KNOCKBROGAN LRD

VOLUME I

Non-Technical Summary

McCutcheon Halley
CHARTERED PLANNING CONSULTANTS

awnconsulting

BRIAN O KENNEDY & ASSOCIATES LTD
ENGINEERS + ARCHITECTS

HEGSONS
Design Consultancy limited

MALONE O'REGAN ENVIRONMENTAL

MODEL WORKS

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CHAPTER 1 | Introduction

1.1 Introduction

The Environmental Impact Assessment Report (EIAR) sets out the results of the environmental assessments which have been completed for the proposed development to inform the planning consent process.

The preparation of a Non-Technical Summary (NTS) is a requirement under the EIA directive as one of the fundamental objectives of the EIA process is to *"ensure that the public are made aware of the environmental implications of any decisions about whether to allow new projects to take place".*

This NTS provides a concise and comprehensive summary of the assessments carried out, description of the Project, its existing environment, the effects of the project on the environment, the proposed mitigation measures, and the proposed monitoring arrangements, where relevant.

The assessment has been completed as a statutory environmental assessment. The environmental impact assessment process has been completed in line with Directive 2014/52/EU, based on the Guidelines on the Information to be contained in Environmental Impact Assessment Reports (EPA 2022).

Chapter 1 introduces the project and describes the scope and methodology of the EIA process. The consultation process which was undertaken is outlined and the environmental assessment team is also introduced.

1.1.1 Brief Project Description

A full description of the proposed development is provided in Chapter 2, Project Description. Please also Refer to the Site Layout Plan prepared by Brian O' Kennedy & Associates Ltd. In summary, the subject application is for a Large-Scale Residential Development (LRD) comprising of the construction of 212 no. residential units and all ancillary development works including footpaths, car and bicycle parking, drainage, bicycle and bin stores, lighting and landscaping/amenity areas at Knockbrogan, Bandon, Co. Cork. Access will be provided via the existing access road onto the Cork Road permitted under reference 21/4059.

1.2 Background and Purpose of the EIAR

1.2.1 Screening for the EIAR

This proposed development falls within the class of development types requiring an EIA under Schedule 5 to the Planning and Development Regulations 2001 (as amended). The proposed development is subject to Part 2 of this Schedule (Section 10) which deals with Infrastructure projects where EIA is required;

> *10. Infrastructure Projects*
>
> *(b) (i) Construction of more than 500 dwelling units.*
>
> *(iv) Urban development which would involve an area greater than 2 hectares in the case of a business district, 10 hectares in the case of other parts of a built-up area and 20h hectares elsewhere.*
>
> *(In this paragraph, "business district" means a district within a city or town in which the predominant land use is retail or commercial use.).*

The proposed project of 'Phase 3' comprises construction of 212 residential units, in a site of area 7.99 ha. Given the size and scale of the project it does not in itself trigger the need for an Environmental Impact Assessment. However, in this case it is considered that an EIAR is required within regard to potential cumulative impacts of the development when considered in combination with all phases. The entire development area (which includes Phase 1, Phase 2, and Phase 3) encompass an area of c. 13.727 ha, which exceeds the threshold for site area set out above.

A masterplan outlining the permitted and proposed development has been prepared by Brian O' Kennedy & Associates Ltd. for the site in order to demonstrate that the planning and urban design approach for the lands is coherent, with an overall density that is compliant with the Development Plan and National Guidelines.

1.3 Design Team and Competency

1.3.1 EIAR Co-Ordinator and Study Team

It is a requirement that the EIAR must be prepared by competent experts. For the preparation of this EIAR, the Applicant engaged McCutcheon Halley Chartered Planning Consultants to direct and coordinate the preparation of the EIAR and a team of qualified specialists were engaged to prepare individual chapters. The consultant firms and lead authors are listed in **Table 1**. Details of competency, qualifications, and experience of the lead author of each discipline is outlined in the individual chapters.

Table 1.1 Chapter of EIAR and Contributors

Chapter	Aspect	Consultancy	Lead Consultant
1	Introduction	McCutcheon Halley Planning Consultants	Ciaran Dineen
2	Project Description	McCutcheon Halley Planning Consultants	Aida Vaisvilaite
3	Alternatives	McCutcheon Halley Planning Consultants	Ciaran Dineen
4	Population & Human Health	McCutcheon Halley Planning Consultants	Ciaran Dineen
5	Landscape & Visual	Modelworks	Richard Butler
6	Material Assets: Traffic & Transport	Hegsons Design Consultancy	Ken Hegarty
7	Material Assets: Built Services	Brian O'Kennedy and Associates	Brian O'Kennedy
8	Material Assets: Waste	Malone O'Regan Consulting Engineers	Martin Kearns
9	Land & Soils	AWN Consulting	Marcelo Allende
10	Hydrology and Hydrogeology	AWN Consulting	Marcelo Allende
11	Biodiversity	Malone O'Regan	Kathryn Broderick
12	Noise & Vibration	AWN Consulting	Ciara Nolan
13	Air Quality	AWN Consulting	Ciara Nolan
14	Climate	AWN Consulting	Ciara Nolan
15	Cultural Heritage – Archaeological & Built Heritage	John Cronin and Associates	Peter Looney
16	Risk Chapter	AWN Consulting	Matt Mitchie
17	Interactions of the Foregoing	McCutcheon Halley Planning Consultants	Ciaran Dineen
18	Summary of Mitigation Measures	McCutcheon Halley Planning Consultants	Ciaran Dineen

1.4 Methodology

In preparing the EIAR the following regulations and guidelines were considered:

- The requirements of applicable EU Directives and implementing Irish Regulations regarding Environmental Impact Assessment
- Environmental Impact Assessment of Projects Guidance on the preparation of the Environmental Impact Assessment Reports (European Commission, 2017)
- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (Environmental Protection Agency, May 2022).
- Guidelines on Information to be Contained in Environmental Impact Statements (EIS) (Environmental Protection Agency, 2002)
- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (Department of Housing, Planning and Local Government, 2018).

In addition, contributors have had regard to other relevant discipline-specific guidelines, these are noted in individual chapters of the EIAR.

Each chapter of this EIAR assesses the direct, indirect, cumulative, and residual impact of the proposed development for both the construction and operational stage of the proposed development.

The identified quality, significance, and duration of effects for each aspect is primarily based on the terminology set out in the EPAs Guidelines on the information to be contained in Environmental Impact Assessment Reports (2022) as summarised in the following table:

Table 1.2 Impact Rating Terminology

Quality of Effects	
Positive	A change which improves the quality of the environment (for example, by increasing species diversity; or improving the reproductive capacity of an ecosystem, or by removing nuisances or improving amenities).
Neutral	No effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error.
Negative/Adverse Effects	A change which reduces the quality of the environment (for example, lessening species diversity or diminishing the reproductive capacity of an ecosystem, or damaging health or property or by causing nuisance).
Significance of Effects	
Imperceptible	An effect capable of measurement but without significant consequences.
Not Significant	An effect which causes noticeable changes in the character of the environment but without significant consequences.
Slight Effects	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
Moderate Effects	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.
Significant Effects	An effect which, by its character, magnitude, duration or intensity, alters a sensitive aspect of the environment.
Very Significant	An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment.
Profound Effects	An effect which obliterates sensitive characteristics.

Duration & Frequency of Effects	
Momentary Effects	Seconds to minutes
Brief Effects	Less than 1 day
Temporary Effects	Less than 1 year
Short-term Effects	1-7 years
Medium-term Effects	7-15 years
Long-term Effects	15-60 years
Permanent Effects	Over 60 years
Reversible Effects	Effects that can be undone, for example through remediation or restoration.
Frequency of Effects	Describe how often the effect will occur (once, rarely, occasionally, frequently, constantly – or hourly, daily, weekly, monthly, annually).
Extent & Context of Effects	
Extent	Describe the size of the area, the number of sites, and the proportion of a population affected by an effect.
Context	Describe whether the extent, duration, or frequency will conform or contrast with established (baseline) conditions (is it the biggest, longest effect ever?)
Probability of Effects	
Likely	The effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented.
Unlikely	The effects that can reasonably be expected not to occur because of the planned project if all mitigation measures are properly implemented.
Type of Effects	
Indirect Effects	Impacts on the environment, which are not a direct result of the project, often produced away from the project site or because of a complex pathway.
Cumulative Effects	The addition of many minor or significant effects, including effects of other projects, to create larger, more significant effects.
Do Nothing Effects	The environment as it would be in the future should the subject project not be carried out.
Worst-case Effects	The effects arising from a project in the case where mitigation measures substantially fail.
Indeterminable Effects	When the full consequences of a change in the environment cannot be described.
Irreversible Effects	When the character, distinctiveness, diversity or reproductive capacity of an environment is permanently lost.
Residual Effects	The degree of environmental change that will occur after the proposed mitigation measures have taken effect.
Synergistic Effects	Where the resultant effect is of greater significance than the sum of its constituents, (e.g. combination of SOx and NOx to produce smog).

1.5 Consultation

The following prescribed bodies have been consulted in relation to the general scope of the EIAR.

- Department of Housing, Local Government, and Heritage
- Department of Tourism, Culture, Arts, Gaeltacht, Sport & Media
- Department of Education
- Geological Survey Ireland (Department of the Environment, Climate and Communications)
- The Heritage Council
- Office of Public Works (OPW)
- Transport Infrastructure Ireland (TII)
- The National Transport Authority (NTA)
- The Health and Safety Authority (HSA)
- The Health Service Executive (HSE)
- Inland Fisheries Ireland
- Bat Conservation Ireland
- Uisce Éireann
- An Taisce
- Bord Gais
- ESB
- Environmental Protection Agency
- Fáilte Ireland

Responses received along with a copy of the consultation information letter issued to each of the above prescribed bodies are presented in Appendix 1.1.

1.6 Cumulative Impacts

Projects considered for their potential cumulative impacts with the proposed development are identified in Table 1.2 of Chapter 1. Within the EIAR other disciplines may have identified further projects which are considered to be relevant to their assessments. No significant cumulative impacts have been identified.

CHAPTER 2 | Project Description

2.1 Introduction

The EIA Directive requires that an EIAR must provide a project description that includes information on the project's site, design, scale, and other relevant elements. The 2014 Directive stipulates in Recital 22 that:

> *"In order to ensure a high level of protection of the environment and human health, screening procedures and environmental impact assessments should take account of the impact of the whole project in question, including, where relevant, its subsurface and underground, during the construction, operational and, where relevant, demolition phases".*

Chapter 2 complies with the EIA Directive's criteria by giving information about the proposed project's location, size, and features.

2.2 Description of the Proposed Development

The proposed development consists of permission for a 7-year planning permission for the following Large-scale Residential Development (LRD) comprising of the construction of 212 no. residential units, 3 no. ESB substations, and all associated site development works including footpaths, car and bicycle parking, drainage, bicycle and bin stores, public lighting and landscaping/amenity areas at Knockbrogan, Bandon, Co. Cork. Access to the site will be provided via the access road onto the Cork Road permitted under references 21/4059.

Figure 1 – Final Site Plan

The proposed development provides a mix of units which can be reconfigured to adapt to the changing life cycles and personal needs of residents. The houses meet or exceed minimum standards for unit sizes and can be adapted to the future needs of residents. Unit sizes vary from 85 sq.m for a 2-Bed Mid Terraced [Mews] to 144 sq.m for a 4-Bed Semi-Detached.

Table 2.1 Development Overview Statistics

Development Statistics	
Site Area	13.727ha (Phases 1, 2 & 3) – Phase 3 application area c. 6.73ha net
No. Units	212 no. residential units
Tenant Amenities & Facilities	Public open spaces, landscaped amenity areas, play areas, pedestrian and cycle links
Non-Residential Uses	85-place creche (Permitted under 24/5147)
Density	32uph (net)
Building Height	1–2 storeys
Unit Mix Summary	68 no. 2-beds (32.7%), 130 no. 3-beds (60.7%), 14 no. 4-beds (6.5%)
Car Parking	2 spaces per 3–4 bed unit, 1 space per 2-bed unit (in accordance with standards)
Bicycle Parking	1 space per dwelling minimum; communal stores for terraced units; visitor spaces provided
Dual Aspect Units	All houses are dual aspect
Public Open Space	16.3% (Phase 3)
Communal Amenity Space	Incorporated within public open space and landscaped areas
Plot Ratio	c. 0.36 (based on net site area)

2.2.1 Masterplan Description Phases 1-3

The subject site consisting of 212 residential unit's forms part of a coordinated residential masterplan for the Knockbrogan lands, which are being delivered in three phases across a total site area of 13.727ha. Phase 1 of the masterplan is currently under construction, with nearly 32 units occupied. The Council granted permission on the 13th of January 2022. Condition No. 2 sought the omission of units 12-15 and 28-49 of the proposed development to provide additional public open space areas and tree planting, resulting in 59 no. permitted units. Following a first-party appeal, An Coimisiún Pleanála recommended granting permission on June 14, 2022, with the same conditions. By Q4 2025, all permitted units will be constructed and fully occupied. The permitted Phase 2 will form part of the next construction phase on site and has commenced work on site. The proposed Phase 3 development will be accessed via the permitted and constructed road access onto the Old Cork Road made available by the Phase 1 development (Ref: 21/4059). BOK & Associates' proposed design focuses on providing a coherent approach similar to the existing pattern of development north of Bandon's town centre and continuing the quality of design permitted in Phases 1 and 2 of the development.

2.2.2 Connectivity and Access

The proposed development will be accessed from the existing Old Cork Road, through the permitted Phase 1 and 2 developments and the main estate road will serve the Phase 3 development. The scheme also provides a cycle path along the central road, which will provide safe cyclist access to the site along the southern side of the road. This cycle path continues from the permitted Phase 1 and Phase 2 cycle paths.

The proposed cycle path along the southern side of the road continues from the permitted Phase 2 proposal. The proposed provision of a 3.0m wide dedicated cycle facility on the southern side of the main access road through the site, as well as 2.0m wide footpath on either side of the road, will ensure good permeability is achieved between the Phase 1 and Phase 2 development, the subject site and any future development on the land to the east.

The provision of a footpath along the Old Cork Road to the Town Centre was permitted as part of the 'Phase 1' Planning Application Ref: 21/4059, which included traffic calming measures and a zebra crossing. This will increase the pedestrian connectivity to the town centre and make the area more walkable.

2.2.3 Residential Development

The scheme proposes a net residential density of 32 units/ha. This density is considered an appropriate response to the site's context and location, as it is close to Bandon town centre and the site's steep topography.

2.2.4 Community & Commercial Uses – Phases 1-3

A crèche facility with capacity for 85 children has been permitted under a separate planning application (Ref. 24/5147) and is intended to serve all three phases of the Knockbrogan masterplan. The facility is located to the west of the masterplan lands, adjacent to the Old Cork Road site entrance, providing convenient accessibility for residents and visitors. The crèche will be delivered before Phase 3 to ensure adequate childcare provision is in place for the overall development. A Childcare Demand Report prepared to support the masterplan confirms that the 85-place facility significantly exceeds the projected requirement of 29 spaces generated by the complete 212-unit scheme, ensuring sufficient capacity to meet the development needs and wider catchment.

2.2.5 Public Open Space

The proposed layout provides approximately 16.3% of the Phase 3 net site area as public open space, distributed across a network of larger central spaces and smaller pocket parks. These open spaces are designed to provide a variety of recreational opportunities, including kickabout lawns, children's play areas, seating areas, and naturalistic woodland

trails. The central linear green spine will serve as the main organising feature of the landscape, connecting open spaces across the scheme and reinforcing ecological corridors formed by existing hedgerows.

The open space network has been designed to support biodiversity enhancement in addition to recreational uses. Planting will be drawn from the All-Ireland Pollinator Plan, including native trees, wildflower meadows, and pollinator-friendly perennials to provide year-round habitat. A woodland park located at the eastern edge will deliver a natural amenity and ecological buffer, linking with wider landscape features.

2.3 Construction Process

2.3.1 Description of Proposed Works

The proposed development (Phase 3) comprises the construction of 212 no. residential units (68 no. 2-beds, 130 no. 3-beds, 14 no. 4-beds), and all associated site development works including internal roads, footpaths, cycleways, drainage infrastructure, landscaping, public open spaces, car and bicycle parking, and connection to existing services via the access from the Old Cork Road. An 85-place creche is also permitted within the masterplan site. Car parking within the scheme is provided in accordance with the Cork County Development Plan standards. Either one or two car-parking spaces are allocated to each dwelling unit. In addition, 20 no. visitor spaces are provided on site. The total car parking provision amounts to 376 no. car parking spaces.

2.3.2 Overview of Construction Site Establishment

The appointed Contractor will undertake site establishment works and will include the erection of secure perimeter hoarding and fencing around the site, formation of site access and egress points from the L-2040 Old Cork Road, and the installation of site signage and traffic management measures in accordance with the Construction Traffic Management Plan. A temporary site compound will be established to accommodate offices, staff welfare facilities, material storage areas, and designated waste segregation zones.

Given the size and open nature of the Knockbrogan lands, there is sufficient space within the development boundary to provide the necessary compound and storage areas on-site, thereby avoiding the need for off-site storage.

Proposed works will include construction of a site compound, perimeter hoardings, provision of site security and access points, and erection of cranes as necessary. Safeguards will be put in place to protect the site, the works, materials and plant. Existing buildings, persons and access will be protected during the works.

2.3.3 Earthworks

A site investigation undertaken for the Knockbrogan lands confirmed that the ground conditions comprise topsoil overlying glacial tills and weathered bedrock, with competent bedrock encountered at relatively shallow depths. The stratigraphy across the site is broadly consistent, reflecting the agricultural use of the lands and the gently sloping topography.

Uncontaminated excavated soil and subsoil will be reused on site where possible for fill and landscaping purposes, thereby reducing waste volumes. In the event of surplus uncontaminated material remaining, this will be transported off site for beneficial reuse at an appropriately licensed location by a permitted haulier.

Further details of earthworks, soil management, and the treatment of excavated material are set out in the Construction Environmental Management Plan (CEMP) and the Resource Waste Management Plan (RWMP), both of which accompany this application.

2.3.4 Construction Sequencing and Phasing

The works will be constructed in three phases (Phase 1, 2, and 3). Each phase will commence with enabling works, followed by earthworks, access, foundations, superstructure, fitting out, and landscaping works, in that order. Please refer to accompanying Construction, Environmental, and Waste Management Plan.

2.3.5 Construction Management Plan

A Construction Environmental Management Plan has been prepared and submitted as part of this application.

2.3.6 Traffic Management

The impact of construction-related traffic on the local road network has been assessed in Chapter 6 – Material Assets: Traffic and Transportation. Mitigation measures are proposed where necessary.

2.3.7 Site Services

Refer to accompanying Construction, Environmental, and Waste Management Plan prepared by MOR Environmental. Refer also to the Material Assets chapter of this EIAR.

2.3.8 General Principles of Operational Waste Management Strategy

Refer to accompanying Construction Environmental Management Plan prepared by MOR Environmental. Refer also to Material Assets chapter of this EIAR.

CHAPTER 3 | Alternatives

The Planning and Development Regulations, 2001, as amended, require:

> *"A description of the reasonable alternatives studied by the person or persons who prepared the EIAR, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the proposed development on the environment."*

The requirement is elaborated at paragraph 2(b), which makes clear that reasonable alternatives may include project design proposals, location, size and scale, which are relevant to the proposed development and its specific characteristics. The Regulations require that an indication of the main reasons for selecting the preferred option, including a comparison of the environmental effects be presented in the EIAR.

The Environmental Protection Agency (2022) Guidelines on the Information to be Contained in Environmental Impact Assessment Reports states:

> *"The objective is for the developer to present a representative range of the practicable alternatives considered. The alternatives should be described with 'an indication of the main reasons for selecting the chosen option'. It is generally sufficient to provide a broad description of each main alternative and the key issues associated with each, showing how environmental considerations were taken into account in deciding on the selected option. A detailed assessment (or 'mini-EIA') of each alternative is not required."*

The Guidelines also state that the range of alternatives considered may include the 'do-nothing' alternative.

Accordingly, this chapter of the EIAR provides an outline of the main alternatives examined during the design phase. It sets out the main reasons for choosing the development as proposed, taking into account and providing a comparison on the environmental effects. The assessment of alternatives is considered under the following headings;

i. Do Nothing Alternative

ii. Alternative Locations

iii. Alternative Uses

iv. Alternative Project Design (4 no. alternative scenarios)

v. Alternative Processes

3.1 Do-Nothing Alternative

The 'Do Nothing' alternative would see the proposed development site remain in its current condition, and it would not fulfil its residential zoning objective nor assist in the delivery of housing units at a period of national housing shortage. Accordingly, there would be an adverse effect of population, as this approach would fail to address the shortage of homes in Cork County. Maximising the efficiency of zoned land particularly when nationally, there is a housing crisis and as a result, the delivery of housing on zoned lands in a timely manner is of critical importance.

3.2 Alternative Locations

The suitability of the proposed development site for residential development is confirmed by the Cork County Development Plan 2022-2028 and the residential zoning policy for the site. The selected location is considered the most suitable for the proposed development.

