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ENVIRONMENTAL IMPACT ASSESSMENT REPORT

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**CONVENT HILL,
BANDON,
CO. CORK**

2026



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CONVENT HILL, BANDON, CO. CORK

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NON-TECHNICAL SUMMARY

GENERAL

This Environmental Impact Assessment Report (EIAR) document has been prepared on behalf of and for the exclusive use of the client by Panther Environmental Solutions Ltd., with respect to an application for planning permission to Cork County Council for the development of a Large-scale Residential Development (LRD) and all ancillary site works and services on a site with a net area of 7.025 hectares (9.590 ha total) at Convent Hill, Bandon, County Cork. The development consists of 240 no. residential units comprising 156 no. dwelling houses, 84 no. apartments, a creche facility with capacity for 60 no. children and all ancillary site development works. The proposed 156 no. dwelling houses comprise 29 no. 4 bedroom detached/semi-detached dwellings, 126 no. 3 bedroom semi-detached/terraced units and 1 no. 2-bedroom detached dwelling. The proposed 84 no. apartments will consist of 60 no. 2 bedroom units and 24 no. 1 bedroom units to be accommodated in 4 no. three storey apartment buildings.

The proposed site is c. 5.3 km south-west of Inishannon town, c. 8.4 km south-west of Crossbarry town, c. 9.2 km north of Kilbrittain town and c. 10.2 km west of Dunderrow town. The site is located in a peri-urban area in the townlands of Coolfadda and Kilbrogan in Bandon town, Co Cork. Residential development in the area is predominantly housing estates and one-off houses in the outskirts of town aligned along the existing road network. The nearest residential developments outside of the proposed site boundary are located along the northern and southern boundaries. The residential development on the site would be appropriate to the peri-urban area.

There are agricultural lands to the west and north as well as urban elements in Bandon, including residential housing estates, schools and stores. The site is accessed via the L2033 to the west, L2039 (Kilbrogan Street) to the east and via the L2011 (Convent Hill) to the south. The site has good connectivity to the N71 national road via the regional roads R589, R586 and R603 which intersect Bandon town. The N71 connects Bandon town to Cork city.

HUMAN BEINGS

The site is located within a peri-urban landscape in the outskirts of Bandon, with residential development in the area predominantly housing estates and one-off houses in the outskirts of town aligned along the existing road network. There are agricultural lands to the west and north; residential housing estates, schools, restaurants, local GAA club, industrial facilities, retail stores and other services to the west, south and east; and River Bandon to the south.

The proposed development would have a positive impact upon the local economy by providing temporary employment for people for the duration of the construction phase (approximately 3 years). The creation of jobs during the construction phase would further contribute to the economy of the area through direct spending of goods and services in the area. The new residents of the proposed development will also support the local community and businesses during the operational phase through direct spending of goods and services and by increasing the local workforce.

The only fixed noise source would be the central heating systems in the form of air-to-water heat pumps, which are designed for residential use and emit low levels of noise. Therefore, no significant additional noise impact on sensitive receptors would be anticipated during the operational phase of the development.

The proposed development has the potential to impact upon traffic volumes in the area, which may subsequently impact upon the generation of noise and dust emissions. The Traffic and Transportation

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Assessment carried out by MHL & Associates Ltd. concluded that the applicant's development will not cause any notable operational problems across the local road network. The adoption of recommended mitigation measures and infrastructure improvements identified in the Bandon TPREF will ensure that the local road system can continue to operate safely and efficiently as planned development across the area comes forward.

The proposed buildings would be erected mostly on an area defined by grassland, scrub and woodland areas within site's boundaries, thus turning the existing habitats to artificial surfaces. The proposed housing units would be an addition to the existing residences in Bandon town and would be in line with its surroundings. Thus, it is not anticipated that land use change would result in a significant negative impact.

There would be no significant impact upon the visual or landscape sensitivities of the area due to the proposed operational phase of the development. Landscape and visual impacts are not considered to exceed 'Moderate' significance, which would be mitigated by the intervening topography, vegetation and existing buildings in the vicinity of the site. Adequate lighting will be provided for the operational needs of the housing scheme, while minimising sky glow, light trespass and glare through the use of appropriate luminaires, warm colour temperature, correct mounting, and good uniformity.

There would be no adverse impacts to human beings due to a deterioration in water quality. Clean stormwater will discharge into the existing stream which runs through the site. Permeable paving will also be installed to allow water to infiltrate to ground. Wastewater generated by sanitary facilities at the dwelling units and creche would be directed to the existing wastewater network. Foul water will then be directed to the Bandon WWTP, which will discharge to Bandon River. All proposed water streams should be uncontaminated and therefore have no impact on either the surface or groundwater in the area.

Therefore, there are anticipated to be no significant negative impacts to human beings as a result of the operational phase of the proposed LRD.

AIR / CLIMATE

Effects from the construction phase on sensitive receptors will be not significant, neutral to positive and short-term. The impact of construction on air quality can be described in terms of dust soiling and health as negative, not significant and short-term effects. With the implementation of proposed mitigation measures, it is anticipated that residual effects on air quality during construction will be imperceptible.

The main potential sources of air emissions during the operational phase of the development would be associated with the usage of vehicles and heating systems of the new buildings. It is considered that there would be no significant dust impacts as a result of the proposed development during the operational phase at the nearest receptors. It is not considered that mitigation measures will be required for the operational phase of the development are required.

NOISE

The baseline noise assessment conducted for the site provides a predictive analysis of the impact of the operational phase of the development on noise sensitive locations (NSL). The Predictive Noise Assessment assessed the potential impact of the proposed operation of the residential development at these locations, in accordance with the methodologies prescribed in ISO 9613-2:1996 "*Attenuation of Sound during Propagation Outdoors*".

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Construction noise levels were determined using distance calculations from the closest noise sensitive location to the closest boundary point. The calculated potential construction noise levels at the closest NSR's would range between -3 dB below & 10 dB above the 65 dB threshold established in BS 5228 'ABC Method'. This was calculated assuming a "worst-case scenario", which did not consider noise attenuating effects. Additionally, the operation of such plant machinery at a single location would be short-lived as works would progress throughout the overall site. With the implementation of adequate mitigation measures, it is not anticipated that construction noise would have a significant impact upon noise sensitive locations.

The closest noise sensitive locations are 15m to the south and east of the proposed site. It was determined that, during the operational phase, the calculated combined noise level at the closest noise sensitive receptors would be within the 35 dB EPA Low Background Night-time noise limit. The only fixed noise source would be the central heating systems in the form of air-to-water heat pumps, which are designed for residential use and emit low levels of noise. Therefore, it is predicted that facility operational noise would not have a significant impact upon noise sensitive locations.

There would be no significant impact on noise sensitive locations as a result of the construction and operational phases of the proposed LRD at Convent Hill, Bandon, Co. Cork.

LANDSCAPE AND VISUAL

Introduction

This section summarises the findings of the Landscape and Visual Impact Assessment (LVIA) for the proposed residential development in Bandon. The assessment examines how the proposed development will influence both the character of the landscape and the views experienced by people, including nearby residents, road users and visitors. It considers the likely effects during both the construction phase and once the development is complete and occupied. Measures incorporated into the design to reduce potential impacts, as well as the potential for cumulative effects, are also addressed.

Methodology

The assessment has been carried out in accordance with Environmental Protection Agency (EPA) guidance and the Guidelines for Landscape and Visual Impact Assessment (GLVIA3). It involved a review of planning policy and landscape designations, including the Cork County Development Plan 2022–2028, together with detailed site inspections to understand the existing landscape character and visibility of the site.

A series of representative viewpoints were selected across the surrounding area to assess visual effects. Verified photomontages prepared by 3D Design Bureau were used to illustrate how the proposed development will appear from these locations once built.

Baseline Environment

The site is located on the north-western side of Bandon within an area that forms part of the town's transitional urban fringe. At present, the lands comprise a mixture of former agricultural fields, disturbed ground arising from previous development activity, and areas of naturalised vegetation, particularly along site boundaries and the central stream corridor.

The surrounding context is varied and includes established residential development, local roads and community facilities, as well as Bandon Town Park to the east. While the wider landscape is identified in the Development Plan as having relatively high sensitivity, the site itself is influenced by its urban context and does not exhibit the characteristics of an intact or highly scenic rural landscape. There are no designated scenic routes or protected views from which the site is visible.

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Characteristics of the Proposed Development

The proposed development comprises a residential scheme of 240 units, including a mix of houses and apartments, together with a crèche facility and associated infrastructure such as roads, footpaths and public open spaces.

A key aspect of the proposal is the integration of landscape and green infrastructure into the overall design. The scheme is structured around a central linear park following the existing stream corridor, which forms a strong ecological and recreational spine through the site. This is complemented by a network of public open spaces, pocket parks and landscaped streets, as well as the retention and enhancement of existing vegetation where possible.

The landscape strategy, prepared by Gannon + Associates, ensures that the development is closely integrated with its natural features and contributes positively to biodiversity, amenity and the overall character of the area.

Potential Effects

During the construction phase, the site will undergo temporary change as a result of site clearance, earthworks and construction activity. This will introduce visible elements such as machinery, temporary fencing and construction compounds. These effects will be short-term in nature and largely confined to the immediate vicinity of the site.

Once completed, the development will result in a permanent change in land use, replacing a currently underutilised and visually mixed site with a coherent residential neighbourhood. The degree of visual change will vary depending on the viewer's location. In close proximity to the site, particularly along adjacent roads and residential areas, the change will be noticeable. However, the proposed development has been designed to reflect the scale, form and materials of the surrounding built environment and will integrate with the existing pattern of development.

From more distant viewpoints, visibility of the development is generally limited due to intervening buildings, vegetation and topography. In many locations within the wider town, the site is not visible at all.

Overall, the completed development is expected to sit comfortably within its context and will not result in significant adverse landscape or visual effects.

Mitigation and Monitoring Measures

Measures to reduce potential impacts have been incorporated into both the design and construction stages of the development. During construction, temporary hoarding and site management practices will help limit visual disturbance, while existing trees and hedgerows will be protected wherever possible.

At the operational stage, the landscape design plays a central role in mitigation. Extensive tree planting, retention of natural features and the creation of green corridors and open spaces will soften the appearance of the built form and assist in integrating the development into the surrounding environment. These measures will also enhance biodiversity and contribute to the wider green infrastructure network.

Residual Effects

Following the implementation of mitigation measures, any residual effects during construction will be temporary and will cease once works are complete. During the operational phase, effects will generally be slight or negligible, and in some cases positive, reflecting the improvement in the visual quality of the site and the introduction of a structured and landscaped residential environment. No significant adverse effects are anticipated.

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Cumulative Effects

A review of other developments in the surrounding area was undertaken to assess the potential for cumulative effects. While a number of developments exist or are proposed within the wider area, most are either too small in scale or too distant to interact with the proposed development in a meaningful way.

The larger-scale development at Knockbrogan, located approximately 1 kilometre to the east, is physically and visually separated from the site by intervening development, vegetation and topography. As a result, there is no potential for combined or sequential visual effects. Overall, no significant cumulative landscape or visual effects are anticipated.

Conclusion

The proposed development represents a logical and planned extension of the existing urban area of Bandon. While it will result in a change from a transitional greenfield site to a residential neighbourhood, this change is consistent with the zoning and development objectives for the area.

The design has been informed by the site's topography, existing vegetation and surrounding context, and incorporates a strong landscape framework centred on green infrastructure and public open space. As a result, the development will integrate effectively into its surroundings and will enhance the visual amenity of the site.

Overall, the assessment concludes that the proposed development will not give rise to significant adverse landscape or visual effects.

WATER SUPPLY

There will be a short-term increased demand of water during the construction phase of the proposed development. However, this increase is not considered to be significant. The development will source its water from a new connection to the water mains supply. The installation of new water mains at the site will be undertaken in accordance with Uisce Éireann guidance. Irish Water has confirmed feasibility of connection without infrastructure upgrade.

The site is located within a locally important aquifer which is moderately productive in local zones. Water usage at the site would be typical of other residential developments in the area. There would be sufficient supply to accommodate the development.

WASTE WATER MANAGEMENT

Wastewater generated by sanitary facilities at the dwelling units and creche would be directed to the existing foul water network. Foul water will then be directed to the Bandon WWTP, which will discharge to River Bandon.

The most recent publicly available Annual Environmental Report (AER) for Bandon WWTP from 2024 determined that the discharge from the plant was compliant with the ELV's set in the wastewater discharge licence and that the discharge from the wastewater treatment plant does not have an observable negative impact on the Water Framework Directive status. The 2024 AER concluded that no hydraulic and organic capacity exceedances are expected over the subsequent three years and the WWTP would be able to accommodate the proposed development.

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SURFACE WATER

During the construction phase, risks to water quality could arise with potential releases of suspended solids, uncured concrete, and hydrocarbons (fuels and oils). The proposed development will require works within the Kilbrogan stream located on site. Works will be required within the watercourse to facilitate the surface water and foul water drainage network. In addition, a new bridge will be constructed over the Kilbrogan watercourse to facilitate vehicular access to the north of the site. A 10 m buffer will be maintained from the top of the Kilbrogan stream's banks on either side, where no construction works other than those outlined will take place.

The proposed site will be divided into three separate catchments for the management of clean rainwater from roofs and hard surfaces during the operational phase of the development. Stormwater from each catchment will be directed to its corresponding attenuation tank, which will then discharge into the existing stream. Permeable paving will also be installed to allow water to infiltrate to ground.

Groundwater in the area is expected to move according to the topography. The overall site topography of the area is defined by a gradient that generally slopes from west to east towards Kilbrogan stream. This suggests that groundwater could also potentially adhere to a similar flow pattern, according to the terrain's slope.

Results from the Site-specific Flood Risk Assessment indicates that, due to the steepness of the banks and topography across the site, flow is well contained within the channel with overtopping mostly confined to riparian areas. It is recommended that current greenfield runoff rate be maintained post-development. A combination of SuDS components have been included in the project design, including the riparian corridor which allows existing flow paths and flooding to remain unchanged.

It is not anticipated that there would be any potential significant impacts upon water quality due to construction works or discharges arising from the operational phase of the development.

BIODIVERSITY

An Ecological Impact Assessment (EcIA) and Natura Impact Assessment (NIS) have been prepared in support of this application.

The Natura 2000 sites which are within the potential zone of influence of the facility are the Courtmacsherry Bay SPA (Site Code: 004219) and the Bandon River SAC (002171), located approximately 10.7 km south-east and 22 km west from the site, respectively. There are no designated Natural Heritage Area sites within the potential zone of influence of the proposed development.

It is not anticipated that the proposed operation of the residential development, by itself or in combination with other developments, would impact negatively upon the Natura 2000 network, provided recommended mitigation measures are implemented.

The site is not anticipated to have a significant negative ecological impact upon the biodiversity of the area, given that there would be no untreated effluent discharges from the site and that mitigation measures will be put in place for the protection of habitats and species during the construction and operational phases.

No rare or protected flora were recorded within the site during the field assessment. Third schedule invasive flora were recorded within and adjacent the site boundary, including Three-cornered Garlic (*Allium triquetrum*), Rhododendron, Bohemian Knotweed (*Fallopia x bohemica*), Spanish Bluebell (*Hyacinthoides hispanica*) and Red Waterfern (*Azolla filliculoides*). Given the nature of the proposal,

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it is considered that there would be no risk of introducing invasive species during the operation of the proposed development. Replacement planting would be undertaken with ecologist-approved species to compensate for the removal of vegetation.

Noise from operational phase of the proposed development is not anticipated to have a significant impact in the vicinity of the site. Additionally, noise from the operation of the development is anticipated to be similar to noise generated from other residential developments within the surroundings of the site. Noise levels would also comply with EPA NG4 Low Background Noise Limits for daytime, evening and night-time periods. Therefore, there would be no significant potential disturbance upon fauna due to noise from the residential development.

SOILS, GEOLOGY, HYDROLOGY & HYDROGEOLOGY

Soils underlying the farm site are primarily composed of “Acidic Deep Well Drained Mineral” (AminDW). The subsoil at the site is classed as mostly till derived from Devonian and Carboniferous sandstones and shales. The bedrock underlying the site is classed as Dinantian Mudstones and Sandstones (Cork Group). The depth of the proposed excavations is unlikely to penetrate to bedrock, except in localised areas to the north-east and south-west of the site. There would be a *negative not significant* impact on the groundwater flow paths.

The southern, western and northern sections of the proposed site are located within an area with a groundwater vulnerability rated as “Extreme (E)”, while the centre strip of the site has a groundwater vulnerability classification of High (H). The footprint of the proposed buildings would effectively seal the soil. This would have a *negative not significant permanent impact* on the soil.

The proposed site will be divided into three separate catchments for the management of clean rainwater from roofs and hard surfaces during the operational phase of the development. Stormwater from each catchment will be directed to its corresponding attenuation tank, which will then discharge into the existing stream. Permeable paving will also be installed to allow water to infiltrate to ground. The site-specific Flood Risk Assessment indicates that flood risk within the site or in the surrounding area does not increase as a result of the development.

There are no Groundwater Source Protection Areas (SPAs) mapped by the GSI in the immediate vicinity of the site. According to the GSI, the nearest water supply schemes recorded are the Crookstown Bellmount BH2 PWS and Crookstown Pound Cross PWS, located c. 11.0 km to the north-west of the proposed site. The development will source its water from a new connection to the water mains supply. There would be sufficient supply to accommodate the development.

Wastewater generated by sanitary facilities at the dwelling units and creche would be directed to the existing wastewater network. Foul water will then be directed to the Bandon WWTP. No significant impacts to hydrogeological receptors are anticipated.

MATERIAL ASSETS – ROADS & TRAFFIC

A Traffic and Transportation Assessment report was compiled by MHL Consulting Engineers. The anticipated increase in traffic volumes as a result of the proposed development is not expected to generate significant cumulative impacts upon the local road infrastructure, provided mitigation is implemented.

The potential for noise associated with traffic to impact upon residential, commercial and other non-agricultural facilities would be considered low, as vehicle usage would be considered an intermittent source and would be in line with those noted within modern existing residential areas in the vicinity of

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the proposed site. Additionally, construction plant and machinery will change as the project develops, with plant and equipment only operating within any particular section of the site for a relatively short period of time. No significant alteration to the current noise environment in the area is anticipated due to traffic generated by the development.

MATERIAL ASSETS – UTILITIES & OTHER

The proposed development will impact on the utilities and waste management infrastructure in the area. There are a number of telecommunication and power line systems within the vicinity of the site. Bandon Civic Amenity site is located approximately 3.4 km to the south-west of the proposed site.

During the construction phase, impacts upon the local electricity and telecommunications networks can occur through a short-term increase in demand or accidental physical damage to existing infrastructure. Prior to any works commencing at the proposed site, local utilities will be mapped out to avoid damaging any unidentified lines or cables within the site or in its immediate vicinity. The installation of new electrical and telecommunications infrastructure at the site will be undertaken by certified contractors and in accordance with established national methodologies and guidance. The proposed development will not require any connections to the gas network and it is not anticipated any impacts upon the existing infrastructure.

The proposed development will generate a number of non-hazardous and hazardous waste streams during the construction phase, with a potential for significant impacts upon the local waste management network, if unmitigated. The contractor will establish a designated waste storage area within the contractor's compound at the site, specifically for storing waste materials, including soils and stones. The contractor will minimise the on-site storage of hazardous waste by appropriately storing all hazardous materials in a dedicated and secured storage unit. Depending on the type of wastes requiring storage, bunding may be necessary to prevent potential loss to the ground or surface waters. The Waste Classification Assessment carried out by Gound Investigations Ireland concluded that the subsoil material sampled across the site, if being considered a waste, can be classified as non-hazardous. Therefore, the likelihood of encountering hazardous soil and stones during the construction phase of the development is expected to be low.

Given the nature of the proposed development and following the implementation of mitigation measures, it is considered that residual impacts during the construction phase would be not significant and short-term.

The development will source its water from a new connection to the water mains supply. The demand on the municipal water supply would increase once the operational phase of the development is complete, however, there would be sufficient supply to accommodate the development. Wastewater generated by sanitary facilities at the dwelling units and creche would be directed to the existing foul water network to be treated Bandon WWTP. Irish Water has confirmed feasibility of connection without infrastructure upgrade and the WWTP would be able to accommodate the proposed development.

It is anticipated that local electricity and telecommunications infrastructure would be able to accommodate the operational phase of the proposed development and no significant impacts are expected.

Given the reduced volume of wastes anticipated during the operational phase and following the implementation of mitigation measures, it is considered that impacts during the operational phase of the development would not be significant.

It is anticipated that existing services and management facilities in the region would have the available capacity to cater for the proposed development.

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ARCHAEOLOGICAL, ARCHITECTURAL AND CULTURAL HERITAGE

Introduction

This chapter assesses how the proposed residential development at Convent Hill, Bandon may affect archaeology, architectural heritage and the wider cultural landscape.

Existing Heritage Environment

The proposed development site is located on the north-western edge of Bandon, in an area that was historically part of the town's agricultural hinterland. The site comprises mainly pasture to the west and scrub/rough ground to the east.

There are no recorded archaeological sites or protected structures within the development site. The nearest known archaeological features - a historic church site (CO110-021001) and two holy wells (CO110-021002, CO110-021003) - are located approximately 65–75m to the northeast.

The nearest Architectural Conservation Area is Barretts Hill ACA, to the south-east. The closest Protected Structure is Kilbrogan House (c. 1818), approximately 250m from the site. The wider area reflects a long history of settlement and farming, with Bandon developing as a plantation town in the early 1600s along the River Bandon.

Archaeological Investigations

A geophysical survey (Licence 25R0152) on the western portion of the site identified no anomalies of clear archaeological significance. The eastern portion could not be surveyed due to dense vegetation.

Archaeological testing (Licence No. 25E0836) identified two spreads of fulachtaí fia material near a stream at the northern edge of the site.

Predicted Impacts

Archaeological Heritage

- There will be no impact on any recorded archaeological sites.
- The identified fulachtaí fia will be protected and retained in situ within a 10m buffer zone. A pathway crossing part of the buffer zone will use a no-dig construction method, ensuring no disturbance.
- The likelihood of encountering additional archaeological features is low, although some limited potential remains, particularly in the vicinity of the proposed bridge crossing.
- In the absence of mitigation, any previously unknown archaeological remains could be subject to disturbance during groundworks.
- Overall, impacts on archaeology are not significant in EIAR terms.

Architectural Heritage

- There will be no direct or indirect impacts on protected structures or heritage buildings.

Cultural Heritage

- A stream marking a historic townland boundary will be retained and incorporated into the design, preserving its legibility within the landscape.

Mitigation Measures

Key measures include:

- The fulachtaí fia material will be preserved within a minimum 10-metre buffer zone.
- Use of a no-dig construction method for the pathway within the buffer zone.
- Licenced archaeological monitoring of all groundworks.

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- If any previously unknown remains are uncovered, they will be recorded or preserved in consultation with the National Monuments Service and the Local Authority Archaeologist.

Residual Effects

Following mitigation:

- Effects on archaeological, architectural and cultural heritage will be negligible and not significant.
- No known heritage assets will be lost.
- Archaeological features and historic landscape elements will remain protected.

Conclusion

The proposed development has been designed to avoid and protect heritage features. With mitigation in place, it will not result in significant impacts on the archaeological, architectural or cultural heritage.

SUMMARY

The potential for the proposed residential development to cause adverse environmental impacts, considering the proposed mitigation measures for both the construction and operational phases, is anticipated to be not significant. This is due to the nature, scale, design and location of the site.

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1.0 INTRODUCTION, BRIEF FOR CONSULTANCY & SCOPE OF EIAR

1.1 INTRODUCTION

Panther Environmental Solutions Limited (PES Ltd.) has been commissioned by Industrial Life Sciences Ltd., to prepare an Environmental Impact Assessment Report (EIAR), for the proposed construction of a Large-scale Residential Development (LRD) and all ancillary site works and services at Convent Hill, Bandon, County Cork.

The proposed development will be located in the townlands of Coolfadda and Kilbrogan, Co Cork. The proposed site is c. 5.3 km south-west of Inishannon town, c. 8.4 km south-west of Crossbarry town, c. 9.2 km north-west of Kilbrittain town and c. 10.2 km north-west of Dunderrow town. The site is located in a peri-urban area with agricultural lands to the west and north as well as urban elements in Bandon, including residential housing estates, schools and stores. The site is accessed via the L2033 to the west, L2039 (Kilbrogan Street) to the east and via the L2011 (Convent Hill) to the south which connect to the R589 (Kilbrogan Hill) approximately 200m to the south-east and to the local road network. The site has good connectivity to the N71 national road via the regional roads R589, R586 and R603 which intersect Bandon town. The N71 connects Bandon town to Cork city.

A full description of the existing and proposed development is provided in Section 2 of this EIAR document.

This EIAR is to be submitted to Cork County Council in support of an application for planning permission for the proposed development, as described above, under the Planning and Development Regulations 2001 (S.I. No 600 of 2001).

1.2 ENVIRONMENTAL IMPACT ASSESSMENT & PLANNING LEGISLATION

This Environmental Impact Assessment Report has been prepared in accordance with:

- Guidelines on the information to be contained in Environmental Impact Assessment Reports (EPA, 2022);
- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (Department of Housing, Planning and Local Government, 2018);
- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (Department of Housing, Planning and Local Government, 2018);
- Guidelines on the information to be contained in Environmental Impact Statements (EPA, 2002);
- Advice Notes on Current Practice in the Preparation of Environmental Impact Statements (EPA, 2003);
- Environmental Impact Assessment of Projects – Guidance on Screening (Directive 2011/92/EU as amended by 2014/52/EU). (European Union 2017);
- Environmental Impact Assessment of Projects – Guidance on Scoping (Directive 2011/92/EU as amended by 2014/52/EU). (European Union 2017);
- Environmental Impact Assessment of Projects – Guidance on the preparation of the Environmental Impact Assessment Report (Directive 2011/92/EU as amended by 2014/52/EU). (European Union 2017);
- Environmental Impact Assessment (EIA) Guidance for Consent Authorities Regarding Sub-Threshold Development (Department of the Environment, Heritage and Local Government, 2003).

Schedule 5, of the Planning and Development Regulations refers to development for the purposes of Part 10 (Environmental Impact Assessment Report) of the planning regulations.

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“An EIAR is required to accompany a planning application for development of a class set out in Schedule 5 of the Planning and Development Regulations which exceeds a limit, quantity or threshold set for that class of development. An EIAR will also be required by the planning authority in respect of sub-threshold development where the authority considers that the development would be likely to have significant effects on the environment (article 103)”.

The schedule sets out the prescribed classes of development that require an EIAR document. The following sections of schedule 5 are applicable to the proposed development.

- *Schedule 5, Part 2:*
 - 10. Infrastructure Projects:*
 - (b) (i) Construction of more than 500 dwelling units.*
 - (iv) Urban development which would involve an area greater than 2 hectares in the case of a business district, 10 hectares in the case of other parts of a built-up area and 20 hectares elsewhere.*
 - 15. Any project listed in this Part which does not exceed a quantity, area or other limit specified in this Part in respect of the relevant class of development but which would be likely to have significant effects on the environment, having regard to the criteria set out in Schedule 7.*

The proposed development is for the construction of a total of 240 dwelling units, away from the commercial and business centre of Bandon Town on a net area of 7.025 hectares (9.590 ha total). Thus, the proposed development is sub-threshold with regard to Schedule 5, Part 2, Item 10 (b) of the Planning and Development Regulations. However, it is considered that the proposed development would have potential for significant effects on the environment in combination with other developments. Therefore, a sub-threshold EIAR was carried out for the project.

This EIAR is drafted with particular regard to Article 94 and Schedule 6 in the 2018 Planning Regulations, and is submitted to provide information that may assist the planning authority in making its decision on this application for planning permission.

The EIA Directive, 2014/52/EU, amending the EIA Directive 2011/92/EU, was transposed into Irish law by the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (S.I. No. 296 of 2018). Circular letters issued by the Department of Housing, Planning, Community and Local Government on the 15th of May 2017 (Ref. PL1/2017) and 27th August 2018 (Ref. PL05/2018) have also been consulted in preparation of this report, advising planning authorities and An Coimisiún Pleanála (formerly An Bord Pleanála) of the procedures and information necessary to comply with the EIA Directive required under the new regulations:

“The new Regulations transpose the requirements of Directive 2014/52/EU, amending previous Directive 2011/92/EU, on the assessment of the effects of certain public and private projects on the environment (the EIA Directive) into planning law with effect from 1 September 2018.”

The guidelines state that in preparing an EIAR, the Developer will carry out an analysis of the likely effects of the project (positive or negative) on the environment. The Environmental Impact Assessment procedure commences at the project design stage when the scope of the study is determined. Studies are then carried out to investigate in detail, any potential environmental impacts. Where significant adverse impacts are identified, measures are recommended to mitigate or avoid the impact of the proposed development.

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This Environmental Impact Assessment Report examines the potential significant impacts of the proposed development, comprising of the construction of a total of 240 dwelling units and all ancillary site works and services at Convent Hill, Bandon, County Cork.

The extent of the proposed Large-scale Residential Development is described in detail in Section 2 – Description of the Proposed Development. The potential environmental impacts of the proposed LRD are addressed in Sections 4 – 13 of this volume of the report under the headings Population and Human Health, Natural Environment, Material Assets, Cultural Heritage, and Interactions and Inter-relationships.

1.3 EIA PROCESS OVERVIEW

Environmental Impact Assessment (EIA) is the process by which the anticipated effects on the environment due to a project are assessed or measured. The Environmental Impact Assessment Report (EIAR) summarises the environmental information collected during the impact assessment of the proposed development.

The steps of the EIA process can be described as follows:

- (i) Screening;
- (ii) Scoping;
- (iii) Preparation of the EIAR;
 - Consideration of Alternatives,
 - Project Description,
 - Description of Receiving Environment,
 - Identification and Assessment of Impacts,
 - Monitoring and Mitigation Proposals.
- (iv) Completion of EIA,
 - Scrutiny and Consent,
 - Enforcement and Monitoring.

1.3.1 SCREENING

In order to determine if an EIA is required for the proposed development, it is necessary to determine whether the project is listed in one of the Annexes of Directive 2011/92/EU, as amended by Directive 2014/52/EU. These annexes have been transposed into Irish Law, with the prescribed classes of development requiring an EIAR outlined in Schedule 5 of the Planning and Development Regulations, 2001 (S.I. No. 600 of 2001), as amended.

Schedule 5, Part 1, of the above mentioned regulations, prescribes the mandatory thresholds in respect to Annex I projects.

Annex II of the EIA Directive, transposed by Schedule 5, Part 2, of the Planning and Development Regulations, provides E.U. Member States discretion in determining the need for an EIA on a case-by-case basis for certain classes of projects, having regard to the overriding consideration that projects likely to have significant effects on the environment should be subject to EIA.

The proposed development is below the given thresholds for an Annex II class activity described in the EU Directive 2011/92/EU. However, an EIAR was carried out for the project given that there is a potential for significant in-combination effects with other developments.

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1.3.2 SCOPING OF THE EIAR

Scoping is an essential part of the preparation of an EIAR as it ensures that all potential and important significant impacts on the receiving environment are taken into account at the earliest possible time.

Scoping provides relevant information on the most important potential impacts of the project, which will have to be addressed in the EIAR.

With regard to EPA criteria for scoping, the environmental areas that may be impacted by the proposed scheme were identified and are as follows:

Human Beings

During scoping, particular regard was given to the potential impact of the proposed construction of a large-scale residential development and all ancillary site works and services on human beings.

In particular, potential impacts which may occur due to noise during operation.

Natural Environment

The nearest sites of ecological importance are the Courtmacsherry Estuary Special Area of Conservation (SAC) (Site Code: 001230) and the Courtmacsherry Bay Special Protection Area (SPA) (Site Code: 004219), which are c. 10.7 km south-east of the site at their closest. There are no designated Natural Heritage Areas (NHAs) within 15 km of the development, while the nearest proposed NHAs are the Bandon Valley West of Bandon pNHA and Bandon Valley Above Inishannon pNHA, located 631m south-west and 2.7 km north-east respectively.

The proposed development site is located on an aquifer categorised as a “Locally Important Aquifer – Bedrock which is moderately productive only in local zones”. Groundwater vulnerability across the site is mapped as “high” to “extreme” due to areas of exposed bedrock or shallow soils.

The potential impacts on land, waters and biodiversity must be assessed with care to ensure that all impacts are clearly identified and where possible removed, reduced or minimised to a satisfactory level.

Material Assets

This involves assessing impact of the proposal on land take, the availability of resources such as soils, utilities and natural resources and waste management in the area. The development would construct a large-scale residential development at the proposed site. Given the location of the proposed development site in a peri-urban area, the development’s potential impact upon agriculture must also be assessed.

Architecture, Archaeology & Culture Heritage

A number of monuments are present within the wider vicinity of the site, with four designated monuments recorded within c. 100m of the site boundary. A geophysical survey was undertaken across the western portion of the proposed development site, which did not identify anomalies of clear archaeological significance. However, subsequent archaeological testing identified two disturbed fulachtaí fia spreads on low-lying ground adjacent to the watercourse in the northern portion of the site. These features confirm prehistoric activity within the proposed development boundary in a typical riverine setting.

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1.3.3 SCENARIOS INVESTIGATED

A number of different scenarios have been examined when determining likely significant impacts.

The “*do nothing*” scenario which compares the quality of the existing receiving environment with that of the likely environment should the proposed scheme not be permitted.

The “*do something*” scenario which compares the quality of the existing receiving environment with that of the likely environment should the proposed scheme be permitted.

1.4 INFORMATION TO BE CONTAINED IN AN EIAR

Schedule 6 of the Planning and Development Regulations, 2001, as amended, specifies the information to be contained within an EIAR, including:

1.
 - (a) A description of the proposed development comprising information on the site, design, size and other relevant features of the proposed development.
 - (b) A description of the likely significant effects on the environment of the proposed development.
 - (c) A description of the features, if any, of the proposed development and the measures, if any, envisaged to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment of the development.
 - (d) A description of the reasonable alternatives studied by the person or persons who prepared the EIAR, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the proposed development on the environment.
2. Additional information, relevant to the specific characteristics of the development or type of development concerned and to the environmental features likely to be affected, on the following matters, by way of explanation or amplification of the information referred to in paragraph 1:
 - (a) a description of the proposed development, including, in particular—
 - i) a description of the location of the proposed development
 - ii) a description of the physical characteristics of the whole proposed development, including, where relevant, requisite demolition works, and the land-use requirements during the construction and operational phases,
 - iii) a description of the main characteristics of the operational phase of the proposed development (in particular, any production process), for instance, energy demand and energy used, nature and quantity of the materials and natural resources (including water, land, soil and biodiversity) used, and
 - iv) an estimate, by type and quantity, of expected residues and emissions (such as water, air, soil and subsoil pollution, noise, vibration, light, heat, radiation) and quantities and types of waste produced during the construction and operation phases;
 - (b) a description of the reasonable alternatives (for example in terms of project design, technology, location, size and scale) studied by the person or persons who prepared the EIAR, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects;
 - (c) a description of the relevant aspects of the current state of the environment (baseline scenario) and an outline of the likely evolution thereof without the development as far as

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natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge;

- (d) a description of the factors specified in paragraph (b)(i)(I) to (V) of the definition of 'environmental impact assessment' in section 171A of the Act likely to be significantly affected by the proposed development:

- population,
- human health,
- biodiversity (for example fauna and flora),
- land (for example land take),
- soil (for example organic matter, erosion, compaction, sealing),
- water (for example hydromorphological changes, quantity and quality),
- air,
- climate (for example greenhouse gas emissions, impacts relevant to adaptation),
- material assets,
- cultural heritage, including architectural and archaeological aspects, and
- landscape.

- (e) (i) a description of the likely significant effects on the environment of the proposed development resulting from, among other things—

- (I) the construction and existence of the proposed development, including, where relevant, demolition works,
- (II) the use of natural resources, in particular land, soil, water and biodiversity, considering as far as possible the sustainable availability of these resources,
- (III) the emission of pollutants, noise, vibration, light, heat and radiation, the creation of nuisances, and the disposal and recovery of waste,
- (IV) the risks to human health, cultural heritage or the environment (for example due to accidents or disasters),
- (V) the cumulation of effects with other existing or approved developments, or both, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources,
- (VI) the impact of the proposed development on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the proposed development to climate change, and
- (VII) the technologies and the substances used, and

(ii) the description of the likely significant effects on the factors specified in paragraph (b)(i)(I) to (V) of the definition of 'environmental impact assessment' in section 171A of the Act should cover the direct effects and any indirect, secondary, cumulative, transboundary, short term, medium-term and long-term, permanent and temporary, positive and negative effects of the proposed development, taking into account the environmental protection objectives established at European Union level or by a Member State of the European Union which are relevant to the proposed development;

- (f) a description of the forecasting methods or evidence used to identify and assess the significant effects on the environment, including details of difficulties (for example technical deficiencies or lack of knowledge) encountered compiling the required information, and the main uncertainties involved;
- (g) a description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements (for example the preparation of an analysis after

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completion of the development), explaining the extent to which significant adverse effects on the environment are avoided, prevented, reduced or offset during both the construction and operational phases of the development;

- (h) a description of the expected significant adverse effects on the environment of the proposed development deriving from its vulnerability to risks of major accidents and/or disasters which are relevant to it. Relevant information available and obtained through risk assessments pursuant to European Union legislation such as the Seveso III Directive or the Nuclear Safety Directive or relevant assessments carried out pursuant to national legislation may be used for this purpose, provided that the requirements of the Environmental Impact Assessment Directive are met. Where appropriate, this description should include measures envisaged to prevent or mitigate the significant adverse effects of such events on the environment and details of the preparedness for, and proposed response to, emergencies arising from such events.

1.5 IDENTIFICATION OF LIKELY SIGNIFICANT IMPACTS

Schedule 6 of the Planning and Development Regulations details the information to be contained in EIAR. The EPA's "*Guidelines on the information to be contained in Environmental Impact Assessment Report, 2022*" states that "*the EIAR should be focused on the likely, significant effects*" and defines effect / impact as "*A change resulting from the implementation of a project*".

The assessment of the effects outlined in the chapters which follow, take into account the guidelines given by the EPA and those scales used in other EIAR documents for significant developments in this country. A broad outline of the description of effects is given in **Table 1.1** to **Table 1.5**.

The following factors have been considered for this EIAR when determining the significance of the effects, both positive and negative, of the proposed development on the various aspects of the receiving environment:

- The quality and sensitivity of the existing/baseline receiving environment.
- The relative importance of the environment in terms of national, regional, or local importance.
- The degree to which the quality of the environment is enhanced or impaired.
- The scale of effect, for example in terms of land area, number of people effected, number and population of species effected including the scale of change resulting from all types of effects.
- The consequence of that effect occurring.
- The likelihood/risk of the effect occurring.
- The duration of the effect from momentary to permanent.
- The degree of mitigation that can be achieved.

Where mitigation in the form of design measures have been suggested throughout the evolution of the EIAR, these have been incorporated into the scheme design in so far as is possible.

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Table 1.1: General EIAR Criteria (Quality of Effects)	
Quality of Effects It is important to inform the non-specialist reader whether an effect is positive, negative or neutral.	Positive Effects A change which improves the quality of the environment (for example, by increasing species diversity, or improving the reproductive capacity of an ecosystem, or by removing nuisances or improving amenities).
	Neutral Effects No effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error.
	Negative/Adverse Effects A change which reduces the quality of the environment (for example, lessening species diversity or diminishing the reproductive capacity of an ecosystem, or damaging health or property or by causing nuisance).

Table 1.2: General EIAR Criteria (Significance of Effects)	
Describing the Significance of Effects ‘Significance’ is a concept that can have different meanings for different topics – in the absence of specific definitions for different topics the following definitions may be useful (also see Determining Significance).	Imperceptible An effect capable of measurement but without significant consequences.
	Not Significant An effect which causes noticeable changes in the character of the environment but without significant consequences.
	Slight Effects An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
	Moderate Effects An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.
	Significant Effects An effect which, by its character, magnitude, duration or intensity, alters a sensitive aspect of the environment.
	Very Significant An effect which, by its character, magnitude, duration or intensity, significantly alters most of a sensitive aspect of the environment.
	Profound Effects An effect which obliterates sensitive characteristics.

Table 1.3: General EIAR Criteria (Probability of Effects)	
Describing the Probability of Effects Descriptions of effects should establish how likely it is that the predicted effects will occur so that the CA can take a view of the balance of risk over advantage when making a decision.	Likely Effects The effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented.
	Unlikely Effects The effects that can reasonably be expected not to occur because of the planned project if all mitigation measures are properly implemented.

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Table 1.4: General EIAR Criteria (Duration and Frequency of Effects)	
Describing the Duration and Frequency of Effects 'Duration' is a concept that can have different meanings for different topics – in the absence of specific definitions for different topics the following definitions may be useful.	Momentary Effects Effects lasting from seconds to minutes.
	Brief Effects Effects lasting less than a day.
	Temporary Effects Effects lasting less than a year.
	Short-term Effects Effects lasting one to seven years.
	Medium-term Effects Effects lasting seven to fifteen years.
	Long-term Effects Effects lasting fifteen to sixty years.
	Permanent Effects Effects lasting over sixty years.
	Reversible Effects Effects that can be undone, for example through remediation or restoration.
	Frequency of Effects Describe how often the effect will occur (once, rarely, occasionally, frequently, constantly – or hourly, daily, weekly, monthly, annually).

Table 1.5: General EIAR Criteria (Types of Effects)	
Describing the Types of Effects	Indirect Effects (a.k.a. Secondary or Off-site Effects) Effects on the environment, which are not a direct result of the project, often produced away from the project site or because of a complex pathway.
	Cumulative Effects The addition of many minor or insignificant effects, including effects of other projects, to create larger, more significant effects.
	'Do-nothing Effects' The environment as it would be in the future should the subject project not be carried out.
	'Worst-case' Effects The effects arising from a project in the case where mitigation measures substantially fail.
	Indeterminable Effects When the full consequences of a change in the environment cannot be described.
	Irreversible Effects When the character, distinctiveness, diversity or reproductive capacity of an environment is permanently lost.
	Residual Effects The degree of environmental change that will occur after the proposed mitigation measures have taken effect.
	Synergistic Effects Where the resultant effect is of greater significance than the sum of its constituents (e.g. combination of SO _x and NO _x to produce smog).

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1.6 REPORT STRUCTURE

The main EIAR document is comprised of the following:

Non-Technical Summary:

A summary of the findings of the EIAR, in non-technical language.

Part I: Proposed Development:

Part I describes the existing and proposed development at the site, previous planning applicants and consents and a summary of consultations with the relevant statutory bodies and competent authorities. Part I includes the following chapters:

- Chapter 1: Introduction, Brief for Consultancy and Scope of EIAR
- Chapter 2: Description of the Proposed Development, Planning and Development Context
- Chapter 3: Alternatives

Part II: Environmental Impacts:

Part II describes the likely significant environmental impacts arising from the proposed development. Where possible, design measures have been included to reduce or eliminate potential impacts. Where this has not been possible, mitigation measures have been suggested to reduce or eliminate the identified impacts of the proposed development.

Part II has been divided into five main sections, as per the table below.

Table 1.6: EIAR Sections and Sub-Sections	
Main Section	Chapters
Section A Population and Human Health	4. Human Beings
	5. Air Quality
	6. Noise
	7. Landscape and Visual Environment
Section B The Natural Environment	8. Biodiversity
	9. Land – Soils, Geology, Hydrology & Hydrogeology
Section C Material Assets	10. Material Assets – Traffic
	11. Material Assets – Utilities and Other
Section D Cultural Heritage	12. Archaeological, Architectural and Cultural Heritage
Section E Interactions and Inter-relationships	13. Interactions and Inter-relationships

1.7 COMPETENT EXPERTISE

Directive 2014/52/EU states that the preparation of EIAR documents should be undertaken by “competent experts”, ensuring that the information provided is of high quality.

Panther Environmental Solutions Ltd (PES Ltd) is a leading Environmental Consulting Firm based in Carlow, Ireland. PES Ltd was formed in 2005 by Environmental Consultant Mike Fraher who has over

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two decades of experience working in the Environmental Consultancy Industry, both in Ireland and in the UK. The PES Ltd. team are experienced in preparing EIS / EIAR documents, having completed a number of these reports for a range of industries including the intensive agriculture sector.

This EIAR has been prepared by experienced environmental consultants with PES Ltd. Mr. Mike Fraher has over 25 years of consultancy experience and has a B.Sc. Degree in Environmental Sciences from the University of Glamorgan, Cardiff in Wales and a Diploma in Food Sciences from Cork Institute of Technology.

Mr. Martin O'Looney has over ten years consultancy experience and has a B.Sc. Degree in Environmental Science and Technology from Sligo Institute of Technology.

Mr. Nial Ryan has over eight years consultancy experience and has a B.Sc. (Hons) in Applied Physics from Dublin City University and a M.Sc. in Medical Device Regulatory Affairs, a Level 6 Cert in CAD and 3D Modelling, Level 7 Cert in Health, Safety and Environmental Management all from South Eastern Technical University (formerly Institute of Technology Carlow).

Mr. Luis Soares has over three years consultancy experience and has a BSc. in Aquatic Sciences and a MSc. in Environmental Sciences and Technology from University of Porto.

Ms. Isabel Carr has a BSc. in Environmental Science from University of Galway.

Section 8 of this EIAR was completed by Ms Paula Farrell of sister company Panther Ecology Ltd who has a BSc in Wildlife Biology from Munster Technological University (formerly IT Tralee) and has experience in elasmobranch, bird, invertebrate, fauna, habitat and floral surveys. Paula has also experience managing and initiating conservation actions on a number of nature reserves for biodiversity.

Additional expertise was obtained for Sections 7, 10 and 12 of the EIAR, as discussed below. The following table outlines the contributor of each section of the EIAR.

Table 1.7: Contributors to the EIAR

Ref	EIAR Topic	Responsibility	Notes
1	Introduction, Brief for Consultancy & Scope of EIAR	PES	-
2	Description of the Proposed Development, Planning & Development Context	PES	Information to be provided by PES, project architect and client, as applicable.
3	Alternatives	PES	Information to be provided by PES, project architect and client, as applicable.
4	Human Beings	PES / JBA	Desk study and risk assessment based on information in EIAR Sections. JBA to undertake a Flood Risk Assessment.
5	Air Quality	PES	Desk study based on information provided in EIAR sections.
6	Noise & Vibration	PES	PES to undertake a Noise Impact Assessment report, the findings of which will be used to complete this section.
7	Landscape & Visual Environment	Purser	EIAR Chapter provided by Purser.

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8	Biodiversity	PE	Risk assessment based on potential for species presence, informed by site surveys.
9	Land – Soils, Geology, Hydrology & Hydrogeology	PES	Waste Classification Assessment to be carried out by Ground Investigations Ireland. Desk study and risk assessment based on information in EIAR Sections.
10	Material Assets – Roads & Traffic	MHL / PES	MHL to undertake a Traffic & Transport Impact Assessment, the findings of which will be used to complete this section.
11	Material Assets – Utilities & Other	PES	Desk study and risk assessment based on information in EIAR Sections.
12	Archaeological, Architectural & Cultural Heritage	Lane Purcell	EIAR Chapter provided by Lane Purcell.
13	Interactions & Inter-relationships	PES	Desk study based on information provided in EIAR sections.

1.8 LINKS BETWEEN EIA AND APPROPRIATE ASSESSMENT

The EU Habitats Directive (92/43/EEC) on the conservation of natural habitats and of wild fauna and flora, as amended by council directive 97/62/EC, 2006/105/EC, and Regulation EC1882/2003 of September 2003, as transposed into Irish law by the European Communities (Birds and Natural Habitats) Regulations, 2011 (S.I. 477/11), provides the framework for legal protection for habitats and species of European importance.

Article 6(3) and 6(4) of the Habitats Directive lays down the procedure to be followed when planning new developments that might affect a European site (Natura 2000 site). Article 6(3) of the Habitats Directive states;

“Any plan or project not directly connected with, or necessary to the management of the site, but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site, and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.”

Article 6(4) would come into force following a determination that a plan or project may adversely affect the integrity of a European site.

In accordance with these requirements, the proposed development has been assessed to determine whether any likely significant effects would arise due to the proposed development upon European sites. The resulting Stage 2 Appropriate Assessment Report and Natura Impact Statement form part of this application (Report Ref. PES_NIS_10432).

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PART I – PROPOSED DEVELOPMENT

This section of the EIAR describes the proposed construction of a Large-scale Residential Development (LRD) and all ancillary site works and services at Convent Hill, Bandon, County Cork.

In this section is also described all associated site alterations and development works that would take place at the proposed development site.

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2.0 DESCRIPTION OF THE PROPOSED DEVELOPMENT, PLANNING & DEVELOPMENT CONTEXT

The proposed development will be located in townlands of Coolfadda and Kilbrogan, Co Cork. The proposed site is c. 5.3 km south-west of Inishannon town, c. 8.4 km south-west of Crossbarry town, c. 9.2 km north of Kilbrittain town and c. 10.2 km west of Dunderrow town. The site is located in a peri-urban area with agricultural lands to the west and north as well as urban elements in Bandon, including residential housing estates, schools and stores. The site is accessed via the L2033 to the west, L2039 (Kilbrogan Street) to the east and via the L2011 (Convent Hill) to the south which connect to the R589 (Kilbrogan Hill) approximately 200m to the south-east and to the local road network. The site has good connectivity to the N71 national road via the regional roads R589, R586 and R603 which intersect Bandon town. The N71 connects Bandon town to Cork city.

The setting is predominantly peri-urban with agricultural lands to the west and north; residential housing estates, schools, restaurants, local GAA club, industrial facilities, retail stores and other services to the west, south and east; and River Bandon to the south. The nearest residential developments outside of the proposed site boundary are located along the northern and southern boundaries. **Figure 2.1** below shows the location of the proposed development in a regional context.



Figure 2.1: Site Regional Location Map (OSI Public Map)

The proposed Large-scale Residential Development will consist of 240 no. residential units comprising 156 no. dwelling houses, 84 no. apartments, a creche facility with capacity for 60 no. children and all ancillary site development works. The proposed 156 no. dwelling houses comprise 29 no. 4 bedroom detached/semi-detached dwellings, 126 no. 3 bedroom semi-detached/terraced dwellings and 1 no. 2-bedroom detached dwelling. The proposed 84 no. apartments will consist of 60 no. 2 bedroom units and 24 no. 1 bedroom units to be accommodated in 4 no. three storey apartment buildings. The development comprises a total area of 9.590 ha (net area of 7.025 ha). The overall housing density would be 35 units per hectare.

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The development comprises distinct unit types with the aim to provide a wide range of dwelling styles and sizes to accommodate a mix of residents, whilst producing a scheme that will achieve a sustainable density in line with the constraints of the site. Building type range from semi-detached units up to apartment units. The proposed heating system for the dwellings would be new air to water heat pumps.

The development will also include car parking spaces (416 no. total); bicycle parking spaces (382 no. total); vehicular entrances from the L2033 to the west, L2039 (Kilbrogan Street) to the east and via the L2011 (Convent Hill) to the south; internal access roads; public open spaces; landscaping; boundary treatments, and all associated site development works and services. Site entrance works would be required to make the site accessible to vehicles. The proposed development also provides for 2 no. shared vehicular entrances from L2011 to the south to serve 22 no. of the proposed dwelling houses. There will be a vehicular bridge crossing over an existing watercourse which intersects the site to serve 26 no. dwelling houses in northern areas of the site. The proposed development also provides for public realm enhancements to L2039, which include a raised table, and new footpath to connect to existing footpath infrastructure.

Water will be provided to the proposed dwellings via a new connection to the existing water network that is connected to the nearby public mains. Wastewater generated by sanitary facilities at the dwelling units and creche would be directed to the existing pump station and public wastewater network along L2039 to the east. Foul water will then be directed to the Bandon WWTP (EPA Licence No: D0136-01), which will discharge to River Bandon (150411E, 55785N). Works will be required within the Kilbrogan watercourse to facilitate the surface water and foul water drainage network as stated above. Irish Water has confirmed feasibility of connection to the networks without infrastructure upgrade.

The proposed site will be divided into three separate catchments for the management of clean rainwater from roofs and hard surfaces during the operational phase of the development. The residential units located in the western section of the site as well as the proposed creche and associated hard surfaces will direct surface water to an attenuation tank (approx. volume of 2,175 m³) located south of the riparian zone, which will then discharge into the existing stream via a headwall after passing through a hydrocarbon interceptor. The residential units located in the southeastern section of the site and associated hard surfaces will direct surface water to an attenuation tank (approx. volume of 653 m³) located south of riparian zone, which will then discharge into the existing stream via a headwall after passing through a hydrocarbon interceptor. The residential units and associated hard surfaces in the northern section of the site will direct surface water to an attenuation tank (approx. volume of 696 m³), which will then discharge into the existing stream via a headwall after passing through a hydrocarbon interceptor. Furthermore, a swale will be installed in the northern section of the site to provide surface water interception, infiltration, and potential surface water cleaning. Permeable paving will be installed on driveways and footpaths to allow water to infiltrate to ground. It is also proposed to provide rainwater butts behind the back of each house to harvest rainwater within the development, which can be used for irrigation purposes.

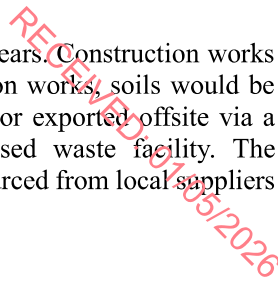
The landscape plan prepared by Gannon & Associates Landscape Architecture includes communal spaces (with seating, play and picnic areas), a linear stream park, a green corridor along the western boundary of the site, a terraced biodiversity park, neighbourhood parks and a nature park on the eastern end of the site. The proposed development will require the removal of scrub within the internal areas, grassland, trees to the south, sections of hedgerow to the west and north and an immature woodland to the south-east of the site. There will be retention and protection of existing trees. Scrub, woodland areas and all other vegetation along the Kilbrogan watercourse will be retained and protected within a 10m buffer either side of the watercourse. Additionally, there will be planting of trees and hedges with ornamental native species.

A lighting plan has been prepared by Electric Skyline as part of this development. Three types of luminaires are proposed, most being 6m high. There is no proposed lighting along the 10m buffer with lighting directed to where it is required.

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2.2 CONSTRUCTION PHASE

The construction phase would extend over a period of approximately 36 months with a number of people directly employed to work on site. All of the construction materials and equipment required would be acquired from local sources, where possible and transported into the site by road. Access and egress during construction will be via the proposed operational entrance and exit located to the south of the site connecting to the L2011 local road.

All work on the site would be conducted in accordance with the duty of safe working environment under the Safety, Health, and Welfare at Work Act 2005. Construction works would be carried out in normal business hours 07:00-19:00 Monday to Friday and 07:00-13:00 on Saturday.

Given the dimensions of the proposed new buildings, it is estimated that c. 55,500 tonnes of soil would need to be excavated to accommodate the new buildings (weight of one cubic meter of soil ranging from 1.2 to 1.7 tonnes estimate). It is planned that all of the soil that would be moved during the laying of services and site preparation works would be stockpiled onsite and used within the site for land levelling and landscaping. It is intended to maximise the reuse of excavated soil and stone for fill and landscaping purposes whenever feasible. Any remaining soil will be transported off-site as waste material, unless it meets the criteria for classification as a soil by-product, potentially suitable after temporary storage on-site or within a dedicated soil stockpile. The Waste Classification Assessment undertaken by Ground Investigations Ireland (GII) concluded that the sampled soil across the site, if being considered a waste, can be classified as non-hazardous.

A Construction Environmental Management Plan and a Resource Waste Management Plan were carried out by PES Ltd. and accompany this planning application.

Impacts and mitigation measures attributable to the construction phase will be discussed in appropriate sections within this EIAR.

3.0 ALTERNATIVES

3.1 EXAMINATION OF POSSIBLE ALTERNATIVES

Schedule 6, Article 94 of the Planning and Development Regulations 2001 requires that: Information to be contained in an Environmental Impact Statement shall include –

- (1d) an outline of the main alternatives studied by the developer and an indication of the main reasons for his or her choice, taking into account the effects on the environment.

This section investigates the following alternatives to the proposed development:

- Alternative Site;
- Alternative Layouts and Designs;
- Design Selection;
- “Do-Nothing” Alternative

3.2 ALTERNATIVE SITE

A review of available lands within the applicant’s holding reveals that the proposed site location is the most appropriate site for the development.

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The proposed buildings are intended to provide accommodation to a mix of residents, whilst producing a scheme that will achieve a sustainable density in line with the constraints of the site.

Acquiring property further away from the proposed site has been ruled out as an option by the applicant for several reasons, including the following:

- Additional costs associated with purchasing a new site.
- Proximity to the existing urban area and services of Bandon town.

The proposed location is considered the best economically viable option for the applicant and would ensure the provision of modern residential dwellings to the local population of Bandon and beyond. The chosen site will allow future residents to avail of nearby services and utilities located in Bandon town, while adopting a sustainable development pattern.

3.3 ALTERNATIVE LAYOUTS AND DESIGNS

The layout and design of the proposed housing scheme have been based upon feasibility, environmental impacts and safety of the local population and future residents. The minimising of construction costs was also a key factor in deciding the layout and design of the proposed residential development.

Multiple alternative layouts and designs were considered, but it was decided that the one represented in **Figure 2.2** was the most practical design. The layout and design proposed takes into consideration the required connections with existing infrastructure and utilities. The main alternative site layouts are summarised in **Figures 3.1 to 3.3** below.

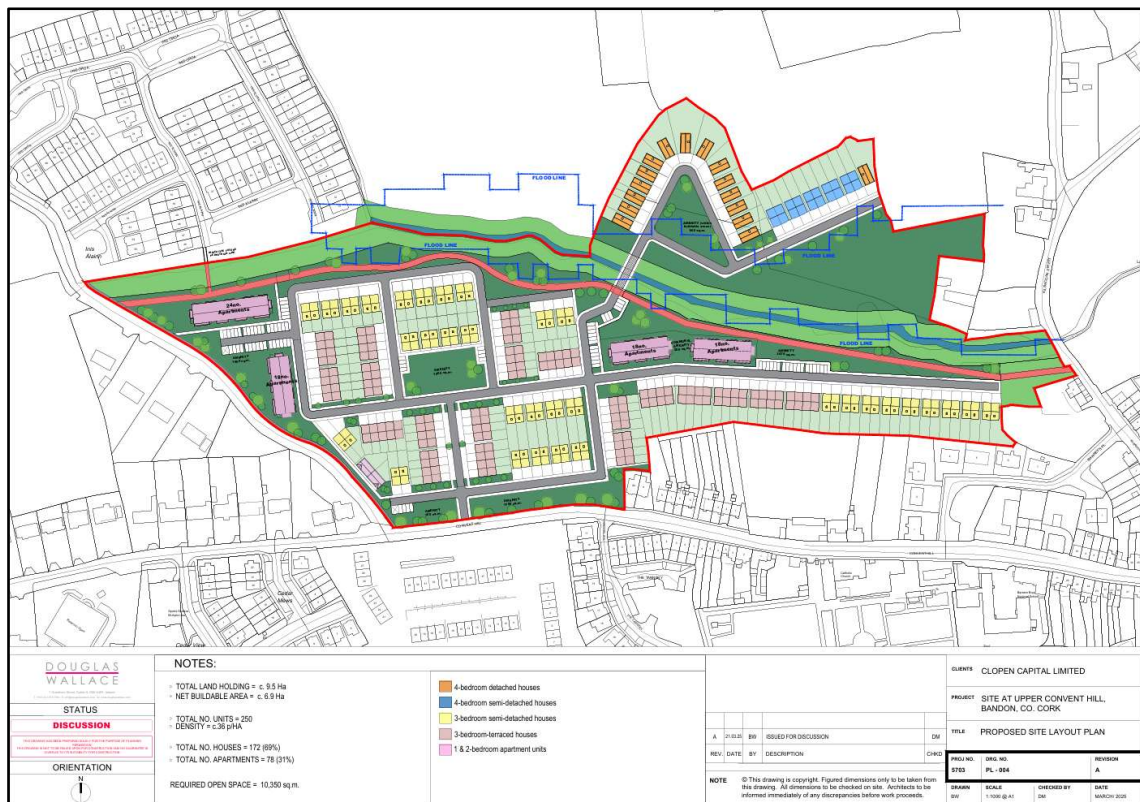


Figure 3.1: Alternative Site Layout 1

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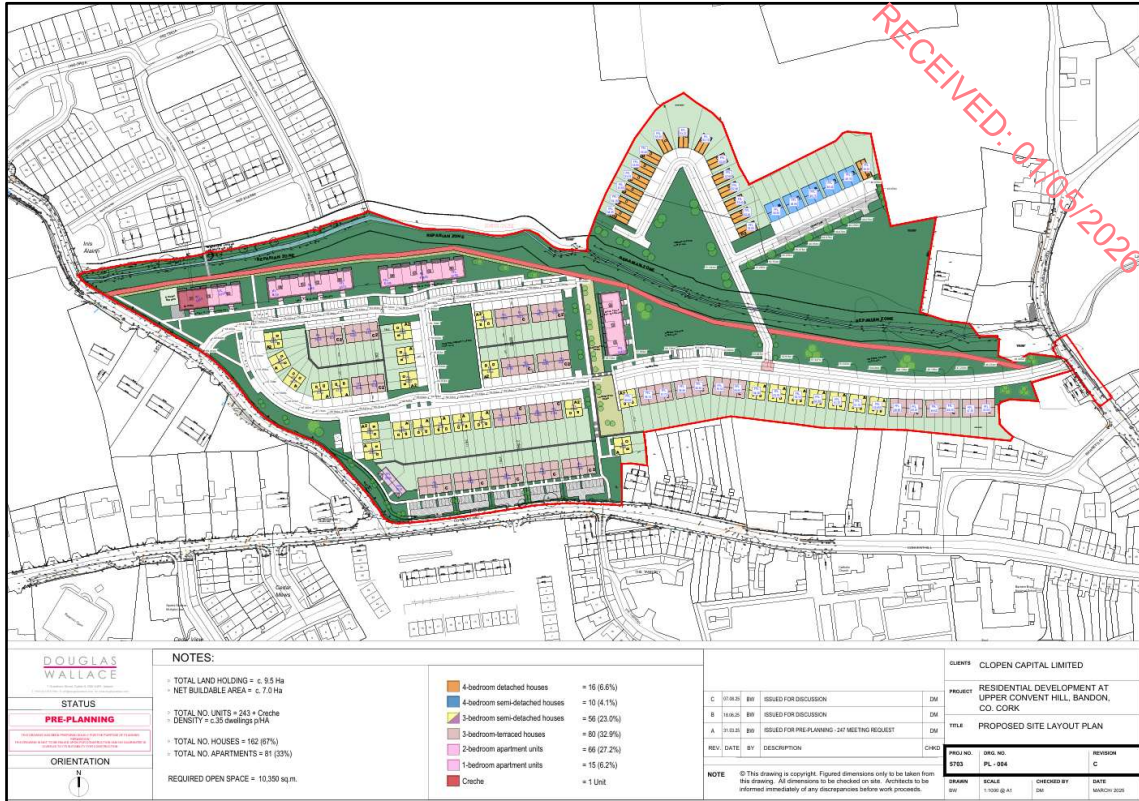


Figure 3.2: Alternative Site Layout 2

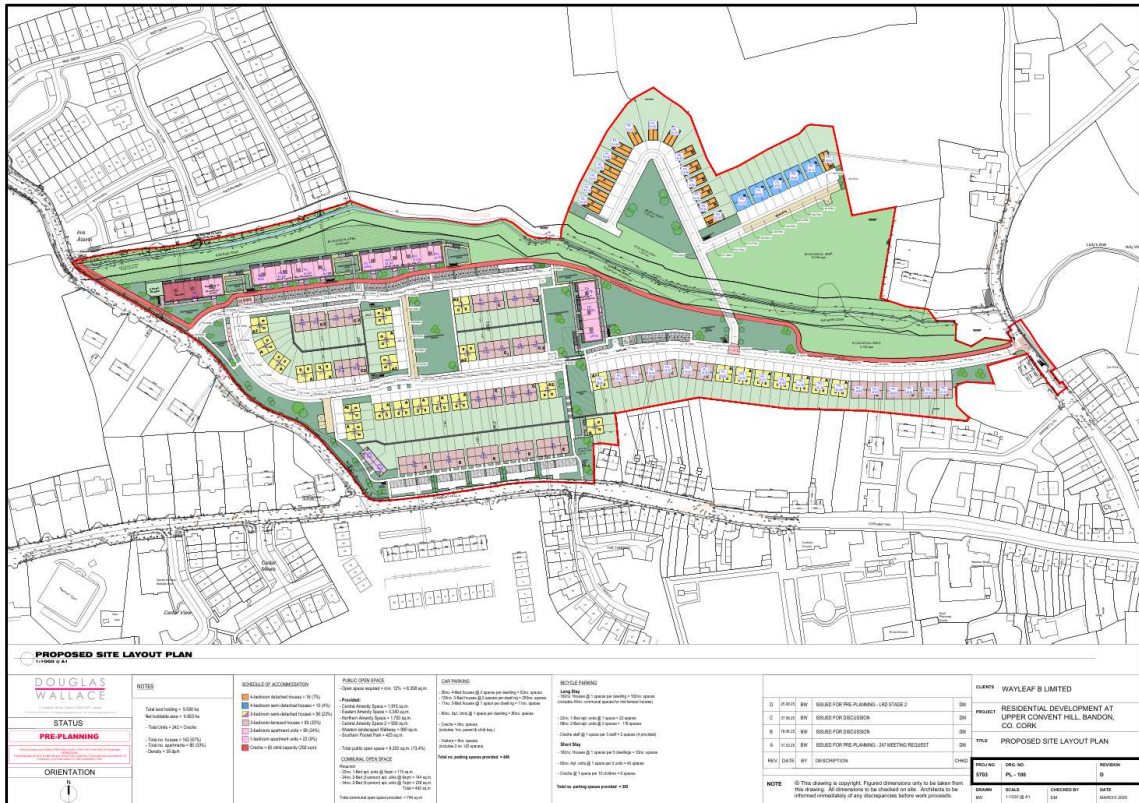


Figure 3.3: Alternative Site Layout 3

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The proposed design of the new buildings incorporates the most up-to-date concepts in modern housing in relation to environmental control. The design of the proposed development incorporates design elements that aim to minimise the potential for significant environmental impacts at the site.

