

CARRIGANARRA LRD

VOLUME I | EIAR

Non Technical Summary

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CHAPTER 1 | Introducion

1.1 Background Context

This Environmental Impact Assessment Report (EIAR) has been prepared on behalf of MOS Homes Limited, to assess the environmental effects of a proposed residential development at Carriganarra, Carrigrohane & Maglin (townlands), Ballincollig, Cork

The EIAR has been completed in accordance with Directive 2011/92/EU (as amended by 2014/52/EU) and relevant Irish legislation as well as in conformity with guidance in the European Commission's 'Environmental Impact Assessment of Projects Guidance on the preparation of the Environmental Impact Assessment Report' 2017 and guidance in the 'Guidelines on the Information to be contained in Environmental Impact Assessment Reports' 2022 (Environmental Protection Agency).

The proposed development consists of the demolition of existing agricultural building and the construction of a residential development of 300 no. residential units consisting of 128 no. dwellings houses, 172 no. apartment/duplex units, a two storey creche facility and all ancillary site development works. A full description of the proposed development is provided in Chapter 2 of this EIAR.

1.2 The Applicant

The Murnane & O'Shea Group (MOS) was founded in 1958 and is one of Ireland's leading building contractors. MOS have a proven track record and played a leading role in the provision of new of housing, particularly in the Cork Metropolitan Area having delivered residential developments which include Crawford Woods and Springmount Woods (Glanmire), Clarendon Brook (Douglas), Ard Na Ri, (Banduff), Crann Darach (Montenotte) Cork and the North West Regeneration in Knocknaheeny amongst a wide variety of residential schemes. MOS are currently delivering the 'Elmbury', 'Heathfield' and 'Carleton' residential developments at Carrigtwohill, Ballincollig and Castletreasure respectively and are committed to the continued delivery of residential accommodation at sustainable locations, positively contributing to the realisation of population and housing growth targets of the Cork Metropolitan Area into the future.

1.3 Purpose and Background of EIA Process

EIA requirements are now governed by Directive 2014/52/EU, which amends Directive 2011/92/EU ("the EIA Directive"). The primary function of the EIA Directive is to ensure that projects that are likely to have significant effects on the environment are subjected to an assessment of their likely impacts.

Ireland's obligations under the EIA Directive have been transposed into Irish law and, in particular, the planning consent process through the provisions of Part X of the Planning and Development Act 2000, as amended, and the Planning and Development Regulations, 2001, as amended.

This EIAR has been prepared in accordance with the relevant provisions of the EIA Directive, the Planning and Development Acts and Planning and Development Regulations. In addition, the EIAR conforms to the guidance contained in the relevant EU and Irish guidance in respect of the preparation of an EIAR.

The objective of the EIA Directive is to ensure a high level of protection of the environment and human health, through the establishment of minimum requirements for EIA, prior to development consent being given, of developments that are likely to have significant effects on the environment.

The EPA 2022 Guidelines list the following fundamental principles to be followed when preparing an EIAR:

- Anticipating, avoiding and reducing significant effects.
- Assessing and mitigating effects,
- Maintaining objectivity.
- Ensuring clarity and quality.
- Providing relevant information to decision makers and
- Facilitating better consultation.

1.4 EIA Methodology

As per Article 5(1) of the 2014 Directive, an EIAR should provide the following information:

- Description of Project.
- Description of Baseline Scenario.
- Description of Likely Significant Effects.
- Description of Avoidance / Mitigation Measures.
- Description of Reasonable Alternatives (and rationale for chosen option) and
- A Non-Technical Summary.

Annex IV of the Directive sets out a more detailed outline of the information required in an EIAR. The subject EIAR has been prepared in full accordance with these stated requirements of Annex IV.

The EIA process can be broadly described as containing the following steps.

- EIA Screening.
- EIA Scoping.
- Preparation of an EIAR which informs planning consent process.

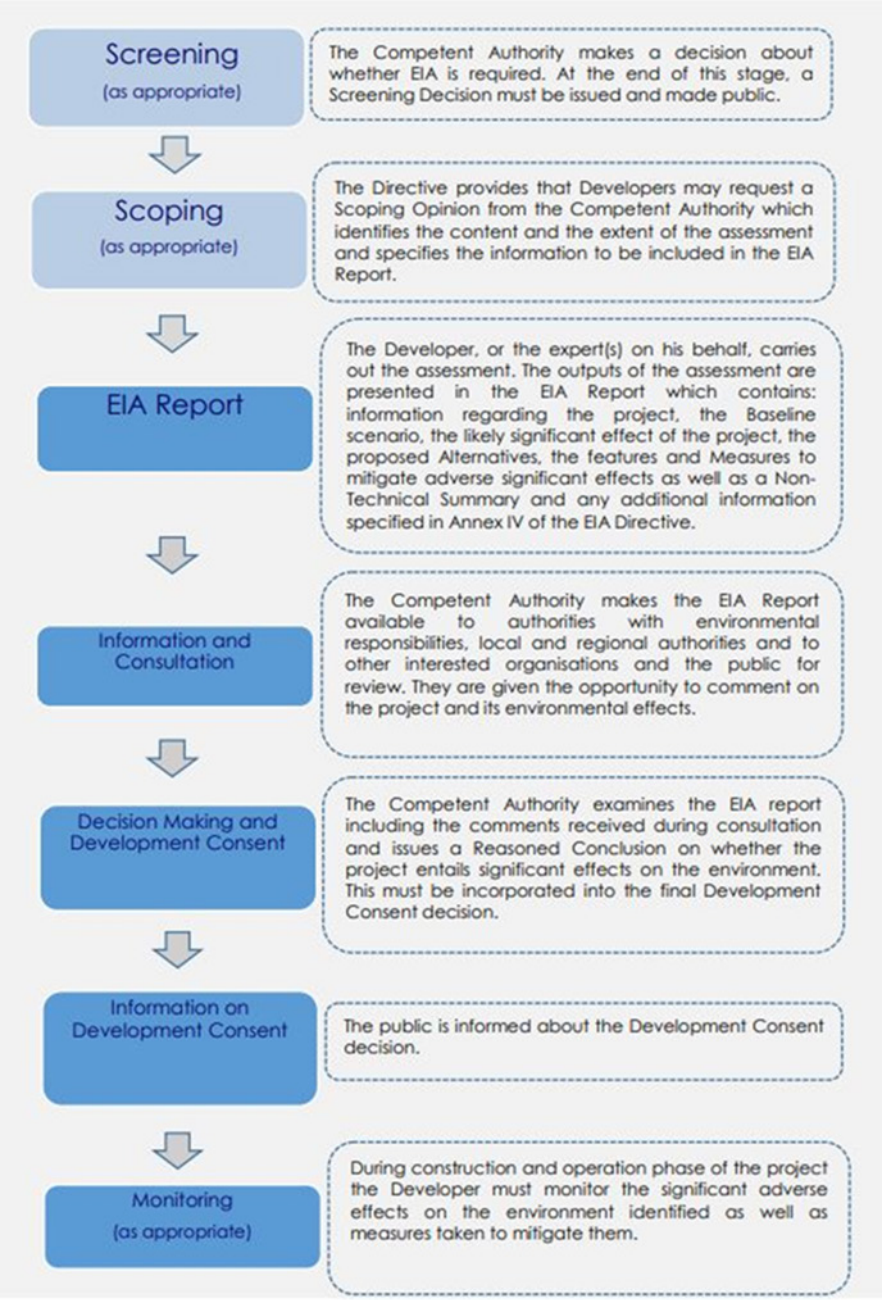


Figure 1.1 EIA Process (Source: Page 12 of Preparation of guidance documents for the implementation of EIA Directive (Directive 2011/92/EU as amended by 2014/52/EU).

1.5 EIA Screening

Screening is the term used to describe the process for determining whether a proposed development requires an EIA by reference to mandatory legislative threshold requirements or by reference to the type and scale of the proposed development and the significance or the environmental sensitivity of the receiving baseline environment.

Article 93 and Schedule 5 of the Planning and Development Regulations, 2001 sets out the classes of development for which a planning application must be accompanied by an environmental impact assessment report (EIAR).

Part 1 and Part 2 Schedule 5 of the Planning and Development Regulations, 2001 prescribes the categories of, and thresholds for, prescribed development requiring EIA.

The subject proposal does not come under any of the prescribed development contained in Part 1 of Schedule 5.

Paragraph 10(b) of Part 2 of Schedule 5, which refers to Infrastructure Projects refers to the thresholds where a Mandatory EIAR is required.

> *"b) (i) Construction of more than 500 dwellings*
>
> *(ii) Construction of a car-park providing more than 400 spaces, other than a car-park provided as part of, and incidental to the primary purpose of, a development.*
>
> *(iii) Construction of a shopping centre with a gross floor space exceeding 10,000 square metres.*
>
> *(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 20 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.)"*

As the proposed development comprises the construction of an urban development at site of 13.5 hectares, an EIAR is required as prescribed by Classes 10(b)(iv) of the Regulations.

1.6 EIA Scoping

EIA Scoping is the process of determining the content and extent of the matters which should be considered in the environmental information contained in an EIAR.

In determining the extent and content of this EIAR, the authors have carefully considered the applicable EU and Irish legislative requirements, relevant EU and Irish guidance and pre-planning consultation meetings held with Cork City Council in accordance with Sections 247 and Section 32B of the Planning and Development Act 2000 (as amended) in April 2025 and September 2025. The recorded minutes of the 'Stage 1' Section 247 and 'Stage 2' Section 32 LRD meetings are included as Appendix 1-1, with the LRD Meeting Opinion issued by Cork City Council on the 28th of October 2025 contained in Appendix 1-2 of this EIAR.

A series of meetings have taken place with the technical staff of Cork City Council which assisted in the preparation of this EIAR and the planning application.

Scoping also included notifying the following prescribed bodies of the extent of the proposed development and that an EIAR regarding same was being prepared.

1. An Taisce
2. Cork City Childcare
3. Department of Education
4. Department of Local Government, Housing and Heritage
5. Department of Tourism, Culture, Arts, Gaeltacht, Sport and Media
6. Eirgrid
7. Environmental Protection Agency
8. Electricity Supply Board
9. Gas Networks Ireland
10. Geological Survey Ireland
11. Heritage Council
12. Inland Fisheries Ireland
13. Uisce Eireann
14. Department of the Environment, Climate and Communications.
15. National Monuments Service
16. National Parks and Wildlife Service
17. National Transport Authority
18. Office of Public Works
19. Teagasc
20. Transport Infrastructure Ireland
21. Health & Safety Authority
22. Department of Agriculture Food and the Marine
23. Irish Farmers Association
24. Cork County Council

The particulars sent to the above bodies are contained in Appendix 1-3 with any responses received contained in Appendix 1-4.

1.7 Structure of the EIAR

The EIAR is divided into 3 volumes:

- The main report consisting of 15 chapters as outlined in the table of contents;
- The Appendices numbered in accordance with the chapter they relate.
- A set of non-technical summaries for each relevant chapter.

Figure 3.4 of the 2022 guidelines below, shows how comparing the character of the predicted effect to the sensitivity of the receiving environment can determine the significance of the effect.

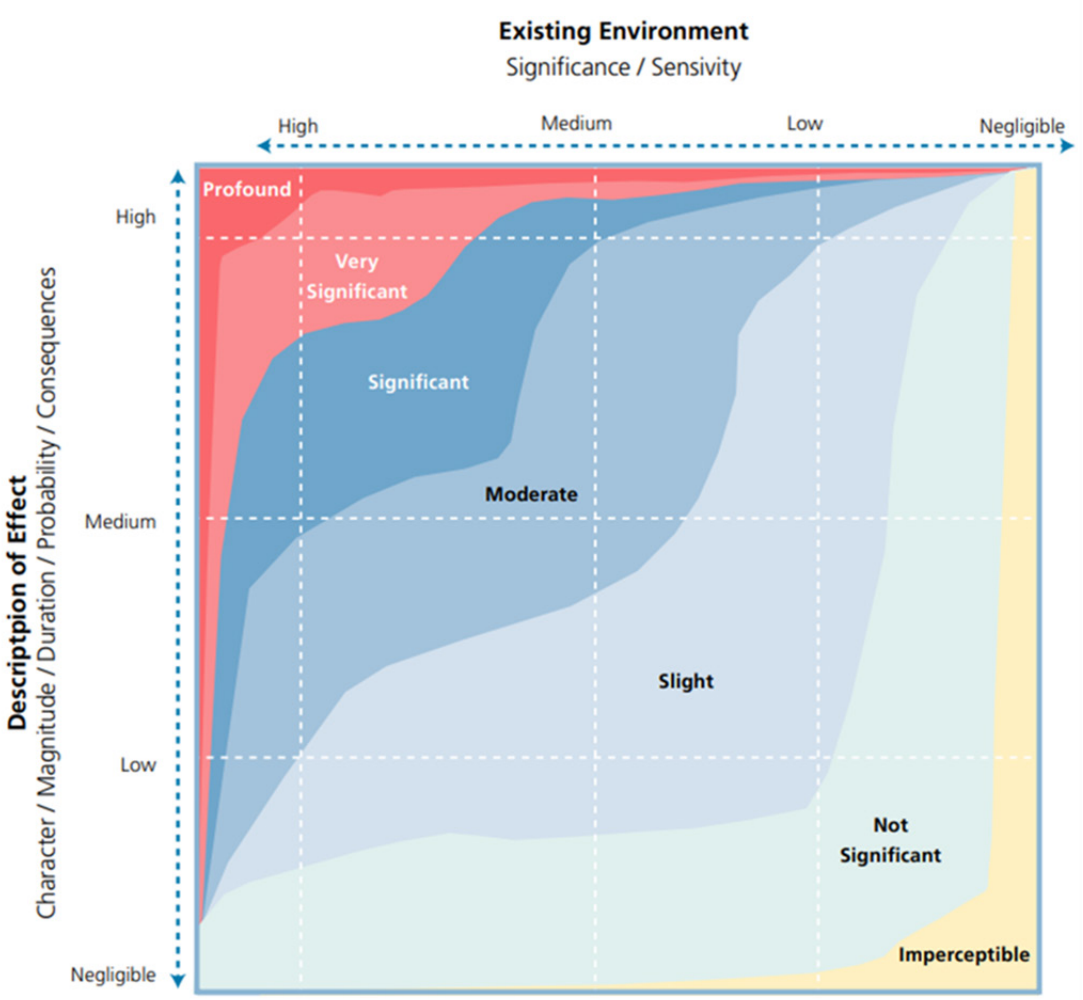


Figure 1.2 Chart Showing Typical Classifications of the Significance of Effects (Figure 3.4 of the 2022 EPA Guidelines)

1.8 EIAR Team & Qualifications

HW Planning have coordinated the subject EIAR. Environmental specialist consultants were also commissioned for the various technical chapters of the EIAR document which are mandatorily required as per the EIA Directive and Planning and Development Regulations 2018. Each environmental specialist was required to characterise the receiving baseline environment; evaluate its significance and sensitivity; predict how the receiving environment will interact with the proposed development and to work with the EIA project design team to devise measures to mitigate any adverse environmental impacts identified.