3.3 Alternative Uses

The primary zoning objective for the site is BD-R-03 'Medium A Residential Development'. This zoning objective outlines that the development of this site should be accompanied by a Traffic Assessment illustrating how the site will connect to the proposed North Bandon Connectivity and Access Corridor (BD-U-02) and existing road network in the vicinity. The layout also needs to make provision for pedestrian and cycleway links with existing adjoining residential areas and future links with the school campus. Proposals for this development are to include provision for an overall landscaping plan to assimilate the scheme into the hillside and should include retention of mature trees and boundaries.

Therefore, the proposed residential development is considered an appropriate use for the subject site.

3.4 Alternative Design (including size & scale)

The Layout if the proposed development went through a detailed design team process with input from Cork County Council and the entire applicant's design team and the EIAR team. Three alternative layouts were considered and presented to Cork County Council before the final layout was developed and selected. These four layouts are discussed in detail in Chapter 3 of Volume II.

Table 3.1 Key statistics alternatives for development

Statistic	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Net Site Area	7.794 ha	7.794ha	7.844ha	7.845ha
Total No. Units	212	210	214	212
Creche Area	400 sqm	400 sqm	N/A	N/A
Density	32.77uph	32.46uph	31.8uph	32uph
Open Space	16.5%	16.5%	13.7%	16.3%

3.5 Alternative Processes

Due to the nature and scale of the proposed development (i.e. a residential development greater than 100 units the only option is to submit a Large-Scale Residential Development planning application to the Planning Authority. Therefore, there is no alternative to consider.

3.6 Difficulties Encountered

There were no difficulties encountered in the preparation of this assessment for the proposed development.

3.7 Proposed Preferred Alternative

The final design directly responds to the stakeholder feedback and is overall an accumulation of high-quality design stemming from the design team input and feedback from Cork County Council throughout the planning process.

The layout proposes 212 no. units with a density of 32 units/h. Usable open space measures 16.3%.

CHAPTER 4 | Population & Human Health

The assessment of Population and Human Health is contained within Chapter 4 of Volume II.

4.1 Existing Environment

The greenfield site of c. 7.998ha is located within the townland of Knockbrogan approximately 500m north of Bandon town centre, Co. Cork. The site is accessed via the existing Old Cork Road located to the west. The area surrounding the site is predominantly residential in character. Located to the north of the site are the Ard an Chuillin and the Hawthorns residential estates. The residential development of Radharc an Bhaile is located to the south of the development and agricultural greenfield site bounds the land to the east and immediately north of the site. The character of dwellings surrounding the site range in size comprising of detached, semi-detached and terraced houses. Permission has been granted for 59 no. units for the Phase 1 development (Ref: 21/4059/ACP-312689-22) located to the west of the site and works are currently under way for this development.

4.2 Do Nothing Scenario

If the development was not to proceed there would be no immediate impact on the existing population, economic activity, or community services and facilities in the area.

However, if the development does not occur there will be a shortfall in housing supply in this area of Cork which may negatively impact the ability of Cork County to supply homes to meet the population projections in the coming years.

The site is zoned for residential development and the provision of housing on the subject site will support the core strategy and objectives of the Cork County Development Plan 2022. If the development does not occur the zoning and objectives of the Development Plan will not be realised in the short term.

In terms of Population and Human Health, a 'do nothing' scenario (i.e. not developing the proposed development site) would represent a lost opportunity to develop these lands for residential use on a zoned site. As such, the proposed development site would remain underutilised and it would not contribute to increasing the provision of housing in this area. The impacts on land use are therefore envisaged to be negative to neutral for the 'do-nothing' scenario.

4.3 Impact Assessment

4.3.1 Construction Phase

The construction phase is expected to last approximately 48 months, as per the Construction Environmental Management Plan (CEMP) submitted with the application, under separate cover, by MOR Environmental.

Population

The potential impacts during the construction phase relate to short term impacts to quality of life, including visual impact/amenity, noise, air quality, and transport. Where relevant, these impacts have been considered in the relevant chapters of the EIAR and will be minimised or mitigated where appropriate. It is unlikely that these impacts will be of a scale to either encourage people to move from the area or discourage people from moving to the area.

Employment & Economics

The construction phase is anticipated to result in a temporary boost to the local economy as worker employed at the site can be expected to make use of local retail facilities and other services. If the application is successful, construction works will continue until the development is completed and there will be positive economic externalities to industries that are complimentary to the construction sector.

Health

As with any construction site, there will be potential risk to health and safety in terms of injury or death of construction personnel on-site due to the usage of large, mobile machinery as well as heavy equipment and materials.

Residential Amenity

The anticipated likely significant effects in the absence of mitigation on residential amenities relate to disruption due to increased construction traffic movements on the local road network, noise, dust and visual impacts arising from plants (e.g. cranes) necessary to deliver the development.

4.3.2 Operational Phase

Population

The proposed development will provide 212 no. residential units and all associated site works. The 212 no. units will provide 14 no 4-bed units, 130 no. 3-bed units and 68 2-bed units. As the proposal provides 212 residential units when applying the national average household size of 2.74 persons, the proposed development is expected to generate a population of approximately 589 people.

Employment & Economy

There will be an economic benefit to local businesses during the operational phase. Residents will use local facilities and services, and it is anticipated that the additional population will result in increased business for the wider area, and will have a positive, slight, long-term impact on the services including dentist clinics, pharmacies, banks, and various retail outlets in the town of Bandon.

Health

The proposed development will not result in any significant negative impacts to the health and wellbeing of the existing population. in particular, the design of the scheme ensures that future residents of the local environment will benefit from the development, in the form of open spaces and amenity areas.

Residential Amenity

During the operational phase, the high-quality living environment of the proposed scheme will result in positive impacts on amenity for future residents. Achieving a high-quality living environment through an integrated and balanced design approach will have a locally significant, positive and permanent effect on residential amenity.

Local Amenity Impacts

The proposed development provides high quality open space. The public open space is conveniently located in different character areas of the development to ensure that all residents find these spaces accessible.

Section 4.5.13 of Chapter 4 demonstrates that there is a good variety of infrastructure within the catchment area. The proposed development site incorporates dedicated play areas within public open space areas as detailed in the Landscape Plan provided under separate cover.

4.3.3 Cumulative Impact

The list of projects taken into account with regards to cumulative impact have been outlined in Chapter 1. During the operational phase, the cumulative impact of these applications is expected to be slight, long-term impact and positive by providing additional homes, childcare facilities, community spaces, and public open spaces for the local population.

4.4 Mitigation

4.4.1 Incorporated Design

The integration of energy efficient measures into the design will provide for healthier living standards for future occupants, less dependence on fossil fuels and associated improved air quality. The availability of on the doorstep public open space, amenity spaces, and a highly accessible layout across the scheme will encourage sustainable modes of outdoor access for a wide age group.

4.4.2 Construction Phase

A Construction and Environmental Management Plan (CEMP) and Resource Waste Management Plan (RWMP) for the proposed development are included in the planning application documentation. The CEMP and RWMP will be further updated by the contractor, agreed with Cork County Council prior to commencement, and implemented by the selected contractor after any consent is received.

All construction personnel will be required to understand and implement the requirements of the CEMP and RWMP and shall be required to comply with all legal requirements and best practice guidance for construction sites.

The CEMP provides for a construction phase management structure to ensure that environmental protection and mitigation measures are put in place. The CEMP requires that these measures will be checked, maintained to ensure adequate environmental protection. The CEMP also requires that records will be kept and reviewed as required to by the project team and that the records will be available on site for review by the planning authority.

4.4.3 Operational Phase

The proposed development is a high-quality design that incorporates generously sized units with integrated energy efficiency measures and an abundance of open space. The impact assessment section did not identify likely significant environmental impacts on population and human health arising from the operational phase of the proposed development. Accordingly, mitigation measures are not proposed.

4.5 Residual Impact Assessment

The proposed mitigation measures will avoid, prevent, reduce impacts on the human environment during the construction and operational phases of the proposed development, where no significant adverse residual impacts have been identified. The proposed development, in combination with the recently permitted development in the area will have a cumulative positive impact on the area

4.6 Monitoring

Measures to avoid negative impacts on Population and Human Health are largely integrated into the design and layout of the proposed development. Compliance with the design and layout will be a condition of any permitted development.

No specific monitoring is proposed in relation to this section. Monitoring of standard construction mitigation measures as outlined in this EIAR will be undertaken by the appointed contractor.

CHAPTER 5 | Landscape & Visual

The assessment of Landscape & Visual Character is contained within Chapter 5 of Volume II.

5.1 Existing Environment

5.1.1 Landscape Character

The site is located on a hill (Knockbrogan) to the north of Bandon town centre, within the settlement boundary (as defined in the Cork County Development Plan 2022-2028 (CCDP)), less than 500m from Bandon Bridge, which marks the centre of the town.

Bandon has a distinctive urban form and character deriving from its topography and history. The town was built in the valley of the Bandon River, and is enclosed by hills to the north (Knockbrogan) and south (Knockanrea). Outside of the original town centre on the valley floor are areas of suburban character on the hillsides overlooking the valley.

On the north side of the town the suburban area is not yet consolidated. Large patches of farmland remain between the housing estates. These areas are mostly zoned for residential development or identified as Special Policy Areas in the CCDP, and there is extensive development currently under construction, including adjacent to the site. Around the outer edges of the town are zones of business, employment and industrial use. A notable feature of the CCDP zoning map is the broad belt of green infrastructure in the valley, as well as green belt areas on the north and south sides of the town, transitioning into the rural hinterland.

5.1.2 The Site

The site is part of one of the remaining patches of farmland within the urban area north of the town centre. This area, Knockbrogan, is identified as Specific Objective BD-R-03 in the CCDP. Its residential zoning recognises its favourable location close to the town centre, close to existing and future business, employment and industrial uses, and to a variety of urban amenities including green infrastructure.

The site is comprised of several adjoining fields. The fields are divided by hedgerows with occasional larger trees. The hedgerows and tree groups along the northern, southern and eastern boundaries are the most substantial, while the internal hedgerows are generally sparser and lower. The hedgerows are an important structural element of the landscape and connect the site to the local green infrastructure network.

In addition to the hedgerow vegetation, the topography is another of the site's its key characteristics. It is located on the ridge of an east-west aligned linear hill (Knockbrogan). The elevated/ridgeline position has implications for the visibility of development on the site, and the site topography has implications for the layout of any future development.

5.1.3 Potential Receptors of Landscape and Visual Change

- **West of site**: Immediately to the west of the site, between the site and the Cork Road, are two development sites owned by the Applicant. Planning permission has been granted for residential developments on these sites (Cork Co. Co. Ref. 21/4059 and 24/5216) and construction is well advanced. The proposed development will be accessed by the road serving these developments, leading from the Cork Road. Both of the permitted developments are comprised of terraced and semi-detached two storey houses, with the layouts and levels responding to the topography of the hill. The proposed development is an eastward extension of this new hilltop neighbourhood.
- **South west of site**: To the south west of the site is the Radharc an Bhaile housing estate. The estate is characterised by terraced and semi-detached two storey houses on a steeply sloping site. The construction of the

estate required cutting into the hillside, so that the level of Radharc an Bhaile is substantially lower than that of the subject site to the north and east. The northernmost houses in Radharc an Bhaile, closest to the site, have terraced rear gardens stepping up the hillside towards the site.

- **South and east of site**: To the south and east of the site, between the site and Knockbrogan Road, is an area of farmland of similar character to the site. The CCDP identifies these lands Special Policy Area BD-X-03, Knockbrogan Expansion Area, and specifies that its development should include an education campus with primary and secondary schools. It also requires that the lands' development should provide for pedestrian and cycle links to the subject site to the west.
- **North of site**: To the north of the site is a belt of farmland which forms part of BD-R-03 (and is therefore zoned Residential like the site). These future development lands separate the site from the Whitethorn Grove and Ard an Chuilinn housing estates a short distance to the north.

The site and immediate environs are thus largely greenfield, but located within the settlement boundary of Bandon and zoned for urban development, with the transformation of the BD-R-03 area into a new hilltop residential neighbourhood already underway (with the ongoing construction of the two adjacent permitted developments).

- **Nearest Public Roads**:
  - » The Cork Road passes c. 170m to the west of the site beyond the two neighbouring development sites;
  - » The Macroom Road passes some 300m to the north, beyond Whitethorn Grove and Ard an Chuilinn;
  - » The Knockbrogan Road passes c. 175m to the east beyond the BD-X-03 Knockbrogan Expansion Area;
  - » Summerhill Close is a cul-de-sac residential road c. 200m to the south, also beyond part of the BD-X-03 area.

The absence of site frontage to any existing public road is a significant factor in the proposed development's potential landscape and visual effects. The site is well removed from any part of the existing public realm and this negates the potential for close-up visibility/visual impact. The development will only be seen from some distance across the landscape.

- **Distant Vantage Points**: While there is limited potential for close-up views of the proposed development (from the publicly accessible areas), due to (a) the site's hilltop position and (b) the valley-and-hills topography of the town, there is potential for visibility from a distance across the urban landscape – particularly from the south side of the town. This includes sensitive vantage points such as St Finbarr's Place on the south side of Bandon Bridge, and the two churches (St Patrick's and St Peter's) which are both perched on local rises, giving them panoramic views over the town centre and the river towards Knockbrogan (and the site) on the north side of the town.
- **Scenic Routes**: East of the town, the N71 runs alongside the Bandon River on the floor of the valley. A stretch of the road, as it approaches Bandon from the east, is designated a Protected Scenic Route (S64) in the CCDP. At points along the road, development on the site may be visible on the horizon.

5.2 Impact Assessment

5.2.1 Do Nothing Scenario

In the do-nothing scenario, the site would remain as a patch of agricultural/greenfield land within the urban footprint of Bandon. The BD-R-03 area would be partially developed, with housing (Cork Co. Co. Ref. 21/4059 and Ref. 24/5216) extending part-way along the Knockbrogan ridgeline, and ending abruptly at the site's west boundary. The CCDP's plan for the consolidation of the urban area on the hills north of the town centre would not be fully be realised.

5.2.2 Construction Phase – Landscape Effects

Landscape Sensitivity

The landscape sensitivity of the receiving environment can be classified 'medium' (Definition of medium sensitivity: *Areas where the landscape has certain valued elements, features or characteristics but where the character is mixed or not particularly strong, or has evidence of alteration, degradation or erosion of elements and characteristics. The landscape character is such that there is some capacity for change. These areas may be recognised in landscape policy at local or county level and the principle management objective may be to consolidate landscape character or facilitate appropriate, necessary change*.)

The classification of medium sensitivity is based on the following factors:

- The site lies within the settlement boundary of Bandon, less than 500m from Bandon Bridge. The site context is thus urban, and the site is zoned for residential development (as part of the BD-R-03 area).
- The development of the BD-R-03 area has begun, with construction well advanced on two plots adjacent to the site. The site's immediate context is thus in a process of plan-led transition from greenfield to urban.
- There is similar development taking place elsewhere on the hills north of the town centre. The trend of change (expansion and consolidation of the neighbourhoods) is widespread across the northern hillsides.
- The site is situated on the upper slopes and ridgeline of knockbrogan. Its elevation exposes the site to view, particularly from similarly elevated locations on the south side of the town. This includes sensitive locations such as St Patrick's and St Peter's churches.
- The site includes mature hedgerows in mostly good condition on its northern, eastern and southern boundaries, and there are several trees in these hedgerows. The hedgerows are a landscape/visual and biodiversity asset, connecting the site to the local green infrastructure network.
- The site (and Bandon as a whole) falls into the Broad Fertile Lowland Valleys Landscape Type (as defined in the Cork Landscape Character Assessment, 2007). While the value and sensitivity of this landscape type are rated as high, Bandon falls outside of the County-wide High Value Landscape designation.
- The site is well removed from the various Architectural Conservation Areas (ACAs) and protected structures in the centre of town and to the west. There is thus no potential for direct impact on any of these cultural assets, although the proposed development could be visible from them.
- The nearest protected view or scenic route is the Scenic Route 'S64', the western stretch of the N71 as it enters Bandon from the direction of Inishannon.

Magnitude of Landscape Change

Over the course of the estimated 48 month construction period, the site and immediate environs would be disturbed by construction activity including the erection of site hoarding, site clearance and levelling, haulage and storage of materials, general construction activity and the incremental growth of buildings on site. The change (i.e. the presence of a construction site in the landscape) would be temporary. It is also a factor that the wider receiving environment is urban, and that the immediate environs are currently undergoing similar change (construction on two plots adjacent to the site, also part of the BD-R-03 area). In this context, further, similar construction-related change is not unexpected.

Significance of Construction Phase Landscape Effects

Measuring the magnitude of change against the landscape sensitivity, the significance of the landscape effects during construction would be moderate-slight (the effects reducing with increased distance from the site). Construction is inherently disturbing of the landscape. The landscape effects during construction would thus be of moderate-slight significance, negative, and direct.

5.2.3 Construction Phase – Visual Effects

Informed by the analysis of the receiving environment and relevant policy, 15 no. viewpoints were selected for detailed visual effects assessment informed by verified photomontages. The following table summarises the likely visual effects during the construction phase of the proposed development before mitigation measures are applied.

Viewpoint Location	Viewpoint Sensitivity	Visual Effects - CONSTRUCTION PHASE (Temporary)	
		Magnitude of Change	Significance of Effects
1. Macroom Road	Low-Medium	Low	Not significant negative
2. Whitethorn Grove	Medium	Low	Not significant negative
3. Cork Road	Low-Medium	Low	Not significant negative
4. Radharc an Bhaile	Medium	Negligible	Not significant neutral
5. Summerhill Heights	Medium	Negligible	Not significant neutral
6. Knockbrogan Road	Medium	Negligible	Not significant neutral
7. Kilbeg Cemetery and nearby houses	Medium-High	Low	Slight negative
8. St Finbarr's Place/Bandon Bridge	Medium-High	Low-Medium	Slight negative
9. Glaslyn Road	Low-Medium	Medium	Slight negative
10. St Peter's Church	Medium	Low-Medium	Slight negative
11. St Patrick's Church, Cemetery	Medium	Low-Medium	Slight negative
12.Árdán Na N-Óglach	Medium	Low-Medium	Slight negative
13. Casement Road at N71 Bandon Relief Road junction	Low-Medium	Low-Medium	Not significant negative
14. N71 Bandon Relief Road	Low-Medium	Low-Medium	Not significant negative
15.N71 Scenic Route (R64)	High	Negligible	Imperceptible neutral

5.2.4 Operational Phase – Visual Effects

The following table summarises the likely visual effects during the operational phase of the proposed development before mitigation measures are applied.

Viewpoint Location	Viewpoint Sensitivity	Visual Effects - OPERATIONAL PHASE (Permanent)	
		Magnitude of Change	Significance of Effects
16. Macroom Road	Low-Medium	Low	Slight neutral
17. Whitethorn Grove	Medium	Low	Slight neutral
18. Cork Road	Low-Medium	Low	Not significant neutral
19. Radharc an Bhaile	Medium	Negligible	Not significant neutral
20. Summerhill Heights	Medium	Negligible	Not significant neutral

Viewpoint Location	Viewpoint Sensitivity	Visual Effects - OPERATIONAL PHASE (Permanent)	
		Magnitude of Change	Significance of Effects
21. Knockbrogan Road	Medium	Negligible	Not significant neutral
22. Kilbeg Cemetery and nearby houses	Medium-High	Low	Slight negative
23. St Finbarr's Place/Bandon Bridge	Medium-High	Low-Medium	Slight neutral
24. Glaslyn Road	Low-Medium	Medium	Moderate neutral
25. St Peter's Church	Medium	Low-Medium	Slight neutral
26. St Patrick's Church, Cemetery	Medium	Low-Medium	Slight neutral
27. Árdán Na N-Óglach	Medium	Low-Medium	Slight neutral
28. Casement Road at N71 Bandon Relief Road junction	Low-Medium	Low-Medium	Slight neutral
29. N71 Bandon Relief Road	Low-Medium	Low-Medium	Slight neutral
30. N71 Scenic Route (R64)	High	Negligible	Imperceptible neutral

5.2.5 Operational Phase – Landscape Effects

Landscape Sensitivity

The landscape sensitivity of the receiving environment can be classified 'medium'.

Magnitude of Landscape Change

The magnitude of landscape change that would result from the proposed development can be classified 'medium' (definition: *Change that is moderate in extent, resulting in partial loss or alteration to key elements, features or characteristics of the landscape, and/or introduction of elements that may be prominent but not necessarily substantially uncharacteristic in the context. Such development results in change to the character of the landscape*).

The medium sensitivity classification is based on the following factors:

- With a site area of 7.998 ha and comprised of 212 no. houses and over 1 ha of open space, the proposed development is of moderately large scale/spatial extent.
- Due to its location on the ridgeline of Knockbrogan, the site is visually exposed - *to certain areas* - and the development would be visible from some distance across the landscape, particularly from a distance to the south (e.g. Viewpoints 8-14).
- Unusually, due to (a) the local topography and (b) the site's physical separation from the surrounding developments and existing public realm, the development would be less visible from its immediate environs (e.g. Viewpoints 2-6) than from afar.
- In typology and character, the proposed development is in keeping with its local and wider environs. There are existing residential estates of similar type (two storey terraced and semi-detached houses) nearby to the north and south of the site, and across the northern hillsides of Bandon. Additionally, construction is nearing completion on the first phase of development on Knockbrogan, adjacent to the site. The proposed development is designed as an extension of that scheme.

