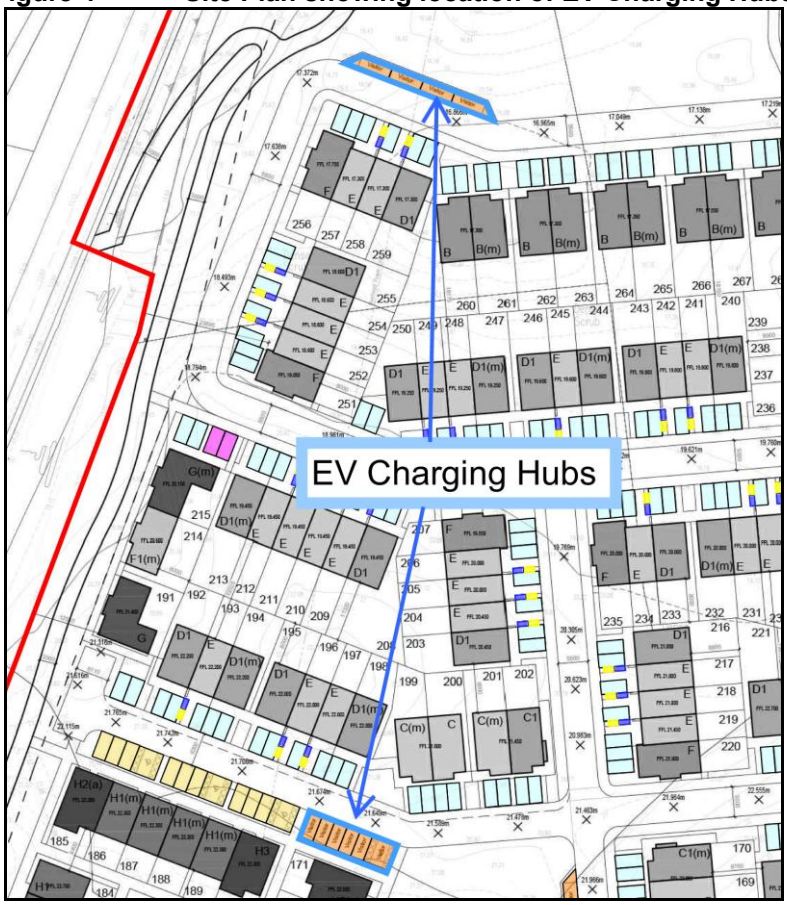
(i) located inside the building concerned, or
(ii) is within the curtilage of the building concerned.

(b) A new building that is a dwelling, other than where the dwelling forms part of a multi-unit building, where a parking space is located within the curtilage of the dwelling, shall have installed appropriate electric vehicle recharging infrastructure to enable the subsequent installation of recharging points for electric vehicles.

This requires that ducting provision for the future installation of car charging point be made in all carparks with more than 10 parking spaces associated with multi-unit residential buildings. It also requires that individual / own-door dwellings which have on curtilage parking are provided with ducting infrastructure to allow the future installation of e-car charging.

The proposed development will have 50 EV charging spaces. These Hubs will serve houses without in-curtilage car-parking and visitors.

Figure 4 Site Plan showing location of EV Charging Hubs



4.0 Building Energy Rating

As of 2006 all domestic buildings that were newly built and existing buildings that are for sale or rent require a BER (Building Energy Rating) certificate. The actual building energy rating is based on the primary energy used for one year and is classified on a scale of A1 to G with A1 being the most energy efficient. It also gives the anticipated carbon emissions for a year's occupation based on the type of fuel that the systems use. In order to identify Primary energy consumption of the building, the BER assesses energy consumed under the following headings:

- Building type (house, apartment etc.)
- Building orientation
- Thermal envelope (insulation levels of the façade, roofs, ground floor etc.)
- Air Permeability (how much air infiltrates into the building through the façade)
- Heating systems (what type of heat source is used and how efficient)
- Ventilation (what form of ventilation is used. Natural vent, mixed mode mechanical ventilation)
- Fan and pump efficiency (how efficient are the pumps and fans)
- Domestic hot water generation (is a high efficiency boiler used)
- Lighting systems (how efficient is the lighting in the building