3.4 “DO-NOTHING” ALTERNATIVE

The “do-nothing” alternative would result in no new residential dwellings on the site in the townlands of Coolfadda and Kilbrogan, County Cork. The land proposed for development would remain as an existing brownfield in ownership of the applicant. There would be no increase in the demand of local services and utilities.

As discussed in further detail in the following sections of this report, the level of risk to the environment would not increase significantly as a result of the proposed development, given proposed mitigation measures.

The “do-nothing” alternative would deny the state the opportunity to gain from the economic benefits associated with the sustainable growth of local population. It would also have a local impact upon employment both at operational and construction phases.

The proposed development will add to the economic activity, with consequent positive effect in the region and the local community.

Should the proposed development proceed, it would support the following planning objectives outlined in the Cork County Development Plan 2022 – 2028:

HOU 4-6: Housing Mix

Secure the development of a mix of house types and sizes throughout the County as a whole to meet the needs of the likely future population across all age groups in accordance with the guidance set out in the Joint Housing Strategy and the Guidelines on Sustainable Residential Development in Urban Areas.

SC 6-4: Childcare Facilities

Support and facilitate the sustainable provision of childcare facilities in appropriate locations and seek their provision concurrent with development, having regard to population targets for the area and in accordance with the Childcare Facilities Guidelines for Local Authorities 2001 and regard to the Universal Design Guidelines for Early Learning and Care Centres 2019.

ZU 18-11: Residential Areas

Promote development mainly for housing, associated open space, community uses and, only where an acceptable standard of amenity can be maintained, a limited range of other uses that support the overall residential function of the area.

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PART II - ENVIRONMENTAL IMPACTS

This section of the EIAR describes the likely significant environmental impacts arising from the proposed construction of a Large-scale Residential Development (LRD) and all ancillary site works and services at Convent Hill, Bandon, County Cork.

Where possible, design measures have been included to reduce or eliminate possible impacts. Where this has not been possible, mitigation measures have been suggested to reduce or eliminate the identified impacts of the proposed development.

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SECTION A – POPULATION AND HUMAN HEALTH

This section of the Environmental Impact Assessment Report deals with the potential effects of the proposed scheme on human beings.

These effects have been grouped into:

Air Quality and Climate Impacts

The impact of:

- emissions to air generated by the proposed development,
- on climate.

Noise Impacts

The impact of noise generated by the proposed development on noise levels in the general vicinity has been assessed.

Landscape and Visual Impacts

The impact of the proposed development on the visual amenity of the landscape has been assessed.

While human beings interact in some way with every aspect of the environment, the above interactions are considered the most significant in this case. The impacts of the proposed development on human beings in relation to effects on the natural environment are further considered in **Section B**, while the impacts of effects on material assets and archaeology, architecture and cultural heritage are considered in **Sections C and D** respectively.

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4.0 HUMAN BEINGS

4.1 INTRODUCTION

Any development that alters the existing environment has the potential to impact upon human beings at a local and/or regional scale, through impacts upon socio-economic factors including demographics, land use, economic development and employment.

This section of the EIAR provides an overview of the receiving social-economic environment of the area and briefly outlines the main potential impacts of the proposed development, at both the construction and operational phases, on human beings. The following sections of this EIAR provide detailed assessments of potential impacts on human beings and detail proposed mitigation measures to address the identified impacts.

4.2 METHODOLOGY

A desk-based study was undertaken to assess the potential impact of the proposed development on the receiving socio-economic environment. This study comprised a review of available information with regards to population and dynamics, economic activity, employment, land use and residential amenity. Information was obtained from the Central Statistics Office (CSO) and the Cork County Development Plan 2022 – 2028.

4.3 RECEIVING ENVIRONMENT

4.3.1 POPULATION AND DYNAMICS

According to the 2022 Census, Cork City and County had a population of 584,156, comprising 295,311 females and 288,845 males, growing from 542,868 in 2016. This represents a population increase of approximately 7.6% since the previous Census in 2016. With respects to Bandon, the town had a population of 8,196 in 2022, comprising 4,109 females and 4,087 males, growing from 6,957 in 2016 (an increase of 17.8%).

Table 4.1 shows the changes in population by age group in Cork City and County between the 2016 and 2022 Census. Considerable increases are noted for the older age groups, with an increase of 19.1% for the 60 to 84 age group and an increase of 27.3% in the 85+ age group. The population of the 40 to 59 age group increased by 14.3%. A slight population decrease was noted in the 20 to 39 age group at -1.4%. The youngest age group, 0 to 19 showed only a slight increase in population at 2.3%.

Table 4.1: Population Change Between 2016 Census and 2022 Census/Age Group.

Age Group	2016 Population	2022 Population	% Change
0 – 19	148,377	151,855	2.34
20 – 39	149,489	147,406	-1.39
40 – 59	143,391	163,882	14.29
60 – 84	93,306	111,131	19.10
85+	7,765	9,882	27.26

Cork City is the largest settlement of County Cork, covering an approximate area of 186.6 km². The population of Cork City during the 2016 census was 125,657 which increased to 224,004 in 2022 comprising 114,268 females and 109,736 males. Part of this growth is explained by the boundary expansion of Cork City which came into effect in early 2019. The proposed development is located

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within the Bandon-Kinsale local electoral area which had a total population of 40,387 during the 2022 Census.

The other nearest urban areas to the proposed site include Inishannon c. 5.3 km north-east, Crossbarry c. 8.4 km north-east, Kilbrittain c. 9.2 km south-east, Dunderrow c. 10.2 km south-east, Cloughduv c. 10.7 km north, Rathard-Aherla c. 10.9 km north, Crookstown c. 11.0 km north and Enniskean c. 11.7 west. **Table 4.2** details the population change within these areas between the 2016 Census and 2022 Census.

All of these urban areas within the wider area of the site experienced population increases since the previous 2016 Census, with the exception of Crookstown and Rathard-Aherla.

Table 4.2: Population Changes in Towns within the Purlieu of the Proposed Site 2016 – 2022.

Area	2016 Population	2022 Population	% Change
Bandon	6,957	8,196	17.81
Inishannon	907	1,043	14.99
Crossbarry	368	399	8.42
Kilbrittain	216	238	10.19
Dunderrow	208	213	2.40
Cloughduv	360	440	22.22
Rathard-Aherla	571	562	-1.58
Crookstown	245	183	-25.31
Enniskean	692	766	10.69

4.3.2 ECONOMIC ACTIVITY

The Department of Housing, Local Government and Heritage (DHLGH) reports that over €40.4 billion will be allocated for housing and critical infrastructure from 2026–2030, in accordance with the National Development Plan. This investment is expected to deliver 300,000 additional homes. The Central Statistics Office (CSO) reveals that the volume of production in the Residential Building sector was up 4.7% in Q3 2025 when compared with Q2 2025. There are a number of ongoing residential developments in Bandon town, some of which are detailed in **Section 11** of this report.

As per the 2022 Census, there were 7,304 persons inhabiting 2,643 houses/bungalows in Bandon town, while 809 persons inhabited 391 flats/apartments. Recent statistics also show that the majority of households in Bandon are: owned with mortgage or loan; heated by natural gas; connected to the public water supply and sewerage system.

The proposed site is located within a peri-urban area with agricultural lands to the west and north. Various commercial activities can be found in Bandon town to the west, south and east. These include restaurants, hotels, health centres, supermarkets and other retail stores, industrial facilities, gas stations and other services.

There are eleven EPA licenced facilities within 15 km of the proposed development. The closest licenced site is an abattoir operated by Anglo Beef Processors Ireland, which is located c. 1.01 km north-east. Further details of these sites are provided in section 11 of this EIAR. These EPA licenced sites are listed in **Table 4.3** and shown in **Figure 4.2** below.

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Table 4.3: EPA Licenced Facilities Within 15km of the Proposed Development.

LICENCE NO.	LICENCE NAME	LICENCE TYPE (FIRST SCHEDULE OF EPA ACT, 1992, AS AMENDED)	APPROX. DISTANCE FROM DEVELOPMENT SITE
P0188-01	Anglo Beef Processors Ireland Unlimited Company	7.4.1: Food and Drink	1.01 km NE
P0477-01	Acorn Environmental Ltd.	5.13 (e): Chemicals	1.68 km E
P0005-03	MSD International GmbH	5.16: Chemicals	4.66 km NE
P0661-01	Oldpark Pigs Ltd	6.2 (b): Intensive Agriculture	4.78 km N
P0942-01	Mr Derek Good	6.1 (a): Intensive Agriculture	4.95 km NE
P0009-05	Eli Lilly Kinsale Ltd	5.16: Chemicals	11.2 km SE
P0621-03	Carhue Piggeries Ltd	6.2 (b): Intensive Agriculture	11.7 km S
P0662-01	Mr Jerry O'Brien	6.2 (b): Intensive Agriculture	12.0 km NW
P0594-02	GP Wood Ltd	8.3: Wood, Paper, Textiles and Leather	12.4 km W
P0986-01	Timoleague Agri Gen Ltd	11.4 (b)(i): Waste	12.8 km S
P0947-02	Staunton Foods Ltd	7.4.1: Food and Drink	12.8 km S

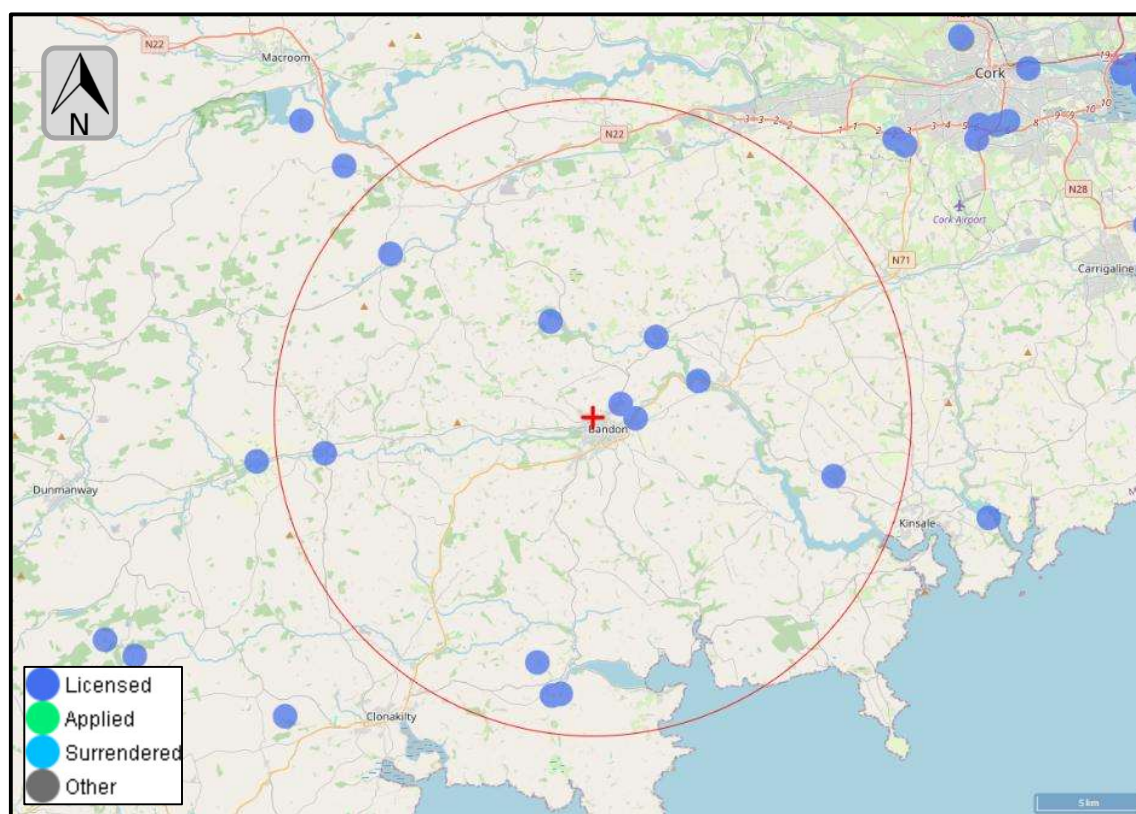


Figure 4.1: EPA Licenced Facilities within 10km of the Proposed Development.

4.3.3 EMPLOYMENT

The total potential labour force for 2022 in Cork City and County was 283,866 individuals, which represents 48.6% of the total population. In the 2022 Census, the labour force participation rate for 2022 was 60.3% with an unemployment rate of 6.8%.

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The labour force participation rate was calculated by expressing the labour force, aged 15 years and over who are at work, looking for their first regular job or unemployed, as a percentage of the total population aged 15 years and over.

Table 4.4 below provides a summary of the working population for County Cork.

Table 4.4: Summary of the Working Population in Cork City and County, 2022.

AREA	PERSONS	% OF TOTAL POTENTIAL LABOUR FORCE
Total at work	264,423	93.2
Unemployed looking for the first job	3,238	1.17
Unemployed, having lost or given up the previous job	16,205	5.71

Table 4.5 below provides a synopsis of the total workforce in Cork City and County by their broad industrial group. The construction sector accounted for 5.29% of employment of the labour force in 2022.

Table 4.5: Persons at Work by Broad Industrial Group 2022.

OCCUPATION (INDUSTRIAL GROUP)	PERSONS	% OF TOTAL POTENTIAL LABOUR FORCE
Agriculture, forestry and fishing (A)	10,861	3.83
Mining and quarrying (B)	227	0.08
Manufacturing (C)	42,697	15.04
Electricity, gas, steam and air conditioning supply (D)	1,777	0.63
Water supply; sewerage, waste management and remediation activities (E)	1,694	0.60
Construction (F)	15,012	5.29
Wholesale and retail trade; repair of motor vehicles and motorcycles (G)	31,836	11.22
Transportation and storage (H)	8,204	2.89
Accommodation and food service activities (I)	12,900	4.54
Information and communication (J)	11,921	4.20
Financial and insurance activities (K)	6,677	2.35
Real estate activities (L)	1,172	0.41
Professional, scientific and technical activities (M)	17,716	6.24
Administrative and support service activities (N)	10,927	3.85
Public administration and defence; compulsory social security (O)	12,471	4.39
Education (P)	24,424	8.60
Human health and social work activities (Q)	29,359	10.34
Arts, entertainment and recreation (R)	3,807	1.34
Other service activities (S)	5,768	2.03
Activities of households as employers producing activities of households for own use (T)	168	0.06
Activities of extraterritorial organisations and bodies (U)	64	0.02
Industry not stated	14,741	5.19
Unemployed looking for first regular job	3,238	1.14
Unemployed, having lost or given up the previous job	16,205	5.71

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At 15.04%, the manufacturing sector employs the largest number of Cork's total labour force. This sector includes the substantial transformation of raw materials, which are products of agriculture, forestry, fishing, mining or quarrying as well as products of other manufacturing activities. At a similar percentage, 11.22%, the wholesale and retail trade sector also employs a similar number of Cork's total labour force.

Table 4.6 below provides a summary of the working population of Cork, given by social class in Cork City and County.

Table 4.6: Population Aged 15 Years and Over at Work by Social Class 2022.

SOCIAL CLASS	PERSONS	% OF TOTAL POTENTIAL LABOUR FORCE
Professional workers	29,141	10.27
Managerial and technical	87,416	30.79
Non-manual	47,625	16.78
Skilled manual	37,638	13.26
Semi-skilled	37,863	13.34
Unskilled	7,684	2.71
All other gainfully occupied and unknown	17,056	6.01
All social classes	264,423	93.15

4.3.4 LAND USE AND SETTLEMENT PATTERNS

The proposed development site is located in Bandon town, Co. Cork with the nearest settlement outside Bandon being the town of Inishannon located c. 5.3 km to the north-east. The site is located within the townlands of Coolfadda and Kilbrogan in the Electoral Division of Kilbrogan, which has an area of c. 35 km², with a small section to the east being located in the Electoral Division of Bandon. Coolfadda townland is bordered by several other townlands, including Kilbrogan and Curryclogh to the north; Shinagh to the west; Castlebernard and Gully to the south, and Knockbrogan to the east. The southern border of the townland roughly coincides with the course of the Bandon River. Meanwhile, Kilbrogan townland is bordered by the townlands of Coolfadda and Knockbrogan to the south; Kilbeg North to the east; Callatrim to the north, and Curryclogh to the west.

The proposed site is located within a peri-urban area with agricultural lands to the west and north; residential housing estates, schools, restaurants, local GAA club, industrial facilities, retail stores and other services to the west, south and east; and River Bandon to the south. The nearest residential developments outside of the proposed site boundary are located along the northern and southern boundaries.

4.3.5 COMMUNITY AND SOCIAL INFRASTRUCTURE

Community infrastructure within the vicinity of the proposed development would be primarily located within Bandon town centre to the south-east of the site.

Bandon has a population of c. 8,196 as of 2022. The town is situated on the N71 national road in Cork South-West. Community and social infrastructure within Bandon include a Social Welfare Branch Office, Bandon's Family Resource Centre, a garda station, charity organisations, creches, schools, the local GAA club, churches and cemetery, a post office and health centres.

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4.3.6 AMENITIES AND TOURISM

The proposed development is located in the South West Region of Ireland. According to Fáilte Ireland's (2025) profile of tourism in Ireland in 2024, approximately 1.4 million overseas tourists spent over €1.17 billion in the South West region of Ireland.

According to the Regional Spatial & Economic Strategy for the Southern Region (RSES), the Region has a significant share of Ireland's premier tourism resources – both natural and man-made.

Cork City is the largest settlement of County Cork and is located 15.8 km to the north-east of the proposed site, connected to Bandon town via the N71 national road. Cork City Bus Éireann provides bus services in Bandon, including a route to Cork City. Cork City airport is located approximately 30 minutes from Bandon.

Bandon has a rich architectural heritage, being one of the 56 walled towns in the country. Bandon's medieval walls were built in 1627 with four short stretches remaining today, which can be explored by visitors. There are seven Architectural Conservation Areas in Bandon, including Castlebernard, Barretts Hill, Christchurch, Knockbrogan East, South Main Street, St. Peters and Irishtown. Local amenities in Bandon also include a walkway along Bandon River

4.4 IMPACTS

A brief overview of the potential impacts on human beings during the construction and operational phases is provided below. More detailed assessments are discussed in the following sections of this EIAR.

4.4.1 ECONOMY AND EMPLOYMENT

In developing the Regional Spatial & Economic Strategy (RSES) for the Southern Region, one of the key principles concerns the provision of an adequate supply of quality housing to meet existing and future demand. This is a necessary response to the current housing crisis, which must take into consideration sustainable development standards, such as compact growth. A stable housing market provided by sustainable development will support economic growth.

The proposed development would have a positive impact upon the local economy by providing temporary employment for people for the duration of the construction phase (approximately 3 years). The creation of jobs during the construction phase would further contribute to the economy of the area through direct spending of goods and services in the area. The new residents of the proposed development will also support the local community and businesses during the operational phase.

A significant portion of Bandon's population commutes to Cork City and its suburbs for work. According to the 2022 Census, 744 individuals residing in Bandon town work somewhere in Cork City and suburbs, representing approximately 22.8% of the total Bandon labour force. Additionally, 1,767 Bandon residents work outside of town (54% of the labour force). In opposite direction, over 1,583 people commute into Bandon to work, while 1,110 residents work in town. Of these, 858 work from home.

It is anticipated that future residents of the proposed development will bring diverse skills and competencies, which can be utilised in various economic sectors locally in Bandon as well as in other nearby towns and Cork City. Future residents will also avail of the opportunity to work from home during the operational phase of the proposed development.

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There are several other residential developments in the area, which can act in combination with the proposed development and impact the local economy. This will result in the growth of Bandon's population, which will increase demand for local services and infrastructure, but also promote job creation and increase local spending. Negative cumulative effects will be mitigated by the phasing of each development. Therefore, it is anticipated that any negative cumulative effect will not be significant.

4.4.2 AMENITIES AND TOURISM

There may be greater use of local amenities and tourism facilities during the construction phase by contractors, but the construction of the proposed development would not affect the tourism profile of the area.

There are no predicted significant negative impacts on local amenities and tourism arising from the operational phase. Future residents would have the opportunity to avail of the local amenities and tourism during the operational phase of the project.

Their potential use, both personal and business-related, of local amenities and tourism facilities may positively benefit the business community in the area, including amenity providers.

In-combination effects associated with other nearby residential developments, include the increased demand of local amenities. Developments will include communal open spaces, which can be used by future residents. Therefore, no significant in-combination effects are anticipated.

4.4.3 AIR, DUST AND CLIMATE

The main potential nuisance impact upon human beings during the construction phase would be that with regards to dust generation. Excavations and earth moving operations may generate quantities of construction dust, particularly in drier weather conditions. The extent of any construction dust generation depends on the nature of the construction dust (soils, sands, gravels, silts etc.) and the construction activity. The potential for construction dust dispersion depends on the local meteorological conditions such as rainfall, wind speed and wind direction.

The issue of construction dust dispersion may be exaggerated with vehicles transporting sand/gravel/concrete/etc. to and from the site, having the potential to cause an environmental nuisance to use of the local road.

There is a number of residences adjacent to the boundaries of the site. However, there are little works that would occur within the immediate vicinity of receptor locations. Therefore, the potential for dust generation during construction works is unlikely to impact upon third party residences in the locality. There would also be a low risk of fouling roads outside the construction site. Any potential impact of dust would be short term, given the transient nature of construction works. Dust control measures would be implemented throughout the construction phase to reduce the potential impact.

While it is not known at this time if other identified approved developments within the area will commence construction during the project construction phase, there is a potential for in combination construction effects. Potential in-combination construction phase impacts would include nuisance, such as dust. However, the construction phase of each project would be temporary. The adoption of standard construction management practices would prevent significant environmental impacts or nuisance from the proposed development and reduce the potential for in-combination effects.

Dust generation as a result of the operational phase would be anticipated to be negligible once seeding has become established.

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The primary sources of atmospheric emissions from the proposed development will be those from fuel combustion of private vehicles within the site. The Traffic and Transportation Assessment concluded that the applicant's development will result in a low level of traffic increase locally. Therefore, local emissions are not anticipated to increase significantly as a result of traffic generated by the proposed development. Dwellings will be heated by air to water heat pumps. These devices release significantly less emissions in comparison to traditional fossil fuel (gas or kerosene) burners. Therefore, there would be anticipated to be no significant increase in emissions to air from the site during the operational phase. No significant effects on air quality are anticipated in combination with the operational phases of other nearby residential developments. Such combination emissions would be amenable to reductions through infrastructure and policy changes over time.

4.4.4 NOISE

Noise generated during the construction and operational phases of the proposed development has the potential to impact human beings within the vicinity of the site. An assessment of potential impacts upon human beings due to noise associated with the proposed development is discussed in **Section 6**.

During the construction phase, it would not be anticipated that there would be a significant impact on local residences within close proximity to the proposed development. Control and mitigation measures to reduce the potential for noise are outlined in **Section 6.7**. Given the transient nature of construction works and provided control and mitigation measures are implemented, noise from construction would not be considered to pose a significant impact upon human beings.

While it is not known at this time if the identified approved developments within the area will commence construction during the project construction phase, there is a potential for in combination construction effects. Potential in-combination construction phase impacts would include nuisance, such as noise. However, the construction phase of each project would be temporary. The adoption of standard construction management practices would prevent significant environmental impacts or nuisance from the proposed development and reduce the potential for in-combination effects.

During the operational phase of the development, the primary noise sources would be as a result of intermittent residential activities, including vehicle operations, raised voices and children playing etc. The only fixed noise source would be the central heating systems in the form of air-to-water heat pumps, which are designed for residential use and emit low levels of noise. These sources would be in line with those noted within modern existing residential areas in the vicinity of the proposed site.

Therefore, no significant noise impacts upon sensitive receptors are anticipated from the operational phase of the proposed development. Additionally, no significant effects are anticipated in combination with the operational phases of other nearby residential developments.

4.4.5 TRAFFIC

The site is accessed via the L2033 to the west, L2039 (Kilbrogan Street) to the east and via the L2011 (Convent Hill) to the south which connect to the R589 (Kilbrogan Hill) approximately 200m to the south-east and to the local road network. Traffic on these local roads is composed of normal car traffic and HGV's associated with local commercial activities as well as ongoing developments in Bandon. The proposed development is consistent with the requirements for the design of urban roads and streets as set out in DMURS.

The proposed development has the potential to impact upon traffic volumes in the area, which may subsequently impact the generation of noise and dust emissions. While there would be increased vehicle movements during the construction phase of the development, this would be for a limited period of time only and would be minimal. Traffic movements during construction would be expected to consist of deliveries of building materials / plant equipment and vehicle movements from sub-contractors.

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While it is not known at this time if the identified approved developments within the area will commence construction during the project construction phase, there is a potential for in combination construction effects. Potential in-combination construction phase impacts would include construction traffic. However, the construction phase of each project would be temporary. The adoption of standard construction management practices would prevent significant environmental impacts or nuisance from the proposed development and reduce the potential for in-combination effects.

During the operational phase of the project, traffic movements on the local roads will increase. Operational traffic movements would be expected to involve private vehicles from residents, creche staff and visitors. The Traffic and Transportation Assessment carried out by MHL & Associates Ltd. concluded that the applicant's development will result in a low level of traffic increase locally. It also assessed the cumulative traffic impact from other residential developments located in the vicinity. The assessment determined that capacity and pedestrian connectivity improvement at various junctions may be required in order to accommodate the various developments. However, subject to the implementation of these and other recommendations, significant in-combination effects are not anticipated.

Traffic associated with the proposed development is discussed further in **Section 10**.

4.4.6 LAND-USE

The development comprises a total area of 9.590 ha (net area of 7.025 ha). The proposed buildings would be erected mostly on an area defined by grassland, scrub and woodland areas within site's boundaries, thus turning the existing habitats to artificial surfaces. The proposed development will require the removal of scrub within the internal areas, grassland, trees to the south, sections of hedgerow to the west and north and an immature woodland to the south-east of the site.

The landscape plan includes a riparian corridor and woodland area. There will be retention and protection of existing trees. Scrub, woodland areas and all other vegetation along the Kilbrogan watercourse will be retained and protected within a 10m buffer either side of the watercourse. Additionally, there will be planting of trees and hedges with ornamental native species. This will minimise the impact of land use change arising from the proposed development.

It should also be noted that the proposed development is located in an urban area in Bandon town on lands zoned as "*Residential (RE) – Intended primarily for housing development but may also include a range of other uses, particularly those that have the potential to foster the development of new residential communities*", as per the Cork County Development Plan 2022 – 2028.

The proposed development would be in line with its surroundings and it is not anticipated that land use change would result in a significant negative impact. Other developments are also located in appropriately zoned lands and no significant in-combination effects are anticipated.

4.4.7 VISUAL AMENITY

A detailed assessment of the potential impacts upon visual amenity arising from the proposed development is discussed in detail in **Section 7** of this EIAR.

The development comprises distinct unit types with the aim to provide a wide range of dwelling styles and sizes to accommodate a mix of residents, whilst producing a scheme that will achieve a sustainable density in line with the constraints of the site. Building type range from detached units up to apartment complexes. The landscape design consists of retention of trees and additional planting, private amenity spaces and proposed new public open spaces.

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Tall structures such as the proposed apartment buildings would have the potential to impair the local landscape by altering the visual extent of the site. However, in **Section 7** of this EIAR, it was determined that the most changes to landscape character and visual amenity would be limited to the immediate vicinity of the site. The completed development will result in neutral to positive visual effects varying between imperceptible to slight in significance. It is also anticipated to result in a moderate beneficial effect upon the landscape.

The residual effects of the development were assessed as short-term, localised and slight to moderate adverse (not significant) during the construction phase; and as slight beneficial to neutral and not significant during the operational phase.

The design and site layout of the proposed buildings would take into consideration the need to minimise the associated visual impact. Control and mitigation measures to reduce the potential for visual amenity are outlined in **Section 7.5**.

4.4.8 WATER

The proposed development is located within the Water Framework Directive (WFD) Bandon-Ilen Catchment (ID: 20), the Bandon 050 Sub Catchment and the Bandon_090 River Sub Basin. The proposed development is hydrologically linked to River Bandon.

The Kilbrogan stream flows through the site in a generally eastward direction and connects to River Bandon approximately 970m downstream of the site. River Bandon then discharges into Kinsale Harbour, approximately 26.6 km downstream of the site.

A deterioration in the water quality of River Bandon has the potential to impact upon human beings by adversely affecting its own drinking water quality and water quality of waterbodies downstream (Bandon estuary and Kinsale harbour). A detailed assessment of potential impacts to water quality is included in **Section 9** of this EIAR.

The proposed site is positioned in the Bandon groundwater body (GWB). The GWB covers an area c. 775 km² and achieved a WFD status of Good during the period 2019-2024. A number of groundwater abstractions have been recorded in Bandon town, mainly comprising of boreholes and dug wells. The nearest groundwater source protection zones are the Crookstown Bellmount BH2 PWS and Crookstown Pound Cross PWS, located c. 11.0 km to the north-west. However, these source protection zones are located in a distinct groundwater body than the proposed site and it is not considered that there would be a hydrological connection.

During the construction phase of the proposed development, there would be a potential for impacts upon water in the event of contamination of underlying groundwater and potential contamination of surface water. Groundwater at the site could be contaminated due to potential “spills” at the site, especially during excavation works where the overburden is removed. A deterioration in surface water quality could arise through the release of suspended solids during soil disturbance works, the release of uncured concrete and the release of hydrocarbons (fuels and oils) in the run-off to surface waters.

Water quality at the site would be protected by the implementation of mitigation measures (outlined in **Section 9.5** of this EIAR) and through the implementation of a responsible working environment (e.g. the appropriate handling and storage of potentially polluting substances and the regular inspection and maintenance of construction plant).

The proposed site will be divided into three separate catchments for the management of clean rainwater from roofs and hard surfaces during the operational phase of the development. Stormwater from each catchment will be directed to its corresponding attenuation tank, which will then discharge into the

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existing stream. Permeable paving will also be installed to allow water to infiltrate to ground and water butts will be provided to each house to harvest rainwater.

Wastewater generated by sanitary facilities at the dwelling units and creche would be directed to the existing pumping station and public wastewater network along the L2039 to the east. Foul water will then be directed to the Bandon WWTP, which will discharge to Bandon River. The most recent available Annual Environmental Report (AER) from 2024 determined that the WWTP discharge was compliant with the ELV's set in the wastewater discharge licence and that the discharge from the wastewater treatment plant does not have an observable negative impact on the Water Framework Directive status. As designed, the WWTP has a capacity of 14,456 population equivalent (p.e.) and the existing p.e. of the agglomeration, according to the EPA, is 10,777. Furthermore, the AER reports a peak hydraulic capacity of the WWTP as constructed of 13,500 m³/day and a Dry Weather Flow (DWF) of 4,500 m³/day, while the proposed wastewater flow for this development has been estimated as approximately 666.2 m³/day for the peak DWF and 112.4 m³/day for the average DWF. The 2024 AER concluded that no capacity exceedances are expected over the subsequent three years and the WWTP would be able to accommodate the proposed development.

All proposed water streams should be uncontaminated and therefore have no impact on either the surface or groundwater in the area.

It is not anticipated that the proposed development would have the potential to adversely impact water quality during the operational phase either by itself or in combination with other developments.

4.5 MAJOR ACCIDENTS AND NATURAL DISASTERS

As noted in Directive 2014/52/EU, precautionary actions need to be put in place for certain projects which, *'due to their vulnerability to major accidents and/or natural disasters (such as flooding, sea level rise or earthquakes) are likely to have significant adverse effects on the environment'*.

During the construction phase of the proposed development, the risk of spills to the environment would be minimised through the implementation of measures, such as the appropriate storage of potentially polluting substances (e.g. oils, fuels), the regular maintenance and inspection of construction plant, the implementation of good housekeeping practices and the provision of spill kits.

The proposed site is in an area with low susceptibility to landslides, as per GSI mapping (<https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=a30af518e87a4c0ab2fbde2aaac3c228>). The nearest recorded landslide event occurred at Callatrim townland, Co. Cork approximately 1.67 km north of the development site.

It is considered that the most likely natural disaster to which the proposed development may be vulnerable to and could have significant adverse effects on the environment, is fluvial flooding.

The Kilbrogran stream was omitted from assessment in the Southwestern Catchment and Flood Risk Assessment and Management Study (CFRAM), the National Indicative Fluvial Modelling Study, and hydraulic modelling undertaken for the Bandon Flood Relief Scheme. A site specific Flood Risk Assessment (FRA) has been carried out by JBA Consulting (Document Ref: QER-JBAI-XX-XX-RP-HM-0001-S03-P03-Kilbrogran_St_Bandon_FRA), which determined that the proposed site is partially within Flood Zones A and B under baseline conditions. Flooding is mostly confined to riparian areas with some parts of L2033 and the western corner of the site within Flood Zone B. The development has no impact on flood extents, and the assessment confirmed that there is no increase to flood risk as a result of the proposed development. Further details are provided in **Sections 9.3 and 9.4** of this EIAR.

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4.6 MITIGATION MEASURES

The following sections of this EIAR provide further information on the potential impacts on human beings, as a result of the proposed development. Mitigation measures have been proposed to address the potential impacts and are detailed under the following sections:

- Air Quality
- Noise
- Landscape and Visual
- Biodiversity
- Land - Soils, Geology, Hydrology and Hydrogeology
- Material Assets
- Architectural, Archaeological and Cultural Heritage

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5.0 AIR QUALITY & CLIMATE

5.1 INTRODUCTION

The air quality section of this EIAR describes the existing air quality setting and potential effects on ambient air quality and climate associated with the construction phase and operational phase of the proposed Large-scale Residential Development (LRD) and all ancillary site works and services at Convent Hill, Bandon, County Cork. The assessment methodology, existing environment, likely significant impacts and recommended mitigation measures are described in the following sections.

5.1.1 AIR QUALITY

Air quality in Ireland is of a high standard across the country and is among the best in Europe, due to the prevailing Atlantic air and a lack of large cities and heavy industry. Emissions of pollutants from vehicles, power stations, industry, domestic fuel burning and agriculture can have international, national, local or global effects. Emissions of carbon dioxide and other greenhouse gases are increasing the greenhouse effect and causing global warming.

This air quality study identifies, describes and assesses the impact of the proposed development within townlands of Coolfadda and Kilbrogan, Co. Cork.

Particular attention has been given to sensitive receptors, such as residential areas and to the extent of the exposure of these receptors to airborne pollutants derived as a result of the development. This assessment was prepared in accordance with the EPA document '*Guidelines on the information to be contained in an Environmental Impact Assessment Reports, 2022*'.

Air quality is variable and subject to significant spatial and temporal variation. In relation to spatial variation in air quality, concentrations generally fall significantly with distance from major sources. Thus, residential exposure is determined by the location of sensitive receptors relative to major sources in the area. Temporally, air quality can vary significantly due to changes in traffic volumes, meteorological conditions and wind direction.

The main potential sources of air pollutants from the proposed development would be the burning of fuel by plant machinery and vehicles during the construction and operational phases.

5.1.2 DUST

Any significant dust generation, dispersion and deposition activities are considered an environmental nuisance for sensitive receptors within the vicinity of a development.

5.1.3 CLIMATE

Climate can refer to both the long-term weather patterns in an area and also to localised atmospheric conditions in a given area, referred to as the microclimate. Climate has implications for many aspects of the environment from soils to biodiversity and land-use practices.

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5.2 LEGISLATIVE CONTEXT

The main legislation and guidelines pertaining to air quality in Ireland is outlined below.

5.2.1 AIR QUALITY LEGISLATION AND GUIDANCE

The Environmental Protection Agency Act 1992, as amended

Part V of the Environmental Protection Agency Act 1992 extends the EPA's powers under the Air Pollution Act 1987.

Section 4 (2) of the Environmental Protection Agency Act 1992 states that Air Pollution:

'means the direct or indirect introduction to an environmental medium, as a result of human activity, of substances, heat or noise which may be harmful to human health or the quality of the environment, result in damage to material property, or impair or interfere with amenities and other legitimate uses of the environment, and includes -

- a) 'air pollution' for the purposes of the Air Pollution Act 1987'*

The Air Pollution Act 1987 (AP Act) is 'an act to provide for the control of air pollution and other matters connected with air pollution'. According to the Air Pollution Act 'pollutant means any substance specified in the First Schedule or any other substance (including a substance which gives rise to odour) or energy which, when emitted into the atmosphere either by itself or in combination with any other substance, may cause air pollution'.

Section 4 of the Air Pollution Act states:

'Air pollution' in this Act means a condition of the atmosphere in which a pollutant is present in such a quantity as to be liable to:

- i. be injurious to public health, or*
- ii. have a deleterious effect on flora or fauna or damage property, or*
- iii. impair or interfere with amenities or with the environment.'*

Section 24 of the Air Pollution Act states:

- 1) The occupier of any premises, other than a private dwelling, shall use the best practicable means to limit and, if possible, to prevent an emission from such premises.
- 2) The occupier of any premises shall not cause or permit an emission from such premises in such a quantity, or in such a manner, as to be a nuisance.
- 3) In any prosecution for a contravention of this section, it shall be a good defence to establish that:
 - a) the best practicable means have been used to prevent or limit the emission concerned, or
 - b) the emission concerned was in accordance with a licence under this Act, or
 - c) the emission concerned was in accordance with an emission limit value, or
 - d) the emission concerned was in accordance with a special control area order in operation in relation to the area concerned, or
 - e) in the case of an emission of smoke, the emission concerned was in accordance with regulations under section 25, or
 - f) the emission did not cause air pollution.

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Section 75 (1) the Environmental Protection Agency Act 1992 states:

‘The Agency shall, in relation to any environmental medium and without prejudice to its functions under section 103, specify and publish quality objectives which the Agency considers reasonable and desirable for the purposes of environmental protection.’

Air Pollution Act, 1987

Under this act, local authorities and / or the Environmental Protection Agency (EPA) are given responsibilities relating to air quality monitoring, to the prevention of air pollution and the issuing of air pollution licences.

Ambient Air Quality Standards Regulations, 2022 (S.I. No. 739 of 2022)

These regulations replace the Air Quality Standards Regulations 2011 (S.I. No. 180/2011), which transposed the Ambient Air Quality and Cleaner Air for Europe (CAFE) Directive (2008/50/EC) into Irish legislation. The regulations specify the limit or target values for specific air pollutants including sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter (PM₁₀ and PM_{2.5}), lead, benzene, carbon monoxide and ozone. The EPA is the competent authority for the purpose of the CAFE Directive.

Directive set Targets for Air Quality

The following tables show the limit or target values specified by the five published directives that set down limits for specific air pollutants. The directives cover:

- Sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter (PM₁₀ and PM_{2.5}) and lead,
- Carbon monoxide and benzene,
- Ozone,
- Arsenic, Cadmium, Nickel and Benzo(a)pyrene

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Table 5.1: Limit values of CAFE Directive 2008/50/EC

Pollutant	Limit Value Objective	Averaging Period	Limit Value $\mu\text{g}/\text{m}^3$	Limit Value ppb	Basis of Application of the Limit Value	Limit Value Attainment Date
SO ₂	Protection of human health	1 hour	350	132	Not to be exceeded more than 24 times in a calendar year	1 Jan 2005
SO ₂	Protection of human health	24 hours	125	47	Not to be exceeded more than 3 times in a calendar year	1 Jan 2005
SO ₂	Protection of vegetation	calendar year	20	7.5	Annual mean	19 July 2001
SO ₂	Protection of vegetation	1 Oct to 31 Mar	20	7.5	Winter mean	19 July 2001
NO ₂	Protection of human health	1 hour	200	105	Not to be exceeded more than 18 times in a calendar year	1 Jan 2010
NO ₂	Protection of human health	calendar year	40	21	Annual mean	1 Jan 2010
NO + NO ₂	Protection of ecosystems	calendar year	30	16	Annual mean	19 July 2001
PM ₁₀	Protection of human health	24 hours	50	-	Not to be exceeded more than 35 times in a calendar year	1 Jan 2005
PM ₁₀	Protection of human health	calendar year	40	-	Annual mean	1 Jan 2005
PM _{2.5} - Stage 1	Protection of human health	calendar year	25	-	Annual mean	1 Jan 2015
PM _{2.5} - Stage 2	Protection of human health	calendar year	20	-	Annual mean	1 Jan 2020
Lead	Protection of human health	calendar year	0.5	-	Annual mean	1 Jan 2005
Carbon Monoxide	Protection of human health	8 hours	10,000	8620	Not to be exceeded	1 Jan 2005
Benzene	Protection of human health	calendar year	5	1.5	Annual mean	1 Jan 2010

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Table 5.2: Long-term Objectives for Ozone from 2020

Objective	Parameter	Value/Threshold
Protection of human health	Maximum daily 8 hour mean	120 $\mu\text{g}/\text{m}^3$
Protection of vegetation	AOT40, calculated from 1 hour values from May to July	6000 $\mu\text{g}/\text{m}^3/\text{h}$
Information Threshold	1 hour average	180 $\mu\text{g}/\text{m}^3$
Alert Threshold	1 hour average	240 $\mu\text{g}/\text{m}^3$

Table 5.3: Target Values of Directive 2004/107/EC

Pollutant	Limit Value Objective	Averaging Period	Target Value ng/m^3	Limit Value Attainment Date
Arsenic	Protection of human health	calendar year	6	31 Dec 2012
Cadmium	Protection of human health	calendar year	5	31 Dec 2012
Nickel	Protection of human health	calendar year	20	31 Dec 2012
Benzo(a)pyrene	Protection of human health	calendar year	1	31 Dec 2012

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Table 5.4: Previous EU Air Quality Standards

Pollutant	Regulation	Type	Averaging Period	Limit Value
NO ₂	85/203/EEC	Limit Value	98 th percentile of yearly mean hourly	200 µg/m ³
		Guide Value	Concentration	135 µg/m ³
		Guide Value	50 th percentile of yearly mean hourly concentration	50 µg/m ³
SO ₂	80/779/EEC	Limit Value	98 th percentile of yearly mean hourly concentration	2 µg/m ³
		Limit Value	Winter (medium of daily values)	250-350 µg/m ³
		Limit Value	One Year (medium of daily values)	130 or 180 µg/m ³
		Guide Value	98 th percentile of yearly mean hourly concentration	80 – 120 µg/m ³
		Guide Value	50 th percentile of 1 hour mean	135 µg/m ³
Lead (Pb)	82/884/EEC	Limit Value	Annual Mean	50 µg/m ³
Smoke	80/779/EEC	Limit Value	One Year (medium of daily values)	80 µg/m ³
		Limit Value	Winter (medium of daily values)	130 µg/m ³
		Limit Value	98 th percentile of daily values	250 µg/m ³

National Road Authority Guidelines

Although no impact criteria, as a percentage of the limits, are enshrined in EU or Irish Legislation, the National Road Authority document *Guidelines for the treatment of Air Quality during the Planning and Construction of National Road Schemes* details a methodology for determining air quality impact significance criteria for road schemes. The degree of impact is determined based on both the absolute and relative impact of the development. The NRA significance criteria are detailed in **Table 5.5** to **Table 5.7**.

Table 5.5: Definition of Impact Magnitude for Changes in Ambient Air Pollution Concentration (NRA 2011)

Magnitude of Change	Annual Mean NO ₂ /PM ₁₀	No. Days PM ₁₀ Conc. >50 µg/m ³	Annual Mean PM
Large	Increase/decrease ≥4 µg/m ³	Increase/decrease > 4 days	Increase/decrease ≥ 2.5 µg/m ³
Medium	Increase/decrease 2 – <4 µg/m ³	Increase/decrease 3 of 4 Days	Increase/decrease 1.25 – < 2.5 µg/m ³
Small	Increase/decrease 0.4 – <2 µg/m ³	Increase/decrease 1 or 2 Days	Increase/decrease 0.25 – <1.25 µg/m ³
Imperceptible	Increase/decrease <0.4 µg/m ³	Increase/decrease < 1 Day	Increase/decrease <0.25 µg/m ³

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Table 5.6: Air Quality Impact Descriptors for Change in Annual Mean NO₂, PM10 and PM2.5 Concentrations at a Receptor

Absolute Concentration in Relating to Objective/Limit Values	Changes in Concentration		
	Small	Medium	Large
Increase with Scheme			
Above Objectives/Limit Values with Scheme (≥ 40µg/m ³ of NO ₂ or PM10) (≥ 25µg/m ³ of PM2.5)	Slight Adverse	Moderate Adverse	Substantial Adverse
Just below Objectives/Limit Values with Scheme (36 – <40µg/m ³ of NO ₂ or PM10) (22.5 – <25µg/m ³ of PM2.5)	Slight Adverse	Moderate Adverse	Moderate Adverse
Below Objectives/Limit Values with Scheme (30 – <36µg/m ³ of NO ₂ or PM10) (18.75 – <22.5µg/m ³ of PM2.5)	Negligible	Slight Adverse	Slight Adverse
Well below Objectives/Limit Values with Scheme (<30µg/m ³ of NO ₂ or PM10) (<18.75µg/m ³ of PM2.5)	Negligible	Negligible	Slight Adverse
Decrease with Scheme			
Above Objectives/Limit Values with Scheme (≥ 40µg/m ³ of NO ₂ or PM10) (≥ 25µg/m ³ of PM2.5)	Slight Beneficial	Moderate Beneficial	Substantial Beneficial
Just below Objectives/Limit Values with Scheme (36 – <40µg/m ³ of NO ₂ or PM10) (22.5 – <25µg/m ³ of PM2.5)	Slight Beneficial	Moderate Beneficial	Moderate Beneficial
Below Objectives/Limit Values with Scheme (30 – <36µg/m ³ of NO ₂ or PM10) (18.75 – <22.5µg/m ³ of PM2.5)	Negligible	Slight Beneficial	Slight Beneficial
Well below Objectives/Limit Values with Scheme (<30µg/m ³ of NO ₂ or PM10) (<18.75µg/m ³ of PM2.5)	Negligible	Negligible	Slight Beneficial

Table 5.7: Air Quality Impact Descriptors for Change to Number of Days with PM10 Concentration Greater than 50 µg/m³ at Receptors.

Absolute Concentration in Relating to Objective/Limit Values	Changes in Concentration		
	Small	Medium	Large
Increase with Scheme			
Above Objectives/Limit Values with Scheme (≥35 Days)	Slight Adverse	Moderate Adverse	Substantial Adverse
Just below Objectives/Limit Values with Scheme (32 – <35 Days)	Slight Adverse	Moderate Adverse	Moderate Adverse
Below Objectives/Limit Values with Scheme (26 – <32 Days)	Negligible	Slight Adverse	Slight Adverse
Well below Objectives/Limit Values with Scheme (<26 Days)	Negligible	Negligible	Slight Adverse
Decrease with Scheme			
Above Objectives/Limit Values with Scheme (≥35 Days)	Slight Beneficial	Moderate Beneficial	Substantial Beneficial

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Absolute Concentration in Relating to Objective/Limit Values	Changes in Concentration		
	Small	Medium	Large
Just below Objectives/Limit Values with Scheme (32 – < 35 Days)	Slight Beneficial	Moderate Beneficial	Moderate Beneficial
Below Objectives/Limit Values with Scheme (26 – < 32 Days)	Negligible	Slight Beneficial	Slight Beneficial
Well below Objectives/Limit Values with Scheme (<26 Days)	Negligible	Negligible	Slight Beneficial

Dust Deposition Guidelines

Construction dust has the potential to cause local impacts through dust nuisance at the nearest sensitive receptors. Construction activities such as earth excavation, moving and backfilling may generate quantities of dust, particularly in dry weather conditions.

There are no statutory limits for deposition of dust, and industry guidelines are typically employed to determine any impact. The TA Luft (German Government 'Technical Instructions on Air Quality') states a guideline of 350 mg/m²/day for the deposition of non-hazardous dust. This value will be used to determine the impact of residual dust as an environmental nuisance.

The National Road Authority has published guidance for assessing dust impacts from road construction, Guidelines for the Treatment of Air Quality during the Planning and Construction of National Road Schemes.

Table 5.8 provides a list of distances that dust could be expected to result in a nuisance, from construction sites, for impacts such as soils, PM₁₀ and vegetation effects. These distances present the potential for dust impacts with standard mitigation in place for construction activities. This table is taken from National Road Authority Guidelines, and these criteria are supported by IAQM (2014). *Assessment of dust from demolition and construction.*

Table 5.8: Assessing the Criteria for the Impact of Dust from Construction with Standard Mitigation in place. (National Road Authority)

Source		Potential Distance for Significant Effects from the Source		
Scale	Description	Soiling	PM10	Vegetation
Major	Large construction sites, with high use of haul roads	100 m	25 m	25 m
Moderate	Moderate sized construction sites, with moderate use of haul roads	50 m	15 m	15 m
Minor	Minor construction sites, with limited use of haul roads	25 m	10 m	10 m

5.2.2 CLIMATE LEGISLATION AND GUIDANCE

Climate Agreement

Ireland ratified the United Nations Framework Convention on Climate Change (UNFCCC) in April 1994 and the Kyoto Protocol in 1997 and formally in May 2002 (Framework Convention on climate Change – 1999 and Framework Convention on Climate Change – 1997). For the purpose of the European Union, burden sharing agreement under Article 4 of the Kyoto Protocol, in June 1998, Ireland

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agreed to limit the net growth of the six Greenhouse Gases (GHGs) under the Kyoto Protocol to 13% above the 1990 level over the period 2008 to 2012.

The UNFCCC is continuing detailed negotiations in relation to GHGs reduction and in relation to technical issues such as emissions trading and burden sharing. The most recent Conference of the Parties (COP30) Workshop was held in Belém, Brazil in November 2025.

Under the European Climate Law, the EU committed to reduce its net greenhouse gas emissions by at least 55% by 2030. The agreement sets a renewable energy target for 2030 at a minimum of 42.5% and is expected to reduce EU net greenhouse gas emissions by 57% by then.

Gothenburg Protocol

Ireland signed the Gothenburg Protocol to the 1979 UN convention on Long Range Transboundary Air Pollution in 1999. The objective of the protocol is to control and reduce emission of Sulphur Dioxide (SO₂), Nitrogen Oxide (NO_x), Non-Methane Volatile Organic Compounds (NMVOCs), Ammonia (NH₃) and Particulate Matter < 2.5 µm (PM_{2.5}). To achieve the targets Ireland, by 2020, had to meet national emission reduction commitments of 26kt for SO₂ (65% reduction), 68kt of NO_x (49% reduction), 123kt NH₃ (1% reduction) and 15kt PM_{2.5} (18% reduction). Ireland has not complied with emission reduction commitment of 58kt for NMVOC (25% reduction) as of 2023 as a result of applying improved emission inventory methods, which recognised new source of emissions. When the adjustment is considered, Ireland is compliant with the emission reduction commitment for NMVOC for 2020, 2021, 2022 and 2023.

Directive (EU) 2016/2284, the National Emission Ceiling Directive, prescribes the same emission limits. Road transport produces a small proportion of emissions of NH₃, NMVOC and SO₂. Emissions of PM_{2.5} from the transport sector have been decreasing since 2005, but are still significant. Transport (of which road transport is the main contributor) is the largest source of NO_x.

According to an EPA publication from May 2025, in 2023 Ireland was compliant with EU Emissions Reduction targets across all five major pollutants. The ongoing move away from fossil fuel use in power generation and residential heating has been key in driving down emissions of SO₂, NO_x and PM_{2.5}.

A national programme for the progressive reduction of emissions of the five transboundary pollutants is in place and it is a successor to the National Air Pollution Control Programme for Ireland prepared in 2019 and revised in 2021. According to the report, SO₂, NO_x and NH₃ are projected to be in compliance for the 2020-2029 period. NMVOC and PM_{2.5} are both projected to remain in compliance for the 2020-2029 period but will be non-compliant with the lower emission reduction commitment in the 2030 onwards period.

The transport sector is a significant source of emissions to air generally, and specifically NO_x, NMVOC and PM_{2.5}. Emissions from road transport have been reducing with a few key policies and measures allowing for this shift. These include more sustainable modes of transport including walking, cycling and public transport, and the electrification of Ireland's private car fleet. The built environment sector is also an important source of emissions of SO₂, NMVOC and PM_{2.5}. The usage of heat pumps in favour of traditional heating systems has been crucial in promoting energy efficiency in Irish homes.

5.3 METHODOLOGY

This assessment has been prepared in accordance with and regard to the following documents:

- Environmental Protection Agency guidelines on the *Information to be Contained in Environmental Impact Assessment Reports* (EPA 2022);

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- Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes (NRA 2006, revised 2011);

A desk study was undertaken to identify activities associated with the proposed development that could generate emissions to atmosphere, and the key pollutants associated with these emissions. The construction and operational activities were examined to identify those activities that have the potential to impact negatively on the local air quality.

The desk-based assessment carried out involved:

- Initial scoping of possible emission sources and key pollutants through review of the project's construction and operational activities;
- Review of relevant assessment criteria, guidelines and best practice to assess the potential impact of the proposed development on air quality (at sensitive receptors) and climate;
- Review of the existing EPA air monitoring data to determine baseline air quality;
- Review of the Cork County Development Plan;
- Review of the 20-year average meteorological data at the nearest synoptic weather station;
- Review of Ireland's Provisional Greenhouse Gas Emissions;
- Review of Ireland's National Climate Change Strategy.

5.4 DESCRIPTION OF BASELINE ENVIRONMENT

5.4.1 SITE LOCATION

The location of the proposed development is in the townlands of Coolfadda and Kilbrogan, Co. Cork.

The site is in a peri-urban area with agricultural lands to the west and north; residential housing estates, schools, restaurants, local GAA club, industrial facilities, retail stores and other services to the west, south and east; and River Bandon to the south. The nearest residential developments outside of the proposed site boundary are located along the northern and southern boundaries.

The proposed Large-scale Residential Development will consist of 240 no. residential units, a creche facility and all ancillary site development works. The development comprises a total area of 9.590 ha (net area of 7.025 ha).

5.4.2 EXISTING AIR QUALITY

Air quality is judged relative to the Air Quality Standards, which are concentrations of pollutants in the atmosphere, which achieve a certain standard of environmental quality. Air Quality Standards are formulated on the basis of an assessment of the effects of the pollutant on public health and ecosystems.

The EPA has been monitoring national air quality from a number of sites around the country. This information is available from the EPA's website.

Under the '*Clean Air for Europe Directive*', EU member states must designate '*Zones*' for the purpose of managing air quality. For Ireland, four zones were defined in the '*Air Quality Standards Regulations (2011)*'. The zones were amended on 1st January 2013 to take account of population counts from the

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2011 CSO Census, and to align with the coal restricted areas in the 2012 Regulations (S.I. No. 326 of 2012).

The main areas defined in each zone are:

- **Zone A:** Dublin,
- **Zone B:** Cork,
- **Zone C:** Other cities and large towns comprising Limerick, Galway, Waterford, Drogheda, Dundalk, Bray, Navan, Ennis, Tralee, Kilkenny, Carlow, Naas, Sligo, Newbridge, Mullingar, Wexford, Letterkenny, Athlone, Celbridge, Clonmel, Balbriggan, Greystones, Leixlip and Portlaoise,
- **Zone D:** Rural Ireland, i.e. the remainder of the State excluding Zones A, B and C.

According to the EPA Air Quality Index for public health, the townlands of Coolfadda and Kilbrogan are located in Air Quality Index for Health (AQIH) Zone D (Rural Ireland).

The dominant existing sources of air pollution in the area would be commercial activities within Bandon Town, local road traffic, private residences and emissions from agricultural activities, such as housing of animals and spreading of organic fertilisers. However, the combined effect on air quality would be expected to be low.

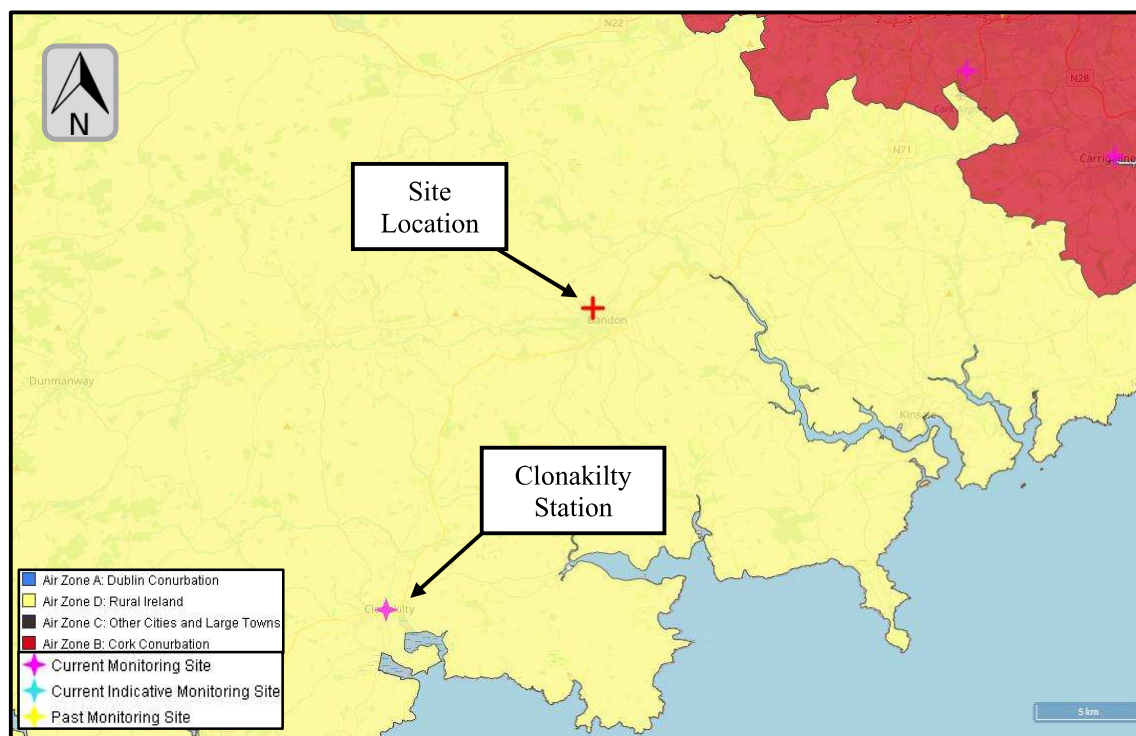


Figure 5.1: Air Zones and Air Monitoring Sites

The nearest currently active Air Monitoring Site is located in Clonakilty town approximately 17.2 km south-west of the site near Clonakilty library (138463 E, 041410 N), which measures Particulate Matter (PM_{10} and $PM_{2.5}$).

While this station is located a considerable distance from the proposed development site, it may be used to provide an indicative baseline assessment of air quality for the area of the proposed development.

Table 5.9 below summarises the available annual mean results for monitoring during 2025 for the nearest monitoring station (Clonakilty) to the proposed development. Results returned for PM_{10} and

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PM_{2.5} were below the relevant annual mean limit values. Recent results can be found at <https://airquality.ie/station/AQG-0110-000185-000000>.

Table 5.9: Annual Mean for Air Monitoring undertaken at Clonakilty Monitoring Station

Parameter (µg/m ³)	Annual Mean Limit	Clonakilty Station
		2025
PM ₁₀	40	20.0
PM _{2.5}	20	7.7

Live Monitoring

In addition to the above published data the Mallow monitoring station also publishes live data for PM₁₀ and PM_{2.5}.