Significance of Operational Phase Landscape Effects

Measuring the magnitude of change against the landscape sensitivity, the landscape effects of the development in the operational phase are predicted to be of 'moderate' significance (EPA definition: *An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends*).

The key question is whether the effects can be classified positive, neutral or negative. In this regard:

- The key landscape assets of the site – the external and internal boundary hedgerows, trees and tree groups - would be largely retained and would form the skeleton of the open space network and block structure of the new neighbourhood.
- The ecological function and landscape value (visual amenity and screening) of the hedgerows would be retained, and enhanced by complementary planting. Most notable are the proposed 'ecological buffers' inside the northern and southern boundaries, and specifically a broad belt of multi-layered woodland planting inside the south west boundary at the interface with the Radharc an Bhaile estate. (This is where the proposed development is closest to existing houses, and on a level above those houses; therefore, additional landscape/visual buffering is required in this area.)
- The proposed species mixes, in the green links/ecological buffers and open spaces, have been selected to support native pollinators and strengthen local ecosystems, with the objective to achieve net biodiversity gain.
- The proposed layout and landscape masterplan are thus in accordance with:
  - » Specific Objective BD-R-03 of the CCDP, which requires proposals for the site to *"include provision for an overall landscaping plan to assimilate the scheme into the hillside and… include retention of mature trees and boundaries".* [emphasis added]
  - » Objective HE-16-21, which states: *"Require the appropriate landscaping and screen planting of proposed developments by using predominantly indigenous/local species and groupings and protecting existing hedgerows".*
  - » Objective GI 14-9, which states: *"Discourage proposals necessitating the removal of extensive amounts of trees, hedgerows and historic walls or other distinctive boundary treatments"*.
- Additionally, the proposal includes a variety of SUDS measures/features, including swales, tree pits and permeable paving. This adds further to the development's potential ecosystem services offer.
- Objective GI 14-9 also requires development to *"Protect skylines and ridgelines from development".* The residential-zoned site is on a ridgeline. Therefore, 'protection of the ridgeline from development' altogether is not realistic. However, by (a) limiting the housing typologies to two storey houses (as opposed to higher density, taller typologies), (b) carefully adjusting the site levels for each house, and (c) retaining and supplementing the site boundary vegetation for screening, the proposal does ensure that the development would sit comfortably and unobtrusively on the ridgeline. This is evidenced by the verified photomontages for viewpoints 8-14.
- The proposed building typologies and design (two storey terraced and semi-detached houses of render, with stone detailing, and pitched slate roofs) were selected for two main reasons: (1) to avoid excessive visibility/visual impact on the hilltop site, and (2) to reflect the established pattern and character of development in the area. This is in accordance with Objective HE-16-21 of the CCDP, which states: *"Encourage new buildings that respect the character, pattern and tradition of existing places, materials and built forms and that fit appropriately into the landscape".*
- The proposal would have no significant negative effect on any of Bandon's Architectural Conservation Areas or protected structures, including St Patrick's and St Peter's Churches, St Finbarr's Place/Bandon Bridge, etc. The effects on these cultural heritage assets have been assessed (Viewpoints 8, 10, 11), and while the development would be visible from these places, seen in the context of Bandon's complex and expanding urban landscape, its effects would be benign.
- The proposal would have no significant (or any material) negative effect on any identified High Value Landscape, Important View or Prospect, or Scenic Routes as identified in the CCDP (including Scenic Route S64).

- The verified photomontages (provided under separate cover), which informed the visual effects assessment, show that the proposed development is designed with consideration and respect to the landscape context (its natural and built elements). The design ensures that the proposed development would assimilate successfully into the landscape. Seen from both the local and wider environs, it would have predominantly neutral landscape and visual effects. At only one location (Kilbeg Cemetery, Viewpoint 7) would its effect be negative (of 'slight' significance). This would result from the development appearing on the horizon to the west of Kilbeg South, the first visible encroachment of the urban landscape into this area on the eastern outskirts of Bandon. This must be weighed against the positive effects of creating a highly attractive new residential neighbourhood at Knockbrogan, in accordance with the site's zoning and Specific Objective BD-R-03.

In summary, based on the analysis above and the visual effects assessment, the operational phase landscape effects would be of moderate significance, neutral, and direct.

5.2.6 Cumulative Impact

The assessment of the proposed development's effects has taken into consideration the effects of two adjacent permitted developments (Cork Co. Co. Ref. 21/4059 and 24/5216) in the western part of Knockbrogan. The proposed development and the two adjacent permitted developments are complementary. In combination, they would realise a large part of Specific Objective BD-R-03, i.e. the development of a new 'Medium Density A' residential neighbourhood on the pocket of greenfield lands that exists on Knockbrogan within the wider urban footprint of Bandon.

5.3 Mitigation

5.3.1 Incorporated Design

- The key landscape assets of the site – the external and internal boundary hedgerows, trees and tree groups - would be largely retained, forming the skeleton of the open space network. The ecological function and landscape value (visual amenity and screening) of the hedgerows would thus be retained. The photomontages show that the retained hedgerows and trees would be effective in softening and partially screening the proposed buildings in views from the surroundings.
- The retained vegetation would be supplemented by new planting, most notably the 'ecological buffers' inside the northern and southern boundaries - and specifically a broad belt of woodland planting inside the south west boundary at the interface with the Radharc an Bhaile estate. This is where the proposed development is closest to existing houses, and on a level above those houses; therefore, additional landscape/visual buffering is required in this area.
- The proposed species mixes of the new planting have been selected to support native pollinators and strengthen local ecosystems, with the objective to achieve net biodiversity gain.
- The proposed building typologies and design (two storey terraced and semi-detached houses of render, with stone detailing, and pitched slate roofs) were selected for two main reasons: (1) to avoid excessive visibility/visual impact on the hilltop site (compared to denser, taller typologies), and (2) to reflect the established pattern and character of development in the area. This is in accordance with Objective HE-16-21 of the CCDP, which states: *"Encourage new buildings that respect the character, pattern and tradition of existing places, materials and built forms and that fit appropriately into the landscape".*

5.3.2 Construction Phase

The most effective mitigation for the negative landscape and visual effects of construction is site hoarding. However, this is only effective for ground level activity. When buildings under construction rise above ground level they are exposed and unsightly, as are the materials stockpiles, vehicles, etc. typical of a construction site. Some negative effects are therefore unavoidable in the construction phase. Nonetheless, to minimise the effects, it is recommended that site hoarding be erected around the site – where this is compatible with the protection of the boundary vegetation.

Good practice in site management can reduce unnecessary visual impacts. These may include (a) considered layout of the construction site with regard to the most sensitive visual receptors, (b) dust control (e.g. water sprays to avoid dust plumes; spraying of vehicles before site departure to avoid dirtying roads), (c) waste control (e.g. netting/covering of storage bins/areas; regular site inspection for litter), and (d) considered positioning of security lighting. A Construction Environmental Management Plan (CEMP) has been submitted with the LRD application. The CEMP includes measures – or a framework for the agreement of measures - such as those identified above.

A Tree Protection Plan and Tree Appraisal and Arboricultural Assessment by GEOTREE has been submitted with the LRD application. These include measures for the protection of the site hedgerows and trees during construction.

5.3.3 Operational Phase

The design of the proposed development incorporates all necessary mitigation measures for operational phase effects. No further operational phase mitigation measures are required.

5.4 Residual Impact Assessment

5.4.1 Landscape Character

The residual landscape effects during construction would be of moderate-slight significance, negative, and direct.

The residual landscape effects during operation would be of moderate significance, neutral, and direct.

5.4.2 Visual Impacts

The following Table summarises the likely visual effects during the construction and operational phases of the proposed development.

CHAPTER 6 | Material Assets: Traffic & Transport

The assessment of Traffic and Transport is contained within Chapter 6 of Volume II.

The purpose of the chapter is to assess the impact of the Proposed Development on the surrounding road network and transport infrastructure (including pedestrian, cycling and transport facilities) on the Bandon Road network in Cork County.

Site visits and traffic assessment scoping with Cork County Council were undertaken. The assessment is based on the Traffic and Transport Assessment and Mobility Management Plan as well as the current relevant guidance documents.

Traffic surveys were undertaken on the surrounding road network. A Quality Audit (including a Stage 1 Road Safety Audit) was also completed.

The chapter was prepared by Ken Hegarty BE(Civil & Environmental) (Hons) MEngSc, CEng MIEI, MIHT, of Hegsons Design Consultancy Ltd.

6.1 Existing Environment

The subject site is Phase 3 of a larger development–known as Blossom Hill Estate. Phase 1 of the estate is currently being completed while Phase 2 is now commencing. All vehicular access and services serving Phase 3 will connect directly with the corresponding roads and services in Phase 2, which in turn pass through Phase 1 and connect to the public roadway, Old Cork Road (L-2040).

The subject site is part of one of the remaining patches of farmland within the urban area north of the town centre. This area, Knockbrogan, is identified as Specific Objective BD-R-03 in the CCDP. Its residential zoning (Cork County Development Plan - BD-R-03) recognises its strategic location close to the town centre, close to existing and future business, employment and industrial uses, and to a variety of urban amenities including green infrastructure.

6.1.1 Existing Road Network

The N71 is situated approximately 700m south of the subject site. The N71 is a National Road which runs from Cork to Skibbereen and is a single carriageway road. The road is approximately 7.5-8.0m wide and is subject to a 50kph speed limit within the town centre.

The R589 runs in an east-west direction just north for the subject site and provides a link between Brinny / Crossbarry to the north and Bandon Town Centre. The road is a single carriageway and is subject to a 50kph speed limit.

The R589 / L-2040 junction, Knockbrogan Crossroad, is a priority-controlled junction with footpaths provided on both sides of the road. A formal crossing facility is provided to the north of the junction.

The L-2040 Old Cork Road is a two-way single carriageway road with a typical straight horizontal alignment and steep vertical alignment with gradients rising as it continues north. The road is traffic calmed along its route and is subject to a 50kmph speed limit. The site is located within an urban / semi urban area with inconsistent footpath provisions along its length.

6.1.2 Existing Access

Existing access to the site is via the L-2040 Old Cork Road, the entrance which is fully complete and operational, and through the Phase 1 residential development (which is under construction) and the planning Phase 2 residential development.

6.1.3 Public Transport & Site Accessibility

The closest bus stops to the development are located at Glasslynn Road, approximately 750m (15 minutes' walk) from the proposed development. Bus Eireann operates several rural inter-urban bus routes which pass through Bandon, linking Bandon to Cork City and other towns in West Cork. There are also several local school bus operators in the town.

6.1.4 Existing Pedestrian and Cycle Facilities

A comprehensive walking and cycling strategy forms part of the Bandon Transport and Public Realm Enhancement Plan (TPREP) and this includes a focus on promoting green modes for school trips by delivering a series of traffic calming and pedestrian enhancement measures at schools, improved bus drop-off facilities and dedicated drop-off and parking measures. The Plan carries forward amenity walkways in previous Plans and includes an objective to support the provision of a historic town wall trail as a further amenity and tourism resource within the future development of the town. Most of the main roads within Bandon have footways on at least one side of the road. Pedestrian crossing facilities are integrated into the existing road network by way of the uncontrolled crossings.

There are adequate footpaths provided or proposed along the R589 Macroom Road and L-2040 Old Cork Road and on the adjoining road network to accommodate the current pedestrian demand. New 2.0m footpaths are being provided alongside the L-2040 as part of the recently granted and proposed residential developments. It is also proposed to provide a zebra crossing on the L-2040 Old Cork Road to enhance connectivity between the existing footpaths on either side of the road.

It is recognised that walking and cycling are the most important mode at the local level, offering the greatest potential to replace short, door-to-door car trips, particularly those around 10-15 minutes cycle time (2-3km) and 30-minute walking time (4-5km) respectively.

6.2 Impact Assessment

6.2.1 Do Nothing Scenario

The local roads network has been assessed for the Do-Nothing Scenario and is presented as the 'Without Development' results for the modelled junctions. If the proposed development does not proceed there would be no additional demand or loading on the existing road network other than the naturally growing baseline traffic figures on the existing road network.

6.2.2 Construction Phase

Construction traffic will comprise the construction workers (cars) and HGVs / LGVs carrying construction materials. All the construction traffic coming to and leaving the site will use the Old Cork Road. The N-71 national route provides a link between the site and areas to the east and west. As a result, HGVs will be able to avoid entering the town centre for the most part. There will be a noticeable increase in HGV traffic on the road network during the construction stage works as waste materials are removed from site and deliveries brought to site, however this activity will be of short duration and generally staggered. Parking will be provided within the site boundary for construction staff and no car parking will be permitted outside of the site boundary.

In terms of construction traffic, the main impact will either be earthworks or concrete pours. During this period, it is anticipated that there will be a total of 20-30 HGV trips to the site (40-60 two-way movements), arriving at an average rate of 4-6 HGVs per hour.

In addition, it is anticipated that there could be 40 construction workers on site during peak periods. Based upon a conservative vehicle occupancy of 2 workers per vehicle, this would result in up to 20 inbound, and 20 outbound, vehicle trips to the site each day. Construction worker travel will typically occur outside of peak hours on the local road network, with operatives typically arriving before 08:00, and leaving from 16:00 onwards. An allowance is made for a maximum number of workers/staff on-site (4 movements per employee including for lunch break) giving an overall construction phase traffic generation of 160 movements per day. Overall, there will be a negative short-term not significant impact to local traffic during the construction phase.

6.2.3 Operational Phase

The use of the private car will still be maintained as a primary mode of transport for a number of the residents in the development. Trip generations to and from the proposed development are 186 in the morning peak and 238 in the evening peak. The internal roads on the development to be constructed have been suitably designed in accordance with the DMURS manual.

Residual impacts on the surrounding roads and traffic during the operational phase is considered to be a long-term neutral moderate impact. The volumes of traffic generated from the proposed development when compared to the baseline scenario will have a moderate effect on the road network traffic volumes.

Modelling results show that there will be increased congestion in the central parts of Banon Town with and without the proposed development. The relative impact of the proposed development in the Design year 2041 is moderate (<10%) on the worse performing junction when compared to the background traffic.

6.2.4 Cumulative Impact

The proposed development is not likely to result in significant adverse impacts either alone or in combination with the existing planned or likely future projects.

6.3 Mitigation

6.3.1 Construction Phase

Traffic impacts during the construction stage will be mitigated through the implementation of a Construction Traffic Management Plan (CTMP), which will be agreed with Cork County Council. A Framework CTMP, which sets out the principles to be followed, is included as part of the application package.

The following measures will reduce the magnitude of HGV impacts on the adjoining road network:

- The re-use of excavated materials generated on-site will reduce the total volume of imported material thereby reducing traffic generation.
- Adequate storage space on site will be provided to accommodate all cut material.
- Defining delivery times to site will avoid background traffic peak periods. Trucks will be equipped with dust covers when carrying dust producing materials to reduce the environmental impact of this activity. HGV deliveries will be scheduled (as far as possible) outside of peak periods on the network, which have been identified as 08:00 – 09:00 and 16:30 – 17:30.
- Construction stage site staff starting at 07:00 and ending at 18:00 will avoid the recorded peak periods.

- Site Staff encouraged to car-pool and to use public transport.
- Wheel washing facilities will be provided on site, which will reduce the amount of dust and debris transferred to local roads. In addition, a road sweeper will be employed as required to ensure that the local road network is not unduly affected.
- Specific haulage routes will be identified and agreed with the Local Authority prior to commencement of construction.
- Construction Traffic Management Plan will be developed and implemented when appropriate, ie during the delivery of materials.
- Warning Signs and Advanced Warning Signs will be installed at appropriate locations in advance of the construction works. Signs will be placed along the length of the route, warning all road users, and local residents, of the presence of slow moving and turning HGV traffic. In addition, warning signs will be placed in advance of the Site Access junction, to warn drivers approaching from both directions.
- All site staff parking will be accommodated on-site within the designated site compound. No parking of site vehicles will be facilitated on the public road.
- All site vehicles are to be suitably serviced and maintained to avoid any leaks or spillage of oil, petrol, or diesel. Spill kits will be available on site. It will be the responsibility of the main contractor to ensure that all vehicles delivering to the site are suitably licensed to use the public road and equipped for this activity.

There will be on-going monitoring of the impact of construction traffic on the wider roads network to ensure prompt action is taken in the event of an issue arising.

6.3.2 Operational Phase

The proposed development has integrated a number of measures in line with the relevant standards and guidelines, such as DMURS and the Cycle Design Manual, which promotes the use of sustainable travel to and from the site. The Road Safety Audit carried out for the site allowed the design team to address any concerns initially flagged in the Road Safety Audit. A continued and collaborative approach with the road safety auditors meant that a desirable and safe site layout could be achieved without negatively impacting the overall quality of the development.

The use of the private car will still be maintained as a primary mode of transport for a number of the residents in the development. Trip generations to and from the proposed development are 186 in the morning peak and 238 in the evening peak as noted above. The internal roads on the development to be constructed have been suitably designed in accordance with the DMURS manual.

Progressive and regular liaising with Cork County Council Roads Department in relation to the internal roads and the permitted link roads layouts contributed to the final road design for the development.

As noted previously, mitigation measures are to be implemented to promote and encourage more sustainable transport modes. Footpaths on the Old Cork Road will encourage pedestrians to walk to the town centre. Dedicated cycle routes and secure bicycle parking spaces within the site are also provided throughout the development.

6.4 Residual Impact Assessment

There will be no residual impacts on the surrounding traffic and transportation during the construction phase. The volumes of traffic generated from the currently proposed development will have a moderate effect on the road network traffic volumes and can be considered within the norms for urban developments.

6.5 Monitoring

6.5.1 Construction Phase

The contractor will be obliged to appoint a traffic liaison officer/traffic manager who will be involved in preparing the CTMP and to monitor the performance of the CTMP. The traffic liaison officer will be available to receive complaints, comments and queries about the traffic generated by the construction site and traffic issues associated with the site. Regular meetings will be held on-site to which with all relevant stakeholders will be invited. The traffic liaison officer/ traffic manager will liaise with:

- Cork County Council
- Elected Members
- An Garda Siochana
- Bus Eireann
- Other relevant statutory bodies
- Members of the community
- Adjacent contractors

The traffic liaison officer/traffic manager will be sufficiently senior in position and will be responsible for dealing with any complaints and remedying any non-compliance and developing solutions to prevent re-occurrence.

6.5.2 Operational Phase

There will be no monitoring requirements of the traffic and transport in the operational phase of the development.

CHAPTER 7 | Material Assets: Built Services

The assessment of Built Services is contained within Chapter 7 of Volume II.

7.1 Existing Environment

7.1.1 Water Supply

There is an existing 200mm diameter watermain running through the first phase of the development which was installed and approved by Uisce Eireann. The existing local watermains are being upgraded to allow for the water supply for the proposed new residential development as agreed with Irish Water under the Pre-Connection inquiry, CDS25003539.

7.1.2 Waste Water Drainage

There is an existing 300mm diameter Wastewater pipe running through the first phase of the development which was installed and approved by Uisce Eireann and connections left for the proposed Phase 3 development. The wastewater network on the Public Road from the development entrance down the road down to the Radharc an Bhaile junction was also upgraded as approved by the Cork County Council and Uisce Eireann.

7.1.3 Surface Water Drainage

There is an existing 300mm diameter Wastewater pipes running through the first phase of the development which was installed and approved by Uisce Eireann and connections left for the proposed Phase 3 development. Two Storm Water Attenuation tanks have been constructed in Phase 1 of the development and allowance for the additional outflow from the proposed future developments was taken account. The wastewater network on the Public Road from the development entrance down the road down to the Radharc an Bhaile junction was also upgraded as approved by the Cork County Council and Uisce Eireann.

7.1.4 Electrical Supply

There is an existing ESB service connection onto the main Grid with new underground cables throughout Phase 1 with a single ESB sub-station all built in accordance with ESB Networks Ireland. There is new connection made available for the connection of the new residential developments in Phase 2 & 3.

7.1.5 Gas Supply

Gas will not be provided; instead, homes will use renewable heat pumps.

7.1.6 Telecommunications

There are existing underground services including telecoms within Phase 1 which are mostly complete.

7.2 Impact Assessment

7.2.1 Do Nothing Scenario

Water Supply

If the project doesn't go ahead, the land and services will remain unchanged, and no impacts would occur.

Wastewater Drainage

If the project doesn't go ahead, the land and services will remain unchanged, and no impacts would occur.

Surface Water Drainage

If the project doesn't go ahead, the land and services will remain unchanged, and no impacts would occur.

Electricity/Gas and Telecommunications

If the project doesn't go ahead, the land and services will remain unchanged, and no impacts would occur.

7.2.2 Construction Phase

Water Supply

Full details of the proposed watermain connections to the new residential development will be sent to Uisce Eireann for review as a Housing Development water and/or wastewater connection application. No water works will start on site until a contract is signed by Uisce Eireann. Main works will be completed on site in accordance with Uisce Eireann agreement. Risks include possible flooding, pollution, service disruptions, and blockages, without controls, these could significantly affect water and wastewater systems.

Wastewater Drainage

Full details of the proposed wastewater connections to the new residential development will be sent to Uisce Eireann for review as a Housing Development water and/or wastewater connection application. No works on the Wastewater Network will start on site until a contract is signed by Uisce Eireann. Main works will be completed on site in accordance with Uisce Eireann agreement. Risks include possible pollution, service disruptions, and blockages, without controls, these could significantly affect wastewater systems.