A full list of all consultants and the corresponding chapters that have been prepared is detailed below.

Planning Consultants: HW Planning

Address: 5 Joyce House, Barrack Square, Ballincollig, Cork.

Chapters Prepared: Chapter 1 – Introduction, Chapter 2 - Project Description & Alternatives Considered (in conjunction with Deady Gahan Architects), Chapter 13 - Population & Human Health, Chapter 14 - Interaction of Impacts and Chapter 15 - Summary of Mitigation & Monitoring Measures.

Personnel: Harry Walsh, (BA HONS, Master of Regional and Urban Planning, MIPI), Director at HW Planning.

Landscape & Visual: Modelworks.

Address: The Old Courtyard, Newtownpark Ave, Blackrock, Co. Dublin, A94 YD61

Chapters Prepared: Chapter 3 – Landscape & Visual

Personnel. Richard Butler (MIPI MILI).

Traffic Consultants: Egis**.**

Address: 3 Eastgate Road, Eastgate Business Park, Little Island, Co Cork, T45KH74.

Chapters Prepared: Chapter 4 - Material Assets – Traffic & Transportation.

Personnel: Kwok Chuen Lam, Senior Traffic Engineer and Tara O'Leary, Technical Director.

Civil Engineers: DOSA Consulting Engineers

Address: Joyce House, Barrack Square, Ballincollig, Cork**.**

Chapters Prepared: Chapter 5 - Material Assets – Services, Infrastructure & Utilities,

Personnel: Liam O'Toole (BE CEng (Hons) MIEI), Director at DOSA Consulting Engineers.

Geology & Hydrology: Keohane Geological & Environmental Consultancy

Address: Ivy House, Clash, Carrigrohane, Cork.

Chapters Prepared: Chapter 6 – Land, Soils & Geology, Chapter 7 - Water (Hydrology & Hydrogeology)

Personnel: Dan Keohane (BSc Hons Geology; MSc Applied Geophysics).

Project Ecologist: Dixon Brosnan - Environmental Consultants.

Address: Lios Ri Na hAoine, 1 Redemption Road, Cork.

Chapters Prepared: Chapter 8 - Biodiversity

Personnel: Carl Dixon, (BSc) in Ecology and a Masters (MSc) in Ecological Monitoring from UCC.

Dr. Sorcha Sheehy PhD (ecology/ornithology), BSc in Applied Ecology from UCC and subsequently went on to receive a PhD in behavioural ornithology at UCC.

Mark Donnelly (Forestry) holds a BSc. Hons in Forestry from Bangor University, Wales, and is a member of the Institute of Chartered Foresters.

Built Heritage/Archaeology: Lane Purcell Archaeology

Address: 64 Father Mathew Road, Turners Cross, Cork,

Chapters Prepared: Chapter 9 - Cultural Heritage

Personnel: Avril Purcell, (MA Archaeology, NUI Cork, 1994, BA Archaeology and History, NUI Cork, 1992, Licence eligible by National Monuments Service since 1997).

Musetta O'Leary (MA Archaeology, NUI Cork, 2000, BA Archaeology and Geography, NUI Cork, 1998).

Environmental Consultant: AWN Consulting

Address: The Tecpro Building, Clonshaugh Business & Technology Park, Dublin 17

Chapters Prepared: Chapter 10 - Noise & Vibration, Chapter 11 – Air Quality, Chapter 12 - Climate

Personnel: Sarah Berry, a Principal Climate Consultant in the Air Quality & Climate section of AWN Consulting. Sarah holds a BSc in Physical Geography from the University of Leeds.

Caolán Leneghan, Senior Climate Change Consultant at AWN Consulting. Caolán holds degrees in Geography and International Development (Maynooth University) and Disaster Risk Management & Climate Change Adaptation (Lund University, Sweden).

Carl Ramskill, Principal Air Quality Consultant at AWN Consulting. Carl has a BSC in Chemistry and an MSc in Air Pollution Management and Control from the University of Birmingham.

Ciara Nolan, Principal Environmental Consultant in the Air Quality & Climate. She holds a BSc in Energy Systems Engineering from University College Dublin and has also completed an MSc in Applied Environmental Science at UCD. She is a Member of the Institute of Air Quality Management (MIAQM) and the Institution of Environmental Sciences (MIEnvSc).

Abe Scheele holds the Institute of Acoustics Diploma in Acoustics and Noise Control, along with City & Guilds Level 1 and 2 in Sound Engineering and City & Guilds Music Technology.

Project Architects: Deady Gahan Architects.

Address: Eastgate Village, Little Island, Co. Cork

Chapters Prepared: Chapter 2 - Project Description & Alternatives Considered (in conjunction with HW Planning)

Personnel: Eamonn Gahan, Director - Architects Registration No. 04148

1.9 Cumulative Impacts

The potential environmental effects of the proposed development have not been assessed in isolation. The potential impacts of this project have been considered in combination with other relevant permitted or proposed projects in the vicinity of the site and plans for the area, which may result in cumulative environmental impacts. The geographical boundaries for cumulative projects were developed within the wider design team having regard to the location of the Project; defined EIAR boundary; the nature of the Proposed Development works; the receiving environment; and the potential for cumulative impacts to arise relative to each individual EIAR topic chapter.

Each of the projects listed in Table 1.1 have been assessed for potential cumulative impacts. These projects were identified by using both Cork City Council and Cork County Council Planning Enquiry Systems, An Bord Pleanála's website and the Department of Housing, Local Government and Heritage's EIA Portal.

Application Ref (Cork City Council).	Applicant(s)	Date Received	Description	Outcome/Current Status
26/44475	MOS Homes Ltd	20/01/2026	Construction of 11 no. dwellings at Heathfield, Ballincollig.	Currently being assessed by Cork City Council.
25/44222	O Flynn Construction Co. Unlimited Company	10/10/2025	LRD for the construction of 1,150 no. residential units, 1 no. creche, 3 no. retail units at Maglin, Ballincollig.	Currently being assessed by Cork City Council.
25/44048 (ACP 324030-26).	Murnane & O Shea Limited	28/07/2025	LRD of 544 no. residential units, creche facility, commercial/retail unit at Greenfield, Ballincollig.	Permitted by Cork City Council in December 2025. Currently being assessed by An Coimisiún Pleanála.
-	-	-	Cork Luas Project	Emerging Preferred Route (EPR) - Initial Public Consultation Phase
24/43308	Coleman New Homes (Blarney) Limited	7/10/2024	The construction of a two-storey creche at Maglin Road, Ballincollig, Cork.	Development permitted.
23/42446	Coleman New Homes (Blarney) Limited	14/11/2023	LRD of 162 no. residential units at Maglin Road, Ballincollig, Cork. (Cois Caislean Phase 2)	Development permitted and under construction
22/41611	MOS Homes Limited	06/12/2022	Construction of 98 no. dwelling at Heathfield, Ballincollig, Cork.	Development permitted and under construction

Table 1.1 Cumulative Impacts – Projects Considered

The potential impact on the environment of the Cork City Development Plan 2022 have also been assessed for cumulative impacts and were considered in the preparation of this EIAR.

1.10 Availability of EIAR Documentation

This EIAR will be available in printed form at the offices of Cork City Council (City Hall, Anglesea Street, Cork, T12 T997). The EIAR will also be available to view electronically at Cork City Councils online planning enquiry system and at the following website - **www.CarriganarraLRD.ie.**

1.11 Typographical Errors

Every effort has been made to ensure that the content and findings of this EIAR is consistent and error free. However, it is acknowledged that some minor grammatical/spelling and typographical errors may occur. These typographical minor inconsistencies are unlikely to result in any material impacts on the overall findings and conclusions of the EIAR.

CHAPTER 2 | Project Description & Alternatives Considered

2.1 Introduction

The EIA Directive requires that an EIAR should provide an overview of:

- the location, site, design, size, etc.;
- the physical characteristics of Project (including any demolition or land-use requirements);
- the characteristics of the operational phase of the Project;
- any residues, emissions, or waste expected during either the construction or the operational phase.

This chapter describes the nature, location and specific characteristics of the proposed development during construction and operational phases in accordance with the 2014 Directive.

2.2 Existing Environment/Baseline Scenario

The subject lands of 13.5 hectares in area are situated in the townlands of Carriganarra/Carrigrohane to the southeast of Ballincollig. The greenfield lands are bound to the north by the 'Heathfield' and 'Limeworth' residential developments and by the existing established urban footprint of Ballincollig, with undeveloped agricultural lands to the west and south. Heathfield serves as an initial gateway to the eastern areas of the Maglin Urban Expansion Area (MUEA) as identified in the Cork City Development Plan 2022-2028 (CDP). Heathfield delivers the first eastern section of the MUEA Sustainable Access Corridor (SAC) spine road which facilitates access to the subject development lands, which were previously landlocked. The subject lands are situated in a strategically important location in the future expansion of Ballincollig.

Tables 2.2 and 2.3 of the CDP's Core Strategy outline the population and growth targets of the various areas of the city, in order to promote compact and sustainable growth. Ballincollig is identified to accommodate significant growth in population and housing by 2028. The CDP sets a population target of 27, 987 no. people in Ballincollig by 2028, an increase of over 54% from 2016 figures to be accommodated in an additional 3,947 units.

Due to the sites location within the defined MUEA, and the evolving developmental context, the lands can be described as being within a transitional urban expansion area. Most of the subject lands are zoned within the 'ZO 1 Sustainable Residential Neighbourhoods' in the CDP, with southern areas of the site included within the 'ZO 15 Public Open Space' zoning objective which state respectively.

> *ZO 01 – 'To protect and provide for residential uses and amenities, local services and community, institutional, educational and civic uses.*
>
> *ZO 15 – 'To protect, retain and provide for passive and active recreational uses, open space, green networks, natural areas and amenity facilities*

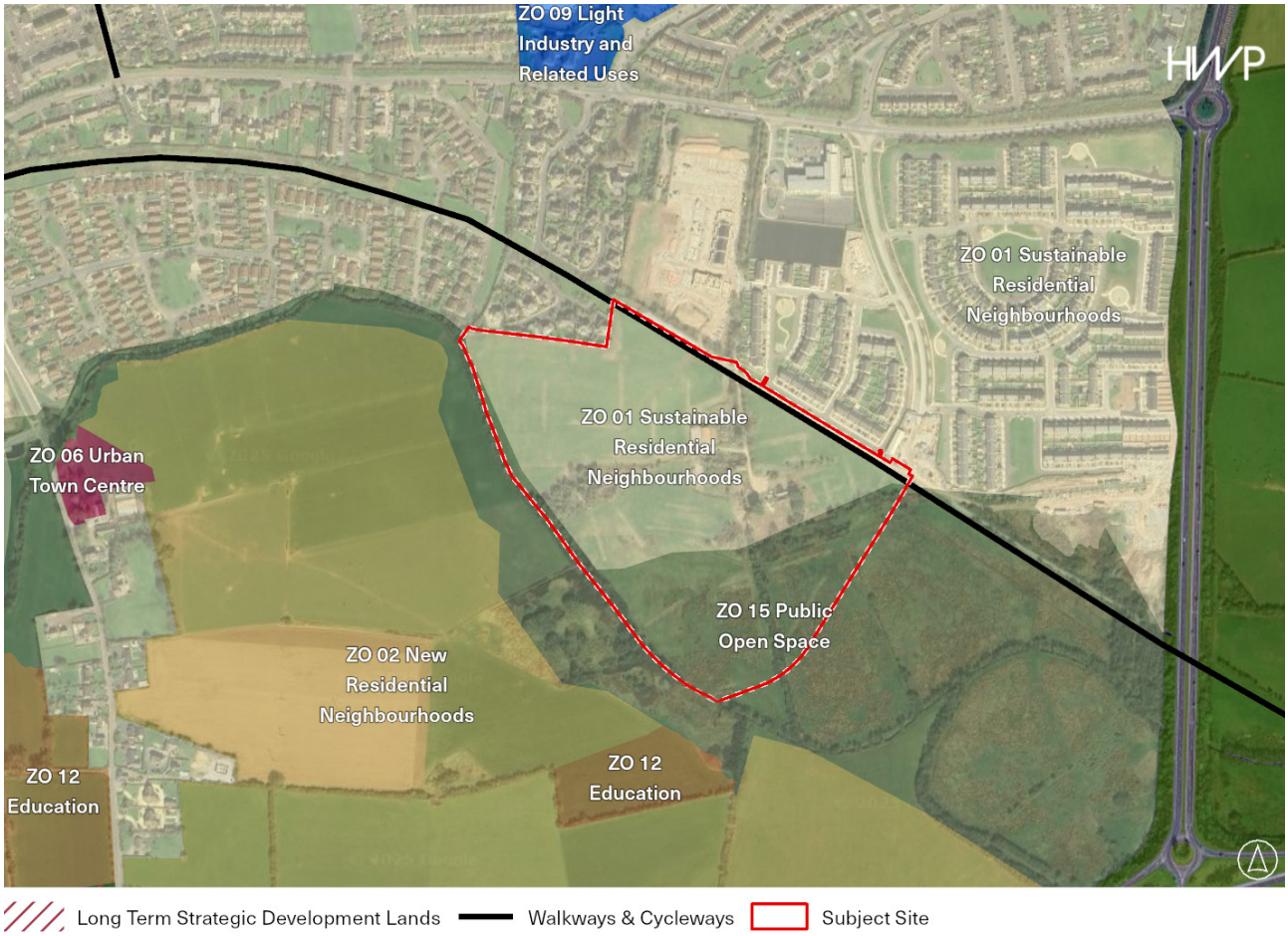


Figure 2.1 CDP Zoning Map

The site currently comprises of a number of existing field parcels which have been in long term agricultural use with a disused farmyard with ruinous dwelling house and agricultural outbuildings cluster situated in north/central areas of the site which are accessed via an existing laneway linking the site to Killumney Road to the north. Northern areas of the site include a mix of mature broadleaf trees along the site's boundaries with the former route of the Great Southern Railway line running along the site's northern boundary. The Maglin North River runs along the site's western boundary.

2.3 Project Description – Construction Phase

A Construction and Environmental Management Plan (CEMP) prepared by DOSA Consulting Engineers is included as Appendix 2-1 of this EIAR. All measures set out in this section of the EIAR, and the CEMP will be implemented during the construction phase of the project.