This data is available at <https://airquality.ie/>. The latest measurements, viewed on 16th January 2026, were:

- PM₁₀ – 21.12 µg m⁻³ (24-hour mean).
- PM_{2.5} – 16.86 µg m⁻³ (24-hour mean).

These figures gave an index rating of 2 (Good). The index is based on information from monitoring instruments at representative locations in the region and may not reflect local incidents of air pollution.

5.4.3 DEPOSITIONAL DUST

The construction phase of the proposed development will invariably generate particulate matter from groundwork activities. It is recommended that dust be monitored throughout this phase, as part of a wider construction environmental monitoring programme, to measure and record the impact of site activities on local receptors. A Construction Environmental Management Plan (CEMP) has been developed for this project and includes proposed monitoring locations.

Dust generation as a result of the operational phase would be anticipated to be negligible once seeding has become established and due to the scale of the residential housing estate development.

5.4.4 EXISTING CLIMATE

Ireland has a temperate oceanic climate according to the Koppen-Geiger Climate Classification System. This means, like most of North-West Europe it is mild, moist and changeable, with abundant rainfall and a lack of temperature extremes. Due to its proximity to the Atlantic Ocean, Ireland has mild damp summers and cool wet winters and does not experience the temperature extremes of other countries at similar latitudes.

Ireland's weather patterns are characterised by the frequent passage of Atlantic low pressure weather systems and associated frontal rain belts from the South-West. These moisture-laden fronts break on the mountainous west coast, resulting in the highest rainfall levels in the west. Valentia Island of Kerry receives twice the level of rainfall to Dublin (1,684mm vs 884mm). In summer months, the influence of anti-cyclonic weather conditions results in drier continental air, in particular when winds are from an easterly direction are interspersed by the continuing passage of Atlantic frontal systems.

Occasionally, the establishment of a high pressure area over Ireland and the UK results in calm, dry conditions. In the winter, these periods are characterised by the formation of low-level temperature inversions at night-time. Fog can occur in low-lying areas in the region under these conditions of slack winds and clear skies.

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If anti-cyclonic conditions become established for a few days or more during the summer months, high daytime temperatures may be recorded, especially in Midland areas away from cooler coastal areas. Prolonged dry weather conditions are relatively infrequent but, should easterly continental airflows persist, drought conditions may result in the region, which may last for up to 2 to 3 weeks:

The potential effects of climate change on a global scale have been investigated by the Intergovernmental Panel on Climate Change (IPCC). The resulting impacts in Ireland are outlined in the National Adaptation Framework 2024 (Department of Environment, Climate and Communications).

The potential impacts include the following:

- Higher temperatures and moisture deficits may raise the risk of forest fires.
- Projected climate changes, such as increased heavy rainfall and rising sea levels, could lead to more flooding, disrupting lifestyles and health services, and causing direct and indirect health impacts, including mental health issues.
- Projected increases in average temperature and the spread of invasive species may negatively impact the environment and habitats, leading to reduced water quality.
- More frequent heatwaves may lead to heat stress for both animals and farmers.
- Climate change will continue to impact the timing of phenological changes and geographical distribution in Ireland, disrupting ecosystem functioning and species composition.
- Climate change is expected to increase flooding frequency, causing damage to built and archaeological heritage, posing health and safety risks, and potentially closing heritage sites.
- More intense windstorms will impact communications infrastructure, and extreme weather events can disrupt access to critical communication facilities.
- Increased wind variability may require backup generation or storage, and strong winds may lead to turbine shutdown or damage.
- Projections indicate increased storm intensity, more extreme precipitation events, and rising sea levels, leading to more frequent and extensive flooding. This will impact the flood risk management sector.
- Projected extreme precipitation may increase pluvial and fluvial flooding, impacting the transport sector with service disruptions, hazardous driving conditions, and bridge scour.
- Climate change impacts experienced globally can result in supply chain disruption, resource scarcity and increased costs.

Further adverse climate change impacts are projected to affect Ireland in the coming decades and during the rest of this century. Uncertainties remain in relation to the scale and extent of these impacts, particularly during the second half of the century. The greatest uncertainty lies in how effective global actions will be in reducing greenhouse gas emissions.

The nearest Met Éireann meteorological station providing hourly data is located at:

- Roches Point, Co. Cork (183185 E, 060073 N, 43m above mean sea level).

The station was commissioned in 2004 and data from this station will be used to estimate the 20-year monthly averages for rainfall, mean temperature, and mean wind speed. These measurements would be generally representative of prevailing conditions experienced in the vicinity of proposed development in Coolfadda and Kilbrogan, Co. Cork.

The 2025 total monthly rainfall, mean temperature and mean wind speed from the Roches Point weather station have been compared to the 20-year averages (2005 to 2025) for each month to determine the degree of representation of the actual meteorological conditions versus what is experienced on average at the site. This comparison is presented in **Table 5.10**.

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Table 5.10: 2025 and 20-year average meteorological conditions from Roches Point Station

Month	Rainfall		Temperature		Wind Speed	
	2025 (mm)	Average (mm)	Mean 2025 (°C)	Average (°C)	Mean 2025 (knots)	Mean Average (knots)
Jan	165.3	99.3	6.6	6.9	13.0	13.4
Feb	116.9	79.7	8	7.1	14.8	13.7
Mar	37.8	80.0	8.9	7.6	10.8	12.5
Apr	110.4	63.0	10.8	9.3	10.9	11.5
May	19.9	66.1	13.3	11.7	9.5	11.2
Jun	58.2	72.9	14.6	14.2	11.1	10.6
Jul	67.2	77.2	17	15.7	10.9	10.4
Aug	35.5	76.7	17.2	15.5	11.2	11.1
Sep	83.3	77.2	13.8	14.2	12.1	11.2
Oct	126	117.3	12.1	12.0	13.3	12.4
Nov	152.7	105.1	9.7	9.1	13.0	13.3
Dec	130.5	115.0	8.2	7.6	13.2	14.1
Annual	92.0	85.8	11.7	10.9	12.0	12.1

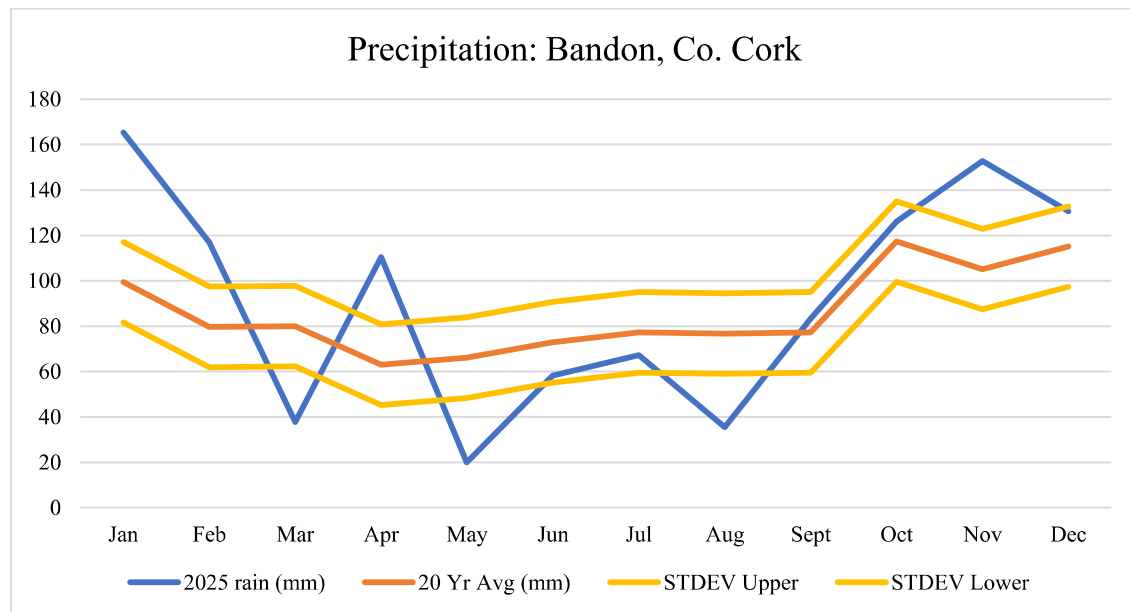


Figure 5.2: Roches Point 2025 Rainfall Vs 20 Year Average

Overall, mean monthly rainfall during 2025 was 6.2mm more than the corresponding 20-year averages. January, February, April and November had significantly higher rainfall than the 20-year average, while March, May and August were significantly drier.

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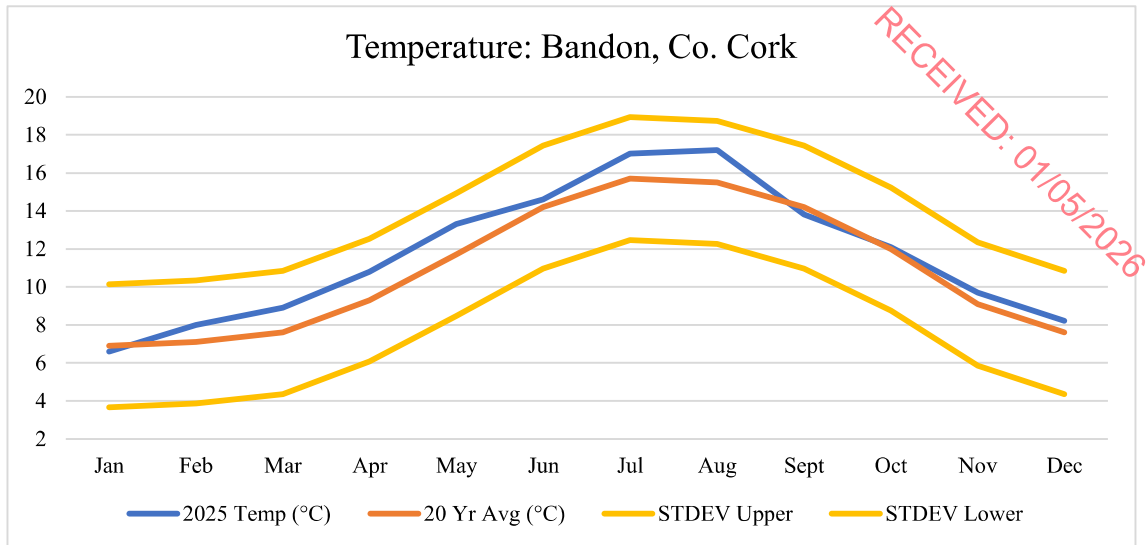


Figure 5.3: Roches Point 2025 Temperature Vs 20 Year Average

The overall mean monthly temperature for 2025 was 0.8°C warmer than the corresponding 20-year average. The temperature in 2025 was generally higher than the 20-year average, with January and September being only slightly colder.

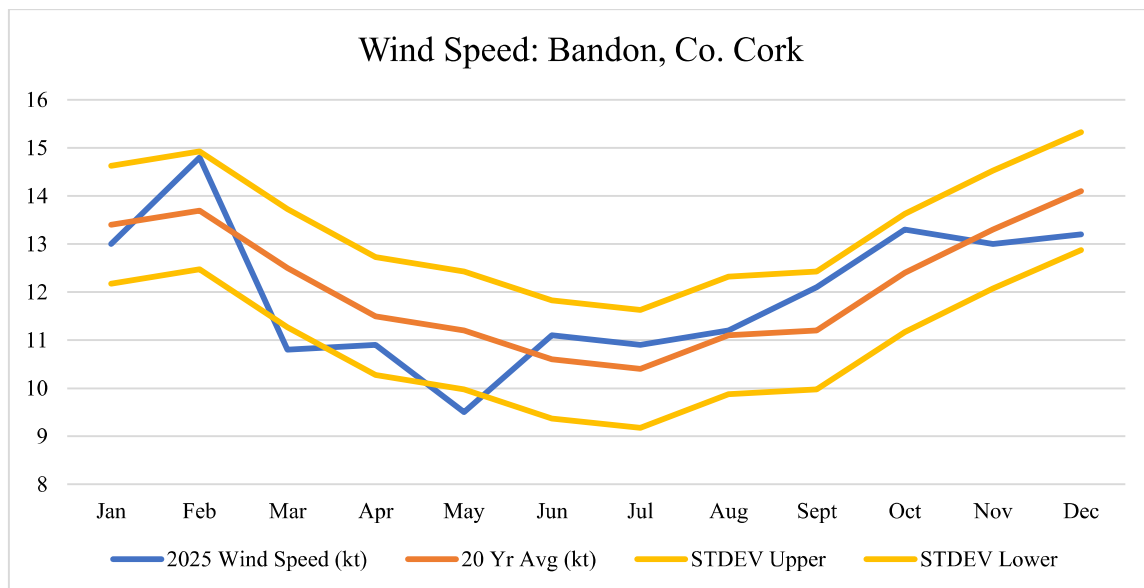


Figure 5.4: Roches Point 2025 wind Speed Vs 20 Year Average

The mean monthly wind speed recorded during 2025 was 0.1 knots lower than the 20-year average. March and May were significantly less windy when compared to the 20-year average.

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5.5 IMPACTS

5.5.1 CONSTRUCTION PHASE

During the Construction Phase a green field will be prepared for extraction activities. Works will include the removal of soils and topsoil, the creation of soil embankments / berms along the site (other) boundaries, the planting of soil embankments and supplementary planting of existing hedgerows.

These activities generate particulate materials, including dust and PM₁₀. The movement of machinery, construction vehicles and the use of plant equipment during the construction phase would also generate emissions of Sulphur Dioxide (SO₂), Nitrogen Oxides (NO_x), Particulate Matter (PM) and Carbon Monoxide (CO).

The following sections describes the potential impacts on local air quality and nearby sensitive receptors resulting from work associated with the construction phase of the proposed development.

5.5.1.1 Air Quality

The operation of machinery and vehicles during the construction phase will generate exhaust fumes containing predominantly SO₂, NO_x, CO₂ and particulate matter (PM₁₀). The impact of emissions from plant, machinery and vehicles during the construction phase would be local, not significant and short term in nature.

5.5.1.2 Dust Emissions

During the construction phase, there will be a higher potential for the generation of airborne dust during the exposure and movement of overburden soils, the construction of boundary earth berms and the movement of soil stockpiles for landscaping.

The duration of proposed construction activities would be approximately 3 years. The removal of overburden would occur in sections and on a phased basis. The initial overburden removal activities would be used to establish earth berms at the boundaries of the proposed site. Any excess soils would be used for landscaping or exported offsite via a licenced contractor.

These activities such as excavation, earth moving and backfilling would generate a short-term increase in the risk of airborne dust. The severity of dust generation would be primarily dependent upon the nature of the overburden, weather conditions and mitigation measures implemented.

Large particles (100µm diameter) are likely to settle within 5-10m of their source under a typical mean wind speed of 4-5 m/s, and particles between 30-100 µm diameter are likely to settle within 100m of the source.

These impact distances are also outlined within NRA effect significance criteria outlined in **Table 5.8**. For large construction sites, this table outlines distances of 25m for significant impacts on vegetation and PM₁₀, and 100m for soiling.

The closest buildings within the vicinity of the site were identified and these will be the most likely receptors of any impacts from dust dispersal as a result of construction activities at the development site.

Depositional dust from the construction phase is not anticipated to have a significant negative effect at receptor locations. These activities would occur on a phased basis over the 3 year duration of construction works, therefore the areas of disturbed topsoil's would be minor at each phase. With the significant set back distance from receptor locations, the effects of overburden stripping during

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construction and overburden distribution during landscaping would be unlikely to have any significant depositional dust impact. It is also noted that phases would include a planting programme, which would aid in the rapid stabilisation of redistributed overburden.

Overall, the impact on depositional dust air quality from the construction phase would be short term and no significant impact.

In order to ensure that potential dust emission are appropriately managed to ensure minimisation of impacts, dust mitigation measures are provided in **Section 5.6**.

5.5.2 OPERATIONAL PHASE

5.5.2.1 Air Quality

The proposed development is for the construction of 240 no. residential units comprising 156 no. dwelling houses, 84 no. apartments, a creche facility and all ancillary site works. Dwellings will be heated by air to water heat pumps. These devices release significantly less emissions in comparison to traditional fossil fuel (gas or kerosene) burners.

Once construction has been completed, site related traffic would consist of vehicles related to occupants of the residential dwellings. Traffic volumes are anticipated to increase on the local road network as a result of the development's operational phase. As a result, emissions to the atmosphere will also increase. However, this increase is not anticipated to be significant, as noted by the Traffic and Transportation Assessment.

Therefore, there would be anticipated to be no significant increase in emissions to air from the site during the operational phase. No significant effects on air quality are anticipated in combination with the operational phases of other nearby residential developments. Such combination emissions would be amenable to reductions through infrastructure and policy changes over time.

5.5.2.2 Dust Emissions

Dust generation as a result of the operational phase would be anticipated to be negligible once seeding has become established and due to the nature of the proposed development (residential housing estate).

Therefore, it is considered that there would be no significant dust impacts as a result of the proposed development during the operational phase at the nearest receptors.

5.5.3 CLIMATE IMPACTS

Greenhouse gas emissions from the construction phase of the development would be emitted from machinery and plant conducting these works. Air emissions from construction machinery would be expected to be minor in a regional context.

Due to the nature and design of the proposed development, greenhouse gas emissions resulting from the operational phase of the development would be insignificant in terms of national CO₂ emissions and the national agreed limits under the Kyoto Protocol. Thus, the impact of the proposed development on climate would be unnoticeable.

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5.5.4 CUMULATIVE IMPACT

The proposed development would act in combination with local combustion and traffic activities, including businesses, agriculture, road traffic and home heating, to influence local and regional air quality.

As per section 5.4.2, the existing air quality of the region is consistently recorded as “good” at the monitoring station in Clonakilty. Air quality in this area would be representative of Bandon’s air quality. The proposed scale of combustion activities would be anticipated to no significant impact on ambient air quality locally and imperceptible impacts regionally.

As greenhouse gas emissions would occur from the same sources, the development is also anticipated to have no significant impact locally and imperceptible impacts regionally.

Third party sources of depositional dust in the region would occur from the adjacent road traffic, construction and agricultural activities. The proposed development would be the most significant point source of depositional dust in the local proximity of the site during construction. However, in combination effects can be dependent on distance to sources and time of the year. Additionally, the construction phase of each project would be temporary. It is not considered that there would be any significant cumulative depositional dust locally.

5.5.5 ‘DO NOTHING’ IMPACT

Should the proposed development not be permitted, there would be no new residential dwellings on the site in the townlands of Coolfadda and Kilbrogan, County Cork. The land proposed for development would remain as an existing brownfield in ownership of the applicant. There would be no impacts to air quality, with no increase in depositional dust during the construction phase and emissions to the atmosphere during both the construction and operational phases.

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Table 5.11: Air Quality & Climate - Summary of Predicted Impacts Pre-Mitigation

IMPACT	DEVELOPMENT PHASE	DIRECT / INDIRECT	LIKELIHOOD	DURATION	REVERSIBLE	SIGNIFICANCE	IMPACT TYPE
Air Quality (Combustion)	Construction	Direct	Certain	Short term	Yes	Not significant	Negative
	Operation	Direct	Certain	Permanent	Yes	Imperceptible	Negative
Air Quality (Depositional Dust)	Construction	Direct	Certain	Short term	Yes	Not significant	Negative
	Operational	Direct	Certain	Permanent	Yes	Imperceptible	Negative
Climate	Construction	Direct	Certain	Short term	Yes	Imperceptible	Negative
	Operational	Direct	Certain	Permanent	Yes	Imperceptible	Negative

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5.6 MITIGATION MEASURES

It is considered that the proposed development will not result in any significant adverse impacts to air quality or climate. The primary potential nuisance associated with construction activities is dust, which is not anticipated to impact significantly upon sensitive receptors.

Outlined below is a series of mitigation measures and good working practices to ensure that the risk of nuisance dust is minimised, and to ensure there will be no adverse impacts on sensitive receptors.

5.6.1 CONSTRUCTION PHASE

5.6.1.1 Construction Phase Generation of Dust

IAQM (2018) *Guidance on Monitoring in the Vicinity of Demolition and Construction Sites* provides guidance with regard to the monitoring of particulate matter and dust. This guidance provides the following with regard to selection of monitoring locations and purpose of monitoring:

“In most circumstances, the principal aim of monitoring will be to ensure that the agreed mitigation measures are being effectively applied, and that impacts upon the local community are minimised. In such circumstances, monitoring at, or close to, the site boundary is recommended as this will record the highest dust emissions.”

“Where monitoring is required to measure compliance with the air quality objectives, it is essential that a “reference equivalent” method be used. Under such circumstances, it will also be more appropriate to site the monitoring station(s) close to the sensitive receptors, or for practical reasons, at locations which are representative of sensitive receptors, (where the air quality objectives apply) rather than directly at the site fenceline.”

On this basis, it is recommended that boundary monitoring locations are installed in order to monitor the effectiveness of dust mitigation measures at the site. It is recommended that monitoring locations are included at downwind receptor locations in order to monitor the nuisance impact of dust from the site at sensitive receptors.

Sampling points should be located away from treelines and hedgerows to avoid vegetation detritus. Overhanging vegetation may also prevent dust entering the collection jar.

Bergeroff Stands should also be designed to prevent the perching of birds on the sampling equipment.

The selection of monitoring locations should consider the site location, topography and prevailing weather conditions.

The overall site topography varies from approximately 75m mAOD to 45m mAOD and generally slopes from west to east.

The closest synoptic station to the proposed development site is Roches Point, Co. Cork located c. 35 km to the east of the site. The histogram, derived from wind data during the period 2021-2025, shows the prevailing winds in the area.

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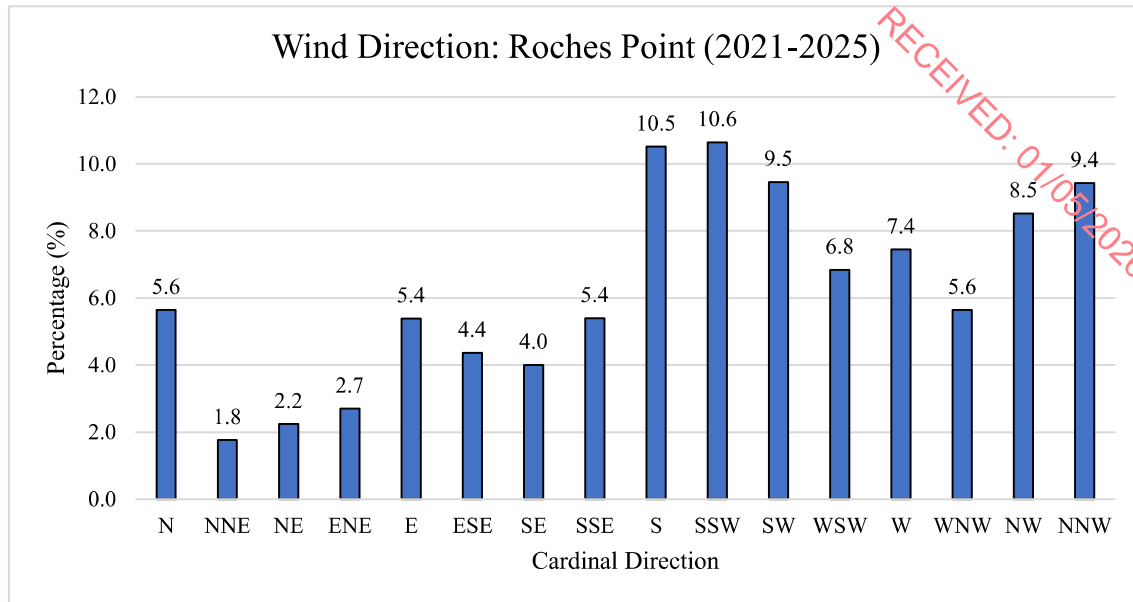


Figure 5.5: Roches Point Wind Histogram (2021-2025)

The following recommended monitoring stations have been selected based on the following principals:

1. Boundary monitoring locations for the tracking of the effectiveness of mitigation measures,
2. Receptor monitoring locations for the tracking of potential dust impacts at sensitive receptors,
3. Prevailing wind direction S/SW to N/NE and local South-West to North-East topography,
4. Avoidance of local third party dust sources and interference from overhanging vegetation.

Table 5.12: Recommended Revision to Depositional Dust Monitoring Locations

Locations Code	Location Type	Easting	Northing
D1	Boundary	148101	055673
D2	Boundary	148332	055523
D3	Receptor	148529	055648

Proposed monitoring locations are shown in the Construction Environmental Management Plan (CEMP) carried out by PES Ltd.

The following control measures for dust and fine particulate emissions (PM₁₀) should be implemented:

- Mitigation measures and working practices which would occur over the course of the construction activities are included within the CEMP for the site.
- As the phasing of soil removal would be over an extended period, this would allow for the selection of good weather conditions for the prevention of dust. Overburden removal should not be carried out under dry and/or windy weather conditions. Soils condition should be moist but friable at the time of earthworks to minimise available material for the generation of dust.
- Boundary earth berms should be seeded with grass as soon as possible (assuming appropriate planting season).
- Boundary earth berms should be planted with appropriate hedgerow species as soon as is possible, implementing the proposed planting plan.
- Supplemental planting should be implemented on any gaps in existing boundary hedgerows.

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- If practical, implement grass seeding on overburden stockpiles,
- During landscaping works, implement planting / grass seeding as soon as possible.

5.6.1.2 Construction Air Emissions

Mitigation measures to minimise related plant and vehicle emissions include:

- Ensure regular maintenance of plant and equipment. Technical inspection of vehicles to ensure they perform most efficiently.
- All vehicles and machinery will be switched off when not in use (i.e. no idling).

5.6.2 OPERATIONAL PHASE

The operational phase of the proposed development will not generate significant quantities of air pollutants.

Therefore, it is not considered that mitigation measures will be required for the operational phase of the development are required, given the nature and design of the project.

5.6.3 CLIMATE MITIGATION

The impact of the proposed development on climate will be imperceptible, therefore no site-specific mitigation measures are required.

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5.7 RESIDUAL IMPACTS

Table 5.13: Air Quality & Climate - Summary of Residual Impacts

IMPACT	DEVELOPMENT PHASE	DIRECT / INDIRECT	LIKELIHOOD	DURATION	REVERSIBLE	SIGNIFICANCE	IMPACT TYPE
Air Quality (Combustion)	Construction	Direct	Certain	Short term	Yes	Imperceptible	Negative
	Operation	Direct	Certain	Permanent	Yes	Imperceptible	Negative
Air Quality (Depositional Dust)	Construction	Direct	Certain	Short term	Yes	Imperceptible	Negative
	Operational	Direct	Certain	Permanent	Yes	Imperceptible	Negative
Climate	Construction	Direct	Certain	Short term	Yes	Imperceptible	Negative
	Operational	Direct	Certain	Permanent	Yes	Imperceptible	Negative

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5.8 DIFFICULTIES ENCOUNTERED

No difficulties were encountered during the assessment.

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6.0 NOISE

6.1 INTRODUCTION

The applicant proposes to construct a Large-scale Residential Development (LRD) and all ancillary site works and services at Convent Hill, Bandon, County Cork. The proposed development would occur within a brownfield site currently in the ownership of the applicant.

Panther Environmental Solutions Ltd was commissioned by Industrial Life Sciences Ltd. to carry out a Noise Impact Assessment in support of an Environmental Impact Assessment Report (EIAR).

The report presents and interprets the results of the survey with reference to:

- EPA *Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4)* 2016.
- BS4142:2014 – *Method for Rating Industrial Noise Affecting Mixed Residential and Industrial Areas* as published by The British Standards Institution.
- BS5228-1:2009+A1:2014 – *Code of practice for noise and vibration control on construction and open sites – Part 1: Noise*.
- ISO 9613 – *Acoustics: Attenuation of sound during propagation outdoors – Part 2: General method of calculation*.
- ISO 1996 – *Acoustics: Description, measurement and assessment of environmental noise – Part 1: Basic quantities and assessment procedures*.

The study identifies, describes and assesses the impact of the proposed development in terms of noise, in particular, the potential noise impacts on residential locations (noise sensitive receptors) in the vicinity of the proposed development.

6.2 LEGISLATIVE CONTEXT

Planning and Development Act 2000 (S.I. No. 30 of 2000), as amended

Local authorities are responsible for the planning and environmental regulation of any proposed developments. The current planning and environmental regulatory framework requires these developments to comply with the Planning and Development Act (2000) and related regulations.

The local authorities and An Coimisiún Pleanála attach conditions relating to environmental management of these developments to planning permissions granted. Local authorities consider the land use and planning issues associated with the proposed developments in their County Development Plans.

The EPA Act (Noise) Regulations 1994 (S.I. No. 179 of 1994)

The relevant part of the Environmental Protection Agency Act 1992 dealing with noise is Part VI, Sections 106 to 108. These Sections deal with the control of noise, the power of local authorities to prevent or limit noise and the issue of noise as a nuisance.

The 1994 Regulations came into effect in July 1994 and outline the procedures for dealing with noise nuisance. The Regulations allow affected individuals, local authorities or the EPA to take action against an activity causing a noise nuisance.

These Regulations replaced the procedures for noise complaints contained in the Local Government (Planning & Development) Act 1963. Companies must show that reasonable care was taken to prevent or limit the noise from their activities. If the courts decide that a company is responsible for causing a noise nuisance, they can order the company to take measures to reduce, prevent or limit it.

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EPA 'Guidance Note on Noise (NG4)' (2016)

The document relates primarily to noise surveys and assessments for EPA licensed facilities but in the absence of any other directly applicable guidance documents, it also is pertinent for the purposes of noise surveys and assessments accompanying planning applications.

It deals in general terms with the approach to be taken in the measurement and control of noise and provides advice in relation to the settling of noise ELV's and compliance monitoring. In line with World Health Organisation (WHO) guidance, it recommends that the following noise levels not be exceeded at the facades of the nearest noise-sensitive receptors:

Table 6.1: EPA (NG4) Recommended Standard Noise Limits for Industry

Period	Times	Standard dB(A)
Day	(07:00 to 19:00hrs)	55dB LA _{r,T}
Evening	(19:00 to 23:00hrs)	50dB LA _{r,T}
Night	(23:00 to 07:00hrs)	45dB LA _{eq,T}

Other EPA general EIA guidelines such as Guidelines on the Information to be Contained in Environmental Impact Assessment Reports [2022] and Advice Notes on Current Practice (in the Preparation of Environmental Impact Statements) [2003] have been considered in the preparation of this Noise and Vibration Chapter.

The National Roads Authority (TII formerly NRA) Guidelines for the Treatment of Noise and Vibration in National Road Schemes (2004)

The NRA's guidance document Guidelines for the Treatment of Noise and Vibration in National Road Schemes (2004) is the recognised Irish guidance document for the assessment of road traffic noise.

This document has been referred to in the consideration of road traffic noise associated with the proposed development. The document also presents maximum permissible noise levels at dwelling facades during construction activities. This provides a useful reference for assessing construction noise of the proposed development.

Table 6.2: The National Roads Authority (NRA) Guideline Construction Noise Limits

Period	Times	LA _{eq} (1hr) dB	L _{pA} (max) slow dB
Monday to Friday	07:00 to 19:00hrs	70	80
Monday to Friday	19:00 to 22:00hrs	60	65
Saturday	08:00 to 16:30hrs	65	75
Sundays and Bank Holidays	08:00 to 16:30hrs	60	65

The Guidelines for the Treatment of Noise and Vibration in National Road Schemes (TII formerly NRA, 2004) was also considered in the preparation of the assessment. This document sets out noise and vibration limits for the construction phase which are generally applied by planning authorities to all construction projects.

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BS5228:2014 Code of practice for noise and vibration control on construction and open sites – Part 1: Noise

There is currently no statutory guidance in Ireland relating to the maximum permissible noise level for a project's construction phase. Current guidance on permissible noise levels is therefore considered somewhat limited. In the absence of any statutory guidance or other specific limits prescribed by relevant authorities, an appropriate best practice measure has been adopted as the standard for this project.

Best practice guidelines are taken from the British Standard BS 5228 – 1: 2009 (+A1 2014): '*Code of Practice for Noise And Vibration Control On Construction And Open Sites – Noise*'. BS 5228 sets out an approach for setting appropriate construction noise limits for residential dwellings, but it does not provide guidance for commercial or office buildings.

The BS 5228 '*ABC Method*' calls for the designation of a noise sensitive location into a specific category (A, B or C) based on existing ambient noise levels in the absence of construction noise. This then sets a threshold noise value that, if exceeded, indicates that a potential noise impact is associated with the construction activities.

Table 6.3: Threshold of Potential Significant Effect

Assessment category and threshold value period	Threshold value, in decibels (LAeq, T)		
	Category A ^(a)	Category B ^(b)	Category C ^(c)
Night-time (23.00–07.00)	45	50	55
Evenings and weekends ^(d)	55	60	65
Daytime (07.00–19.00) and Saturdays (07.00–13.00)	65	70	75
NOTE 1: A potential significant effect is indicated if the LAeq, T noise level arising from the site exceeds the threshold level for the category appropriate to the ambient noise level.			
NOTE 2: If the ambient noise level exceeds the Category C threshold values given in the table (i.e. the ambient noise level is higher than the above values), then a potential significant effect is indicated if the total LAeq, T noise level for the period increases by more than 3 dB due to site noise.			
NOTE 3: Applied to residential receptors only.			
a) Category A: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are less than these values.			
b) Category B: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are the same as category A values.			
c) Category C: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are higher than category A values.			
d) 19.00–23.00 weekdays, 13.00–23.00 Saturdays and 07.00–23.00 Sundays.			

BS5228:2014 Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration

Part 2 of the BS 5228 gives recommendations for basic methods of vibration control relating to construction and open sites where work activities/operations generate significant vibration levels, including industry-specific guidance.

BS7385:1993 Evaluation and measurement for vibration in buildings – Part 2: Guide to damage levels from groundborne vibration

Part 2 of the BS 7385 gives guidance on the levels of vibration above which building structures could be damaged. It identifies the factors which influence the vibration response of buildings and describes the basic procedure for carrying out measurements.

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6.3 MEASUREMENT PARAMETERS

The parameters used to assess the noise are as follows:

LAeq(30): The noise values recorded continuously at every instant during the 30-minute sampling period are integrated by the noise metre to give a single value that represents the continuous equivalent sound level over the 30-minute period during this survey.

LA₁₀ and LA₉₀: are both statistical noise levels. LA₁₀ indicates that for 10% of the monitoring period the sound levels were greater than the quoted value. LA₉₀ indicates that for 90% of the monitoring period, the sound levels were greater than the quoted value. L₁₀ is used to express event noise. L₉₀ is used to express background noise, usually filtering out loud and intermittent interferences such as traffic noise.

Continuous: noise produced without interruption.

Intermittent: noise that is punctuated with interruptions e.g. equipment operating in cycles or events such as single passing vehicle or aircraft.

Impulsive: a noise of short duration (typically less than one second), the sound pressure of which is significantly higher than the background; brief and abrupt.

Tonal: noise which contains a clearly audible tone i.e. a distinguishable, discrete or continuous note (whine, hiss, hum or screech etc).

For the purpose of this noise assessment, a tonal characteristic incurs a penalty of +5dB(A) in accordance with Section 4.3 of the EPA 2016 *Guidance Note for Noise in Relation to Scheduled Activities*.

In order for a tone or impulsive element to warrant a penalty, it should be clearly noticeable and audible. Situations in which a 5 dB penalty applies include the following:

- The noise contains a distinguishable, discrete continuous note (whine, hiss, screech, hum etc).
- The noise contains distinct impulses (bangs, clicks, clatters, or thumps).
- The noise is irregular enough to attract attention.
- The tonal components are clearly audible and the level in a 1/3rd octave band is greater than or equal to the following level in the two adjacent bands;
 - 15dB in low-frequency bands (25Hz to 125Hz);
 - 8dB in middle-frequency bands (160Hz to 400Hz), and;
 - 5dB in high-frequency bands (500Hz to 10,000Hz)

The noise measurements were 'A' weighted (to equate to human ear hearing) and the time-weighting 'Fast' was applied.

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A-Weighted Decibels dB(A)

Noise, in its simplest form can be described as unwanted sound. Sound is the result of a propagating disturbance through a physical medium i.e. sound wave. Through air, it is perceived by the ear as a pressure wave superimposed upon the ambient air pressure about the ear of the listener. When the medium is a fixed body, it is called vibration.

'A' Weighting is standard weighting of the audible frequencies designed to reflect the response of the human ear to noise. At low and high frequencies, the human ear is not very sensitive, but between 500 Hz and 6 kHz the ear is much more sensitive. In the A-weighted system, the decibel values of sounds at low frequencies are reduced compared with un-weighted decibels, in which no correction is made for audio frequency.

Sound level (L_p dB) and sound power (L_w dB) are physical quantities which measure derivatives of the energy associated with a sound that can be measured by recording instruments.

Loudness is a psycho-physical subjective measure of the perceived response by the human auditory system to a sound. The loudness level of a sound is determined by adjusting a sound pressure level of a comparison pure tone of specified frequency until it is judged by normal hearing observers to be equal in loudness. Loudness level is expressed in phons.

In the mid-frequency range at sound pressures greater than approximately 2×10^{-3} Pa (40 dB re 20 μ Pa SPL), the following table summarises the average subjective perception of noise level changes.

Table 6.4: WHO International: Fundamentals of Acoustics			
Change in Sound Level (dB)	Change in Power		Change in Apparent Loudness
	Decrease	Increase	
3	1/2	2	Just Perceptible
5	1/3	3	Clearly Noticeable
10	1/10	10	Half or Twice as Loud
20	1/100	100	Much Quieter or Louder

As can be seen in the above table, an increase of 3 dB is double the sound power level; however, the change in loudness is just perceptible.

The term L_{eq} is used to express the average noise level. It is measured in dB (A) and measured over a defined period of time. Specifically, it is the constant level equivalent to the same acoustic energy as a given event. The L_{eq} is written as L_{Aeq} when it is measured with the A frequency weighting.

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6.4 METEOROLOGICAL CONDITIONS

Weather conditions during the daytime baseline survey were dry and warm (15-18°C), with calm wind speeds of less than 5 m/s or 10 knots from a predominantly south-westerly direction.

Weather conditions were in line with those recorded at the Cork Airport Weather Station, located 20.0km northeast of the site.

Wind speed was reduced at some of the survey locations, as a result of shielding from surrounding infrastructure.

The Sound Level Meter was also fitted with a windshield to minimise interference from meteorological conditions during all monitoring periods.

6.5 NOISE ASSESSMENT METHODS

6.5.1 BASELINE NOISE ASSESSMENT METHODOLOGY

Baseline noise monitoring was carried out in general accordance with the EPA, 2016 “*Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4)*”.

6.5.1.1 Monitoring Locations

The baseline environmental noise levels at NM1 – NM7 locations were determined by instrumented monitoring of existing noise levels. This was determined by taking 15-minute broadband noise measurements at these seven noise monitoring locations.

It is considered that noise levels measured at each of the NM locations would be representative of existing noise levels at nearest residential property or Noise Sensitive Receptors (NSR).

Table 6.5: Noise Monitoring Locations

Ref.	Grid Ref		Location Type	Location
	X	Y		
NM1	148199	55717	Noise Monitoring Location	In the vicinity of NSR1 – NSR3, within the Inis Alaiinn residential development, approx. 15m from the proposed site boundary.
NM2	148179	55611		In the vicinity of NSR4 – NSR7, on the Coolfadda Road (L20330, adjacent to the site boundary.
NM3	148378	55507		In the vicinity of NSR11 – NSR15, on the Tannery Road (L20330), approx. 10m from the proposed site boundary.
NM4	148678	55536		In the vicinity of NSR18 – NSR24, within the Barrett's Hill residential development, approx. 60m from the proposed site boundary.
NM5	148744	55627		In the vicinity of NSR25 – NSR26, on Kilbrogan Street, adjacent to the site boundary.
NM6	148752	55753		In the vicinity of NSR27 – NSR29, on Kilbrogan Street, approx. 100m from the proposed site boundary.

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NM7	148615	55889	In the vicinity of NSR30 – NSR29, on a private access road, approx. 115m from the proposed site boundary.
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Grid Ref Source: <http://irish.gridreferencefinder.com>

These monitoring points are mapped in *Appendix 6.1*.

All measurements were taken at:

- 1.2 – 1.5 metres height above local ground level
- 1.0 – 5.0 metres away from reflective surfaces

6.5.1.2 Instrumentation

The equipment used for the noise monitoring was a Cirrus CR:171B Sound Level Meter (serial no: G071199), an MK:224 Microphone (serial no:218239K), and a CR:515 Acoustic Calibrator (serial no: 54060).

Both the CR:171B and CR:515 were calibrated externally on the 20th of December 2024.

The MK:224 was calibrated externally on the 11th of December 2024.

A calibration check of 94 dB(A) at 1kHz was carried out on the instrument before and after measurement. The calibrator is a Class 1 grade, which conforms to IEC 60942:2003.

For the monitoring survey, the calibration offset before the assessment was noted to be -0.05 dB, while the calibration offset after the assessment was noted to be 0.33 dB. This equates to a drift of 0.38 dB.

The difference between the initial calibration value, any subsequent calibration check, and a final calibration checks on completion of measurements did not exceed 0.50 dB, and the instrument calibration was found to be satisfactory.

Certifications of calibration are provided in *Appendix 6.2*.

6.5.2 NOISE PREDICTION METHODOLOGY

ISO 9613-2:1996

The noise prediction methodology used in this report is based upon the international standard ISO 9613-2 “*Attenuation of Sound during Propagation Outdoors*”.

This standard outlines a method for calculating the attenuation of sound during propagation outdoors in order to predict the levels of environmental noise at a distance from a variety of sources.

The central formula for this calculation is as follows:

$$A = A_{div} + A_{gr} + A_{bar} + A_{misc}$$

Where:

- A is the attenuation due to site conditions
A_{div} is the attenuation due to the geometrical divergence (distance from source)
A_{gr} is the attenuation due to the ground effect
A_{bar} is the attenuation due to a barrier
A_{misc} is the attenuation due to miscellaneous other effects as appropriate

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This attenuation factor is then subtracted from the predicted park activity noise at the proposed activity. The resultant figure is the predicted noise from the proposed activity at a given noise monitoring location.

This figure may then be added logarithmically to the existing background noise at the noise monitoring location to attain the predicted noise level if the proposed activity were to begin.

Relevant Formulae

In order to carry out this predictive analysis, the following attenuation characteristics have been taken into account:

Divergence – A_{div}

The geometrical divergence accounts for the spherical spreading in the free field from the point sound source, causing attenuation due to the inverse square law. Divergence is calculated as follows:

$$A_{div} = 20. \text{Log} \left(\frac{d}{d_o} \right)$$

Where:

d is the distance from the source to the receiver (meters)

d_o is the reference distance (1-meter) or distance from source to monitoring point (meters)

Predictive Assessment Locations

Using the outline formula above, predictive analysis was carried out for the following closest noise sensitive receptors (NSR's) in the vicinity of the proposed development site with relation to the construction phases of the development:

Table 6.6: Noise Sensitive Receptors

Ref.	Grid Ref		Location Type	Location
	X	Y		
NSR1	148253	55733	Noise Sensitive Receptors	13 Inis Alainn, Curryclogh, Bandon
NSR2	148147	55707		46 Inis Alainn, Curryclogh, Bandon
NSR3	148113	55704		55 Inis Alainn, Curryclogh, Bandon
NSR4	148091	55626		Kiskeam, Upper Coolfadda, Bandon
NSR5	148111	55605		Carrigdoun, Upper Coolfadda, Bandon,
NSR6	148131	55591		Upper Coolfadda, Bandon
NSR7	148154	55576		Sunmount, Upper Coolfadda, Bandon
NSR8	148212	55529		Indiana, Upper Coolfadda, Bandon
NSR9	148241	55520		Hilltop, Upper Coolfadda, Bandon
NSR10	148256	55525		Upper Coolfadda, Bandon
NSR11	148457	55540		9/9a Upper Convent Hill, Bandon
NSR12	148477	55535		7/8 An Toastal Terrace, Convent Hill, Bandon
NSR13	148489	55532		5/6 An Toastal Terrace, Convent Hill, Bandon
NSR14	148509	55529		3/4 An Toastal Terrace, Convent Hill, Bandon
NSR15	148521	55525		1/2 An Toastal Terrace, Convent Hill, Bandon
NSR16	148592	55506		Convent View, Upper Convent Hill, Bandon
NSR17	148605	55506		Convent View, Upper Convent Hill, Bandon
NSR18	148645	55515		1 Barrett's Hill, Bandon
NSR19	148646	55535		2 Barrett's Hill, Bandon
NSR20	148648	55551		3 Barrett's Hill, Bandon
NSR21	148668	55562		Jalna, 4 Barrett's Hill, Bandon
NSR22	148687	55561		5 Barrett's Hill, Bandon
NSR23	148709	55559		6 Barrett's Hill, Bandon
NSR24	148728	55555		Saint Theresa's, 7 Barrett's Hill, Bandon
NSR25	148758	55599		1 Kilbrogan Street, Bandon
NSR26	148753	55607		2 Kilbrogan Street, Bandon

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NSR27	148735	55726		Kilbrogan, Bandon
NSR28	148736	55733		Kilbrogan, Bandon
NSR29	148727	55744		Kilbrogan, Bandon
NSR30	148446	55892		Kilbrogan Farm, Kilbrogan, Bandon

Grid Ref Source: <https://irish.gridreferencefinder.com/>

These NSR's are mapped in *Appendix 6.1*, while the results of the predictive noise assessment survey are detailed in Section 6.6.3 below.

6.5.3 SOURCE NOISE SPECIFICATIONS

6.5.3.1 Construction Phase

The sequence of the construction phase has not been determined. A typical construction programme for such a development would take approximately 30 to 36 months.

It is unlikely that all the residential units would be constructed simultaneously, but rather in clusters.

Therefore, the construction plant and machinery will change as the project develops, with plant and equipment only operating within any particular section of the proposed site for a relatively short period of time.

Delivery movements and on-site machinery noise would likely occur during Phases 3-5, with peak movements during Phase 4.

Table 6.7: Construction Phases

Phases	Noise Sources
Phase 1 – Site Preparation	• Cut and fill activities. • Stockpiling of excavated topsoil. • The import and rolling of hardcore stone material.
Phase 2 – Foundation Works	• Digging out of foundations. • Digging out of drainpipe trenches. • The pouring of concrete foundation.
Phase 3 – Construction	• Installation of concrete block walls. • Installation of uPVC doors and window. • Installation of wooden floor joist and stairs.
Phase 4 – Roofing	• Installation of pre-assembled wood trusses and rafters. • Installation of underlay/felt and wooden lats. • Installation of roof tiles/slatted.
Phase 5 – Internal & External Finishing	• Installation of uPVC fascia, eaves and guttering. • Plastering of external walls. • Painting of external walls.
Phase 6 – Internal Finishing	• Specialist trades – no likely external plant or machinery required (i.e. electrical, plumbing etc).

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Phase 7 – Roads & Landscaping	• Installation of asphalt roads. • Pouring of concrete footpaths. • Spreading of topsoil in garden and green areas.
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Depending upon the ground conditions encountered during construction and the contractor appointed, the methodology for the construction programme may vary. A review of standard noise values for various construction plant and equipment from the British Standard 5228-1:2009+A1:2014 has therefore been undertaken.

Table 6.8 contains typical noise levels from various construction plant that would be used during the construction phase. These standard noise emission data, recalculated from 10m to 1m, will be used for the purposes of the worst-case noise assessment of the proposed works.

Table 6.8: Noise Levels from Construction Phase (Ref: BS5228:2009)

Phase	Activity/Equipment	Sound Pressure at 10m LAeq	Sound Pressure at 1m LAeq
1	C2.1 Dozer (Clearing Site)	75	95
	C2.8 Wheeled Backhoe Loader (Clearing Site)	68	88
	C2.37 Roller (rolling fill)	79	99
	C4.3 Dumper (7T)	76	96
2	C4.18 Cement Mixer Truck (discharging) (Mixing Concrete)	75	95
	C2.28 Wheeled Loader (loading lorries)	76	96
3	C4.23 Small cement mixer	61	81
	C2.35 Telescopic Handler	71	91
	C2.34 Lorry (4-axle wagon)*	80	100
4	C4.23 Small cement mixer	61	81
	C2.35 Telescopic Handler	71	91
	C2.34 Lorry (4-axle wagon)*	80	100
5	C4.23 Small cement mixer	61	81
7	C4.18 Cement Mixer Truck (discharging) (Mixing Concrete)	75	95
	C5.30 Asphalt paver (+ tipper lorry)	75	95
	C5.20 Vibratory roller	75	95
	C2.8 Wheeled Backhoe Loader (Clearing Site)	68	88

* Lorries would only be on site for the delivery of materials (i.e. sand, stone & raw material)

Large areas of the site are to be retained as ecological areas, riparian zones in the vicinity of a local waterbody and green amenity spaces.

These areas will require little to no development and the use of plant machine would predominantly be carried out within the footprint of the proposed residential units and on proposed roadways.

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For this assessment, a single construction scenario will be considered, based on the distance from said footprints & roadways to the closest defined noise sensitive receptors using the source noise level outlined in **Table 6.8** above.

6.5.3.2 Operational Noise

During the operational phase of the development, the primary noise sources would be as a result of intermittent residential activities. This would typically include intermittent vehicle operations, raised voices and children playing etc.

The only fixed noise source would be the central heating systems in the form of air-to-water heat pumps (*Mitsubishi: Ecodan R32* or similar), which are designed for residential use and emit low levels of noise. As can be seen from the datasheet provided in *Appendix 6.4*, a *Mitsubishi: Ecodan R32* Heat Pump is rated to generate a noise level of 45 dB(A) at a distance of 1-meter.

These sources would be in line with those noted within modern existing residential areas in the vicinity of the proposed site during the baseline assessment.

It is assumed that each of the 240 proposed units would feature individual heat pumps.

Therefore, the worst-case operational scenario would be for all heat pumps associated with the unit containing the greatest number of 24 apartments to be located at a single location, thus generating the maximum potential operational source noise.

Table 6.9 below contains the total combined sound pressure level at a distance of 1-meter for all units.

Table 6.9: Combined Operational Noise Source Levels

No. of Source	Source dB at 1-meter	Combined dB at 1-meter
1	45	45
2	45	48
4	45	51
8	45	54
16	45	57
24	45	59
240	45	69

$$\text{Combined} = 10 \cdot \log \left[n * 10^{\frac{LA}{10}} \right]$$

When n = Number of Levels

6.6 NOISE IMPACT ASSESSMENT

6.6.1 BASELINE NOISE MONITORING RESULTS

The table below show the daytime measurement results taken at the seven noise monitoring locations (NM's) outlined in Section 6.5.1. These points are mapped in *Appendix 6.1*. Associated particulars such as a description of the noise environment, dominant noise sources and any interferences/background noise recorded are also provided in the table.

Baseline monitoring was carried out by Mr. Luis Soares of PES Ltd, while this impact report and analysis was carried out by Mr. Nial Ryan of PES Ltd, who holds a *Certificate of Competence in Environmental Noise Measurement* and is a Technician Member of the Institute of Acoustics.

For this assessment, monitoring was carried out between 15:01pm – 18:54pm on Thursday 26th of June 2025.

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Table 6.10: Baseline Daytime Noise Monitoring Summary

Ref.	Time	L _{Aeq}	L _{A10}	L _{A90}	L _A F _{max}	Background Noise Sources
NM1	15:01	49	54	36	66	- Local vehicle operation within residential development. - Bird song & crow calls. - Distant agricultural vehicle to the north.
NM2	15:40	63	70	38	75	- Local traffic on the Coolfadda Road. - Bird song, crow & magpie calls. - Distant agricultural vehicle to the north.
NM3	16:21	58	61	44	88	- Local traffic on The Tannery Road. - Birdsong. - Distant construction activity to the southwest. - Pedestrians on footpath.
NM4	16:57	49	50	41	70	- Local traffic in residential development & on Convent Hill Road. - Local residential activity (door banging & raised voices). - Bird song & crow calls. - School kid shouting to the south.
NM5	17:29	52	52	40	74	- Local traffic on The Tannery Road. - Bird song, crow & magpie calls.
NM6	18:05	51	51	40	81	- Local traffic on Kilbrogan Street. - Bird song & crow calls. - Distant lawnmower use to the north-east. - Distant agricultural vehicle to the north.
NM7	18:39	45	47	40	62	- Local traffic on Kilbrogan Street. - Bird song & crow calls. - Distant agricultural vehicle to the north.

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6.6.2 EPA (NG4) SCREENING - RESULTS

6.6.2.1 Quiet Area Screening

The location of the development has been screened in order to determine if it is located in an area that could be considered a 'Quiet Area' according to the EPA NG4 Guidance, which states:

The location of the proposed development should be screened in order to determine if it is to be located in or near an area that could be considered a 'Quiet Area' in open country according to the Agency publication Environmental Quality Objectives - Noise in Quiet Areas.

This is achieved using the following checklist:

Table 6.11: Quiet Area Screening Checklist

Screening Question	Answer	
	Yes	No
Is the site >3km away from urban areas with a population >1,000 people?		✓
Is the site >10km away from urban areas with a population >5,000 people?		✓
Is the site >15km away from urban areas with a population >10,000 people?	✓	
Is the site >3km away from any local industry?		✓
Is the site >10km away from any major industry centre?	✓	
Is the site >5km away from any national primary route?		✓
Is the site >7.5km away from any motorway or dual carriageway?	✓	
QUIET AREA?		✓
Other Relevant Comments	Site located in Bandon (pop: 8,101) ABP Food Group – 1.15m N.E. N71 National Road – 1.11km South.	

6.6.2.2 Areas of Low Background Noise Screening

When an area is not identified as being a 'Quiet Area', the existing background noise levels measured during the environmental noise survey should be examined to determine if they satisfy the following criteria:

- Average Daytime Background Noise Level $\leq 40\text{dB LAF90}$
- Average Evening Background Noise Level $\leq 35\text{dB LAF90}$
- Average Night-time Background Noise Level $\leq 30\text{dB LAF90}$

Noise monitoring has indicated that the average daytime background LAF90 noise levels did not fall below the levels outlined in Step 3, Chapter 4.4.2 of the EPA *Guidance Note on Noise from Scheduled Activities* (NG4), during the monitoring periods.

Table 6.12: Low Background Noise Screening Table

Reference	$\text{LA}_{90} \text{ dB(A)}$
NM1	36

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NM2	38
NM3	44
NM4	41
NM5	40
NM6	40
NM7	40
Average	40

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$$\text{Average} = 10. \text{Log} \frac{1}{n} \sum_{i=1}^n 10^{L_{A90}/10}$$

When L = Noise Level Recorded

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6.6.3 PREDICTIVE ANALYSIS – RESULTS

6.6.3.1 Construction Phase

In order to determine the potential impact of noise from the proposed development during construction, the resultant noise levels at the thirty defined noise sensitive receptors have been calculated, based on distances from the NSR's to the closest proposed residential unit footprint or proposed roadway. A source noise level of 99 dB has been utilized to represent *Phase 1* of construction, as outlined in Table 6.8 above.

Table 6.13: Construction Noise Attenuation Calculations

Ref _R	Receptor (R)		Construction Source (S)				Divergence		L _{Aeq} (dB)
	X _R	Y _R	Refs	X _S	Y _S	L _S (dB)	Dist (m)	A _{div} (dB)	
NSR1	148253	55733	S1	148262	55671	99	63	36	63
NSR2	148147	55707	S2	148156	55661	99	47	33	66
NSR3	148113	55704	S3	148134	55659	99	50	34	65
NSR4	148091	55626	S3	148134	55659	99	54	35	64
NSR5	148111	55605	S3	148134	55659	99	59	35	64
NSR6	148131	55591	S4	148155	55649	99	63	36	63
NSR7	148154	55576	S5	148196	55617	99	59	35	64
NSR8	148212	55529	S6	148233	55586	99	61	36	63
NSR9	148241	55520	S7	148275	55542	99	40	32	67
NSR10	148256	55525	S7	148275	55542	99	25	28	71
NSR11	148457	55540	S8	148442	55540	99	15	24	75
NSR12	148477	55535	S9	148462	55555	99	25	28	71
NSR13	148489	55532	S9	148462	55555	99	35	31	68
NSR14	148509	55529	S9	148462	55555	99	54	35	64
NSR15	148521	55525	S10	148511	55586	99	62	36	63
NSR16	148592	55506	S11	148602	55586	99	81	38	61
NSR17	148605	55506	S11	148602	55586	99	80	38	61
NSR18	148645	55515	S12	148655	55581	99	67	36	63
NSR19	148646	55535	S12	148655	55581	99	47	33	66
NSR20	148648	55551	S12	148655	55581	99	31	30	69
NSR21	148668	55562	S13	148671	55579	99	17	25	74
NSR22	148687	55561	S14	148684	55578	99	17	25	74
NSR23	148709	55559	S15	148708	55577	99	18	25	74
NSR24	148728	55555	S15	148708	55577	99	30	29	70
NSR25	148758	55599	S16	148750	55622	99	24	28	71
NSR26	148753	55607	S16	148745	55620	99	15	24	75

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Receptor (R)			Construction Source (S)				Divergence		LAeq (dB)
Ref _R	X _R	Y _R	Refs	X _S	Y _S	L _S (dB)	Dist (m)	A _{div} (dB)	
NSR27	148735	55726	S17	148734	55637	99	89	39	60
NSR28	148736	55733	S17	148734	55637	99	96	40	59
NSR29	148727	55744	S18	148620	55749	99	107	41	58
NSR30	148446	55892	S19	148480	55793	99	105	40	59

$$\text{Dist} = \sqrt{(X_R - X_S)^2 + (Y_R - Y_S)^2}$$

$$A_{\text{div}} = 20 \cdot \text{Log} \left(\frac{\text{dist}}{d_0} \right)$$

$$L_{\text{Aeq}} = L_S - A_{\text{div}}$$

when S = source & R = receptor

when $d_0 = 1\text{m}$

when L_S = source noise level

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6.6.3.2 Operational Phase

In order to determine the worst-case potential impact of noise from the proposed development during the operational phase, the resultant noise levels at the thirty defined noise sensitive receptors have been calculated, based on distance from the NSR's to the same closest proposed residential unit footprint or proposed roadway as utilized in Section 6.6.3.1. A combined source noise level of 59 dB to represent 24 x Heat Pumps has been utilized, as outlined in Table 6.9 above.

Table 6.14: Operational Noise Attenuation Calculation

Ref _R	Receptor (R)		Construction Source (S)				Divergence		
	X _R	Y _R	Refs	X _S	Y _S	L _S (dB)	Dist (m)	A _{div} (dB)	L _{Aeq} (dB)
NSR1	148253	55733	S1	148262	55671	59	63	36	23
NSR2	148147	55707	S2	148156	55661	59	47	33	25
NSR3	148113	55704	S3	148134	55659	59	50	34	25
NSR4	148091	55626	S3	148134	55659	59	54	35	24
NSR5	148111	55605	S3	148134	55659	59	59	35	23
NSR6	148131	55591	S4	148155	55649	59	63	36	23
NSR7	148154	55576	S5	148196	55617	59	59	35	23
NSR8	148212	55529	S6	148233	55586	59	61	36	23
NSR9	148241	55520	S7	148275	55542	59	40	32	27
NSR10	148256	55525	S7	148275	55542	59	25	28	31
NSR11	148457	55540	S8	148442	55540	59	15	24	35
NSR12	148477	55535	S9	148462	55555	59	25	28	31
NSR13	148489	55532	S9	148462	55555	59	35	31	28
NSR14	148509	55529	S9	148462	55555	59	54	35	24
NSR15	148521	55525	S10	148511	55586	59	62	36	23
NSR16	148592	55506	S11	148602	55586	59	81	38	21
NSR17	148605	55506	S11	148602	55586	59	80	38	21
NSR18	148645	55515	S12	148655	55581	59	67	36	22
NSR19	148646	55535	S12	148655	55581	59	47	33	25
NSR20	148648	55551	S12	148655	55581	59	31	30	29
NSR21	148668	55562	S13	148671	55579	59	17	25	34
NSR22	148687	55561	S14	148684	55578	59	17	25	34
NSR23	148709	55559	S15	148708	55577	59	18	25	34
NSR24	148728	55555	S15	148708	55577	59	30	29	29
NSR25	148758	55599	S16	148750	55622	59	24	28	31
NSR26	148753	55607	S16	148745	55620	59	15	24	35
NSR27	148735	55726	S17	148734	55637	59	89	39	20

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Receptor (R)			Construction Source (S)			Divergence			
Ref _R	X _R	Y _R	Refs	X _S	Y _S	L _S (dB)	Dist (m)	A _{div} (dB)	L _{Aeq} (dB)
NSR28	148736	55733	S17	148734	55637	59	96	40	19
NSR29	148727	55744	S18	148620	55749	59	107	41	18
NSR30	148446	55892	S19	148480	55793	59	105	40	18

$$\text{Dist} = \sqrt{(X_R - X_S)^2 + (Y_R - Y_S)^2}$$

$$A_{\text{div}} = 20 \cdot \text{Log} \left(\frac{\text{dist}}{d_0} \right)$$

$$L_R = L_S - A_{\text{div}}$$

$$\text{Total LAeq} = 10 \cdot \text{Log} \sum_{i=1}^n 10^{L_{R_i}/10}$$

when S = source & R = receptor
 when d₀ = 1m
 when L_S = source noise level & L_R = individual noise level at receptor
 when L_R = individual noise level at receptor

6.7 EVALUATION OF THE RESULTS

6.7.1 EPA (NG4) SCREENING – DISCUSSION

6.7.1.1 Quiet Area Screening

The proposed development location does not comply with all criteria, as per the checklist outlined in Table 6.11 above.

Therefore, it is considered that the development would not be located within a ‘*Quiet Area*’, as per EPA NG4 Guidance.

6.7.1.2 Areas of Low Background Noise Screening

Noise monitoring has indicated that the average ambient LA₉₀ noise level is equal to the daytime threshold levels outlined in Step 3, Chapter 4.4.2 of the EPA NG4 guidance document, as per Table 6.12 above.

Given the noise monitoring results obtained and the character of the area, there is potential that this area would be considered a ‘*Low Background Noise Area*’.

Therefore, recommended *Low Background Noise Limits* would be applicable to the site during the operational phase.

Table 6.15: Recommended Noise Limits

Period	Time Period	Limit
Daytime	07:00 to 19:00 hrs	45 dB(A)
Evening	19:00 to 23:00 hrs	40 dB(A)
Night-time	23:00 to 07:00 hrs	35 dB(A)

6.7.2 BASELINE NOISE ASSESSMENT – DISCUSSION

Baseline noise monitoring was carried out at seven monitoring locations in the vicinity of the closest noise sensitive receptors to the proposed site boundary.