Surface Water Drainage

The full storm wate network will be completed on site in accordance with our drawings and specifications. All storm water calculations have been completed with Causeway Software. Risks include possible flooding and blockages, without controls, these could significantly affect wastewater systems.

Electricity/Gas and Telecommunications

All works on site to the electricity and telecoms network will be inspected and approved by us during regular site visits. Risks include service disruptions, without controls, these could significantly affect existing systems.

7.2.3 Operational Phase

Water Supply

Once in use, risks mainly come from poor maintenance or misconnection of services, which could affect water supply. impacts are negligible.

Wastewater Drainage

Once in use, risks mainly come from poor maintenance or misconnection of services, which could affect wastewater. impacts are negligible.

Surface Water Drainage

Once in use, risks mainly come from poor maintenance or misconnection of services, which could affect drainage. impacts are negligible.

Electricity

Once in use, risks mainly come from poor maintenance or misconnection of services, which could affect electrical supply. Electricity and telecoms impacts are negligible.

Gas

Not available

Telecommunications

Once in use, risks mainly come from poor maintenance or misconnection of services, which could affect electrical supply. Electricity and telecoms impacts are negligible.

7.2.4 Cumulative Impact

The impact as a result of potential future developments has been assessed. These potential future developments will be of a similar nature to the proposed development. As a result, the cumulative impact is expected to be neutral and not significant.

7.3 Mitigation

7.3.1 Incorporated Design

Water Supply

Careful construction methods, monitoring, use watermains supply (Uisce Eireann requirements), strict adherence to utility company standards, and long-term maintenance will prevent or reduce problems.

Wastewater Drainage

Careful construction methods, monitoring, use of wastewater networks (Uisce Eireann requirements), strict adherence to utility company standards, and long-term maintenance will prevent or reduce problems.

Surface Water Drainage

Careful construction methods, monitoring, use of sustainable drainage systems (SuDS), strict adherence to utility company standards, and long-term maintenance will prevent or reduce problems.

Electricity Network

Careful construction methods, monitoring, use of electrical systems (ESB Networks), strict adherence to utility company standards, and long-term maintenance will prevent or reduce problems.

Gas Supply

Not Applicable

Telecommunications Network

Careful construction methods, monitoring, use of Telecom systems (Service Provider), strict adherence to utility company standards, and long-term maintenance will prevent or reduce problems.

7.3.2 Construction Phase

The following mitigation measures are proposed for the construction phase of the development with respect to Material Assets:

- The proposed development should comply with the provisions of the Construction Waste Management Plan with respect to construction waste.
- The proposed development will comply with the provisions of the Construction Environmental Management Plan.
- Water metering will be provided during the construction phase to record consumption.
- All new services will be constructed and provided in strict accordance with the codes of practise of the relevant utility companies and new connections to have an agreed permit for the works where required.
- To minimise impact of the wastewater/water infrastructure required for the development, best practice construction practices should be adhered to, and Uisce Eireann procedures followed.
- Temporary measures such as silt traps will be put in place to limit the rate of surface water run-off from site.
- The quality of surface water run-off to be managed and ensure the run-off from the site does not result in excessive siltation of the receiving drainage channels.
- Excavations are to be kept to a minimum, with excavated material stockpiled for reuse on site
- The contractor will also be obliged to put measures in place to ensure that there are minimal or no interruptions to existing services and that all services and utilities are maintained, unless this has been agreed in advance with the relevant service provider and local authority.
- All watermains will be cleaned and tested in accordance with Uisce Eireann guidelines and standards prior to connection to the public watermain.
- All works in the vicinity of the local authority will be compliant with any requirements or guidelines.
- Road opening licences will be applied for and a temporary traffic management plan to be implemented when connecting utilities in the public road.

7.3.3 Operational Phase

The following section discusses the mitigation approaches that will be followed during the operational phase of the development:

- All new foul and surface water drainage pipes to be pressure tested and CCTV surveyed to identify any possible defects.
- Water conservation measures to be implemented, which include water metering, rainwater capture, low flush and efficiency attachments.
- Ensure that all hydro brakes are designed to limit the flow of water from the development to the greenfield run-off rate.
- All water main pipes to be pressure tested in accordance with Uisce Eireann details.
- All water mains will be cleaned and tested in accordance with Uisce Eireann guidelines and standards prior to connection to the public water main.

7.4 Residual Impact Assessment

7.4.1 Water Supply, Foul and Surface Water Drainage

After mitigation, most potential impacts are neutral or insignificant

7.4.2 Electrical, Gas and Telecommunications Network

After mitigation, most potential impacts are neutral or insignificant

7.5 Monitoring

All potable water will be cleaned and tested to the satisfaction of Uisce Éireann prior to the connection to the public potable water. In addition, all connections to the public potable water and foul water sewer will be carried out under the supervision of Uisce Éireann.

All new infrastructure, which is to serve the proposed development, is to be routinely inspected with any maintenance carried out, as required. Any monitoring of the built services required during the operational phase of the proposed project will be as advised by the relevant services providers.

CHAPTER 8 | Material Assets: Waste

The assessment of Waste is contained within Chapter 8 of Volume II.

8.1 Existing Environment

The proposed development site at Knockbrogan, Bandon is currently greenfield in character and has no history of dumping or waste activity. A portion of the site is temporarily being used to store soil and stone excavated during Phases 1 and 2 of the wider Castle Rock project. These stockpiles have been managed to preserve material quality and are intended for reuse in landscaping, haul road reinstatement and berm construction as the earlier phases are completed.

Waste services in the Bandon area are well established, with licensed contractors providing three-bin household collection, civic amenity sites, bring banks and recovery facilities accessible within Cork County.

8.2 Impact Assessment

8.2.1 Do Nothing Scenario

If the development were not to proceed, no waste would be generated during construction or operation. While this would avoid any short-term waste impacts, it would also mean that the opportunity to implement a balanced, resource-efficient earthworks strategy and to deliver modern household waste infrastructure in line with circular economy principles would be lost.

8.2.2 Construction Phase

The construction of the proposed development will involve significant excavation and building activity. About 35,700 m³ of soil and rock will be excavated, with a similar amount required for filling, resulting in a near cut-and-fill balance. This means almost all excavated material will be reused on site, reducing the need for off-site disposal or importation.

If small surpluses do arise, these will be tested and classified in accordance with EPA guidance. Where suitable, non-hazardous material may be managed as a by-product under Article 27, supporting its reuse in line with circular economy policy.

Additional construction waste streams such as timber, concrete, packaging and metals will be segregated and sent to authorised recovery or recycling facilities. Any hazardous arisings (e.g. paints or adhesives) will be separately managed by licensed contractors.

8.2.3 Operational Phase

Once completed and occupied, the development will generate normal household waste, primarily food waste, recyclables such as paper, cardboard, plastics and metals, and residual waste. Each dwelling will be provided with its own dedicated storage area for the standard three-bin system, in compliance with Cork County Council bye-laws. Licensed waste contractors will collect household waste and deliver it to authorised treatment facilities. The system is designed to ensure that waste is managed safely and efficiently, while encouraging recycling and proper segregation at source.

8.2.4 Cumulative Impact

The proposed development represents Phase 3 of the wider Castle Rock project, with Phases 1 and 2 already under way. When considered together, the three phases will increase local waste volumes, particularly household waste once occupied. However, the Bandon area is already well served by waste collection services and treatment facilities, and these are expected to be capable of managing the additional demand. No significant cumulative effects on waste infrastructure are anticipated.

8.3 Mitigation

8.3.1 Incorporated Design

The development has been designed from the outset to reduce waste. A key feature is the cut-and-fill strategy, which allows excavated soil and stone to be reused within the site. At the operational stage, each dwelling has been designed with private bin storage areas to support correct segregation and collection.

8.3.2 Construction Phase

A Resource and Waste Management Plan (RWMP) will be prepared and implemented by the appointed contractor. This plan will ensure that construction waste is carefully segregated, tracked, and sent to authorised recycling and recovery facilities. Licensed hauliers and contractors will be used at all times, and any small volumes of hazardous materials (such as paints or adhesives) will be managed separately to avoid risks of contamination.

8.3.3 Operational Phase

During operation, mitigation focuses on promoting good waste practices at household level. Each property will have space for the three-bin system, and residents will be provided with guidance on correct bin use. This will reduce the risk of contamination, prevent nuisances such as odours or litter, and maximise recycling rates.

8.4 Residual Impact Assessment

With the mitigation measures in place, only minor residual impacts are expected. During construction, these may include temporary nuisance effects such as small amounts of windblown litter or dust from waste storage areas, though these will be carefully managed. During operation, residual impacts are likely to be limited to occasional bin misuse or small amounts of non-recyclable waste requiring disposal. None of these effects are considered significant.

8.5 Monitoring

Waste management will be subject to monitoring during both construction and operation. During construction, the contractor will keep detailed records of waste types, quantities, and destinations to ensure compliance with the Resource and Waste Management Plan. During operation, monitoring will be carried out by the estate management team and licensed waste contractors, who will provide feedback on bin use and segregation to encourage ongoing compliance.

CHAPTER 9 | Land & Soils

The assessment of Land & Soils is contained within Chapter 9 of Volume II.

9.1 Existing Environment

The Proposed Site Development is located in Knockbrogan, Bandon, Co Cork, covering a total area of approximately 7.844 hectares. It is c. 24km southwest of Cork city centre. The site is located within five joined fields and has been in long term agricultural use - being used annually for crop growing. The eastern boundary has low-level sod and stone mature ditch bordering further agricultural lands. The western boundary is a similar low-level ditch. The northern and southern boundaries are mature ditches mainly bounding farmland with an element of the south boundary adjacent to an existing housing estate.

The principal subsoil type in the area comprises glacial Till derived from Devonian and Carboniferous sandstones and shales and small areas of Bedrock outcrop or subcrop on the west of the site. Glacial tills typically are cohesive deposits of low permeability. The main rock formations is the Kinsale Formation.

The proposed site is not near any designated Geological Heritage Sites. The bedrock and soil features at the site are considered of low importance.

9.2 Impact Assessment

9.2.1 Construction Phase

In absence of mitigation measures, the construction phase would present potential impacts associated to the following activities:

- Excavation and infilling.
- Accidental spills, discharges, and leaks.
- Storage of Hazardous Materials

Without the consideration and employment of mitigation measures the potential impacts during the construction phase on land, soils and geology are **short-term**, **significant** and **negative.**

9.2.2 Operational Phase

The Proposed Development will increase the hardstanding area, which protects the underlying aquifer but reduces local recharge. The operational phase, consisting of typical activities, will not disturb the topsoil, subsoils, or geology further. While the increase in hardstanding may have a local effect on land, soils, and geology, there is no need for bulk fuel or diesel storage.

Without the consideration and employment of mitigation measures the potential impacts during the construction phase on land, soils and geology are **long-term**, **imperceptible** and **negative.**

9.2.3 Cumulative Impact

The implementation of mitigation and monitoring measures previously detailed above as well as the compliance of other developments with their respective planning conditions, will ensure there will be minimal cumulative potential for change to the soils and geological environment during the construction phase of the proposed development.

The residual cumulative impact of the proposed development in combination with other planned or permitted developments can therefore be considered to be **neutral, imperceptible and short-term**.

9.3 Mitigation

9.3.1 Construction Phase

In order to reduce impacts on the land, soils and geological environment, a number of mitigation measures will be adopted as part of the construction works on site. The measures will address the main activities of potential impact which include:

- Control of soil excavation and export from site;
- Sources of fill and aggregates for the Proposed Development;
- Fuel and chemical handling, transport and storage; and
- Control of water during construction.

9.3.2 Operational Phase

A number of design measures will be put in place to minimise the likelihood of any spills entering the soil and groundwater environment. A large portion of the development area will be covered in hardstand, which protects the underlying soil and aquifer.

The proposed surface water drainage system comprises multiple design SuDS measures. No further mitigation measures are to be required during the operational phase.

9.4 Residual Impact Assessment

9.4.1 Construction Phase

The mitigation and monitoring measures will effectively address potential impacts during the construction phase, with the residual effect on soils and bedrock being **neutral**, **imperceptible**, and **short-term** , the magnitude of impact is considered negligible.

9.4.2 Operational Phase

The mitigation and monitoring measures will effectively address potential impacts once the Proposed Development is operational. The residual effect on soils and geology during the operational phase is considered **neutral**, **imperceptible**, and **long-term**, with the impact magnitude rated as negligible according to TII criteria.

9.5 Monitoring

Construction Phase

During the construction phase, various monitoring measures will be implemented to ensure environmental compliance, including regular inspections, surface water management, and soil sampling.

- Contractors will conduct regular inspections to ensure compliance with the CEMP.
- Daily inspections will address environmental concerns such as dust, litter, waste management, and housekeeping.

- Weekly checks will ensure surface water drains remain unblocked.
- Regular inspection and maintenance of surface water run-off and sediment controls (e.g., silt traps).
- Soil sampling will determine proper disposal options for excavated soils to prevent contaminated run-off.
- Regular inspection of construction and mitigation measures (e.g., concrete pouring, refuelling).

Operation Phase

No future surface water monitoring is planned for the site due to its low hazard potential. Hydrocarbon interceptors will be maintained and cleaned according to the manufacturer's instructions. Regular maintenance of the surface water drainage system and foul sewers is recommended to prevent accidental discharges.

CHAPTER 10 | Hydrology and Hydrogeology

The assessment of Water & Hydrology is contained within Chapter 10 of Volume II.

10.1 Existing Environment

The Proposed Site Development is located in Knockbrogan, Bandon, Co Cork, covering a total area of approximately 7.998 hectares. It is c. 24km southwest of Cork city centre. The site is located within five joined fields and has been in long term agricultural use - being used annually for crop growing.

There are no existing drainage features evident on the lands. The northern and southern boundaries are nature ditches mainly bounding farmland with an element of the south boundary adjacent to existing housing estate. Overland flow paths flow towards Bandon River to the southeast of the subject site.

The Bandon River has a 'Good' WFD status (2016-2021) and is 'not at risk' of not achieving 'Good' status by 2027, according to its WFD objectives. This river outfalls into the Upper Bandon Estuary, which has a 'Poor' WFD status (2016-2021) and a risk score of 'At risk' of not achieving good status.

There are no recorded past flood events within the vicinity of the proposed site development. The proposed development, including all proposed residential dwellings, is located within Flood Zone C, i.e., outside of the Low Probability flood plain (1:1000-year or 0.1% AEP), which is considered low risk and suitable for residential development.

There are no SPAs, SACs, NHAs, or pNHAs within the Proposed Development site boundary. The nearest Natura 2000 Site is Courtmacsherry Estuary SAC (Site Code 001230) located c. 9.5km south of the proposed development and the Courtmacsherry Bay SPA (Site Code 004219) located c. 10.1km south of the proposed development. The development site has no hydrological connection with either of these SAC/SPAs.

The site's hydrological features are rated as having 'Low' importance based on TII methodology, as they are not used for water supply, located in a flood zone, or designated as an amenity area.

The site lies above the Bandon groundwater body, which is currently classified as having 'Good' status under water quality standards. The underlying bedrock is considered a locally important aquifer, meaning it can provide useful water supplies only in local areas. The groundwater vulnerability in this location is rated as 'High' to 'Extreme', which means that groundwater could be moderately affected by surface activities.

Based on TII methodology, the site's hydrogeological features are of 'Medium', this reflects the presence of a locally important aquifer beneath the site and the fact that groundwater here is highly vulnerable to potential impacts from surface activities.

10.2 Impact Assessment

10.2.1 Construction Phase

In absence of mitigation measures, the construction phase would present potential impacts associated to the following activities:

- Increased surface run-off and sediment loading in run-off.
- Accidental spills, discharges and leaks.

Without the consideration and employment of mitigation measures the potential impacts during the construction phase on the hydrology, hydrogeology and surface water quality are **negative**, **slight** and **short-term**.

10.2.2 Operational Phase

In absence of mitigation methods, the operational phase would present potential impacts associated to the following activities:

- Accidental Leaks /Unmitigated spills from vehicles.
- Increased surface run-off and sediment loading in run-off.
- Increase in hardstanding.

In the absence of mitigation measures (or design measures) the potential impacts during the operational phase on hydrology, hydrogeology and surface water quality are **negative**, **significant**, and **long-term**.

10.2.3 Cumulative Impact

The works contractors for other planned or permitted developments will be obliged to ensure that measures are in place to protect surface water and groundwater quality in compliance with legislative standards for receiving groundwater quality (European Communities Environmental Objectives (Groundwater) Regulations (S.I. 9 of 2010 and S.I. 266 of 2016) and surface water quality (European Communities Environmental Objectives (Surface Water) Regulations (S.I. 272 of 2009 and S.I. 77 of 2019).

The implementation of mitigation and monitoring measures previously detailed above as well as the compliance of other developments with their respective planning conditions, will ensure there will be minimal cumulative potential for change to the hydrological and hydrogeological environment during the construction phase of the proposed development.

All developments are required to ensure they do not have an impact on the receiving water environment in accordance with the relevant legislative standards for receiving groundwater quality (European Communities Environmental Objectives (Groundwater) Regulations (S.I. 9 of 2010 and S.I. 266 of 2016) and surface water quality (European Communities Environmental Objectives (Surface Water) Regulations (S.I. 272 of 2009 and S.I. 77 of 2019).

The residual cumulative impact of the proposed development in combination with other planned or permitted developments can therefore be considered to be **neutral, imperceptible and short-term**.

10.3 Mitigation

10.3.1 Construction Phase

In order to reduce impacts on the hydrological and hydrogeological environment, a number of mitigation measures will be adopted as part of the construction works on site.

- Fuel and chemical handling.
- Wastewater / Surface Water Management
- Silt reduction measures on site will include a combination of silt fencing and settlement measures (silt traps, silt sacks and settlement tanks/ponds).
- Control of concrete works.

10.3.2 Operational Phase

A number of design measures will be put in place to minimise the likelihood of any surface water runoff entering the hydrological or hydrogeological environment. In the event of a surface water runoff Sustainable Drainage System (SuDS) will be implemented to prevent contaminants such as petrol separators, from entering the stormwater network and affecting local streams, and the underlying Bandon groundwater body. The proposed surface water drainage system comprises multiple design SuDS measures. No further mitigation measures are to be required during the operational phase.

10.4 Residual Impact Assessment

10.4.1 Construction Phase

The mitigation and monitoring measures will effectively reduce potential impacts on the hydrological and hydrogeological environment during construction. There will be no significant change in flow or quality. The residual effect on surface water and groundwater quality during construction is considered **neutral**, **imperceptible**, and **short-term**.

10.4.2 Operational Phase

The mitigation and monitoring measures will effectively protect surface and groundwater quality and reduce potential impacts on the hydrological and hydrogeological environment during the operational phase of the development. There will be no significant change in flow or quality. The residual effect on surface water and groundwater quality during operation is considered **neutral**, **imperceptible**, and **long-term**.

10.5 Monitoring

10.5.1 Construction Phase

During the construction phase, various monitoring measures will be implemented to ensure environmental compliance, including regular inspections, surface water management, and soil sampling.

- Contractors will conduct regular inspections to ensure compliance with the CEMP.
- Daily inspections will address environmental concerns such as dust, litter, waste management, and housekeeping.
- Weekly checks will ensure surface water drains remain unblocked.
- Regular inspection and maintenance of surface water run-off and sediment controls (e.g., silt traps).
- Soil sampling will determine proper disposal options for excavated soils to prevent contaminated run-off.
- Regular inspection of construction and mitigation measures (e.g., concrete pouring, refuelling).

10.5.2 Operation Phase

No future surface water monitoring is planned for the site due to its low hazard potential. Hydrocarbon interceptors will be maintained and cleaned according to the manufacturer's instructions. Regular maintenance of the surface water drainage system and foul sewers is recommended to prevent accidental discharges.

CHAPTER 11 | Biodiversity

The assessment of Biodiversity is contained within Chapter 11 of Volume II of this EIAR. The assessment focuses on how flora and fauna will be impacted during the construction and operational phases of the Proposed Development. It aims to ensure compliance with local and national and European policies relating to biodiversity. A comprehensive suite of ecological surveys and assessments were conducted at the Site based on best practice guidance.

11.1 Key Findings

There are no designated ecological sites within the Site Boundary. However, there are two European designated sites within a 15km radius of the Site:

- Courtmacsherry Estuary SAC is located ca. 9.5km south of the Site; and,
- Courtmacsherry Bay SPA is located ca. 10km south of the Site.

Natural Heritage Areas ('NHA') and proposed Natural Heritage Areas ('pNHA') within 5km of the Site were also considered. No NHAs were identified within 5km of the Site. However, two pNHAs were identified within 5km of the Site:

- Boyne Valley Above Innishannon is located ca. 1.6km northeast of the Site; and,
- Bandon Valley West of Bandon is located ca. 1.6km southwest of the Site.

No pathway or links were identified between the Site and these designated sites. A Stage One: Appropriate Assessment Screening Report has been prepared and submitted as part of the planning application. The AA concluded that the Proposed Development, either alone or in-combination with other plans or projects, will not result in any significant adverse effects on any European sites or any of their designated features.