It is envisaged that the construction phase of the project will be for a period of approximately 5 years. The project will be constructed in three sequential phases comprising.

- Phase 1 – Demolition of ruinous dwelling house and agricultural buildings, establishment of site compound, delivery of sections of active travel paths along the sites northern boundary and initial section of the Maglin SAC and the construction of 118 no. dwelling units and a proposed creche facility in northern areas of the site.
- Phase 2 – Completion of the remainder of the Maglin SAC within the site, enabling /infilling works and the construction of 79 no. residential units in southern areas of the site.
- Phase 3 - 103 no. residential units in western area of the site.

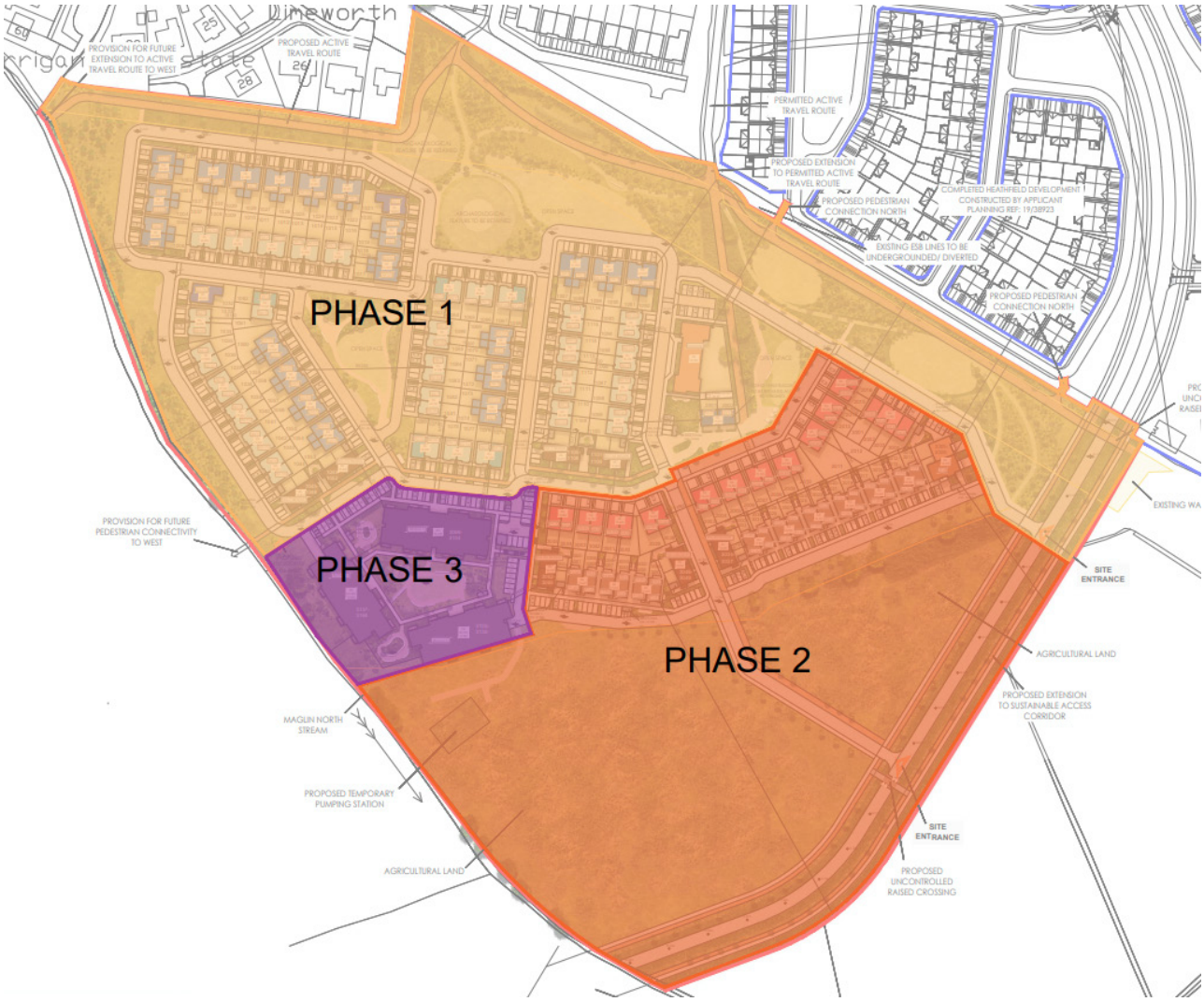


Figure 2.2 Construction Phasing Strategy

A Construction Phase Traffic Management Plan (CTMP) has been prepared and is included as Appendix 2-2 of this EIAR. The CTMP details the traffic management procedures, identification of haulage routes, predicted construction traffic levels during various phases of the development and mitigation/monitoring measures to be implemented during the construction stage of the project.

2.4 Project Description - Operational Phase

The proposed development comprises a Large-Scale Residential Development (LRD) at Carriganarra, Carrigrohane & Maglin (townlands), Ballincollig, Cork.

The proposed development consists of the demolition of existing agricultural buildings and the construction of a residential development of 300 no. residential units consisting of 128 no. dwellings houses, 172 no. apartment/duplex units, a two storey creche facility and all ancillary site development works. The proposed 128 no. dwelling houses will include 42 no. bedroom detached/semi-detached dwelling houses and 84 no. 3 bedroom semi-detached/townhouse dwelling houses. The proposed development also provides for the restoration of an existing vernacular farm building on site which will accommodate 2 no. 2 bedroom semi-detached units.

The proposed 172 no. apartment/duplex units will include 18 no. 3 bedroom units, 109 no. 2 bedroom units and 45 no. 1 bedroom units, to be provided in 20 no. apartment/duplex buildings ranging in height from 3-4 storeys over basement level.

Vehicular access to the proposed development will be provided via the existing junction from the Killumney road serving the Heathfield residential development and existing sections of the Maglin Sustainable Access Corridor to the north. The proposed development provides for the extension of Maglin Sustainable Access Corridor and the provision of 4 no. pedestrian/cycle connections to the Heathfield residential development to the north which is under construction.

Ancillary site works include the raising of existing ground levels on site, the provision of bicycle parking and bin storage facilities serving the proposed apartment/duplex and creche buildings, the delivery of active travel infrastructure, landscaping and servicing proposals including a temporary pumping station, and the undergrounding/diversion of an existing 38KV overhead ESB line which traverses the site. The proposed development also provides for a bridge crossing of the Maglin North stream to the south of the site.



Figure 2.3 Proposed Development

The proposed development provides for the construction of the next eastern section of the MUEA SAC. This is consistent with the strategy developed successfully by the applicants at Heathfield. The route and design of the SAC provides for a 6 metre wide carriageway, with 3.5 metre landscape strip (which can accommodate future widening of the SAC, to provide for dedicated public transport lanes as required), and an additional 2 metre landscape strip. The proposed route of the MUEA SAC within the site represents the initial envisaged route of the SAC as determined in response to the 'South Ballincollig Drainage Study' prepared by Malachy Walsh & Partners (MWP) which informed the CDP and the framework for the realisation of the MUEA.

The extension of the SAC will serve as primary access to the lands with 2 no. priority-controlled junctions providing direct pedestrian and vehicular access to/from the SAC to serve the proposed development. The subject lands are situated immediately south of the Heathfield residential development, the most recent phase of which is under construction and nearing completion. Heathfield utilises the existing eastern boundary agricultural laneway to serve as a 4-metre wide 'north-south' shared pedestrian/cycle route, linking Killumney Road with the subject lands. The proposed development provides for the extension of this pedestrian/cycle route into the site in addition to the delivery of the proposed 'east-west' greenway represented by the 'Walkways & Cycleways' development objective identified in the CDP, reflecting an integrated and coherent approach to the delivery of active travel routes in the MUEA.

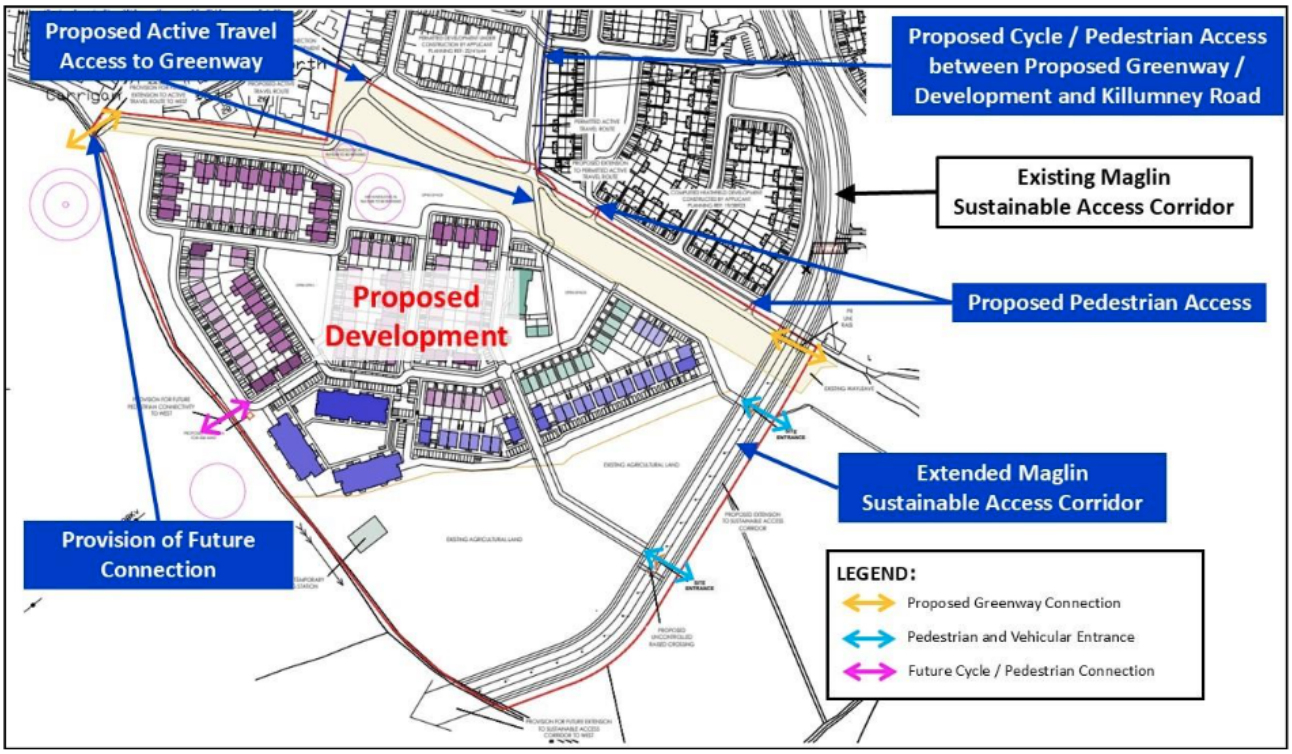


Figure 2.4 Site Access Strategy

2.5 Alternatives Considered

Article 5(1) of the Directive 2011/92/EU, as amended by Directive 2014/52/EU states that.

> *d) a description of the reasonable alternatives studied by the developer, which are relevant to the project and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the project on the environment;*

> *f) any additional information specified in Annex IV relevant to the specific characteristics of a particular project or type of project and to the environmental features likely to be affected.*

Since the inception of the project, the developer considered several different layouts and options for the development of the subject lands. Each stage of the project required a reappraisal of the design strategy of the project and an evaluation of how each proposed layout responded to the site's context. The design rationale for the proposed development adopted several key principles which underpinned the wider development strategy for the lands including.

- That the scale of residential development is reflective of the site's existing and evolving contexts within MUEA and that delivers on the ambitious housing and population targets for Ballincollig, set out in the CDP and RSES.
- That the proposed MUEA Sustainable Access Corridor, which will provide access to the lands, is designed to accommodate a two-way cycle path and makes provision for potential future public transport corridors.
- That any layout directly responds to the site's topography, natural features and receiving environment.
- That the residential amenities of existing residents in the area is respected during both construction and operational phases of the project.
- That high quality public open spaces and communal areas are provided, which will benefit the wider community and the creation of enhanced public realm and pedestrian/cyclist upgrades, which will not only serve the proposed development, but the wider Ballincollig area.

2.6 Comparison of Environmental Impacts

4 no. Alternative Layouts were assessed through the project which are detailed in Chapter 2 of this EIAR. Tables 2.1 and 2.2 as shown provides an objective comparison analysis of the evolution of the proposed development in context of the categories outlined in Chapter 2.

Criteria	Alternative A	Alternative B	Alternative C	Alternative D
Landscape & Visual	=	=	=	=
Traffic & Transportation	-	x	=	✓
Services, Infrastructure & Utilities	=	=	=	=
Land, Soils & Geology	=	=	=	=
Water & Hydrology	=	=	=	=
Biodiversity	x	✓	✓	✓
Noise & Vibration	=	=	x	✓
Cultural Heritage	=	✓	✓	✓
Air Quality	=	=	=	=
Climate	=	=	=	=
Population & Human Health	x	✓	✓	✓

✓ Where it has been considered that there has been an improvement from the previous alternative

= Where the impact is considered similar for all options

X Where a particular option is considered to have a more negative impact on a particular aspect of the environment than other alternatives.

Table 2.1 Comparison of Impacts - Construction Phase

Criteria	Alternative A	Alternative B	Alternative C	Alternative D
Landscape & Visual	=	✓	✓	✓
Traffic & Transportation	-	=	=	✓
Services, Infrastructure & Utilities	=	=	=	=
Land, Soils & Geology	=	=	=	=
Water & Hydrology	=	=	=	=
Biodiversity	x	✓	✓	✓
Noise & Vibration	=	=	=	=
Cultural Heritage	=	✓	✓	✓
Air Quality	=	=	=	=
Climate	=	=	=	=
Population & Human Health	x	✓	✓	✓

✓ Where it has been considered that there has been an improvement from the previous alternative

= Where the impact is considered similar for all options

X Where a particular option is considered to have a more negative impact on a particular aspect of the environment than other alternatives.

Table 2.2 Comparison of Impacts – Operational Phase

2.7 Reasons for Chosen Alternative

When all construction and operational aspects are assessed, it is objectively considered that 'Alternative D', consisting of 300 no. residential units, creche, is the most appropriate and efficient alternative layout assessed.

Alternative D reflects the observations of Cork City Council during Section 247 and Section 32 LRD discussions, and represents a more efficient development than that previously proposed in Alternatives A-C.