Through the specification of an energy efficient façade and HVAC systems, the energy consumption of the building will be reduced compared to a set baseline. This ensures the environmental and economic impact of the operation of the building is reduced. The key philosophy of this plan is to reduce energy consumption by firstly limiting the energy needed by improving the buildings insulation. The second step is to utilise energy in the most efficient way through the selection and installation of energy efficient plant and equipment. The final step is to introduce energy from renewable sources to reduce the burden on Fossil Fuels.

All dwellings shall have a Mechanical Extract System and Heat Recovery System in accordance with TGD Part F which will provide air extraction from wet areas with passive wall vents in all habitable rooms for supply air.

The proposed dwellings have been designed and shall be constructed to achieve a minimum BER of A2.

Figure 5 Image of a Mechanical Extract System

5.0 CLIMATE CHANGE ADAPTION

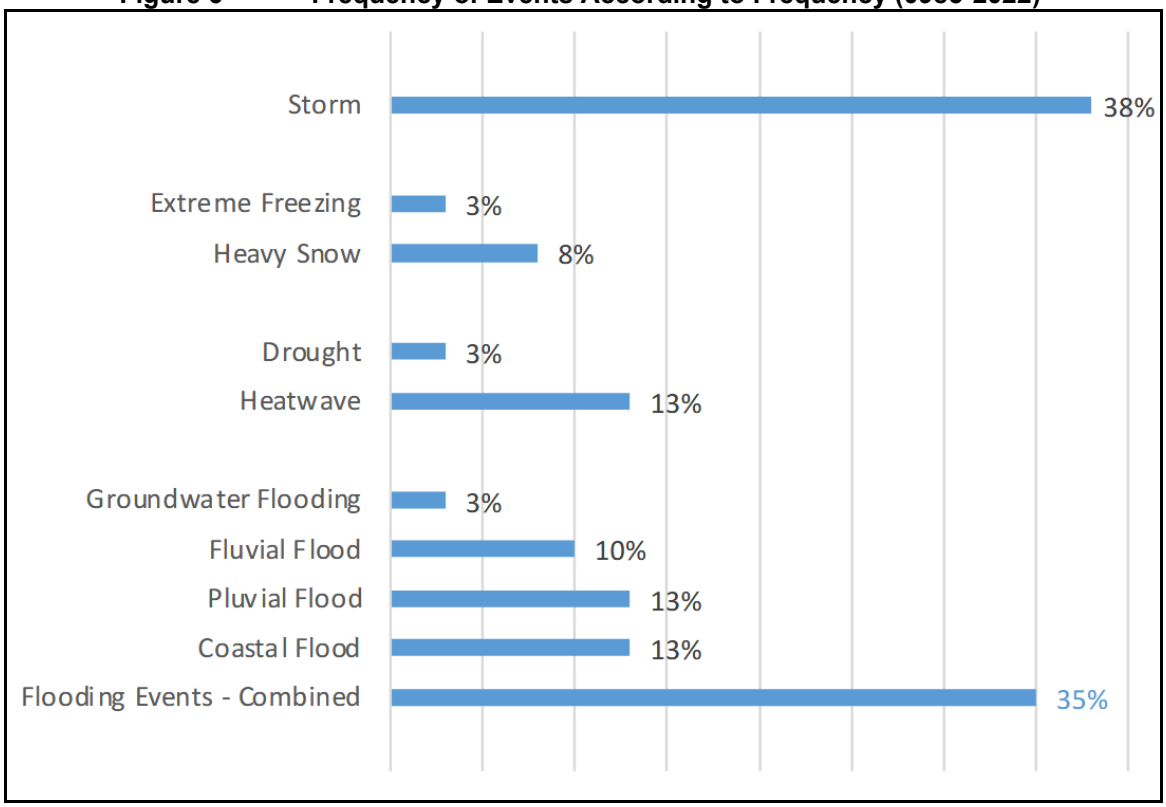
The *Cork County Council Climate Action Plan 2019-2024* is focused on adaptation to climate change and it aims to identify Corks County Council's vulnerabilities and the major risks facing the county. It will develop a pathway in how to adapt and plan to strengthen physical infrastructure, biodiversity and develop resilience in communities to deal with the effects of climate change.