Habitats

A habitat survey undertaken on the Site utilising the Heritages Councils – '*A Guide to Habitats in Ireland*' was undertaken by a suitably qualified and experienced MOR Environmental Ecologist. This survey found that the Site is predominantly comprised of areas of agricultural grassland, with large sections of hardstanding and spoil heaps. The north, east and southern boundaries of the Site comprise primarily of hedgerows / treelines. Additionally, the Site is intersected in a number of locations with hedgerows, forming field boundaries within the Site.

As part assessment of the Site, a comprehensive hedgerow assessment was undertaken in accordance with the *Hedgerow Appraisal System – Best Practice Guidance on hedgerow Survey, Data Collation and Appraisal.* The hedgerows/treelines onsite ranged from poor to good conditions. Some hedgerows have been impacted by the excavations alongside the hedgerow / treeline and the placement of spoil heaps in close proximity.

Fauna

Following the initial assessment of the Site and to ensure a comprehensive assessment of the potential impacts of the Proposed Development, the following surveys were undertaken:

- Breeding Bird surveys; and,
- Bat Emergence / NBW survey.

The survey findings are summarised below:

- 20 bird species were recorded utilising the Site. Blue tits were confirmed to be breeding onsite. The Site is not considered to be of high suitability or a site of importance for any Annex I or Annex II species or Red listed birds.
- The bat survey did not identify any bats roosting onsite. The Site was being utilised by Leisler's bat, soprano pipistrelle and common pipistrelle. These are relatively widespread and the most frequently encountered species in Ireland.

The Proposed Development will result in disturbance to wildlife in the area. Therefore, appropriate mitigation will be put in place for all the species mentioned above.

11.2 Impact Assessment

11.2.1 Do Nothing

Should the Site be left undeveloped, it is considered likely that the Site would remain in use for agricultural practices. Given this probability, it is likely that the Site would be managed in the same way and consist of species poor agricultural grassland with hedgerow / treelines.

11.2.2 Cumulative Impact Assessment

In combination with other local developments, the proposed project may result in increased loss of habitat for protected species. However, these impacts can be managed through policy alignment, landscape planting and enhancement measures.

11.3 Mitigation

11.3.1 Incorporated Design

Design mitigation measures includes:

- A comprehensive Landscape Plan;
- The Proposed Development has been designed to retain the majority of hedgerow / treelines onsite;
- All retained hedgerow / treelines will be protected from unnecessary damage; and,
- The Proposed Development has been designed to include a range of SuDS measures.

11.3.2 Construction Phase

Construction Phase mitigation includes:

- Protection of water quality;
- Protection of trees and root systems;
- Protection for breeding birds;
- Protection for non-volant mammals;
- Protection for bats and nocturnal species; and,
- Invasive species mitigation.

11.3.3 Operational Phase

Construction Phase mitigation will focus on:

- Protection of water quality; and,
- Protection for bats and nocturnal species.

11.4 Residual Impact Assessment

Following an examination, analysis and evaluation of the relevant information along with the implementation of mitigation measures, it can be concluded that the Proposed Development alone or in combination with other plans or projects will not have a significant effect on Biodiversity and any remaining (residual) impacts are expected to be imperceptible

11.5 Monitoring

An Ecological Clerk of Works ('ECoW') will be appointed and will inspect the Site in advance of construction works commencing and will undertake monthly Site inspections during the works. In addition, the ECoW will be present during any works adjacent to or near waterbodies or treelines to ensure that these works are completed in line with the mitigation measures detailed within this EIAR.

The ECoW will undertake an inspection of the lighting patterns and lux levels along the Site boundaries once lighting has been installed onsite. Additionally, monitoring of bat species will be undertaken.

An arborist will be required to assess the health of retained hedgerows following the completion of construction.

CHAPTER 12 | Noise & Vibration

Chapter 12 of the EIAR provides information on the assessment of noise and vibration impacts on the surrounding environment during the construction and operational phases of the proposed residential units at Knockbrogan, Bandon, Co. Cork.

The existing and future noise and vibration environments across the development site and in the vicinity of the nearest existing noise sensitive locations (NSLs) are dictated by transportation sources from the surrounding road network.

The construction phase will involve site clearance, bulk excavation, road works, building construction works and landscaping. The assessment has determined that whilst there will be increased construction related noise at the closest noise sensitive locations to the proposed development, noise associated with the works predicted be within the adopted construction noise thresholds. There are no construction vibration sources that will give rise to any significant vibration impacts.

The use of best practice noise control measures, hours of operation, scheduling of works within appropriate time periods, strict construction noise limits will ensure impacts are controlled to within the adopted criteria. Similarly, vibration impacts during the construction phase will be well controlled through the use of low vibration generating equipment as standard for residential construction sites.

Once operational there are no noise sources associated with the proposed development that will give rise to any significant noise impacts. Operational activities are those which form part of the existing surrounding environment at neighbouring residential areas (estate vehicle movements, children playing etc.) and hence no significant impact is expected from this area of the development site.

During the operational phase, the predicted change in noise levels associated with additional traffic in the surrounding area is negligible.

Cumulative noise levels associated with the construction phase of the proposed development and the adjacent proposed developments have been considered. Once cumulative construction impacts are considered and managed during the construction phase potential cumulative impacts on nearby sensitive receptors can operate within plus five decibels of the construction noise thresholds adopted.

During the operational phase, cumulative impacts associated with the proposed development combined with adjacent planned and existing sites has been considered and assessed. The impact is determined to be not significant in terms of noise level increases with suitable mitigation measures.

Overall, no significant noise and vibration impacts are predicted during the construction or operational phases of the proposed development.

CHAPTER 13 | Air Quality

The assessment of Air Quality is contained within Chapter 13. The air quality assessment has focussed on:

- Potential construction dust emissions and impacts to nearby sensitive receptors such as residential properties, schools, hospitals, etc.
- Potential vehicle emissions from traffic accessing the site for construction works and during operation.

13.1 Existing Environment

Baseline data and data available from similar environments indicates that levels of nitrogen dioxide (NO_2), particulate matter less than 10 microns (PM_{10}) and particulate matter less than 2.5 microns ($PM_{2.5}$) and are generally well below the current National and European Union (EU) ambient air quality standards.

13.2 Impact Assessment

13.2.1 Do Nothing Scenario

In the Do Nothing scenario, the site will remain unchanged, and air quality will follow existing trends. These trends may be influenced by nearby developments and traffic. Since the site is zoned for development, a similar project is likely to be built in the future. As a result, air quality impacts are expected, even without the proposed development and will be ***direct, long-term*** and ***negative*** which is overall ***not significant.***

13.2.2 Construction Phase

An assessment of the potential dust impacts as a result of the construction phase of the proposed development was carried out based on the UK Institute for Air Quality Management 2024 guidance document *'Guidance on the Assessment of Dust from Demolition and Construction'*. This established the sensitivity of the area to impacts from construction dust in terms of dust soiling of property and human health effects. The surrounding area was assessed as being of high sensitivity to dust soiling and of low sensitivity to dust-related human health effects.

The sensitivity of the area was combined with the dust emission magnitude for the site under three distinct categories: earthworks, construction and trackout (movement of vehicles) to determine the mitigation measures necessary to avoid significant dust impacts. It was determined that there is a high risk of dust related impacts associated with the proposed development. In the absence of mitigation there is the potential for ***direct, short-term, negative*** and ***slight*** impacts to air quality, which is an overall ***not significant*** impact in EIA terms.

In addition, construction phase traffic emissions have the potential to impact air quality, particularly due to the increase in the number of HGVs accessing the site. Construction stage traffic did not meet the scoping criteria for a detailed modelling assessment outlined in Transport Infrastructure Ireland's 2022 guidance document *'Air Quality Assessment of Specified Infrastructure Projects – PE-ENV-01106'.* As a result, a detailed air assessment of construction stage traffic emissions has been scoped out and the construction stage traffic emissions will have a ***short-term, neutral*** and ***imperceptible*** impact on air quality, which is an overall ***not significant*** impact in EIA terms.

13.2.3 Operational Phase

Operational phase traffic has the potential to impact air quality due to vehicle exhaust emissions as a result of the increased number of vehicles accessing the site. Operational stage traffic emissions were calculated at representative worst-case receptors in the area, and it was determined that concentrations of NO_2, PM_{10} and $PM_{2.5}$ will increase by an

imperceptible amount as a result of the proposed development. Operational stage traffic emissions will have a ***long-term, direct, localised, negative*** and ***not significant*** impact on air quality.

13.2.4 Cumulative Impact

There is the potential for cumulative impacts to air quality should the construction phase of the proposed development coincide with that of other developments within 500 m of the site. A review of proposed/permitted developments in the vicinity of the site was undertaken.

The dust mitigation measures outlined in Section 13.7.1 of Chapter 13 will be applied during the construction phase which will avoid significant cumulative impacts on air quality. With appropriate mitigation measures in place, the predicted cumulative impacts on air quality associated with the construction phase of the proposed development is deemed ***direct, short-term, negative*** and ***not significant.***

Operational phase direct impacts on air quality associated with the proposed development and cumulative traffic emissions are predicted to be ***long-term, direct, localised, negative*** and overall, ***not significant***.

Overall, no significant cumulative impacts to air quality are predicted during the construction or operational phases of the proposed development.

13.3 Mitigation

13.3.1 Construction Phase

Detailed dust mitigation measures are outlined within Section 13.7.1 of Chapter 13 to ensure that no significant impacts as a result of construction dust emissions occurs at nearby sensitive receptors. Once these best practice mitigation measures, derived from the Institute for Air Quality Management 2024 guidance '*Guidance on the Assessment of Dust from Demolition and Construction'* as well as other relevant dust management guidance, are implemented the impacts to air quality during the construction of the proposed development are considered, ***short-term, direct, negative*** and ***imperceptible,*** which is overall ***not significant*** in EIA terms, posing no nuisance at nearby sensitive receptors (such as local residences).

13.3.2 Operational Phase

No site-specific mitigation measures are proposed for the operational phase. The impact to air quality has been assessed as ***long-term, direct, localised, negative*** and overall, ***not significant***

13.4 Residual Impact Assessment

When the dust mitigation measures are implemented, the residual effect of fugitive emissions of dust and particulate matter from the site will be ***short-term, direct, localised, negative*** and ***not significant***.

The impact to air quality during the operational phase of the proposed development as a result of emissions from vehicles accessing the site have been assessed as having a ***short-term, direct, localised, negative*** and ***not significant***.

13.5 Monitoring

Monitoring of the dust mitigation measures will be required as set out in Section 13.12.1 of Chapter 13 and the Construction Environmental Management Plan. The monitoring requirements will ensure that the dust mitigation measures are working satisfactorily.

CHAPTER 14 | Climate

The assessment of Climate is contained within Chapter 14 of Volume II. The impact assessment included the following:

- The potential greenhouse gas emissions during the construction and operational phases of the development.
- The vulnerability of the project to climate change, including considerations for increased rainfall and other projected climate impacts.
- The design measures to enhance the project's resilience to future climate risks, such as incorporating drainage systems for increased rainfall.

14.1 Existing Environment

The existing climate baseline can be determined by reference to data from the EPA on Ireland's total greenhouse gas (GHG) emissions and alignment with Ireland's 2030 sectoral emissions ceilings and carbon budgets. The EPA state that Ireland had total GHG emissions of 57.6 Mt CO_2e in 2024. This is 1.03 Mt CO_2e higher than Ireland's annual target for emissions in 2024. EPA projections indicate that Ireland has used 82.5% of the 295 Mt CO_2e Carbon Budget for the five-year period 2021-2025. This leaves 17.5% of the budget available for 2025, requiring a substantial 10.3% annual emissions reduction for 2025 to stay within budget.

14.2 Impact Assessment

The potential impacts on climate have been assessed in two distinct ways – a greenhouse gas assessment (GHGA) and a climate change risk assessment (CCRA). The GHGA quantifies the GHG emissions from a project over its lifetime and compares these emissions to relevant carbon budgets, targets and policy to contextualise magnitude. The CCRA considers a projects vulnerability to climate change and identifies adaptation measures to increase project resilience.

The impact of the construction and operation of the proposed development on Ireland's total national greenhouse gas emission is compared to Ireland's 2024 total greenhouse gas emissions, the relevant sectoral emissions ceilings and 2030 carbon budgets. Any adverse impacts are predicted to primarily occur during the construction phase, with the dominant sources of greenhouse gas emissions as a result of the development due to the embodied carbon associated with the building materials for the proposed development.

14.2.1 Do Nothing Scenario

In the Do-Nothing scenario, the site will remain as per the baseline and will change in accordance with trends within the wider area (including influences from potential new developments in the surrounding area, changes in road traffic, etc).

As the site is zoned for development, it is likely that in the absence of the proposed development a development of a similar nature would occur. Therefore, the predicted climate impacts within this report are likely to occur even in the absence of the proposed development.

14.2.2 Greenhouse Gas Assessment

14.2.2.1 Construction Phase

Calculation of the GHG emissions associated with the construction of the proposed development was calculated using information the OneClick LCA 3D Carbon Designer tool and the online Transport Infrastructure Ireland Carbon Tool. The GHG emissions associated with the proposed development are predicted to be a small fraction of Ireland's 2030 carbon budget of 27.7 MtCO_2e and a small fraction of the relevant sectoral 2030 emissions ceilings. The proposed development

will incorporate some mitigation measures which will aim to reduce climate impacts during construction and once the development is operational. At a minimum these include the Nearly Zero Energy Building (NZEB) compliance and targeting a Building Energy Ratio (BER) in line with the NZEB requirements.

14.2.2.2 Operational Phase

GHG emissions during the operational phase due to road traffic were assessed. Modelling of operational CO_2e emissions from traffic associated with the proposed development on the surrounding road network was undertaken as per Transport Infrastructure Ireland (TII) 2022 guidance "*PE-ENV-01104: Climate Guidance for National Roads, Light Rail and Rural Cycleways (Offline & Greenways) – Overarching Technical Document"*. It was concluded that traffic related CO_2e emissions will not have a significant impact on climate due to the low level changes in emissions.

14.2.2.3 GHG Assessment Significance of Effects

The TII PE-ENV-01104 guidance states that the following two factors should be considered when determining significance:

- The extent to which the trajectory of GHG emissions from the project aligns with Ireland's GHG trajectory to net zero by 2050; and
- The level of mitigation taking place.

The level of mitigation proposed for the development has been taken into account when determining the significance of the proposed development's GHG emissions. Based on the carbon emissions intensity and proposed mitigation measures, it can be concluded that the proposed development is aligned with Ireland's GHG trajectory to net zero by 2050. Therefore, according to the TII significance criteria, the significance of the GHG emissions during the construction and operational phase is minor adverse. The proposed development has mitigated some GHG impacts where possible. In accordance with the EPA guidelines the above significance equates to a significance of effect of GHG emissions during the construction and operational phase which is ***direct, long-term, negative*** and ***slight***, which is overall ***not significant***.

14.2.3 Climate Change Risk Assessment

A CCRA was conducted to consider the vulnerability of the proposed development to climate change, as per the TII 2022 PE-ENV-01104 guidance. This involves an analysis of the sensitivity and exposure of the development to future climate hazards which together provide a measure of vulnerability. The hazards assessed included flooding (coastal, pluvial, fluvial); extreme heat; extreme cold; drought; extreme wind; lightning, hail and fog; wildfire and landslides. The proposed development is predicted to have at most low vulnerabilities to the various climate hazards and therefore climate change risk is considered ***direct, long-term, negative*** and ***imperceptible***, which is considered overall ***not significant*** with regard to the construction and operational phase.

Overall, no significant impacts to climate are predicted during the construction or operational phases of the proposed development.

14.2.4 Cumulative Impact

With respect to the requirement for a cumulative assessment PE-ENV-01104 states that *"the identified receptor for the GHG Assessment is the global climate and impacts on the receptor from a project are not geographically constrained, the normal approach for cumulative assessment in EIA is not considered applicable. By presenting the GHG impact of a project in the context of its alignment to Ireland's trajectory of net zero and any sectoral carbon budgets, this assessment will demonstrate the potential for the project to affect Ireland's ability to meet its national carbon reduction target. This assessment approach is considered to be inherently cumulative".*

As a result, the cumulative impact of the proposed development in relation to GHG emissions is considered ***direct, long-term, negative*** and ***slight***, which is overall ***not significant*** in EIA terms.

14.3 Mitigation

14.3.1 Incorporated Design

A number of mitigation measures have been incorporated into the design of the proposed development. The development will be in compliance with the requirements of the Near Zero Energy Building (NZEB) Standards and will achieve a Building Energy Rating (BER) in line with the NZEB requirements. Additionally, other measures have also been incorporated into the design of the proposed development to mitigate the impacts of future climate change. To address future climate change risks, the design includes mitigation measures such as adequate drainage systems to manage a 20% increase in rainfall.

14.3.2 Construction Phase

A number of best practice mitigation measures are proposed for the construction phase of the proposed development to ensure that impacts to climate are minimised.

14.3.3 Operational Phase

During the operational phase the primary focus will be on operational energy usage and outlined through the incorporated design mitigation. Sustainable travel modes will be encouraged through support facilities for cycling, and infrastructure for electrical vehicle charging points.

14.4 Residual Impact Assessment

The impact to climate as a result of a proposed development must be assessed as a whole for all phases. The proposed development will result in some impacts to climate through the release of GHGs. TII PE-ENV-01104 guidance references the ISEF guidance which states that the crux of assessing significance is *"not whether a project emits GHG emissions, nor even the magnitude of GHG emissions alone, but whether it contributes to reducing GHG emissions relative to a comparable baseline consistent with a trajectory towards net zero by 2050"*. The proposed development has proposed some best practice mitigation measures and is committing to reducing climate impacts where feasible. Once mitigation measures are put in place, the effect of the proposed development in relation to GHG emissions is considered ***direct, long-term, negative*** and ***slight,*** which is overall ***not significant*** in EIA terms.

In relation to climate change vulnerability, it has been assessed that there are no significant risks to the proposed development as a result of climate change. The residual effect of climate change on the proposed development is considered ***direct, long-term, negative*** and ***imperceptible***, which is overall ***not significant*** in EIA terms.

14.5 Monitoring

Monitoring and reporting of embodied carbon of construction materials, water usage, power and fuel usage, and waste generation (including reuse and recycling rates) is recommended for the construction phase of the proposed development.

CHAPTER 15 | Cultural Heritage – Archaeological & Built Heritage

The assessment of Cultural Heritage – Archaeology & Built Heritage is contained within Chapter 15 of Volume II.

The Cultural Heritage chapter assesses the impact of the proposed development on the known and potential cultural heritage resource which includes assets relevant to both the tangible heritage resource (archaeology and architecture heritage); and non-tangible resources (history, folklore, tradition, language, placenames etc.). The recorded and potential cultural heritage resource within a study area encompassing the proposed development site and lands extending for 1km in all directions from its boundary, was assessed in order to compile a comprehensive cultural heritage baseline to inform the assessment.

The assessment was based on a programme of desktop research, a geophysical survey of the proposed development site and number of field-walking surveys. The primary sources reviewed for the recorded archaeological resource were the Sites and Monuments Record (SMR) and the Record of Monuments and Places (RMP) maintained by the Department of Housing, Local Government and Heritage. Cork County Council's current Record of Protected Structures (RPS) and structures listed in the National Inventory of Architectural Heritage (NIAH) were reviewed in order to assess the designated architectural heritage resource. The desktop study also included reviews of historic mapping, publications and online heritage sources.

15.1 Existing Environment

There are no recorded archaeological sites within or adjacent to the proposed development site while there are 37 examples located within the surrounding 1km study area. The nearest archaeological site is a standing stone (CO110-024----) located *c.*80m to the south of the proposed development site. The majority of the recorded archaeological sites within the 1km study area are located within the centre of Bandon town, which was established in the early 17th century, and they date to the post-medieval period. The proposed development is located c.310m outside the Zone of Archaeological Potential surrounding the historic core of Bandon town as defined by the National Monuments Service. A number of the recorded archaeological sites located outside the town date to earlier periods and include two standing stones, a fulacht fia, an earthwork, a church site and two holy wells. The desktop study did not identify any potential unrecorded archaeological sites within the proposed development site.

There are no protected structures or buildings listed in the National Inventory of Architectural Heritage located within, or in the close environs of, the proposed development site, which is also not located within an Architectural Conservation Area. The desktop study did not identify any potential unlisted structures of architectural heritage significance within the proposed development site.

A number of field-walking inspections of the lands within the boundary of the proposed development were conducted and did not reveal the presence of any surface traces of previously unrecorded features of cultural heritage significance. A geophysical survey of suitable lands with the proposed development site was carried out by Dr Ger Dowling in August 2024 (under detection device licence no. 24R0381). The survey did not identify any likely sub-surface archaeological sites but four anomalies which may potentially comprise small pit features of unknown date were identified.

15.2 Impact Assessment

There are no recorded archaeological sites within the proposed development site, or within 80m south of its boundary and the construction phase of the proposed development will, therefore, result in no predicted direct or indirect effects on the known archaeological resource. The potential exists for the presence of unrecorded, sub-surface archaeological remains within the boundary of the proposed development. As the existence, nature and extent of any unrecorded archaeological remains within the proposed development site are unknown; the significance of potential construction phase impacts cannot be accurately quantified but ground works during the construction phase will have the potential to result in permanent, direct, negative, moderate-significant effects on any such remains and this will require mitigation.