Noise, as a result of passing traffic on the local roads, was detected at all locations and is noted as being intermittent in nature.

Other noise sources noted included bird song, crow & magpie calls.

Human related sources audible included vehicle operation, raised voices, door banging, lawn mowing and agricultural activities, the majority of which were associated with a local residential development.

All of these sources would be considered typical for small urban and peri-urban areas.

6.7.3 PREDICTIVE NOISE ASSESSMENT – DISCUSSION

The proposed site is peri-urban in character with residences in the area predominantly linearly aligned along the existing road network and in high-density residential development.

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The principal factor influencing the mitigation of noise from the proposed development is its distance from noise sensitive receptors. Increasing distance from a noise source significantly increases the attenuation of noise as sound energy reduces by the inverse of the square of distance travelled (inverse square law).

The terrain between the proposed development and the closest noise sensitive receptors is primarily comprised of local roads, open green areas, fencing and hedgerows.

Existing made ground, such as high concrete block walls, would be considered 'reflective'. However, for the purpose of this impact assessment such structures will be neglected, as future events may see their removal.

6.7.3.1 Construction Phase

The table below show the average ambient noise monitoring results taken at the seven noise monitoring locations outlined above, rounded to the nearest 5 dB as per the BS5228 'ABC Method'.

Table 6.16: Ambient Noise Monitoring Results

Ref.	LAeq (dB)	Rounded to nearest 5 (dB)
NM1	49	50
NM2	63	65
NM3	58	60
NM4	49	50
NM5	52	50
NM6	51	50
NM7	45	45
Average	57	60

Table 6.16 shows that, when rounded to the nearest 5 dB, the daytime ambient noise levels taken at NM locations in the vicinity of the proposed site range between 45 – 65 dB, with a combined rounded average of 60 dB.

Therefore, the site would be designated as 'Category A' as defined in Table 6.3 and a noise *threshold* of 65 dB would apply to the construction phase of the development at the closest noise sensitive receptors.

It is anticipated that peak construction noise would be a dominant source of noise in the vicinity of the site, with the character of construction type noise being more clearly audible during intermittent impulsive noise events.

Table 6.17 below shows the difference between the calculated potential noise impact at the closest NSR's during the construction phase, taken from Table 6.13, compared to the calculated *ABC threshold* of 65 dB determined above.

Table 6.17: Predicted Noise Impact at Noise Sensitive Receptors – C&D

Ref.	LAeq (dB) at NSR	ABC Construction Limit (dB)	Difference (dB)
NSR1	63	65	-2
NSR2	66		1

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NSR3	65	0
NSR4	64	-1
NSR5	64	-1
NSR6	63	-2
NSR7	64	-1
NSR8	63	-2
NSR9	67	2
NSR10	71	6
NSR11	75	10
NSR12	71	6
NSR13	68	3
NSR14	64	-1
NSR15	63	-2
NSR16	61	-4
NSR17	61	-4
NSR18	63	-2
NSR19	66	1
NSR20	69	4
NSR21	74	9
NSR22	74	9
NSR23	74	9
NSR24	70	5
NSR25	71	6
NSR26	75	10
NSR27	60	-5
NSR28	59	-6
NSR29	58	-7
NSR30	59	-6

Using the *max* construction source noise level of 99 dB, as outlined in Table 6.8 and the reduction of noise, as a result of the distance outlined in Table 6.11, it was possible to calculate the potential noise impact at the closest noise sensitive receptors.

As can be seen from Table 6.17 above, the calculated potential construction noise levels at the closest NSR's would range between -7 dB below & 10 dB above the 65 dB threshold, with the maximum exceeded of 10 dB being noted at both NSR11 & NSR26.

It should be noted that the noise pressure level of 99 dB at a distant of 1-meter utilized in this calculation represents a *Roller (rolling fill)*.

The laying & rolling of hardcore surface and road, is a relative quick process in comparison to the construction of residential units.

Additionally, the operation of such plant machinery at a single location would be short-lived as works would progress throughout the overall site.

Construction noise levels were determined using distance calculations from the closest noise sensitive receptors only. It is anticipated that the above calculations are an over-estimate as they do not take into consideration existing *reflective* noise barriers in the vicinity of the site.

Additionally, sound attenuating effects such as sound degradation from ground absorption, air absorption, reflections and attenuation by surfaces, foliage and topography have not been considered.

Considering the short-term nature of the construction phase and the implementation of appropriate control measures, it is not anticipated that construction noise would result in a nuisance at the closest noise sensitive receptors.

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Where high noise construction activities are planned to take place, mitigation measures should be implemented as outlined within BS 5228:2014 Code of practice for noise and vibration control on construction and open sites – Part 1: Noise (i.e. temporary noise barriers), as appropriate.

An appropriately constructed and positioned noise barrier can reduce noise levels by a factor of between 10-15 dB, which would reduce all calculated exceedances of the 65 dB threshold to a compliant level.

6.7.3.2 Operational Phase

Using the combined source noise level of 59 dB to represent 24 x *Heat Pumps* at a single location, as outlined in Section 6.5.3.2 and the reduction of noise as a result of distance as outlined in Table 6.14, it was possible to calculate the potential noise impact at the closest noise sensitive receptors during the operational phase.

Table 6.18: Predicted Noise Impact at Noise Sensitive Receptors – Operational

Table 6.16: Predicted Noise Impact at Noise Sensitive Receptors – Operational			
Ref.	L _{Aeq} (dB) at NSR	EPA ‘Low Background’ Limit	Difference (dB)
Daytime			
NSR1	23	45	-22
NSR2	25		-20
NSR3	25		-20
NSR4	24		-21
NSR5	23		-22
NSR6	23		-22
NSR7	23		-22
NSR8	23		-22
NSR9	27		-18
NSR10	31		-14
NSR11	35		-10
NSR12	31		-14
NSR13	28		-17
NSR14	24		-21
NSR15	23		-22
NSR16	21		-24
NSR17	21		-24
NSR18	22		-23
NSR19	25		-20
NSR20	29		-16
NSR21	34		-11
NSR22	34		-11
NSR23	34		-11
NSR24	29		-16
NSR25	31		-14
NSR26	35		-10
NSR27	20		-25
NSR28	19		-26
NSR29	18		-27
NSR30	18		-27
Evening			
NSR1	23	40	-17
NSR2	25		-15
NSR3	25		-15
NSR4	24		-16
NSR5	23		-17
NSR6	23		-17
NSR7	23		-17

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Ref.	LAeq (dB) at NSR	EPA 'Low Background' Limit	Difference (dB)	
NSR8	23	35	-17	
NSR9	27		-13	
NSR10	31		-9	
NSR11	35		-5	
NSR12	31		-9	
NSR13	28		-12	
NSR14	24		-16	
NSR15	23		-17	
NSR16	21		-19	
NSR17	21		-19	
NSR18	22		-18	
NSR19	25		-15	
NSR20	29		-11	
NSR21	34		-6	
NSR22	34		-6	
NSR23	34		-6	
NSR24	29		-11	
NSR25	31		-9	
NSR26	35		-5	
NSR27	20		-20	
NSR28	19		-21	
NSR29	18		-22	
NSR30	18		-22	
Night-time				
NSR1	23		35	-12
NSR2	25			-10
NSR3	25			-10
NSR4	24			-11
NSR5	23			-12
NSR6	23			-12
NSR7	23	-12		
NSR8	23	-12		
NSR9	27	-8		
NSR10	31	-4		
NSR11	35	0		
NSR12	31	-4		
NSR13	28	-7		
NSR14	24	-11		
NSR15	23	-12		
NSR16	21	-14		
NSR17	21	-14		
NSR18	22	-13		
NSR19	25	-10		
NSR20	29	-6		
NSR21	34	-1		
NSR22	34	-1		
NSR23	34	-1		
NSR24	29	-6		
NSR25	31	-4		
NSR26	35	0		
NSR27	20	-15		
NSR28	19	-16		
NSR29	18	-17		
NSR30	18	-17		

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As can be seen from Table 6.18 above, the calculated potential operational noise levels at the closest NSR's would range between -10 dB to -27 dB below the recommended low background daytime limit of 45 dB.

Table 6.18 also shows that calculated potential operational noise levels at the closest NSR's would range between -5 dB to -22 dB below the recommended low background evening limit of 40 dB.

Finally, Table 6.18 shows that the calculated potential operational noise levels at the closest NSR's would range between 0 dB to -17 dB below the recommended low background night-time limit of 35 dB.

Operational noise levels were determined using distance calculations from the closest noise sensitive receptors only. It is anticipated that the above calculations are an over-estimate as they do not take into consideration existing *reflective* noise barriers, such as garden walls & fencing, in the vicinity of the heat pumps, which would likely be positioned at ground level.

Additionally, sound attenuating effects such as sound degradation from ground absorption, air absorption, reflections and attenuation by surfaces, foliage and topography have not been considered.

The distance utilized as part of the operational noise attenuation calculation in Table 6.14 were from the '*NSR's to the same closest proposed residential unit footprint or proposed roadway*'. For a number of the said calculations, these distances are an overestimate, as Heat Pumps would be likely positioned on the facade of the proposed residential unit rather than at the boundary of the construction footprint, which would include rear garden areas.

It should also be noted that the potential for 24 x Heat Pumps to be located at a single location applies to the unit containing the 24 x apartments only. This unit is located at the north-western corner of the site and would have the potential to generate an impact at NSR1 – NSR3 only, which were calculated to range between – 22 dB to – 10 dB below the respective limits.

Therefore, during the worst-case operational phase of the development, it is not anticipated that the proposed development would result in a nuisance at the closest sensitive receptors.

6.7.3.3 Strategic Noise Mapping

NOISE ROUND 4 ROAD L_{DEN} & L_{NIGHT}

The strategic noise mapping of the major roads across Ireland was undertaken by the National Roads Authority with the support of the local authorities within whose functional areas the major roads were located.

They provide supplementary information relating to the Noise Action Plans developed in 2013 for the major roads in Ireland as part of the second round of the implementation of the EC Directive 2002/49/EC. The Directive was transposed in Ireland as Statutory Instrument, S.I. 140 of 2006, Environmental Noise Regulation 2006.

L_{den} Is the 24-hour noise rating level determined by the averaging of the L_{day} with the $L_{evening}$ plus a 5 dB penalty and the L_{night} plus a 10 dB penalty.

Where:

L_{day} is the A-weighted long-term average sound level as defined in ISO 1996-2, determined over all the day periods of a year;

$L_{evening}$ is the A-weighted long-term average sound level as defined in ISO 1996-2, determined over all the evening periods of a year;

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L_{night} is the A-weighted long-term average sound level as defined in ISO 1996-2, determined over all the night periods of a year.

As can be seen from the Noise Round 4 Road L_{DEN} and L_{NIGHT} maps provided in *Appendix 6.1*, the closest major road to the site is the N71 National Road, which is located at a sufficient distance from the site so as not to result in a nuisance.

Therefore, it was determined that a *ProPG: Planning & Noise – Risk Assessment* was not required for this proposed residential development. This was also bolstered by the low background noise level recorded during the baseline survey in the vicinity of the proposed site.

6.8 NOISE ASSESSMENT CONCLUSIONS

As a result of this baseline noise survey and predictive analysis on the potential impact of the proposed development on noise at sensitive receptors, the following conclusions have been made:

- It is considered that the development would not be located within a ‘*Quiet Area*’, as the proposed development location does not comply with all criteria, as per the checklist outlined in Table 6.11.
- Noise monitoring has indicated that the average background LA_{90} noise levels are equal to the daytime threshold levels outlined in Step 3, Chapter 4.4.2 of the EPA document Guidance Note on Noise (NG4), as per Table 6.12 above.

Given the noise monitoring results obtained and the character of the area, it is likely that this area would be considered a ‘*Low Background Noise Area*’.

- When rounded to the nearest 5 dB, the daytime ambient LA_{eq} noise levels taken at the NM locations in the vicinity of the proposed site range between 45 – 65 dB, with a rounded average of 60 dB.

Therefore, the site would be designated as ‘*Category A*’ as per the BS 5228 ‘*ABC Method*’ and a noise *threshold* of 65 dB would apply to the construction phase of the development.

- It was calculated that the potential construction noise levels at the 30 closest defined NSR’s would range between -7 dB below & 10 dB above the 65 dB threshold, with the maximum exceeded of 10 dB being noted at both NSR11 & NSR26.

It should be noted that the noise pressure level of 99 dB at a distant of 1-meter utilized in this calculation represents a *Roller (rolling fill)*. The laying & rolling of hardcore surface and road, is a relative quick process in comparison to the construction of residential units.

Additionally, the operation of such plant machinery at a single location would be short-lived as works would progress throughout the overall site.

Considering the short-term nature of the construction phase and the implementation of appropriate control measures, it is not anticipated that construction noise would result in a nuisance at the closest noise sensitive receptors.

- The calculated worst-case operational noise levels at the 30 closest defined NSR’s would range between -10 dB to -27 dB below the recommended daytime low background limit of 45 dB.

The calculated worst-case operational noise levels at the 30 closest defined NSR’s would range between -5 dB to -22 dB below the recommended evening low background limit of 40 dB.

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The calculated worst-case operational noise levels at the 30 closest defined NSR's would range between 0 dB to -17 dB below the recommended night-time low background limit of 35 dB.

It should also be noted that the potential for 24 x Heat Pumps to be located at a single location applies to the unit containing the 24 x apartments only. This unit is located at the north-western corner of the site and would have the potential to generate an impact at NSR1 – NSR3 only, which were calculated to range between – 22 dB to – 10 dB below the respective limits.

- All calculations would be considered worst-case scenario as noise levels were determined using distance calculations from the closest noise sensitive receptors only.

It is anticipated that the above calculations are an over-estimate as they do not take into consideration existing reflective noise barriers in the vicinity of the site.

Additionally, sound attenuating effects such as sound degradation from ground absorption, air absorption, reflections and attenuation by surfaces, foliage and topography have not been considered.

- It is the conclusion of this report that, once the recommended control measures are put in place, the proposed development is unlikely to generate a nuisance at the closest noise sensitive receptors to the proposed boundary.

6.9 NOISE MITIGATION

6.9.1 MITIGATION – CONSTRUCTION

The following noise control measures should be implemented by the construction works contractor for the duration of the construction phase of the proposed development:

- Plant and machinery used on-site would comply with the EC (Construction Plant and Equipment) Permissible Noise Levels Regulations, 1988 (S.I. No. 320 of 1988). All noise producing equipment would comply with S.I. No 632 of 2001 European Communities (Noise Emission by Equipment for Use Outdoors) Regulations 2001;
- All construction activities would take place between 7:00am – 19:00pm, Monday to Friday, and 7:00am – 13:00pm on Saturdays. Any works which, by necessity, are required to be carried out outside of these times would be notified to the relevant bodies and any potentially effected local residents in good time and prior to specified works commencing;
- No plant used on site would be permitted to cause an ongoing public nuisance due to noise;
- Deliveries would be organised to arrive during daytime hours (between 7:00am – 19:00pm, Monday to Friday, and 7:00am – 12:00pm on Saturdays);
- Care would be taken when unloading vehicles to minimise noise disturbance. Materials should be lowered, not dropped, insofar as practicable and safe;
- Regular maintenance would be carried out on all construction equipment, machinery and vehicles;
- Construction plant would be operated in accordance with the operator's instructions;
- Engine and machinery covers would be maintained in good working order and would remain closed whenever machinery is in use;
- Where practicable, all mechanical plant would be fitted with effective exhaust silences and pneumatic tools fitted with mufflers or silencers;
- Any generators required would be silenced or of sound reduced models fitted with acoustic enclosures;
- Construction plant would be selected, where possible, with low inherent potential for the generation of noise;

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- Construction plant would be switched off or throttled back to a minimum when not in use;
- Staff personnel would be instructed to avoid unnecessary revving of machinery;
- Site roads will be maintained in a clean condition and the site speed limit of 15 km/hr will be strictly adhered to.
- Site personnel would notify the Project Manager in the event equipment or plant becomes defective, resulting in high noise emissions. Any defective plant would be kept out of service until the necessary repairs are undertaken.
- Noise monitoring should be undertaken in the event of a complaint or during critical periods of construction works, including rock breaking during foundation excavation (should it arise).
- All noise mitigation measure should be included in the site induction for all workers and contractors.
- Where high noise construction activities are planned to take place, consider mitigation measures as outlined within BS 5228:2014 Code of practice for noise and vibration control on construction and open sites – Part 1: Noise (i.e. temporary noise barriers), as appropriate.
- Additional temporary acoustic screening at the source should be employed by the contractor where excessive noise is foreseen over extended durations and when operating in close proximity to NSR11 & NSR26.
- Site management should include a designated liaison person as a point of contact for the local residences. Contact information should be located at the site entrance.

Cognisance should be taken of:

- the National Roads Authority's '*Guidelines for the Treatment of Noise and Vibration in National Road Schemes*',
- the British Standard 5228: Part 1 '*Code of practice for Noise Control on Construction and Open Sites*',
- the CIRIA 2015 '*Environmental Good Practice on Site*'.

6.9.2 MITIGATION – OPERATIONAL

The following noise control measures should be implemented by the site operator during the operational phase of the proposed development:

- Where possible, heat pumps should be sufficiently located on the facade of the proposed units resulting in potential noise emission being directed away from existing noise sensitive receptors.

6.10 RESIDUAL NOISE

Following implementation of the recommended noise mitigation measures, there would be no significant impact to the noise environment at noise sensitive receptor locations.

6.11 VIBRATION

6.11.1 CONSTRUCTION PHASE

The construction phase of the proposed development will have a duration of approximately 3 years. This period will invariably involve a number of vibration generating activities, such as excavation works, the laying of internal roads, foundation and structural works, the raising of buildings and other structures, as well as heavy vehicle movements to and from the site.

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Vibrations arising from the construction phase of the proposed development would be amenable to mitigation by adopting standard good practices and controls. Furthermore, construction activities at the site will be short term. Therefore, it is not anticipated that these activities will have significant effects on nearby sensitive receptors.

6.11.2 OPERATIONAL PHASE

It is not anticipated that there will be any significant sources of vibration arising from activities related to the proposed site during its operational phase. Additionally, it is not anticipated that there would be the potential for significant cumulative effects with other developments.

6.12 REFERENCES

- EPA, *Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4)*, 2016.
- EPA, *Environmental Noise Survey Guidance Document*, 2003.
- ISO 9613 – *Attenuation of Sound during Propagation Outdoors*:
 - Part 2: General method of calculation
- ISO 1996 – *Acoustics: Description, measurement and assessment of environmental noise*:
 - Part 1: Basic quantities and assessment procedures.
 - Part 2: Determination of sound pressure levels.
 - Part 3: Application to noise limits.
- EN BS 5228-1:2009 *Code of practice for noise and vibration control on construction and open sites*.
- National Roads Authority, *Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes*, 2014.
- National Roads Authority, *Guidance for the Treatment of Noise and Vibrations in National Road Schemes*, 2004.
- Grant S. Anderson and Ulrich J. Kurze, *Outdoor Sound Propagation*, Chpt. 5 in *Noise and Vibration Control Engineering – Principals and Applications*, edited by L.L. Beranek and I.L. Vér, (John Wiley & Sons, NY, NY 1992).

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7.0 LANDSCAPE & VISUAL

This chapter of the Environmental Impact Assessment Report (EIAR) presents an assessment of likely significant effects from the proposed development in relation to landscape and visual impacts during the construction and operational phases.

This chapter sets out the methodology adopted; describes the baseline landscape and visual environment of the subject site and its wider context; and summarises the key characteristics of the proposed development relevant to landscape and visual considerations. It identifies and assesses the likely significant effects on landscape and visual receptors; outlines mitigation measures, including embedded design measures, to avoid, prevent, reduce or offset potential adverse effects; and evaluates the likely residual effects following implementation of mitigation. Cumulative landscape and visual effects are also considered. A reference section is provided at the end of the report.

This LVIA has been prepared by Seamus Donohoe of Purser. Seamus holds degrees in Landscape Architecture (BAgrSc Landscape Architecture, University College Dublin, 2010) and Town Planning (MRUP – Masters of Regional and Urban Planning, University College Dublin, 2013). He is a Registered Landscape Architect and Member of the Irish Landscape Institute, a Corporate Member of the Irish Planning Institute, and a Chartered Member of the Royal Town Planning Institute. He has over 15 years' professional experience in Landscape and Visual Impact Assessment.

This assessment should be read in conjunction with the planning drawings and particulars submitted with the application, including the verified photomontages prepared by 3D Design Bureau.

7.1 METHODOLOGY

7.1.1 GENERAL APPROACH

This chapter sets out the methodology developed by Purser to assess the likely effects of new development on the townscape, landscape, and visual amenity. It draws upon best practice guidance set out in the:

- Guidelines for Landscape and Visual Impact Assessment, 3rd edition, 2013 (GLVIA), published by the Landscape Institute;
- Technical Information Note on Landscape Character Assessment, 2016, published by the Landscape Institute;
- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports, 2022, published by the EPA;
- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment, 2018, published by the Department of Housing, Planning and Local Government.

The assessment methodology takes into account EU Directives in relation to Environmental Impact Assessment (EIA), Planning Legislation (including the Planning and Development Act 2000 (as amended), the Planning and Development Regulations 2001 (as amended)), and national, regional and local planning policy and guidance, in particular that relating to townscape, landscape, urban design, views, built heritage and supplementary guidance related to specific sites.

The area around the subject site was visited multiple times in between August 2025 and January 2026 to assess the potential visibility of the proposed development and its potential impact on the landscape character of the surrounding area.

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The EPA guidelines 2022 provide a general methodology and impact ratings for all types of specialist assessments. The GLVIA provides specific guidelines for landscape and visual impact assessments. Therefore, a combination of the EPA guidelines, the Landscape Institute guidelines and professional experience has informed the methodology for this assessment.

The European Landscape Convention defines landscape as “*an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors*”. This expands beyond the idea that landscape is only a matter of aesthetics and visual amenity. It recognises landscape as a resource in its own right, providing a complex range of cultural, environmental and economic benefits to individuals and society.

7.1.2 KEY PRINCIPLES OF THE GLVIA

Use of the Term ‘Effect’ vs ‘Impact’

The GLVIA requires that the terms ‘impact’ and ‘effect’ be clearly distinguished and consistently used. ‘Impact’ is defined as the action being taken, e.g. the introduction of buildings, infrastructure or landscaping to the landscape. ‘Effect’ is defined as the change resulting from those actions, e.g. change in landscape character or in the amenity value of a view.

Assessment of Landscape and Visual Effects

The GLVIA requires that landscape effects and visual effects be assessed separately, although they are closely related.

- **Landscape Impact Assessment (LIA)** relates to changes to the elements, characteristics and qualities that define landscape character. This includes effects on landscape features, landscape character areas and the landscape as a resource.
- **Visual Impact Assessment (VIA)** relates to changes in views and visual amenity experienced by people at specific locations or engaged in particular activities. It considers the composition of views, the response of receptors to change, and the overall effect on visual amenity, including both daytime and nighttime conditions.

Although assessed separately, landscape and visual effects are collectively referred to throughout this report as LVIA.

Cumulative Effects

Cumulative landscape and visual impact assessment considers additional changes to the landscape or visual amenity arising from the proposed development in combination with other permitted or proposed developments of notable scale within the study area.

7.1.3 DESKTOP STUDY

The desktop study comprised of the following:

- Review of potential visibility across the study area through examination of Ordnance Survey Ireland Discovery Series mapping and manual visual appraisal of terrain to identify areas from which the development may theoretically be visible.
- Review of relevant County Development Plan, particularly with regard to sensitive landscape and scenic view/route designations.
- Review of map resources to identify settlements and transport routes within the study area that may be potential visual receptors.

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- Online review of tourism, recreational and heritage features within the study area that may be potential visual receptors.
- Selection of potential Viewshed Reference Points (VRPs) from key visual receptors to be investigated during fieldwork for actual visibility and sensitivity.
- Production of draft / wireframe images of the development at each potential viewpoint to aid viewpoint selection.

Fieldwork comprised of the following:

- Examination of the landscape character of the proposed development area and its immediate surrounds as well as the wider study area.
- Investigation of potential viewpoint locations identified at the desk study stage and selection / rejection of each.
- Selection of other relevant viewpoints that may not have been apparent from the desk study (local monuments, walkways etc.).
- Capture of high-quality base photography in clear viewing conditions from which to prepare photomontages of the proposed development during both daytime.
- Viewpoints were presented to the relevant local authorities and no objections to the viewpoints proposed were received.

Assessment comprised of the following:

- Assessment of landscape sensitivity.
- Assessment of the magnitude of landscape impacts.
- Assessment of the likely significance of landscape effects.
- Assessment of visual receptor sensitivity.
- Assessment of the magnitude of visual impact upon receptors at representative viewpoint locations (supported by verifiable photomontages).
- Assessment of the likely significance of visual effects.
- Assessment of cumulative landscape and visual effects.

The sensitivity of Landscape and Visual receptors is derived from combining susceptibility to change and professional judgement of the value of the receptor to determine overall sensitivity. Similarly, the magnitude of impacts is derived from combining professional judgements in respect of the size, scale and nature of the impact with considerations of duration and reversibility. Sensitivity and magnitude judgements are then considered together using the significance matrix to determine the overall significance of effect (see **Figure 7.1**). Although the terminology differs slightly to that used in the EPA EIAR guidance, it is consistent with LVIA best practice and GLVIA3, which requires that those effects deemed to be significant in EIA terms are clearly set out. In this case negative effects of Major or Greater are deemed significant in EIA terms. It should also be noted that the EPA guidance allows for topic specific guidance to be used where it exists.

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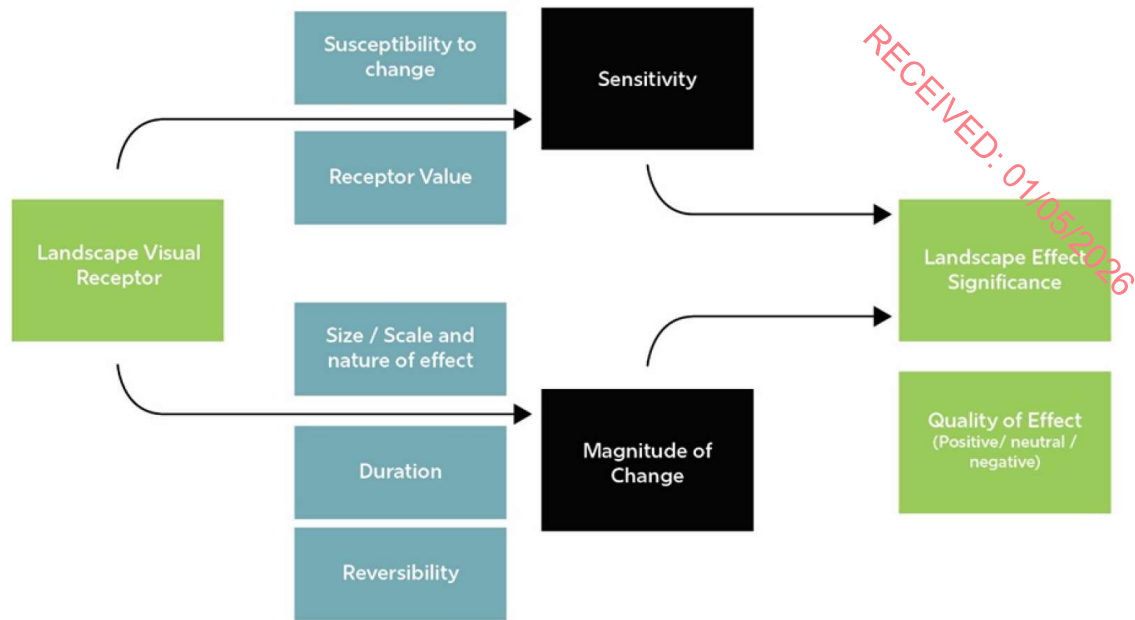


Figure 7.1: Overview of Landscape and Visual Assessment Process derived from GLVIA3.

7.1.4 STUDY AREA

The extent of a proposed study area for an LVIA arises from the nature of the site and the wider landscape, along with the specifics of the proposed development. A 2.5km radius study area has been determined based on site visits, mapping analysis and local environmental features. Initial assessments show that the presence of intervening vegetation, topography and surrounding structures significantly restricts visibility confining potential landscape and visual impacts primarily within 2.5km of the site. Beyond this, the proposed development would be largely obscured, with any residual visibility and highly diminished.

This approach reflects findings from similar developments, which indicate limited discernibility and no significant landscape impact beyond approximately 2.5km. Additionally, this limited scope aligns with the proportional impact assessment approach endorsed by the Guidelines for Landscape and Visual Impact Assessment, Third Edition (GLVIA3), emphasizing that study areas should reflect the scale and visibility of the development while remaining focused on areas of potential impact.

The choice of a 2.5km study area balances thoroughness with relevance, ensuring that all significant receptors within this range are assessed, while unnecessary assessments of visually unaffected areas are avoided.

An emphasis has been placed on receptors around the boundary of the site as these are more likely/most likely to have the capacity to experience significant visual effects. It should not be inferred that the proposed development is unlikely to be visible from any location beyond the study area, but, more importantly, that the proposed development is unlikely to influence such receptors in a significant manner.

7.1.5 METHODOLOGY FOR ASSESSMENT OF EFFECTS

The assessment of landscape effects is separate to that of visual effects and thus, the criteria also differ. Nonetheless, both forms of assessment rely on the weighing of receptor sensitivity against impact magnitude. Although not identical to the sample criteria used in the EPA guidelines (2022), the criteria

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contained in **Tables 13.2, 13.3 and 13.4** is consistent with LVIA best practice in the UK and Ireland and corresponds closely with the EPA criteria. As identified in the Guidelines for Landscape and Visual Impact Assessment (2013), the critical factor is to clearly identify which judgements equate to significant effects in EIA terms.

7.1.6 LANDSCAPE SENSITIVITY

The sensitivity of the landscape to change relates to susceptibility and value, determining the degree to which a particular landscape receptor (Landscape Character Area (LCA) or feature) can accommodate changes or new features without unacceptable detrimental effects to its essential characteristics.

‘Landscape Susceptibility’ relates to the ability of the receptor to accommodate change and this relates to the scale and nature of the type of development in question rather than simply intrinsic susceptibility. Factors to be considered include the naturalistic qualities of the receptor and its quality / condition (pristine or degraded) as well as cultural and social associations to the landscape. Also considered are perceptual aspects such as remoteness / tranquilly, degree of enclosure / openness, movement, and aesthetic qualities.

Table 7.1: Landscape Susceptibility

Higher Susceptibility Criteria	Lower Susceptibility Criteria
Perceptual Qualities: The landscape has strong scenic qualities associated with naturalness and tranquilly.	The landscape has a high degree of contemporary development associated with settlement, industry, and primary production.
Condition: The landscape has a high degree of integrity and utility indicating care and management.	The landscape is degraded with unutilised or waste areas apparent and with little sign of care or management.
Scale / Simplicity: The landscape is intricate and complex where large scale development could generate scale conflict	The landscape is of a broad scale with simple legible elements that can accommodate large development without a sense of scale conflict.
Intensity and scale of existing development: The landscape has high levels of existing development of considerable scale and with associated movement.	The landscape has low levels of existing development and that which exists is of small scale and static in nature.
Openness / enclosure: The landscape is strongly enclosed with limited viewsheds that can be readily influenced by new and large-scale development.	The landscape is broad and open with expansive viewsheds that can readily accommodate new and large-scale development.

7.1.7 LANDSCAPE VALUE

Landscape Value relates to societal recognition of the receptor at a designated or non-designated level. It often relates to the rarity or representativeness of the receptor as well as its quality and condition. Recreational, conservation, tourism and scenic value are also key considerations. Higher order value is likely to be associated with landscapes that are designated for protection at a national or international level, whereas lower order value might be associated with rural or coastal productivity.

Table 7.2: Landscape Value

Higher Value Criteria	Lower Value Criteria
Designation: The landscape is protected by National / international level policy in relation to its natural and scenic beauty.	The landscape does not have a formal designation of protection or cautious management.
Rarity: The landscape is rare or unique at a national or regional level.	The landscape type is commonly found throughout the local, regional, and national context.
Cultural Associations: The landscape is strongly associated with cultural traditions, historic events or myth and legend.	The landscape is not recognised as being associated with cultural traditions, historic events or myth and legend.

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Scenic / Perceptual: The landscape has a high degree of scenic value associated with naturalistic, conservation value and tranquillity.	The landscape has no recognised scenic value and is associated with settlement, cultivation development and production.
Tourism, recreation, and amenity: The landscape is strongly associated with tourism recreation and amenity and attracts high number of visitors.	The landscape is not associated with tourism recreation and amenity and is not recognised as a draw for visitors.

Taking consideration of susceptibility and value attributes, overall Landscape Sensitivity is classified using the following criteria (**Table 7.3**).

Table 7.3: Significance of Landscape Effects Matrix

Sensitivity	Definition
Very High	Areas where the landscape exhibits very strong, positive character with valued elements, features and characteristics that combine to give an experience of unity, richness and harmony. The landscape character is such that its capacity to accommodate change is very low. These attributes are recognised in policy or designations as being of national or international value and the principal management objective for the area is protection of the existing character from change.
High	Areas where the landscape exhibits strong, positive character with valued elements, features and characteristics. The landscape character is such that it has limited/low capacity to accommodate change. These attributes are recognised in policy or designations as being of national, regional or county value and the principal management objective for the area is the conservation of existing character.
Medium	Areas where the landscape has certain valued elements, features or characteristics but where the character is mixed or not particularly strong, or has evidence of alteration, degradation or erosion of elements and characteristics. The landscape character is such that there is some capacity for change. These areas may be recognised in policy at local or county level and the principal management objective may be to consolidate landscape character or facilitate appropriate, necessary change.
Low	Areas where the landscape has few valued elements, features or characteristics and the character is weak. The character is such that it has capacity for change; where development would make no significant change or would make a positive change. Such landscapes are generally unrecognised in policy and the principal management objective may be to facilitate change through development, repair, restoration or enhancement.
Negligible	Areas where the landscape exhibits negative character, with no valued elements, features or characteristics. The character is such that its capacity to accommodate change is high; where development would make no significant change or would make a positive change. Such landscapes include derelict industrial lands, as well as sites or areas that are designated for a particular type of development. The principal management objective for the area is to facilitate change in the landscape through development, repair or restoration.

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7.1.8 LANDSCAPE IMPACT MAGNITUDE

The magnitude of a predicted landscape impact is a product of the size and scale of change as a result of the proposed development in the context of the receptor, as well as the geographical extent across which it is likely to be experienced and to a lesser extent the duration and reversibility of the effect.

The size and scale of the impact is the degree of change that will occur as a result of existing elements being lost and/or new ones introduced and is a measure of the degree to which these changes alter the prevailing character of the landscape receptor. Higher order judgements are likely to result from dramatic change to a substantial proportion of the receptor in question. However, this could be in the context of large-scale change at a single landscape space that would be experienced as a smaller effect for the broader landscape character area it is contained within.

The Geographical Extent of the impact is not how large or distinctive the physical development is, but the extent across which its impacts are experienced. Using the same example above, distinct change to a small parklet might be experienced as very localised impacts with a confined geographical extent. The loss or introduction of other elements might have effects experienced across a number of landscape character areas i.e. with a large geographical extent.

Taking consideration of the size and scale of the impact and its geographical extent, overall magnitude of landscape impacts is determined on the basis of the criteria contained in **Table 7.4**.

Table 7.4: Magnitude of Landscape Impacts

Magnitude of Impact	Definition
Very high	Change that is large in extent, resulting in the loss of or major alteration to key elements, features or characteristics of the landscape, and/or introduction of large elements considered totally uncharacteristic in the context. Such development results in fundamental change in the character of the landscape.
High	Change that is moderate to large in extent, resulting in major alteration to key elements, features or characteristics of the landscape, and/or introduction of large elements considered uncharacteristic in the context. Such development results in change to the character of the landscape.
Medium	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.
Low	Change that is moderate or limited in scale, resulting in minor alteration to key elements, features or characteristics of the landscape, and/or introduction of elements that are not uncharacteristic in the context. Such development results in minor change to the character of the landscape.
Negligible	Change that is limited in scale, resulting in no alteration to key elements features or characteristics of the landscape, and/or introduction of elements that are characteristic of the context. Such development results in no change to the landscape character.

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7.1.9 VISUAL RECEPTOR SENSITIVITY

Unlike landscape sensitivity, the sensitivity of visual receptors has an anthropocentric basis. It considers factors such as the perceived quality and values associated with the view, the landscape context of the viewer, the likely activity they are engaged in and whether this heightens their awareness of the surrounding landscape.

A list of the factors considered by the assessor in estimating the level of sensitivity for a particular visual receptor is outlined below and used in **Table 1.5** to establish visual receptor sensitivity at each representative viewpoint:

Susceptibility of Receptors

In accordance with the Institute of Environmental Management and Assessment (“IEMA”) Guidelines for Landscape and Visual Assessment (3rd edition 2013) visual receptors most susceptible to changes in views and visual amenity are:

- “Residents at home.
- People, whether residents or visitors, who are engaged in outdoor recreation, including use of public rights of way, whose attention or interest is likely to be focussed on the landscape and on particular views.
- Visitors to heritage assets, or to other attractions, where views of the surroundings are an important contributor to the experience.
- Communities where views contribute to the landscape setting enjoyed by residents in the area; and
- Travellers on road, rail, or other transport routes where such travel involves recognised scenic routes and awareness of views is likely to be heightened”.

Visual receptors that are less susceptible to changes in views and visual amenity include.

- “People engaged in outdoor sport or recreation, which does not involve or depend upon appreciation of views of the landscape; and
- People at their place of work whose attention may be focussed on their work or activity, not their surroundings and where the setting is not important to the quality of working life”.

Values Associated with Views

1. Recognised scenic value of the view (County Development Plan designations, guidebooks, touring maps, postcards etc). These represent a consensus in terms of which scenic views and routes within an area are strongly valued by the population because in the case of County Development Plans, for example, a public consultation process is required.
2. Views from within highly sensitive landscape areas. Again, highly sensitive landscape designations are usually part of a county’s Landscape Character Assessment, which is then incorporated within the County Development Plan and is therefore subject to the public consultation process. Viewers i.e. visual receptors, within such areas are likely to be highly attuned to the landscape around them.
3. Primary views from nearby dwellings. This category is reserved for those instances in which the design of dwellings or housing estates, has been influenced by the desire to take in a particular view. This might involve the use of a slope or the specific orientation of houses in the locality.
4. Intensity of use, popularity. This relates to the number of viewers likely to experience a view on a regular basis and whether this is significant at county or regional scale

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5. Provision of elevated panoramic views. This relates to the extent of the view on offer and the tendency for receptors to become more attuned to the surrounding landscape at locations that afford broad vistas.
6. Sense of remoteness and/or tranquillity. Receptors taking in a remote and tranquil scene, which is likely to be fairly static, are likely to be more aware of / affected by changes in the view than those taking in the view of a busy street scene, for example.
7. Degree of perceived naturalness. Where a view is valued for the sense of naturalness of the surrounding landscape it is likely to be highly sensitive to visual intrusion by distinctly manmade features.
8. Presence of striking or noteworthy features. A view might be strongly valued because it contains a distinctive and memorable landscape feature such as a promontory headland, lough or castle.
9. Historical, cultural and / or spiritual significance. Such attributes may be evident or sensed by receptors at certain viewing locations, which may attract visitors for the purposes of contemplation or reflection heightening the sense of their surroundings.
10. Rarity or uniqueness of the view. This might include the noteworthy representativeness of a certain landscape type and considers whether the receptor could take in similar views anywhere in the broader region or the country.
11. Integrity of the landscape character. This looks at the condition and intactness of the landscape in view and whether the landscape pattern is a regular one of few strongly related components or an irregular one containing a variety of disparate components.
12. Sense of place. This considers whether there is special sense of wholeness and harmony at the viewing location; and
13. Sense of awe. This considers whether the view inspires an overwhelming sense of scale or the power of nature.

Those locations which are deemed to satisfy many of the above criteria are likely to be of higher sensitivity. No relative importance is inferred by the order of listing. Overall sensitivity may be a result of a number of these factors or, alternatively, a strong association with one or two in particular. Visual receptor sensitivity is assessed on the bases of the criteria set out in **Table 7.5**.

Table 7.5: Visual Receptor Sensitivity

Visual Receptor Sensitivity	Viewer Susceptibility	View Value
Very High	Viewers who have sought out a particular view due to its remarkable scenic qualities and who are likely engaged in active or passive recreation. Minimal tolerance for change.	Unique views of remarkable scenic quality involving distinct, naturalistic or historic features that are designated for protection and/or obtained from landscapes protected by policy at a national or international level. Minimal tolerance for change.
High	Viewers travelling on designated scenic routes or engaged on active or passive recreation where views of the surrounding landscape are important to the experience and	Views of considerable scenic quality involving distinct, naturalistic or historic features that are designated for protection and/or obtained from landscapes

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	residents of areas where views contribute to the landscape setting. Low tolerance for change	protected by policy at a Regional / County level. Low tolerance for change.
Medium	Viewers travelling on routes that have some scenic quality or sense of tranquillity. Recreationalists engaged in activities where scenic amenity is appreciated, but not key to the experience and residents of areas where views do not contribute strongly to the landscape setting. Medium tolerance for change.	Views with some scenic quality that might involve notable, naturalistic or historic features that are not designated for protection and are not obtained from landscapes identified for protection. Medium tolerance for change.
Low	Viewers engaged in recreation that does not involve an appreciation of scenic amenity, those travelling on busy roads with little scenic quality within the surrounding landscape setting. People at their place of work where visual setting is not key to the working experience. High tolerance for change.	Views without recognised scenic quality that are typical in nature and without naturalistic and historic features present, but likely with utilitarian features present. High tolerance for change.
Negligible	Viewers engaged in activities or present at locations where visual amenity is not a consideration or where the visual setting is a detraction. High tolerance for change	Views without any amenity value where the visual setting may be degraded. High tolerance for change

7.1.10 VISUAL IMPACT MAGNITUDE

The criteria used to assess visual impact magnitude are included in **Table 7.6** below.

Table 7.6: Magnitude of Visual Impact

Magnitude of Impact	Definition
Very high	The proposal obstructs or intrudes into a large proportion or critical part of the available vista and is without question the most noticeable element. An extensive degree of visual change will occur within the scene completely altering its character, composition and associated visual amenity
High	The proposal obstructs or intrudes into a significant proportion or important part of the available vista and is one of the most noticeable elements. A considerable degree of visual change will occur within the scene substantially altering its character, composition and associated visual amenity
Medium	The proposal represents a moderate intrusion into the available vista and is a readily noticeable element. A noticeable degree of visual change will occur within the scene perceptibly altering its character, composition and associated visual amenity
Low	The proposal intrudes to a minor extent into the available vista and may not be noticed by a casual observer and/or the proposal would not have a marked effect on the visual amenity of the scene

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Negligible	The proposal would be barely discernible within the available vista and/or it would not influence the visual amenity of the scene
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7.1.11 LANDSCAPE AND VISUAL SIGNIFICANCE OF EFFECT

The significance of landscape and visual effect is based on a balance between the sensitivity of the landscape and visual receptor and the magnitude of the impact. The significance of landscape and visual effects is informed by the following matrix (**Table 7.7**), but ultimately determined by professional judgement:

Table 7.7: Landscape and Visual Impact Significance Matrix¹

Magnitude of Landscape / Visual Change	Sensitivity of Receptor				
	Very High	High	Medium	Low	Negligible
Very high	Profound	Profound - Very Significant	Very Significant - Significant	Moderate	Slight
High	Profound - very significant	Very Significant	Significant	Moderate - Slight	Slight - Not significant
Medium	Very Significant - Significant	Significant	Moderate	Slight	Not significant
Low	Moderate	Moderate - Slight	Slight	Not significant	Imperceptible
Negligible	Slight	Slight - Not Significant	Not significant	Imperceptible	Imperceptible

¹ The matrix (Table 7.7) is only a guide to the classification of impact significance. The assessor also uses professional judgement informed by their expertise, experience and common sense to arrive at a classification that is reasonable and justifiable. In the EPA guidelines the chart above is accompanied by a footnote that states: “The depiction of significance classifications is indicative and should not be relied on as being definitive. It is provided for general guidance purposes” (EPA guidelines Section 3, page 53). For example, according to the EPA chart a change of high magnitude affecting a receptor of medium sensitivity could be classified as either ‘significant’ or ‘moderate’. That judgement must be made by the assessor.

The indicative significance of effect criteria descriptions are set out in Table 1.8 below.

Table 7.8: Indicative significance of effect criteria descriptions

Significance of Effect	Landscape	Visual
Profound	There are notable changes in landscape characteristics over an extensive area or a very intensive change over a more limited area.	The view is entirely altered, obscured or affected.
Major	An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the landscape. There are notable changes in landscape characteristics over a substantial area or an intensive change over a more limited area.	An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the visual environment. The proposal affects a large proportion of the overall visual composition, or views are so affected that they form a new element in the physical landscape.
Moderate	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends. There are minor changes over some of the	An effect that alters the character of the visual environment in a manner that is consistent with existing and emerging trends. The proposal affects an appreciable segment of the overall visual

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	area or moderate changes in a localised area.	composition, or there is an intrusion in the foreground of a view.
Slight	An effect which causes noticeable changes in the character of the landscape without affecting its sensitivities. There are minor changes over a small proportion of the area or moderate changes in a localised area or changes that are reparable over time.	An effect which causes noticeable changes in the character of the visual environment without affecting its sensitivities. The affected view forms only a small element in the overall visual composition or changes the view in a marginal manner.
Imperceptible	An effect capable of measurement but without noticeable consequences. There are no noticeable changes to landscape context, character or features.	An effect capable of measurement but without noticeable consequences. Although the development may be visible, it would be difficult to discern resulting in minimal change to views.

7.1.12 REPRESENTATIVE VIEWPOINT SELECTION

The selection of viewpoints for this visual assessment was informed by thorough desktop analysis and field studies, ensuring a comprehensive representation of the visual impact across the receiving environment.

A total of 15 No. viewpoints (with 30 No. photomontages) have been selected for detailed assessment, with each viewpoint backed by verified photomontages. These viewpoints are specifically chosen to represent key landscape features, character areas, and groups of visual receptors within the vicinity of the proposed development.

All viewpoints are situated in publicly accessible areas, representing views from main roads, pedestrian zones, and notable viewing locations near the site. This strategic selection highlights views that are likely to be relevant for visual receptors in various contexts, including local residents, road users, and recreational visitors.

The visual impact assessment should be read alongside the baseline photographs and verified photomontages prepared by 3D Design Bureau and enclosed as part of this Application (available in **Appendix 7.1**).

7.1.13 QUALITY AND TIMESCALE OF EFFECTS

In addition to assessing the significance of landscape effects and visual effects, EPA Guidance for EIARs requires that the quality of the effects is also determined. This could be negative/adverse, neutral, or positive/beneficial.

The predicted impacts are also classified as beneficial (positive), neutral or adverse (negative). This is not an absolute exercise. In particular, visual receptors' attitudes to development, and thus their response to the impact of a development, will vary. However, the methodology applied is designed to provide robust justification for the conclusions drawn. These qualitative impacts / effects are defined as follows:

- **Adverse (negative):** Scheme at variance with landform, scale, pattern. Would degrade, diminish or destroy the integrity of valued features, elements or their setting or cause the quality of the landscape (landscape) / view to be diminished.

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- **Neutral:** Scheme complements the scale, landform and pattern of the landscape (landscape) / view and maintains landscape quality.
- **Beneficial (positive):** Scheme improves landscape (landscape) / view quality and character, fits with the scale, landform and pattern and enables the restoration of valued characteristic features or repairs / removes damage caused by existing land uses.

For landscape to a degree, but particularly for visual effects, this is an inherently subjective exercise. This is because landscape and visual amenity are perceived by people and are therefore subject to variations in the attitude and values - including aesthetic preferences - of the receptor. One person's attitude to a development may differ from another person's, and thus their response to the effects of a development on a landscape or view may vary.

Additionally, in certain situations there might be policy encouraging a particular development in an area, in which case the policy is effectively prescribing landscape and visual change. If a development achieves the objective of the policy the resulting effect might be considered positive, even if the landscape character or views are profoundly changed. The classification of quality of landscape and visual effects should seek to take these variables into account and provide a reasonable and robust assessment.

Landscape and Visual effects are also categorised according to their duration:

- Temporary – Lasting for one year or less.
- Short Term – Lasting one to seven years.
- Medium Term – Lasting seven to fifteen years.
- Long Term – Lasting fifteen years to sixty years; and
- Permanent – Lasting over sixty years.

The duration of effect is not used to increase or reduce the significance of effect judgement, but as a supplementary factor to be considered i.e. a significant effect might be considered more acceptable if its duration is temporary rather than permanent.

7.1.14 ASSESSMENT OF CUMULATIVE EFFECTS

Cumulative landscape and visual effects arise where the proposed development may be experienced in combination with other existing, permitted or proposed developments within the surrounding landscape.

A review of planning records and relevant development proposals within the wider study area was undertaken to identify projects with potential to give rise to cumulative landscape and visual effects. This review considered the location, scale, character and potential intervisibility of developments relative to the proposed development.

There are no developments within the vicinity of the subject site that give rise to meaningful potential for cumulative landscape or visual effects. While a number of small-scale developments, including individual dwellings and minor extensions, have been permitted in the wider area, these are not of a scale or nature that would contribute to cumulative effects and are therefore not considered further.

The Knockbrogan LRD development (Application Reg. Ref. 25/6376), comprising 212 residential units, is located approximately 650m to the east of the subject site. However, this development is both physically and visually separated from the subject site by intervening topography, vegetation and established urban development. As such, there is no intervisibility between the two sites and no potential for combined or sequential visual effects. Cork County Council issued a notification of decision to grant permission on the 12 March 2026. The appeal period will expire on the 8 April 2026.

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The Knockbrogan LRD development forms part of a wider permitted and under construction residential scheme granted under the following permissions: Application Reg. Refs. 21/4059 (59 no. units under construction), 23/6540 (77 no. units), 24/5147 (85 no. childcare space crèche), 24/5216/ABP Ref. 320810-24 (71 no. units under construction), 25/5834 (8 no. units). The overall development is located c.470m from the site (measured from the roadside edge on the Cork Road).

Accordingly, no developments have been identified that would give rise to significant cumulative landscape or visual effects in combination with the proposed development. In this context, the proposed development will be experienced as part of the ongoing pattern of residential development within Bandon, but will not result in cumulative landscape or visual effects of significance.

7.1.15 DATA COLLECTION AND COLLATION

Data used in the LVIA consists of written character assessment and guidance documents, online resources and technical data including:

- Relevant County Development Plans and associated County Landscape Character Assessments:
- Cork County Development Plan 2022-2028
- Online review of tourism, heritage and amenity features
- OSI mapping and aerial imagery including 'Google Earth' and 'Google Street View'.
- High resolution photography at selected viewpoints
- Geo-referenced 3D models of the various development elements used in the preparation of photomontages.

7.2 RELEVANT GUIDANCE AND POLICY

This section outlines the relevant legislative, policy and guidance framework considered in the preparation of this Chapter of the EIAR. The review begins with overarching national policy documents and proceeds to regional and county-level guidance relevant to the subject site and the proposed development.

There is a clear and supportive planning policy context for compact growth, sustainable residential development, and high-quality placemaking at national, regional and local levels. Landscape and visual considerations are embedded within this framework through policies relating to design quality, landscape protection, green infrastructure and amenity.

At local level, particular regard is given to the Cork County Development Plan 2022-2028, including policies and objectives relating to landscape character, visual amenity and environmental protection.

This section focuses on those aspects of the policy framework relevant to landscape and visual considerations. A comprehensive planning policy assessment is provided separately within the Planning Report prepared by HW Planning and submitted as part of this planning application.

7.2.1 CORK COUNTY DEVELOPMENT PLAN 2022-2028

The subject site lies within the functional area of Cork County Council and is therefore subject to the provisions of the Cork County Development Plan 2022-2028 (hereafter referred to as the "Development Plan").

The Development Plan establishes the statutory planning framework for the proper planning and sustainable development of the county, having regard to national and regional planning policy. It sets

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out the strategic vision, spatial strategy, and development management standards that guide the assessment of all planning applications within the county.

The Development Plan was adopted by the Elected Members of Cork County Council at a Meeting held on Monday, 25 April 2022 and came into effect on Monday, 6 June 2022.

7.2.2 ZONING

Under the Cork County Development Plan 2022–2028, the subject site is zoned: **“RE – Residential”**

The site is subject to Specific Objective: BD-R-01 – Medium A Residential Development. This objective states:

“The site supports habitats of biodiversity value; provision should be made for the retention and protection of the same within any new development where possible. Proposals to demonstrate how the stream is integrated into the layout from a biodiversity and placemaking approach is required.”

This zoning supports the principle of residential development at the site, subject to appropriate integration of:

- Existing landscape features
- Biodiversity assets
- Watercourses and green infrastructure

7.2.3 LANDSCAPE CHARACTER ASSESSMENT

Section 14.8 of the Cork County Development Plan 2022–2028 addresses Landscape Character Assessment (LCA) and sets out the framework for the classification, evaluation and management of landscapes across the County.

The Development Plan refers to the Cork County Landscape Character Assessment (2007), which identifies a total of 76 No. Landscape Character Areas, grouped into 16 No. Landscape Character Types based on shared characteristics. Each landscape type is assessed under the following criteria:

- Landscape Value – relating to the environmental, cultural and scenic qualities of the landscape
- Landscape Sensitivity – referring to the capacity of the landscape to accommodate change without adverse effects
- Landscape Importance – categorised as Local, County or National

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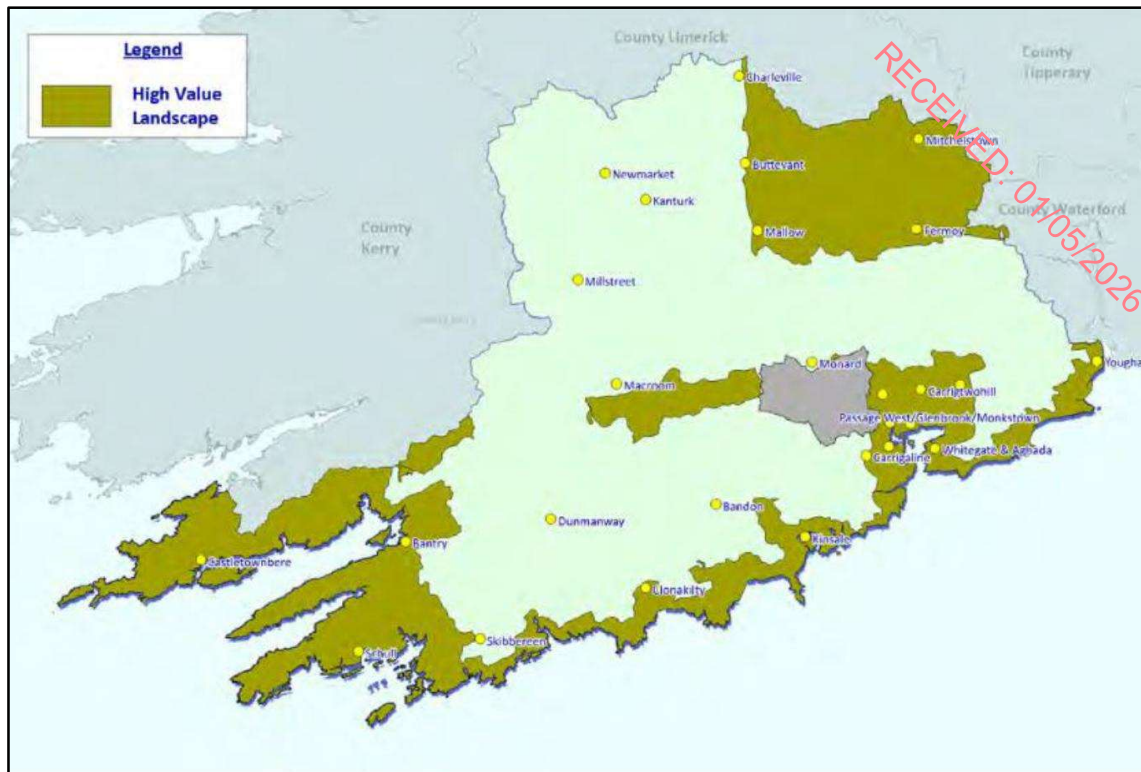


Figure 7.2: Figure 14-2–High Value Landscapes of the Cork County Development Plan 2022-2028.

The Plan outlines that landscapes with high or very high value and sensitivity, and of county or national importance, may be designated as High Value Landscapes (HVLs), where a greater level of protection and higher development standards apply.

Section 14.8 further states that the capacity of a landscape to absorb development is closely linked to its sensitivity, with more robust landscapes being better able to accommodate change. It emphasises that all development proposals must be assessed on a site-specific basis, with a view to avoiding, minimising or mitigating potential landscape and visual impacts.

The subject site at Convent Hill, Bandon is located within the: “Broad Fertile Lowland Valleys Landscape Type (Sub-type 6a)”.

This landscape type is characterised in the Development Plan as having:

- High Landscape Value
- High Landscape Sensitivity
- County-level Landscape Importance

Notwithstanding this classification, the subject site is located within the built-up area of Bandon, on an elevated site to the north-west of the town centre. The surrounding context is predominantly urban, comprising established residential development and associated infrastructure.

In this regard, while the wider landscape type is considered sensitive, the urbanised context of the site indicates a greater capacity to accommodate development, particularly where the proposed development is consistent with the existing settlement pattern.

However, the elevated nature of the site is a key consideration, as it increases the potential for visibility from surrounding areas. Accordingly, the Development Plan’s emphasis on high-quality design, siting, and landscape integration is of particular relevance to the proposed development.

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7.2.4 LANDSCAPE VIEWS AND PROSPECTS

Section 14.9 of the Cork County Development Plan 2022–2028 addresses Landscape Views and Prospects. It recognises that the County contains numerous vantage points from which views of significant natural beauty and amenity value can be obtained, including views of rivers, townscapes and surrounding landscapes.

The Development Plan identifies a number of designated Scenic Routes, which represent corridors from which important and valued views and prospects are experienced. These routes are considered an important landscape and tourism resource and are therefore afforded protection.

The Plan states that development proposals within or in proximity to scenic routes and important views should be assessed having regard to:

- The character of the landscape
- The significance of the views available
- The potential for obstruction or degradation of those views

The Development Plan also emphasises that development should be designed and sited to minimise visual intrusion, and that appropriate landscaping and screening measures should be incorporated where necessary.

In the context of the subject site, the nearest designated scenic route is:

- **S64 – N71 between Bandon and Inishannon (Views of the Bandon River and woodland)**

Due to intervening topography, established vegetation and existing built development, there is no visibility of the subject site from this route.

7.2.5 RELEVANT POLICIES AND OBJECTIVES

The Cork County Development Plan 2022–2028 includes a range of policies and objectives relating to landscape protection, visual amenity, green infrastructure, design quality and cultural heritage, which are of direct relevance to the proposed development at the subject site.

These are set out below.

7.2.6 LANDSCAPE PROTECTION

The Development Plan includes the following key objective:

GI 14-9: Landscape

- a) “Protect the visual and scenic amenities of County Cork’s built and natural environment.
- b) Landscape issues will be an important factor in all land-use proposals, ensuring that a pro-active view of development is undertaken while protecting the environment and heritage generally in line with the principle of sustainability.
- c) Ensure that new development meets high standards of siting and design.
- d) Protect skylines and ridgelines from development.
- e) Discourage proposals necessitating the removal of extensive amounts of trees, hedgerows and historic walls or other distinctive boundary treatments.”

In addition, the Development Plan states:

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GI 14-10: Draft Landscape Strategy

“Ensure that the management of development throughout the County will have regard for the value of the landscape, its character, distinctiveness and sensitivity as recognised in the Cork County Draft Landscape Strategy and its recommendations, in order to minimize the visual and environmental impact of development, particularly in areas designated as High Value Landscapes where higher development standards (layout, design, landscaping, materials used) will be required.”

GI 14-11: Draft Landscape Strategy, Land Use Plans and Policy Guidance

“Have regard to the Draft Cork County Landscape Strategy (2007) in the preparation of plans and other policy guidance being prepared during the lifetime of the Plan.

Review and update the Draft Cork County Landscape Strategy as soon as is practicable following the publication of a National Landscape Character Assessment as well as taking into account any associated guidelines.

Whilst advocating the protection of such scenic resources the Plan also recognises the fact that all landscapes are living and changing, and therefore in principle it is not proposed that this should give rise to the prohibition of development along these routes, but development, where permitted, should not hinder or obstruct these views and prospects and should be designed and located to minimise their impact. This principle will encourage appropriate landscaping and screen planting of developments along scenic routes.”

These policies require that development proposals respond appropriately to landscape character and minimise visual impacts. This is of particular relevance given the elevated nature of the subject site.

7.2.7 VIEWS, PROSPECTS AND SCENIC ROUTES

The Development Plan includes the following objectives relating to visual amenity:

GI 14-12: General Views and Prospects

“Preserve the character of all important views and prospects, particularly sea views, river or lake views, views of unspoilt mountains, upland or coastal landscapes, views of historical or cultural significance (including buildings and townscapes) and views of natural beauty as recognized in the Draft Landscape Strategy.”

GI 14-13: Scenic Routes

“Protect the character of those views and prospects obtainable from scenic routes and in particular stretches of scenic routes that have very special views and prospects identified in this Plan. The scenic routes identified in this Plan are shown on the scenic amenity maps in the CDP Map Browser and are listed in Volume 2 Heritage and Amenity Chapter 5 Scenic Routes of this Plan.”

GI 14-14: Development on Scenic Routes

“a) Require those seeking to carry out development in the environs of a scenic route and/or an area with important views and prospects, to demonstrate that there will be no adverse obstruction or degradation of the views towards and from vulnerable landscape features. In such areas, the appropriateness of the design, site layout, and landscaping of the proposed development must be demonstrated along with mitigation measures to prevent significant alterations to the appearance or character of the area.

b) Encourage appropriate landscaping and screen planting of developments along scenic routes (See Chapter 16 Built and Cultural Heritage).”

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7.2.8 GREEN INFRASTRUCTURE

The Development Plan includes the following objective:

“a) Require new development and redevelopment proposals, to contribute to the protection, management and enhancement of the existing green and blue infrastructure of the local area in terms of the design, layout and landscaping of development proposals.

b) Require all development to submit a green infrastructure statement outlining how the proposal contributes to green and blue infrastructure both within its environs as well as within the wider settlement or rural area. Larger developments (multiple residential developments including Part 8 applications, retail, industrial, mineral extraction, etc) will be expected to prepare a Landscape/ Green (and Blue) Infrastructure Plan including a Landscape Design Rationale. This Plan should identify environmental assets and include proposals which protect, manage and develop green infrastructure resources in a sustainable manner.

c) Over the lifetime of the Plan the Council will prepare a guidance note/update on best practice in integrating green and blue infrastructure/biodiversity within development proposals.”