- Alternative D provides for an improvement in terms of urban design useable public open spaces, natural drainage and the promotion of active travel from previous alternatives. Alternative D also incorporates the recommendations of Cork City Council in Section 247 and Section 32 Meetings
- Alternative D provides for an efficient density of residential development, reflective of the site's location relative to Heathfield, Limeworth and the prevailing urban character of the area and the sites ZO 01 and Z0 15 CDP zoning objectives. Alternative D provides for greater interactions and permeability with the wider area and provides a diverse housing mix accommodating a diverse new residential neighbourhood in Ballincollig.
- Alternative D represents the most efficient route and delivery of the MUEA SAC route and will stimulate development at other zoned lands in the MUEA.
- It is considered that the proposed layout has incrementally improved across all alternative layouts considered and will positively contribute to the future residential and economic growth of the settlement. Once operational the proposed development will result in several positive environmental and socio-economic impacts to the locality.

CHAPTER 3 | Landscape & Visual

In Chapter 3 the impacts of the proposed development on the landscape character and visual amenity of the receiving environment are assessed. The chapter should be read in conjunction with the verified photomontages contained in Chapter 3 of this EIAR.

3.1 Receiving Environment

3.1.1 The site

The site is located within the settlement boundary of Ballincollig, at the southern edge of the existing urban area. It is part of the South Ballincollig (Maglin) strategic land bank, which is identified in the Cork City Development Plan 2022-2028 (CCDP) as one of seven strategic areas for consolidation and expansion of Cork City.

The site is an area of farmland. It is comprised of several fields, and subsections of former fields, centred around a derelict farmyard. There are hedgerows and tree lines on the internal field boundaries and along a track leading to the farmyard from the north. The land falls towards the south west, south and south east across the site. The Maglin River (a narrow stream) runs along the west boundary, with a belt of scrubby vegetation along its east bank. The southern fields are increasingly wet and covered in scrub.

3.1.2 Surrounding Landscape Character and Key Potential Receptors o f Change

The receiving environment is in a process of change, as the urban area expands southwards from the Killumney Road into the Malin area. The following are the key potential receptors of change on the site:

- Heathfield estate to the north of the site. Heathfield is a residential neighbourhood recently developed to the north and north east of the site, south of the Link Road/Killumney Road and west of the N22. The Meadows is the estate closest to the site. A row of large, semi-detached houses face the northern site boundary across the Meadows access road. These houses are the receptors most susceptible to change on the site. Heathfield is traversed by the first section of the Maglin Sustainable Access Corridor (MASC), and this new distributor road termintates at the site boundary. The landscape in this area is highly disturbed.
- Development under construction to north of site. There is another estate, similar in character to Heathfield, under construction directly to the north of the site. This estate is not yet operational/occupied.
- Limeworth estate. Limeworth is an established estate of large houses in mature gardens to the north west of the site. The site wraps around Limeworth on two sides, but Limeworth is enclosed by dense vegetation on its boundaries, which restricts visibility of the surrounding landscxape.
- Zoned lands to south and west of the site. The lands immediately to the south of the site, and to the west along the Maglin River, are zoned ZO 15 Public Open Space. A very large area of land between the river and the N22 Ballincollig Bypass to the south, and the Magline Road to the west, is zoned ZO 02 New Residential Neighbourhoods. Like the site, these lands form part of the South Ballincollig/Maglin strategic land bank, and as such are not sensitive to development on the site (which would be complementary to their zoning).

3.2 Visual Impact Assessment

8 no. viewpoints were selected to assess the visual impacts of the proposed development on the key receptors identified above. The results of the assessment were as follows:

No.	Viewpoint Location	Viewpoint Sensitivity	Magnitude of Change		Significance of Visual Effects	
			Construction (temporary)	Operation (long term)	Construction (temporary)	Operation (long term)
1	Southern roundabout of N22 and N40 Junction 1 intersection	Low	Low	Low	Not significant / negative	Not Significant/ neutral
2	Next to No.14 The Meadows, Heathfield	Medium	Medium	Medium	Moderate / negative	Moderate/ neutral
3	Next to side of No. 21 The Meadows, Heathfield	Medium	Medium	Medium	Moderate / negative	Moderate/ neutral
4	Next to No. 11 The Lane, Heathfield	Medium	Medium	Medium	Moderate / negative	Moderate/ positive
5	Open Space at The Lane, Heathfield	Medium	Low	Low	Slight / negative	Slight/ neutral
6	Open Space at Limeworth	Medium	Low	Negligible	Imperceptible/ neutral	Imperceptible/ neutral
7	Next to No. 25 Limeworth	Medium	Negligible	Negligible	Imperceptible/ neutral	Imperceptible/ neutral
8	Next to No.14 The Avenue, Heathfield	Medium	Negligible-low	Negligible	Not significant/ neutral	Imperceptible/ neutral

3.3 Landscape Impact Assessment

3.3.1 Landscape Sensitivity

Based on the analysis of the receiving environment and relevant policy, the landscape sensitivity of the receiving environment can be classified 'low-medium'. This classification is based on the following factors:

- The site is an area of agricultural land located at the edge of Ballincollig, within the settlement boundary inside the N22 Bypass.
- The site contains a number of valued landscape features, including the Maglin River which runs along its west boundary, a number of mature trees and sections of hedgerow, an old farmhouse, and archaeological remains. These give structure to the landscape, provide visual amenity and (potentially) screening, and form part of the local green infrastructure network.
- However, the site falls into the South Ballincollig/Maglin lands area, one of seven 'strategic areas for consolidation and expansion of Cork City' identified in the CCDP, and the majority of the site is zoned ZO 1 'Sustainable Residential Neighbourhoods. The CCDP land use objective for these lands is as follows *"Development in this zone should generally respect the character and scale of the neighbourhood in which it is situated. Development that does not support the primary objective of this zone will be resisted"*. A part of the site (the southern area and western edge along the river) is zoned ZO 15 "Public Open Space".

- The plan-led southern expansion of Ballincollig into the Maglin lands is in progress. There are residential estates (and roads) under construction or recently completed adjacent to the site. The landscape is thus in a transitional condition, and visibly disturbed/incomplete in places.
- Ballincollig Castle lies over 1km to the west of the site. This castle is of significant cultural heritage value, and it features prominently in views across the landscape of south Ballincollig. Given the separation distance of over 1km, and the ongoing urban development between the site and the castle, there is no potential for the proposed development to cause any significant landscape or visual impacts on Ballincollig Castle.

In conclusion, while the site is currently greenfield and of some visual amenity value, the land is designated for residential use, the former agricultural use has ceased, and the immediate landscape context is an emerging urban residential neighbourhood. There is thus capacity to accommodate change of the type proposed, and the landscape could benefit from that change (e.g. by contributing to the completion of the planned urban neighbourhood/district, while respecting and utilising the site's landscape assets).

3.4 Magnitude of Lanscape 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.*).

This classified magnitude of change is based on the following factors:

- With a site area of 13.5 ha and comprising. 300 no. residential units, the proposed development is of substantial scale/spatial extent. However, at the 'landscape scale' (i.e. considered in the context of its wider receiving environment, the urban area of Ballincollig), the landscape change would be (a) moderate, and (b) and in keeping with the ongoing, plan-led urban expansion into the South Ballincollig/Maglin lands.
- The proposal includes a range of residential building types, including semi-detached houses and townhouses, duplex terraces and four storey apartment buildings. This would diversify the housing/ building typologies in the landscape locally, although this is in keeping with the trend of urban consolidation and densification in Ballincollig and Cork City generally.
- The visual impact assessment reveals that any significant visual effects would be confined to the adjacent residential estate ('Heathfield') directly to the north of the site. This estate is currently at the urban edge, and the development would see Heathfield incorporated into an expanded urban neighbourhood, changing its landscape context.
- There are no other receptors that would experience visual effects of any significance. Even the other established neighbouring estate, 'Limeworth' to the north west, would experience only negligible change. This is due to a considered, responsive layout and arrangement of built form/height.

3.5 Significance and Quality Landscape Impact

Measuring the magnitude of change against the sensitivity of the receiving environment, the significance of the landscape impact would be 'moderate' (EPA definition: *An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends*).

The urban area would be expanded locally, and the housing/building typologies diversified with an associated increase in density. This would cause a shift in character towards a more urban condition, but the shift would be consistent with the existing, plan-led trend of change in south Ballincollig.

The key consideration is whether the effects would be positive, neutral or negative. In this regard:

- The key landscape and historic assets of the site – including perimeter and internal boundary hedgerows, tree lines, the old farmhouse and the standing stone - would be retained, lending character, maturity and visual amenity to the new neighbourhood.
- A new linear park would be created inside the site's northern boundary, functioning as both a spatial/visual buffer and a shared amenity between the new estate and the neighbouring estates to the north (Heathfield, Limeworth). The linear park includes the Active Travel Route along the former railway line, retained hedgerows and trees, new woodland planting, lawn kickabout areas and a play area, seating areas, and the standing stone as a feature in the landscape.
- In the southern part of the site, a large area of former agricultural fields would be provided as public open space, to form part of a broad wedge of open space along the Maglin River.
- Inside the western boundary, the proposed buildings are set back from the Maglin River, retaining a belt of open space along the river – while utilising the river corridor as a visual amenity for the new houses and apartments that face the river.
- The arrangement of built form and height responds to (a) the topography of the site, (b) the sensitivity of the neighbouring estates, and (c) the site's position/function in the expanding and evolving urban landscape. The taller apartment buildings are positioned in the south west corner of the site. This ensures maximum separation distance from existing houses, and uses the larger form to provide built enclosure/definition and passive surveillance to the southern open space and the river corridor. The apartments will form part of a legible new urban edge in views from the Maglin Sustainable Access Corridor.
- Inside the northern site boundary, closest to the existing neighbouring estates, two storey houses are proposed, set well back from the boundary behind the linear park or the Active Travel Route to avoid significant visual impacts. Retained hedgerows and trees will be supplemented by new planting to further soften the visual impact of the development.
- A variety of SUDS features are proposed as part of the development, including rain gardens, infiltration basins, filter drains and green roofs on the apartment blocks.
- The varying design response to the context results in variations in character across the scheme. This variety would be reinforced by the detail design of the buildings, creating sub-neighbourhoods/character areas of distinct identity – but with a unified design theme. The verified photomontages and CGIs illustrate that the high quality of design and the high quality materials proposed.

In conclusion, the proposed development's landscape effects would be overwhelmingly positive. It would (a) deliver key elements of the planned local green infrastructure network (the linear park and Active Travel Route inside the northern boundary, a large area of public open space to the south, and an open space corridor along the river to the west) - to the benefit of the scheme and its future residents, and the wider Maglin area; (b) provide a high quality new residential neighbourhood of mixed housing typologies, thereby realising the land use objective for the site; and (c) avoid any negative landscape or visual impacts on the existing residential area to the north, or any other receptors.

3.6 Avoidance, Remedial and Mitigation Measures

3.6.1 Operation Phase

The likely overall landscape impact of the proposed development has been classified 'moderate positive'.

The likely visual impacts have mostly been classified as ranging from Imperceptible to Moderate (in Significance of Effect) and neutral or positive (in Quality of Effect). The impacts will be greatest upon those residential receptors located nearest to the site within the current urban fringe of Ballincollig, but the change is not inappropriate, and the new buildings and public realm would themselves be of high design and material quality. Therefore, no mitigation measures for landscape or visual impacts are required.

3.6.2 Construction Phase

The negative landscape and visual impacts of construction are an unavoidable consequence of development and there is limited potential for mitigation. Site hoarding would screen ground level activity, materials stockpiles, vehicles, etc. but once the buildings grow above ground floor level they would be visible above the hoarding, as would cranes, scaffolding and construction activity on the buildings themselves. No landscape or visual-specific mitigation is recommended other than standard best practice construction site management, which should include the erection and maintenance of hoarding on the site boundaries.

The above assumes that the hedgerow and tree protection measures recommended in the Tree Survey by County Tree Care Ltd (Appendix 3-1) would be fully implemented. The retention of the hedgerows and certain trees on the site is an important part of the proposed development, and any loss of this vegetation would constitute a negative landscape impact.

CHAPTER 4 | Material Assets – Traffic & Transportation

4.1 Background

This chapter of the Environmental Impact Assessment Report (EIAR) provides an assessment of the existing environmental setting and the likely significant impacts on the surrounding transport network, associated with the proposed residential development (Carriganarra LRD) at lands in Ballincollig, Co. Cork.

4.1.1 Permissions Granted

At the time of writing, three other residential developments (including Stonecrest Phase 1 development, Stonecrest Phase 2 development and Heathfield Phase 4 development) in the vicinity of proposed development have obtained planning permission. Those permitted developments shall be considered for this study in both the "without" and "with" development scenarios. This is because whether or not the proposed development is built, the trips generated by those permitted developments will still apply.

4.1.2 Proposed Development

The development comprises 300 residential units (comprising of 42 no. four-bedroom houses, 84 no. three-bedroom houses, 2 no. 2-bedroom houses, 18 no. three-bedroom duplex apartment units, 19 no. two-bedroom duplex apartment units, 32 no. one-bedroom duplex apartment units, 90 no. two-bedroom apartment units and 13 no. one-bedroom apartment units), a creche, associated roads, footpaths, private driveways, landscaping, site services, SuDS measures and ancillary related works.

Car Parking Provision

For residential development, it is proposed to provide 433 car parking spaces, of which 252 car parking spaces for houses, 69 car parking spaces for duplex apartment units, 103 car parking spaces for apartment (block) units and 9 car parking spaces for visitors. Included in the 103 car parking spaces provided for residential units (i.e. apartment (block) units) with not in-curtilage parking, 5 accessible parking spaces will be provided.

For non-residential development, it is proposed to provide 10 car parking spaces for the proposed creche. Included in the 10 car parking spaces provided for the proposed creche, one accessible parking space will be provided.

The developer will also provide 20 parking spaces with functioning EV charging points from completion of the residential units (i.e. apartment (block) units) with not in-curtilage parking. Additionally, the Developer will provide 4 car parking spaces with functioning EV charging point for the proposed creche.

Bicycle Parking Provision

For the residential development, it is proposed to provide 287 bicycle parking spaces, of which 227 bicycle parking spaces for the duplex apartment / apartment (block) units and 60 bicycle parking spaces for visitors. Additionally, it is assumed that bicycle parking for houses will be accommodated in each rear garden space.

For the non-residential development, it is proposed to provide 22 bicycle parking spaces, inclusive of 12 bicycle parking spaces for visitor, for the proposed creche.