There are no designated architectural heritage structures located within the proposed development site or within 150m of its boundary and it contains no undesignated structures of architectural heritage interest. In addition, the proposed development site is not located within an Architectural Conservation Area. The construction phase of the proposed development will, therefore, result in no predicted effects on the architectural heritage resource.

Following the successful implementation of archaeological mitigation measures presented in Chapter 15, it is predicted that no impacts will arise in relation to the potential archaeological resource within the proposed development site during the operational phase.

There are no designated architectural heritage structures located within the proposed development lands or within 150m of its boundary. It is not located within an Architectural Conservation Area and it contains no undesignated structures of architectural heritage interest. The proposed development will, therefore, have no predicted impacts on the architectural heritage resource during the operational phase.

No cumulative impacts on the setting of the cultural heritage assets within the wider landscape are predicted.

15.2.1 Do Nothing Scenario

A 'Do Nothing Scenario' will see the continued use of the lands within the proposed development site as an area of green field lands and this will have no predicted effect on the known cultural heritage resource within the study area.

15.2.2 Construction Phase

There are no recorded archaeological sites within the proposed development site, or within 80m south of its boundary and the construction phase of the proposed development will, therefore, result in no predicted direct or indirect effects on the known archaeological resource. The potential exists for the presence of unrecorded, sub-surface archaeological remains within the boundary of the proposed development. As the existence, nature and extent of any unrecorded archaeological remains within the proposed development site are unknown; the significance of potential construction phase impacts cannot be accurately quantified but ground works during the construction phase will have the potential to result in permanent, direct, negative, moderate-significant effects on any such remains and this will require mitigation.

There are no designated architectural heritage structures located within the proposed development site or within 150m of its boundary and it contains no undesignated structures of architectural heritage interest. In addition, the proposed development site is not located within an Architectural Conservation Area. There are no undesignated vernacular structures, demesne lands, or historic settlements located within the proposed development site and no intangible attributes, such as historical or folklore associations, were noted during the assessment. The construction phase of the proposed development will, therefore, result in no predicted effects on the architectural and cultural heritage resource.

15.2.3 Operational Phase

As noted above, there are no archaeological sites located within 80m of the proposed development and there are no designated architectural heritage structures located within 150m of its boundary. The review of the locations, settings and functions of the cultural heritage constraints within the surrounding study area did not reveal any examples that rely on formal sightlines or intervisibility with the locations of other constraints within the wider landscape that formed aspects of their original functions. The proposed development will, therefore, result in no predicted adverse direct or indirect effects on the setting of known cultural heritage constraints within the surrounding study area during the operation phase. Following the successful implementation of archaeological mitigation measures detailed below, it is predicted that no effects will arise in relation to the potential archaeological resource within the proposed development site during the operational phase.

15.2.4 Cumulative Impact

A review of the Cork County Council planning enquiry system was carried out in relation to the cultural heritage context of the following developments within the wider environs of the proposed development site.

As detailed in Chapter 15, the proposed development will not result in any predicted direct or indirect negative effects on recorded archaeological sites or designated architectural heritage structures during the construction and operational phases. Given the absence of any such predicted effects, combined with its distance from the reviewed developments, it is concluded that the proposed development will not combine with other developments to result in any likely significant negative cumulative effects on the cultural heritage resource.

15.3 Mitigation

15.3.1 Incorporated Design

There are no recorded archaeological sites or architectural heritage structures located within the proposed development site that need to be mitigated by avoidance as part of the design.

15.3.2 Construction Phase

A test trenching programme will be carried out across the site. This test trenching programme was formulated and agreed during consultations held with the Cork County Council Archaeologist during the compilation of the assessment.

This test trenching programme will target the four potential 'pit-type' anomalies identified in the geophysical survey and will also investigate other areas within the proposed development in which no anomalies were identified. The test trenches will cover a total of 10% of the available lands within the proposed development site. In the event that any sub-surface archaeological features are identified during these site investigations, their locations will be recorded and securely cordoned off while the NMS are notified of the discovery and consulted to determine further mitigation measures, which may entail preservation *in situ* by avoidance or preservation by record through a systematic archaeological excavation.

In the areas that are currently under mounded soil in the north of the proposed development site, the potential exists that any previously unrecorded sub-surface archaeological features in this area may remain undisturbed. These current existing stockpile areas may not be suitable for test trenching due to the presence of substantial areas of mounded soil, and the removal of these mounds and underlying topsoil material will, therefore, be archaeologically monitored (under licence from the National Monuments Service) during the construction phase.

There are no structures/features of architectural or cultural heritage significance located within the proposed development site or its close environs and, therefore, no other mitigation measures are required.

15.3.3 Operational Phase

Following the successful implementation of the archaeological mitigation measures during the pre-construction phase no operational phase mitigation measures will be required for the cultural heritage resource.

15.4 Residual Impact Assessment

The proposed development site and its close environs do not contain any extant recorded archaeological sites or designated architectural heritage structures and no residual impacts on these elements of the cultural heritage resource

are predicted. The mitigation measures detailed above will provide for either the preservation *in situ* of any currently unknown archaeological features within the proposed development site or the proper and adequate recording of this resource by full archaeological excavation. Preservation *in situ* shall allow for a negligible magnitude of impact resulting in a potential not significant/imperceptible significance of effect in the context of residual impact on the unrecorded archaeological resource. Preservation by record shall allow for a high magnitude of impact, albeit ameliorated by the creation of a full and detailed archaeological record, the results of which shall be publicly disseminated. This shall result in a potential slight/moderate range of significance of effect in the context of residual impacts on the unrecorded archaeological resource.

15.5 Monitoring

There are a number of obligatory licence application and reporting processes required be undertaken as part of applications to the NMS for licences to carry out archaeological site investigations, and these will allow for monitoring of the successful implementation of the mitigation measures detailed above. Reports on all archaeological site investigations will be submitted to the NMS, the National Museum of Ireland and the Planning Authority upon completion of onsite works which will clearly describe the results in written, mapped and photographic formats.

CHAPTER 16 | Risk Chapter

16.1 Major Accidents and Disasters

This assessment is a review of major accident hazards and disasters based on the engineering design, drawings and documentation.

16.1.1 Existing Environment

Seveso establishments have a "consultation distance" which is defined as "a distance or area relating to an establishment, within which there are potentially significant consequences for human health or the environment from a major accident at the establishment" (COMAH Regulations).

There are no Seveso establishments within 5km of the Proposed Development; therefore, there are no constraints to the Proposed Development at this location from nearby Seveso establishments.

16.1.2 Flood Risk

Brian O Kennedy & Associates Engineers and Architects completed a Flood Risk Assessment (FRA) for the Proposed Development. The FRA concluded the following:

- The proposed development is located in Flood Zone C (<0.1% annual exceedance probability (AEP)) for river and coastal flooding
- The nearest flood level risk, of the Bandon River to the proposed development, is 18.71 m AOD. The lowest point of the proposed development is 56.5m AOD.

It is concluded that the risk of flooding to the proposed development will be minimal; therefore, the likelihood of a flood impacting the proposed development is unlikely and not significant.

16.1.3 Seismic Activity

There is has been some small seismic activity recorded in the vicinity of the proposed development. The maximum magnitude of an earthquake in the vicinity of the proposed development was 2.1 and occurred in 1981. Earthquakes <2.5 in magnitude are not usually felt but are recorded by seismographs.

It is concluded that the likelihood of seismic activity impacting the proposed development is unlikely and not significant.

16.1.4 Landslides

The proposed development and the surrounding area have a low susceptibility of landslides. Therefore, the likelihood of a landslide impacting the proposed development is unlikely and not significant.

16.2 Impact Assessment

16.2.1 The Do Nothing Scenario

Under a 'do-nothing' scenario there is no known or anticipated change to the Major Accidents and Disasters risk at the proposed development site.

16.2.2 Construction Phase

During the Construction Phase, there are no likely impacts on the project or to off-site receptors, the cumulative impacts, of major accidents and disasters, are considered imperceptible and neutral to the proposed development and to cumulative developments in the surrounding area.

16.2.3 Operational Phase

During the Operational Phase, since there are no likely impacts to off-site receptors, the cumulative impacts, of major accidents and disasters, are considered imperceptible and neutral to the proposed development and to cumulative developments in the surrounding area.

16.2.4 Residual Impact

As no likely significant effects were identified, no additional mitigation measures are proposed. Therefore, residual effects are not relevant for this assessment.

CHAPTER 17 | Interactions of the Foregoing

17.1 Description of Significant Interactions

Likely significant interactions are set out in Chapter 17 of the EIAR. In practice many impacts have slight or subtle interactions with other disciplines. During the preparation of this EIAR each of the specialist consultants engaged with each other with respect to the likely interactions between effects predicted as a result of the proposed development. Mitigation measures to alleviate identified likely significant effects address identified interactions. This approach meets with the requirements of Part X of the Planning and Development Act 2000, as amended, and Part 10, and schedules 5, 6 and 7 of the Planning and Development Regulations 2001, as amended.

CHAPTER 18 | Summary of Mitigation Measures

A key objective of the Environmental Impact Assessment process is to identify likely significant environmental impacts at the pre-consent stage and where necessary to propose measures to mitigate or ameliorate such impacts. Monitoring Measures must be incorporated in the Development Consent for a Project if the Project is likely to have significant adverse effects Article 8a of the EIA Directive, requires that monitoring measures proposed (if appropriate) should be included in the EIA Report.

This section summarises the proposed mitigation and monitoring measures set out in Chapters 4 to 15 of Volume II of this EIAR.

It is proposed that the appointed contractor will develop a site-specific Construction and Environmental Management Plan (CEMP) prior to works commencing on-site. All the mitigation and monitoring measures proposed within the individual specialists' assessments will be incorporated into the plan.

Table 18.1 Incorporated Design Mitigation

Aspect	Mitigation
Population & Human Health	The proposed development complies with the Building Regulations which provide for the safety and welfare of people in and about buildings. The Building Regulations cover matters such as structure, fire safety, sound, ventilation, conservation of fuel and energy, and access, all of which safeguard users of the buildings and the health of occupants. The integration of energy efficient measures into the design will provide for healthier living standards for future occupants, less dependence on fossil fuels and associated improved air quality. The availability of on the doorstep public open space, amenity spaces, and a highly accessible layout across the scheme will encourage sustainable modes of outdoor access for a wide age group.
Landscape & Visual	• The key landscape assets of the site – the external and internal boundary hedgerows, trees and tree groups - would be largely retained, forming the skeleton of the open space network. The ecological function and landscape value (visual amenity and screening) of the hedgerows would thus be retained. The photomontages show that the retained hedgerows and trees would be effective in softening and partially screening the proposed buildings in views from the surroundings. • The retained vegetation would be supplemented by new planting, most notably the 'ecological buffers' inside the northern and southern boundaries - and specifically a broad belt of woodland planting inside the south west boundary at the interface with the Radharc an Bhaile estate. This is where the proposed development is closest to existing houses, and on a level above those houses; therefore, additional landscape/visual buffering is required in this area. • The proposed species mixes of the new planting have been selected to support native pollinators and strengthen local ecosystems, with the objective to achieve net biodiversity gain (see p. 25 of the Landscape and Green Infrastructure Report by Simon Ronan Landscape Architects, August 2025). • The proposed building typologies and design (two storey terraced and semi-detached houses of render, with stone detailing, and pitched slate roofs) were selected for two main reasons: (1) to avoid excessive visibility/visual impact on the hilltop site (compared to denser, taller typologies), and (2) to reflect the established pattern and character of development in the area. This is in accordance with Objective HE-16-21 of the CCDP, which states: *"Encourage new buildings that respect the character, pattern and tradition of existing places, materials and built forms and that fit appropriately into the landscape".*

Aspect	Mitigation
Material Assets: Traffic & Transport	During the design stage the following mitigation measures were proposed for the development; • Suitable Lighting of all junctions with lighting columns being positioned at the back of the footways. • The connection of the proposed development footpaths to the existing footpath network to ensure connectivity to the wider area. • The provision of bicycle stands and dedicated cycle routes through the development to encourage cycling. • Charging points for electric vehicles are being provided. • Development of a Mobility Management, submitted as part of this application, which outlines the mobility strategy for the proposed development and includes measures for guiding the delivery and management of coordinated mobility management initiatives. • Identification of upgrade works as part of the proposed development.
Material Assets: Built Services	No incorporated design mitigation measures are proposed as part of the proposed development
Material Assets: Waste	No incorporated design mitigation measures are proposed as part of the proposed development
Land & Soils	No incorporated design mitigation measures are proposed as part of the proposed development
Hydrology and Hydrogeology	No incorporated design mitigation measures are proposed as part of the proposed development
Biodiversity	A comprehensive Landscape Plan has been developed by Simon Ronan Landscape Architects for the Proposed Development, which includes compensation for the loss of vegetation onsite. Please refer to the Landscape Concept Report for full details submitted as part of the planning application; The Proposed Development has been designed to retain the majority of the hedgerow / treelines onsite, as outlined in Landscape Plan; The Landscape Management Plan and ecological enhancement measures for the Proposed Development will be implemented as part of the works; All boundary trees and hedgerow / treelines that are to be retained will be protected from unnecessary damage; and, The Proposed Development has been designed to include a range of SuDS measures
Noise & Vibration	No incorporated design mitigation measures are proposed as part of the proposed development
Air Quality	No incorporated design mitigation measures are proposed as part of the proposed development

Aspect	Mitigation
Climate	The design incorporates various mitigation measures to prevent or limit overland run-off which is of relevance for the vulnerability of the site to potential future flooding these measures have been considered when assessing the risk of future folding as per Section 14.7.2.2 of Chapter 14. • The development is divided into discrete sections for drainage and access. Internal roads run across contours – primarily falling towards phase 1 and the public roadway to the west. There are limited sections of roadway running directly downhill. This limits the gathering of surface water run-off in any specific area and limits the consequences of excessive build-up and discharge overtopping and surcharging an adjacent area • The development has two separate exits into phase 1 and will have three separate connections each of both the surface and foul water systems into drainage pipework being installed in phase 1. The separate sections of sewers including separate discharge points, limits cumulative effects in the drainage systems. • A detailed SuDS design has been adopted for the surface water system in accordance with the Cork County Development Plan the Greater Dublin Strategic Drainage Study and Code of Practice and SuDS manual CIRIA 753. • Two separate attenuation chambers have been incorporated to attenuate water runoff to greenfield site rates. These chambers are underground sealed structures with lockable and sealed covers. • Double gullies with individual connections to the drainage system are incorporated at appropriate surface water collection locations • Raised kerbing or ramps are incorporated at specific locations to prevent excess surface water run-off entering lower areas. • Raised kerbing is incorporated along all road edges on the downhill side of the roads running across the site. In relation to operational energy usage the proposed development will be Nearly Zero Energy Building (NZEB) compliant in line with the Technical Guidance Part L (2022) of the Building Regulations requirements for the residential elements and Technical Guidance Part L (2022), Buildings other than Dwellings for the creche. The proposed development will achieve a BER and RER in line with the NZEB requirements which will reduce the operational phase energy usage and therefore, reduce the impact to climate.
Cultural Heritage	There are no recorded archaeological sites or architectural heritage structures located within the proposed development site that would need to be mitigated by avoidance as part of the design.

Table 18.2 Construction Phase Mitigation Measures

Aspect	Mitigation
Population & Human Health	A Construction and Environmental Management Plan (CEMP) and Resource Waste management Plan (RWMP) for the proposed development are included in the planning application documentation. The CEMP and RWMP will be further updated by the contractor, agreed with Cork County Council prior to commencement, and implemented by the selected contractor after any consent is received. All construction personnel will be required to understand and implement the requirements of the CEMP and RWMP and shall be required to comply with all legal requirements and best practice guidance for construction sites. The CEMP provides for a construction phase management structure to ensure that environmental protection and mitigation measures are put in place. The CEMP requires that these measures will be checked, maintained to ensure adequate environmental protection. The CEMP also requires that records will be kept and reviewed as required to by the project team and that the records will be available on site for review by the planning authority. All construction personnel will attend induction and training classes as required to ensure that CEMP is effectively implemented. The CEMP will comply with all appropriate legal and best practice guidelines for construction sites.
Landscape & Visual	The most effective mitigation for the negative landscape and visual effects of construction is site hoarding. However, this is only effective for ground level activity. When buildings under construction rise above ground level they are exposed and unsightly, as are the materials stockpiles, vehicles, etc. typical of a construction site. Some negative effects are therefore unavoidable in the construction phase. Nonetheless, to minimise the effects, it is recommended that site hoarding be erected around the site – where this is compatible with the protection of the boundary vegetation. Good practice in site management can reduce unnecessary visual impacts. These may include (a) considered layout of the construction site with regard to the most sensitive visual receptors, (b) dust control (e.g. water sprays to avoid dust plumes; spraying of vehicles before site departure to avoid dirtying roads), (c) waste control (e.g. netting/covering of storage bins/areas; regular site inspection for litter), and (d) considered positioning of security lighting. A Construction Environmental Management Plan (CEMP) has been prepared and submitted with the LRD application. The CEMP includes measures – or a framework for the agreement of measures - such as those identified above. A Tree Protection Plan and Tree Appraisal and Arboricultural Assessment have been prepared by GEOTREE and submitted with the LRD application. These include measures for the protection of the site hedgerows and trees during construction.

Aspect	Mitigation
Material Assets: Traffic & Transport	Traffic impacts during the construction stage will be mitigated through the implementation of a Construction Traffic Management Plan (CTMP), which will be agreed with CCC. A Framework CTMP, which sets out the principles to be followed, is included as part of the application package. The following measures will reduce the magnitude of HGV impacts on the adjoining road network: • The re-use of excavated materials generated on-site will reduce the total volume of imported material thereby reducing traffic generation. • Adequate storage space on site will be provided to accommodate all cut material. • Defining delivery times to site will avoid background traffic peak periods. Trucks will be equipped with dust covers when carrying dust producing materials to reduce the environmental impact of this activity. HGV deliveries will be scheduled (as far as possible) outside of peak periods on the network, which have been identified as 08:00 – 09:00 and 16:30 – 17:30. • Construction stage site staff starting at 07:00 and ending at 18:00 will avoid the recorded peak periods. • Site Staff encouraged to car-pool and to use public transport. • Wheel washing facilities will be provided on site, which will reduce the amount of dust and debris transferred to local roads. In addition, a road sweeper will be employed as required to ensure that the local road network is not unduly affected. • Specific haulage routes will be identified and agreed with the Local Authority prior to commencement of construction. • Construction Traffic Management Plan will be developed and implemented when appropriate, ie during the delivery of materials. • Warning Signs and Advanced Warning Signs will be installed at appropriate locations in advance of the construction works. Signs will be placed along the length of the route, warning all road users, and local residents, of the presence of slow moving and turning HGV traffic. In addition, warning signs will be placed in advance of the Site Access junction, to warn drivers approaching from both directions. • All site staff parking will be accommodated on-site within the designated site compound. No parking of site vehicles will be facilitated on the public road. • All site vehicles are to be suitably serviced and maintained to avoid any leaks or spillage of oil, petrol, or diesel. Spill kits will be available on site. It will be the responsibility of the main contractor to ensure that all vehicles delivering to the site are suitably licensed to use the public road and equipped for this activity.

Aspect	Mitigation
Material Assets: Built Services	The following mitigation measures will be taken to avoid unplanned disruptions to any services within the site during construction of the proposed development: • The proposed development will comply with the provisions of the Construction Environmental Management Plan. • Water metering will be provided during the construction phase to record consumption. • All new services will be constructed and provided in strict accordance with the codes of practise of the relevant utility companies and new connections to have an agreed permit for the works where required. • To minimise impact of the wastewater/water infrastructure required for the development, best practice construction practices should be adhered to, and Uisce Eireann procedures followed. • Temporary measures such as silt traps will be put in place to limit the rate of surface water run-off from site. • The quality of surface water run-off to be managed and ensure the run-off from the site does not result in excessive siltation of the receiving drainage channels. • Excavations are to be kept to a minimum, with excavated material stockpiled for reuse or removed off-site following removal of waste material regulations. • The contractor will also be obliged to put measures in place to ensure that there are minimal or no interruptions to existing services and that all services and utilities are maintained, unless this has been agreed in advance with the relevant service provider and local authority. • All watermains will be cleaned and tested in accordance with Uisce Eireann guidelines and standards prior to connection to the public watermain. • All works in the vicinity of the local authority will be compliant with any requirements or guidelines. • Road opening licences will be applied for and a temporary traffic management plan to be implemented when connecting utilities in the public road.