7.2.9 DESIGN AND LANDSCAPE INTEGRATION

Section 16.3.31 of the Development Plan states:

“High Quality design adds quality to the places we live, work and enjoy. Ensuring high quality design adds value to our towns, villages and countryside and improves our quality of life. The Plan will promote high quality design by encouraging its integration into every aspect of the Plan.”

In addition, the following objective applies:

HE-16-21: Design and Landscaping of New Buildings

“a) Encourage new buildings that respect the character, pattern and tradition of existing places, materials and built forms and that fit appropriately into the landscape.

b) Promote sustainable approaches to housing development by encouraging new building projects to be energy efficient in their design and layout.

c) Foster an innovative approach to design that acknowledges the diversity of suitable design solutions in most cases, safeguards the potential for exceptional innovative design in appropriate locations and promotes the added economic, amenity and environmental value of good design.

d) Require the appropriate landscaping and screen planting of proposed developments by using predominantly indigenous/local species and groupings and protecting existing hedgerows and historic boundaries in rural areas. Protection of historical/commemorative trees will also be provided for.”

These objectives emphasise the importance of high-quality design and landscape integration in ensuring that development is appropriately assimilated into its surroundings.

7.2.10 CULTURAL HERITAGE

Archaeological Heritage

We refer to Table 12.1 and Figure 12.2 in **Chapter 12** Archaeological, Architectural & Cultural Heritage, prepared by Lane Purcell and forming part of this EIAR.

site and listed in Chapter 1. All other sites identified in this assessment. All other sites were excluded from the assessment due to obstruction by the existing

As part of the visual assessment, all RMP Sites identified within 1km of the site and listed in Chapter 12, were reviewed. The nearest RMPs surrounding the subject site were included in this assessment. All other RMP sites located within or adjacent to the historic town boundary were excluded from the assessment given their physical distance from the subject site and/or visual obstruction by the existing urban built environment.

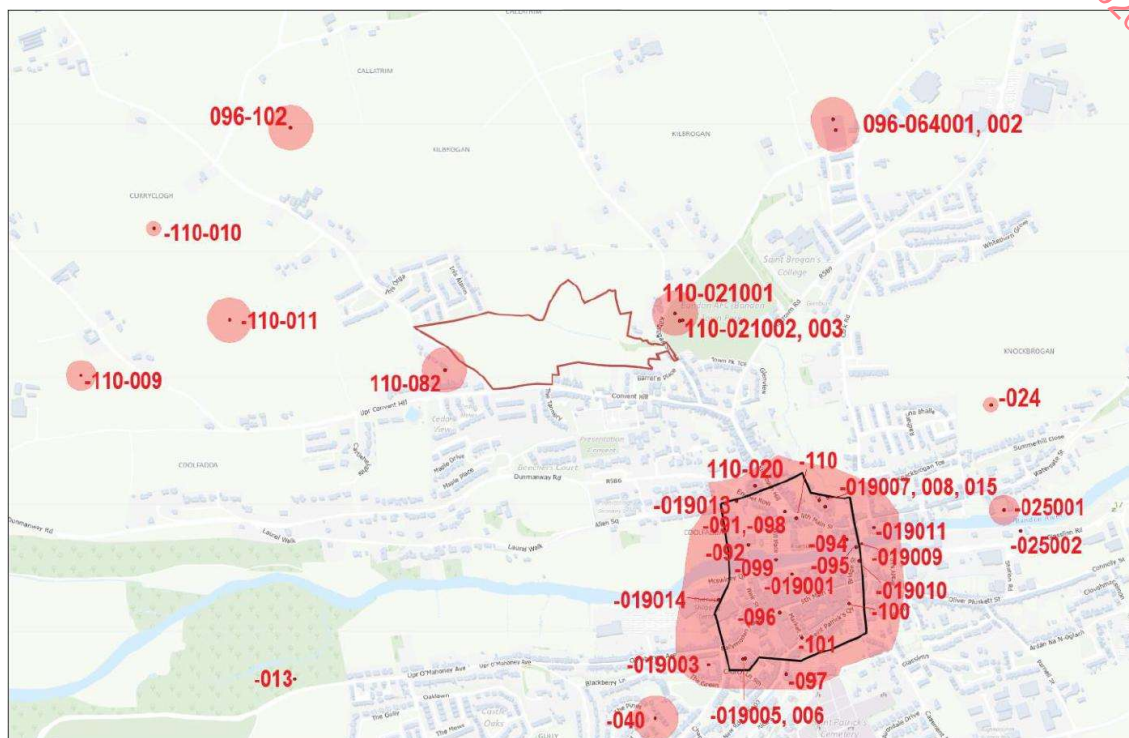


Table 7.9: RMPs in close proximity to the subject site. Source: Lane Purcell updated by Purser.

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				screens the monument from the existing road
CO110-021002	Holy well	Kilbrogan	75m to NE	Monument not visible from Kilbrogan Street or V5, 6, 7, 8 as views are taken in a westerly direction and monuments are east of the road. Dense vegetation naturally screens the monument from the existing road
CO110-011	Ringfort	Curryclogh	500m to W	Monument located on private land and separated from public road by fields therefore screened from public view.
CO110-010	Standing stone	Curryclogh	600m to NW	Monument located on private land and separated from public road by 2 fields and therefore screened from public view.
CO096-102	Souterrain	Curryclogh	630m to NW	Monument not visible from public road due to roadside screening.
CO096-064001	Church	Kilbrogan	730m to NE	Local visibility of monument along the road. Subject site not visible due screening on Kilbrogan Street and distance from site.
CO096-064002	Graveyard	Kilbrogan	730m to NE	Local visibility of monument along the road. Subject site not visible due screening on Kilbrogan Street and distance from site.
CO110-009	Fulacht fia	Curryclogh	925m to W	Monument not visible from public road due to roadside screening.

Architectural Heritage

We refer to Section 12.4.6 of **Chapter 12** Archaeological, Architectural & Cultural Heritage, prepared by Lane Purcell and forming part of this EIAR. The architectural heritage of the area is summarised below:

A review of the Record of Protected Structures (RPS) and the National Inventory of Architectural Heritage (NIAH), confirms that there are no Protected Structures, Architectural Conservation Areas (ACAs) or NIAH-listed buildings within the footprint of the proposed development site.

As confirmed by Lane Purcell in Chapter 12, all identified architectural heritage assets lie outside the proposed development boundary and are separated from the proposed works by intervening development, road infrastructure and changes in level. The nearest architectural heritage assets comprise the Convent Hill cluster of NIAH-listed structures (c. 85–200m distant) within Barretts Hill ACA, together with Kilbrogan House (PS No. 976) located approximately 250m to the south-east, on Kilbrogan Hill.

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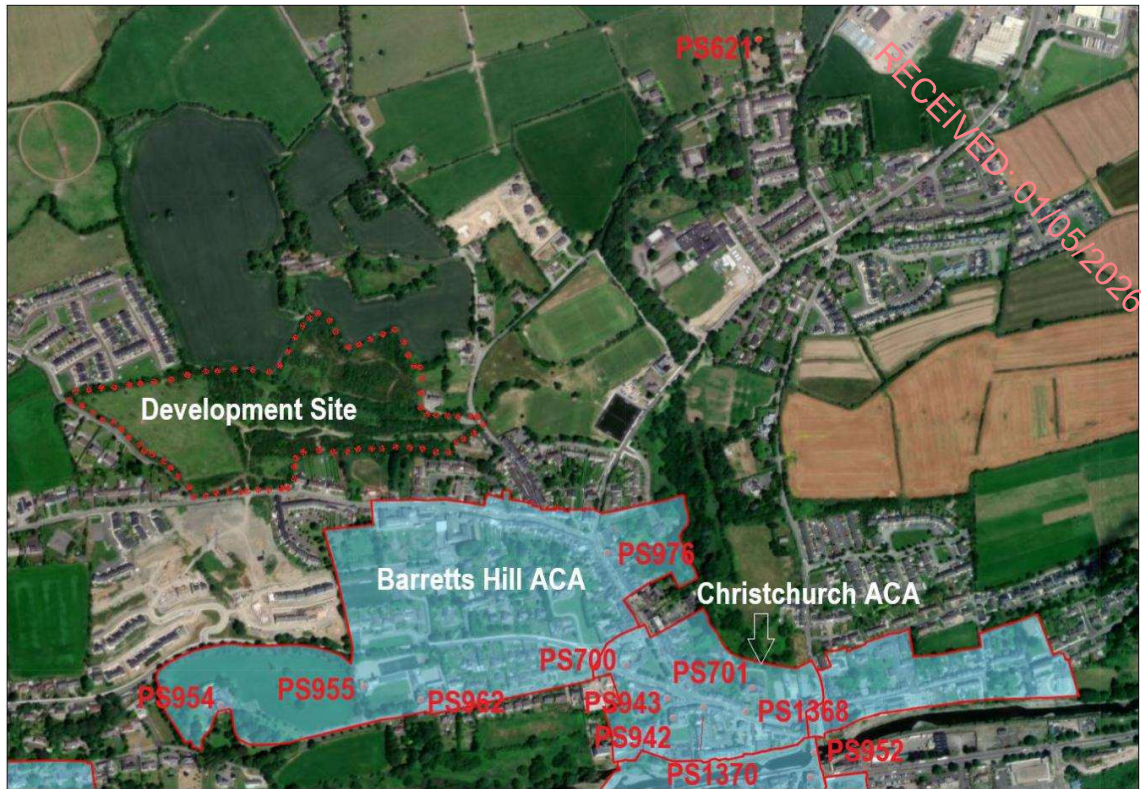


Figure 7.4: Figure 12.11 (Chapter 12) Protected Structures and Architectural Conservation Areas in close proximity to the subject site. Source: Lane Purcell.

Table 7.10: Protected Structures in close proximity to the subject site. Source: Lane Purcell updated by Purser.

PS	ACA	NIAH	Name	Approx. distance from development	Visibility
621	None	20909620	Kilbrogan RC Chapel – dated c. 1780	530m to NE	Local visibility of the protected structure along the road. The subject site is not visible due to screening on Kilbrogan Street and distance from the site.
976	Barretts Hill ACA	20844023	3-storey townhouse– Kilbrogan House – dated c.1818	250m to SE	The townhouse sits on the narrow R589 Kilbrogan Hill, flanked by 2-3 storey houses. The subject site not visible from this location.
954	Barretts Hill ACA	20911012	The Retreat Country House – dated c. 1860	340m to S	The guesthouse is set back from the public road known as Laurel Walk. The protected structure is separated from the subject site by Dunmanway Road R586, a new housing development at Coolfadda and The Tannery/Convent Hill Road. The subject site is not visible from this location.
955	Barretts Hill ACA	None	Ball Alley – depicted on OS 25-inch map 1897-1903	370m to S	The western gable wall of the ball alley forms part of the front boundary wall of the public roadway connecting Laurel Walk with Dunmanway Road R586. The

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					subject site is not visible from this location due to the dense vegetation surrounding the site.
962	Barretts Hill ACA	20844016 20844017 20844018 20844019	Hamilton High School (main building and associated ranges) – built c. 1810 former terrace of four houses	380m to S	The 3-4 storey High School (Main Building) fronts onto the Allen Square Road. The subject site is not visible from this location due to the mature verdant setting of the surrounding area.
700	Christchurch ACA	20844206	Old Shambles – built 1817 – now in use as apartments and retail units	400m to S	The protected structure sits on a triangular piece of land with frontage onto three streets – Emmet Row R586, The Shambles L2023 and Kilbrogan Hill. The subject site is not visible from this location due to the elevation and distance from the subject site.

7.3 BASELINE ENVIRONMENT

7.3.1 THE SITE

The subject site is located within the townlands of Coolfadda and Kilbrogan, on the north-western outskirts of Bandon, Co. Cork. The site is situated within the built-up area of Bandon and extends from the Coolfadda Road (L-2033) in the west to Kilbrogan Street in the east, with an extensive frontage onto Convent Hill along its south-western boundary.

The subject site comprises a large-scale greenfield landholding and measures approximately 9.59 hectares. The site is irregular in shape and is currently characterised by a combination of agricultural lands, areas of disturbed ground and extensive naturalised vegetation.

Historically, construction works commenced on the site in the late 2000s for a permitted residential development. These works included soil stripping, excavation, terracing and cut-and-fill operations. Following the suspension of development, these disturbed areas have become overgrown with dense scrub vegetation, gorse and exposed rock, while portions of the site, particularly to the west, remain as pastoral grassland.

The site can be broadly divided into:

- Western areas, comprising relatively intact pastureland with an open character
- Central areas, characterised by uneven ground, mounding and naturalised vegetation
- Eastern areas, comprising dense scrub, gorse and semi-natural vegetation

There are no permanent structures within the site boundary.

The subject site is bounded as follows:

- To the south and south-east by existing residential properties along Convent Hill
- To the west by Coolfadda Road (L-2033), with detached and dormer dwellings on elevated sites opposite
- To the north-west by the Inis Álainn residential estate
- To the north and north-east by agricultural lands
- To the east by Kilbrogan Street, with Bandon Town Park located opposite

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The site benefits from multiple points of access, including from Convent Hill, Coolfadda Road and Kilbrogan Street.

7.3.2 TOPOGRAPHY AND DRAINAGE

The subject site is defined by a pronounced and varied topography, which is a key characteristic influencing both landscape character and visual sensitivity.

Levels across the site range from approximately:

- 77m OD at the south-western corner (junction of Convent Hill and Coolfadda Road)
- To approximately 44m OD at the eastern boundary adjacent to Kilbrogan Street

This represents a level difference of approximately 33 metres across the site.

The site slopes:

- Steeply downward from the south-west towards the centre and east, forming a central low-lying area
- More gently upward to the north beyond the central low point

A stream corridor runs through the site from west to east, entering at the north-west corner and continuing along the northern boundary before passing through the central low-lying area and exiting towards Kilbrogan Street.

This stream forms a natural dividing feature within the site, separating:

- The main southern development area
- A smaller northern land parcel

The stream corridor and associated low-lying lands represent an important landscape and visual feature, contributing to local character and offering potential for integration as part of a green infrastructure network.

7.3.3 WIDER AND EMERGING CONTEXT

The subject site is located within a transitional urban fringe area, where established residential development meets open and semi-rural lands. The surrounding area is characterised by:

- Established suburban housing to the south, west and north-west
- Agricultural lands and greenfield areas to the north and north-east
- Recreational lands, including Bandon Town Park, to the east

Residential development in the vicinity is generally low-density in character, comprising detached and semi-detached dwellings, typically two-storey in height, with some dormer and single-storey elements.

The site is located within approximately:

- 550m of Bandon town centre (North Main Street)
- Walking distance of schools, shops and local services
- Immediate proximity to Town Park and recreational facilities

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The area has experienced ongoing suburban expansion, with former agricultural lands developed for residential use over time. As such, the subject site forms part of a dynamic and evolving urban edge, where change is an established characteristic of the landscape.

7.3.4 LANDSCAPE AND VEGETATION CHARACTERISTICS

The subject site is characterised by a combination of semi-natural vegetation, former agricultural land and disturbed ground, resulting in a varied and transitional landscape character.

Vegetation within the site is predominantly concentrated along the site boundaries and watercourse corridors, where it forms continuous belts of dense vegetation. These areas include:

- Mixed species tree groups dominated by willow and alder
- Dense shrub layers comprising gorse, bramble, hawthorn and blackthorn
- Sections of lapsed or unmanaged hedgerows, which have developed into thick, naturalised vegetation

Along the northern and north-western boundaries, vegetation is closely associated with the stream corridor and embankments, forming a continuous and visually prominent vegetated edge. These areas include mature tree groups with a layered structure comprising upper canopy (alder), mid-storey (willow) and dense shrub understorey.

The western boundary is similarly defined by a naturalised vegetation belt dominated by willow and dense undergrowth, providing a strong visual boundary to the site.

The southern boundary, adjoining residential properties along Convent Hill, is characterised by a change in level, with the adjoining properties located at a higher elevation. Vegetation along this boundary includes individual trees and groups located on the embankment, contributing to partial visual screening between the site and adjacent dwellings.

Within the central areas of the site, vegetation is more fragmented and consists primarily of:

- Naturalised scrub vegetation (willow and gorse)
- Areas of rough grassland
- Uneven ground and mounding associated with previous construction works

These central areas contain relatively few high-quality individual trees, with arboricultural value primarily concentrated along the boundaries.

Overall, the vegetation structure of the site contributes to:

- Visual enclosure along boundaries
- Partial screening from surrounding receptors
- A semi-natural and unmanaged landscape character, particularly in the central and eastern areas

7.3.5 VISUAL RECEPTORS AND VISUAL AMENITY

The principal visual receptors in the vicinity of the subject site include:

- Residential receptors, including properties along Convent Hill, Coolfadda Road and the Inis Álainn estate
- Road users, particularly along Convent Hill, Coolfadda Road and Kilbrogan Street
- Pedestrians and cyclists, including users of local routes and Bandon Town Park

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- Townscape receptors, including elevated viewpoints within Bandon

The subject site occupies an elevated position and therefore has the potential to be visible from surrounding areas. However, visibility is influenced by several key factors, including:

- Boundary vegetation, which provides significant screening, particularly along the northern, western and eastern edges
- Topography, including changes in level across the site and between the site and surrounding lands
- Existing built development, particularly along the southern boundary

Vegetation associated with the stream corridor and boundary hedgerows forms a strong visual containment framework, particularly when viewed from lower-lying areas.

In contrast, the more open western and central portions of the site are relatively more visually exposed, particularly in views from adjacent residential areas and local roads.

The subject site is not visible from designated scenic routes, including Scenic Route S64, due to intervening landform, vegetation and built development.

7.4 CHARACTERISTICS OF THE PROPOSED DEVELOPMENT

7.4.1 OVERVIEW

A full description of the proposed development, including enabling works, site preparation, construction methodology and operational details, is provided in Chapter 2 of this EIAR, together with detailed design information contained within the Architectural and Urban Design Statement and the Landscape Design Statement submitted with the planning application.

The following section provides a summary of those aspects of the proposed development relevant to the Landscape and Visual Impact Assessment (LVIA).

The proposed development comprises the construction of a residential scheme of 240 residential units (156 dwelling houses and 84 apartments), together with a crèche facility and all associated ancillary site development works.

Vehicular and pedestrian access will be provided via new entrances from Upper Convent Hill (L-2033) and Kilbrogan Street (L-2039), with two additional shared accesses from Convent Hill (L-2011) serving 22 dwellings. A vehicular bridge over the existing watercourse will provide access to lands in the northern portion of the site.

For the purposes of the LVIA, the key characteristics of the proposed development include:

- The introduction of residential built form across the site
- The establishment of an internal road network and movement framework
- The provision of public open space and landscape infrastructure
- The retention and integration of existing vegetation and watercourse features
- The introduction of new structural and ornamental planting
- The formation of defined streetscapes and public realm areas

7.4.2 DESIGN APPROACH AND LAYOUT STRUCTURE

The layout of the proposed development has been informed by a series of key design principles, which are described in detail in the Architectural and Urban Design Statement.

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The design seeks to create a **coherent and legible residential environment**, structured around a number of distinct character areas and a strong landscape framework.

Key elements of the design approach include:

- The creation of **distinct character areas** across the site, defined by the arrangement of buildings, streets and open spaces
- The use of **built form to define streets and spaces**, providing enclosure and legibility
- The integration of the **existing stream corridor as a central organising feature**
- The provision of a hierarchy of **public open spaces**, including primary amenity areas and smaller pocket parks
- The design of active frontages to streets and open spaces
- The incorporation of a range of building typologies, including age-friendly and accessible units

The **streamside riparian corridor and associated ecological areas** form the primary landscape spine of the development, extending east–west across the site and linking key open spaces. This feature, together with the principal public open spaces located throughout the site, establishes a clear spatial structure and contributes to the overall sense of place.

A landscaped route along the western boundary adjoining Coolfadda Road provides an enhanced interface with the public realm and contributes to the definition of the site edge.

Further detail on the design rationale is provided in the Architectural and Urban Design Statement.

7.4.3 LAYOUT EVOLUTION AND DESIGN REFINEMENTS

The proposed layout has been refined following engagement with Cork County Council through the LRD process. Key refinements relevant to landscape and visual considerations include:

- Reconfiguration of the **central public open space areas** to improve their relationship with adjoining development and enhance passive surveillance
- Refinement of **building orientation and typologies** to provide active frontages to public spaces and streets
- Relocation of the **crèche facility** to the eastern part of the site, forming a gateway feature associated with Kilbrogan Street
- Widening of the **east–west shared surface route** along the stream corridor to enhance usability and amenity
- Introduction of additional **north–south connections**, including routes along the western boundary and links to Convent Hill
- Design development of **pocket parks and pedestrian connections**, including stepped routes responding to site topography
- Localised layout adjustments to accommodate setbacks from site constraints

7.4.4 BUILT FORM AND ARCHITECTURAL CHARACTER

The proposed development comprises a mix of residential building types, including houses and apartment buildings, as set out in detail in the Architectural and Urban Design Statement.

The built form includes:

- **Single-storey and two-storey houses with pitched roofs**
- **Three-storey apartment buildings**, located at key positions within the layout

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The apartment buildings are positioned to address:

- The **riparian corridor and linear park**
- Principal public open spaces

These buildings contribute to the definition of key spaces and provide a visual edge to larger areas of open space. The scale of development is consistent with the surrounding residential context in Bandon, which is characterised by predominantly low-rise development.

The architectural approach incorporates a combination of contemporary design and reference to traditional building forms and materials. The material palette includes render, brick and stone, arranged to provide variation and visual interest while maintaining a cohesive overall appearance.

Buildings are designed to address streets and open spaces, with elevations treated on all sides, particularly in the case of apartment buildings located in prominent positions.

7.4.5 MOVEMENT, ACCESS AND PERMEABILITY

The proposed development incorporates a connected network of streets, paths and shared surfaces, designed to facilitate movement throughout the site and link to the surrounding area.

Key elements include:

- A primary **east–west pedestrian and cycle route** along the stream corridor
- A series of **north–south connections**, linking Convent Hill, Coolfadda Road and Kilbrogan Street
- New access points from **Upper Convent Hill, Convent Hill and Kilbrogan Street**
- Potential connections to adjoining residential areas and future development lands

The layout prioritises pedestrian and cyclist movement through the use of shared surface streets, reduced carriageway widths and integrated public realm design.

Further detail is provided in the Architectural and Urban Design Statement and engineering documentation accompanying the application.

7.4.6 PUBLIC OPEN SPACE AND LANDSCAPE STRUCTURE

The proposed development provides approximately **9,375 sq.m of public open space**, representing over 13% of the net residential site area.

Public open space provision includes:

- Three principal public open spaces located to the **west, north and east** of the site
- A continuous **linear park and ecological corridor** along the stream
- Smaller **pocket parks and landscaped areas** distributed throughout the site
- Communal open space associated with apartment blocks

These spaces form an integrated network and contribute to the overall structure and identity of the development.

Additional areas of landscape, including the riparian corridor and ecological zones, further contribute to the green infrastructure of the site but are not included within the formal public open space calculations.

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All open spaces are designed to accommodate a range of uses, including informal recreation, play, movement and passive enjoyment. Detailed proposals for hard and soft landscaping are provided in the Landscape Design Statement.

7.4.7 LANDSCAPE STRATEGY AND VEGETATION

The landscape strategy for the development is set out in detail in the Landscape Design Statement. Key elements include:

- **Retention of existing vegetation**, particularly along site boundaries and watercourse corridors
- Integration of the **stream corridor as a central landscape feature**
- Reinforcement of boundary vegetation through **supplementary planting**
- Introduction of **new native planting**, including trees, hedgerows and shrub planting
- Provision of **street trees and structural planting** throughout the development

The retention and enhancement of vegetation contribute to the establishment of a strong landscape framework and assist in defining the character of the development.

7.4.8 STREETScape AND PUBLIC REALM

The development incorporates a range of streetscape typologies, including:

- Tree-lined streets
- Shared surface home zone areas
- Streets enclosing public open spaces

Hard and soft landscaping are integrated within the design of streets and spaces, including paving, planting, street trees and boundary treatments.

Car parking is provided in a combination of on-street, grouped and in-curtilage arrangements, integrated with landscaping to form part of the overall public realm.

Further detail is provided in the Architectural and Urban Design Statement and Landscape Design Statement.

7.5 POTENTIAL EFFECTS

7.5.1 DO-NOTHING SCENARIO

In the event that the proposed development does not proceed, the subject site would remain in its current undeveloped condition.

At present, the site comprises a combination of former agricultural land, areas of disturbed ground associated with historic site works, naturalised scrub vegetation, boundary tree belts and the stream corridor which traverses the site. While parts of the western portion retain their pastoral character, other areas, particularly within the central and eastern parts of the site, exhibit evidence of previous excavation, terracing and cut-and-fill activity, much of which has since become overgrown with scrub, gorse and rough vegetation.

In the absence of development, it is likely that the site would remain as a vacant and partially disturbed parcel of land at the urban edge of Bandon. Existing vegetation would continue to establish and mature, particularly within boundary areas and around the watercourse, and the site would continue to present

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a transitional character between the established residential areas of the town and the adjoining open lands to the north and east.

Given the site's location within the development boundary of Bandon and its zoning for residential development, the do-nothing scenario would not represent the long-term planned outcome for the lands under the statutory planning framework. Nonetheless, for the purposes of assessment, the do-nothing scenario assumes the retention of the site in its current condition as an undeveloped, vegetated and partially disturbed urban fringe site.

7.5.2 LANDSCAPE SENSITIVITY

The sensitivity of the receiving landscape is assessed as **Medium**, in accordance with the principles set out in *Guidelines for Landscape and Visual Impact Assessment (GLVIA3)*, and informed by the Landscape Character Assessment, planning policy context, existing land use, visual exposure and the overall capacity of the landscape to accommodate change.

The subject site is located within the **Broad Fertile Lowland Valleys Landscape Type (Sub-type 6a)** as identified in the Cork County Development Plan 2022–2028. This landscape type is characterised as having:

- **High Landscape Value**
- **High Landscape Sensitivity**
- **County-level Landscape Importance**

Notwithstanding this classification, it is important to consider the **specific site context**, which is located within the **urban settlement boundary of Bandon** and forms part of an established and evolving suburban edge.

This assessment of Medium sensitivity reflects the following considerations:

- **Landscape Character and Condition**

The subject site comprises a combination of former agricultural lands, disturbed ground and naturalised vegetation, resulting in a landscape of transitional character. While the wider landscape type is identified as having high sensitivity, the site itself is not an intact rural landscape, having been subject to previous ground disturbance. It exhibits uneven topography, including areas of mounding and exposed rock associated with earlier development activity. The site also contains extensive naturalised scrub and boundary vegetation, particularly along watercourses. As a result, the landscape character of the site is modified and partially degraded, reducing its sensitivity relative to the wider landscape type.

- **Urban Context and Land Use**

The site is located within the development boundary of Bandon and is zoned for residential development under the Cork County Development Plan. The surrounding area is characterised by established residential development to the south, west and north-west, recreational lands including Bandon Town Park to the east, and agricultural lands to the north. The site forms part of a transitional urban fringe, where change associated with suburban expansion is an established characteristic. As such, the receiving environment has a greater capacity to accommodate development than a purely rural landscape.

- **Planning and Landscape Designations**

The site is not located within a designated High Value Landscape, Scenic Route, protected view corridor, or any national or regional landscape designation. The absence of such designations indicates that the site is not subject to the highest levels of landscape protection.

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- **Visual Exposure and Prominence**

The site occupies an elevated position relative to parts of Bandon, which increases its potential visibility from surrounding areas, including adjacent residential properties, local roads and parts of the wider townscape. However, visibility is moderated by existing residential development along the southern boundary, boundary vegetation along the northern, western and eastern edges, and variations in topography across the site. The site does not form part of a prominent skyline or ridge when viewed from the wider landscape.

- **Capacity for Change**

While the wider landscape type is classified as having high sensitivity, the urban location, zoning and existing condition of the site indicate that it has a moderate capacity to accommodate change, particularly where development is appropriately designed and integrated. The site forms part of an area that has already undergone, and continues to experience, residential expansion, and does not represent a landscape of exceptional scenic or visual value.

Overall Sensitivity

Taking all factors into account, the receiving landscape is considered to be of Medium sensitivity, reflecting the underlying high value landscape classification, and the reduced sensitivity at the site level due to urban context, modification and capacity for change.

7.5.3 CONSTRUCTION STAGE LANDSCAPE EFFECTS

The construction phase of the proposed development will involve a temporary transformation of the subject site, as it transitions from its current condition—comprising a mix of disturbed ground, residual agricultural land and naturalised vegetation—to a residential neighbourhood. These changes will occur over an anticipated construction period of approximately 3 years and are detailed in the **Construction & Environmental Management Plan (CEMP) prepared by PES**, submitted as part of this planning application.

From a landscape perspective, the construction phase will result in a temporary, localised change to the site and its immediate surroundings. The principal landscape effects are likely to include:

- Removal of vegetation within development areas, including sections of scrub, rough grassland and localised boundary features (where required)
- Exposure of soil and disturbed ground arising from topsoil stripping, excavation and regrading works
- Introduction of construction-related features such as site compounds, hoarding, temporary fencing, stockpiles, plant and machinery
- Formation of internal roads, drainage infrastructure and building platforms
- A temporary reduction in the green character of the site during active construction phases

These activities will result in a short-term disruption of the existing landscape, with areas of naturalised vegetation and informal field structure temporarily replaced by construction activity and engineered surfaces.

However, the landscape context of the site is already transitional in nature, reflecting its location at the urban edge of Bandon and its history of previous disturbance and partial site works. The site is also enclosed in part by existing development and boundary vegetation, which limits the extent of wider landscape exposure.

Construction effects will therefore be experienced primarily within the site itself and its immediate surroundings, including adjacent residential areas and local roads.

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Importantly, the construction phase represents an intermediate stage within the planned development of lands zoned for residential use, and the effects arising are temporary in nature. The proposed development includes a comprehensive landscape strategy, as set out in the Landscape Design Statement, which provides for the establishment of new planting, open space and green infrastructure as part of the completed scheme.

Taking account of the nature, scale and duration of construction activities, the magnitude of landscape change during the construction phase is assessed as Medium (localised and temporary).

Having regard to the Medium sensitivity of the receiving landscape, the significance of construction stage landscape effects is assessed as: Moderate Adverse (Temporary and Reversible). These effects will diminish and be replaced by the permanent landscape structure associated with the completed development.

7.5.4 CONSTRUCTION PHASE VISUAL EFFECTS

The visual effects arising during the construction phase of the proposed development will be temporary and localised, primarily affecting receptors in the immediate vicinity of the subject site. These effects will vary over the duration of the construction period, depending on the phasing of works, the location of active construction areas, and the nature of activities taking place at any given time.

Construction activities will include site clearance, removal of vegetation where required, earthworks, excavation and regrading of ground levels, and the progressive introduction of construction-related infrastructure. This will include the presence of temporary site compounds, hoarding, security fencing, scaffolding, cranes, construction plant and material stockpiles. Temporary lighting may also be required during certain periods, such as early morning or winter working hours, although this will be managed to minimise light spill.

A construction compound will be established within the site to accommodate site offices, welfare facilities, parking and material storage. Temporary stockpiles and working areas will be located within active construction zones and will be progressively removed or reinstated as works advance.

During the early stages of construction, visual effects will be most pronounced due to the presence of exposed ground, construction activity and temporary infrastructure. Elevated elements such as cranes and scaffolding will be visible from surrounding areas, particularly from adjacent residential properties, local roads including Convent Hill, Coolfadda Road and Kilbrogan Street, and from parts of the wider townscape.

However, the extent of visual effects will be moderated by:

- The presence of existing residential development along parts of the site boundary
- Established boundary vegetation, particularly along the northern, western and eastern edges
- Variations in topography across the site

As construction progresses, the emerging built form will increasingly replace temporary construction elements, and visual effects will begin to reduce. In the later stages of construction, the removal of cranes, scaffolding and temporary compounds, together with the commencement of landscaping works, will further reduce visual disturbance.

Overall, construction phase visual effects will be moderate in magnitude and localised in extent, primarily affecting nearby receptors. Having regard to the proximity and sensitivity of these receptors, the significance of visual effects during construction is assessed as: Moderate Adverse (Temporary and Reversible) These effects will diminish as construction progresses and will cease upon completion of the development and the establishment of the permanent built form and landscape structure.

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(Refer to the **Construction & Environmental Management Plan prepared by PES** for further detail on construction phasing, site management and mitigation measures.)

7.5.5 OPERATIONAL PHASE LANDSCAPE EFFECTS

During the operational phase, the proposed development will result in a permanent change to the landscape resource through the introduction of residential built form and an integrated landscape framework. This represents a transition from the existing condition—comprising a mix of disturbed ground, residual agricultural land and naturalised vegetation—to a structured residential environment with a strong green infrastructure network.

The magnitude of landscape change is assessed as Medium at a localised scale. While the development introduces built form and urban elements, it occurs on lands zoned for residential use within the settlement boundary of Bandon and replaces a site that is already transitional and modified in character.

A key component of the proposed development is the implementation of the landscape strategy set out in the Landscape Design Statement prepared by Gannon and Associates Landscape Architects, which establishes a landscape-led design approach. This strategy is informed by the site's topography, riparian corridor and ecological potential, and provides a layered green infrastructure framework integrating natural systems, open space and built form.

At the core of this framework is the retained and enhanced riparian corridor, which is developed as a linear stream park forming the primary ecological spine of the site. This corridor accommodates a continuous pedestrian and cycle route and links a series of interconnected landscape zones, including a nature park, neighbourhood pocket parks, communal open spaces and green corridors. These elements collectively create a coherent and legible network of spaces that support recreation, biodiversity and visual continuity across the development.

The landscape strategy also provides for:

- The retention and reinforcement of existing vegetation, particularly along boundaries and watercourses
- The integration of naturalised areas and habitats, including scrub and riparian planting
- The introduction of native planting and structural tree planting, including standard and heavy standard trees to provide early maturity and visual structure
- The incorporation of soft landscape edges and transitional planting to assist integration with surrounding development
- The delivery of high permeability, with interconnected pedestrian and cycle routes linking the site internally and to the wider urban area

The layout responds to the existing topography, using level changes to shape open spaces, define character areas and accommodate movement through the site. This ensures that the development is informed by the underlying landform and contributes to a more integrated and naturalistic landscape structure.

Sustainable Drainage Systems (SuDS) are embedded within the landscape as multifunctional features, contributing to water management, visual amenity and habitat creation. In addition, the provision of natural play areas and informal recreational spaces supports a high-quality living environment and reinforces the role of landscape as a central organising element of the development.

The proposed green infrastructure network also facilitates ecological connectivity, linking habitats within the site to those in the surrounding landscape and contributing to biodiversity enhancement at a wider scale.

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Overall, the development will replace a fragmented and partially degraded landscape with a coherent, structured and multifunctional landscape framework, consistent with the planned expansion of Bandon. While the introduction of built form represents a change from the existing undeveloped condition, this change is in accordance with the zoning and strategic planning objectives for the site and does not result in the loss of a designated or highly sensitive landscape.

Accordingly, taking account of the Medium magnitude of change and the Medium sensitivity of the receiving landscape, the operational phase landscape effects are assessed as: Moderate Beneficial (Localised, Long-Term). This reflects a permanent and perceptible change that results in an overall improvement in landscape structure, function, visual amenity and ecological value.

7.5.6 OPERATIONAL VISUAL EFFECTS

A total of 15 no. viewpoints were selected for detailed visual effects assessment, informed by verified photomontages. The viewpoints have been chosen to represent the principal visual receptors, character areas and viewing locations within the receiving environment, including views from surrounding residential areas, local roads and key approach routes to the subject site.

All viewpoints are located within the public domain and are representative of views available from publicly accessible locations, including roads, pedestrian routes and publicly accessible vantage points in the vicinity of the proposed development.

The assessment should be read in conjunction with the baseline photography and verified photomontages provided in A3 format under separate cover, prepared by **3D Design Bureau (refer to Appendix 7.1 of this EIAR)**. For each viewpoint, the following visual material is provided:

- Baseline View: Photograph of the existing scenario
- Proposed View: Verified photomontage illustrating the proposed development

The detailed visual effects assessment for each viewpoint is set out below.

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Figure 7.5: Figure 7.1 Viewpoint Locations – Close Range Map. Source: 3D Design Bureau.



Figure 7.6: Figure 7.2 Viewpoint Locations – Long Range Map. Source: 3D Design Bureau.

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View No. 1	Convent Hill (1) (East)
Distance & Direction from Site	c. 10m south-east of the site boundary
Baseline View:	This view is taken from the pedestrian footpath along the southern side of Convent Hill, looking north-west towards the subject site, which occupies the central portion of the view. The foreground is defined by the carriageway and footpath of Convent Hill. The immediate site boundary is characterised by a partially vegetated roadside embankment, comprising grass and scrub vegetation, which provides limited screening into the site. Beyond this, the subject site is visible as an area of uneven ground containing naturalised vegetation, including scrub and rough grassland. Evidence of previous disturbance is apparent, including exposed ground and remnants of former site activity, such as an abandoned articulated trailer located within the site. A residential property (No. 9 Upper Convent Hill) is partially visible to the right of the view, set at a higher elevation relative to the site and reinforcing the established residential character of the surrounding area.
Viewpoint sensitivity:	Low
Proposed View:	The proposed development will be visible in the centre and centre-left of the view, presenting as a series of appropriately scaled two-storey semi-detached dwellings fronting onto Convent Hill. The proposed built form reflects the established residential character of the area in terms of scale, massing and typology. The architectural treatment, including the use of stone and render finishes with a natural slate colour palette, is consistent with the surrounding context and integrates well with existing development along Convent Hill. The proposed development introduces a clearly defined and improved edge to the street. The existing vegetated embankment will be replaced with a stone boundary wall, providing a more formal and coherent streetscape. Soft landscaping within front gardens, along driveways and within the public realm will introduce greenery and visual interest, contributing to improved visual amenity and assisting in the integration of the development into the receiving environment.
Magnitude of Change	Medium
Significance and Quality of Effect	Slight and positive.
Duration	Permanent
Cumulative Effects	No cumulative visual effects are anticipated.

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View No. 2	Convent Hill (2) (West)
Distance & Direction from Site	c. 20m south-west of the site boundary
Baseline View:	This view is taken from the pedestrian footpath along the southern side of Convent Hill, looking north-east towards the subject site, which occupies the central portion of the view. The foreground is defined by the carriageway and footpath of Convent Hill. The immediate site boundary comprises a partially vegetated roadside embankment, consisting of grass and scrub vegetation, which provides limited screening into the site. Beyond this, the subject site is partially visible as an area of uneven ground containing naturalised vegetation, including scrub and rough grassland. The entrance to a residential property (Eircode: P72 XF86) is partially visible to the left of the view, set at a higher elevation relative to the site and reinforcing the established residential character of the surrounding area.
Viewpoint sensitivity:	Low
Proposed View:	The proposed development will be visible in the centre and centre-right of the view, presenting as a series of appropriately scaled two-storey semi-detached dwellings fronting onto Convent Hill. The proposed built form reflects the established residential character of the area in terms of scale, massing and typology. The architectural treatment, including the use of stone and render finishes with a natural slate colour palette, is consistent with the surrounding context and integrates well with existing development along Convent Hill. The development introduces a clearly defined and improved edge to the street. The existing vegetated embankment will be replaced with a stone boundary wall, providing a more formal and coherent streetscape. Soft landscaping within front gardens, along driveways and within the public realm will introduce greenery and visual interest, contributing to improved visual amenity and assisting in the integration of the development into the receiving environment. A consistent avenue of tree planting along Convent Hill will further reinforce the streetscape, providing visual definition and establishing a strong green edge to the development.
Magnitude of Change	Medium
Significance and Quality of Effect	Slight and positive.
Duration	Permanent
Cumulative Effects	No cumulative visual effects are anticipated.

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View No. 3	L2033 Coolfadda
Distance & Direction from Site	c. 10m south-west of the site boundary
Baseline View:	This view is taken from the L2033 Coolfadda Road, looking north-east towards the subject site, which lies beyond the immediate roadside boundary. The viewpoint is located in close proximity to the southern boundary of properties at Sunmount, Upper Coolfadda (Eircode: P72 P239). The foreground is defined by the carriageway of the L2033. The immediate site boundary comprises a vegetated roadside embankment, consisting of grass and scrub vegetation, which provides a degree of screening into the site. Overhead electricity poles and wires are also visible along the roadside, forming part of the existing visual context. Beyond the site boundary, the residential development of Inis Álainn is visible, comprising predominantly two-storey dwellings with rendered finishes and natural slate roofs. The wider background includes a gently rolling agricultural landscape, contributing to the semi-rural character of the area.
Viewpoint sensitivity:	Low
Proposed View:	The proposed development will be partially visible in the centre of the view, set behind the retained roadside embankment, which will continue to provide visual filtering. A mix of building typologies will be apparent, including two-storey semi-detached dwellings to the right and a three-storey apartment building located centrally and to the centre-left. Due to the site's topography and level changes, the apparent height of the apartment building will be reduced, such that it reads similarly in scale to the surrounding two-storey development. The proposed architectural treatment, including the use of brick and render finishes with a natural slate colour palette, is consistent with the established residential character of the area and integrates well with existing development. Soft landscaping within public and private spaces will introduce greenery and visual interest, contributing positively to visual amenity and assisting in the integration of the development within the receiving environment. The retention of the vegetated boundary will further assist in moderating views of the development from this location.
Magnitude of Change	Medium
Significance and Quality of Effect	Slight and neutral.
Duration	Permanent
Cumulative Effects	No cumulative visual effects are anticipated.

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View No. 4	Inis Álainn Residential Estate
Distance & Direction from Site	c. 30m north of the site boundary
Baseline View:	This view is taken from within the residential estate of Inis Álainn, located to the north of the subject site, in proximity to No. 48 Inis Álainn, Curryclogh, Bandon, Co. Cork (Eircode: P72 KV07). The view looks south-east towards the subject site, which lies beyond an established vegetated boundary. The foreground is defined by the internal residential road within the estate, together with an area of public open space located centrally within the view. This open space is enclosed by a vegetated boundary consisting of trees and dense scrub, which forms a strong visual edge between the estate and the subject site. The subject site is partially visible through and beyond this vegetation, appearing as an area of undulating ground with naturalised vegetation, including grassland and scrub planting. The existing vegetation provides substantial screening, limiting the extent of visibility into the site.
Viewpoint sensitivity:	Low
Proposed View:	The proposed development will be partially visible in the centre of the view, set behind the retained vegetated boundary, which will continue to provide significant visual filtering. The elements of the development visible from this location will primarily comprise apartment buildings arranged along the northern portion of the site. These buildings are three storeys in height; however, due to the site's topography and the presence of existing and proposed vegetation, the lower levels of the buildings will be largely screened. As a result, the buildings will not present as full three-storey structures and will appear reduced in scale within the view. The proposed architectural treatment, including the use of brick and render finishes with a natural slate colour palette, is consistent with the established residential character of the surrounding area and integrates appropriately with existing development. Additional planting within the development, together with the retention of the existing boundary vegetation, will further soften views of the proposed buildings and assist in their integration into the receiving environment. Soft landscaping within public and private spaces will contribute to visual amenity and reinforce the green character of the site.
Magnitude of Change	Medium
Significance and Quality of Effect	Slight and neutral.
Duration	Permanent
Cumulative Effects	No cumulative visual effects are anticipated.

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View No. 5	Kilbrogan Street (1)
Distance & Direction from Site	c. 40m north of the site boundary
Baseline View:	This view is taken from Kilbrogan Street, approximately 20m north of the site boundary, looking south-west towards the general location of the subject site. The foreground is defined by the carriageway of Kilbrogan Street. In the midground, an existing dwelling (Robinvale Farm, Kilbrogan, Bandon, Co. Cork, Eircode: P72 PV24) is visible. This is a two-storey dwelling with a pitched roof, set within a mature, well-vegetated plot. The wider landscape is characterised by dense vegetation, including trees and hedgerows, which reflect the lower-lying, valley-like topography behind Convent Hill. Although the subject site lies beyond this area, it is not readily discernible due to the extent of intervening vegetation and the enclosing landscape context.
Viewpoint sensitivity:	Low
Proposed View:	The proposed development will be largely screened from view at this location. Limited and intermittent glimpses of built form may be perceptible through gaps in existing vegetation, including partial views of rooflines of proposed dwellings and a small portion of an upper floor of an apartment building. However, these views will be very restricted in extent and filtered by the existing vegetation structure. Additional proposed planting within the site will further reinforce this screening over time. It is noted that the photomontage represents a worst-case scenario, captured during winter conditions when vegetation is not in full leaf. During the growing season, the extent of screening would be significantly increased, further reducing visibility of the development. Overall, the proposed development will not be readily perceptible from this viewpoint.
Magnitude of Change	Negligible
Significance and Quality of Effect	Imperceptible and neutral.
Duration	Permanent
Cumulative Effects	No cumulative visual effects are anticipated.

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View No. 6	Kilbrogan Street (2)
Distance & Direction from Site	c. 10m north of the site boundary
Baseline View:	This view is taken from Kilbrogan Street, approximately 10m north of the site boundary, looking south-west towards the subject site. The foreground is defined by the carriageway of Kilbrogan Street. In the right midground, a ruined single-storey structure without a roof is visible, forming a distinctive roadside feature. Centrally within the view, palisade fencing associated with the site boundary and entrance is visible. To the left, the road rises gently, with glimpses of surrounding residential development, including the gable of No. 2 Kilbrogan Street (Eircode: P72 PA99) and partial views of upper floors and rooflines of dwellings within Barrett's Place. The wider landscape is characterised by dense vegetation, including mature trees and hedgerows, reflecting the lower-lying, valley-like topography behind Convent Hill. Although the subject site lies beyond this vegetation, it is not clearly discernible due to the extent of screening and the enclosed nature of the landscape.
Viewpoint sensitivity:	Low
Proposed View:	The proposed development will be very limited in visibility from this location. Views into the site will remain largely screened by existing vegetation and boundary treatments. The only perceptible change will be the introduction of additional vegetation associated with the proposed entrance and landscaping along the eastern boundary. No built form will be visible from this viewpoint. As such, the development will not be readily perceptible and will integrate within the existing vegetated context.
Magnitude of Change	Negligible
Significance and Quality of Effect	Imperceptible and neutral.
Duration	Permanent
Cumulative Effects	No cumulative visual effects are anticipated.

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View No. 7	Kilbrogan Street (3)
Distance & Direction from Site	c. 10m south of the site boundary
Baseline View:	This view is taken from Kilbrogan Street, approximately 10m south of the site boundary, looking north-west towards the subject site. The foreground is defined by the carriageway of Kilbrogan Street. In the right midground, a partially visible ruined single-storey structure without a roof can be seen beyond the palisade-fenced entrance to the subject site. To the left of the view, part of No. 2 Kilbrogan Street (Eircode: P72 PA99) is visible, reinforcing the established residential character of the area. The wider landscape is characterised by dense vegetation, including mature trees and hedgerows, reflecting the lower-lying, valley-like topography behind Convent Hill. This vegetation provides a strong degree of enclosure and limits views into the subject site.
Viewpoint sensitivity:	Low
Proposed View:	The proposed development will be very limited in visibility from this location. The primary perceptible changes will relate to the revised site entrance and localised road improvements on Kilbrogan Street, including the introduction of a raised table and associated boundary treatments. New planting at the entrance will also be visible and will contribute positively to the streetscape. No built form associated with the proposed development will be visible from this viewpoint. As such, the development will not be readily perceptible and will integrate within the existing vegetated and urban context.
Magnitude of Change	Low
Significance and Quality of Effect	Not significant and neutral.
Duration	Permanent
Cumulative Effects	No cumulative visual effects are anticipated.

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View No. 8	Kilbrogan Street (4) – Entrance to Kilbrogan Farm
Distance & Direction from Site	c. 200m northeast of the site boundary
Baseline View:	This view is taken from Kilbrogan Street, outside the entrance to Kilbrogan Farm (Eircode: P72 KV22), looking south-west towards the subject site. The foreground is defined by the carriageway of Kilbrogan Street and the entrance piers and boundary treatment associated with Kilbrogan Farm. In the midground, the subject site is partially visible; however, it is not readily discernible as it blends with the surrounding vegetated landscape. The area appears as part of a broader expanse of trees, hedgerows and scrub vegetation. In the background, there are partial views of development along Convent Hill, including the Presentation Sisters Convent House (Eircode: P72 XT21), along with residential properties set along the rising topography. The wider landscape is characterised by dense vegetation and mature tree cover, reflecting the lower-lying valley context behind Convent Hill and providing a strong degree of visual enclosure.
Viewpoint sensitivity:	Low
Proposed View:	The proposed development will be partially visible in the distance from this viewpoint. A row of two-storey semi-detached dwellings will be perceptible at a lower elevation within the subject site, positioned below the rising landform of Convent Hill in the background. Due to this topographical relationship, the development will appear set within the landscape rather than prominent within it. Visibility will be filtered by intervening vegetation, and the development will read as part of the existing built edge of Bandon rather than as a standalone or visually dominant feature. The proposed architectural treatment, including the use of stone and render finishes with a natural slate colour palette, will integrate with the established residential character of the area. Proposed landscaping will further soften views and assist in assimilating the development into the surrounding environment over time.
Magnitude of Change	Low
Significance and Quality of Effect	Not significant and neutral.
Duration	Permanent
Cumulative Effects	No cumulative visual effects are anticipated.

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View No. 9	L2033 Coolfadda – Entrance to Inis Fáil
Distance & Direction from Site	c. 110m northwest of the site boundary
Baseline View:	This view is taken from the L2033 Coolfadda Road, outside the entrance to the Inis Fáil residential estate, looking south-east towards the subject site. The foreground is defined by the carriageway of the L2033 and the entrance piers and boundary treatment associated with Inis Fáil. Looking along the road, the midground is defined by existing residential development, including dwellings within Inis Fáil to the right and Inis Álainn to the left and left-centre of the view. These established residential areas frame views towards the site. The subject site is partially visible in the centre of the view as an area of gently rolling land with grass and naturalised vegetation. The wider town of Bandon is not prominently visible from this location, with the background characterised by a rolling landscape and intervening development.
Viewpoint sensitivity:	Low
Proposed View:	The proposed development will be partially visible in the distance from this viewpoint. Elements of the apartment buildings located along the northern boundary of the site will be visible, with views framed by the existing residential development at Inis Álainn and Inis Fáil. Above and beyond these buildings, partial views of rooflines of two-storey dwellings along Convent Hill will also be perceptible. Due to the intervening development and the topography of the site, the proposed buildings will not appear prominent or skyline-breaking. Instead, they will read as part of the established urban edge of Bandon. The scale, height and materiality of the proposed development are consistent with the surrounding residential context. The use of brick and render finishes with a natural slate colour palette ensures a cohesive visual relationship with existing housing in the area. Overall, the proposed development will integrate with the existing urban fabric and will not appear as a visually dominant or incongruous feature within the landscape.
Magnitude of Change	Low
Significance and Quality of Effect	Not significant and neutral.
Duration	Permanent
Cumulative Effects	No cumulative visual effects are anticipated.

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View No. 10	Car Park of St Patrick's Roman Catholic Church
Distance & Direction from Site	c. 1km southeast of the site boundary
Baseline View:	This view is taken from the car park of St Patrick's Roman Catholic Church, looking north-west towards the wider area in which the subject site is located. The foreground is dominated by the church car park and associated hardstanding. The view is framed to the left by St Peter's Church of Ireland, which forms a prominent built feature within the townscape. In the middle and far distance, views extend across the town, including glimpses of established and more recent residential development, such as the Coolfadda area. The Presentation Sisters Convent House (Eircode: P72 XT21) is also visible, along with additional residential properties set along rising topography. The subject site itself is not visible from this location due to intervening built development, vegetation and variations in topography.
Viewpoint sensitivity:	Medium
Proposed View:	The proposed development will not be visible from this viewpoint due to intervening landscape and built form.
Magnitude of Change	No change.
Significance and Quality of Effect	None.
Duration	Not applicable – there is no change.
Cumulative Effects	No cumulative visual effects are anticipated.

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View No. 11	Chapel Street
Distance & Direction from Site	c. 1km south of the site boundary
Baseline View:	This view is taken from Chapel Street, adjacent to St Peter's Church of Ireland, looking north towards the wider area in which the subject site is located. The foreground is defined by the carriageway of Chapel Street. The streetscape is enclosed by a mix of established buildings, including The Chimes (Eircode: P72 HE16), properties along Chapel Street (Eircode: P72 AP64), and The Arches on O'Mahony Avenue. These buildings form a strong urban edge and contribute to the enclosed character of the street. O'Mahony Avenue and the buildings defining its northern edge are visible in the centre of the view, reinforcing the dense urban grain of this part of Bandon. To the right, the boundary wall associated with St Peter's Church of Ireland forms a prominent edge, framing the view and contributing to the historic townscape character. The subject site is not visible from this location due to the extent of intervening built development and the enclosed nature of the streetscape.
Viewpoint sensitivity:	Medium
Proposed View:	The proposed development will not be visible from this viewpoint due to intervening landscape and built form.
Magnitude of Change	No change.
Significance and Quality of Effect	None.
Duration	Not applicable – there is no change.
Cumulative Effects	No cumulative visual effects are anticipated.

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View No. 12	St Finbarr's Place
Distance & Direction from Site	c. 750m southeast of the site boundary
Baseline View:	This view is taken from St Finbarr's Place, looking north-west towards the wider area in which the subject site is located. The foreground is defined by the carriageway of St Finbarr's Place, with Bandon Bridge occupying the centre of the view. The bridge provides access across the River Bandon, although the river itself is not clearly visible from this vantage point due to its position below quay level and the enclosing nature of the bridge structure and adjoining streets (Bridge Street and the bridge parapets). The surrounding townscape is characterised by a dense arrangement of buildings forming the historic urban core of Bandon. In the distance, the spire of the West Cork Heritage Centre (former Christchurch on North Main Street) is partially visible above and beyond the surrounding built form, acting as a local landmark. The subject site is not visible from this location due to the extent of intervening built development and the enclosed nature of the urban streetscape.
Viewpoint sensitivity:	Medium
Proposed View:	The proposed development will not be visible from this viewpoint due to intervening landscape and built form.
Magnitude of Change	No change.
Significance and Quality of Effect	None.
Duration	Not applicable – there is no change.
Cumulative Effects	No cumulative visual effects are anticipated.

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View No. 13	Oliver Plunkett Street
Distance & Direction from Site	c. 750m southeast of the site boundary
Baseline View:	This view is taken from Oliver Plunkett Street, looking north-west towards the wider area in which the subject site is located. The foreground is defined by the carriageway of Oliver Plunkett Street, with a bridge over the Bridewell River occupying the centre of the view. The bridge provides access across the river, although the watercourse itself is not clearly visible from this vantage point due to the enclosing parapets and surrounding built form. The surrounding townscape is characterised by a dense arrangement of buildings forming part of the historic urban core of Bandon. A terrace of two- and three-storey buildings along St Finbarr's Place occupies much of the centre of the view. The Methodist Church, Bridge Street (Eircode: P72 KD27), forms a prominent feature at the right end of this terrace. The subject site is not visible from this location due to the extent of intervening built development and the enclosed nature of the urban streetscape.
Viewpoint sensitivity:	Medium
Proposed View:	The proposed development will not be visible from this viewpoint due to intervening landscape and built form.
Magnitude of Change	No change.
Significance and Quality of Effect	None.
Duration	Not applicable – there is no change.
Cumulative Effects	No cumulative visual effects are anticipated.

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View No. 14	Glasslyn Road
Distance & Direction from Site	c. 1km southeast of the site boundary
Baseline View:	This view is taken from Glasslyn Road, in the vicinity of Bus Stop No. 236061, looking north-west towards the wider area in which the subject site is located. The foreground is defined by the carriageway of Glasslyn Road. The road is enclosed by mature trees and a stone boundary wall along the northern side, contributing to a strong sense of enclosure. A bus stop is visible on the far side of the road. Beyond the stone wall, the Topline Builders Providers building is partially visible, forming a notable commercial element within the local townscape. To the left of the view, partial glimpses of St Finbarr's Place are also visible. The subject site is not visible from this location due to the extent of intervening built development, vegetation and the enclosed nature of the urban streetscape.
Viewpoint sensitivity:	Low
Proposed View:	The proposed development will not be visible from this viewpoint due to intervening landscape and built form.
Magnitude of Change	No change.
Significance and Quality of Effect	None.
Duration	Not applicable – there is no change.
Cumulative Effects	No cumulative visual effects are anticipated.

View No. 15	N71 (at its junction with Casement Road)
Distance & Direction from Site	c. 1.4km south of the site boundary
Baseline View:	This view is taken from the N71 at its junction with Casement Road, looking north towards the wider area in which the subject site is located. The foreground is defined by the carriageways of the N71 and Casement Road. To the right of the view, part of Gaelscoil Dhroichead na Bandan is visible, contributing to the suburban character of the area. In the distance, views extend towards the town of Bandon, with Convent Hill rising beyond the town centre. The bell tower of St Patrick's Roman Catholic Church is visible as a prominent landmark within the townscape. The subject site is not visible from this location due to the extent of intervening built development, vegetation and variations in topography.
Viewpoint sensitivity:	Low
Proposed View:	The proposed development will not be visible from this viewpoint due to intervening landscape and built form.
Magnitude of Change	No change.
Significance and Quality of Effect	None.
Duration	Not applicable – there is no change.
Cumulative Effects	No cumulative visual effects are anticipated.

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7.5.7 MITIGATION AND MONITORING MEASURES

7.5.7.1 Construction Phase

While no specific landscape and visual mitigation measures are required beyond standard good practice, a range of measures are incorporated within the Construction and Environmental Management Plan (CEMP) prepared by PES. These measures will minimise temporary landscape and visual disruption during the construction phase.

The principal measures include:

- Site hoarding and/or fencing (typically c. 2.4m in height) to restrict views of construction activity where appropriate
- Protection of existing trees, hedgerows and vegetation, including the establishment of tree protection zones and retention measures
- Appointment of a qualified Arborist to oversee all works relating to trees
- Monitoring and maintenance of tree protection measures for the duration of construction
- Restriction of activities within tree protection zones, including prohibition of storage, parking or plant operation
- Use of hand-digging techniques where works are required within sensitive root protection areas
- Installation of tree protection fencing in accordance with BS 5837:2012 – Trees in Relation to Design, Demolition and Construction
- Placement of “Construction Exclusion Zone” signage at regular intervals along protective fencing
- Post-construction assessment of retained trees to ensure their ongoing health and stability

These measures will reduce the extent and duration of temporary construction effects, particularly for receptors in close proximity to the site.

7.5.7.2 Operational Phase

No additional LVIA-specific mitigation measures are required during the operational phase.

However, the proposed development has been designed from the outset to minimise visual effects and ensure appropriate integration within its surroundings. This embedded mitigation includes:

- The use of locally appropriate building materials, colours and architectural forms that reflect the established residential character of Bandon
- A comprehensive landscape strategy, prepared by Gannon + Associates, incorporating:
 - a linear stream park and riparian corridor
 - a network of public open spaces and pocket parks
 - structural planting, including street trees and native hedgerows
 - biodiversity enhancement areas and ecological corridors

These elements create a strong landscape framework that softens built form, reinforces green infrastructure, and enhances visual amenity.

Accordingly, the development will integrate effectively within the receiving environment and contribute positively to the evolving townscape of Bandon.

7.5.8 RESIDUAL EFFECTS

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7.5.8.1 Construction Phase Residual Effects

During the construction phase, temporary visual effects will arise from site clearance, earthworks, construction compounds, machinery, and construction traffic.

These activities will introduce temporary visual elements that contrast with the existing landscape and urban fringe character of the site. However, such effects will be short-term and limited to the duration of construction.

The implementation of mitigation measures, including site hoarding, vegetation protection and careful management of construction activities, will reduce the extent and intensity of these effects.

The residual effects during the construction phase are therefore assessed as: **Short-term, localised and slight to moderate adverse (not significant).**

7.5.8.2 Operational Stage

During the operational phase, the site will transition from a disturbed, semi-natural landscape to a completed residential development with an integrated landscape structure.

The proposed development will introduce built form, new streets, and landscaped open spaces. However, this change occurs within a site that is zoned for residential development and located within the development boundary of Bandon.

The embedded design and landscape strategy, including the retention of vegetation, integration of the riparian corridor, and provision of high-quality open spaces, ensures that the development integrates successfully into its surroundings.

Residual landscape and visual effects during the operational phase are therefore assessed as: **Slight beneficial to neutral and not significant.**

7.5.9 INTERACTIONS

As with any development that alters the visual environment, the landscape and visual effects of the proposed scheme interact with a number of environmental and social factors. The key interactions are outlined below:

- **Population and Human Health**

Changes to the visual environment have the potential to influence the perception, amenity and well-being of nearby residents and users of the area.

The proposed development has been designed as a high-quality residential scheme that responds appropriately to its context within Bandon. The scale, layout and architectural approach reflect the established suburban character of the area, while the integrated landscape strategy provides a strong green framework, including public open spaces, tree planting and a linear riparian park.

These embedded design measures will ensure that the development integrates successfully within its surroundings and enhances local visual amenity. Any potential adverse effects on residential amenity will be limited, localised and not significant.

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- **Material Assets**

The proposed development interacts with existing material assets, including surrounding residential areas, local roads, public open spaces and community infrastructure.

The site is located within the development boundary of Bandon on lands zoned for residential use, with established infrastructure and services in place. The development represents a logical extension of the existing urban form and will contribute to the consolidation of the town.

Given the scale and nature of surrounding development, and the absence of intervisibility with other large-scale schemes, interactions with material assets in landscape and visual terms are considered neutral and not significant.

- **Cultural Heritage**

The subject site is not located within, or adjacent to, any Architectural Conservation Areas, protected structures or recorded monuments.

While some heritage assets exist within the wider town (including St Patrick's Church, St Peter's Church and historic streetscapes), the assessment has demonstrated that the proposed development is either not visible or only very distantly perceptible from these locations.

Accordingly, there will be no significant interaction between the landscape and visual effects of the proposed development and cultural heritage assets. Any potential effects on the setting or visual context of such assets are negligible.

- **Biodiversity**

The proposed development has been designed to retain and integrate key landscape features within the site, including existing hedgerows, hedgerow trees and tree groups, particularly along the northern, eastern and southern boundaries, as well as selected internal boundary features.

In addition to their landscape and visual amenity value, these elements represent important ecological habitats and contribute to the wider green infrastructure network. Their retention and protection will support ecological continuity and provide established habitat corridors within the site.