Climate Adaptation is planning proactively to take action and make adjustments to minimise or avoid the existing and anticipated impacts from climate change.

The proposed development has been designed and shall be constructed and operated with regard to minimising greenhouse gas emissions and reducing its impact on Climate and therefor Climate Change.

The frequency of climate hazard events are reported in the *Cork County Council Climate Action Plan 2019-2024* as below.

Figure 6 Frequency of Events According to Frequency (0985-2022)



Predicted change by 2050 in Climate Hazards – Cork County

Global Climate prediction scenarios have been developed based on the level of carbon emissions, where greater emissions result in greater climate change impacts. The climate of Cork County is projected to change in line with these global projections.

Below is an overview of projected changes in the intensity and frequency of climate hazards for Cork County by 2050.

Table 1 Climate Projections for Cork County by 2050

HAZARD	PREDICTED CHANGE	PREDICTED CHANGE IN FREQUENCY
Heatwaves	•Projections indicate an overall increase in average temperature of between 1.1 and 1.5°C for Cork County. •Under a high emission scenario, projections indicate that heatwaves will become more frequent (bottom middle) by mid-century and on an almost annual basis for some parts of Cork County.	Increase
Droughts	•Summer rainfall is expected to reduce by between 5 and 15% in the future when compared with the baseline period of 1981 to 2000, contributing to potential drought conditions.	Increase
Cold Spell	•As a consequence of the increasing temperatures, a decrease in the number of frost days, ice days, and snowfall in the 2041-2060 future period when compared with the baseline period of 1981 to 2000, is predicted.	Decrease
Heavy Snowfall	•The annual snowfall in the region is projected to decrease substantially by the middle of the century.	Decrease
Severe Windstorms	•Projections of storms are subject to a high level of uncertainty. By mid-century, projections indicate that average wind speed will remain similar to those currently experienced but an increase in more intense storms which are currently rare events is projected.	Same
Coastal Flooding	•Rising sea levels projections under a high emissions scenario indicate an increase of up to 0.26 m by 2050 which will increase the frequency of coastal inundation for Cork County.	Increase
Coastal Erosion	•A rising sea level is strongly linked with an increase in coastal erosion and increases the risk of inundation of coastal areas.	Increase
Pluvial/River Flooding	•Projections indicate an increase in the frequency of heavy rainfall days (days with precipitation >30mm) for Cork County with some areas projected to see increase of up to 52%. This will likely result in an increased frequency of associated fluvial and pluvial flooding.	Increase
Groundwater Flooding	•Projections of changes in groundwater flooding are currently not available, therefore there is uncertainty in the change in groundwater flooding frequency that can be expected.	Same

Climate Change Adaption is integrated into the development as follows:

Location:
The site is located in an area of low climate risks such as flood zones or areas prone to extreme weather.

Building Materials:
The use of climate-resilient materials including timber frames enhances the durability of the houses.

Energy Efficiency:
The energy-efficient features designed into the houses reduces their carbon footprint and make them more comfortable during extreme temperatures.

6.0 OPERATIONAL PHASE

6.1 Design Phase

Flood Risk Assessment

The Flood Risk Assessment prepared to accompany the application for the subject development concludes that the site is not located in an area with a risk of coastal flooding. Also, it has been calculated that the development once operational will not impact fluvial flow rates or floodplain storage and will not increase the risk of flooding elsewhere.