4.2 Receiving Environment

There are good existing public transport options available to commuters between Ballincollig and Cork City centre and other destinations to the east and west. The only 24-hour bus route in Ireland connects Ballincollig to Carrigaline, operating a high frequency service. The report also details the proposed active travel and public transport projects outlined in CMATS and confirms that the proposed development is ideally located to take advantage of these future proposals when they come to fruition. The proposed development provides active travel facilities throughout with walking and cycling routes, shared paths, crossing points, raised tables, material changes which all align with DMURS requirements.

Vehicle turning movement surveys were undertaken on 16th April 2024 at three existing junctions in the surrounding area, which captured all turning movements at the junctions from 07:00 to 19:00. These junctions were selected as they are considered the junctions most likely to be affected by traffic associated with the proposed development:

- Junction 1 – Leo Murphy Link Road / Link Road / Limeworth;
- Junction 2 – Carriganarra Road / Link Road / Maglin Sustainable Access Corridor; and
- Junction 3 – Kilumney Link East Roundabout.

4.3 Assessment

4.3.1 Traffic Impact During the Construction Phase

There will be minor impacts on the safety or operation of the road network as a result of the construction phase of the development. Having consideration for the mitigation measures outlined above, any impacts during the construction phase will be negligible. All construction related traffic will be outside the morning and evening peak hours and will not have a significant impact the operation of the adjoining junctions. Furthermore, they will be temporary in nature and of relatively short duration. The overall residual impact during the construction phase of the proposed development on traffic and transportation, after the implementation of mitigations measures outlined above, will be neutral (i.e. short term and not significant).

4.3.2 Traffic Impact During the Operational Phase

Expected trip generation for the proposed residential development was estimated utilising the TRICS database and modal split (i.e. 64% of people for the year of opening in this area are using vehicles) for the Electoral Division of Ballincollig from 2022 Census as agreed with CCC while expected trip generation for the proposed non-residential development (i.e. creche) were estimated utilising the TRICS database and applying the 70% trip reduction as by-pass trips. Expected trip generation for the proposed development was revealed to be in total 49 trips inbound and 125 trips outbound in the morning peak hour, and 96 trips inbound and 55 trips outbound in the evening peak hour.

An exercise was carried out to quantify the expected development trip generation as a proportion of existing traffic flows on the surrounding road network to determine if a detailed traffic impact assessment is required for all of the junctions included within the scoping study. The estimated trips associated with the proposed development for Junction 1 and Junction 3 inclusive represent a small proportion of existing traffic flows on the surrounding road network and less than the thresholds for traffic impact assessment stated in the Table 2.1 of TII Traffic and Transport Assessment Guidelines (i.e. 10% of the traffic flow on the existing road network and 5% in sensitive environments or where congestion exists) during the morning and evening peak hours. Thus, it is not necessary to undertake any traffic capacity assessments for Junction 1 and Junction 3 in this study.

It is acknowledged that Junction 2 is greater than the 5% of the traffic flow on the existing road network where some congestion exists, or the location is sensitive. Therefore, a capacity assessment on Junction 2 was undertaken using the TRL's analysis software: OSCADY for signalised junction.

It is anticipated, following a successful planning application, that the proposed development will be fully complete and operational in 2030. Thus, the assessment will focus on the 2030 Opening year and 2045 Design Year for Junction 2.

The analysis results demonstrate that Link Road West and East arms at Junction 2 will operate within the normal design capacity in the morning and evening peak hours under 2024 Baseline Year, 2030 Opening Year and 2045 Design Year.

2024 Baseline Year

Typically, a DOS of less than 0.9 normal design threshold for signalised junction is considered to indicate satisfactory performance (i.e. operating in an efficient and stable condition). A DOS of between 0.9 and 1 for signalised junction represents variable operation, and may be said to be operating adequately, if the queue and delay are deemed acceptable. DOS values in excess of 1 represents an oversaturated condition.

In 2024 baseline year with calling an all-red stage for pedestrian movements, Junction 2 is currently operating within the normal design threshold in the morning and evening peak hours

2030 Opening Year

In 2030 with calling an all-red stage for pedestrian movements, Junction 2 will operate within the normal design threshold in both the morning and evening peak hours in 2030 for both the "without" development and "with" development scenarios.

2045 Design Year

In 2045 with calling an all-red stage for pedestrian movements, Junction 2 marginally operate within the normal design threshold in both the morning and evening peak hours in 2045 for both the "without" development and "with" development scenarios. It should be noted that the likely development of infrastructure (i.e. upgrading Killumney Road, construction of Eastern Link road, Western Link Road and Maglin By-Pass), the provision of public transport infrastructure (BusConnects and light rail) and the provision of the Maglin Greenway to encourage increased modal shift away from the use of the private car will result in a decrease in the traffic at the exiting junctions along Killumney Road (i.e. Greenfields Road, Castle Road, Sunningdale, Link Road, etc.). After completion of these improvements, the performance of this junction could be further improved.

The mitigation measures, future public road and transport infrastructure improvement works and the likely modal shift away from the use of the private car will all further reduce the impact that this development has on the surrounding road network.

The location of the proposed development is ideally situated to take advantage of the existing and proposed public transport and active travel options planned for the area - BusConnects and Light Rail, Maglin Greenway, cycle infrastructure, etc as detailed in the Cork City Development Plan (2022-2028) and CMATS.

4.3.3 Conclusion

In view of the above analysis, the overall residual impact during the operational phase of the proposed development on traffic and transportation, after the implementation of mitigations measures outlined above, will be neutral (i.e. long term and slight).

The study concludes that a traffic from the proposed development as described herein will not have a significant impact on existing and proposed traffic in the vicinity of the development.

CHAPTER 5 | Material Assets – Services, Infrastructure & Utilities

5.1 Existing Stormwater Infrastructure

There is no internal stormwater piped network within the site. The main hydrological features of the area are the "Lisheens Stream" and "Maglin" networks. Both of these watercourse's flow in an easterly direction. The Maglin North watercourse is joined by the Maglin South approximately 200m downstream from the subject site before discharging to the Curragheen River, which is approximately a further 2km downstream. The Curragheen River then flows in a north-easterly direction and joins the River Lee before ultimately discharges to Cork harbour.

5.2 Existing Foul Drainage Infrastructure

There are no records or evidence indicating the presence of any constructed foul water drainage infrastructure within the site.

The nearest foul water drainage system to the site is the network constructed as part of the adjoining Heathfield development to the north of the site. This is currently nearing completion.

5.3 Existing Water Supply Infrastructure

From available water main records and liaison with Uisce Eireann, the following existing watermain have been identified within the vicinity of the site:

- 1 No. 150mm diameter watermain located in the "Maglin UEA Sustainable Access Corridor" constructed as part of the Heathfield Development to the north.
- 1500mm City & Harbour Watermain Supply from Inniscarra to Ringaskiddy traverses the site. This is protected by a wayleave. It is not proposed to connect to or interfere with this asset.

The nearest potatble water drainage system to the site is the network constructed as part of the adjoining Heathfield development to the north of the site. This is currently nearing completion

5.4 Impact Assessment

The proposed development was assessed to look at the development of the site and the impact this would have on the following

- storm water drainage infrastructure
- foul water infrastructure
- water supply,
- utilities services (electricity, public lighting, gas, broadband)

to service the proposed development.

5.5 Stormwater

The proposed development will adhere to the requirements of Cork City Council's sustainable urban drainage systems. This will allow the storm water generated on site to be released in a controlled manner even during extreme storm water events while also using SuDS techniques to improve the overall storm water quality and assist in attenuation volumes.

5.6 Foul Sewer

The proposed schemes requirements have been assessed by Irish Water who have deemed the requirements can be adequately services by the local infrastructure. A Statement of Design Acceptance has been issued by Irish Water in relation to same.

5.7 Water Supply

The proposed schemes requirement has been assessed by Irish Water who have deemed the requirements can be adequately services by the local infrastructure. A Statement of Design Acceptance has been issued by Irish Water in relation to same

5.8 Utilities services (electricity, public lighting, broadband)

The proposed development will adhere to the requirements of the relevant service providers in order to connect to the existing infrastructure.

CHAPTER 6 | Land, Soils & Geology

The Carriganarra site is in a rural to suburban setting to the south of Ballincollig, Cork. The lands are zoned for residential development in the current Cork City Development Plan. It is located on agricultural land sloping gently to the south and southwest towards the Maglin North River. The lands are made up of several agricultural fields divided by mature hedgerows. The fields on the northern part of the site are well drained supporting better quality grassland. These soils are fertile, so have a wide range of potential uses and are well suited to arable crops and grassland. The southern part of the site is near flat and poorly drained, capable of only supporting low intensity grazing. Residential developments are located to the north of the site. Poor quality lands extend to the southeast. Agricultural lands, zoned for residential development, are located to the west. The N22 national road is located approximately 500m to the south. The lands will be accessed from the sustainable access corridor to be extended from Heathfield. The land, soils and geology of the site were assessed based on available literature, published reports, walkover surveys and ground investigation. The overburden geology is shown on Figure 6.1.



Figure 6.1 Overburden Geology Map

As shown on Figure 6.1, the site is covered by till derived from Devonian sandstones, with bedrock outcrop occurring on the western side. The overburden soils consist of a thin layer of topsoil (150 to 400mm) and glacial tills resting of limestone bedrock. The overburden tills are generally sandy with varying amounts of clay and gravel. Overburden thickness increases from approximately 0.9m at the northern part of the site to greater than 6.8m in the southern part of the site. Bedrock outcrop occurs in the vicinity of the disused lime kiln and farmyard.

The bedrock geology is shown on Figure 6.2.

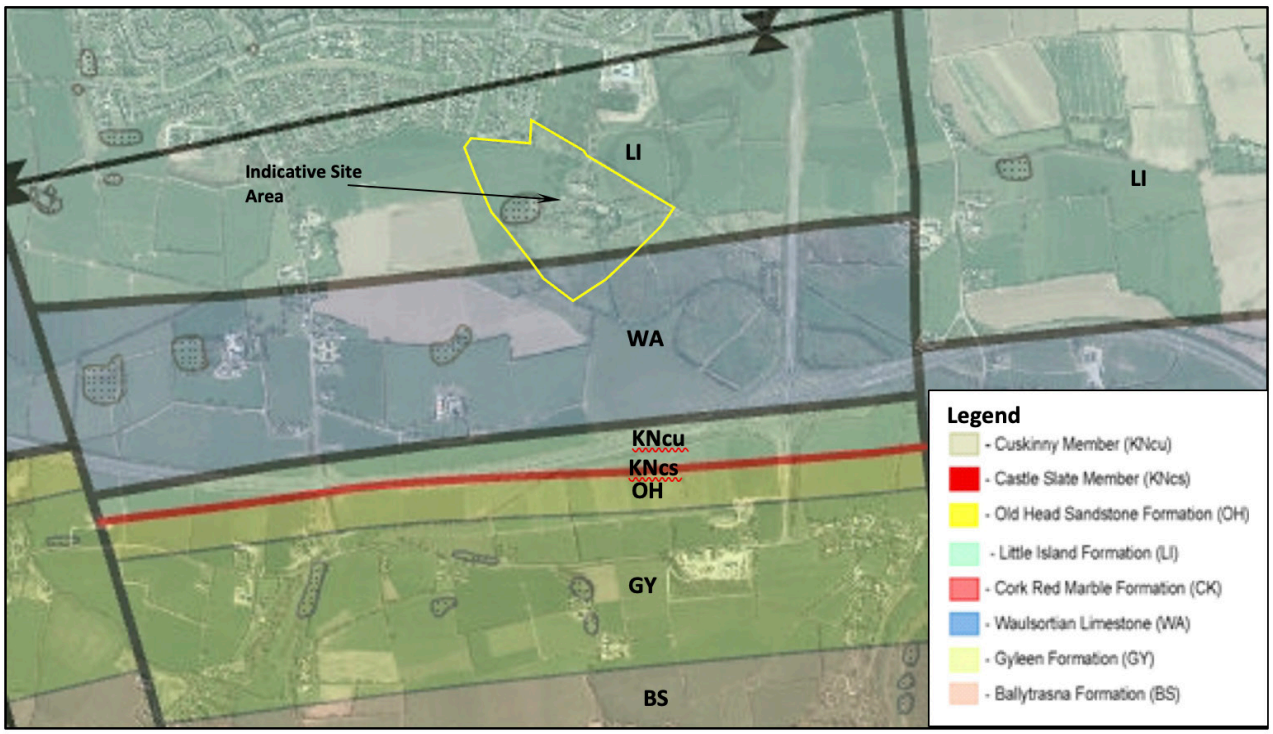


Figure 6.2 Bedrock Geology Map

The bedrock consists of limestone rocks which have been folded during the mountain building periods to give east-west orientated valleys and hills which impose a strong influence on the landscape character of south County Cork. The bedrock consists of two limestone formations, both of which are susceptible to karstification (chemical dissolution of the limestone), which present as caves, springs, sink holes, etc. Historic maps for the site indicate a lime kiln at the site. A small limestone quarry is located adjacent to the kiln.

There are no geological heritages sites within the development site or within its vicinity. The site has no economic potential, such as minerals or gravel deposits. There are no identified contaminated land issues associated with the site.

Overall, the importance of the site in terms of its land, soils and geology attributes is rated as Low (on the southern part of the site) to High (on the northern part of the site).

The impacts on land, soils and geology are largely associated with the construction phase, with earthworks required for the development, and use of quarry products in the construction of the development.

Appropriate mitigation is proposed to avoid and reduce the impacts identified. Due to the flat topography of the site, no large-scale cut and fill excavations will be required to construct the residential units. Much of the excavated soils will be reused on site. Surplus topsoil will be removed off site for beneficial use to improve the agricultural potential of soil recovery sites, beneficial use in other infrastructural projects, and / or the restoration of disused quarries. These beneficial uses will be identified during the construction phase. Clean soil will need to be imported to raise ground levels on the southern part of the site. This material will be sourced from other construction sites with surplus soils. Foundations design will take account of the geology with the use of rafts supported with end-bearing piles. Concrete, concrete products and aggregates needed for the construction will only be sourced from authorised quarries, at which appropriate environmental controls are implemented. No significant impacts on soils or geology are identified during the operational phase. The land use will be permanently changed from rural agricultural use to an urban residential neighbourhood. Amenity land use will be provided with the open green spaces and landscaping.

CHAPTER 7 | Water (Hydrology & Hydrogeology)

The surface water and groundwater environments at the site were assessed using available published literature, site walkovers, ground investigations, and surface water sampling. Assessment of the aquatic environment was carried out by the project ecologist. The engineering hydrology aspects of the development, including flood studies and drainage design, were carried out by the project engineers.