The landscape strategy, as set out in the Landscape Design Statement prepared by Gannon + Associates, further enhances biodiversity through the introduction of extensive new planting, including native species, structural planting, and the creation of a riparian corridor and associated green spaces. These elements will strengthen habitat connectivity, support local biodiversity and integrate the development into the wider ecological network of Bandon.

Accordingly, the interaction between landscape and visual effects and biodiversity is considered to be positive, with the proposed development contributing to the enhancement of both ecological value and visual amenity.

7.5.10 CUMULATIVE EFFECTS

A review of relevant developments in the surrounding area was undertaken as part of the cumulative landscape and visual impact assessment.

A number of developments within the wider area were initially identified; however, many were screened out due to their distance from the subject site, lack of intervisibility, limited scale, or absence of potential to interact with the proposed development in landscape or visual terms.

There are no developments within the vicinity of the subject site that give rise to meaningful potential for cumulative landscape or visual effects. While a number of small-scale developments, including

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individual dwellings and minor extensions, have been permitted in the wider area, these are not of a scale or nature that would contribute to cumulative effects and are therefore not considered further.

The Knockbrogan LRD development (Application Reg. Ref. 25/6376), comprising 212 residential units, is located approximately 1km to the east of the subject site. However, this development is both physically and visually separated from the subject site by intervening topography, vegetation and established urban development. As such, there is no intervisibility between the two sites and no potential for combined or sequential visual effects.

7.5.10.1 Construction Phase

No cumulative construction effects are anticipated. Construction activity associated with the proposed development will be localised to the site and will not interact with other developments in a manner that would give rise to cumulative landscape or visual effects.

7.5.10.2 Operational Phase

During the operational phase, the proposed development will form part of the established and evolving residential pattern within Bandon. However, due to the absence of intervisibility with other large-scale developments, there will be no combined or sequential visual effects.

Accordingly, cumulative operational effects are considered to be imperceptible and not significant.

7.5.11 MONITORING

7.5.11.1 Construction Stage

Landscape and visual mitigation measures will be monitored during the construction stage to ensure their effective implementation.

This will include monitoring of:

- protection of retained trees and hedgerows;
- compliance with defined working areas;
- appropriate storage and reinstatement of soils;
- reinstatement of any disturbed landscape areas following construction works.

Any landscape areas temporarily disturbed during construction will be reinstated following completion of works.

7.5.11.2 Operational Stage

During the operational stage, monitoring will focus on the establishment and long-term success of landscape planting.

This will include:

- Monitoring of newly planted trees, hedgerows and landscaped areas during the establishment period
- Replacement of any failed planting to ensure successful establishment
- Ongoing maintenance in accordance with the Landscape Design Statement

These measures will ensure the long-term effectiveness of the landscape strategy.

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7.5.11.3 Difficulties Encountered

No difficulties were encountered during the compilation of this Assessment.

7.6 CONCLUSION

Based on the assessment presented in this chapter, the proposed development will result in localised changes to landscape character and visual amenity, primarily during the construction phase and within the immediate vicinity of the site.

During the construction phase, temporary and moderate adverse landscape and visual effects will arise due to site clearance, earthworks and construction activity. These effects will be short-term and reversible.

During the operational phase, the development will introduce a new residential landscape within a site zoned for such use under the Cork County Development Plan 2022–2028. The proposed development has been designed to respond to the site's topography, existing vegetation and surrounding urban context, and incorporates a comprehensive landscape strategy as set out in the Landscape Design Statement.

The assessment concludes that:

- Landscape effects will be moderate at a local level, reflecting the transition from a transitional/greenfield site to residential use.
- Visual effects will range from imperceptible to slight, and in some instances slight positive, particularly where the development replaces currently disturbed or unmanaged lands with a coherent and landscaped residential environment.

No significant adverse landscape or visual effects have been identified.

The proposed development will integrate with the existing and emerging urban structure of Bandon and will contribute to the establishment of a structured landscape framework, including green infrastructure, public open space and a riparian corridor, thereby enhancing the overall visual amenity of the area.

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SECTION B - THE NATURAL ENVIRONMENT

This Section of the Environmental Impact Assessment Report deals with the potential effects of the proposed development on the natural environment. The effects have been grouped as follows:

Impacts on Biodiversity

Impacts on Land – Soils, Geology, Hydrology and Hydrogeology

The various aspects of the natural environment interact to some degree with each other so that assessing one aspect in isolation can be misleading. For example, the survival of terrestrial fauna can be dependent on floral composition, which is in turn dependent on soil composition and groundwater levels. Similarly, the diversity of aquatic flora and fauna would be impacted by both hydrology and the quality of waters receiving drainage from the proposed scheme.

Human Beings also interact with the natural environment, often by altering land-use and landscape patterns for the purpose of agriculture and settlement.

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8.0 BIODIVERSITY

8.1 INTRODUCTION

This section outlines the biodiversity currently present in the area of the proposed development and assesses the impact of the proposal on the habitats and species identified. This section should be read in conjunction with the site layout plans for the proposed development and project description sections of the EIAR. Mitigation measures have been proposed where required.

The ecological assessment involved a desktop review and the undertaking of a field assessment of the site to identify habitats and species of flora and fauna present in order to determine the ecological diversity of this area. A Stage 2 Natura Impact Statement (Report Ref: PE_NIS_10432) has been prepared for the proposed development and accompany the planning application.

These reports were prepared by Paula Farrell BSc of Panther Ecology Ltd.

The objectives of the ecological assessment were as follows:

- To undertake a comprehensive desktop review to identify European sites (Natura 2000 sites) within the vicinity of the proposed development and to determine previously recorded fauna for the area;
- Other protected sites of national importance were identified within the vicinity of the proposed development;
- To undertake a field assessment of the proposed development site and surroundings;
- To evaluate the biodiversity value of the proposed development and surroundings;
- To determine and assess the potential impacts of the proposed development on biodiversity;
- To propose mitigation measures for both the construction and operational phases of the development, where required, to reduce potential impacts upon biodiversity.

8.2 LEGISLATIVE FRAMEWORK & PLANNING POLICY

8.2.1 LEGISLATIVE CONTEXT

Flora and fauna in Ireland are protected under National level by the Wildlife Act 1976, as amended, the European Habitats Directive (92/43/EEC) and the European Birds Directive (2009/147/EC).

Under the above legislation, sites of conservation importance are designated to legally protect flora and fauna under the following relevant categories:

Relevant European Legislation

- Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (The Habitats Directive);
- Directive 2009/147/EC of the European Parliament and of the Council on the conservation of wild birds (The Birds Directive);
- Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy (The Water Framework Directive);
- Directive 2006/44/EC of the European Parliament and of the Council of 6 September 2006 on the quality of fresh waters needing protection or improvement in order to support fish life (The Fish Directive (consolidated)).

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Relevant Irish Legislation

- The Wildlife Act 1976, as amended by the Wildlife Act 1976 (Protection of Wild Animals) Regulations, 1980, the Wildlife (Amendment) Act 2000, the Wildlife (Amendment) Act 2010, Wildlife (Amendment) Act 2012, European Communities (Wildlife Act, 1976) (Amendment) Regulations 2017 (The Wildlife Act), the Wildlife (Amendment) Act 2023;
- European Communities (Conservation of Wild Birds) Regulations 1985 (S.I. 291/1985) as amended by S.I. 31/1995;
- European Communities (Natural Habitats) Regulations, S.I. 94/1997 as amended by S.I. 233/1998 & S.I. 378/2005 (The Habitats Regulations);
- Fisheries (Consolidation) Act, 1959 (as amended), hereafter referred to as the Fisheries Act;
- European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477/2011) as amended 2015 (S.I. 355 of 2015);
- The Flora (Protection) Order, 2022 (S.I. No. 235/2022).

The main legislation pertaining to biodiversity and nature conservation in Ireland is outlined below.

The Wildlife Act, 1976 and Wildlife (Amendment) Act, 2023

The Wildlife Act is the primary piece of Irish legislation providing for the protection and conservation of wildlife and provides for the control of specific activities which could adversely affect wildlife, for example the regulation of hunting and wildlife trading. Under the Wildlife Act, all bird species, 22 other fauna species and 86 flora species in Ireland are afforded protected status. The Wildlife Act, 1976 allows for the designation of specific areas of ecological value such as Statutory Nature Reserves and Refuges for Fauna. The Wildlife (Amendment) Act, 2000 provides for greater protection and conservation of wildlife and also provides for the designation and statutory protection of Natural Heritage Areas (NHA).

The Flora (Protection) Order, 2022 (S.I. 235 of 2022)

This order provides statutory protection to flora listed in Section 21 of the Wildlife Act, 1976 and Wildlife (Amendment) Act, 2000. Under the Order, it is illegal to wilfully cut, uproot or damage the listed species or interfere in any way with their habitats.

European Communities (Birds and Natural Habitats) Regulations, 2021 (S.I. 293 of 2021)

These regulations transpose the European Council Directive 92/43/EEC on the Conservation of Natural Habitats and Wild Fauna and Flora (known as the “Habitats Directive”) and the European Council Directive 2009/147/EC on the Conservation of Wild Birds (known as the “Birds Directive”) into Irish Law. The regulations provide for the designation and protection of Natura 2000 sites comprising of Special Areas of Conservation (SAC) and Special Protection Areas (SPA). The regulations safeguard the SAC and SPA sites from developments with the potential to significantly impact upon them. The EC (Birds and Natural Habitats) Regulations also address invasive species, making it an offence without a licence to plant, allow to disperse, escape or spread, to reproduce or propagate, to transport, to sell or advertise invasive species specified in the regulations.

The Local Government (Water Pollution) Act, 1977, as Amended

This Act provides for the control of water pollution, by prohibiting the discharge of un-licensed polluting matter into waters.

European Communities Environmental Objectives (Surface Waters) Regulations, 2009 (S.I. 272 of 2009)

The regulations give statutory effect to Directive 2008/105/EC and provide legal status to quality objectives for all surface waters and environmental quality standards for pollutants. The regulations allow for the classification of surface waters by the Environmental Protection Agency (EPA) in accordance with the ecological objectives approach of the Water Framework Directive. The regulations also provide for the establishment of inventories of priority substances by the EPA and the preparation of pollution reduction plans.

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Water Framework Directive (2000/60/EC)

The Water Framework Directive (WFD) aims to improve the water environment (including groundwater, rivers, lakes, estuaries and coastal waters) of E.U. Member States. The aim of the WFD is for Member States to achieve and maintain “good status” in all water bodies.

The Fisheries (Consolidation) Act, 1959, as Amended

The Act prohibits the entry of polluting substances into waters, which have the potential to adversely impact upon fish, prohibits the obstruction of passage of certain fish species and provides legal protection to the spawn/fry of eels, salmon and trout, in addition to their spawning or nurse grounds.

Fisheries (Amendment) Act, 1999

This Act outlines the responsibilities of the Regional Fisheries Board to ensure the protection and conservation of fish and their habitats within its area of jurisdiction.

European Communities (Quality of Salmonid Waters) Regulations, 1988 (S.I. 293 of 1988)

These regulations give statutory effect to Directive 78/659/EEC. The regulations designate salmonid waters, specify the quality standards for designated salmonid waters and outline the monitoring requirements.

Planning and Development Regulations, 2001 to 2023

These regulations transpose the requirements of Directive 2014/52/EU (and previous Directive 2011/52/EU) on the assessment of the effects of certain projects on the environment into planning law. Under these regulations, development plans must include mandatory objectives for the conservation of natural heritage and for the conservation of European sites.

8.2.2 PLANNING POLICIES

National Policies

A number of documents have been published in relation to the Government’s commitment to sustainable development, including the National Planning Framework 2040, Ireland’s Second National Implementation Plan for the Sustainable Development Goals 2022-2024 and Our Sustainable Future A Framework for sustainable development in Ireland.

Regional Policies

The Regional Spatial & Economic Strategy (RSES) for the Southern Region, which includes the counties of Cork, Clare, Kerry, Limerick, Tipperary, Waterford, Carlow, Kilkenny and Wexford, outlines the long-term spatial planning strategy for the area. A number of policies relate to biodiversity and are relevant to the proposed development, as per **Table 8.1** below.

Table 8.1: Regional Policies Relevant to Biodiversity and the Proposed Development

REFERENCE	POLICY
RPO 117	It is an objective to avail of opportunities to enhance biodiversity and amenity and to ensure the protection of environmentally sensitive sites and habitats, including where flood risk management measures are planned. Plans and projects that have the potential to negatively impact on Natura 2000 sites are subject to the requirements of the Habitats Directive.
RPO 124	a. It is an objective to promote the concept of connecting corridors for the movement of wildlife and encourage the retention and creation of features of biodiversity value, ecological corridors and networks that connect areas of high conservation value such as woodlands, hedgerows, earth banks, watercourses and wetlands. The RSES recognises the necessity of protecting such corridors and the necessity to encourage the management of features of the landscape that support the Natura 2000 network; b. Green infrastructure will be integrated into the preparation of statutory land-use plans in the Region, which will include identifying Green infrastructure and strengthening this network; c. All Development Plans and Local Area Plans shall protect, enhance, provide and manage Green infrastructure in an integrated and coherent manner addressing the themes of biodiversity

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REFERENCE	POLICY
	protection, water management and climate action; and should also have regard to the required targets in relation to the conservation of European sites, other nature conservation sites, ecological networks, and protected species; d. Any future development of greenways, blueways, peatways, cycleways or walkways will include an assessment by the relevant authorities of any impacts that may arise from increased visitor pressures, in particular, on sensitive European sites and the design of the network will consider the provision of protective measures on sites sensitive to disturbance/visitor pressure.
RPO 126	a. Promote biodiversity protection and habitat connectivity both within protected areas and in the landscape through promoting the integration of green infrastructure and ecosystem services, including landscape, heritage, biodiversity and management of invasive and alien species in the preparation of statutory and non-statutory land-use plans. The RSES recognises the role of the National Biodiversity Data Centre through its Citizen Science initiatives; b. Support local authorities acting together with relevant stakeholders in implementing measures designed to identify, conserve and enhance the biodiversity of the Region; seek and support the implementation of the All-Ireland Pollinator Plan, National Biodiversity Action Plan and National Raised Bog SAC Management Plan; c. Local Authorities are required to carry out required screening of proposed projects and any draft land-use plan or amendment/ variation to any such plan for any potential ecological impact on areas designated or proposed for inclusion as Natura 2000/ European Sites and shall decide if an Appropriate Assessment is necessary, of the potential impacts of the project or plan on the conservation objectives of any Natura 2000/European Site; d. Support local authorities to carry out, monitor and review biodiversity plans throughout the Region. Planning authorities should set objectives in their land use plans to implement and monitor the actions as set out in the National and County Biodiversity Plans, as the conservation of biodiversity is an essential component of sustainable development. Local authorities should address the issue of fisheries protection and invasive introduced species and encourage the use of native species for landscape planting in rural areas, in the review of their biodiversity plans; e. Support local authorities to work with all stakeholders to conserve, manage and where possible enhance the Regions natural heritage including all habitats, species, landscapes and geological heritage of conservation interest and to promote increased understanding and awareness of the natural heritage of the Region.
RPO 127	It is an objective to: a. Support coordination between the Region's local authorities in terms of their measures to survey invasive species in their counties and coordinate regional responses; b. Encourage greater awareness of potential threats caused by invasive species and how they are spread; c. Carefully consider and implement the management of invasive species where there is a corridor, such as hydrological connections to European Sites in order to prevent the spread of invasive to sensitive sites.
RPO 128	It is an objective to support the implementation of the All-Ireland Pollinator Plan 2015-20 and future iterations. Local authorities should incorporate the actions of this Plan when managing their parks, open spaces, roadside verges and all vegetation in a way that provides more opportunities for biodiversity, while being cognisant of the threat of the spread of invasive species.

Local Policies

Local planning policies are detailed in the Cork County Development Plan, 2022 – 2028 (as varied). A number of policies relate to biodiversity and are relevant to the proposed development, summarised as follows:

Table 8.2: Summary of Local Policies Relevant to Biodiversity and the Proposed Development

POLICY REFERENCE	AREA
BE 15-1	a) Support and comply with the objectives of the National Biodiversity Plan 2017-2021 (and any future National Biodiversity Plan which may be adopted during the period of this Plan) as appropriate; b) Implement the current County Biodiversity Action Plan and any future updated Plan; c) Support and comply with biodiversity policy set out in other national and regional policy documents as appropriate.

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POLICY REFERENCE	AREA
BE 15-2	a) Protect all natural heritage sites which are designated or proposed for designation under European legislation, National legislation and International Agreements. Maintain and where possible enhance appropriate ecological linkages between these. (...) b) Provide protection to species listed in the Flora Protection Order 2015, to Annexes of the Habitats and Birds Directives, and to animal species protected under the Wildlife Acts in accordance with relevant legal requirements. c) Protect and where possible enhance areas of local biodiversity value, ecological corridors and habitats that are features of the County's ecological network. d) Recognise the value of protecting geological heritage sites of local and national interest, as they become notified to the local authority, and protect them from inappropriate development. e) Encourage, pursuant to Article 10 of the Habitats Directive, the protection and enhancement of features of the landscape, such as traditional field boundaries, important for the ecological coherence of the Natura 2000 network and essential for the migration, dispersal and genetic exchange of wild species.
BE 15-6	Provide for the protection and enhancement of biodiversity in the development management process and when licensing or permitting other activities by: a) Providing ongoing support and guidance to developers on incorporating biodiversity considerations into new development through preplanning communications and the Council's guidance document (...) and any updated versions of this advice; b) Encouraging the retention and integration of existing trees, hedgerows and other features of high natural value within new developments; c) Requiring the incorporation of primarily native tree and other plant species, particularly pollinator friendly species in the landscaping of new developments; d) Fulfilling Appropriate Assessment and Environmental Impact Assessment obligations and carrying out Ecological Impact Assessment in relation to development and activities, as appropriate; e) Ensuring that an appropriate level of assessment is completed in relation to wetland habitats subject to proposals which would involve drainage or reclamation. (...); f) Ensuring that the implementation of appropriate mitigation (...) is incorporated into new development, where the implementation of such development would result in unavoidable impacts on biodiversity - supporting the principle of biodiversity net gain.
BE 15-8	a) Protect trees the subject of Tree Preservation Orders. b) Make use of Tree Preservation Orders to protect important trees or groups of trees which may be at risk or any tree(s) that warrants an order given its important amenity or historic value. c) Encourage the provision of trees for urban shading and cooling in developments in urban environments and as an integral part of the public realm. d) Preserve and enhance the general level of tree cover in both town and country. Ensure that development proposals do not compromise important trees and include an appropriate level of new tree planting. e) Where appropriate, to protect mature trees/groups of mature trees and mature hedgerows that are not formally protected under Tree Preservation Orders.
BE 15-12	(...) c) Air emissions associated with all new development are to be in line with Environmental Quality Standards as set out in the Air Quality Standards Regulations 2011, or any updated/superseding documents.
BE 15-13	a) Seek the minimisation and control of noise pollution associated with activities or development, having regard to relevant standards, published guidance and the receiving environment. b) Ensure noise-sensitive developments are adequately protected from potential sources of noise (e.g. national roads). c) New developments should take account of, and mitigate against, any existing noise sources. Support the implementation of Noise Action Plans prepared for the Cork County area. d) Seek the minimisation and control of light pollution associated with activities of development, having regard to relevant standards, published guidance and the receiving environment and Dark Sky principles. e) Review and update Cork County Council Policy Guidelines for Public Lighting to take account of impacts of public lighting on wildlife and night skies.
BE 15-17	c) Construction and Environmental Management Plans (CEMPs)/ Construction and Demolition Management Plans shall be prepared for larger scale projects (...) and this requirement shall be assessed on a case-by-case basis as part of the development management process.

Bandon Kinsale Municipal District Local Area Plan

This local area plan was developed to ensure new developments are consistent with objectives of the Cork County Development Plan which underpins the “core principles of sustainability, social inclusion, quality of design and climate change adaptation.”

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Biodiversity Plans

Following on from Ireland's third National Biodiversity Plan 2017–2021, Ireland's fourth National Biodiversity Action Plan 2023-2027 has been drafted for public consultation and “*is set against a backdrop of unprecedented challenges for nature in Ireland and globally*”. It aims to build on from the successes of previous NBAP's. It sets out 6 objectives which include for a whole government approach to biodiversity, to meet conservation and restoration needs, to secure nature's contribution to people, embed biodiversity at the heart of climate action, enhance the evidence base for action on biodiversity and to strengthen Ireland's contribution to international biodiversity initiatives. The new plan also includes a set of targets and actions for each objective.

All-Ireland Pollinator Plan

In 2015, Ireland joined a number of other European countries in developing a strategy to address pollinator decline and protect pollination services. 68 governmental and non-governmental organisations agreed a shared plan, the “*All-Ireland Pollinator Plan 2015-2020*”. The new version “*All-Ireland Pollinator Plan 2021-2025*” seeks to build on from the success of the previous plan and identifies 186 actions to make Ireland pollinator friendly. The plan provides a total of 37 targets for six different objectives which include, farmland, public land, private land, All-Ireland Honeybee Strategy, conserving rare pollinators and strategic coordination of the plan.

8.3 METHODOLOGY

8.3.1 RELEVANT GUIDELINES

The following guidance documents have been consulted for this assessment, with a full list of consulted documentation and guidelines included within **Section 8.8**:

- *Draft Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment* (Department of Environment, Community and Local Government, August 2018);
- *Guidelines for Ecological Impact Assessment in the UK and Ireland* (CIEEM, 2018);
- *Guidelines on the information to be contained in Environmental Impact Assessment Reports* (EPA, 2022);
- *Guidelines for Assessment of Ecological Impacts of National Road Schemes* (NRA, 2009a);
- *A Guide to Habitats in Ireland* (Fossitt, 2000);
- *Best Practice Guidance for Habitat Survey and Mapping* (Smith *et al.*, 2011);
- *Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes* (NRA, 2009b);
- *Expedition Field Techniques: Bird Surveys* (Bibby *et al.*, 2000);
- *Bird census and survey techniques* (Gregory *et al.*, 2004);
- *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3rd edn.) (Collins 2016);
- *Bat Mitigation Guidelines for Ireland* (Kelleher and Marnell, 2006);
- *Bats and artificial lighting in the UK* (Bat Conservation Trust, 2018);
- *Bats & Lighting: Guidance Notes for Planners, Engineers, Architects and Developers* (Bat Conservation Ireland, 2010).
- *Bat Guidance Note 08/23: Bats and artificial lighting at night* (Bat Conservation Trust, 2023).

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- *Survey and Mitigation Standards for Barn Owls to inform the Planning, Construction and Operation of National Road Projects* (Birdwatch Ireland, 2021)

8.3.2 STUDY AREA / ZONE OF INFLUENCE

Following guidance set out by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2018) and the National Roads Authority (2009), a Zone of Influence should be determined, which identifies the area in which the development could potentially impact upon ecological receptors and aquatic environments. The zone of influence takes into consideration the assigned ecological values of the receptors, which ranges from international, national, county to local, and potential pathways for impacts to occur. The zone of influence also takes into consideration any watercourses within proximity of the proposed development.

Taking into consideration best practice guidance (Fossitt, 2000) and the nature of the development, the study area for the assessment ranges from the site boundary for habitats, to buffers of 100m for specific species. However, it should be noted that these buffers were extended where required.

The biodiversity assessment addresses the potential likely significant direct, indirect and cumulative effects of the proposed development on terrestrial and aquatic biodiversity, including flora, fauna, and habitats in proximity to the site. The assessment has been carried out in three stages:

1. Desktop assessment to determine existing information and records in relation to:
 - a. Sites, species, and habitats protected under Council Directive 92/43/EEC (Habitats Directive), and sites and species protected under Council Directive 2009/147/EC (Birds Directive), within the zone of influence of the proposed development and more distant hydrologically linked sites.
 - b. Biodiversity, habitats, and species present within/near the proposed development.
2. Walkover site surveys by an ecologist to establish the existing ecological conditions within the footprint of the proposed development and within the vicinity of all the proposed development elements.
3. Evaluation of the proposed development and determination of the scale and extent of potential likely direct and indirect significant effects on biodiversity (i.e., flora, fauna, and habitats) and the identification of appropriate mitigation and monitoring which may be required.

8.3.3 DESKTOP RESEARCH

Desktop research comprised of gathering information on designated sites within the Zone of Influence (ZoI) of the proposed development, reviewing mapping sites to provisionally identify any potential ecologically important features prior to the site assessment and reviewing online resources to determine what notable species, including protected, rare or invasive, had previously been recorded for the proposed development area and environs. The desktop review also comprised gathering information pertaining to the nearby watercourses and catchments, reviewing mapping sites and determining if notable aquatic species, including protected, rare or invasive, had previously been recorded for the watercourses in the vicinity of the proposed development. The following online resources were consulted as part of this process:

- National Parks and Wildlife Service (NPWS) website: mapping of designated sites and information on designated sites within the vicinity of the development;
- NPWS Wildlife Manuals for certain habitats and species;
- National Biodiversity Data Centre (NBDC) website: data on notable species (protected, rare or invasive) within the two 2km square (W45X) and 10km square (W45) in which the proposed development is located;

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- NPWS reports on “*The Status of Protected EU Habitats and Species in Ireland*”;
- NPWS Ireland Red Lists for species;
- Botanical Society of Britain and Ireland website: flora distribution maps;
- Data on the status of bird species from “*Birds of Conservation Concern in Ireland 2021-2026*”, (Gilbert, Stanbury and Lewis, 2021);
- Various mapping websites, including EPA Maps, Google Maps, Myplan and OSI.
- Protected Mammals Survey by Wildlife Surveys Ireland.

In addition to the above, the NPWS was contacted on the 16th of January 2026 in relation to records for sensitive, rare, threatened and protected species within 10km of the development location. Requested data from the NPWS was received and is included within table 8.10 of section 8.4.4.

Water quality data from the EPA was reviewed for the assessment of biological and environmental data collected on waterbodies in Ireland (September 2025).

8.3.4 FIELD SURVEYS METHODOLOGY

A number of ecological assessments were undertaken on the 25th February, 3rd March and 19th June 2025 to examine the ecological context of the proposed development, as outlined in **Table 8.3** below. Surveys had due consideration for the relevant best practice guidelines as referenced in **Section 8.3.1**.

Table 8.3: Ecological Surveys Informing the EIAR

SURVEY	STUDY AREA	SURVEY DATES
Habitat Survey	Complete Site & Boundary Buffer	25 th February, 3 rd March and 19 th June 2025
Fauna Survey	Complete Site & Boundary Buffer	25 th February, 3 rd March and 19 th June 2025
Badger Survey	Complete Site & Boundary Buffer	25 th February, 3 rd March and 19 th June 2025
General Bird Survey	Complete Site & Boundary Buffer	25 th February, 3 rd March and 19 th June 2025
Bat surveys	Complete Site & Boundary Buffer	26 th June, 29 th July and 14 th August 2025

Habitats and Flora Survey

This assessment involved determining the habitats and flora present within the proposed development. The habitat survey was undertaken in accordance with the standard methodology outlined in Fossitt’s “*A Guide to Habitats in Ireland*”, (Fossitt, 2000), a hierarchical classification scheme based upon the characteristics of vegetation present. The Fossitt system also indicates when there are potential links with Annex I habitats of the E.U. Habitats Directive (92/43/EEC). Cognisance was also taken of the Heritage Council guidelines, “*Best Practice Guidance for Habitat Survey and Mapping*”, (Smith *et al.*, 2011).

During the site walkover, any notable flora species were recorded, with an emphasis on statutorily protected or rare species, species of conservation significance and invasive species.

Fauna Survey (Excluding Bats)

Fauna surveys were undertaken during bright and dry weather conditions. Direct observation methods were used for the survey of fauna, however, these methods may not be suitable for shy and nocturnal species. Therefore, indirect methods were also employed, focusing on evidence of fauna including

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tracks, burrows/setts/nests, droppings, food items and hair. The habitats on site were assessed for signs of usage by fauna, and the potential to support protected or red-listed species.

Amphibian

A mapped watercourse runs through the site. Areas of grassland can also support protected amphibians. An assessment for amphibians was included within the look/search (NRA, 2009a) faunal surveys. In addition, habitat suitability was assessed.

Reptile Survey

Areas of the study area may provide suitable basking and refuge habitat for protected viviparous lizard (*Zootoca vivipara*). The numbers of viviparous lizard, if present at the site, are likely to be low and unlikely to be picked up in survey. This was included within the general walkover faunal surveys. In addition, habitat suitability was assessed.

Mammal surveys

As described above, look/search surveys (NRA, 2009a) for mammals including identifying evidence of mammals was conducted within the site walkover surveys for any protected fauna. No site-specific mammal surveys using trail cameras were required. In addition, habitat suitability was assessed.

Bat Survey – Daytime Walkover

Bat surveys were conducted on the 26th June, 29th July and 14th August 2025. This included a daytime walkover survey in order to observe and assess any habitats on site that would be suitable for bats to roost, forage and commute. Furthermore, passive bat surveys were conducted between the 29th July and 11th August 2025. These surveys were conducted during the optimal bat survey season.

The aim of the Daytime Bat Walkover is to determine the suitability of the site for bats and to inform the requirement for further surveys and how those surveys should be carried out. The suitability of the proposed development site for bats was categorised based on the guidelines by Collins (2023) given in **Table 8.4** below.

Table 8.4: Guidelines for assessing the potential suitability of proposed development sites for bats, based on the presence of habitat features within the landscape

Potential Suitability	Roosting habitats in structures	Potential flight-paths and foraging habitats
None	No habitat features on site likely to be used by any roosting bats at any time of the year (i.e. a complete absence of crevices/suitable shelter at all ground/underground levels.	No habitat features on site likely to be used by any commuting or foraging bats at any time of year (i.e. no habitats that provide continuous lines of shade/protection for flight-lines or generate/shelter insect populations available to foraging bats).
Negligible	No obvious habitat features on site likely to be used by roosting bats; however, a small element of uncertainty remains as bats can use small and apparently unsuitable features on occasion.	No obvious habitat features on site likely to be used as flight-paths or by foraging bats; however, a small element of uncertainty remains in order to account for non-standard bat behaviour.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically at any time of year. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions, and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity and not a classic cool/stable hibernation site but could be used by individual hibernating bats).	Habitats that could be used by small numbers of bats such as flight-paths such as a gappy hedgerow or un vegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a park-land situation) or a patch of scrub

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Potential Suitability	Roosting habitats in structures	Potential flight-paths and foraging habitats
Moderate	A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions, and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only, such as maternity and hibernation – the categorisation described in this table is made irrespective of species conservation status, which is established after presence is confirmed).	Continuous habitat connected to the wider landscape that could be used by bats for flight-paths such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	A structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions, and surrounding habitat. These structures have the potential to support high conservation status roosts, e.g. maternity or classic cool/stable hibernation site.	Continuous high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by bats for flight-paths such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses, and grazed park-land. Site is close to and connected to known roosts.

Bat Survey – Night-time Walkover

Night-time Bat Walkover (NBW) surveys were carried out across the site on the 26th of June, 29th of July and the 14th of August using an Anabat Walkabout Active Bat Detector. The surveys were carried out in accordance with the best practice methods outlined in the Bat Conservation Trusts “Bat Surveys for Professional Ecologists”, 4th Edition (Collins, 2023) with the aim of determining the level and type of bat activity on site. The Night-time Bat Walkover surveys were informed by the Daytime Bat Walkover Survey that was completed on the 26th of June 2025.

- The first NBW survey on the 26th of June commenced at 21:30 (c.30min before sunset) and concluded c. 1-hour post-sunset at 23:05. Temperatures were mild with 15.0°C at the start and 13.2° at the end of surveying. Wind: Moderate breeze, Cloud cover: 8 oktas. Light to heavy drizzle occurred at beginning and end of survey period.
- The second NBW survey on the 29th of July commenced at 21:12 (c. 15min before sunset) and concluded c. 2.5 hours post-sunset at 00:05. Temperatures were mild with 17°C at the start and 15° at the end of surveying. Wind: Calm, Cloud cover: 5 oktas, no precipitation.
- The third NBW survey on the 14th of August commenced at 20:30 (c. 30min before sunset) and concluded c. 2.5 hours post-sunset at 11:35. Temperatures were mild with 19°C at the start and 15.5° at the end of surveying. Wind: Calm, Cloud cover: 7 oktas, no precipitation.

All echolocation calls detected on site during the survey were recorded along with a time-stamped narrative. The Night-time Bat Walkover surveys were conducted in the form of transects. The starting point for each of the transects were varied to in order to ensure different areas within the site were surveyed at different times.

Passive Bat Survey

A Song Meter SM4BAT FS full spectrum passive ultrasonic detector with Cabled SMM-U2 low-noise microphone was deployed on site between the 29th of July and 14th of August 2025. The static bat detector was located in close proximity to the Kilbrogan Stream in order to assess the type and level of bat activity along the watercourse.

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Settings used were those recommended by the manufacture for bats. The static bat detector was set to record from 30 minutes before sunset until 30 minutes after sunrise. The Song Meter SM4BAT FS automatically adjusts the sunset and sunrise times using the Solar Calculation Method.

Bird Survey

Bird usage of the development site was assessed on the 25th February, 3rd March and 19th June 2025. While walking the development site, stops were undertaken on a regular basis during which time the area was scanned as far as the terrain or weather conditions allowed. Birds were identified by visual sightings and auditory identification of songs and calls. Birds flying overhead were also included as part of the survey.

Surveys Scoped Out

The following ecological features were scoped out:

Invertebrate (aquatic) / Fish surveys: The Kilbrogan stream runs through the development site. It is considered that the assessment of the potential impacts of the development upon water quality (discussed further in this section and within **Section 9**) is sufficient in assessing the potential impact of the development upon water quality and aquatic habitats and species. In addition, a desktop survey of freshwater species and invertebrates was undertaken using recent and available online data records from a number of sources as well as habitat suitability.

Bird Surveys: Wintering and breeding bird surveys were not undertaken as part of this application. The proposed development is located approximately 10.7km from the Courtmacsherry SPA. The avi-fauna associated with this SPA are mostly associated with freshwater lakes and coastal habitats. There are also no records of the QI's of this SPA noted onsite. Given the location of the development, common garden and hedgerow bird species would be expected. It is considered that the assessment of the potential impacts of the development upon bird species (discussed further in this section) is sufficient in assessing the potential impact of the development upon these species.

Survey Limitations

Every effort has been made to provide an accurate assessment of the situation pertaining to the site. However, an ecological survey can only assess a site at a particular time and is limited by various factors such as the season, timing of the survey, climatic conditions and species behaviour. Ecological surveys are therefore snapshots in time and should not be regarded as a complete study. Direct observations or evidence of protected species is not always recorded during ecological surveys. However, this does not indicate that the species is absent from the site.

To ensure any limitations encountered did not significantly impact upon the findings of the ecological assessments, the ecological surveys undertaken also assessed the potential of the habitats to support protected species, and cognisance has been taken of available online baseline data (e.g. flora and fauna records from the NBDC, consultation with NPWS regarding protected / threatened species, consultation with BCI regarding bat roost records, previous surveys undertaken by Wildlife Surveys) and a precautionary approach taken.

Habitat and bat surveys were conducted during the optimal survey times, weather conditions and seasons. A majority of the site was accessible however, some dense areas of scrub along the watercourse and to the east of the site were not accessible. Look search surveys were conducted to look for signs or evidence of protected species and mammal paths within areas of this scrub and to ascertain if trail cameras were required.

8.3.5 ECOLOGICAL VALUATION CRITERIA

The ecological value of the habitats and species identified at the development site have been assessed following the criteria outlined in the 2009 NRA guidelines and is consistent with the *Guidelines for*

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Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal (CIEEM, 2018).

RECEIVED: 01/05/2026

8.4 DESCRIPTION OF EXISTING ENVIRONMENT

8.4.1 SITE OVERVIEW AND SURROUNDINGS

The proposed development is for the construction of a Large-scale Residential Development and all ancillary site works and services located at Coolfadda and Kilbrogan, Co Cork.

The site is located on the periphery of an urban environment with residential dwellings, residential developments and commercial/amenity businesses within proximity. Agricultural lands dominate the wider environs.

The Natura 2000 sites within the Zone of Influence are the Courtmacsherry Bay SPA (Site Code: 004219) and the Bandon River SAC (Site Code: 002171) due to hydrological connection and closer proximity.

In-stream works will be required within a mapped watercourse (Kilbrogan), which runs through the site, to facilitate the surface water and foul water drainage network as stated above. In addition, one new pedestrian bridge and one new vehicular bridge will be constructed over the Kilbrogan watercourse to facilitate vehicular and pedestrian access to the north of the site. Foul water will be directed to the Bandon WWTP, which will discharge to River Bandon, while stormwater from the site will be discharged into the existing stream after passing through a number of SuDS features. Permeable paving will also be installed to allow water to infiltrate to ground and water butts will be provided to harvest rainwater. The proposed development will require the removal of some existing trees along the south boundary, sections of hedgerow to the west and north and internal areas of scrub, grassland and immature woodland. All other boundary vegetation will be retained. Furthermore, a majority of the existing vegetation will be retained within 10m either side of the Kilbrogan watercourse.

The expected construction timeframe of the proposed development is approximately 3 years with hours of operation from 7am to 7pm Monday to Friday, and 7am to 1pm on Saturdays in Summer months. However, when daylight hours are limited (October – March) construction works would be commence one hour after sunrise (dawn) and stop one hour before sunset (dusk).

8.4.2 DESIGNATED SITES

The proposed development does not directly impinge on any designated site. In total, there are eight designated sites located within the potential ZoI of the proposed development: Four Special Protection Area (SPA) sites, three Special Conservation Areas (SAC) sites and one Natural Heritage Areas (NHA) site. There are also eight proposed Natural Heritage Area (pNHA) sites within the potential ZoI of the development site. There are no RAMSAR sites, National Parks or Nature Reserve sites located within the potential ZoI of the development site.

Maps detailing these designated sites in relation to the proposed development are included in **Figure 8.1** below.

The following tables detail the SAC, SPA, NHA and pNHA sites located within the potential ZoI of the proposed development.

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Table 8.5: SAC Sites within potential Zol of the Proposed Development

SITE NAME	SITE CODE	APPROX. DISTANCE TO DEVELOPMENT	QUALIFYING INTERESTS	COMMENTS
Courtmacsherry Estuary SAC	001230	10.7km SE	[1130] Estuaries [1140] Mudflats and sandflats not covered by seawater at low tide [1210] Annual vegetation of drift lines [1220] Perennial vegetation of stony banks [1310] Salicornia and other annuals colonising mud and sand [1330] Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) [1410] Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [2110] Embryonic shifting dunes [2120] Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2130] Fixed coastal dunes with herbaceous vegetation (grey dunes)	Absence of designated habitats within the boundary of the site. No direct hydrological connection. No source-pathway-receptor relationship. Screened out.
Clonakilty Bay SAC	004081	16.8km SW	[1140] Mudflats and sandflats not covered by seawater at low tide [1210] Annual vegetation of drift lines [2110] Embryonic shifting dunes [2120] Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2130] Fixed coastal dunes with herbaceous vegetation (grey dunes) [2150] Atlantic decalcified fixed dunes (<i>Calluno-Ullicetea</i>)	Absence of designated habitats within the boundary of the site. No direct hydrological connection. Screened out.
Bandon River SAC	002171	22km W	[3260] Water courses of plain to montane levels with the <i>Ranunculus fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation [91E0] Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i>	Absence of designated habitats within the boundary of the site. Located upstream on the River Bandon.

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SITE NAME	SITE CODE	APPROX. DISTANCE TO DEVELOPMENT	QUALIFYING INTERESTS	COMMENTS
			[11029] <i>Margaritifera margaritifera</i> (Freshwater Pearl Mussel) [11096] <i>Lampetra planeri</i> (Brook Lamprey)	No records of listed species downstream of site however, Salmonoids potentially downstream. Further assessment is required. Screened in.

*Denotes a priority habitat under the Habitats Directive

Table 8.6: SPA Sites within potential Zol of the Proposed Development

SITE NAME	SITE CODE	DISTANCE TO PROPOSED DEVELOPMENT	SPECIAL CONSERVATION INTEREST	COMMENTS
Courtmacsherry Bay SPA	004219	10.7km SE	[A003] Great Northern Diver (<i>Gavia immer</i>) [A048] Shelduck (<i>Tadorna tadorna</i>) [A069] Red-breasted Merganser (<i>Mergus serrator</i>) [A140] Golden Plover (<i>Pluvialis apricaria</i>) [A142] Lapwing (<i>Vanellus vanellus</i>) [A149] Dunlin (<i>Calidris alpina</i>) [A156] Black-tailed Godwit (<i>Limosa limosa</i>) [A157] Bar-tailed Godwit (<i>Limosa lapponica</i>) [A160] Curlew (<i>Numenius arquata</i>) [A179] Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A182] Common Gull (<i>Larus canus</i>) [A855] Wigeon (<i>Mareca penelope</i>) [A999] Wetland and waterbirds	No direct hydrological connection. Land/air pathway. Screened in for further assessment due to closer proximity.
Clonakilty Bay SPA	000091	16.8km SW	[A048] Shelduck (<i>Tadorna tadorna</i>) [A149] Dunlin (<i>Calidris alpina</i>) [A156] Black-tailed Godwit (<i>Limosa limosa</i>)	No direct hydrological connection. Land/air pathway.

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SITE NAME	SITE CODE	DISTANCE TO PROPOSED DEVELOPMENT	SPECIAL CONSERVATION INTEREST	COMMENTS
			[A160] Curlew (<i>Numenius arquata</i>) [A999] Wetland and waterbirds	Significant terrestrial distance from site. No suitable associated habitats onsite. Screened out.
Old Head of Kinsale SPA	004021	19.8km SE	[A188] Kittiwake (<i>Rissa tridactyla</i>) [A199] Guillemot (<i>Uria aalga</i>)	No direct hydrological connection. Land/air pathway. Significant terrestrial distance from site. No suitable associated habitats onsite. Screened out.
Sovereign Islands SPA	004124	21.6km SE	[A017] Cormorant (<i>Phalacrocorax carbo</i>)	No direct hydrological connection. Land/air pathway. Significant terrestrial distance from site. No suitable associated habitats onsite. Screened out.

SITE NAME	SITE CODE	APPROX. DISTANCE TO PROPOSED DEVELOPMENT	COMMENTS
Sovereign Islands NHA	000105	22km SE	Absence of source-pathway-receptor relationship.

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SITE NAME	SITE CODE	APPROX. DISTANCE TO PROPOSED DEVELOPMENT	COMMENTS
			No significant effects predicted.

Table 8.7: NHA Sites within potential ZoI of the Proposed Development

Table 8.8: pNHA Sites within potential ZoI of the Proposed Development

SITE NAME	SITE CODE	APPROX. DISTANCE TO PROPOSED DEVELOPMENT	COMMENTS
Bandon Valley West of Bandon pNHA	001034	631m SW	Direct hydrological connection Screened in for further assessment
Bandon Valley Above Inishannon pNHA	001740	2.7km SE	Direct hydrological connection Screened in for further assessment
Bandon Valley Below Inishannon pNHA	001515	7km E	Direct hydrological connection Moderate hydrological distance from site. Absence of associated habitats. No significant effects predicted. No direct hydrological connection
Killaneer House Glen pNHA	001062	9.7km W	Absence of source-pathway-receptor relationship. No significant effects predicted.

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SITE NAME	SITE CODE	APPROX. DISTANCE TO PROPOSED DEVELOPMENT	COMMENTS
Courtmacsherry Estuary pNHA	001230	9.8km SW	No direct hydrological connection Absence of source-pathway-receptor relationship. No significant effects predicted.
Bateman's Lough pNHA	001037	11.9km SW	No direct hydrological connection Absence of source-pathway-receptor relationship. No significant effects predicted.
Garrettstown Marsh pNHA	001053	15km SE	No direct hydrological connection Absence of source-pathway-receptor relationship. No significant effects predicted.
James Fort pNHA	001060	17km SE	Weak hydrological connection. Significant terrestrial and hydrological distance.
			Absence of associated habitats onsite.
Garrylucas Marsh pNHA	000087	17km SE	No significant effects predicted. No direct hydrological connection
			Absence of source-pathway-receptor relationship.

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SITE NAME	SITE CODE	APPROX. DISTANCE TO PROPOSED DEVELOPMENT	COMMENTS
Old Head of Kinsale pNHA	000100	19.5km SE	No significant effects predicted. No direct hydrological connection Absence of source-pathway-receptor relationship. No significant effects predicted.

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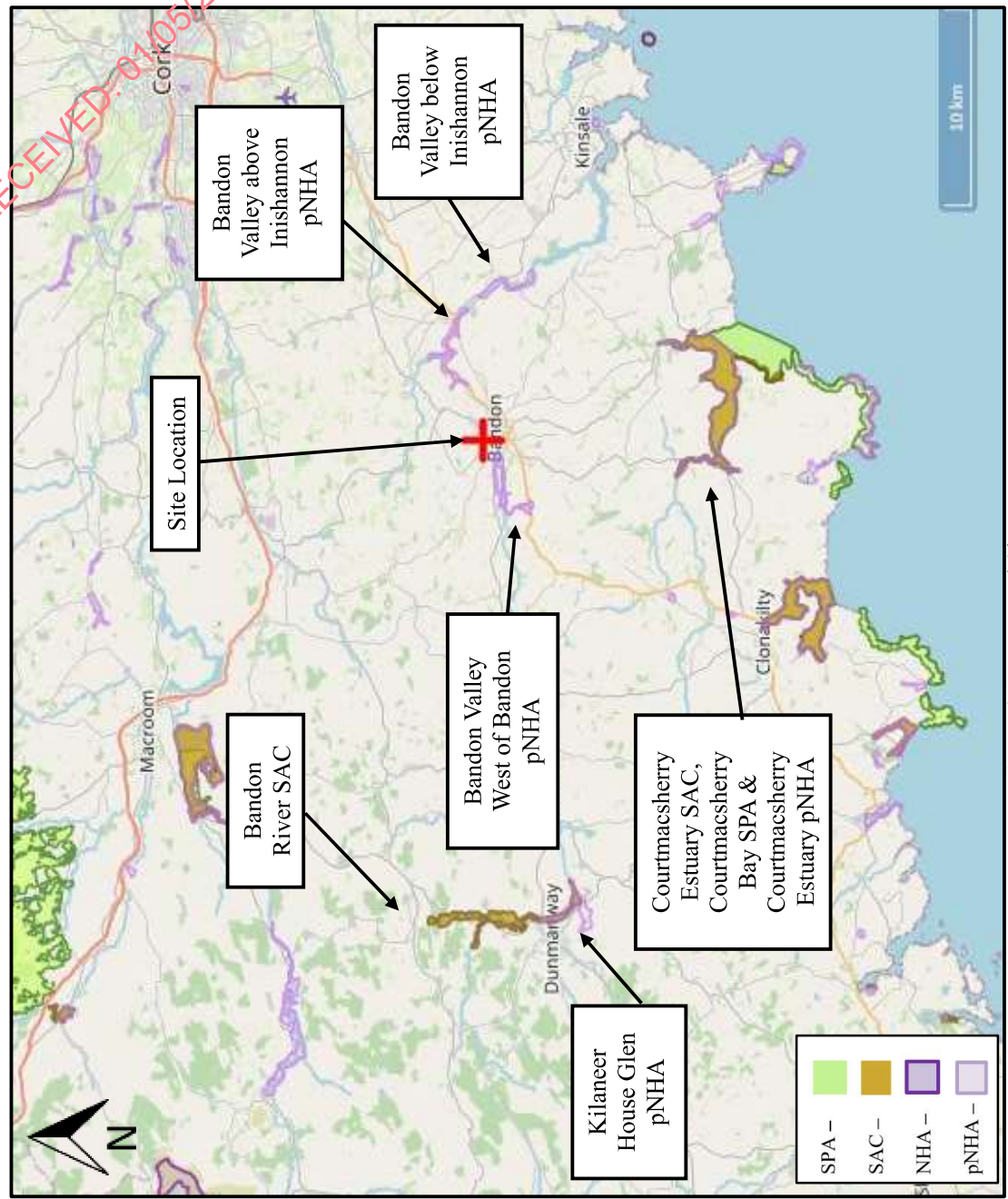


Figure 8.1: Protected Sites Map

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See accompanying Natura Impact Statement (Doc Ref: PE_NIS_10432) for significant effects on the Courtmacsherry Bay SPA and the Bandon River SAC.

Some of following Natura 2000 sites and Natural Heritage Areas are not hydrologically connected with the development while others would not be considered to be directly downstream from the site via surface or groundwater or would have a weak/remote hydrological connectivity: Courtmacsherry Estuary SAC (001230), Clonakilty Bay SPA (000091), Clonakilty Bay SAC (004081), Old Head of Kinsale SPA (004021), Sovereign Islands SPA (004124), Killaneer House Glen pNHA (001062), Courtmacsherry Estuary pNHA (001230), Bateman's Lough pNHA (001037), Garrettstown Marsh pNHA (001053), Garrylucas Marsh pNHA (000087) and Old Head of Kinsale pNHA (000100).

Therefore, in the absence of a source-pathway-receptor relationship and given the distances from the development, these sites have been screened out.

For this assessment, the sites considered to be within the zone of influence of the proposed development are the Bandon Valley West of Bandon pNHA (Site Code: 001034) and the Bandon Valley Above Inishannon (Site Code: 001740) due to proximity and hydrological connectivity with the proposed development. Available site synopses for these pNHA's are provided below.

Bandon Valley West of Bandon pNHA (Site Code: 001034)

The Bandon River flows almost due east for much of its course, following a natural synclinal valley that itself extends to Cloyne in East Cork. At Inishannon however, the river turns abruptly to the south crossing several ridges before reaching the sea at Kinsale. The interest of the valley lies partly in its aquatic habitats since the river has not been deepened artificially as is so often the case. Four Areas of Scientific Interest are located along the river. This site covers a section of river approximately 3km in length running downstream to within 1km west of Bandon. The Castlebernard Estate woodlands run along sections of the bank here.

The banks of the river have old estate woodlands with mature oak (*Quercus* spp.) and some Ash (*Fraxinus excelsior*). Rhododendron (*Rhododendron ponticum*) and Cherry Laurel (*Prunus laurocerasus*) invasion is occurring but as yet is not widespread. Felling of woodlands in this area has recently been widespread and hence greater importance can be placed on the remaining areas.

The 1986 An Forbas Forbatha report notes that the upper part of the Bandon River, before it sinks into a narrow gorge at Bandon, floods occasionally in winter and at such times attracts birds such as Lapwing and Curlew as well as Mallard and Teal. Cormorant and Heron fish throughout the course of the river.

The Bandon Valley is reported to have Otters in many places, a species listed on Annex II of the EU Habitats Directive as it is threatened within the EU.

The main land uses within the site are tree felling and clearing. This has much reduced the area of interest in recent years. Fishing is also important in this area.

This site is important as it contains remnants of broadleaved oak woodland. The Bandon Valley is especially valuable for its woodlands and unmodified river bed, a rare enough habitat in a European context.

Bandon Valley Above Inishannon pNHA (Site Code: 001740)

The Bandon River flows almost due east for much of its course, following a natural synclinal valley that itself extends to Cloyne. At Inishannon however, the river turns abruptly to the south, crossing several ridges before reaching the sea at Kinsale. The interest of the valley lies partly in its aquatic habitats since the river has not been deepened artificially as is so often the case. Four areas of scientific interest are located along

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the river. This site covers a section of the river 3km east of Bandon running approximately a further 4km downstream to Inishannon. The recent survey of this area reports it to be very scenic. Woodlands occur where the meanders of the valley approach the valley's edge and create steep slopes. The woodlands are semi-natural, mostly planted with species such as Sycamore (*Acer pseudoplatanus*) and Beech (*Fagus sylvatica*) mixed in with the native oaks (*Quercus* spp.). Some areas of commercial plantation occur near the railway tunnel and at Drumkeen Wood. The spread of Rhododendron (*Rhododendron ponticum*) is limited to small areas of the site.

Lower down in the Bandon Valley birdlife is more associated with woodland and involves characteristic species like owls, Sparrowhawk, Woodcock and Jay.

Cormorant and Heron fish throughout the river.

The valley is reported to have Otter in many places, a species listed in Annex II of the E.U. Habitats Directive as it is threatened within the E.U.

This area is important as it contains an example of oak woodland on steep valley sides. The Bandon Valley is especially valuable for its woodlands and unmodified river bed, which are a rare habitat in a European context.

8.4.3 FLORA & HABITATS

Desktop Survey – NBDC Records

Flora and fauna records (to January 2026) were reviewed on the National Biodiversity Data Centre (NBDC) website for the proposed development site and within the 10km hectad (W45) in which it is located in. Records for protected flora were also reviewed on the Flora Protection Order (2022) live map viewer.

No protected plant species under the Flora (Protection) Order, 2022 (S.I. No. 235 of 2022) were recorded within the 10km square (Hectad – W45).

There are no endangered flora species within the 10km hectad (W45).

Eight invasive flora species listed in the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011) as amended 2015 (S.I. No. 355 of 2015) include: Water Fern (*Azolla filiculoides*), Indian Balsam (*Impatiens glandulifera*), *Fallopia japonica x sachalinensis* = *F. x bohemica*, Giant Knotweed (*Fallopia sachalinensis*), *Rhododendron ponticum*, Three-cornered Garlic (*Allium triquetrum*), Himalayan Knotweed (*Persicaria wallichii*) and Japanese Knotweed (*Fallopia japonica*).

Desktop Survey – NPWS Data Request

The National Parks and Wildlife Service (NPWS) were contacted in relation to protected species records. Requested data from the NPWS was received and presented in table 8.10 of section 8.4.4.

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Field Surveys

The development site is located within a peri-urban environment, with the land in the immediate vicinity of the site and surrounding area mainly comprising residential estates, linear residential development and agricultural farm land. The nearest mapped watercourse to the development site is the Kilbrogan stream, that flows through the centre of the proposed development.

A number of site surveys were conducted on the 25th February, 3rd March and 19th June 2025. During the site walkovers, twelve main habitats were identified. The dominant habitats onsite were identified as **Dry calcareous and neutral grassland (GS1)**, **Wet grassland (GS4)**, **Scrub (WS1)** and **Recolonising bare ground (ED3)**.

Dry calcareous and neutral grasslands (GS1)

This grassland is prevalent to the west of the site with small sections occurring to the east. It is dry underfoot with the western portion less diverse. Flora species observed include Yorkshire Fog (*Holcus lanatus*), Meadow Foxtail (*Alopecurus pratensis*), Creeping Buttercup (*Ranunculus repens*), Ryegrasses (*Lolium* spp.), Ragwort (*Jacobaea vulgaris*), Dock (*Rumex* spp.), Creeping Thistle (*Cirsium arvense*), White Clover (*Trifolium repens*), Lesser Stitchwort (*Stellaria graminea*), Field Speedwell (*Veronica persica*), Nettle (*Urtica dioica*) and Common Mouse-ear (*Cerastium fontanum*).



Figure 8.2: Dry calcareous and neutral grassland (GS1)

Wet grassland (GS4)

This is the dominant grassland north-east of the watercourse that divides the lands. It was wet underfoot with areas of standing stagnant water observed during the initial site visits. In June, the grassland was drier in part but still contained some areas of standing water and saturated soil. This indicated poor draining soil.

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The species composition of this habitat varied throughout with some areas dominated by rushes and sedges (north-east) or by grasses and herbs (south-east). It also contained a mosaic of wet and dry plant species. Plants recorded north-east of the watercourse include Creeping Buttercup (*Ranunculus repens*), Compact Rush (*Juncus conglomeratus*), Soft Rush (*Juncus effusus*), Yorkshire Fog (*Holcus lanatus*), Creeping Thistle (*Cirsium arvense*), Dock (*Rumex* spp.), Lesser Trefoil (*Trifolium dubium*), Greater Bird's-foot Trefoil (*Lotus pedunculatus*), Lesser Spearwort (*Ranunculus flammula*), Brooklime (*Veronica beccabunga*), Common Spike Rush (*Eleocharis palustris*), Marsh Bedstraw (*Galium palustre*), Common Chickweed (*Stellaria media*), Water Figwort (*Scrophularia auriculata*), Cuckoo Flower (*Cardamine pratensis*), Ragged Robin (*Silene flos-cuculi*), Creeping Bent (*Agrostis stolonifera*), Silverweed (*Potentilla anserina*), Common Centaury (*Centaureum erythraea*) and Bent Grasses (*Agrostis* spp.). Sections of this grassland to the north-east appeared grazed from Rabbits.

This habitat also occurs south of the watercourse. There are three distinct elevations. The flora within the upper two elevations included many common species within the classic GS4 habitat. It is comprised of Compact Rush (*Juncus conglomeratus*), Soft Rush (*Juncus effusus*), Oval Sedge (*Carex leporina*), Silverweed (*Potentilla anserina*), Clover (*Trifolium* spp.), Lesser Trefoil (*Trifolium dubium*), Lesser Stitchwort (*Stellaria graminea*), Meadow Buttercup (*Ranunculus acris*), Dock (*Rumex* spp.), Ragged Robin (*Silene flos-cuculi*), Lesser Spearwort (*Ranunculus flammula*), Marsh Bedstraw (*Galium palustre*), Marsh Cudweed (*Gnaphalium uglinosum*), Creeping Buttercup (*Ranunculus repens*), Bent Grasses (*Agrostis* spp.), Clover (*Trifolium* spp.), Daisy (*Bellis perennis*), Spear Thistle (*Cirsium vulgare*), Common Mouse-ear (*Cerastium fontanum*) and Ragwort (*Jacobaea vulgaris*).



Figure 8.3: Wet grassland. Left: south-east, right: north-east

Scrub (WS1)

This habitat dominated to the east of the site, along boundaries and along the watercourse. Most of this habitat was species poor and had a poor field layer. The dominant plant species were Grey Willow (*Salix cinerea*) and Gorse (*Ulex europaeus*). Buddleia (*Buddleja davidii*) was also abundant in areas to the east. Other plants recorded include Cotoneaster, False-oat Grass (*Arrhenatherum elatius*), Sweet Vernal Grass (*Anthoxanthum odoratum*), Yorkshire Fog (*Holcus lanatus*), Nettle (*Urtica dioica*), Bindweed (*Convolvulus* spp.), Lesser Stitchwort (*Stellaria graminea*), Ribwort Plantain (*Plantago lanceolata*), Creeping Buttercup (*Ranunculus repens*), Creeping Thistle (*Cirsium arvense*), Silverweed (*Potentilla anserina*), Meadow Vetchling (*Lathyrus pratensis*), Greater Bird's-foot Trefoil (*Lotus pedunculatus*), Tutsan (*Hypericum* spp.), Foxglove (*Digitalis purpurea*), Dock (*Rumex* spp.), Himalayan Honeysuckle (*Lonicera periclymenum*), and Cocks-foot Grass (*Dactylis glomerata*).

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Much of the Willow scrub was below or approximately at 4m in height, with the odd tree greater than 4m in height.

Two areas of Willow along the north-eastern boundary held stagnant water during the first site assessments. Some areas were knee deep in muddy water. Water appeared to be trickling through a soil mound that divides the proposed development from agricultural lands to the north. The north-eastern stand (figure 8.3 (i)) of this wet Willow held more stagnant water however the ground flora was poorer. It included Mosses (Bryophyta), Creeping Buttercup (*Ranunculus repens*) and Water Forget-me-knot (*Myosotis scorpioides*). The ground flora of the north-western stand of this wet Willow scrub habitat (figure 8.3 (iii)) was denser with an area dominated by Fools water-cress. During the site assessment in June, the Willow scrub woodland to the east was dry (Figure 8.3 (ii)). The ground flora was sparse but included Watercress (*Nasturtium officinale*), Water Forget-me-knot (*Myosotis scorpioides*), Creeping Buttercup (*Ranunculus repens*), Lesser Spearwort (*Ranunculus flammula*) and Marsh Bedstraw (*Galium palustre*). The western portion contained stagnant water still 1ft deep (Figure 8.3 (iv)). Water was observed flowing in a westerly direction into a swampy habitat. The ground flora comprised of Watercress (*Nasturtium officinale*), Creeping Buttercup (*Ranunculus repens*), Water Figwort (*Scrophularia umbrosa*), Marsh Bedstraw (*Galium palustre*), Red Waterfern (*Azolla filliculoides*) and Ragged Robin (*Silene flos-cuculi*).

It is probable that surface water drains from the agricultural lands to the north and is held in these wet willow areas. Past activities identified from satellite imagery shows vegetation clearance had taken place as is evident by mounds of soil. This is potentially also contributing to the presence of stagnant water onsite. The trees to the forefront of these areas were young while some trees to the back were $\pm$ 4m in height. These areas of Willow appear to be transitional between **Scrub (WS1)** and a woodland akin to **Wet willow-alder-ash woodland (WN6)**, although the field layer is absent of species associated with this woodland habitat type.

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Figure 8.4: Scrub (WS1) and transitional Wet willow-alder-ash woodland (WN6)

Recolonising bare ground (ED3)

Due to over-grazing and poaching in the past, recolonising vegetation dominates certain areas of the site, particularly under scrub along an access route within the centre and to the east. The plant species composition is comprised of Red Clover (*Trifolium pratense*), Cock's-foot Grass (*Dactylis glomerata*), Daisy (*Bellis perennis*), Common Bent (*Agrostis capillaris*), Dandelion (*Taraxacum* agg.), Ribwort Plantain (*Plantago lanceolata*), Greater Bird's-foot Trefoil (*Lotus pedunculatus*), Two-spine Acaena (*Acaena ovalifolia*), Lesser Stitchwort (*Stellaria graminea*), Ragwort (*Jacobaea vulgaris*), Great Willowherb (*Epilobium hirsutum*), Hoary Willowherb (*Epilobium parviflorum*), Soft Rush (*Juncus effusus*), Common Spike Rush (*Eleocharis palustris*), Sharp/Jointed Rush (*Juncus* spp.) and Bohemian Knotweed (*Fallopia x bohemica*).

This accessway leads to an area that was overgrazed by horses and is now recolonising. The vegetation here is not typical of recolonising habitats as this would most likely be areas of wet grassland if allowed to grow. Species recorded in this area includes Scarlet Pimpernel (*Anagallis arvensis*), Creeping Buttercup (*Ranunculus repens*), White Clover (*Trifolium repens*), Red Clover (*Trifolium pratense*), Silverweed (*Potentilla anserina*), Sweet Vernal Grass (*Anthoxanthum odoratum*), Compact Rush (*Juncus conglomeratus*), Yorkshire Fog (*Holcus lanatus*), Annual Meadow-grass (*Poa annua*), Toad Rush (*Juncus bufonis*), Marsh Cudweed (*Gnaphalium uglinosum*), Meadow Buttercup (*Ranunculus acris*), Fumitory (*Fumaria* spp.), Pill Sedge (*Carex pilulifera*), Cut-leaved Crane's-bill (*Geranium dissectum*), Common Spike-rush (*Eleocharis palustris*) and Oval Sedge (*Carex leporine*).