Aspect	Mitigation
Material Assets: Waste	To manage waste arisings and material usage during the construction phase, a range of embedded and active mitigation measures will be implemented. These measures are aimed at avoiding the generation of waste where possible, maximising the beneficial reuse of site-won materials, and ensuring that all waste is handled in compliance with legal and environmental standards. The key mitigation measures are as follows: ***Balanced Earthworks and On-Site Reuse of Material*** • The development has been designed to achieve a cut-and-fill balance, with approximately 35,762 m³ of cut material offset by a 35,246 m³ fill requirement; • Fractured subsoil will be crushed on-site for reuse as granular sub-base in roads, footpaths, and hardstanding areas; • Topsoil stripping (ca. 21,270 m³) will be retained entirely on-site for landscaping, berm formation, and open space finishing; • This material management approach will avoid the need for off-site disposal or importation of material, minimising transport emissions and haulage impacts; and, • In the event that surplus excavated material arises during construction, it will be subject to appropriate waste classification in accordance with EPA Waste Classification Guidance to determine if it is hazardous or non-hazardous [4]. Where material is deemed non-hazardous and suitable for beneficial reuse, it may be managed as a by-product under Article 27 of the European Communities (Waste Directive) Regulations 2011, subject to EPA notification. This ensures full compliance with regulatory requirements while supporting the principles of the waste hierarchy and circular economy. ***Preparation and Implementation of a Resource and Waste Management Plan (RWMP)*** • A site-specific RWMP will be finalised by the main contractor in accordance with the EPA's 2021 Best Practice Guidelines and the Waste Management Act 1996 (as amended); • The plan will: » Identify all likely waste types and estimated quantities; » Specify on-site waste segregation, storage, and labelling protocols; » Set targets for reuse, recycling, and recovery rates; and, » Include procedures for monitoring, record-keeping, and reporting. ***Use of Authorised Contractors and Facilities*** • All waste will be collected by contractors holding a valid Waste Collection Permit issued by the NWCPO; and, • All off-site movements of waste will be documented via waste transfer forms and sent only to authorised treatment, recovery, or disposal facilities.

Aspect	Mitigation
	Waste Handling, Storage, and Segregation on Site • Dedicated, clearly marked waste storage areas will be established for: » Timber, metal, plastic, concrete, and mixed recyclables; » General residual C&D waste; » Any potentially hazardous materials (e.g. paints, adhesives). • Containers will be weatherproof, lockable, and regularly emptied to prevent overflow, odour, or windblown litter; and, • Waste will be removed from site on a regular basis to avoid stockpiling and fire risk. ***Prevention of Hazardous Waste Generation and Cross-Contamination*** • Materials with hazardous properties (e.g. adhesives, paints, treated timber) will be: » Used only as required; » Stored in bunded, ventilated locations; and, » Segregated from non-hazardous waste streams. • If hazardous waste is generated, it will be labelled, tracked, and removed by a licensed hazardous waste contractor. ***Training and Site Induction*** • All construction personnel and subcontractors will receive site waste management training, including: » Waste segregation procedures; » Storage area use; and, » Spill prevention and response. • The Site Manager or Environmental Officer will oversee compliance with the RWMP and ensure all subcontractors adhere to the agreed protocols. ***Article 27 Notifications (as required)*** Where site-won material is proposed for reuse and meets the definition of a by-product (not waste) under Article 27 of the European Communities (Waste Directive) Regulations 2011, a submission will be made to the EPA for confirmation of status.

Aspect	Mitigation
Land & Soils	In order to reduce impacts on the land, soils and geological environment, a number of mitigation measures will be adopted as part of the construction works on site. The measures will address the main activities of potential impact which include: • Control of soil excavation and export from site. • Sources of fill and aggregates for the Proposed Development. • Fuel and chemical handling, transport and storage; and • Control of water during construction. ***Construction Environmental Management Plan*** The CEMP will be implemented and adhered to by the construction contractor and will be overseen and updated as required if site conditions change by the Project Manager, Environmental Manager, Resource Manager and Ecological Clerk of Works, where relevant. All personnel working on the Site will be trained in the implementation of the procedures. ***Soil Excavation, Removal and Infill*** There will be a need for soil excavation on-site. The earthworks will include the excavation of level platforms and foundations for building and the importation of stone material for access roads, etc. The design of road levels and finished floor levels has been carried out in such a way as to minimise cut / fill type earthworks operations. All excavated materials will be visually assessed by suitably qualified persons for signs of possible contamination such as staining or strong odours. Should any unusual staining or odour be noticed, samples of this soil will be analysed for the presence of potential contaminants to ensure that historical pollution of the soil has not occurred. Contractors should prepare and adhere to a method statement indicating the extent of the areas likely to be affected and demonstrating that this is the minimum disturbance necessary to achieve the required works. ***Sources of Engineering Fill and Aggregates*** All imported fill and aggregate that may be required for the Proposed Development will be sourced from reputable suppliers. All suppliers will be vetted for: • Aggregate compliance certificates/declarations of conformity for the classes of material specified for the Proposed Development. • Environmental Management status; and • Regulatory and Legal Compliance status of the Company

Aspect	Mitigation
	Cement/Concrete Works Where feasible all ready-mixed concrete will be brought to site by truck. A suitable risk assessment for wet concreting will be completed prior to works being carried out which will include measures to prevent discharge of alkaline wastewaters or contaminated storm water to the underlying subsoil. No wash-down or wash-out of ready-mix concrete vehicles during the construction works will be carried out at the site within any riparian or buffer zone. Wash-outs will only be allowed to take place in designated areas with an impervious surface where all wash water is contained and removed from site by road tanker or discharged to foul sewer as already agreed with Uisce Éireann (Irish Water). ***Fuel and Chemical Handling*** The following mitigation measures will be taken at the construction stage in order to prevent any spillages to ground of fuels and prevent any resulting soil and/or water quality impacts: • Designation of a bunded refuelling areas on the site if refuelling cannot be undertaken off site. • Provision of spill kit facilities across the site. • Where mobile fuel bowsers are used, the following measures will be taken: » Any flexible pipe, tap or valve will be fitted with a lock and will be secured when not in use. » The pump or valve will be fitted with a lock and will be secured when not in use. » All bowsers to carry a spill kit and relevant operatives must have spill response training. » Portable generators or similar fuel containing equipment will be placed on suitable drip trays. In the case of drummed fuel or other potentially polluting substances which may be used during construction the following measures will be adopted: • Secure storage of all containers that contain potential polluting substances in a dedicated internally bunded chemical storage cabinet unit or inside a concrete bunded area. • Clear labelling of containers so that appropriate remedial measures can be taken in the event of a spillage. • All drums to be quality approved and manufactured to a recognised standard. • If drums are to be moved around the site, they will be secured and on spill pallets; and • Drums to be loaded and unloaded by competent and trained personnel using appropriate equipment.
	Environmental Procedures There will be comprehensive emergency response procedures and standard operating procedures to respond to chemical spillage all types. All employees will be provided with such equipment, information, training and supervision as is necessary to implement the emergency response procedures and standard operating procedures.

Aspect	Mitigation
Hydrology and Hydrogeology	***Construction Environmental Management Plan*** The CEMP will be implemented and adhered to by the construction contractor and will be overseen and updated as required if site conditions change by the Project Manager, Environmental Manager, Resource Manager and Ecological Clerk of Works, where relevant. All personnel working on the Site will be trained in the implementation of the procedures. ***Suspended Solids*** As there is potential for run-off to indirectly discharge to a watercourse (Bandon River and eventually Upper Bandon Estuary), in order to manage the potential impact associated with sediment and sediment runoff the following mitigation measures will be implemented during the construction phase. • During earthworks and excavation works care will be taken to ensure that exposed soil surfaces are stable to minimise erosion. All exposed soil surfaces will be within the excavation site which limits the potential for any offsite impacts. • Silt reduction measures on site will include a combination of silt traps and hydrobrakes measures. • Any hard surface site roads will be swept to remove mud and aggregate materials from their surface while any unsurfaced roads shall be restricted to essential site traffic only. • Aggregate materials such as sands and gravels will be stored in clearly marked receptacles within a secure compound area to prevent contamination. • Movement of material will be minimised to reduce the degradation of soil structure and generation of dust. • Excavations will remain open for as little time as possible before the placement of fill. This will help to minimise the potential for water ingress into excavations. • Weather conditions will be considered when planning construction activities to minimise the risk of run-off from the site. ***Cement/Concrete Works*** Where feasible all ready-mixed concrete will be brought to site by truck. A suitable risk assessment for wet concreting will be completed prior to works being carried out which will include measures to prevent discharge of alkaline wastewaters or contaminated storm water to the underlying subsoil and aquifer. Wash-outs will only be allowed to take place in designated areas with an impervious surface where all wash water is contained and removed from site by road tanker. The construction contractor will be required to implement emergency response procedures, and these will be in line with industry guidance. Relevant personnel working on the site will be suitably trained in the implementation of the procedures.

Aspect	Mitigation
	Hydrocarbons and other construction chemicals The following mitigation measures will be implemented during the construction phase in order to prevent any spillages to ground of fuels and other construction chemicals and prevent any resulting to surface water (and groundwater) systems: • Designation of bunded refuelling areas on the site; • Provision of spill kit facilities across the site; • Where mobile fuel bowsers are used, the following measures will be taken: » Any flexible pipe, tap or valve will be fitted with a lock and will be secured when not in use; » The pump or valve will be fitted with a lock and will be secured when not in use; » All bowsers to carry a spill kit and relevant operatives must have spill response training; » Portable generators or similar fuel containing equipment will be placed on suitable drip trays. In the case of drummed fuel or other potentially polluting substances which may be used during the construction phase, the following measures will be adopted: • Secure storage of all containers that contain potential polluting substances in a dedicated internally bunded chemical storage cabinet unit or inside a concrete bunded area; • Oil and fuel storage tanks shall be stored in designated areas, and these areas shall be stored within temporary bunded areas, doubled skinned tanks or bunded containers to a volume of 110% of the capacity of the largest tank/container. Drainage from the bunded area(s) shall be diverted for collection and safe disposal. • Clear labelling of containers so that appropriate remedial measures can be taken in the event of a spillage; • All drums to be quality approved and manufactured to a recognised standard; • If drums are to be moved around the Site, they will be secured and on spill pallets; and • Drums will be loaded and unloaded by competent and trained personnel using appropriate equipment. ***Wastewater Management*** Foul wastewater arising from the site will be managed and controlled for the duration of the construction works. Foul water from the offices and welfare facilities on the site will be collected in portable sanitary facilities and disposed of appropriately by licenced contractor. The construction contractor will implement emergency response procedures, and these will be in line with industry guidance. All personnel working on the site will be suitably trained in the implementation of the procedures.

Aspect	Mitigation
	Surface Water and Ground water flow and quantity Surface water discharge from the site will be managed and controlled for the duration of the construction works until the surface water drainage system of the Proposed Development is complete. The construction contractor will be required to manage suspended solids during the construction phase and will be permitted to discharge treated construction water to the established stormwater network. The construction activities will require surface water management to prevent pollution and degradation of habitats from a chemical spill or run off containing excessive suspended solids that complies with guidelines and best practices such as "Control of Water Pollution from Construction Sites and Guidance for Consultants and Contractors" (CIRIA 532, 2001)
Biodiversity	The following mitigation measures will be incorporated and adhered to in order to ensure that the proposed works do not result in any contravention of wildlife legislation: • All activities will comply with all relevant legislation and best practice to reduce any potential environmental impacts. The mitigation measures detailed within this EIAR will be fully adhered to; • The Site manager shall ensure that all personnel working onsite will be trained and made aware of the mitigation measures detailed within this EIAR; • An Ecological Clerk of Works ('ECoW') will be appointed for the construction works and will be available should protected or notable species be encountered during operations at the Site; and, • In advance of works, all Site personnel will receive a toolbox talk regarding the mitigation measures outlined in the CEMP and EIAR. Everybody working onsite must understand the role and authority of the ECoW. An ECoW will inspect the Site in advance of works commencing and will undertake Site inspections as required during the works, to ensure that all works will be completed in line with the CEMP and all wildlife legislation. ***Protection of Water Quality*** During the Construction Phase, all works will comply with all relevant legislation and best practice to reduce potential environmental impacts of the works. Furthermore, as a precautionary principle, the following mitigation measures will be put in place to ensure that water quality will be protected within the vicinity of the Site and further downstream. The measures that will be put in place to remove the risk from potential contamination and emergency procedures to be implemented in the event of an accidental release or spill of potentially contaminating substances are outlined below. Therefore, in order to ensure to ensure that the proposed works do not have an impact on the River Bandon and the downstream river network, surface water mitigation measures will be implemented. These procedures will be communicated to all relevant site staff. Construction stage works will be undertaken in accordance with an approved CEMP. The following best practice guidelines will be followed, which are based on Inland Fisheries Ireland and NRA, now known as the TII guidance documents:

Aspect	Mitigation
	General Mitigation Measures for the Protection of Water Quality The following mitigation measures will be put in place to ensure that water quality is protected within the River Bandon and subsequently the wider river network downstream of the Site. These measures will be put in place to remove the risk from potential contamination and will include emergency procedures to be implemented in the event of an accidental release or spill of potentially contaminating substances, as outlined below. These procedures will be communicated to all relevant site staff. Sediment control measures will be put in place to prevent suspended solids in runoff from entering the River Bandon. These measures include the following: *The proposed working area will be clearly defined, and construction activities will be carefully planned to minimise ground disturbance;* *Existing vegetation will be retained where possible and runoff will be diverted away from stripped areas;* *The works area onsite will be sprayed during periods of dry weather in order to suppress dust migration from the Site;* *Weather conditions will be considered when planning construction activities to minimise risk of runoff from the proposed works;* The following mitigation measures will be implemented during the proposed works to minimise the likelihood of oil/fuel release to surface water during refuelling of plant and equipment: • Prior to any works commencing, all construction equipment will be checked to ensure that they are mechanically sound to avoid leaks of oil, fuel, hydraulic fluids and grease; • Preventative maintenance and relevant maintenance logs will be kept for all on-site plant and equipment; • The Appointed Contactor will put in place a specific, step-by-step refuelling procedure which will be communicated to all relevant employees on-site; • Only designated trained operators will be authorised to refuel plant on-site; • Refuelling of plant and machinery will be completed in a controlled manner using drip trays (bunded container trays) in a dedicated refuelling area; • All oil stored onsite for construction vehicles will be kept in a lock and bund protected area; • Bunds for the storage of hydrocarbons and chemicals during construction will have a holding capacity of 110% of the volume to be stored and will be regularly inspected for leaks and signs of damage; and, • Procedures and contingency plans will be set up to deal with emergency accidents or spills. Only emergency breakdown maintenance will be carried out on-site.

Aspect	Mitigation
	The proposed measures to remove the risk from potential contamination and emergency procedures to be implemented in the event of an accidental release or spill of potentially contaminating substances are outlined below: • Adequate spill kits, including absorbent booms and other absorbent material, will be maintained on-site; • All contractor workers will be appropriately trained in the use of spill kits; • Any spillages will be cleaned up immediately and disposed of correctly; and, • Any sediments impacted by contamination will be excavated and stored in appropriate sealed containers for disposal offsite in accordance with all relevant waste management legislation. Therefore, following the implementation of the above mitigation measures, it is concluded that the works required for the Proposed Development will not adversely affect the water quality within the River Bandon and therefore, will not adversely affect the wider river network downstream of the Site. ***Protection Measures for Trees and Root Systems*** During the Construction Phase, any boundary hedgerows/treelines to be retained will be protected for the duration of the construction activities on site and in accordance with BS 5837. All retained hedge/treeline will be protected from unnecessary damage, and care will be taken to protect these features from both direct and indirect disturbance. The following protection measures will be adhered to during the works: • Trees, treelines and hedgerows to be retained and located within close proximity to the construction areas will be fenced off by effective construction proof barriers before construction works commence. These barriers will remain in place for the duration of the works to prevent accidental disturbance and define the limits of the construction area; • Care will be taken to prevent any damage/disturbance to root systems through the implementation of a buffer zone/construction exclusion zone of unexcavated ground will be maintained along the retained features; • Where machinery access has to encroach treeline/hedgerow features that are being retained, a root protection area will be established. Additionally, suitable ground protection will be put in place to prevent any significant soil compaction or root damage. This should take the form of suitable ground protection mats or cellular confinement system capable of supporting appropriate weight; • All weather notices will be erected on the fences and fencing will be inspected on a regular basis during the construction process; • Trench digging or other excavations works will not be permitted within close proximity to retained trees and hedgerows unless approved and supervised by the project ECoW; • No materials, equipment or machinery will be stored within close proximity to retained treelines/hedgerows; • Notice boards, wires, etc. will not be attached to any trees; and, • Site offices, materials and contractor parking will be outside of the Construction exclusion zone.

Aspect	Mitigation
	Following the completion of the construction works, the project ECoW will assess the retained trees and hedgerow to ensure that the above mitigation measures have be complied with. As part of the Landscape Plan prepared for the Proposed Development, additional planting will take place throughout the Site ***Protection Measures for Species*** Breeding Birds • In order to ensure that no disturbances occur to breeding birds that may potentially use the Site or the adjacent lands, the following mitigation measures will be put in place: • As per Section 40 of the Wildlife Act 1976, as amended by Section 46 of the Wildlife (Amendment) Act 2000, the cutting, grubbing, burning or destruction by other means of vegetation growing on uncultivated land or ditches will be restricted during the nesting and breeding season for birds and wildlife, from 1st March to 31st August; • Therefore, any vegetation clearance required within the Site will take place outside of the nesting bird season (1st March to 31st August). Vegetation clearance is restricted as per Section 40 of the Wildlife Act 1976, as amended by Section 46 of the Wildlife (Amendment) Act 2000; • In the event that works need to be undertaken within the main breeding season, the following measures will be implemented: » Prior to the works commencing, consultation with the NPWS will be undertaken by the ECoW; and, » Prior to the vegetation removal, the ECoW will inspect the Site. • All vegetation clearance works will be undertaken in a systematic way under the direction of the ECoW; in the unlikely event that birds nest within the active working area during the Construction Phase, works within the area will stop, and the project ECoW will be consulted; • During the construction phase, annual breeding bird monitoring will be undertaken by the project ECoW to ensure no impacts occur to breeding birds within the vicinity of the Site ***Measures for Non-volant Mammals*** Given the presence of onsite habitats with features that have the potential to support sheltering, foraging and commuting mammals such as badger and hedgehogs and in order to ensure that the works in relation to the Proposed Development will not have significant impacts on terrestrial mammals, general construction procedures and mitigation measures will be undertaken. These mitigation measures are in line with the NRA (now TII) guidance for badgers [15]. These include the following measures: • Should construction works be required outside of daylight hours, the appointed project ECoW will be consulted as required; • All vegetation clearance will be undertaken in a systematic way to allow any potential species that may be utilising these areas to disperse naturally as works progress; • New drainage infrastructure will be laid in sections and backfilled; • Waste will be kept contained in a designated area to avoid animals becoming trapped in litter;

Aspect	Mitigation
	• Where deep excavations will be required on-site, appropriate measures to protect mammals from ingress will be installed; and, • If unidentified burrows are identified within the works area during construction, the project ECoW will be contacted for advice, and any works that have the potential to impact on these species will cease until appropriate mitigation measures are in place. Construction noise can also impact species such as badger, which include disturbance, behavioural impacts, stress, and displacement from feeding grounds. In order to ensure that impacts can be avoided, the following mitigation measures will be implemented during the construction phase: • In advance of works, all Site personnel will receive a Site induction or toolbox talk which will include reference to measures detailed in the CEMP; • Activities and deliveries to the Site to occur only during permitted hours; • Onsite policy for all plant and equipment, including Site delivery vehicles, to power off rather than to be left with idling engines; • Management of deliveries and vehicles to minimise vehicles idling onsite; • All plant where possible shall be low noise rated. Careful selection of quiet plant and machinery to undertake the required work, where available; • Minimise the drop height of materials; • Start-up plant and vehicles sequentially rather than all together; • Noise construction works will be limited to 8am to 6pm on weekdays; • Positioning of hoarding and enclosures around noisy works or plant as required; and, • Handling of all materials will take place in a manner which minimises noise emissions. Given the location of the Proposed Development in a semi-urban area and the relatively high levels of human activity, any species utilising the area are likely to be habituated to elevated noise levels or will avoid this area. It is therefore concluded that, provided the above mitigation measures will be followed during the construction works, no impacts will occur ***Nocturnal Species*** All temporary lighting installed within the Proposed Development site will be completed with sensitivity for local wildlife while still providing the necessary lighting for human usage during construction. • Therefore, appropriate lighting, as detailed below, should be used during construction: • Construction should be limited to daylight hours in order to minimise adverse effects on nocturnal fauna; • Light Emitting Diodes (‘LED’s’) will be used, and the brightness will be set as low as possible; • Lighting will be kept to the minimum necessary for health and safety purposes; • Lighting will only be utilised during working periods where required and will be shut down during non-working periods;

Aspect	Mitigation
	• Lighting will be directed away from landscaped areas and retained sections of hedgerows, treelines; • LED luminaires will be used because they are highly directional, lower intensity, good colour rendition and dimming capability; • Luminaires will feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats; • The use of specialist bollards or low-level downward directional luminaires should be considered in bat-sensitive areas to retain darkness above; • Column heights should be carefully considered to minimise light spill; • The shortest column height allowed should be used where possible; • Only luminaires with an upward light ratio of 0% and with good optical control should be used; • Luminaires should always be mounted on the horizontal, i.e. no upward tilt; • Any external security lighting should be set on motion-sensors and short (1min) timers; and, • Accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed. • Monitoring of light levels along the treelines and hedgerow areas will be undertaken pre-construction, during-construction and post-construction to identify any areas where light spill is affecting background levels. Where monitoring detects that light spill is affecting these habitat areas, remedial measures will be implemented to ensure that background light levels are maintained. • Invasive Species • A medium-impact invasive species Sycamore (Acer pseudoplatanus), was identified on the Site. However, high-impact invasive species have been recorded within 2km of the Site [19]. • To mitigate against the unintentional introduction of invasive species during construction, the following biosecurity measures will be implemented. These measures are in line with NRA (now TII) Guidance for the Management of Noxious Weeds and Non-Native Invasive Plant Species [• All vehicles, machinery and any other equipment that may be used for the works will be washed prior to its use on-site to prevent the import of plant material and seeds; • Before machinery or equipment is unloaded at the Site, equipment will be visually inspected to ensure that all adherent material and debris has been removed; • Any vehicles and machinery that are not clean will not be permitted entry to the Site; • All materials to be imported to the Site, including additional planting, will be sourced from a reputable supplier and records of all material / supplies to Site will be maintained; and, • In advance of works, all site personnel will receive an induction regarding invasive species.