The site is located in the catchment of the Maglin North River, a tributary of the Curraheen River. Several man-made field boundary drains are located within the site, which discharge to the Maglin North River. Most of these are dry except during prolonged heavy rainfall events. The Maglin North River flows generally in an easterly direction, joining with the Maglin South River, Curraheen River, Glasheen River and eventually the South Channel of the River Lee. The catchment of the site is shown in Figure 7.1 and local drainage is shown on Figure 7.2.

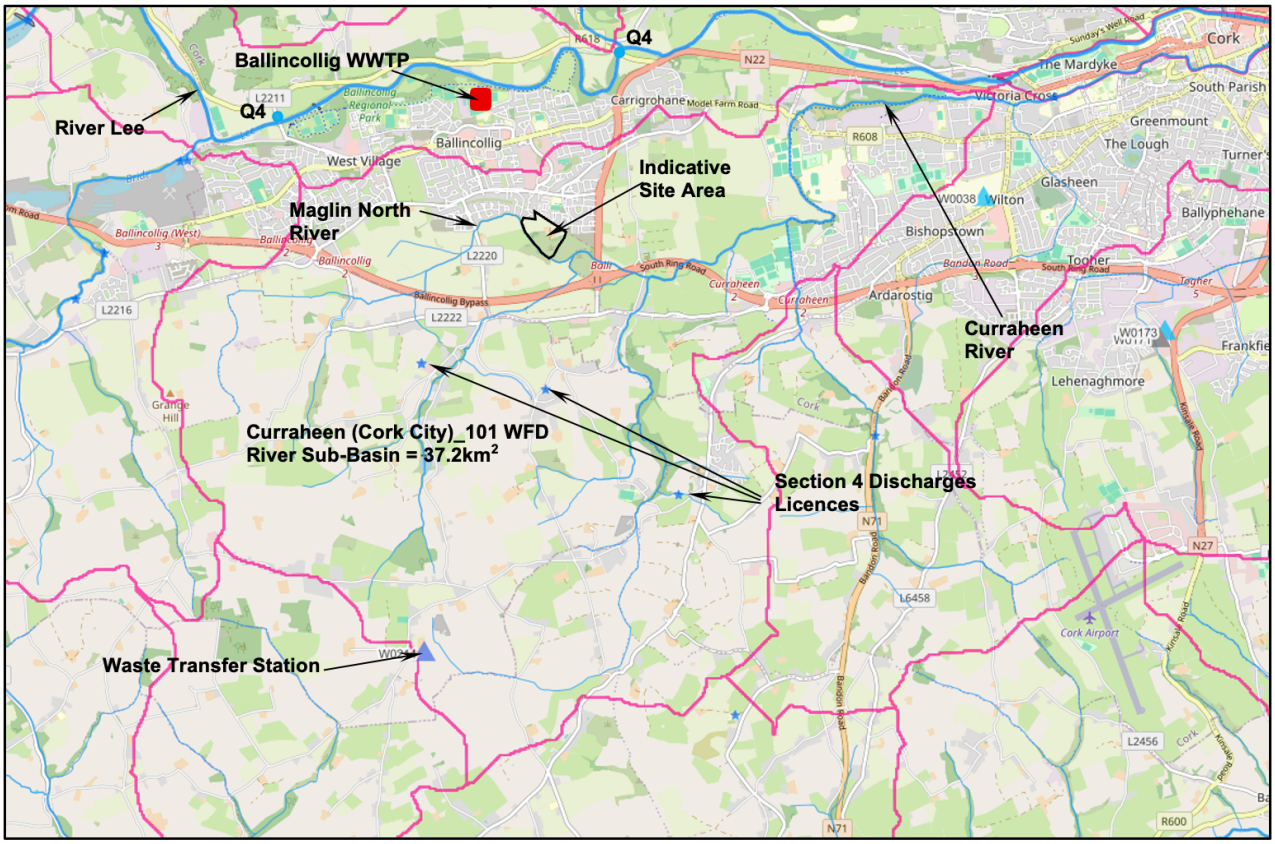


Figure 7.1 Surface Water Features + River Sub-basins

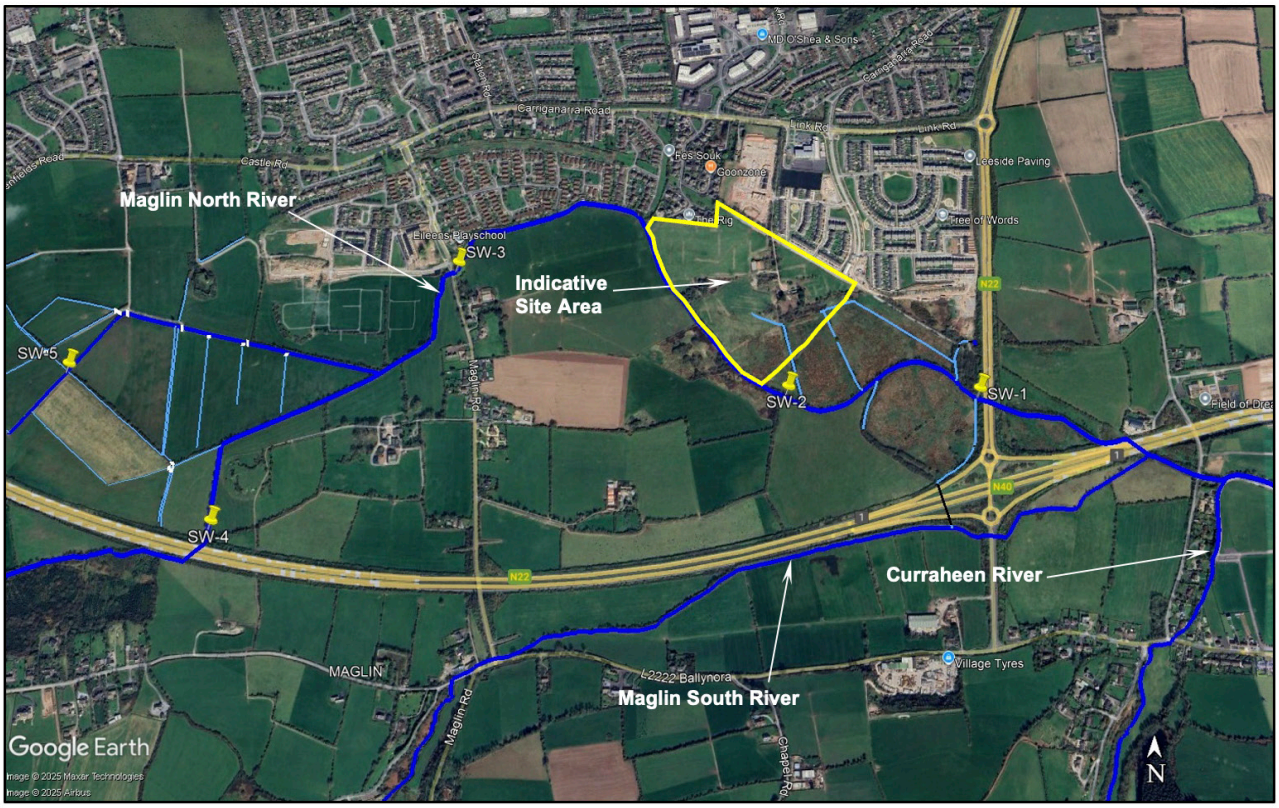


Figure 7.2 Local Drainage

Overall, the importance of the site in terms of its surface water attributes is rated as Very High due to its connection to protected sites in Cork Harbour, approximately 10km (direct line measurement) to the east of the site.

The main potential impacts on surface water during the construction phase include pollution from siltation of the receiving waters from erosion of earthworks areas; and construction works near the river, in particular the bridge spillage of diesel / oil used by site plant and machinery (which could potentially affect groundwater quality); release of concrete or concrete rinse water to the open drains; and foul effluent from welfare facilities at the construction site compound. Appropriate handling and management of potentially polluting material will be employed during the construction phase. Surface water protection measures will also be put in place to treat stormwater runoff before it reaches any watercourse or drain. Monitoring of water quality is proposed to ensure effectiveness of the treatment infrastructure. The potential operational impacts include increased runoff volumes from hard paved surfaces. Appropriate design and mitigation have been used to reduce these potential impacts. The discharge from the site will be limited to greenfield runoff volumes. The southern part of the site has been identified as being at risk from flooding. The proposed sustainable access corridor goes through the flood plain and it is proposed to raise the ground levels in the flood plain between the proposed road and the residential units. In addition, the new bridge could potentially affect river hydraulics, restricting flows during high flow events. The flood risk assessment modelling indicates that with mitigation the development is at low risk of flooding for the design event and that it will result in only slight changes to the flood levels in adjoining lands. It concluded that there will be higher flood levels upstream of the sustainable access corridor bridge of up 360mm extending approximately 350m upstream. Downstream of the sustainable access corridor increases of up to 50mm extending for 250m would be experienced.

Water quality will be protected with the use of sustainable drainage systems (SuDS) infrastructure and oil interceptors. It is noted that the use of infiltration SuDS infrastructure is limited to reduce the risk of subsidence as this area is underlain by limestone susceptible to karstification.

Indirect impacts associated with the proposed development include increase demand on the water supply, sourced from the Inniscarra Reservoir and increase sewerage to be treated at Ballincollig wastewater treatment plant. Uisce Eireann has indicated that the increased demand is within the capacity of both facilities.

No significant residual impact is predicted for the surface water environment.

Groundwater is found in the bedrock formations underlying the site. Both are classified by the Geological Survey of Ireland as Regionally Important Aquifer - Karstified (diffuse). There are no abstraction wells on the site. The farm is serviced by mains water. A number of wells exploiting the aquifers are located in the wider area. The bedrock aquifers and wells are shown on Figure 7.3.

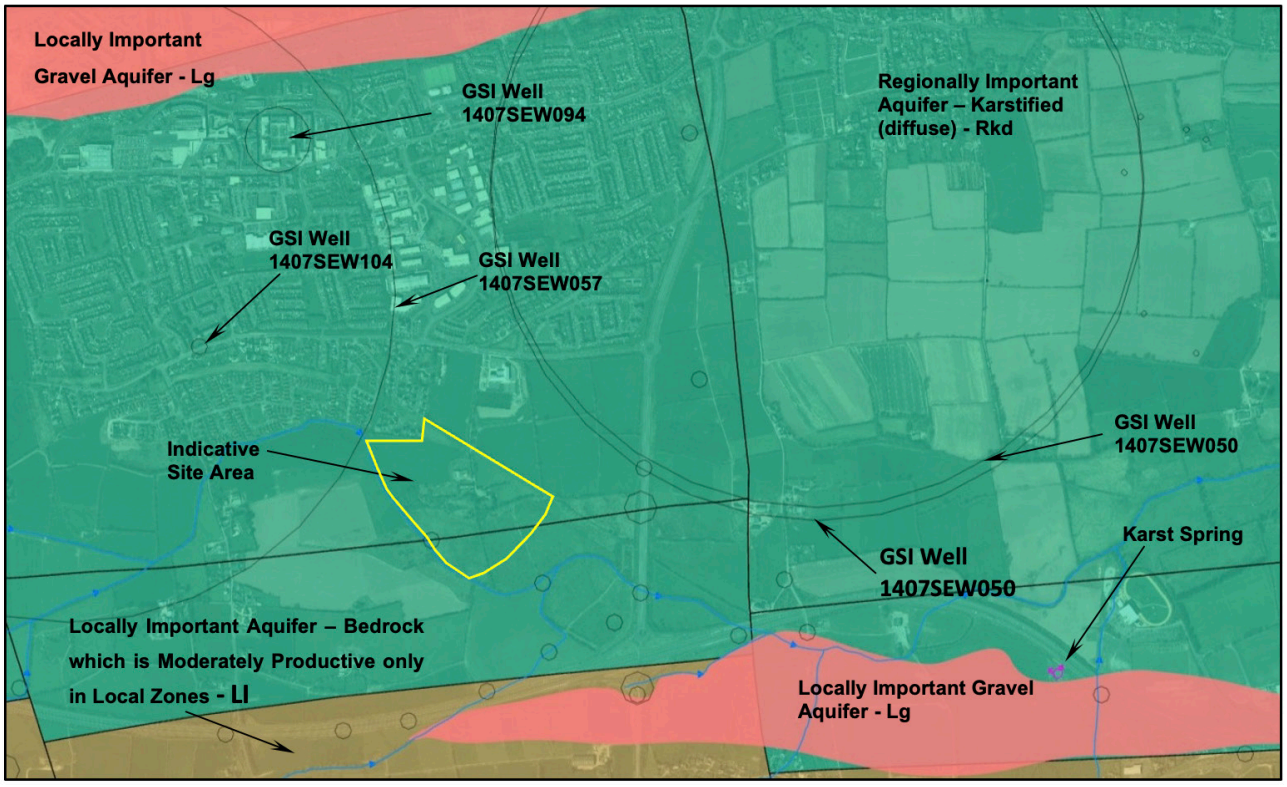


Figure 7.3 Aquifer Classification & GSI Well Location Map

No significant impacts on groundwater are envisaged for the proposed development.

It is concluded that the proposed development is compliant with the Water Framework Directive.

CHAPTER 8 | Biodiversity

Chapter 8 Biodiversity provides baseline information in relation to biodiversity and assesses the potential impacts and effects of the proposed development to impact on ecological features. Surveys were completed onsite over multiple seasons using specialist ecologists and appropriate methodologies to provides a robust representation of the baseline for the habitats and species within the proposed development site (and its zone of influence). These surveys were conducted to identify the presence or likely presence of protected species and habitats within the proposed development site. The value of these ecological receptors was determined and the possible impacts that the proposed development may have upon them was assessed.

One European sites is potentially hydrologically connected to the proposed development i.e., Cork Harbour SPA. The impacts on European sites are discussed in the report in support of appropriate assessment (AA) screening and Natura Impact Statement (NIS) which accompanies this application. One National site, the Lee Valley pNHA is potentially hydrologically connected to the proposed development via wastewater discharges.

Habitat surveys determined that the terrestrial habitats within the planning boundary were of low to high local value. Treelines/hedgerows and woodland of the site have the highest value for flora and fauna and include a number of boundary habitats which are visible on the 1st edition historical mapping (1829 to 1834). The Maglin North Stream runs along western boundary of the proposed development site, with a number of drainage ditches within the site connecting to this stream. No habitats within the study area correspond to Annex I habitat.

General mammal surveys as well as bat activity surveys were carried out at the proposed development site. Low to moderate levels of bat activity was recorded along treeline/hedgerow habitats, scrub and woodland with small numbers of Common and Soprano Pipistrelle and Leisler's as well as occasional Natterer's Bat and Brown Long-eared Bat. While small numbers of bats were recorded foraging within a derelict agricultural building onsite, no signs of roosting bats were recorded within any of the buildings. All trees and structures within the site were classified as having either negligible or low potential for supporting bat roosts and no signs of roosting bats were recorded within any of the trees onsite. With the exception of Red fox, no signs of non-volant mammals were recorded onsite i.e. Otter, Badger. No amphibian or reptile species were recorded.