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Figure 8.5: Hedgerows (WL1)

Immature woodland (WS2)

This habitat occurs on some rocky areas to the south-east boundary of the site. Species recorded include Willow (*Salix* spp.), Birch (*Betula* spp.), Sycamore (*Acer pseudoplatanus*) with some areas dominated by Buddleia (*Buddleia davidii*) and Gorse (*Ulex europaeus*). Some young Rhododendron were also found within this habitat.

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Figure 8.6: Immature Woodland (WS2)

Eroding/upland Rivers (FW1)

The Kilbrogan watercourse running through the site has been classified as **eroding/upland rivers (FW1)**. Some areas of sediment were observed further east but were not a common feature. The substrate was rocky with cobbles and large rocks within. The water was clear and fast flowing in an easterly direction. The majority of this watercourse was inaccessible. The height of the banks varied from <0.5m to >1m in height. It is culverted as it enters and leaves the development site boundaries. Species along the margins of the watercourse included Opposite-leaved Golden-saxifrage (*Chrysosplenium oppositifolium*), Lesser Celandine (*Ficaria verna*), Bramble (*Rubus fruticosus* agg.), Lords-and-Ladies (*Arum maculatum*), Hart's-tongue Fern (*Asplenium scolopendrium*), Herb Robert (*Geranium robertianum*), Watercress (*Nasturtium officinale*) and Water Figwort (*Scrophularia auriculata*). Flooding was evident in only one location during the initial site assessment that could be accessed where deposited silt was observed. The riverbanks here are also lower.

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Figure 8.7: Eroding/upland rivers (FW1)

Broadleaved Woodland (WD1)

This habitat occurs along the watercourse to the north-east of the site. It comprises Willow (*Salix* spp.) and Alder (*Alnus glutinosa*). Most of this habitat was surveyed however, the full extent of this habitat along the watercourse is unknown due to very dense scrub along the eastern end which limited surveying. The canopy reached heights greater than 5m in height. Although this habitat is located within a known flood zone as per the OPW Floodmaps, there was no evidence to suggest flooding although minor evidence of flooding was noted within a grassland adjacent. The understory of this habitat is comprised of Brambles (*Rubus fruticosus* agg.) and Hawthorn (*Crataegus monogyna*).

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Figure 8.8: Broadleaved Woodland (WD1)

Reed and large sedge swamp (FS1)

In close proximity to the wet Willow scrub/transitional woodland to the north-west of the site is a small area classified as Reed and large sedge swamps. Water from the transitional woodland appears to drain into this swampy area. This habitat was much drier during the site visit in June although there were still some areas of stagnant water. A second area akin to this habitat is found to the east of the site where water pools from the north-eastern wet willow area. Standing water reached a depth of 30cm in parts. This habitat covers a very small area in comparison to the entire site. Species recorded include Bullrush (*Typha* spp.) with Red Waterfern (*Azolla filliculoides*), Creeping Buttercup (*Ranunculus repens*), Brookline (*Veronica beccabunga*), Water Forget-me-knot (*Myosotis scorpioides*), Moss (Bryophyta), Marsh Bedstraw (*Galium palustre*), Soft Rush (*Juncus effusus*), Willow (*Salix* spp.) saplings, Cuckoo Flower (*Cardamone pratensis*), Lesser Spearwort (*Ranunculus flammula*) and Ragged Robin (*Silene flos-cuculi*).

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Figure 8.9: Reed and large sedge swamp (FS1) (Left: March, Right: June 2025)

Hedgerows (WL1)

A hedgerow occurs along the northern boundary of the site with the agricultural grassland. It is dominated by Hawthorn (*Crataegus monogyna*). Linear scrub also occurs to the south-west of the site in proximity of the existing site entrance and extends along the western boundary. It is comprised of Brambles (*Rubus fruticosus* agg.), Gorse (*Ulex europaeus*), Grey Willow (*Salix cinerea*), Buddleia (*Buddleja davidii*), Traveller's Joy (*Clematis vitalba*), Lesser Stitchwort (*Stellaria graminea*) and Rough Meadow-grass (*Poa trivialis*). Scattered trees intersperse this scrub hedgerow and include Hawthorn (*Crataegus monogyna*), Ash (*Fraxinus excelsior*) and Sycamore (*Acer pseudoplatanus*).



Figure 8.10: Hedgerows (WL1)

Spoil and bare ground (ED2)

Areas of spoil due to trampling and disturbance occur adjacent to recolonising areas and at the site entrance. Plant species recorded within this habitat include Moss (Bryophyta), Annual Meadow-grass (*Poa annua*), Nettle (*Urtica dioica*), Ribwort Plantain (*Plantago lanceolata*), Creeping Buttercup (*Ranunculus repens*), Cat's-ear (*Hypochaeris radicata*), Scarlet Pimpernel (*Anagallis arvensis*), Bramble (*Rubus fruticosus* agg.), Prickly Sowthistle (*Sonchus asper*), Daisy (*Bellis perennis*), Spear Thistle (*Cirsium vulgare*), Fumitory (*Fumaria* spp.), Cleavers (*Galium aparine*) and Cock's-foot Grass (*Dactylis glomerata*).

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Figure 8.11: Spoil and bare ground (ED2)

Buildings and Artificial surfaces (BL3)

This habitat encompasses old trailers, sheds, a mobile home onsite and artificial surfaces comprised of gravel.

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Figure 8.12: Buildings and artificial surfaces (BL3)

Treelines (WL2)

A treeline habitat occurs to the north-west corner of the site on the far side of the watercourse. This is within the red line boundary but outside the development area. It includes a number of mature trees such as Pedunculate Oak (*Quercus robur*), Willow (*Salix* spp.), Poplar (*Populus* spp.) and Alder (*Alnus* spp.).

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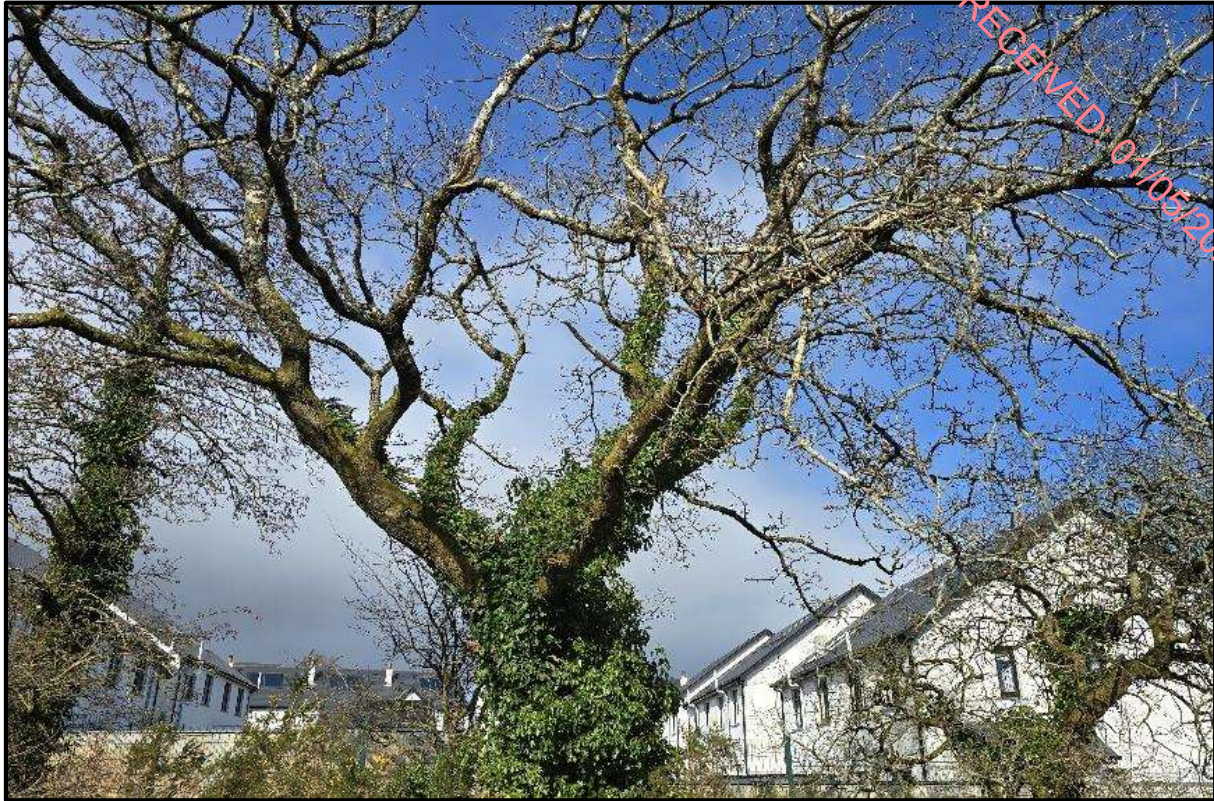


Figure 8.13: Treeline (WL2)

HABITATS OF NOTE OUTSIDE THE RED LINE BOUNDARY

Amenity Grassland (GA2)

This managed grassland occurs within the park to the east of the red line boundary of the site. The sward height is a mixture of short and some taller grasses and some areas are more frequently mowed than others. Plant species recorded include Creeping Buttercup (*Ranunculus repens*), Bent Grasses (*Agrostis* spp.), Yarrow (*Achillea millefolium*), Lesser Stitchwort (*Stellaria graminea*), Yorkshire Fog (*Holcus lanatus*), Ryegrasses (*Lolium* spp.) and Clover (*Trifolium* spp.).

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Figure 8.14: Amenity grassland (GA2)

Dry Meadows and Grassy Verges (GS2)

Areas of tall grasses occur along the margins of the park to the east of the site. They are located along a wall adjacent a local road. The composition is comprised of False-oat Grass (*Arrhenatherum elatius*), Creeping Buttercup (*Ranunculus repens*), Nettle (*Urtica dioica*), Bramble (*Rubus fruticosus* agg.), Hogweed (*Heracleum sphondylium*), Dock (*Rumex* spp.), Elder (*Sambucus nigra*) and Cleavers (*Galium aparine*).

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Figure 8.15: Dry meadows and grassy verges (GS2)

Buildings and artificial surfaces (BL3)

This habitat comprised the local road network and bridges to the east and west over the mapped watercourse. Flora were recorded growing on the walls and includes Ornamental Rose (*Rosa* spp.) and Navelwort (*Umbilicus rupestris*). Three-cornered Garlic (*Allium triquetrum*) was recorded along the roadside verge south of the site.

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Figure 8.16: Buildings and artificial surfaces (BL3)

Treeline (WL2)

A treeline comprising of Hornbeam (*Carpinus* spp.) borders the GAA pitch from a residential development.

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Figure 8.17: Treeline (WL2)

No habitats associated with the Bandon River SAC were recorded onsite and the classified habitats do not fall under the categories for any annex I habitat type. No protected plant species listed under the Flora Protection Order (2022) were recorded within the boundary of the site. A number of third schedule invasive flora were recorded within and adjacent the site boundary. This includes Three-cornered Garlic (*Allium triquetrum*), Rhododendron, Bohemian Knotweed (*Fallopia x bohemica*), Spanish Bluebell (*Hyacinthoides hispanica*) and Red Waterfern (*Azolla filliculoides*).

The fourteen habitats identified as per the Fossitt habitat classification scheme for the proposed development are summarised in **Table 8.9** and are shown on a habitat map included as **Figure 8.18**. A photo log is included in **Appendix C** of the NIS document.

Table 8.9: Summary of Habitats Identified at and Adjacent to the Proposed Development Site

HABITAT CLASSIFICATION HIERARCHY		
LEVEL 1	LEVEL 2	LEVEL 3
B – Cultivated and built land	BL – Built Land	BL3 – Buildings and artificial surfaces
E – Exposed rock and disturbed ground	ED – Disturbed ground	ED2 – Spoil and bare ground
		ED3 – Recolonising bare ground
W – Woodland and scrub	WL – Linear woodland/scrub	WL1 - Hedgerows
		WL2 - Treelines
	WS – Scrub/transitional woodland	WS1 - Scrub
		WS2 – Immature Woodland

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HABITAT CLASSIFICATION HIERARCHY		
LEVEL 1	LEVEL 2	LEVEL 3
	WD – Highly modified/non-native woodland	WD1 – Broadleaved woodland
F - Freshwater	FS - Swamps	FS1 – Reed and large sedge swamps
	FW - Watercourses	FW1 – Eroding/upland Rivers
G – Grassland and marsh	GS - Semi-natural grassland	GS1 – Dry calcareous and neutral grassland
		GS2 – Dry meadows and grassy verges
		GS4 – Wet grassland
	GA – Improved grassland	GA2 – Amenity grassland (improved)

The wet grassland and scrub habitats that cover a large area of the site would be considered of high ecological value locally given their extensive coverage and potential to support local fauna. Other locally high valued habitats within and adjacent to the site would be the identified hedgerows, treelines, reed and large sedge swamps, eroding/upland rivers, broadleaved woodland and transitional scrub/wet willow/alder/ash woodland. The remainder of the habitats at the site can be considered modified and of low ecological value.

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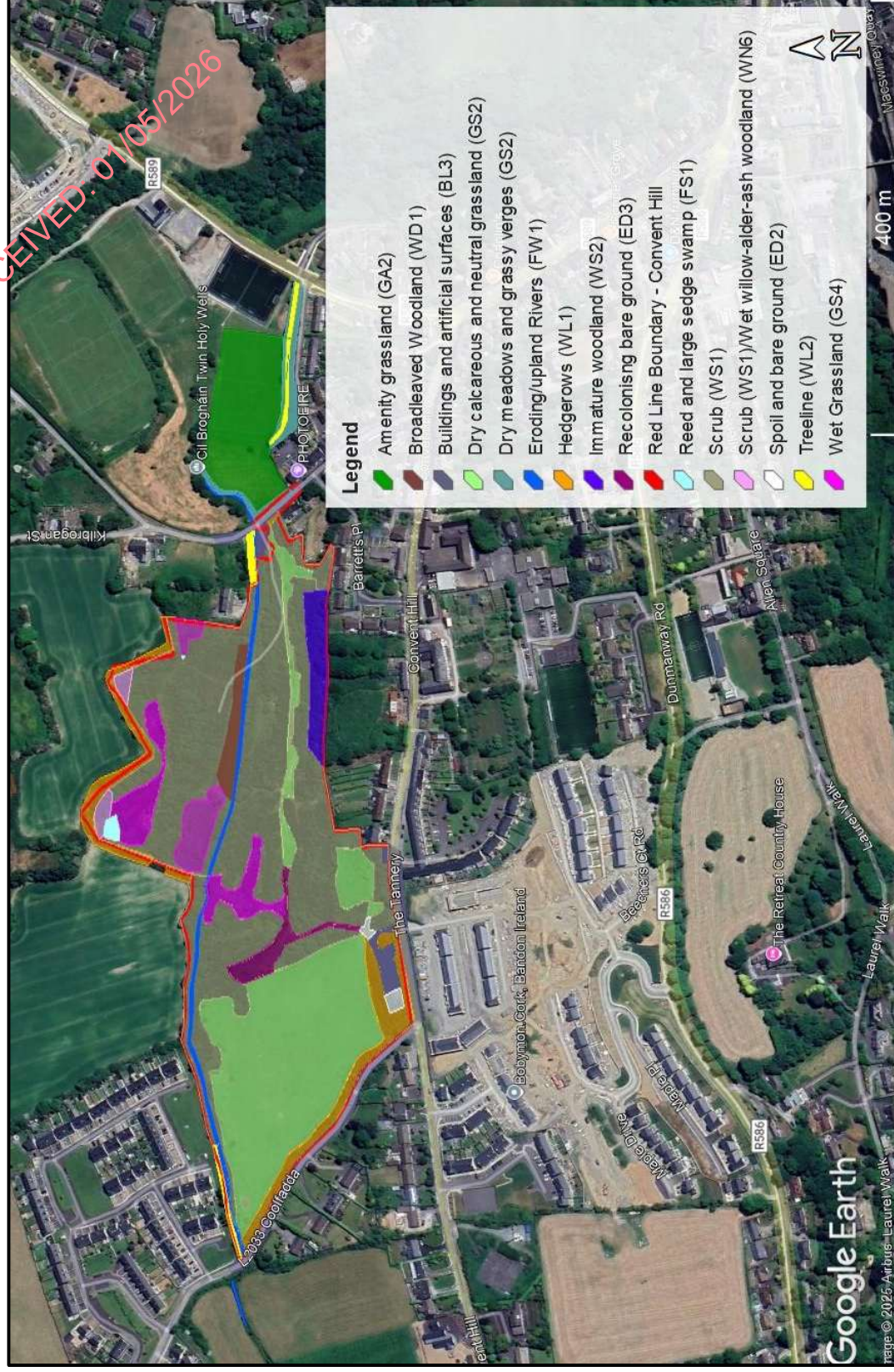


Figure 8.18: Habitat Map of Encountered Habitats at the Proposed Development Site

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8.4.4 FAUNA (EXCLUDING BATS)

Fauna – Desktop NBDC Records

Fauna records for the previous thirty years were reviewed on the NBDC website for the 10km square (Tetrad – W45) in which the proposed development is located. Fauna of note within the tetrad W45 include the protected species: Common Frog (*Rana temporaria*), Marsh Fritillary (*Euphydryas aurinia*), Common Lizard (*Zootoca vivipara*), Eurasian Red Squirrel (*Sciurus vulgaris*), Badger (*Meles meles*), Otter (*Lutra lutra*) and Hedgehog (*Erinaceus europaeus*). Third schedule invasive fauna species include: American Mink (*Neovison vison*), Fallow Deer (*Dama dama*), Sika Deer (*Cervus nippon*) and Harlequin Ladybird (*Harmonia axyridis*).

The National Parks and Wildlife Service (NPWS) were contacted in relation to protected species records. Requested data from the NPWS is shown below.

National Parks and Wildlife Services Records

Records of protected, rare or threatened fauna species within 10km (W45) of the development site obtained from the NPWS are included in **Table 8.9** below.

Table 8.10: Records of Protected, Rare or Threatened Fauna Species from the NPWS.

COMMON NAME	SCIENTIFIC NAME	PROTECTION ^{1,2}	CONSERVATION STATUS ^{3,4}
Pale Toadflax	<i>Linaria repens</i>	-	Near Threatened
Irish Stoat	<i>Mustela erminea subsp. hibernica</i>	WA	Least Concern
Hedgehog	<i>Erinaceus europaeus</i>	WA	Least Concern
Badger	<i>Meles meles</i>	WA	Least Concern
Ivy-leaved Bellflower	<i>Wahlenbergia hederacea</i>	-	Near threatened
Common Lizard	<i>Zootoca vivipara</i>	WA	Least Concern

Notes:

¹ HD II/IV/V = Habitats Directive Annexes II/IV/V; WA = Wildlife Acts; BD I/II/III = Birds Directive Annex I/II/III.

² Flora Protection Order 2022

³ Checklists of Protected and Threatened Species in Ireland (Nelson *et al.*, 2019).

⁴ IUCN Red list <http://www.iucnredlist.org/> - accessed April 2026

NPWS also make reference to the proposed development being located within a sensitive catchment area for Freshwater Pearl Mussel.

Fauna – Field Surveys

Badger

During the site walkover, there was no evidence of Badger including setts, latrines or runs within the boundary of the site. There are no NBDC records for Badger within the development red line boundary. There are records for Badger within the 10km tetrad (W45) in which the proposed development is located. It is possible that areas of the development site may be used by badgers for foraging and would offer suitability.

Otter

There was no evidence of Otter (including holts, couches, spraints) recorded during the site assessments. Otter may be present within the general area. There are also no NBDC records of Otter within the development site and very few records in the wider environs. The watercourse that divides the site could

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be used by commuting Otter. Within the areas of this watercourse that were accessible, no Otter couches or holts were identified. The banks of the watercourse appear to reduce in height towards the east of the site. Furthermore, thick scrub is the dominant component along the watercourse. Some areas of potential terrestrial foraging habitat will be removed however, the vegetation along the riparian zone will be retained. Instream works have the potential to cause a deterioration in water quality should this species occur downstream of the site.

Amphibians and Reptiles

Ireland is home to three native amphibians, two of which are commonly found throughout Ireland. Common Frog (*Rana temporaria*) was confirmed as breeding within the wet grassland and reed swamp habitats to the north of the site. Some of the existing wet grassland will be retained while new areas of wet grassland and reed swamp habitats are proposed within the landscape plan. The hedgerows and scrub onsite could offer hibernation habitat and migration corridors for the Common Frog or the Smooth Newt (*Lissotriton vulgaris*). The proposed development site would offer limited suitable basking habitat for the Viviparous Lizard (*Zootoca vivipara*), Ireland's only native reptile. No lizards were noted during the site assessment. NBDC website for the 2km grid square W45X include the protected species Common Frog (*Rana temporaria*) and Common Lizard (*Zootoca vivipara*).

Pine Marten

Pine Marten (*Martes martes*) typically occur within woodlands and scrub. There was no evidence of this species onsite. There are also no records of this species within the 2km hectad W45X. The closest record is located approximately 2.4km to the east of the site. Woodlands outside the red line boundary would be more suited to these species. Pine Marten spend most of their time in trees however, much of the trees onsite are immature.

Marsh Fritillary

A number of invertebrates were recorded during the site assessment. This includes Flies (Diptera), Hoverflies (Syrphidae) and Spiders (Arachnids). Butterflies recorded include Ringlet (*Aphantopus hyperantus*), Meadow Brown (*Maniola jurtina*) and Moths (Lepidoptera) while bumblebees include White-tailed Bumblebees (*Bombus lucorum* agg.) and Red-tailed Bumblebee (*Bombus lapidarius*). The scrub, hedgerows, recolonising vegetation and grasslands would offer suitable habitat for common invertebrates.

No Marsh Fritillary (*Euphydryas aurinia*) were recorded onsite. The site does not support the larval food plant devil's-bit Scabious (*Succissa pratensis*). In addition, there are no recent records for any Marsh Fritillary within the 10km tetrad W45.

The proposed development is unlikely to support any protected Whorl Snails (*Vertigo* spp.) and no evidence of these species were found onsite. A small area classified as reed swamps occur within the red line boundary of the site however, this habitat is very small with no direct connection to any other freshwater habitat. Therefore, it is unlikely that this species occurs onsite. In addition, there are no records for any Whorl snails within the 10km tetrad W45.

Hedgehog

Hedgehog are likely foraging within the development site and could potentially use some habitats onsite for nesting. A dead Hedgehog was observed onsite to the north-east of the development which confirms their presence in the area.

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Fish and Freshwater Invertebrates

The development site is located outside the current distribution and current range of Sea Lamprey (*Petromyzon marinus*) and River Lamprey (*Lampetra fluviatilis*), but within the current known distribution and current range of Brook Lamprey (*Lampetra planeri*) (NPWS, 2025c). The Kilbrogan does not contain significant areas of silt or sand and therefore is unsuitable for Brook Lamprey. The development site is located outside the current distribution and current range of Killarney Shad (*Alosa fallax killarnensis*), Twaite Shad (*Alosa fallax*) and Pollan (*Coregonus pollan*), but within the current distribution and current range of Atlantic Salmon (*Salmo salar*) (NPWS, 2025c). The Kilbrogan is not mapped as a known Salmonoid spawning river. Furthermore, none of these species have been recorded within the 2km grid square W45X. There is potential for Salmonoid species to occur downstream of the development site given that Freshwater Pearl Mussel rely on such species to complete their lifecycle.

The Kilbrogan watercourse had a rocky substrate with cobbles and large rocks within. Some areas of sediment were observed further east but were not a common feature. Freshwater Pearl Mussel (*Margaritifera margaritifera*), a qualifying interest of the Bandon River SAC favour fast flowing watercourses with high oxygen content, low nutrient and a gravel substrate with no silt or algae. There are no records of this species in proximity of the proposed development and no evidence to suggest that they occur within the Kilbrogan. The development site is located outside the current distribution and current range of Freshwater Pearl Mussel (NPWS, 2025c). There are no mapped records of this species within the development site or downstream however, they are known to occur within the Bandon River SAC 22km to the west.

The development is located outside the current distribution and current range of White-clawed Crayfish (*Austroptamobius pallipes*) (NPWS, 2025c). There are no records for any White-clawed Crayfish within the 10km tetrad W45 and there are no NBDC records for Crayfish within the Bandon-Ilen River Catchment. It is unlikely that Crayfish are located downstream of the development site.

Other fauna

There was evidence of mammals (footprints likely that of a dog) observed within the recolonising bare ground habitat to the east of the site. A local was observed onsite with domestic dogs. Fox footprints were also noted south of the watercourse.

8.4.5 FAUNA - BATS

Desk Based Review

The development site is located outside of the current distribution, current range and favourable reference range of Lesser Horseshoe Bat (*Rhinolophus hipposideros*) [1303], Nathusius' Pipistrelle (*Pipistrellus nathusii*) [1317] but within the current distribution, current range and favourable reference range of Soprano Pipistrelle (*Pipistrellus pygmaeus*) [5009], Daubenton's Bat (*Myotis daubentonii*) [1314], Leisler's Bat (*Nyctalus leisleri*) [1331], Common pipistrelle (*Pipistrellus pipistrellus*) [1309] and Brown long-eared Bat (*Plecotus auratus*) [1326]. The proposed development is located outside the current distribution, current range and favourable reference range of Natterer's Bat (*Myotis nattereri*) [1322] and Whiskered Bat (*Myotis mystacinus*) [1330] (NPWS, 2025c).

Records of bats present in the 10km grid square (W45 hectad) where the proposed development is located were consulted. The following species were noted: Common Pipistrelle (*Pipistrellus pipistrellus*), Brown Long-eared Bat (*Plecotus auratus*), Daubenton's Bat (*Myotis daubentonii*), Lesser Noctule (*Nyctalus leisleri*), Lesser Horseshoe Bat (*Rhinolophus hipposideros*), Whiskered Bat (*Myotis mystacinus*) and Soprano Pipistrelle (*Pipistrellus pygmaeus*). Common Pipistrelle (*Pipistrellus pipistrellus*), Lesser Noctule (*Nyctalus leisleri*) and Daubenton's Bat (*Myotis daubentonii*) were also noted for the 2 km tetrad (W45X) in which the proposed development is located.

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In addition, Bat Conservation Ireland's habitat suitability index available to view on the NBDC online mapping portal, classifies the landscape, within which the site is located, as having a medium habitat suitability for bats, with a score of 33 for the development site and surrounding landscape. The maps are a visualisation of the results of the analyses based on a 'habitat suitability' index. The index ranges from 0 to 100 with 0 being least favourable and 100 most favourable for bats. The maps are constructed using spatial units of the OSI National Grid. The index presented is for all species combined, in addition to the individual species' indices (Lundy et al., 2011).

Table 8.11: Bat habitat suitability index for the proposed development site

BAT HABITAT SUITABILITY INDEX	
SPECIES	INDEX
Soprano Pipistrelle (<i>Pipistrellus pygmaeus</i>)	45
Brown long-eared Bat (<i>Plecotus auritus</i>)	51
Common pipistrelle (<i>Pipistrellus pipistrellus</i>)	43
Lesser Horseshoe Bat (<i>Rhinolophus hipposideros</i>)	1
Lesser Noctule (<i>Nyctalus leisleri</i>)	43
Whiskered Bat (<i>Myotis mystacinus</i>)	31
Daubenton's Bat (<i>Myotis daubentonii</i>)	35
Nathusius's Pipistrelle (<i>Pipistrellus nathusii</i>)	4
Natterer's Bat (<i>Myotis nattereri</i>)	43

The NPWS's National Lesser Horseshoe Bat Roost Database was consulted (August 2025) with regards to any roost records for Lesser Horseshoe Bat (*Rhinolophus hipposideros*). The Lesser Horseshoe Bat is mainly confined to the West of Ireland, with the NPWS database indicating that the nearest record for this bat is located to the southwest of the site within 1km (Grid W4754).

Bat surveys – Field Surveys

A Daytime Bat Walkover Survey, Night-time Bat Walkover Surveys and passive surveys were undertaken by PES Ltd. (Refer to Bat Survey Report).

Several mature trees along the boundaries of the site were identified as having potential roost features. Mixed broadleaved woodland to the northeast of the site was assessed as having low roosting potential. Habitats of moderate and high suitability for foraging and commuting bats were identified on site.

Low to high levels of bat activity were recorded during the three Night-time Bat Walkover Surveys with a moderate diversity of species identified. Passive bat surveying also recorded high levels of bat activity along the Kilbrogan stream from a moderate diversity of species. Species recorded during both surveys include Common Pipistrelle, Soprano Pipistrelle, Leisler's Bat, Brown long-eared Bat and *Myotis* spp. There was no evidence to suggest there are bat roosts onsite however, as noted above, a number of potential bat roost features were identified.

8.4.6 AVIFAUNA

Desktop Records

Fauna records for the previous thirty years were reviewed on the NBDC website for the 10km square (Tetrad – W45) in which the proposed development is located.

Table 8.12: NBDC bird records within the 10km square (Tetrads W45)

NBDC RECORDS FOR TETRAD W45		
SPECIES	DATASET	DESIGNATION
Barn Owl (<i>Tyto alba</i>)	Birds of Ireland	Red List

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NBDC RECORDS FOR TETRAD W45		
SPECIES	DATASET	DESIGNATION
Black-headed Gull (<i>Larus ridibundus</i>)	Birds of Ireland	Amber List
Black-tailed Godwit (<i>Limosa limosa</i>)	Birds of Ireland	Red List
Coot (<i>Fulica atra</i>)	Bird Atlas 2007 - 2011	Annex II Section I, Annex III Section II bird species, Amber List
Cormorant (<i>Phalacrocorax carbo</i>)	Birds of Ireland	Amber List
Corncrake (<i>Crex crex</i>)	The First Atlas of Breeding Birds in Britain and Ireland: 1968-1972.	Red List
Curlew (<i>Numenius arquata</i>)	Birds of Ireland	Annex II Section II bird species, Red List
Gadwall (<i>Mareca strepera</i>)	Bird Atlas 2007 - 2011	Annex II Section I bird species, Amber List
Goldcrest (<i>Regulus regulus</i>)	Birds of Ireland	Amber List
Greenfinch (<i>Chloris chloris</i>)	Bird Atlas 2007 - 2011	Amber List
Grey Partridge (<i>Perdix perdix</i>)	Bird Atlas 2007 - 2011	Annex II Section I 7 Annex III Section I bird species, Red List
Grey Wagtail (<i>Motacilla cinerea</i>)	Birds of Ireland	Red List
Herring Gull (<i>Larus argentatus</i>)	Birds of Ireland	Amber List
House Martin (<i>Delichon urbicum</i>)	Birds of Ireland	Amber List
House Sparrow (<i>Passer domesticus</i>)	Birds of Ireland	Amber List
Kestrel (<i>Falco tinnunculus</i>)	Birds of Ireland	Red List
Kingfisher (<i>Alcedo atthis</i>)	Bird Atlas 2007 - 2011	Annex I Bird Species, Amber List
Knot (<i>Calidris canutus</i>)	Birds of Ireland	Red List
Lapwing (<i>Vanellus vanellus</i>)	The First Atlas of Wintering Birds in Britain and Ireland: 1981/82-1983/84.	Annex II Section II, bird species, Red List
Lesser Black-backed Gull (<i>Larus fuscus</i>)	Bird Atlas 2007 - 2011	Amber List
Linnet (<i>Linaria cannabina</i>)	Birds of Ireland	Amber List
Merlin (<i>Falco columbarius</i>)	Bird Atlas 2007 - 2011	Annex I Bird Species, Amber List
Mute Swan (<i>Cygnus olor</i>)	Birds of Ireland	Amber List
Oystercatcher (<i>Haematopus ostralegus</i>)	Birds of Ireland	Red List
Peregrine Falcon (<i>Falco peregrinus</i>)	Birds of Ireland	Annex I Bird Species
Pochard (<i>Aythya ferina</i>)	Bird Atlas 2007 - 2011	Annex II Section I, Annex III Section II Bird Species, Red List
Redshank (<i>Tringa totanus</i>)	Birds of Ireland	Red List
Rock Pigeon (<i>Columba livia</i>)	Bird Atlas 2007 - 2011	Annex II, Section I Bird Species

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NBDC RECORDS FOR TETRAD W45		
SPECIES	DATASET	DESIGNATION
Sand Martin (<i>Riparia riparia</i>)	Birds of Ireland	Amber List
Shoveler (<i>Spatula clypeata</i>)	Bird Atlas 2007 - 2011	Annex II Section I, Annex III Section III Bird Species, Red List
Skylark (<i>Alauda arvensis</i>)	Bird Atlas 2007 - 2011	Amber List
Snipe (<i>Gallinago gallinago</i>)	Birds of Ireland	Annex II Section I, Annex III Section III Bird Species, Red List
Spotted Flycatcher (<i>Muscicapa striata</i>)	Bird Atlas 2007 - 2011	Amber List
Starling (<i>Sturnus vulgaris</i>)	Birds of Ireland	Amber List
Stock Pigeon (<i>Columba oenas</i>)	Bird Atlas 2007 - 2011	Red List
Swallow (<i>Hirundo rustica</i>)	Birds of Ireland	Amber List
Swift (<i>Apus apus</i>)	Swifts of Ireland	Red List
Teal (<i>Anas crecca</i>)	Birds of Ireland	Annex II Section I, Annex III Section II Bird Species, Amber List
Tufted Duck (<i>Aythya fuligula</i>)	Bird Atlas 2007 - 2011	Annex II Section I, Annex III Section II Bird Species, Amber List
Whooper Swan (<i>Cygnus cygnus</i>)	Birds of Ireland	Annex I Bird Species, Amber List
Wigeon (<i>Mareca penelope</i>)	Birds of Ireland	Amber List
Woodcock (<i>Scolopax rusticola</i>)	Birds of Ireland	Annex II Section I, Annex III Section III Bird Species, Red List
Yellowhammer (<i>Emberiza citrinella</i>)	Birds of Ireland	Red List

Field surveys – bird usage

Given the land use of the surrounding area, it would be expected that common hedgerow, agricultural and grassland bird species would be present in the area. The following table details the bird species recorded during the site walkovers and their protection and conservation concern statuses.

Table 8.13: Protection and Conservation Concern Statuses for Recorded Birds

COMMON NAME	SCIENTIFIC NAME	E.U. BIRDS DIRECTIVE	BoCCI* RED LIST	BoCCI* AMBER LIST
Blackbird	<i>Turdus merula</i>	-	-	-
Blackcap	<i>Sylvia atricapilla</i>	-	-	-
Blue Tit	<i>Cyanistes caeruleus</i>	-	-	-
Bullfinch	<i>Pyrrhula pyrrhula</i>	-	-	-
Buzzard	<i>Buteo buteo</i>	-	-	-
Chaffinch	<i>Fringilla coelebs</i>	-	-	-

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COMMON NAME	SCIENTIFIC NAME	E.U. BIRDS DIRECTIVE	BoCCI* RED LIST	BoCCI* AMBER LIST
Chiffchaff	<i>Phylloscopus collybita</i>	-	-	-
Dunnock	<i>Prunella modularis</i>	-	-	-
Goldcrest	<i>Regulus regulus</i>	-	-	✓
Goldfinch	<i>Carduelis carduelis</i>	-	-	-
Great Tit	<i>Parus major</i>	-	-	-
Greenfinch	<i>Chloris chloris</i>	-	-	✓
Jackdaw	<i>Corvus monedula</i>	-	-	-
Magpie	<i>Pica pica</i>	-	-	-
Robin	<i>Erithacus rubecula</i>	-	-	-
Rook	<i>Corvus frugilegus</i>	-	-	-
Snipe	<i>Gallinago gallinago</i>	-	✓	-
Wren	<i>Troglodytes troglodytes</i>	-	-	-

*The BoCCI (Birds of Conservation Concern in Ireland) List classifies bird species into one of three lists (Red, Amber or Green) based on their conservation status and conservation priority.

A total of 18 bird species were recorded during the site walkovers. Snipe is red listed under the BoCCI classification, while Goldcrest and Greenfinch are amber listed. None of the bird species recorded are listed under Annex I of the E.U. Birds Directive.

Goldfinch and Greenfinch were recorded flying over the development while Buzzard were heard within the adjacent agricultural fields. All other birds were recorded within the scrub and hedgerows onsite.

8.4.7 WATER QUALITY

The development site is located within the Bandon sub-catchment (Bandon_SC_050) which is part of the Bandon-Ilen Catchment (ID_20). The closest mapped watercourse to the proposed development site is the Kilbrogan (EPA Code – 20K77 – Order 1) that flows through the centre of the proposed development. The Kilbrogan flows in a south-easterly direction for approximately 961m (hydrologically) where it joins the Bandon (EPA Code: 20B02 – Order 6) confluence. The Bandon continues to flow in a south-easterly direction for approximately 25km (hydrologically) where it enters Kinsale Harbour. These waterbodies are hydrologically downstream of the River Bandon SAC, which is located approximately 22km to the west.

The Kilbrogan stream and Bandon River are not designated as a Salmonid Water under EC (Quality of Salmonid Waters) Regulations (S.I. No. 293 of 1988). The Environmental Protection Agency (EPA) report “*Water Quality in Ireland 2019-2024*” notes that the Bandon-Ilen catchment, where the site is located, experienced the highest number of water body declines in ecological status nationally between 2016-2021 and 2019-2024, with 19 water bodies showing a decline.

The EPA does not undertake water quality monitoring along the Kilbrogan watercourse however, surface water monitoring is undertaken along the Bandon watercourse. The results for the nearest monitoring stations with available information (as per **Table 8.14**) for the period 2006 – 2024 are summarised in **Figure 8.19** below for indicative purposes.

Table 8.14: Monitoring Stations of the Bandon River within the Vicinity of the Development

STATION NO.	STATION LOCATION	EASTING	NORTHING	APPROX. LOCATION RELATIVE TO SITE
RS20B020700	Baxter’s Br	144122.49	54612.53	6.4km Upstream
RS20B020800	1.5km d/s Bandon Br	150362.57	55674.19	2.3km Downstream
RS20B020900	Inishannon Br	154115	57086.9	7.6km Downstream

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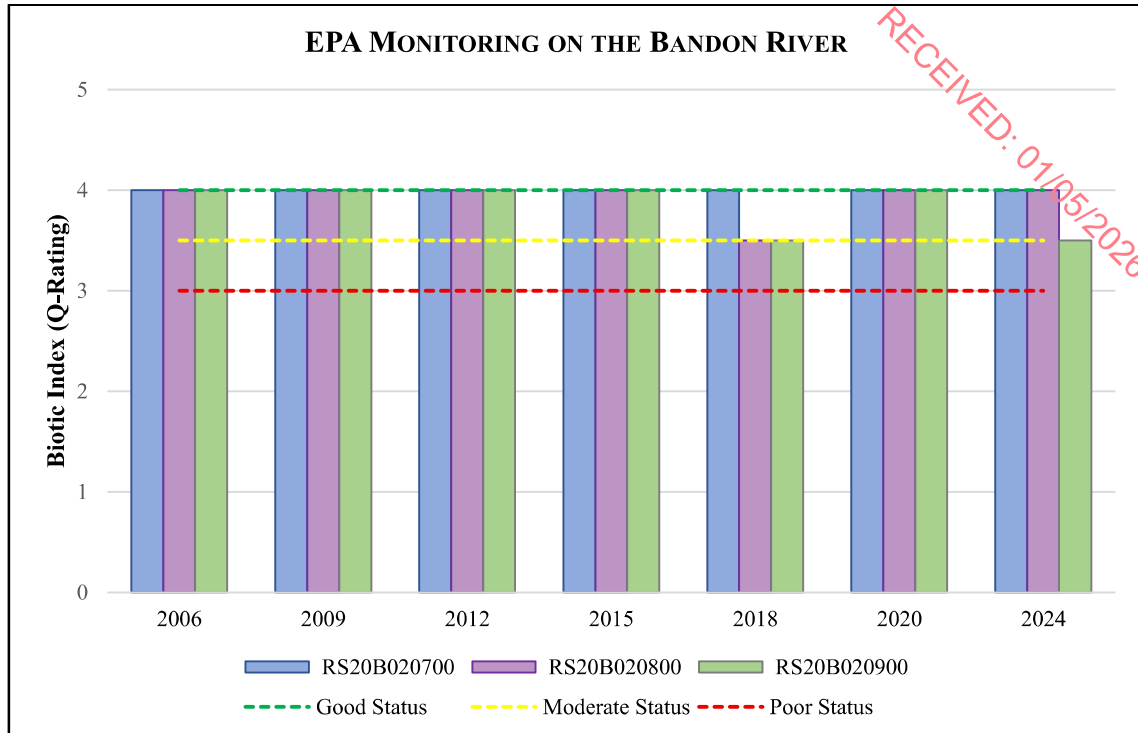


Figure 8.19: EPA Ecological Monitoring of the Bandon River from 2006 – 2024

As can be seen in **Figure 8.19** above, the Bandon River is mainly achieving a water quality status of between Q3-4 (Moderate) and Q4 (Good) from 2006 – 2024.

EPA comments on the most recent monitoring results for the Bandon River are as follows:

“Continuing largely satisfactory with six out of the nine sites surveyed at good or high ecological quality. The ecological quality at Keenrath bridge (0050) continues with High. Moderate status was maintained at Ardcahan Bridge (0150) and Bealboy bridge (0300) as per the previous survey. The lowermost site at Innishannon Bridge (0900) has also declined to moderate from good. All other sampled sites were at good status.”

8.5 IMPACTS

8.5.1 DETERMINATION OF ECOLOGICAL VALUE

The ecological value of the habitat types and species identified at the proposed development site has been assessed following the criteria outlined in the National Roads Authority (NRA) guidelines (2009). **Tables 8.14** and **8.15** below detail the habitats recorded and potential species, and their associated ecological value.

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Table 8.15: Ecological Value of Habitats Within / Adjacent to the Proposed Development.

HABITAT TYPE	HABITAT AND GEOGRAPHIC IMPORTANCE	KEY ECOLOGICAL RECEPTOR	RATIONALE
Hedgerows (WL1)	Local importance, (Higher value)	Yes	Linear hedge to west mostly comprised of low scrub. Hedgerow to NE mostly comprised of Hawthorn. Not particularly species rich. Limited connectivity to habitats of ecological importance, however, connects to hedgerows in the wider environment. Comprised of mostly native species. May provide opportunities for bird nesting and foraging for bats. May provide foraging habitat for protected species. Could be used by commuting wildlife. Hedgerow to NE & W to be mostly retained.
Treelines (WL2)	Local importance, (Higher value)	Yes	Stand of mature trees, mix of native and non-native species, likely importance for local wildlife. Not of great ecological significance alone but connected to other linear features and would provide foraging/nesting/commuting habitat for birds and bats. Provides connectivity to the wider environment and along the watercourse. To be retained.
Scrub (WS1)	Local importance, (Higher value)	Yes	While this covers a large area, it is a species poor habitat comprised mostly of Gorse, Willow and Brambles. Likely to be of local importance for wildlife but lacks characteristics of more valuable sites. May provide breeding/foraging habitat for birds and shelter for small mammals. Areas of scrub along the watercourse are of greater ecological value to maintain connectivity and will be retained. Areas of scrub outside the riparian zone are to be removed to facilitate the development. This habitat is common throughout Ireland and the local environment however, due to its size, this habitat is considered of local, higher value.
Recolonising bare ground (ED3)	Local importance, (Lower value)	No	Moderately species diverse habitat covering a small area of the site. Common habitat with low growing species. Had been over-grazed in the past. Would offer limited opportunities for local fauna. To be removed.
Spoil and bare ground (ED2)	Local importance, (Lower value)	No	Covers a very small area of the development with limited species

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HABITAT TYPE	HABITAT AND GEOGRAPHIC IMPORTANCE	KEY ECOLOGICAL RECEPTOR	RATIONALE
			richness. Limited value to protected and local fauna. To be removed.
Buildings and artificial surfaces (BL3)	Local importance, (Lower value)	No	Highly modified habitat. Would not support protected species. Modular structures onsite to be removed.
Reed and large sedge swamps (FS1)	Local importance, (Higher value)	Yes	Covers a very small area with low species diversity. Species poor habitat. Although it is not considered of notable ecological value given the size of this habitat, Frog tadpoles were recorded within. Therefore, it likely supports a local population of protected Common Frog. To be removed.
Eroding/upland Rivers (FW2)	Local importance, (Higher value)	Yes	May provide opportunities for Aquatic and terrestrial fauna. Likely supports protected local fauna and likely to act as an ecological corridor for species such as Otter. To be retained and protected.
Immature woodland (WS2)	Local importance, (Lower value)	No	Would offer limited value for protected species and birds. Negligible bat roost potential. Mostly comprised of young native and non-native trees. To be removed.
Broadleaved woodland (WD1)	Local importance, (Higher value)	Yes	Stand of native trees fragmented from other woodlands in the area. Common habitat in Ireland but could support nesting/foraging birds and foraging bats. Negligible for bat roost potential. Low species diversity but provides cover and connectivity along the watercourse.
Wet Grassland (GS4)	Local importance, (Higher value)	Yes	Semi-natural grassland with some areas of greater species richness. Supports the Common Frog which was recorded within. Some areas to be removed and replaced.
Amenity Grassland (GA2)	Local importance, (Lower value)	No	Highly modified habitat with low species diversity. Outside main boundary of site. To be retained.
Dry calcareous and neutral grassland (GS1)	Local importance, (Lower value)	No	Semi-natural grassland comprised of mostly native species but considered widespread in a local, national and international context. Relatively species poor. Limited invertebrate assemblage recorded during walkover surveys. Currently grazed. Although this habitat may support foraging fauna, it is managed and overgrazed in parts.
WS1/transitional wet	Local importance, (Higher value)	Yes	Species poor habitat comprised of overgrown scrub in stagnant water however, it is reaching thresholds

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HABITAT TYPE	HABITAT AND GEOGRAPHIC IMPORTANCE	KEY ECOLOGICAL RECEPTOR	RATIONALE
willow/alder/ash woodland (WN6)			greater than 4/5m. Covers a small proportion of the site. Lacks characteristics of more valuable habitats associated with this classification. Limited value for nesting birds and foraging bats. Negligible for bat roost potential. No protected fauna recorded within. No amphibians recorded within however it has the potential to support amphibians. To be removed and replaced within proposed landscaped areas.

Table 8.16: Ecological Value of Species Present / within the Vicinity of the Development

SPECIES	SPECIES RATING	KEY ECOLOGICAL RECEPTOR (KER)	RATIONALE
Bats	Local importance, higher value	Yes	Moderate bat activity was recorded onsite with up to five species identified.
Other mammals	Local importance, higher value	Yes	No evidence of Badger was found within the site boundary however, Hedgehog was recorded and is likely to be using the site. The removal of scrub onsite could limit foraging and nesting habitats for Hedgehog.
Breeding Birds	Local importance, higher value	Yes	All birds, their nests, eggs and young are protected under the Wildlife Act.
Aquatic Fauna	Local importance, higher value	Yes	Common Frog confirmed breeding onsite.

8.5.2 CONSTRUCTION PHASE

Designated Sites & proposed Natural Heritage Areas

The proposed development does not directly impinge on any part of a European site and as such would not be expected to have any in-situ effects upon a protected site through loss or destruction of habitat, fragmentation of habitat, disturbance of habitat or direct reduction in species density or diversity.

As noted in section 8.4.2, the designated sites considered to be within the potential zone of influence of the proposed development are the Courtmacsherry Bay SPA (Site Code: 004219), the Bandon River SAC (Site Code: 002171), Bandon Valley Above Inishannon pNHA (Site Code: 001740) and the Bandon Valley West of Bandon pNHA (Site Code: 001034), due hydrological connectivity via the Kilbrogan watercourse and proximity. Therefore, potential ex-situ impacts must also be considered. The accompanying NIS (Doc Ref: PE_NIS_10432) assesses the potential significant effects on the Courtmacsherry Bay SPA and the Bandon River SAC.

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The two main risks associated with the proposed development is a deterioration in water quality and spread of invasive species during the construction phase.

The accompanying NIS has determined that there is no potential for direct or indirect significant effects on the qualifying interests of the Courtnacsherry Bay SPA due to the absence of a direct hydrological distance and significant terrestrial distance.

The NIS has determined that there is potential for indirect adverse impacts on the freshwater species of the Bandon River SAC due to a deterioration in water quality during the construction phase should any associated species occur downstream of the site. However, given that the SAC is located upstream, there is no potential for significant effects due to the spread of third schedule invasive species.

Given the upstream hydrological connection to the Bandon Valley West of Bandon pNHA, it is not anticipated that the proposed development would have the potential for indirect significant effects to habitats in this site. However, there are a number of associated freshwater species and avi-fauna sensitive to water quality. The Bandon Valley Above Inishannon pNHA is considered to be hydrologically downstream from the proposed site. There is no Conservation Objectives report with detailed conservation measures for this pNHA however, it is designated for Old Oak woodlands in particular. Water quality is not a threat to this habitat type however, there are a number of freshwater and avi-fauna species associated with the site which would be. Invasive species would be considered a threat to this woodland. Given the distance and absence of works within the pNHA, the likely vector for potential impact on water quality would be via the Kilbrogan watercourse. While the risk is low, there is potential for the proposed development to facilitate the spread of invasive species given the close hydrological connection downstream. Mitigation measures for the protection of water quality and to prevent the spread of invasive species are included within this report to protect the integrity of designated sites.

Construction works would be approximately 3 years in duration. Construction works would be confined to the proposed development footprint and would not necessitate any works outside of the red line boundary.

The Waste Classification Assessment carried out by Gound Investigations Ireland concluded that the subsoil material sampled across the site, if being considered a waste, can be classified as non-hazardous. Therefore, significant effects due to contaminated soils is not predicted on designated site.

The potential disturbance on protected habitats and species due to dust during the construction phase would not be considered significant, given the transient nature of construction works and the scale of the proposed development.

Habitats and Flora

The proposed development will result in the loss of semi-natural grasslands, scrub, reed swamps, immature woodland, recolonising habitats and some sections of boundary hedgerows. The loss of these habitats will have a short-term to medium term impact until the new proposed planting has become established. The habitats to be removed are not designated within a Natura 2000 site and do not contain protected or rare flora species. According to the arborist report prepared by Holly Arboriculture, most of the mature trees along the boundaries are in good condition. There are 5 category A trees, 12 category B trees and 7 category C trees. The hedgerow to the north is considered mature and of good structural and physical condition (category B). Most of the linear hedgerows and trees will be retained as per the accompanying tree protection and landscape plans.

The landscape plan has been designed to prevent any significant loss of habitat diversity. Therefore, while some habitats will be lost, most will be re-instated and incorporated within new landscaped areas.

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The landscape plan also offers better integration of habitats and would have a long-term positive impact on biodiversity.

According to the accompanying Biodiversity Net Gain Assessment, the proposed landscaping will account for a biodiversity net gain of 10%. The landscape plan will retain the habitat types of higher ecological value. Habitats such as wet grassland, woodlands, reed swamps and hedgerows will increase in area.

During construction works, there is potential for invasive species to be introduced to the development site through the movement of materials, such as soil and stone and the arrival of construction plant and equipment from an area with invasive species. There is also potential for established third schedule invasive species onsite to spread further if not treated appropriately.

Under Regulation 49(2) of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011) as amended 2015 (S.I. No. 355 of 2015), save in accordance with a licence granted under paragraph (7), any person who plants, disperses, allows or causes to disperse, spreads or otherwise causes to grow in any place specified in relation to any plant which is included in Part 1 of the Third Schedule shall be guilty of an offence. Materials containing invasive species such as Japanese Knotweed are considered “controlled waste” and, as such, there are legal restrictions on their handling and disposal. Under Regulation 49(7) of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011) as amended 2015 (S.I. No. 355 of 2015), it is a legal requirement to obtain a license to move “vector materials” listed in the Third Schedule, Part 3.

Activities as part of the construction of the development would not have the potential to cause a significant impact upon designated sites due to invasive species. There would be no significant import of materials with the potential to contain invasive flora species. Soils excavated during construction works would be stockpiled and re-used for site levelling and site landscaping, therefore no significant amounts of topsoil or subsoil would be required to be imported into the site, as part of the development works. A number of third schedule invasive species were recorded within and adjacent the proposed development boundary. The proposed development could facilitate the spread of these species locally. A site-specific Invasive Species Management Plan has been developed as part of this application.

Dust emissions may arise during construction activities, in particular during earth-moving works, which may have the potential to impact upon photosynthesis, respiration and transpiration processes of flora due to the blocking of leaf stomata. However, given the transient nature of construction works, the construction timeframe (3 years) and standard working practices including dust control, the potential impact to flora would not be considered significant.

The potential impact upon habitats and flora due to a deterioration in water quality is discussed in detail below, while further information on potential impacts on water quality is addressed in **Section 9**.

Fauna and Avifauna

As noted above, there was no evidence of protected species associated with a designated site within the red line boundary. There was evidence of mammal movement within the recolonising bare ground habitat to the east of the proposed development which are footprints likely that of a dog. In addition, domestic mammals (dogs & horses) were observed onsite and fox footprints. A dead Hedgehog was observed onsite to the north-east of the development. Depending on the time of year, construction works have the potential to cause a direct impact to amphibians and other fauna such as hedgehogs utilising the grassland, scrub and reed swamp areas.

The existing vegetation is likely used by breeding birds. The removal of scrub, hedgerows and trees during the breeding season can have a significant impact on breeding birds. In terms of other avi-fauna and red & amber listed avi-fauna captured within the bird usage surveys, there is potential for direct mortality during the removal of trees, scrub and hedgerow habitats. The removal of vegetation onsite

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could also have a negative impact on Hedgehog and Common Frog using the site. Where possible, scrub and tree removal would not take place during the bird nesting season (1st of March – 31st of August), greatly reducing the potential for mortality. However, it may be necessary to undertake some scrub / tree removal works during the bird nesting season. In such instances, a suitably qualified ecologist would be engaged to carry out inspections for the presence of breeding birds prior to any clearance works taking place. Where nests are present, the ecologist would make a decision as to whether a “Licence to interfere with or destroy the breeding places of any wild animals”, is required from the NPWS. Alternatively, the ecologist may establish a suitable buffer zone around an active nest, with removal works rescheduled until chicks have fledged. Where no evidence of nests is found during inspection, hedgerow / tree removal works must be undertaken within three days of inspection. Additional mitigation measures to protect all birds, hedgehog and amphibians is included within section 8.6.

The scrub and recolonising vegetation can be used by foraging mammals such as Badger should they reside in the locality although much of the existing boundary linear features and 10m either side of the Kilbrogan will be retained for commuting wildlife. Given the availability of suitable foraging habitat in the wider landscape, it is considered that the proposed development would not limit foraging habitat for Badger. Furthermore, there was no evidence or records of Badger onsite.

As noted in the “*Habitats and Flora*” section above, the proposed landscaping will account for a biodiversity net gain of 10%. The landscape plan will retain the habitat types of higher ecological value and prevent a reduction in habitat diversity. Habitats such as wet grassland, woodlands, reed swamps and hedgerows will increase in area to provide additional foraging and nesting opportunities.

In the event a protected species is encountered during construction or vegetation removal works, an investigation will be undertaken and where required, an officer of the NPWS would be consulted prior to the resumption of construction works.

Construction work have the potential to disturb fauna due to the generation of construction noise. Noise pollution can modify the acoustic landscape, alter the existing background noise levels and intensity. Certain species have particular tolerances for noise. Animals such as birds can become more tolerant of specific noises with increased exposure. While there would be increased noise emissions during the construction phase of the development, these would not be considered to pose a significant risk owing to the nature of the development and the distances between the development site and designated sites. Construction works are a temporary phase (3 years) and will involve the preparation works to facilitate the development. Construction works will be carried out during daylight hours away from any protected sites with no disturbance to nocturnal species. All vehicles where possible would be equipped with mufflers to suppress noise, as is standard practice. Therefore, no impacts as a result of noise during the construction phase would be considered as having a significant impact on any protected species or on the local fauna.

Dust emissions may arise during construction activities, in particular during earth-moving works, which may have the potential to cause nuisance to fauna.

The potential impact upon fauna due to a deterioration in water quality is discussed in the “*Water and Biodiversity*” section below.

Bats

Construction works have the potential to result in direct and indirect impacts on local populations of bats through habitat loss (vegetation clearance, tree felling) and disturbance (increased lighting) potentially affecting existing foraging areas and commuting routes. Given constraints of accessing certain trees, there is potential for the loss of bat roosting habitats also.

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The majority of bat species utilise linear features, such as hedgerows and treelines and areas of mature vegetation for foraging and commuting. The proposed development would result in the removal of some sections of boundary hedgerows, scrub and woodland with minimal vegetation removal along the watercourse. Bat activity along the Kilbrogan watercourse was low to high at certain locations. The scrub along the riparian zone may be too dense to facilitate full access along the water channel. Therefore, the management of this area as part of landscaping would allow for bats to access the watercourse whilst maintaining existing and creating new linear features for commuting/foraging. Other mitigation measures are outlined in **Section 8.6.1**.

Artificial lighting during the construction phase has the potential to negatively impact upon bat species, as illumination can impact upon their roosting sites, commuting routes and foraging areas. While some bat species, such as Leisler's bats (*Nyctalus leisleri*), may take advantage of prey concentrating around light sources, other bat species are sensitive to lighting and will avoid artificially lit up areas. This can potentially sever commuting and foraging routes. As noted above, construction works would not be conducted outside of normal working hours where possible, which would considerably reduce the potential impacts upon bat species. Measures with regards artificial lighting, as outlined in **Section 8.6.1**, would be required to be implemented to reduce the potential impact of light pollution.

Water Quality and Biodiversity

The construction phase of projects has the potential to impact upon flora and fauna due to a deterioration in water quality. Risks to water quality could arise due to the potential release of suspended solids during soil disturbance works, the release of uncured concrete and the release of hydrocarbons (fuels and oils).

Suspended solids could become entrained in surface water run-off and could affect aquatic habitats through deposition. An increase in sediments has the potential to impact upon fish by damaging gravel beds required for spawning, smothering fish eggs and in extreme cases, by interfering with the gills of fish. An increase in suspended solids has the potential to reduce water clarity, which can impact the light penetration of water and may also affect certain behaviours of aquatic fauna such as foraging success. Aquatic flora and fauna could also be impacted upon by an increase in nutrients which are bound to suspended solids. A significant increase in nutrients can result in excessive eutrophication, leading to deoxygenation of waters and subsequent asphyxia of aquatic species.

A potential source of chemical contamination of surface water would be from the release of hydrocarbons (oils, fuels) from construction plant and equipment. Hydrocarbons can affect water quality, potentially resulting in toxic and / or de-oxygenating conditions for aquatic flora and fauna. Pollution could occur in a number of ways, such as neglected spillages, the storage handling and transfer of oil and chemicals and refuelling of vehicles.

Another potential source of contamination of surface water would be the release of uncured concrete. In the event of uncured concrete entering a waterbody, the pH would be altered locally, potentially leading to the death of aquatic flora, fish and macroinvertebrates and alteration to the waterbody substrate.

The proposed development will require works within the Kilbrogan watercourse to facilitate the proposed surface and foul water drainage network. This includes the installation of three new headwalls within the bank of the watercourse for surface water discharge. In addition, a new foul water connection will be installed beneath the Kilbrogan to connect to the existing foul water network east of the site. This will require works within the bed of the watercourse to lay the pipe. A new vehicular bridge will be constructed across the Kilbrogan to provide access to the north of the site. This bridge will have a setback distance of 10m from the banks of the watercourse. A new pedestrian bridge will also be installed over the Kilbrogan watercourse. This bridge will have a minimum set back distance of 5m from the watercourse. These setback distances will ensure the ecological integrity of the Kilbrogan is maintained. Given the works over and in proximity of the watercourse, there is potential for run-off from construction works to impact upon surface water quality and thus aquatic flora and fauna.

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No construction works, other than those outlined, will occur within a setback distance of 5-10m either side of the watercourse. The precautionary principle will be applied to prevent any significant effects upon the QI's of the River Bandon SAC, the Bandon Valley West of Bandon pNHA and the Bandon Valley Above Inishannon pNHA. Mitigation measures to prevent any impact on local water quality will be implemented. These measures are outlined in **Section 8.6.1**, and are further detailed in **Section 9**.

8.5.3 OPERATIONAL PHASE

Designated Sites & proposed Natural Heritage Areas

As the development site does not directly impinge upon any part of a European site, no in-situ effects upon designated sites are expected due to loss or destruction of habitat, fragmentation of habitat, disturbance of habitat or direct reduction in species density.

The potential disturbance on protected species due to noise during the operational phase would not be considered significant, given the nature and scale of the proposed development (residential) and the distances to European sites (approximately 10.7km). Given the site's location within an urban area, it is likely that any fauna in the area would be accustomed to an urban noise environment.

It is considered that the operational phase of the development would not have the potential to have any likely significant effects upon designated sites due to a deterioration in air quality, given the proposed low air emission heating system air to water heat pumps.

As noted in **Section 8.5.2** above, it is not considered that there would be any potential adverse impacts upon the qualifying interests/special conservation interests of Courtmacsherry Bay SPA, the Bandon River SAC, the Bandon Valley Above Inishannon pNHA and the Bandon Valley West of Bandon pNHA due to a change in land-use at the development site. It is unlikely that the development site would be of importance to the qualifying interests/special conservation interests, given the distances from the SAC/SPA site and given that no habitats for which the Bandon River SAC has been designated for are present on the proposed development site as well. There are no lagoons, mudflats, coastal habitat, estuaries, lakes or large rivers that would support bird species associated with Courtmacsherry Bay SPA.

During the operational phase, surface water will be maintained onsite via infiltration to ground through permeable paving and a swale in the north section of the site. Surplus surface water will be directed to attenuation tanks and discharged to the Kilbrogan watercourse. Prior to discharge, surface water will pass through a petrol interceptor to prevent any hydrocarbons from entering the watercourse. The attenuation tanks will restrict the flow of water leaving the site to prevent flooding downstream. Additional SuDS features includes the installation of rainwater butts in each house to harvest rainwater. Foul water will be directed to the existing public sewer and will be treated at the Bandon Waste Water Treatment Plant. Therefore, a deterioration in water quality during the operational phase is not predicted with no resulting impacts to protected sites anticipated.