Aspect	Mitigation
Noise & Vibration	The assessment detailed in Section 12.9.1.1 of Chapter 12 has found that predicted construction noise levels do not exceed the threshold whereby a significant impact would be likely. Therefore, while the contractor should employ best practice noise control measures, specific mitigation measures are not necessary. Aside from this, best practice noise control measures are highlighted so as to reduce the risk of unnecessary excessive noise generation: • limiting the hours during which site activities likely to create high levels of noise vibration are permitted; • establishing channels of communication between the contractor/developer, Local Authority and residents; • appointing a site representative responsible for matters relating to noise and vibration; and • monitoring levels of noise and/or vibration during critical periods and at sensitive locations. • selection of plant with low inherent potential for generation of noise and/ or vibration; • erection of barriers as necessary around items such as generators or high duty compressors; • situate any noisy plant as far away from sensitive properties as permitted by site constraints and the use of vibration isolated support structures where necessary

Aspect	Mitigation
Air Quality	The mitigation measures draw on best practice guidance from Ireland (DCC (2018), DLRCC (2022)), the UK (IAQM (2024), BRE (2003), The Scottish Office (1996), UK ODPM (2002)) and the USA (USEPA, 1997). These measures will be incorporated into the Construction Environmental Management Plan (CEMP) prepared for the site. The measures are divided into different categories for different activities. *Communications* Develop and implement a stakeholder communications plan that includes community engagement before works commence on site. Community engagement includes explaining the nature and duration of the works to local residents and businesses. The name and contact details of a person to contact regarding air quality and dust issues shall be displayed on the site boundary, this notice board should also include head/regional office contact details. *Site Management* • During working hours, dust control methods will be monitored as appropriate, depending on the prevailing meteorological conditions. Dry and windy conditions are favourable to dust suspension therefore mitigations must be implemented if undertaking dust generating activities during these weather conditions. • A complaints register will be kept on site detailing all telephone calls and letters of complaint received in connection with dust nuisance or air quality concerns, together with details of any remedial actions carried out. *Preparing and Maintaining the Site* • Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible. • Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site. • Avoid site runoff of water or mud. • Keep site fencing, barriers and scaffolding clean using wet methods. • Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below. • Cover, seed or fence stockpiles to prevent wind whipping. • Fully enclose site or specific operations where there is a high potential for dust production and the site is actives for an extensive period. *Operating Vehicles / Machinery and Sustainable Travel* • Ensure all vehicles switch off engines when stationary - no idling vehicles. • Avoid the use of diesel- or petrol-powered generators and use mains electricity or battery powered equipment where practicable.

Aspect	Mitigation
	• Impose and signpost a maximum-speed-limit of 15 kph haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate). • Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials. • Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing) *Operations* • Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems. • Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate. • Use enclosed chutes and conveyors and covered skips. • Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate. • Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods. *Waste Management* • Avoid bonfires and burning of waste materials. *Measures Specific to Earthworks* • Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable. • Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable. • Only remove the cover in small areas during work and not all at once. • During dry and windy periods, and when there is a likelihood of dust nuisance, a bowser will operate to ensure moisture content is high enough to increase the stability of the soil and thus suppress dust. • Measures Specific to Construction • Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place. • Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery. • For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriately to prevent dust.

Aspect	Mitigation
	Measures Specific to Construction • Avoid scabbling (roughening of concrete surfaces) if possible. • Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place. *Measures Specific to Trackout* • A speed restriction of 15 kph will be applied as an effective control measure for dust for on-site vehicles. • Avoid dry sweeping of large areas. • Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport. • Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable. • Record all inspections of haul routes and any subsequent action in a site logbook. • Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned. • Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable). • Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permit. • Access gates to be located at least 10 m from receptors where possible. *Monitoring* • Undertake daily on-site and off-site inspections, where receptors (including roads) are nearby, to monitor dust, record inspection results in the site inspection log. This should include regular dust soiling checks of surfaces such as street furniture, cars and windowsills within 100 m of site boundary, with cleaning to be provided if necessary. • Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.

Aspect	Mitigation
Climate	Embodied carbon of materials and construction activities will be the primary source of climate impacts during the construction phase. The following measures to reduce the embodied carbon of the construction works are: • Appointing a suitably competent contractor who will undertake waste audits detailing resource recovery best practice and identify materials can be reused/recycled. • Prevention of on-site or delivery vehicles from leaving engines idling, even over short periods. • Ensure all plant and machinery are well maintained and inspected regularly. • Minimising waste of materials due to poor timing or over ordering on site will aid to minimise the embodied carbon footprint of the site. • Sourcing materials locally where possible to reduce transport related CO_2 emissions. • Material choices and quantities will be reviewed during detailed design, to identify and implement any lower embodied carbon options, where feasible. For example, a 30% minimum clinker replacement in cement may be utilised in line with the requirements for public bodies. In terms of impact on the proposed development due to climate change, during construction the Contractor will be required to mitigate against the effects of extreme rainfall/flooding through site risk assessments and method statements. The Contractor will also be required to mitigate against the effects of extreme wind/storms, temperature extremes through site risk assessments and method statements. All materials used during construction will be accompanied by certified datasheets which will set out the limiting operating temperatures. Temperatures can affect the performance of some materials, and this will require consideration during construction. During construction, the Contractor will be required to mitigate against the effects of fog, lighting and hail through site risk assessments and method statements. Throughout detailed design and construction phase, guidance documents to inform with design detail decisions shall be reviewed e.g. the EU Commission *Technical Guidance on Adapting Buildings to Climate Change* (European Commission (2021a), LETI emergency design guide (LETI, 2020), and the latest IPCC report.

Aspect	Mitigation
Cultural Heritage	A test trenching programme is scheduled to be undertaken within the proposed development site. This test trenching programme was submitted to Ms Annette Quinn, Executive Archaeologist with Cork County Council, for review and she approved it on 26th May 2025. An application for an excavation licence for this test trenching investigation will be made to the National Monuments Service (NMS). A report on the results of this site investigation will be submitted to the NMS, the Cork County Council Archaeologist, and the Planning Authority once onsite works have been completed. This test trenching programme will target the potential 'pit-type' anomalies identified in the geophysical survey (see Section 15.6.7 of Chapter 15). It will also investigate other areas within the proposed development in which no anomalies were identified. The test trenches will cover a total of 10% of the available lands within the proposed development site. In the event that any sub-surface archaeological features are identified during these site investigations, their locations will be recorded and securely cordoned off while the NMS are notified of the discovery and consulted to determine further mitigation measures, which may entail preservation in situ by avoidance or preservation by record through a systematic archaeological excavation. In the areas that are currently under mounded soil in the north of the proposed development site, the potential exists that any previously unrecorded sub-surface archaeological features in this area may remain undisturbed. These areas will not be available for test trenching due to the presence of substantial areas of mounded soils, and the removal of these mounds and underlying topsoil material will, therefore, be archaeologically monitored (under licence from the National Monuments Service) during the construction phase. There are no structures/features of architectural or cultural heritage significance located within the proposed development site or its close environs and, therefore, no other mitigation measures are required.

Table 18.3 Operational Phase Mitigation Measures

Aspect	Mitigation
Population & Human Health	The proposed development is a high-quality design that incorporates generously sized units with integrated energy efficiency measures and an abundance of open space. The impact assessment section did not identify likely significant environmental impacts on population and human health arising from the operational phase of the proposed development. Accordingly, mitigation measures are not proposed.
Landscape & Visual	The design of the proposed development incorporates all necessary mitigation measures for operational phase impacts. No further operational phase mitigation measures are required.

Aspect	Mitigation
Material Assets: Traffic & Transport	During the Operational Phase Mitigation measures proposed during the operational stage are as follows; • Provision of bike parking spaces above minimum requirements, including dedicated cargo bike spaces. • Opting for fewer car parking spaces than the maximum allowed under the Cork County Council Development Plan. This reduction, coupled with initiatives promoting cycling as a viable alternative mode of transport, will significantly contribute to sustainability by diminishing reliance on private cars while fostering increased usage of more eco-friendly transportation options, notably cycling and bus services for commuting. • Enhancing pedestrian and cyclist connectivity within the development and its adjacent residential areas to public transport and public parks. • Establishing a dedicated pedestrian and cycle facility throughout the development. • Installing cycle priority crossings within the development. • Ensuring all footpaths within the development adhere to Part M compliance standards, incorporating crossing points in accordance with DMURS and Traffic Management Guidelines. • Implementation of a number of initiatives and active monitoring within the development to promote modal change. • Phasing of the proposed development to allow for future infrastructure improvements to be implemented outside of the control of the applicant.
Material Assets: Built Services	The following section discusses the mitigation approaches that will be followed during the operational phase of the development: • All new foul and surface water drainage pipes to be pressure tested and CCTV surveyed to identify any possible defects. • Water conservation measures to be implemented, which include water metering, rainwater capture, low flush and efficiency attachments. • Ensure that all hydro brakes are designed to limit the flow of water from the development to the greenfield run-off rate. • All water main pipes to be pressure tested in accordance with Uisce Eireann details. • All water mains will be cleaned and tested in accordance with Uisce Eireann guidelines and standards prior to connection to the public water main.

Aspect	Mitigation
Material Assets: Waste	Waste generation during the operational phase of the Proposed Development will be typical of a large residential development and will primarily consist of MSW from individual households. Although the scale and character of this waste are not expected to result in significant environmental effects, several measures will be implemented to prevent nuisance, ensure regulatory compliance, and support national waste policy objectives. ***Provision of Compliant Waste Infrastructure at Unit Level*** • Each dwelling will be provided with sufficient space to store three standard wheeled bins: one each for dry recyclables, organic waste, and residual waste, in accordance with the requirements of the Cork County Council (Segregation, Storage and Presentation of Household and Commercial Waste) Bye-Laws 2019. • Bin storage areas will be: » Located within the curtilage of each dwelling; » Discretely screened or enclosed to minimise visual impact; » Accessible for residents and for kerbside presentation; and, » Sized to accommodate either 240L or 360L bins depending on household size. ***Waste Collection Access and Layout Integration*** • All internal roads, turning areas, and home zones have been designed to accommodate domestic refuse collection vehicles, based on autotrack analysis and standard bin-lift requirements. • Residents will present bins kerbside in line with local waste collection schedules. No communal storage or bring bank facilities are proposed or required. ***Design Measures to Prevent Nuisance*** • Bin storage locations are set back from public paths and positioned to avoid conflict with windows, entrances, or public open spaces; • Proper ventilation and screening are integrated into the design to prevent odours, vermin attraction, or wind-blown litter; and, • In the event of missed collections or excessive accumulation (e.g. over public holidays), contingency arrangements may be implemented by waste collection providers. ***Long-Term Alignment with Circular Economy Targets*** • The layout and waste infrastructure have been designed to support long-term compliance with the waste hierarchy (prevention, reuse, recycling, recovery, disposal) and national policy under the National Waste Management Plan for a Circular Economy (2024–2030); and, • By facilitating source segregation at household level and ensuring high-quality collection access, the development supports increased recycling rates, diversion of biodegradable waste from landfill, and improved circular resource flows.

Aspect	Mitigation
Land & Soils	***Emergency Response Procedures*** There should be comprehensive emergency response procedures and standard operating procedures to respond to an onsite fuel spillage. All employees should be provided with such equipment, information, training and supervision as is necessary to implement the emergency response procedures and standard operating procedures ***Fuel Storage*** The provision of spill kit facilities and training of operatives in use of same; should be undertaken at the operational stage in order to manage any leaks from fuel storage and vehicles resulting in soil and/or groundwater quality impacts ***Increase in hard stand*** A significant proportion of the development area will be covered in hardstand. This provides protection to the underlying soil and aquifer but also reduces local recharge in this area of the aquifer. Surface water and Ground water management and mitigation measure are discussed in further detail in Chapter 10 (Hydrology and Hydrogeology).

Aspect	Mitigation
Hydrology and Hydrogeology	***Surface water and groundwater*** To mitigate potential contamination from surface water runoff, which may originate from roads and hardstanding areas, a sustainable drainage system (SuDS) will be implemented. This system is designed to minimize the risk of contaminants, such as hydrocarbons, entering the stormwater drainage network and subsequently impacting surface water bodies like the Bandon River and Upper Bandon Estuary, as well as groundwater bodies, including the Bandon GWB underlying the site. The surface water drainage strategy integrates various measures, including attenuation ponds, rainwater harvesting, permeable paving and downstream defenders. These features will effectively manage surface water flows, directing them to an underground attenuation pond and infiltration tanks to maximize their storage potential. Flow control devices will be installed downstream of the pond outlet pipes to ensure that surface water runoff is stored efficiently before entering the receiving environment. ***Surface water and ground water flow and quantity*** The proposed incorporation of hardstand areas and SuDS design measures may slightly reduce local groundwater recharge and increase runoff if not properly managed, potentially causing flooding and affecting downstream environments. However, the overall impact on the groundwater regime is expected to be insignificant due to the site's small area relative to the total aquifer, and construction will avoid areas with localized flooding to mitigate flood risks. To mitigate these risks, the design of the development and its drainage infrastructure will ensure that runoff rates are restricted to those of greenfield conditions. The development will incorporate SuDS and an underground attenuation system, with a design that up to and including the 100-year plus climate change allowance and discharge surface water to the downstream network at an appropriately determined rate. The proposed surface water management strategy aims to prevent surcharging during a 1 in 2-year storm events up to and including the 1 in 100 years plus allowance for climate change. Furthermore, there are no proposed surface water or groundwater abstractions, eliminating potential impacts on the quantity of surface water or groundwater resources.

Aspect	Mitigation
Biodiversity	***Protection of Water Quality*** The additional hard surfacing onsite will result in an increase in surface water runoff. However, a new network of pipework with SuDS features and attenuation storage structures will be implemented. This is in line with Objective 11-10 of the CCDP [37]. This will prevent potential pollutants from surface water runoff, such as hydrocarbons, flowing down and entering the River Bandon. The following individual SuDS measures are considered appropriate for this particular development and will be incorporated: • Drained swale; • Filter drains; • Permeable paving; • Petrol, oil interceptor grit trap; and, • Attenuation tank. The SuDS design reflects the layout and topography of the Site: • Permeable paving has been incorporated in the external hardstanding of all dwellings. Soakaways have also been incorporated to accommodate roof water run off – both of these measures will intercept surface water at sources; • Permeable paving has been incorporated into the 'homezone' areas in front of house numbers 15 to 26, 43 to 62 and 187 to 198 comprising 2,657m2; • Filter drains have been incorporated into select areas to address the potential for rainwater exceedance scenario; • Swales have been incorporated where gradients allow. The swales will be appropriately planted to enhance biodiversity gains. The swales will serve specific areas of road run-off by drainage from road gullies. These areas will deliver a high level of water treatment; • Due to the sloping nature of the Site the incorporation of Detention Basins and / or Retention Basins is not feasible. For full details, please refer to the Engineering Infrastructure Report prepared by Brian O Kennedy & Associates Ltd ('BOK') submitted as part of this planning application ***Protection of Fauna*** The lighting strategy involves avoiding excessive lighting. The following measures have been incorporated into the lighting design: • Avoidance of excessive lighting; • Lighting has only been installed where necessary for public safety; • Sensitive lamp design to reduce light reflectance; • Lighting will be aimed only where it is needed, with upward lighting shielded and a preference for downward directional focus; • Light Emitting Diodes ('LED's') will be used, and the brightness will be set as low as possible;

Aspect	Mitigation
	• Lighting will be directed away from landscaped areas and retained sections of mixed broadleaved woodland; • Hoods/cowling will be installed, and this will greatly reduce back spillage of lighting; and, • Lighting will be turned down / off when not required; • Use of bat-sensitive lighting in the form of 'warm white' ≤3000°K luminaires. Luminaires should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats; and • Lighting has been designed and selected with specific shutters and filters to minimise any potential for back spills into the sensitive locations. Following the installation of the lighting for the Proposed Development, the ECoW will undertake a further Site inspection in order to check the lighting patterns and lux levels along the Site boundaries to ensure that there will be no impacts to bats or other nocturnal species. ***Ecological Linkages*** As part of the Proposed Development, the majority of existing linkages across the Site, will be protected and enhanced with additional hedgerow / tree planting. Taking the above into consideration, it is recommended that, where possible, existing ecological corridors be protected and enhanced. The following measures are recommended for the protection of hedgerow/ treeline ecological corridors: • A post-construction inspection of hedgerow / treelines to determine the health of the plants; • Where dead trees are identified - removal of dead trees and replacement with new suitably sized native tree species; and, • Where sparse areas are identified – additional supplementary planting of native tree species should be undertaken ***Habitat Connectivity*** Habitat connectivity is generally known as the degree to which the environment facilitates or obstructs species movement and other ecological processes. The Site forms part of a wider ecological framework, where existing hedgerow networks play a vital role in linking surrounding agricultural lands and supporting regional biodiversity. These linear habitats function as wildlife corridors, providing food sources, shelter, and nesting opportunities for birds, small mammals, and pollinating insects. There are opportunities within the Site to increase the habitat connectivity and support local biodiversity of the local area, such as: • Maintaining hedgerow/treelines onsite; and, • Planting additional hedgerows

Aspect	Mitigation
	Habitat Environment Habitat creation and enhancement measures will be implemented in order to increase opportunities for a variety of wildlife that are appropriate to the Site. Habitat loss will be compensated for through the creation of new habitats within the Proposed Development. These areas will provide new treelines, hedge line, scrub, wildflower and grassland habitat, which will help to compensate for the habitat lost. The Site boundaries will receive additional natural planting to enhance the existing and retained scrub and woodland habitats. Soft landscaping plan is proposed within Site including for newly created soft landscaped areas and detail planting schedules and required maintenance with the benefit of biodiversity in mind during the Operational Phase. ***Landscape Plan*** A comprehensive Landscape Plan and report has been prepared by Simon Ronan Landscape Architects and has been submitted as part of this planning application. The following will take place as part of the Landscape Plan: • Woodland tree planting; • Street trees, small feature trees and podium trees; • Wildflower & shrub planting; • Woodland understory & shade-loving plants; • Native Meadow; and, • Hedgerow planting. • Fauna Enhancement ***Bats*** Given the levels of activity recorded during the onsite surveys, it is proposed to install artificial bat boxes within the Site. Artificial bat boxes will be erected on suitable mature trees within the Site. Artificial bat boxes can provide vital roosting places in habitats devoid of natural roosting opportunities. Bat boxes can also provide additional suitable roosting habitats for bats in an area. ***Birds*** A variety of bird nest boxes designed to attract a variety of nesting bird species will be erected on suitable trees within the Site. The creation of a nesting habitat, along with the creation of a species rich habitat, will encourage an abundance of invertebrate life (a potential food source) and will be beneficial to local birds. General bird boxes designed to cater for a variety of species will be used, the number and location of which will be specified by an ecologist.

Aspect	Mitigation
	Hibernacula and Habitat Piles Hibernacula and habitat piles are valuable habitats and support a range of biodiversity, including insects, amphibians and small mammals. These habitats act as refuges and hibernation sites for amphibians as well as a host of other species of inverts and small mammals. The objective is to create a diversity of habitats within the Proposed Development. ***Insect Hotels*** Insect hotels should be positioned in areas sheltered from wind and rain and with access to sunlight. The artificial shelters should be placed 1.5m off the ground to reduce access to insect predators. Insect hotels can be free-standing or attached to existing features such as trees, posts or walls. ***Visible Biodiversity*** In order to promote biodiversity within the Site, consideration could be given to the creation of visible landmarks that draw attention to the importance of biodiversity while also attracting the interest of the residents. Biodiversity landscape features could be installed within the Site and promote a green image for the area. ***Interpretive signboards*** Biodiversity awareness of the onsite biodiversity should be emphasised and encouraged where appropriate. Actions to educate residents on the local biodiversity should be supported and promoted. This can be through the placement of interpretive signboards within the Site outlining biodiversity measures and species that can be found onsite.
Noise & Vibration	There are no mitigation measures proposed for either noise or vibration during the operational phase.
Air Quality	No site-specific mitigation measures are proposed for the operational phase as impacts are predicted to be not significant.
Climate	The proposed development has been designed to reduce the impact on climate as a result of energy usage during operation. These measures are outlined in Section 14.8.1 of Chapter 14. No further operational phase mitigation is proposed.
Cultural Heritage	Following the successful implementation of the archaeological mitigation measures during the pre-construction phase, as detailed in Section 15.9.3 of Chapter 15, no operational phase mitigation measures will be required for the cultural heritage resource.

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