Breeding and wintering bird surveys were carried out. The proposed development site is located within extensively farmed, agricultural lands adjoining urban development. This mosaic of habitats within the site provides a range of nesting and foraging habitat for birds and the range of bird species recorded during the site survey reflects this. No signs of wintering waterfowl or waders were recorded within the proposed development site.

Overall, the majority of ecological impacts will arise as a result of habitat clearance/loss. The proposed development will have a negative, slight to moderate and short to medium term impact on local fauna populations due to the removal of hedgerows/treelines, woodland and scrub as well as areas of grassland. In the longer term the impact will be negative and slight (as planted areas mature). Following completion, slight residual impacts will occur in relation to lighting and disturbance.

A range of mitigation measures have been proposed in the EIAR to offset potential negative impacts including lighting mitigation, replacement planting and pollution prevention measures. Specific ecological enhancement measures, including the provision of bat boxes and bird boxes, have also been specified.

CHAPTER 9 | Cultural Heritage

9.1 Introduction

This chapter assesses how the proposed Large Residential Development (LRD), including a Greenway along the northern boundary, could affect the archaeological, architectural, and cultural heritage environment.

9.2 Existing Heritage Environment

One known archaeological site is located within the development area: the former site of a standing stone (CO073-103). The stone was recorded in 1995 but was no longer present at the time of inspection for this EIAR in 2024. A small circular feature found during archaeological testing may relate to its former location, this will be further investigated. Within a 1km radius of the site, 34 recorded archaeological sites are known. These date from prehistoric times through to the later historical periods, showing that the wider area has long been used and settled.

There are no Protected Structures (PSs) or other designated architectural heritage features located within the proposed development site. However, two surviving stone-built structures on the site form part of a historic building/farm complex first depicted on the 1841 OS 6-inch map and later labelled “Carriganarra” on the 1902 and 1939 OS maps.

The nearest PS to the proposed development site is a limekiln (PS1226), which is also a recorded archaeological monument (CO073-064), located c. 290m to the west in the townland of Maglin. Within a 1km radius of the proposed development site, a number of PSs and NIAH-listed buildings reflect the layered architectural development of Ballincollig and its environs, encompassing medieval, industrial, military, religious, and domestic contexts.

Ballincollig Castle (PS1225; RMP CO073-060001), located c. 1.1 km west of the site, is a 15th century tower house originally constructed by the Barrett family, later held by the McCarthys and the Earls of Clancarty. Although ruinous by the 18th century, its keep, sections of bawn wall, and associated remains survive and constitute a prominent landmark of regional archaeological and architectural significance.

9.3 Archaeological Investigations

9.3.1 Geophysical Survey (2022)

A geophysical survey completed in November 2022 identified several anomalies, including a circular ditched enclosure/ ring-ditch (Anomaly A) interpreted as potentially of prehistoric or early historic date and considered to be of particular archaeological importance. Other anomalies were also recorded, some of which were interpreted as likely to relate to agricultural activity or natural soil/geological variation.

9.3.2 Archaeological Testing (2024)

Two phases of licensed archaeological testing were undertaken in consultation with the Cork City Council Archaeologist:

9.3.3 LRD Area

A total of 26 test trenches were excavated across four of the fields (during September and October 2024). Anomaly A was excluded from testing as it will be preserved in situ within the completed development.

Testing at the former standing stone site (CO073-103) did not find definite evidence of the stone base. A small circular feature was found but is more likely to be a simple posthole. Only a few small features (postholes and a possible linear feature) were found elsewhere, suggesting generally low archaeological activity across the LRD lands.

9.3.4 Greenway Corridor

Five trenches were excavated along the line of the Greenway (during Sept 2024). Testing confirmed the presence of significant archaeological deposits which included:

- Anomaly F: An enclosure likely to be a prehistoric ring-ditch later reused for burial in early medieval times. A burial and a glass bead were excavated and recorded.
- Anomaly G: Curved features from another ring-ditch, left undisturbed.
- Other anomalies were found to be natural.

9.4 Impact Assessment Summary

9.4.1 Do-Nothing Scenario

If the development does not proceed, the land will remain as it is and any buried archaeology will remain undisturbed.

9.4.2 Construction Phase Impacts

Archaeological Heritage

- The former standing stone site lies within the development footprint. Any remaining buried evidence may be affected.
- Probable ring-ditches (A, F and G) will be protected and left in place.
- A burial at Anomaly F has already been excavated and recorded.
- A few small features (postholes) will be excavated and recorded.
- As with any undeveloped land, there is a possibility that previously unknown remains could be uncovered.

Architectural Heritage

- No Protected Structures or NIAH-listed buildings are on the site.
- A vernacular farmhouse (Building 1) will be repurposed — a positive heritage outcome.
- A roofless outbuilding and a limekiln will be removed, both will be fully recorded beforehand.

Visual Impacts

No significant visual impacts on heritage sites are expected. Most nearby archaeological sites are buried. Ballincollig Castle, over 1 km away, is screened by vegetation and landscape features.

9.4.3 Mitigation Measures

Key mitigation includes:

- Avoiding disturbance to the probable ring-ditches (A, F and G) using buffer zones and fencing.
- A no-dig construction method for the Greenway across sensitive areas.
- Further investigation at the standing stone location before construction.

- Archaeological monitoring of groundworks to deal with any unexpected finds.
- Recording of buildings and structures before demolition.
- Possible heritage information signage in public areas.

9.4.4 Residual Effects (After Mitigation)

Following mitigation:

- The key archaeological features (ring-ditches A, F and G) will remain protected in place.
- The standing stone site will be fully investigated and recorded.
- No impacts will occur on protected buildings.
- Reuse of the vernacular farmhouse will have a positive long-term heritage benefit.

Overall, no significant long-term effects on cultural heritage are expected.

CHAPTER 10 | Noise & Vibration

10.1 Introduction

The assessment of Noise & Vibration is contained within Chapter 10 of Volume II. The chapter provides information on the assessment of noise and vibration impacts on the surrounding environment during the construction and operational phases of the project.

10.2 Existing Environment

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.

10.3 Impact Assessment

10.3.1 Do Nothing Scenario

The Do Nothing scenario includes retention of the current site without the proposed development in place. In this scenario, noise levels at the site 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).

10.3.2 Construction Phase

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, the majority of works can be controlled to within the adopted construction noise thresholds. The exceptions to this statement are during high noise level activities such as site clearance, bulk excavation, foundations and road works when works are within 60m of the closest noise sensitive locations and during superstructure, compounds and landscaping works which are within 25m of the closest noise sensitive locations in the absence of noise mitigation measures.

There are no construction vibration sources that will give rise to any significant vibration impacts.

10.3.3 Operational Phase

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.

10.3.4 Additional Vehicular Traffic on Surrounding Roads

During the operational phase, the predicted change in noise levels associated with additional traffic in the surrounding area is neutral to negative, imperceptible to not significant and long-term.

10.3.5 Building Services Plant

Once the relevant noise criteria are not exceeded within the Proposed Development, the related noise impact to existing noise sensitive locations offsite will be negative, not significant and long-term.

10.3.6 Cumulative Impact

Cumulative noise levels associated with the cumulative construction phase of the proposed development have been considered. In the event that the proposed development phases of works are under construction at the same time, due to the distance to the closest works, there will be moderate and short term effect.

10.4 Mitigation

10.4.1 Incorporated Design

The following mitigation measures are outlined for further review at the detailed design stage of the project:

The closest noise sensitive receptors to the operational building services and plant are within the development itself (i.e. they are much closer than off-site sensitive receptors). Therefore once the relevant internal noise criteria are achieved within the development at the detailed design stage, there are no additional mitigation requirements to control at off-site noise sensitive locations.

An assessment of inward noise levels from existing road traffic surrounding the proposed development has been undertaken. The building facades are expected to achieve suitable internal noise levels with standard double glazing.

10.4.2 Construction Phases

During the demolition and construction phases of the Proposed Development, 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 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.

10.4.3 Operational Phase

During the operational phase of the development, noise mitigation measures with respect to the impact of traffic from the development are not deemed necessary.

10.5 Residual Impact Assessment

During the construction phase, the residual construction noise impact is negative, not significant to moderate and temporary to short-term. The human perception of vibration effects is negative, not significant to moderate and temporary to short-term.

During the operational phase, the predicted change in noise levels associated with additional traffic in the surrounding area is neutral to negative, imperceptible to not significant and long-term. The predicted change in noise levels associated with buildings services in the surrounding area is negative, not significant and long-term.

The resultant residual inward noise effect will be of neutral, not significant and long term.

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

10.6 Monitoring

As outlined in Chapter 10, during the construction phase, the appointed contractor will be required to carry out noise and vibration monitoring at site boundaries. These monitors will be set up where there is the potential to exceed the construction noise thresholds, i.e. when works are occurring within 60m of noise sensitive locations and within 50m of vibration sensitive locations for human perception to vibration, rather than cosmetic damage for buildings.

CHAPTER 11 | Air Quality

11.1 Introduction

The assessment of Air Quality is contained within Chapter 11. The air quality assessment has focused on:

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

11.2 Baseline 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.

11.3 Potential Impacts of the Proposed Development

11.3.1 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 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 ***short-term, direct, localised, negative*** and ***slight*** impacts to air quality, which is potentially significant in the absence of mitigation.

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 phase 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 phase traffic emissions has been scoped out and the construction phase traffic emissions will have a ***short-term, direct, localised, negative*** and ***not significant*** impact on air quality.

11.4 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 associated with the proposed development. Detailed modelling of the operational phase traffic was undertaken using the methodology outlined in Transport Infrastructure Ireland's 2022 guidance document *'Air Quality Assessment of Specified Infrastructure Projects – PE-ENV-01106'.* All modelled concentrations of NO_2, PM_{10} and $PM_{2.5}$ were below the relevant limit values for the opening year and design year, with and without the development in place. Also, all changes in concentrations at the modelled receptors as a result of increased traffic were low enough to be defined as neutral as per Table 4.9 of Air Quality Assessment of Specified Infrastructure Projects – PE-ENV-01106 (Transport Infrastructure Ireland, 2022). As a result, the operational phase traffic emissions will have a ***short-term, direct, localised, negative*** and ***not significant*** impact on air quality.

11.5 Mitigation and Residual Effects (Post-Mitigation)

11.5.1 Construction Phase

Detailed dust mitigation measures are outlined within the air quality chapter to ensure that no significant impacts as a result of construction dust emissions occur 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 ***short-term, direct, negative*** and ***not significant*** in EIA terms.

11.5.2 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 ***not significant***.

11.6 Cumulative Impact of the Proposed Development

11.6.1 Construction Phase

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 recommended dust mitigation measures 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 ***short-term, direct, localised, negative*** and ***not significant.***

11.6.2 Operational Phase

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***.

CHAPTER 12 | Climate

12.1 Introduction

AWN Consulting Limited has been commissioned to assess the likely impact on climate associated with the proposed residential development at Carriganarra, Ballincollig, Co. Cork.

The climate assessment is divided into two distinct sections – a greenhouse gas assessment (GHGA) and a climate change risk assessment (CCRA).

- Greenhouse Gas Emissions Assessment (GHGA) – Quantifies the GHG emissions from a project over its lifetime. The assessment compares these emissions to relevant carbon budgets, targets and policy to contextualise magnitude.
- Climate Change Risk Assessment (CCRA) – Identifies the impact of a changing climate on a project and receiving environment. The assessment considers a projects vulnerability to climate change and identifies adaptation measures to increase project resilience.

12.1.1 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.

12.1.2 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 mitigation measures to increase project resilience to identified risk.

The potential impact of the construction and operation of the Proposed Development on Ireland's national GHG emissions has been assessed against Ireland's 2024 total emissions, the relevant sectoral ceilings, and the 2030 carbon budgets. Any adverse impacts are expected to occur primarily during the construction phase as a result of embodied carbon in construction materials and emissions from construction activities.

12.1.3 The '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). The Do-Nothing scenario is considered neutral in terms of the climate assessment.

12.1.4 Greenhouse Gas Assessment

12.1.4.1 Construction Phase

GHG emissions associated with the construction and operation of the Proposed Development were calculated using the TII Carbon Tool (TII, 2025) for the non-building elements and OneClick LCA for the building elements. The GHG emissions associated with the Proposed Development are predicted to be 38,445 tonnes CO_2e over the 60-year lifespan of the Proposed Development. When annualised over the 60-year lifespan, this equates to 0.001% of Ireland's Non-ETS 2030 carbon budget of 27.7 $MtCO_2e$. The Proposed Development will incorporate a number of mitigation measures as well as sustainable policy measures from the project developer, the Proposed Development is aligned with Ireland's GHG trajectory to net zero by 2050.

12.1.4.2 Operational Energy Usage

The Proposed Development has been designed to reduce the impact to climate where possible. A number of measures have been incorporated into the design to ensure the operational phase emissions are minimised. The primary elements with respect to reducing climate impacts and optimising energy usage are summarised in the Sustainability & Climate Resilience Statement prepared by DOSA.

A traffic assessment was also undertaken to assess the impact of traffic volumes on climate during the operational phase. It predicted low increases in CO_2 emissions will occur by the design year (2045).

According to the TII significance criteria, the significance of the GHG emissions during the construction and operational phase is minor adverse.

The ISEP GHG guidance (ISEP, 2022) (which has been embraced by the updated TII Guidance (TII, 2022) in Section 6.7.2) defines minor adverse as follows:

"A minor adverse not significant impact is described with: A project that is compatible with the budgeted, science based 1.5°C trajectory (in terms of rate of emissions reduction) and which complies with up-to-date policy and 'good practice' reduction measures to achieve that has a minor adverse effect that is not significant. The project may have residual impacts but is doing enough to align with and contribute to the relevant transition scenario. A 'minor adverse' or 'negligible' non-significant effect conclusion does not necessarily refer to the magnitude of GHG emissions being carbon neutral (i.e. zero on balance) but refers to the likelihood of avoiding severe climate change and achieving net zero by 2050. A 'minor adverse' effect or better is a high bar and indicates exemplary performance where a project meets or exceeds measures to achieve net zero earlier than 2050."

The Proposed Development aligns with the following GHG significance criteria as per Table 12.3:

- The project's GHG impacts are mitigated through 'good practice' measures.
- The project has complied with existing and emerging policy requirements; and
- Fully in line to achieve Ireland's trajectory towards net zero.