The proposed development includes a Sustainable Urban Drainage Scheme (SUDS) which includes retention ponds, oil/petrol interceptors and silt traps and will control surface water run-off and remove pollutants from discharged surface water. The SuDS measures will attenuate surface water flow of discharges water to the Inch River and to European Sites located downstream of the site.

Natura Impact Assessment

The Natura Impact Assessment prepared to accompany the application concludes as follows:

Mitigation measures are detailed within this NIS, which will ensure that any impacts on Cork Harbour SPA or any other European site, having regard to their conservation objectives, will be avoided during all phases of the Proposed Development, such that there will be no adverse effects on the integrity of any European sites.

Following an examination, analysis and evaluation of the relevant information, including the nature of the predicted impacts from the Proposed Development and all associated works, it has been objectively concluded that with the implementation of the proposed mitigation measures, the Proposed Development will not, either alone or in combination with other plans or projects, adversely affect the integrity or conservation status of any of the qualifying interests of Cork Harbour SPA or any other European site in light of best scientific knowledge. No reasonable scientific doubt exists in relation to this conclusion.

6.2 Construction Phase

Waste & Resource Management
The Construction Phase of the development will be conducted in accordance with a site-specific Construction Waste Management Plan prepared with regard to *The National Waste Management Plan for a Circular Economy 2024-2030*.

The key aspects for sustainable construction waste management are:

1 To maximise the use of resources in the Design and Construction Phases and to minimise the generation of waste with regard to the following principals:

- Green Procurement and Design
- Resource Re-Use, Recycling and Management
- Waste Prevention and Segregation

2 To maximise the segregation of construction and demolition waste materials on-site to produce uncontaminated waste streams for re-use and recycling both on-site and off-site.

6.3 Operational Phase

Waste Management
The Operational Phase of the development will be conducted in accordance with a site-specific Operational Waste Management Plan (OWMP).

The Objective of the OWMP is to maximise the quantity of waste recycled by providing sufficient waste recycling infrastructure, waste reduction initiatives and waste collection and waste management information to the residents of the development.

The Goal of the OWMP is to achieve the following waste reduction and recycling targets detailed in the National Waste Management Plan for a Circular Economy 2024-2030.

Target 1A Achieve a 6% reduction in residual municipal waste by 2030
Target 2A Achieve 90% compliance in the dry recycling bin by 2030
Target 2B Achieve a 10% increase per annum in material compliance in the residual bin by 2030

Sustainable House Design
The design of the proposed dwellings which include sustainable air to water heat pumps, centralised mechanical ventilation and a highly thermally insulated fabric will result in the development having a low energy demand and low potential for greenhouse gas generation.

Sustainable Transport
The location of the development in proximity to Ennis ensures that future residents can avail of public transport and bicycle transport in the local area. The inclusion of EV charging hubs within the development will encourage residents to purchase fully electric or hybrid engine vehicles.

7.0 COMPLIANCE WITH CLIMATE ACTION TARGETS

The proposed development aligns with Ireland's Climate Action Plan 2024, supporting national sustainability and decarbonization objectives. The key contributions of the project to climate action include:

- Reduced Greenhouse Gas Emissions: By integrating renewable energy technologies, low-carbon heating solutions, and high-performance insulation, the project will achieve significant reductions in operational carbon emissions.

- Renewable Energy Use: The installation of solar photovoltaic (PV) panels and low carbon heating system (Air to Water Heat Pump) ensures that at least 20% of the building's energy demand is met by renewable sources.

- Enhanced Energy Efficiency: Through airtight construction, triple-glazed windows, and highly insulated building fabric, energy demand is minimized, ensuring a lower environmental impact and resistance to climate change extreme hot and cold weather events.

- Sustainable Transport Infrastructure: The inclusion of EV charging hubs, bicycle parking and the site's proximity to public transport links encourage low-carbon commuting options for residents.

- Contribution to National Net-Zero Goals: This development supports Ireland's long-term goal of achieving net-zero emissions by 2050 through its integration of energy-efficient systems and sustainable design details in all houses.