In accordance with the EPA guidelines (EPA, 2022), 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***.

12.1.5 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 (pluvial); extreme heat; extreme cold and drought. 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*** and ***negative*** and **slight**, which is overall ***not significant*** with regard to the construction and operational phases.

12.1.6 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.

12.1.7 Mitigation Measures

12.1.7.1 Incorporated Design Mitigation

A number of measures have been incorporated into the design of the development to mitigate against the impacts of future climate change. For example, adequate attenuation and drainage have been incorporated into the design of the development to avoid potential flooding impacts as a result of increased rainfall events in future years. These measures have been considered when assessing the vulnerability of the Proposed Development to climate change.

12.1.7.2 Construction Phase Mitigation

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. Best practices will be implemented to prevent significant GHG emissions which include the use of alternative materials with lower embodied carbon emissions such as timber frame walls rather than traditional concrete block walls or concrete with a 50% recycled cement content.

12.1.7.3 Operational Phase Mitigation

The Proposed Development has been designed to reduce the impact on climate as a result of energy usage during operation. These measures are set out in the Scheme Sustainability & Climate Resilience Statement prepared by DOSA. The development has been designed in line with the requirements of Nearly Zero Energy Buildings (NZEB) Standards and the requirements of the Cork City Development Plan 2022 – 2028.

12.1.8 Residual Impact Assessment

12.1.8.1 Construction and Operational Phase

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 reference the ISEP 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 and aligning with Ireland's net-zero by 2050 trajectory. As per the TII significance criteria in Table 12.2 the residual impact of the Proposed Development in relation to GHG emissions is considered minor adverse, this equates to a ***direct, long-term, negative*** and ***not significant*** climate impact.

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 ***not significant***, which is overall ***not significant*** in EIA terms.

12.1.9 Monitoring

Monitoring and reporting of the embodied carbon in the construction phase will be conducted. The aim of monitoring will be to seek further ways to minimise climate impacts. Monitoring will include contractual obligations, in line with the most recent Climate Action Plan and sectoral targets, for the successful tenderer to ensure that the Proposed Development stays in line with updated aims. Commitments to monitor GHG emissions during the construction phase will also be secured through the final Construction Environmental Management Plan (CEMP). Monitoring will include embodied carbon of construction materials, water usage, power and fuel usage, and waste generation (including reuse and recycling rates). Where monitoring shows that the Proposed Development is not meeting its targets, further mitigation will be put in place.

Monitoring should also include reviewing potential for extreme weather events which may cause damage during construction. Contractors' Environmental Management System (EMS) will include measures to address risks during such events i.e. flooding

CHAPTER 13 | Population & Human Health

13.1 Introduction

This Chapter has been prepared by Harry Walsh, (BA HONS, Master of Regional and Urban Planning, MIPI), Director at HW Planning. The '*Environmental Impact Assessment of Projects Guidance on the preparation of the Environmental Impact Assessment Report'* 2017 specifies the following in relation to the assessment of population and human health.

> *"human health a very broad factor that would be highly project dependent. The notion of human health should be considered in the context of the other factors in Article 3(1) of the EIA Directive and thus environmentally related health issues (such as health effects caused by the release of toxic substances to the environment, health risks arising from major hazards associated with the Project, effects caused by changes in disease vectors caused by the Project, changes in living conditions, effects on vulnerable groups, exposure to traffic noise or air pollutants) are obvious aspects to study. In addition, these would concern the commissioning, operation, and decommissioning of a Project in relation to workers on the Project and surrounding population."*

A desktop study of the following published policy documents and data was undertaken to appraise the location and likely and significant potential impact upon population and human health receptors and to assess population trends in the subject site an in the wider hinterland:

- Central Statistics Office (CSO) Census 2011 & 2016 and 2022 data.
- Cork City Development Plan 2022-2028

This assessment is a study of the potential indirect and direct socio-economic impacts of the construction phase and the operational phases of the development. Effects on receptors were assessed in terms of magnitude, quality, significance and duration.

13.2 Description of Study Area/Existing Baseline Environment

The study area for the Population and Human Health chapter has been defined to reflect the scale, location, and nature of the proposed Large-scale Residential Development (LRD), and to ensure that potential impacts, both direct and indirect, on human health and population can be comprehensively assessed.

In defining the EIA study area for this chapter a focused analysis of Census boundaries was undertaken, including both Electoral Divisions (ED) and Census Small Areas (SA) which are a sub-division of the ED units and generally cover 65-90 households. Using a combination of these units a study area was defined that:

- Includes the smaller settlements, established and planned residential areas and employment areas served by the Urban Town of Ballincollig. This takes the form of a belt of urban areas built up along the R608 regional road.
- The area is largely delimited by the physical barrier of the River Lee to the north and the and N22/N40 Road to the south.

Prior to the Cork City Boundary extension in 2019 the traditional catchment area of the then County 'Main Town' of Ballincollig was all located within the administrative area of Cork County Council. This catchment now straddles the boundary of Cork City and County Councils, with the Urban Town of Ballincollig and lands to the east falling within the Cork City Council area and the western environs of the town located within the Cork County Council area. However, Ballincollig and its traditional catchment has remained a relatively discrete and self-contained area, and this is reflected in the study area in terms of population, urban amenities and services and employment.

The study area principally comprises the following Census 2022 EDs:

- Ballincollig ED (Ref. 4701619),
- Ovens ED (Ref. 47127019).

The population of the study area in the 2022 Census was 20,854. Over the 31-year period between 1991 and 2022, the EDs of Ballincollig and Ovens have experienced 63% and 185% population growth respectively. In contrast, Cork City experienced a 25.3% growth in population.

13.3 Community and Social Infrastructure

The existing community and social infrastructure assets in the local area as described in Chapter 13 has been identified in accordance with the categories outlined in the table 13.1 below.

Table 13.1 Community and Social Infrastructure Categories

Category	Description
Amenity, Open Space and Sports	Parks, Playgrounds, Amenity Walks/Greenways, Pitches, Green Areas, Golf Courses, Sports Pitches, Sports Centres, Swimming Pools, Gyms
Childcare and Education	Childcare, Primary Schools, Post Primary Schools, Special Schools, Third Level Universities, Other Educational Institutions
Community facilities	Community Centres, Religious Facilities, Post Offices, Libraries.
Retail services	Supermarkets, Convenient Shops, Specialty Services, Restaurants/Take-aways, ATM, Petrol Station
Health	Hospitals, Health Centres, Clinics, Pharmacies, Addiction Services, GPs, Mental Health Services
Emergency	Fire Station, Garda Station
Public Transport	Bus and Train Routes

13.4 Impact Assessment

13.4.1 Do nothing Scenario

In the 'do nothing' scenario, the subject lands will remain undeveloped and there will be no additional impacts on population and human health factors. The development of the BusConnects and the Cork Luas plans will progress. Over time it is considered the do-nothing scenario will result in the inefficient use of serviced lands, which are identified for strategic growth, being part of the Maglin Urban Expansion Area in the Cork City Development Plan 2022. It will also represent a missed opportunity to integrate land use and transport planning and maximised the benefit from the infrastructural investment in the LRT.

13.4.2 Impacts on Existing Population

13.4.2.1 Construction Phase

The construction phase of the development may result in some negative, short-term impacts resulting from increased traffic on local road network, noise and vibration, and the generation of wastes including dust.

13.4.2.2 Operational Phase

Once constructed, the proposed development will be permanent and non-reversible. The proposed development will result in several significant long-term positive impacts for the local population including.

- The creation of a new community in the Maglin Urban Expansion Area of Ballincollig will develop in tandem with the delivery of a portion of the Maglin Sustainable Access Corridor in addition to pedestrian and cycle infrastructure. These will take the form of a number of proposed and planned greenways which provides dedicated walking and cycle connectivity within the Urban Town of Ballincollig. The proposed layout provides for high quality public open spaces promoting outdoor activities and exercise which will benefit existing and future residents of the settlement.
- The delivery of a new creche will positively contribute to Ballincollig's childcare and community facilities.
- The delivery of a diverse range of housing, duplexes and apartments positively contributing to housing supply for all aspects of the housing market.
- The provision of active recreational infrastructure in the form of the Greenway and linear park will provide real opportunities for modal shift and the promotion of walking and cycling as viable modes of transport in the wider Ballincollig area.

13.5 Mitigation Measures, Monitoring and Residual Impacts

13.5.1 Mitigation & Monitoring

Full details of all mitigation and monitoring procedures during the construction phase are described in the various chapters of this EIAR and the CEMP which accompanies this LRD. The CEMP has been developed in response to the site-specific context with robust mitigation and monitoring measures being adopted to ensure that any negative impacts arising from the construction phase of the development on neighbouring properties or surrounding areas are minimised. Chapter 15 of this EIAR 'Summary of Mitigation Measures' details all proposed mitigation/monitoring measures to be implemented during construction and operational phases of the project.

The site layout responds to the site's topography and the evolving development context in the Maglin Urban Expansion Area. The proposed public open space and creche facility will all significantly positively and permanently contribute to the communal and public facilities in the area.

13.5.2 Residual Impacts

Residual impacts refer to those impacts that remain following the implementation of mitigation measures. It is considered that subject to the mitigation measures outlined in the CEMP and EIAR being implemented the proposed development will result in many positive and permanent residual impacts.

13.6 Cumulative Impacts

13.6.1 Construction Phase

Assessing the cumulative impacts of the construction phase of the development is contingent on the construction schedules of the permitted developments in the area identified in Chapter 1. For the purposes of this assessment of impacts a 'worst case' scenario has been assessed based on the projects stated in Chapter 1.

As referenced in the CEMP, the construction phase of the proposed development will be subject to strict mitigation and monitoring procedures. It is predicted that subject to the implementation of mitigation measures proposed, that the

proposed development will result in no significant impacts relating to air quality, noise, vibration or traffic. Any negative impacts or nuisances experienced from construction activities which affect human health will be temporary/short term in nature.

13.6.2 Operational Phase

Once constructed, the proposed development will be permanent and non-reversible. It is considered that any negative cumulative impacts relating to human health factors including traffic, road safety, air quality, landscape and visual, water quality, noise and vibration will be offset by the delivery of an additional 300 no. residential units to the private and social housing stock of the area, creche facility and pedestrian/cycle infrastructure upgrades which it is predicted to result in significant positive and permanent benefits in terms of wider human health considerations.

CHAPTER 14 | Interaction of Impacts

This Chapter has been prepared by Harry Walsh, (BA HONS, Master of Regional and Urban Planning, MIPI), Director at HW Planning.

Article 3(1) of the EIA Directive states.

> *The environmental impact assessment shall identify, describe and assess in an appropriate manner, in the light of each individual case, the direct and indirect significant effects of a project on the following factors:*
>
> *(a) population and human health;*
>
> *(b) biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC;*
>
> *(c) land, soil, water, air and climate;*
>
> *(d) material assets, cultural heritage and the landscape;*
>
> *(e) the interaction between the factors referred to in points (a) to (d).”*

Annex IV of the amended Directive states that a description of impacts should include:

> *“…the direct effects and any indirect, secondary, cumulative, short, medium and long-term, permanent and temporary, positive and negative effects of the project”*

Table 14.1 as shown summarises the relevant interactions and interdependencies between specific environmental aspects.

Interaction	Landscape	Material Assets – Traffic & Transport	Material Assets – Services, Infrastructure & Utilities	Land & Soils	Water (Hydrology & Hydrogeology)	Biodiversity	Noise & Vibration	Cultural Heritage	Air Quality	Population & Human Health	Climate
Landscape		Op	Con & Op	Con & Op	-	-	-	Con & Op	-	Con & Op	-
Material Assets – Traffic & Transport	Con & Op		Con	Con	-	Con	Con & Op	-	Con & Op	Con & Op	Con & Op
Material Assets – Services, Infrastructure & Utilities	Con & Op	Con		Con	Con	Con & Op	Con		-	Con & Op	-
Land, Soils & Geology	Con & Op	Con	Con		Con	Con & Op	-	Con	Con	Con	Con
Water (Hydrology & Hydrogeology)	Con & Op	Con & Op	Con & Op	Con		Con & Op	-	-	-	Con	Con
Biodiversity	Con & Op	Con	Con & Op	Con	Con & Op		Con	-	Con	-	-
Noise & Vibration	-	Con & Op	Con	Con	-	Con		-	Con	Con & Op	Con
Cultural Heritage	Con & Op	Op	-	Con	-	-	-		-	-	-
Air Quality	Op	Con & Op	Con	Con	-	Con	Con	-		Con & Op	Con & Op
Population & Human Health	Con & Op	Con & Op	Con & Op	Con	Con & Op	-	Con & Op	-	Con & Op		Con & Op
Climate	Op	Con & Op	Con	-	-	Con	Con	-	Con & Op	Con & Op	

Table 14.1 Potential Interaction of Effects Matrix (Con = Construction, Op= Operational. If there is considered to be no potential for an effect, the box is left blank.)

CHAPTER 15 | Summary of Mitigation Measures

The 2022 EPA Guidelines regarding information to be contained in EIAR's, identifies the following strategies for the mitigation of effects.

Mitigation by Avoidance: Avoidance, usually referring to strategic issues – such as site selection, site configuration or selection of process technology - is generally the fastest, cheapest and most effective form of effect mitigation. Environmental effects and the consideration of alternatives need to be taken into account at the earliest stage in the site / route selection and project design processes. For example, the realignment of a transport corridor to avoid residential property, avoid habitat destruction or to reduce agriculture severance, etc. In many situations, mitigation by avoidance may be viewed as part of the 'consideration of alternatives'.

Mitigation by Prevention: This usually refers to technical measures. Where a potential exists for unacceptable significant effects to occur (such as noise or emissions) then measures are put in place to limit the source of effects to a permissible and acceptable level. Examples include the specification of process technology standards or building design to minimise height or contrasts of materials. Prevention measures are also put in place to prevent the effects of accidental events from giving rise to significant adverse effects. The installation of a fire-water retention basin is an example of mitigation against such risk by prevention.

Mitigation by Reduction: This is a very common strategy for dealing with effects which cannot be avoided. It tends to concentrate on the emissions and effects and seeks to limit the exposure of the receptor. It is generally regarded as the 'end of pipe' approach because it tends not to affect the source of the problems. As such this is regarded as a less sustainable, though still effective, approach.

Mitigation by Offsetting: This is a strategy used for dealing with significant adverse effects which cannot be avoided, prevented or reduced. It includes measures to compensate for adverse effects.

For a comprehensive list of all proposed construction and operational phase mitigation measures, refer Chapter 15 of this EIAR, the individual EIAR chapters and corresponding appendices of this EIAR (Volumes II and III).