Habitats and Flora

There will be no additional removal of any existing habitats during the operational phase. The completed development would improve the biodiversity value of the existing site; landscaping to include flowering species for pollinators and introduction of varied habitats which will provide new nesting and foraging opportunities for wildlife in the area. These habitats will include broadleaved woodland, wet willow-alder ash woodlands, wet grasslands, swamps, scrub and semi-natural grassland aligning with what currently exists onsite. The objective of proposed landscaping is to minimise the loss of habitat diversity and increase the area of higher ecologically valuable habitat. Ornamental and pollinator friendly planting is also proposed to account for changes in the season. The All-Ireland

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Pollinator Plan was consulted in relation to appropriate species to incorporate. According to the accompanying Biodiversity Net Gain Assessment, the proposed landscaping will account for a biodiversity net gain of 10%. This aligns with objective BE 15-6 (f) of the Cork County Development Plan 2022 “*Ensuring that the implementation of appropriate mitigation (including habitat enhancement, new planting or other habitat creation initiatives) is incorporated into new development, where the implementation of such development would result in unavoidable impacts on biodiversity - supporting the principle of biodiversity net gain.*”

As discussed in the “*Designated Sites & proposed Natural Heritage Areas*” section above, it is considered that the operational phase of the development would not have the potential to have any likely significant effects upon designated sites due to a deterioration in air quality, given the proposed low air emission heating system air to water heat pumps.

Fauna and Avifauna

The landscape plan has been designed to prevent any significant loss of habitat diversity. Therefore, while some habitats will be lost, most will be re-instated and incorporated within new landscaped areas. The landscape plan also offers better integration of habitats. Existing linear features and the riparian corridor are likely a route for commuting mammals. These features will be strengthened and protected to allow continued commuting. There will also be new opportunities and habitats for roosting/nesting and foraging bats or birds. The inclusion of native and pollinator friendly ornamental species aims to provide ample provision for invertebrates and a food resource for local fauna. The integrity of the watercourse will be maintained and protected for any aquatic fauna in the area. Given that the riparian buffer zone is the main ecological focus for the development site and given the proposed landscape design, the development will offer a small haven for wildlife in an area that has succumbed to extensive urban development.

During the operational phase, it is not considered that the proposed development would significantly increase baseline noise emissions given that the proposed development is located within an urban environment. Vehicular traffic would also be commonly audible from the local road network. In addition, the retention of riparian and linear trees/hedgerows will act as natural buffers to noises associated with residential development. The main road network is located away from the watercourse. Therefore, a significant disturbance to local wildlife and avifauna is unlikely to occur.

The potential impact upon fauna due to a deterioration in water quality is discussed in the “*Water Quality and Biodiversity*” section below.

Bats

As noted in **Section 8.5.2** above, artificial lighting can potentially impact upon bat roosting sites, commuting routes and foraging areas. In the absence of mitigation measures, operational lighting has the potential to result in an adverse impact upon bat species.

Operational phase impacts on bats would be associated with permanent lighting associated with the proposed residential estate. A lighting plan has been designed by Electric Skyline for the operational phase of this development and takes into consideration the latest guidelines for the protection of bats. It is proposed to install 6-8m high luminaires in the external areas of the site. These would be strategically located and tilted to avoid direct lighting of linear features, such as hedgerows or treelines, that may be used by bats for commuting or foraging. The proposed lighting will consist of 3000k warm-white luminaires in line with guidelines for bats. The lighting plan has been designed to avoid light spill to surrounding sensitive ecological features and to bat foraging/commuting areas identified within the bat survey. There will be no lighting along the Kilbrogan watercourse with all lighting designed to reduce light spill in this area. Additional mitigation measures have been included both below in **Section 8.6** and in the accompanying bat report.

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The existing hedgerows may be used by foraging and commuting bats and are to be retained as much as possible. The retention and addition of linear features will allow for continued connectivity to the surrounding landscape and provide new foraging opportunities. Such features and new trees will provide opportunities for bat roosts also.

The operational phase of developments will result in an increase in human activity, which can potentially impact upon bat species due to increased noise and traffic. However, the proposed development would not be considered to cause a significant increase in human activity, given the nature of the development (residential estate) and given that increases in traffic movements are not anticipated to be significant.

Water Quality and Biodiversity

It is not anticipated that the operation of the proposed development would have a significant impact upon aquatic flora or fauna.

No significant impact on water quality would take place due to surface water or foul water drainage from the site. Stormwater from the site consisting of clean rainwater run-off from the roofs and hardstanding areas will discharge to the Kilbrogan watercourse after passing through a hydrocarbon interceptor. Permeable paving will also be installed to allow water to infiltrate to ground and water butts will be provided to harvest rainwater. Foul water will be directed to the existing public sewer and will be treated at the Bandon Waste Water Treatment Plant, before being discharged to River Bandon. Therefore, there is no risk of any contaminated surface water leaving the site that could have an impact on a protected species or habitat. Risks to groundwater are discussed further in **Section 9.4**.

No water quality measures are required during the operational phase only to maintain the drainage system as outlined in **Section 8.6**.

8.5.4 CUMULATIVE IMPACTS

The following plans and projects were reviewed and considered for in-combination effects with the proposed development:

- Cork County Development Plan 2022 – 2028;
- Proposed and permitted developments in the area available on Cork County Council planning system.

The site is located in a peri-urban area with agricultural lands to the west and north as well as urban elements in Bandon, including residential housing estates, schools and stores. The nearest settlements are Inishannon c. 5.3 km north-east, Crossbarry c. 8.4 km north-east, Kilbrittain c. 9.2 km south-east, Dunderrow c. 10.2 km south-east, Cloughduv c. 10.7 km north, Rathard-Aherla c. 10.9 km north, Crookstown c. 11.0 km north and Enniskean c. 11.7 west.

There are a number of EPA IE / IPC licenced facilities located within 15km of the development site, as shown in the table below.

Table 8.17: EPA Licenced Facilities within 15km of the Development

LICENCE NO.	LICENCE NAME	LICENCE TYPE (FIRST SCHEDULE OF EPA ACT, 1992, AS AMENDED)	APPROX. DISTANCE FROM DEVELOPMENT SITE
P0188-01	Anglo Beef Processors Ireland Unlimited Company	7.4.1: Food and Drink	1.01 km NE
P0477-01	Acorn Environmental Ltd.	5.13 (e): Chemicals	1.68 km E

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LICENCE NO.	LICENCE NAME	LICENCE TYPE (FIRST SCHEDULE OF EPA ACT, 1992, AS AMENDED)	APPROX. DISTANCE FROM DEVELOPMENT SITE
P0005-03	MSD International GmbH	5.16: Chemicals	4.66 km NE
P0661-01	Oldpark Pigs Ltd	6.2 (b): Intensive Agriculture	4.78 km N
P0942-01	Mr Derek Good	6.1 (a): Intensive Agriculture	4.95 km NE
P0009-05	Eli Lilly Kinsale Ltd	5.16: Chemicals	11.2 km SE
P0621-03	Carhue Piggeries Ltd	6.2 (b): Intensive Agriculture	11.7 km S
P0662-01	Mr Jerry O'Brien	6.2 (b): Intensive Agriculture	12.0 km NW
P0594-02	GP Wood Ltd	8.3: Wood, Paper, Textiles and Leather	12.4 km W
P0986-01	Timoleague Agri Gen Ltd	11.4 (b)(i): Waste	12.8 km S
P0947-02	Staunton Foods Ltd	7.4.1: Food and Drink	12.8 km S

Potential cumulative impacts are discussed under the following headings.

Habitat Loss / Fragmentation

As discussed in **Section 8.5.2**, “*Habitats and Flora*”, the proposed development would result in a change of habitat use at the proposed development footprint, resulting in the loss of semi-natural grasslands, scrub, immature woodland, recolonising habitats and some sections of boundary hedgerows. The loss of these habitats would not be considered significant, given that most will be re-instated and incorporated within new landscaped areas. There will be a 10% net gain as part of proposed landscaping. The riparian zone will be protected and strengthened for local fauna making it a valuable asset to the local community also.

None of the habitats identified onsite are protected under the Habitats Directive or listed within a Natura 2000 site.

Planning sites in the vicinity of the applicant’s proposed site have been identified on the Cork County Council planning enquiries system. The majority of planning applications submitted for the area are located in already built-up areas in Bandon town or on agricultural lands, which are likely of low ecological value. It is considered that future planning applications would also follow the same pattern. Therefore, there would be no cumulative habitat loss or fragmentation impacts which could pose a significant risk to biodiversity.

Disturbance to Species

Disturbance to species may arise through noise emissions and human activity. The proposed site is located in the outskirts of Bandon town with no commercial enterprises in the vicinity of the site which could potentially generate significant cumulative noise impacts. The main in-combination noise and human activity effects would be from residential activities within the area. Therefore, and given the nature of activities at the proposed development site (residential estate), it is considered that there would be no significant cumulative noise impacts, or other disturbance effects due to human activity, which would have the potential to adversely impact upon fauna in the area.

Air Quality

It is considered that the proposed development will not result in any significant adverse impacts to air quality or climate. The primary potential nuisance associated with construction activities is dust, which is not anticipated to impact significantly upon sensitive receptors.

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The proposed development would act in combination with local combustion and traffic activities, including businesses, agriculture, road traffic and home heating, to influence local and regional air quality. No significant effects on air quality are anticipated in combination with the operational phases of other nearby developments. Such combination emissions would be amenable to reductions through infrastructure and policy changes over time.

Deterioration in Water Quality

Continued implementation of the Water Framework Directive would result in achieving, or maintaining, improvements to water quality in the Bandon-Ilen Catchment. Developments such as this proposed development could act in combination with existing environmental pressures on the Bandon-Ilen Catchment, including: agriculture, anthropogenic, domestic and urban waste water, urban run-off, industry (including extractive) and forestry. In particular, the proposed development could act in combination with other projects which are hydrologically connected with the Bandon River.

During the operational phase, surface water will be maintained onsite with overflow directed to the Kilbrogan watercourse. Domestic foul water will be directed to mains via a new connection for treatment at the Bandon Waste Water Treatment Plant (WWTP) (D0136-01). The WWTP discharge was compliant with the ELV's set in the wastewater discharge licence. A deterioration in water quality has been identified, however it is not known if it is or not caused by the WWTP. Other causes of deterioration in water quality in the area are unknown. The discharge from the wastewater treatment plant does not have an observable negative impact on the Water Framework Directive status (Uisce Eireann, 2023). The Bandon WWTP currently has capacity (March 2026). Therefore, no cumulative impacts upon water quality would be anticipated.

8.5.5 “DO-NOTHING” SCENARIO

Should the development not be built, there would be no change to the environmental impacts of the existing site in terms of habitats. The semi-natural grasslands, scrub, immature woodland, recolonising habitats and some sections of boundary hedgerows habitats scheduled for removal would be retained in their current form. Scrub would naturally recolonise new areas outcompeting and shading herbs and grasses unless managed. This may reduce the presence of wet grassland habitats onsite and reduce species diversity over the long term and reduce habitat diversity. In addition, the grassland may continue to be managed in a way where overgrazing is recurring. The development would continue to be used by local fauna in the area.

8.6 MITIGATION MEASURES

8.6.1 CONSTRUCTION PHASE

The mitigation measures outlined below will be implemented to ensure there is no significant impact upon the biodiversity of the area and designated sites during the construction phase of the development.

General Mitigation Measures

- Training of relevant personnel on monitoring and mitigation measures that will be implemented during the construction phase at the development site by way of a toolbox talk;
- All construction works will be confined as far as possible to the development footprint;
- All plant machinery and equipment will be maintained in good working order and regularly inspected;
- Where possible, no construction works will be conducted outside of normal working hours.
- Machinery must be used sensitively and appropriately by a skilled operator;

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Habitats and Flora

- Excavated soil during earth-moving activities and excavations will be segregated into subsoil and topsoil and reused in reinstatement and landscaping activities where possible. Natural recolonisation will be allowed to take place where possible;
- The proposed development will implement all elements of the proposed landscape plan;
- Only native and non-native invasive species will be used as part of the landscape plan;
- Where possible, only species of local provenance will be used onsite;
- There will be no additional removal of any other trees or hedgerows other than what has been outlined within the arborist report and landscape proposals;
- Tree protection measures will be implemented in accordance with the Tree Protection Plan prepared by Holly Arboriculture which accompanies this planning application;
- All planting of trees to be undertaken during bare root season November to April. The balance of tree planting to be completed within 12 months of the completion of construction work of the development.

Invasive species

- Cognisance will be taken of National Roads Authority's Guidelines on "*The Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads*";
- No importation of materials particularly topsoil from uncertified sources;
- The incorporation of native and non-native non-invasive species within the landscape design;
- Regular site inspections will be undertaken to ensure that no new growth of invasive species has taken place;
- The construction works contractor will ensure that all equipment and plant is inspected for the presence of invasive species and thoroughly washed prior to arriving to, and leaving from, the development site;
- All relevant construction personnel would be trained in invasive flora species (main species of concern) identification and control measures;
- In the unlikely event of an invasive species listed under the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 appearing onsite, works within the immediate vicinity would cease until the invasive plant has been appropriately treated and disposed of to a suitably licenced facility, in accordance with Regulation 49 of the 2011-2015 Regulations;
- The site contractor will ensure all elements of the accompanying Invasive Species Management Plan will be implemented to treat and manage all invasive species onsite including follow up monitoring.

Fauna and breeding birds

- Control measures will be put in place with regard to Guidelines for the Treatment of Badgers Prior to the Construction of National Road Schemes (NRA 2006);
- The building site will be made safe for mammals with hazards such as open holes/excavations covered over or fitted with ramps to allow for escape;

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- A metal fence or hoarding can be installed along the boundary of the site that will limit access to the site for large mammals such as Badger.
- Where possible, no construction works will be conducted outside of normal working hours, to reduce potential noise disturbance to nocturnal species;
- Should a Badger be found during the construction phase of the project, works will cease, an investigation will be undertaken by a qualified ecologist to establish Badger usage and where required, an officer of the NPWS would be notified prior to the resumption of construction works.
- No hedgerow or tree removal works to take place during the bird breeding season from 1st March to 31st September;
- The supervising ecologist will undertake a pre-construction survey to detect any breeding fauna and implement any additional measures where required;
- Where possible, construction works will be conducted outside the amphibian and hedgehog breeding season (early Spring/Summer);
- Should any protected amphibians or hedgehogs be found onsite, they will be captured under licence from NPWS and moved to a suitable location outside of the zone of influence;
- To reduce the potential for disturbance due to noise, all plant and machinery would be maintained in good working order and regularly inspected, where possible vehicles would be equipped with mufflers to suppress noise and where possible, no construction works would be conducted outside of normal working hours.

Bats

- An unmanaged buffer zone along treelines/hedgerows such as scrub or tall grasses should be incorporated within the management of the site to provide additional habitat for invertebrates for bats to feed on;
- The onsite contractor will ensure all elements of the landscape plan have been implemented to provide sufficient food resources and commuting habitats;
- Prior to the removal of trees, a pre-commencement tree roost inspection will be undertaken on the trees to be removed by a qualified ecologist at the appropriate time of year. If high suitability potential roost features are identified on any of the trees to be removed, follow up surveys including but not limited to endoscope surveys, will be carried out. If a bat roost is identified, a bat derogation licence will be obtained from the NPWS prior to felling, and the felling activity will be supervised by a qualified ecologist.
- If no bats are found during the follow up surveys, trees should be soft-felled and left for 48hrs to allow any undetected bats to escape.
- A total of 10 no. of bat boxes should be erected on existing trees prior to any works commencing. Schwegler type 2F or Schwegler type 1FF (or similar models) should be installed at slightly different aspects from southeast to southwest facing on suitable trees to provide a range of temperature conditions. Bat boxes should be installed at a height of at least 4m off the ground (Bat Conservation Ireland, 2015).
- Bat boxes should be installed away from artificial light sources and away from areas subject to artificial light spill.
- The onsite contractor will adhere to all additional mitigation included within the accompanying Bat Survey Report;

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- See Bat Conservation Ireland Guidelines on hedgerow management for bats. <https://www.batconservationireland.org/wp-content/uploads/2022/07/Managing-Hedgerows-for-Bats.pdf>

Artificial Lighting during construction phase

- Construction works in the hours of darkness, when bats are active (April – October), will be kept to a minimum if required;
- Lighting of hedgerows / treelines / watercourses / will be avoided;
- Should lighting be required during construction works, it will be of a low height (without compromising safe working conditions) to ensure minimal light spill. Where possible and where practicable to do so, timers or motion sensors would be used;
- Directional lighting will be used where possible, by use of louvres or shields fitted to the lighting;
- White light emitting diode (LED) will be used where possible, which is considered to be low impact in comparison to other lighting types;
- Site lighting will be provided with the minimum luminosity sufficient for safety and security purposes to avoid shadows cast by the site hoarding on surrounding footpaths, roads and amenity areas.

Artificial Lighting during operational phase

- The onsite contractor will ensure that the lighting plan is implemented as proposed in line with best practice guidelines for Bats - Guidance Notes for: Planners, engineers, architects and developers (Bat Conservation Ireland, 2010);
- Lighting will be angled to where it is required only. There will be no lighting along the watercourse;
- Luminaires will be a maximum height of 8m;
- The light source shall have a correlated colour temperature (CCT) of no more than 3,000 Kelvin;
- Warm white LED outdoor lighting will be used, which is considered to be low impact in comparison to other lighting types;
- Where possible and practicable to do so, timers or motion sensors would be used;

Water Quality

As noted in **Section 8.5.2**, the precautionary principle will be applied to prevent a deterioration in water quality that could cause significant effects on the QI's of the aforementioned designated sites. In addition, these water quality measures will prevent significant adverse effects on local freshwater fauna.

Mitigation measures prior to commencement of the proposed In-Stream works

- Construction works will not be undertaken during periods of heavy rainfall, high river flows or orange/yellow/red rainfall warnings issued by Met Eireann;
- Construction works along the banks of the Kilbrogan watercourse will only be undertaken during the period 1st July to 30th September for the protection of aquatic fauna downstream;

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- The contractor will schedule the proposed works during a period of dry weather;
- A toolbox talk will be given at the proposed works area by an ecologist to all relevant personnel on the monitoring and mitigation measure requirements to be implemented prior to commencement of the construction phase;
- The contractor will maintain effective communication through the toolbox talk with the operating foremen to ensure there will be no risk of water pollution and all measures are enacted during the proposed works;
- The contractor will effectively communicate the tasks to be completed prior to commencement of the proposed works through the toolbox talk;
- Records of all visual inspections are to be kept on file and available for review by relevant authorities;
- An Ecological Clerk of Works (ECoW) will be commissioned to supervise the construction phase of this development. The ecologist will undertake a preliminary survey of the proposed works area to confirm no protected species are located within the proposed in-stream works area. Should a protected species be encountered, the ECoW will liaise with IFI and NPWS to establish appropriate measures and licenses required;
- Sand used within sandbags will be washed prior to any proposed works and will be free of any contaminants;
- A buffer of 10m will be maintained either side of the Kilbrogan watercourse from the top of the banks where no construction works other than those outlined will take place. This buffer zone will be clearly marked to prevent machinery access where not permitted.

Biosecurity Measures

During all phases of the proposed in-stream works, biosecurity protocols must be followed to ensure non-native invasive species and diseases such as crayfish plague are not introduced to the proposed development area;

- All personnel must implement the 'Clean – Check – Dry' principles, ensuring that all personal protective equipment (PPE), and equipment and machinery is clean and dry upon arrival at the proposed development. This will include the power washing and steam cleaning of equipment and machinery with water >65°C prior to arrival onsite;
- Upon completion of the proposed works, the contractor must check and clean all PPE, contact with the water for evidence of attached plant or animal material, or adherent mud or debris. This should be done before leaving the proposed development. Remove any attached or adherent material (vegetation and debris) before leaving the development area of operation;
- High-pressure steam cleaning, with water > 65°C, is recommended for machinery that will be moved from one watercourse to another. Many roadside garages provide these facilities. After cleaning, visually inspect the equipment to ensure that all adherent material and debris has been removed;
- It is recommended to apply disinfectant to the undercarriage and wheels of the vehicle/machine after steam cleaning or power hosing;
- Wet or live wells and other water retaining compartments in machinery must be cleaned, rinsed or flushed with a 1% solution of Virkon Aquatic or another proprietary disinfection product. Alternatively, a 5% solution (100 ml / 20 litre solution) of chlorine bleach should be used. Rinse thoroughly with clean water;

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- Prior to commencement of any new in-stream works, the contractor must ensure that all PPE, equipment and machinery are dry.
- If drying out of PPE, equipment and machinery is not feasible, disinfection using Virkon Aquatic must be carried out, as per the manufacturer's instructions.

Measures for the installation of new headwalls

The dry cut open method may be used for such developmental works where minor works within the banks of a watercourse is required. Prior to any works, the site is prepared by stripping topsoil from the banks at the location of the proposed headwalls. Works will then begin on the installation of the precast concrete headwalls including excavation where necessary to fit the headwall. The water flow will be dammed using sandbags to create the seal / dam across the watercourse as per design. Pumps would be set up to take the flow from upstream to downstream of the location of the proposed headwalls. The water will be filtered to limit silt carry over and reduce disturbance to the bed before pumped water is released back into the watercourse. Once completed, all materials used within the construction will be removed from site and bank profile reinstated. It should be noted that this method may be altered to suit site-specification requirements. Mitigation measures have been included below:

- A filter will be provided at the pump inlet to prevent the entry of aquatic fauna into the pump, and to limit the potential disturbance to the watercourse bed due to sediments;
- Sandbags wrapped in a geo-textile membrane will be placed in-situ to create a working dry zone around the proposed works area;
- Excavation of the bank of the watercourse will then proceed, with the excavated material stockpiled for later reinstatement;
- The precast concrete headwalls will be installed in-situ and the banks will be re-instated;
- Following the completion of reinstatement works, including any required riverbank reinstatement works, the sandbags will be removed;
- Vegetation clearance works will only be undertaken when works are required to prevent leaving exposed ground for long periods of time;
- Any vegetation cuttings will not be stored near the banks of the watercourse;
- In the unlikely event of a suspected deterioration in water quality within the Kilbrogan due to in-stream works at the development site, works will immediately cease, an investigation into the cause undertaken and the relevant NPWS and Inland Fisheries Ireland personnel informed;
- Where spoil is generated, this will only be stored temporarily. A designated spoil area will be established by the construction works contractor within the site footprint. This will be located away from the watercourse.

Measures for the installation of a new foul water pipe

This method is similar to the previous method with some adaptations.

- The appointed ECoW will undertake a preliminary survey of the section of the watercourse in which the foul pipe is proposed prior to any construction works for potentially protected freshwater species;
- Excavations for the pipe installation will be isolated from the Kilbrogan using sand bags wrapped in a geo-textile membrane upstream and downstream of the works;

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- The Kilbrogan watercourse will be diverted from upstream to downstream bypassing the works area via a pump;
- Once the ecologist has given the all clear for construction works to proceed, a trench will be dug using suitable appropriate machinery;
- Excavated materials will be laid out within a designated area greater than 10m from the Kilbrogan watercourse. The ECoW will search the materials for any protected species. Where protected species are found, these will be returned to the Kilbrogan watercourse in a safe location;
- Once the pipe is laid in-situ, the trench will be backfilled;
- The suitable machinery will keep a distance from the Kilbrogan watercourse to allow the hydraulic arm to reach;
- Where required, any additional water that enters the dry area will be pumped to a designated area approximately >10m from the banks of the Kilbrogan watercourse retaining sediments onsite;
- Excavated materials will not be allowed to fall into the watercourse and will not be stored or placed near the top of the bank of the Kilbrogan.

Measures for the construction of the new vehicular bridge and pedestrian bridge

Works will be required in proximity of and over the Kilbrogan watercourse. There is potential for sediments, hydrocarbons and pollutants such as cement to enter the watercourse, causing a deterioration in water quality. Measures that will be implemented to ensure no potential deterioration in water quality are as follows:

- The installation of the bridge will follow Guidelines on Protection of Fisheries during construction works in and adjacent to water (Inland Fisheries Ireland, 2016) guideline document. The most appropriate temporary bridge to be installed will be assessed based on weight, location, duration and access constraints to ensure adequate safety;
- The onsite contractor will follow the proposed method and method statement for the construction of the new bridge as outlined within the accompanying report by MMOS.
- Heavy machinery will only operate within an access strip set back 5-10m from the top of the bank of the Kilbrogan watercourse;
- Sandbags wrapped in a geotextile membrane will be placed adjacent to the watercourse outside of the construction access routes to prevent any suspended solids from entering the Kilbrogan;
- A silt curtain and silt fence will be placed between the works area and the watercourse to prevent materials falling into the Kilbrogan. This will remain in place for the duration of the works eg., for the temporary and permanent bridge installations;
- There will be no construction works within the banks or bed of the Kilbrogan as part of the construction of the Bridge;
- A temporary bridge will be laid across the Kilbrogan to facilitate site access until the permanent bridge has been constructed.
- Works for the installation of the permanent bridge will include the removal of the temporary bridge. Associated bridge materials will be stored >20m from the banks of the Kilbrogan watercourse until taken offsite to a licensed waste facility;
- To begin construction of the new permanent bridge, excavation of the location for the bridge foundations will be undertaken;

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- Appropriate machinery will construct the remainder of the bridge and will operate the maximum distance the hydraulic arms will allow from the banks of the watercourse;
- Shuttering will be used around the bridge supports for the pouring of concrete and to ensure no concrete reaches the watercourse;
- A minimum setback distance of 5m from the top of the bank of the Kilbrogan watercourse will be implemented for the installation of the pedestrian bridge while the vehicular bridge will have a setback distance of 10m to protect the integrity of the watercourse;
- Once installed, all bridge associated construction materials will be removed from the site, the silt blanket and sandbags will be removed.

Construction measures for the removal of an existing culvert

There is an existing pipe culvert within the Kilbrogan watercourse onsite. This will be removed as part of the proposed works. The following mitigation measures will be implemented to ensure no deterioration in water quality during the construction phase.

- The appointed ECoW will undertake a preliminary survey of the section of the watercourse in which the culvert is to be removed for potentially protected freshwater species;
- The onsite contractor will begin works once the onsite ECoW has given the go ahead;
- Sandbags will be placed in-situ downstream of the culvert to create a working dry zone and prevent sediments being carried downstream;
- The Kilbrogan watercourse will be diverted from upstream to downstream bypassing the works area via a pump;
- A filter will be provided at the pump inlet to prevent the entry of aquatic fauna into the pump, and to limit the potential disturbance to the watercourse bed due to sediments;
- Using suitable machinery by a skilled operator, the culvert will be removed from the watercourse;
- The suitable machinery will keep a distance from the Kilbrogan watercourse to allow the hydraulic arm to reach;
- Where required, any additional water that enters the dry area will be pumped to a designated area approximately >10m from the banks of the Kilbrogan watercourse retaining sediments onsite;
- All materials associated with the proposed culvert removal will be disposed of appropriately and not stored near the banks of the watercourse.

Water quality mitigation measures for the remainder of the construction phase

Given that the land slopes towards the Kilbrogan watercourse, additional mitigation measures will be implemented to prevent any deterioration in water quality and prevent silt laden run-off from flowing downhill and as standard good practice. This will include the following

- The construction works contractor would adhere to standard construction best practice, taking cognisance of the Construction Industry Research and Information Association (CIRIA) guidelines “Control of Water Pollution from Construction Sites; guidance for consultants and contractors” 2001 and “Control of Water Pollution from Construction Sites – Guide to Good Practice”, 2002;

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- Where feasible, temporary swales will be constructed at varying elevations parallel to the Kilbrogan watercourse during soil disturbance works to capture suspended solids. Silt fences will be installed on the furthest side of the temporary swales to limit movement of sediments. These will be located outside the 10m buffer zone. The temporary swales will only be infilled when works are completed and there is no risk of surface water run-off;
- Stockpiling of loose materials will be kept a minimum of 20m from watercourses,
- Excavations and earth-moving activities will be planned outside periods of heavy rainfall, to limit the potential for suspended solids to become entrained within surface water run-off;
- Regular visual inspections will be undertaken of the site access road to ensure no silt-laden surface water runoff leaves the site, with the potential to either join with any adjacent surface water drainage systems within the vicinity or travel along the road network;
- Where spoil is generated, this will only be stored temporarily. A designated spoil area will be established by the construction works contractor within the site footprint. This will be located away from any watercourse;
- Silt fencing will be placed around spoil areas until such time as the excavated soil has been used in landscaping / re-instatement works or removed offsite by a licenced waste contractor;
- Where possible, spoil will be covered or alternatively, graded to avoid ponding or water saturation;
- Manhole covers and stormwater gullies will be protected by silt blankets and additional measures such as sandbags to be incorporated on steeper gradients if required
- Sandbags will be placed beneath any steep gradient where required to prevent surface water from entering a watercourse;
- Should water be encountered during excavation works, water will be pumped to a silt control feature, such as a lagoon/infiltration area used for settlement;
- This lagoon/infiltration area must have adequate capacity and water must be filtered before discharging. Water must not be directly discharged to a watercourse;
- The lagoon/infiltration area will be located away from any steep sloping ground;
- Pumping operations will be supervised at all times;
- All construction plant machinery and equipment will be maintained in good working order and regularly inspected;
- Any fuels, oils or chemicals will be stored in accordance with the EPA guidance on the storage of materials, in designated bunded areas at the site compound, with adequate bund provision to contain 110% of the largest drum volume or 25% of the total volume of containers;
- All small plants such as generators and pumps will be stood in drip trays capable of holding 110% of their tank contents;
- The construction works contractor will ensure the relevant site personnel are trained in spillage control;
- Where construction plant shows signs of hydrocarbon leakage, site personnel will cease the operation of the item in question. Any defective construction machinery will be kept out of service until the necessary repairs are undertaken;
- Vehicle and wheel washing facilities will be provided at site exit, at an area isolated from any drainage network;
- Spill kits, adequately stocked with spill clean-up materials such as booms and absorbent pads, will be readily available onsite;
- Material storage areas will be appropriately labelled and marked;

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- If weed control is required then herbicide application will only be carried out by suitably qualified contractors or operators with strict reference to the product label, local land use, health and safety considerations and any pertinent regulations. All herbicide treatment must comply with the pesticide regulations S.I. No. 155/2012 - European Communities (Sustainable Use of Pesticides) Regulations 2012 or any amended or current regulations at the time of use.
- The onsite contractor will implement all additional mitigation measures as outlined within the accompanying Construction Environmental Management Plan (Ref: RES_CEMP_22616), Operational Waste Management Plan (Ref: PES_OWMP_) and Resource Waste Management Plan (Ref: PES_RWMP_22616).

Mitigation measures once all construction works have ceased

- The onsite contractor will ensure all materials associated with the construction of the proposed development are removed from the site and disposed of appropriately.

8.6.2 OPERATIONAL PHASE

As noted in **Section 8.5.3**, a deterioration in water quality during the operational phase is not predicted with no mitigation measures required, other than ensuring the appropriate maintenance of the proposed drainage system.

8.6.3 “WORST CASE SCENARIO”

If the proposed development proceeded without the mitigation measures outlined in **Section 8.6.1**, there would be a potential to adversely impact upon bat species due to the removal of commuting and foraging habitat, in addition to lighting impacts during the construction phase and loss of potential roosting habitat. In the absence of mitigation measures, there would be a slight to moderate impact upon fauna due to habitat loss. There would also be a potential moderate to high impact upon fauna, should vegetation clearance be undertaken during the mammal and bird breeding season. However, this is unlikely to occur, given that there are legal restrictions under the Wildlife Act 1976 as amended, with regards the removal of vegetation.

During construction works, there would be potential to inadvertently introduce invasive species to the area. In addition, there is potential for existing scheduled invasive species to spread within the development site boundary. Invasive species can create monocultures and outcompete native species ending with significant impacts to designated and natural habitats. There would be no significant importation of materials to the site and the delivery of materials would be inspected prior to removal from the site of origin. Where invasive species are confirmed, the loads would be required to be adequately treated or disposed of appropriately and therefore, would not be transported to the proposed development site.

Without mitigation measures, there is potential for indirect significant effects on Natura 2000 sites and protected species to occur due to a deterioration in water quality during the construction phase. In-stream works have the potential to cause a deterioration in water quality due to the release of suspended solids and chemicals/hydrocarbons. However, the proposed development is not directly connected to the Courtmacsherry Bay SPA and the Bandon River SAC is located a significant distance upstream. While the risk is low, the precautionary principle will be applied.

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8.7 RESIDUAL IMPACTS

Table 8.10: Summary of Ecological Features, Significance of Effects and Residual Significance.

SUMMARY OF ECOLOGICAL FEATURES, SIGNIFICANCE OF EFFECTS AND RESIDUAL SIGNIFICANCE			AFTER MITIGATION	
ECOLOGICAL FEATURE	DEVELOPMENT PHASE	SIGNIFICANCE OF POTENTIAL EFFECTS IF UNMITIGATED	MITIGATION MEASURES	QUALITY OF RESIDUAL IMPACT TYPE
Habitat Loss	Construction & Operational	Moderate significance	- Excavated soils will be segregated into subsoil and topsoil and reused in reinstatement and landscaping works. Where possible, natural recolonization would be allowed to take place; - All elements of the proposed landscape plan will be incorporated; - A 10m buffer will be maintained along the riparian zone of the Kilbrogan watercourse, this includes retaining much of the existing vegetation - Retain as much boundary vegetation as possible.	Positive
Introduction of Invasive Flora Species	Construction	Moderate significance	- Construction plant will be inspected and washed prior to arriving onsite; - All imported materials will be sourced from a certified supplier and will be screened for invasives; - The onsite contractor will implement all elements of the mitigation measures within this EcIA and the accompanying Invasive Species Management Plan to adequately treat all invasive species onsite; - Regular site inspections for the presence of third scheduled invasive species will be undertaken; - Any exported materials will be disposed of to a licensed waste facility.	Positive
Fauna Disturbance	Construction	Moderate significance	No construction works will be conducted outside of normal working hours;	Neutral

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SUMMARY OF ECOLOGICAL FEATURES, SIGNIFICANCE OF EFFECTS AND RESIDUAL SIGNIFICANCE					
ECOLOGICAL FEATURE	DEVELOPMENT PHASE	SIGNIFICANCE OF POTENTIAL EFFECTS IF UNMITIGATED	MITIGATION MEASURES	AFTER MITIGATION	
				RESIDUAL SIGNIFICANCE	QUALITY OF RESIDUAL IMPACT TYPE
Fauna Mortality			• All plant machinery and equipment will be maintained in good working order and regularly inspected; • Where possible, vehicles will be equipped with mufflers to suppress noise; • As a minimum, the construction work contractor will comply with all legislative provisions relating to vegetation removal; • Should a protected fauna species be found during the construction phase, an investigation will be undertaken and where required, the NPWS would be notified prior to the resumption of construction works. • Fencing to limit access to the site; • None required • As a minimum, the construction work contractor will comply with all legislative provisions relating to hedgerow / tree removal; • Where vegetation works are required during the bird nesting season (1st March to 31st August), the sections / trees for removal would be inspected by an ecologist for the presence of breeding birds. Where nests are present, a decision would be made as to whether a licence is required from the NPWS, or whether a suitable buffer zone could be established around the active nest with removal works rescheduled until chicks have fledged.		
	Operational	Not significant		Not significant	Neutral
	Construction	Moderate/High significance			Not significant
Bats – Disturbance / Severance of Habitat	Construction	Slight to moderate significance	• Measures will be implemented to reduce the potential for light pollution during the construction phase; • Lighting will be angled away from trees and hedgerows;	Not significant	Neutral

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SUMMARY OF ECOLOGICAL FEATURES, SIGNIFICANCE OF EFFECTS AND RESIDUAL SIGNIFICANCE					
ECOLOGICAL FEATURE	DEVELOPMENT PHASE	SIGNIFICANCE OF POTENTIAL EFFECTS IF UNMITIGATED	MITIGATION MEASURES	AFTER MITIGATION	
				RESIDUAL SIGNIFICANCE	QUALITY OF RESIDUAL IMPACT TYPE
			- Construction works in the hours of darkness will be kept to a minimum; - A pre-commencement bat survey will be conducted to check for the presence of bats prior to any tree removal.		
	Operational	Slight significance	- Lighting design measures will be implemented to reduce the potential for light pollution; - The use of flood lights with significant light spill within the development are not to be permitted; - Lighting will be directed to where it is required only; - Lighting will be angled away from trees, hedgerows and watercourses;	Slight significance	Negative
	Construction	Moderate significance	- Construction measures for the protection of surface waters will be implemented; - Concrete works will be supervised; - Appropriate storage and handling of fuels and oils; - Provision of spill kits;	Not significant	Neutral
Surface Water Quality Deterioration	Operational	Not significant	Ensure maintenance of drainage system	Not significant	Neutral
	Not significant	Moderate significance	- Construction control measures for the protection of surface waters will be implemented - No construction works will be undertaken within the boundary of any designated site.	Not significant	Neutral
	Operational	Not significant	None required	Not significant	Neutral

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9.0 LAND – SOILS, GEOLOGY, HYDROLOGY & HYDROGEOLOGY

9.1 INTRODUCTION

This chapter describes the soils, geology, hydrology and hydrogeology of the existing environment surrounding the site for the proposed construction of a Large-scale Residential Development and all ancillary site works and services. The objective of this chapter is to determine the likely significant impacts on the soils, geology and hydrology of the area arising from the proposed development and to propose measures to mitigate these impacts, if required.

This chapter has been prepared in accordance with guidelines from the Environmental Protection Agency (EPA) and the Institute of Geologists of Ireland (IGI):

EPA (2002). *Guidelines on Information to be contained in Environmental Impact Statements*.

EPA (2022). *Guidelines on the Information to be contained in Environmental Impact Assessment Reports*.

IGI (2013). *Guidelines for the Preparation of Soils, Geology and Hydrogeology Chapters of Environmental Impact Statements*.

A detailed description of the existing and proposed development is outlined in **Section 2** of this EIAR.

9.2 METHODOLOGY

The following works were undertaken to complete the assessment of the potential effects on soils, geology, hydrology and hydrogeology:

- Desk study to collate and examine available existing information on soils, geology, hydrology and hydrogeology for the proposed development site and surrounding area;
- Review of information for the proposed development with particular regard to proposed soil/subsoil excavations;
- Management of water, stormwater and water usage;
- Interpretation of all data, assessment and reporting.

9.3 DESCRIPTION OF THE EXISTING ENVIRONMENT

This section describes the existing baseline environment in terms of the soils, geology, hydrology and hydrogeology of the proposed development site and the surrounding area. Based on this information, the potential impacts of the proposed development are identified, as are the measures required to mitigate any identified negative impacts.

9.3.1 LAND & SOILS

SUBSOILS

The subsoils beneath the proposed site are mapped as till derived from Devonian and Carboniferous sandstones and shales. This is the dominant subsoil type in the immediate surrounding area, but there are also areas mapped as bedrock outcrop or subcrop, alluvium and Bandon urban area. See **Figure 9.1**.

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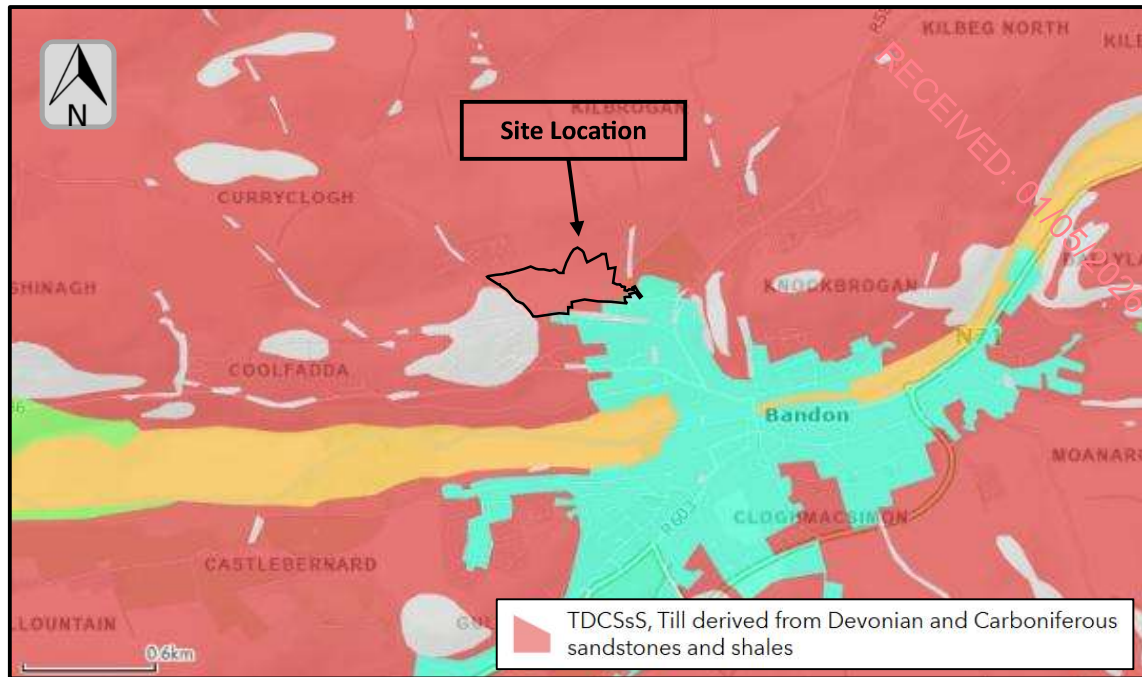


Figure 9.1: Subsoils (GSI map)

Within a 15 km radius of the site, till derived from Devonian and Carboniferous sandstones and shales is also the dominant subsoil type to the south. To the north, subsoils are primarily composed of till derived from Devonian sandstones. To a lesser degree, there are scattered areas of bedrock outcrop or subcrop in all directions, areas of alluvium conforming to the river networks, gravels derived from Devonian sandstones, till derived from Namurian sandstones and shales, blanket peat, lacustrine sediments and Estuarine silts and clays in the estuary near Courtmacsherry.

REGIONAL SOILS

According to the EPA maps, the soil where the site is located is mainly mapped as Acidic Deep Well Drained Mineral (AminDW).

Within 1.5 km of the site are smaller areas of soils mapped as Acid Shallow Well Drained Mineral (AminSW), Acidic Mineral poorly drained (AminPD), Acidic Shallow, rocky, peaty/non-peaty mineral complexes (AminSRPT), Mineral Alluvium (AlluvMIN) and Made Ground.

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Figure 9.2: Teagasc Soils (GSI map)

Figure 9.3 below shows the regional soil types in the area surrounding the proposed site.



Figure 9.3: SIS Soils (EPA map)

According to the SIS Soils map, the soil underlying the proposed site is part of a Ross Carbery association with a substrate type described as coarse loamy drift with siliceous stones.

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BEDROCK GEOLOGY

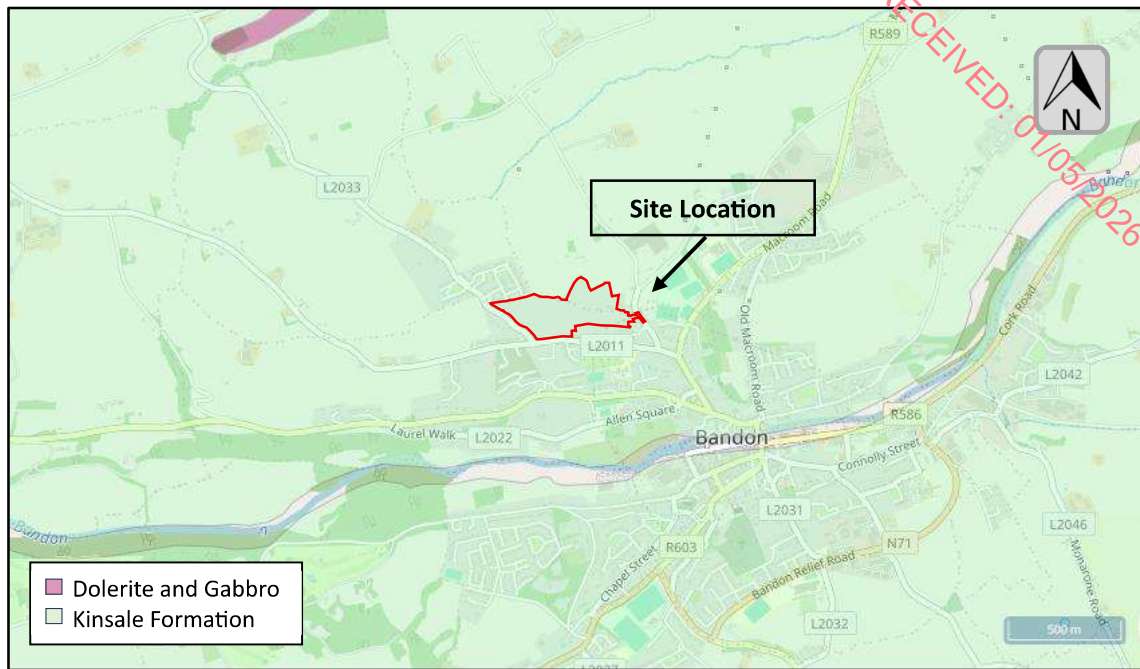


Figure 9.4: Bedrock Geology 100k (EPA Maps).

GSI and EPA maps indicate the site of the proposed development is located on bedrock which is part of the Kinsale Formation, as per **Figure 9.4**. The Kinsale Formation is described as silica poor, with analcime and olivine, and is included as part of the simplified rock unit group named as Dinantian Mudstones and Sandstones (Cork Group).

9.3.2 GEOLOGICAL HERITAGE

The Irish Geological Heritage (IGH) Programme identifies and selects a complete range of sites that represent Ireland's geological heritage under sixteen themes ranging from Karst features to Hydrogeology.

The IGH Programme is a partnership between the GSI and the National Parks and Wildlife Service (NPWS) and sites identified as important for conservation are conserved as Natural Heritage Areas (NHA).

The proposed development is not located on any geological heritage site. Reference to the GSI online database confirms there are no geological heritage sites within the perimeter of the site or within a 5.0 km radius of the site.

The closest geological heritage site is located c. 9.8 km south of the proposed development. The site's name is the Courtmacsherry Estuary. According to the Geological Site Report, "The Courtmacsherry Estuary is a wide estuarine / bay complex, comprising the drowned valley of the Argideen River, with many bounding areas of tidal mudflats exposed at low tide, and bounding headlands".

CURRENT & HISTORIC LAND USE

The available historic maps, aerial images and Cork Co. Co. online planning files were reviewed. The land in the immediate vicinity of the site and surrounding area is mainly used as agricultural land, linear residential development and residential estates. Bandon town is a long established settlement in County Cork and the urban fabric has been expanding outward.

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active operational quarries within 10 km of the site.

North-east of the site in the quarry operated by Eugene Pavel, graded and uniform (flooring & general).

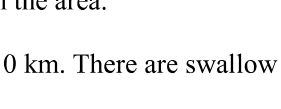
ing activities at the site

recorded on the immediate

trim townland, Co. Cork

10.0 km of the proposed

10.0 km of the proposed
north-east in the townland
of the area.



Cork N8

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The GSI's karst database is by no means comprehensive, and other karst features that are not mapped may be present in the area. No surface expression of karst depressions or collapse features have been recorded on site. However, such karst features may be present but not visible at surface. Detailed karst studies and site investigation would be required to establish this.

9.3.5 WATER

TOPOGRAPHY

Features of the region consist of agricultural lands and Bandon town urban fabric on an undulated topography.

The overall site topography varies from approximately 75m mAOD to 45m mAOD and generally slopes from west to east. **Figure 9.6** below shows the topography in the surrounding area of the site. Areas of elevation can be found to the west of the site, while the course of River Bandon represents the terrain with the lowest elevation.

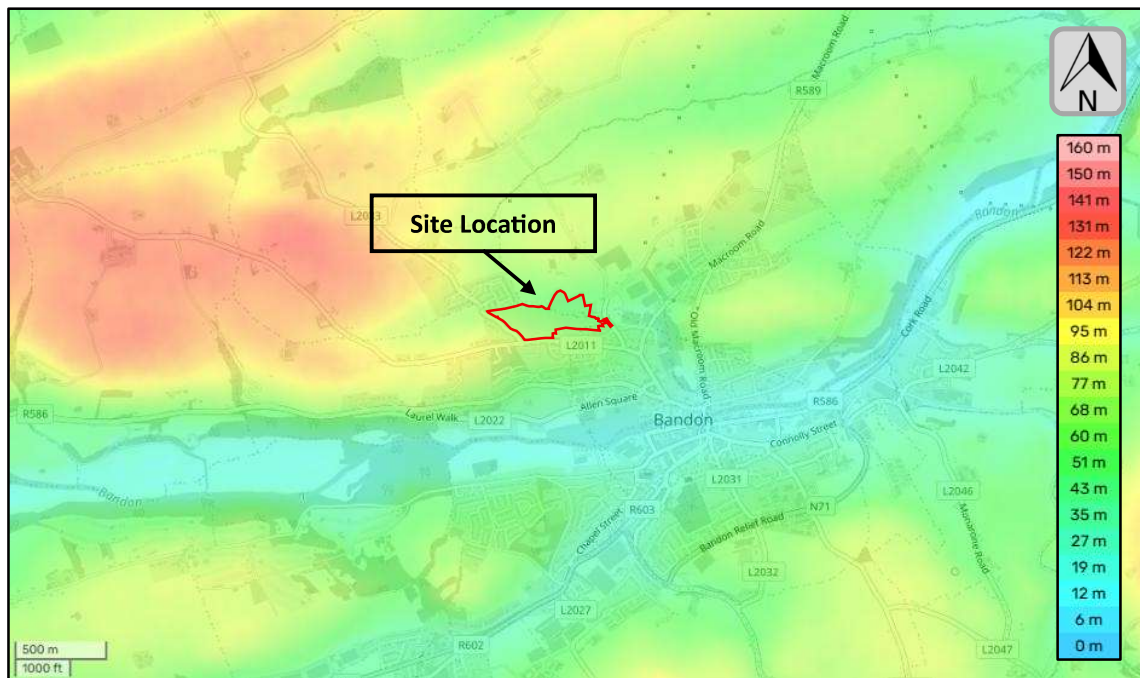


Figure 9.6: Elevation Data (Topography map).

RIVER BASIN & NEARBY SURFACE WATER FEATURES

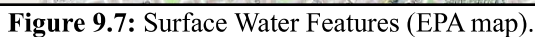
According to Cycle 2 of the River Basin Management Plan for Ireland, the site lies within the Ireland's River Basin District (RBD), which has been identified as the one which is wholly within the state. Five other RBD have been identified on the island of Ireland, two of which are shared with Northern Ireland and three of which are wholly within Northern Ireland.

Ireland's RBD covers an area of 70,273 km², with 46 catchment management units. The 46 catchment management units have been broken down further into 583 sub-catchments, which contain a total of 4,829 water bodies. Within the River Basin District (RBD), there are 140 designated bathing waters, 64 shellfish waters, 42 nutrient-sensitive areas, 358 special areas of conservation (SACs) with water dependency and 154 special-protection areas (SPAs). The SACs are geographically quite concentrated, in particular along the western seaboard. The SPAs are to some extent more dispersed, but they are also found in particular concentrations along the western seaboard.

water status, is the land used by agriculture – 55% arable cultivation. Forestry

The proposed site is located within Bandon-Ilen Catchment (ID: 20), the Bandon 050 Sub Catchment and the Bandon 090 River Sub Basin.

The main surface water features in the area include the Kilbrogan watercourse which runs through the site and River Bandon to the south.



SURFACE WATER BODY STATUS, PRESSURES & WATER QUALITY

Table 9.1: Status and risk of nearby WFD surface water bodies.

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River Water Body	Water Body Type	Status (2019-2024) Q values	Risk
Bandon_090 (River Bandon)	River	'Good'	'Review'

The confluence of the Kilbrogan stream and River Bandon occurs between the EPA monitoring stations RS20B020700 Baxter's Br (c. 5.4 km u/s of confluence) and RS20B020800 1.5km d/s Bandon Br (c. 1.3 km d/s of confluence). Both monitoring locations determined water quality to be in a good status.

EPA River Quality Survey contains the following comments for River Bandon: "Continuing largely satisfactory with six out of the nine sites surveyed at good or high ecological quality. The ecological quality at Keenrath bridge (0050) continues with High. Moderate status was maintained at Ardcahan Bridge (0150) and Bealboy bridge (0300) as per the previous survey. The lowermost site at Innishannon Bridge (0900) has also declined to moderate from good. All other sampled sites were at good status."

There are no salmonid protected rivers (S.I. 293: European Communities (Quality of Salmonid Waters) Regulations, 1988) within the Bandon 050 Sub Catchment.

SITE DRAINAGE

Wastewater generated by sanitary facilities at the dwelling units and creche would be directed to the existing pump station and public wastewater network along L2039 to the east. Foul water will then be directed to the Bandon WWTP, which will discharge to River Bandon.

The proposed site will be divided into three separate catchments for the management of clean rainwater from roofs and hard surfaces during the operational phase of the development. Stormwater from each catchment will be directed to its corresponding attenuation tank, which will then discharge into the existing stream. Permeable paving will also be installed to allow water to infiltrate to ground and water butts will be provided to harvest rainwater.

Groundwater in the area is expected to move according to the topography. The overall site topography of the area is defined by a gradient that generally slopes from west to east towards Kilbrogan stream. This suggests that groundwater could also potentially adhere to a similar flow pattern, according to the terrain's slope. However, because of the complexities of groundwater flow direction it is possible that underground drainage and groundwater flow do not simply follow surface topography.

FLOOD RISK

OPW National Catchment Flood Risk Assessment and Management (CFRAM) river flood maps show that the site is located outside of Flood Zones A or B for river and coastal flooding. There is no recorded history of flooding within or close to the site. The tributary was omitted from both the Southwestern CFRAM study and the National Indicative Flood Mapping (NIFM) and is therefore not represented in final Flood Zones.

According to the OPW, there have not been recorded any other flood events in the area surrounding the site. The nearest recorded recurring flood events are located along River Bandon.

Alluvial deposits can be an indicator of areas that have been subject to flooding in the recent geological past. The alluvial deposit maps (Quaternary sediments) from the Geological Survey of Ireland (GSI) were consulted to assess the extent of any alluvial deposits in the vicinity of the proposed development site. No alluvial deposits occur within the site or in its immediate vicinity (**Figure 9.1**).

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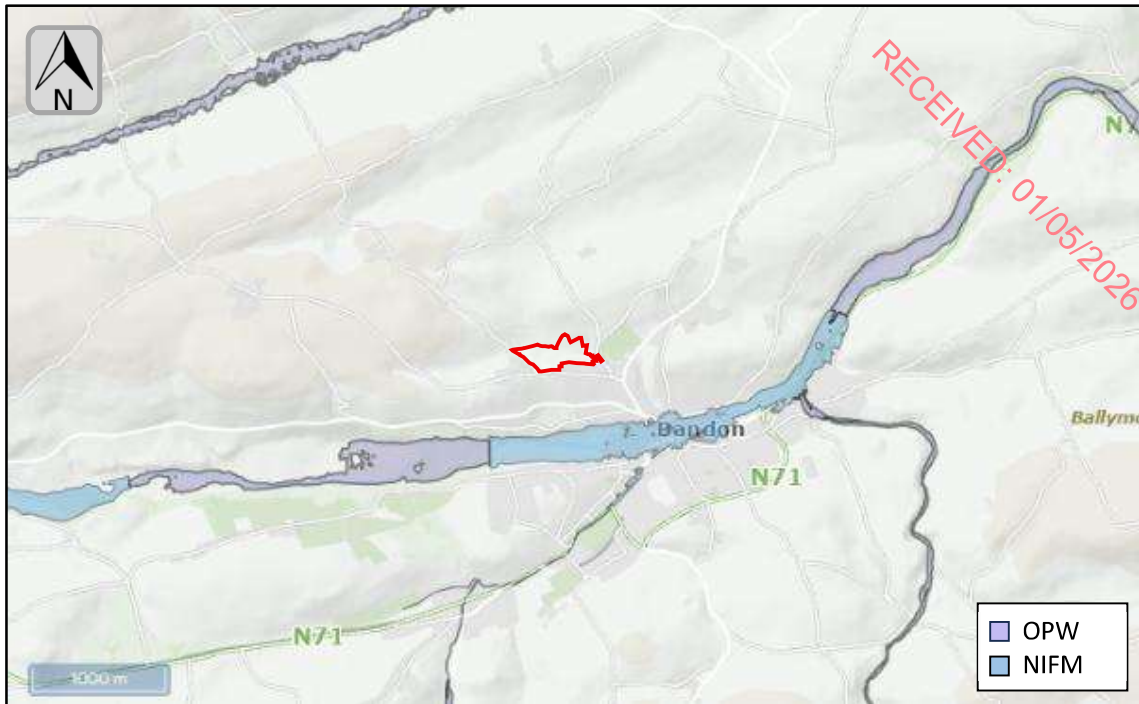


Figure 9.8: Fluvial Flooding Map – Present Day (Medium Probability).

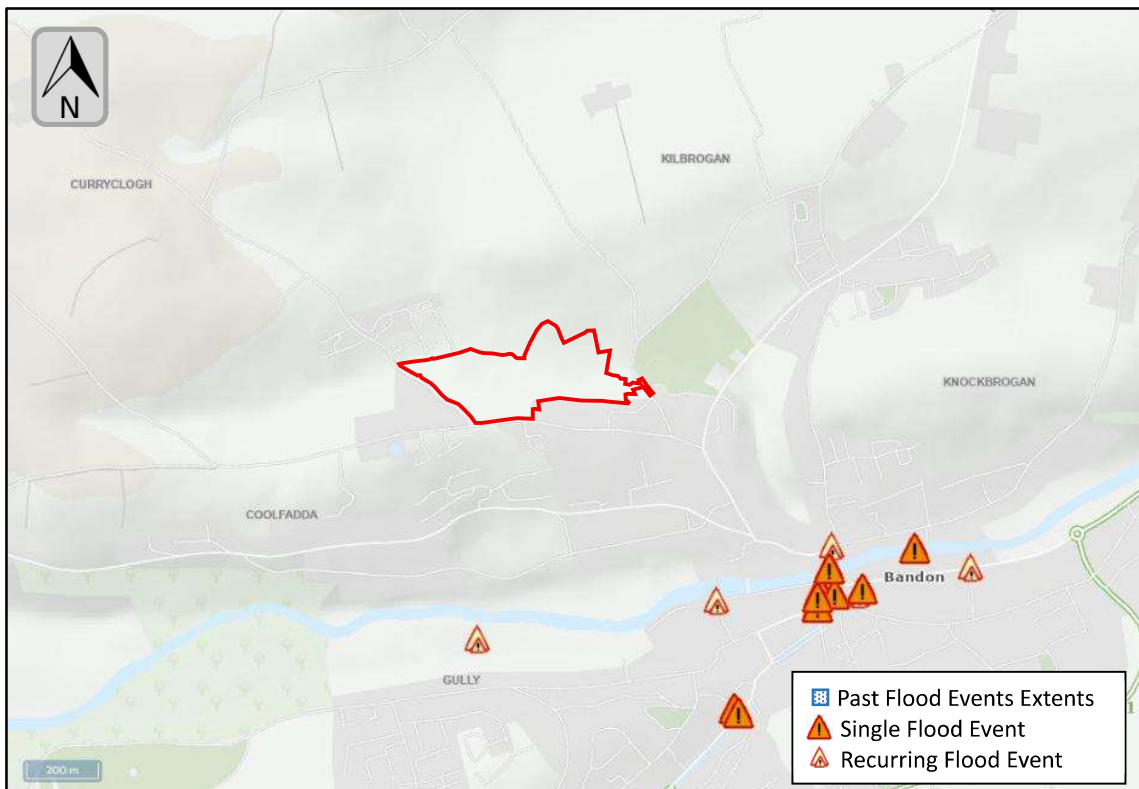


Figure 9.9: Past Flood Events (OPW map).

A site-specific Flood Risk Assessment (Document Ref: QER-JBAI-XX-XX-RP-HM-0001-S03-P03-Kilbrogan_St_Bandon_FRA) was undertaken by JBA Consulting, as part of this development. There is limited data available regarding pluvial flood risk at the site. Nonetheless, due to the local topography of the site, tidal sources of flooding have been screened out.

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According to the model results from the assessment, due to the steepness of the banks and topography across the site, flow is well contained within the channel with overtopping mostly confined to riparian areas.

WFD GROUNDWATER BODY STATUS

The EU Water Framework Directive (2000/60/EC) (WFD) establishes a framework for the protection, improvement and management of surface and groundwater. The overall aim for groundwater was to achieve at least 'good quantitative status' and 'good chemical status' by 2015, or at the latest by 2027, as well as preventing deterioration in those waters that have been classified as 'good' status.

The EC Environmental Objectives (Groundwater) Regulations 2010 (S.I No. 9 of 2010) as amended by Environmental Objectives (Groundwater) (Amendment) Regulations 2016 (S.I. No. 366 of 2016) give effect to the criteria and standards to be used for classifying groundwater in accordance with the requirements of the WFD.

The Bandon groundwater body (GWB) underlies the proposed development site and covers an area c. 775 km². The GWB includes aquifers classified as being Ll: Locally important aquifer which is moderately productive only in local zones; Pl: Poor aquifer which is generally unproductive except for local zones; and Lg: Locally important gravel aquifers. This GWB is designated to have "good" overall WFD water quality status 2019-2024 and is considered to be "not at risk" of failing to meet its WFD objectives by 2027.

GROUNDWATER LEVELS & FLOW DIRECTION

The GSI had previously grouped together the Bandon, Skibbereen-Clonakilty and Brinny Gravels West groundwater bodies into a single GWB.

According to the GSI's conceptual model of the larger Bandon GWB, this is comprised of rocks with low transmissivity and storativity, although localised zones of enhanced permeability occur along fault zones. Flow occurs along fractures, joints and major faults. Flows in the aquifer are generally concentrated in a thin zone at the top of the rock, although deeper groundwater flows along faults and major fractures. Diffuse recharge occurs across the GWB through the subsoils and rock outcrops. The water table can vary between a few metres up to more than 10 m below ground surface, depending upon topography. Groundwater is generally unconfined. Flow path lengths are generally short, ranging from 30-300 m. Local groundwater flow directions are controlled by local topography. Groundwater discharges to the numerous streams and rivers crossing the aquifer and to small springs and seeps.

According to the GSI Groundwater data viewer, the eastern section of the proposed site is located within the 1 km location accuracy of a dug well and a borehole (GSI Well Names: 1405SWW154, and 1405SWW035).

Based on topography and position of surface water features, shallow groundwater flow beneath the site would be expected to flow east toward the Kilbrogan stream, while deeper, regional groundwater flow would be expected to flow south-east to a more downstream section of River Bandon. Boreholes within the locality cite depths to bedrock of c. 3.1-22.9m.

In general, flow directions are expected to approximately follow the local surface water catchments.

GROUNDWATER/ AQUIFER/ VULNERABILITY

Groundwater Vulnerability is a term used to represent the intrinsic geological and hydrogeological characteristics that determine the ease with which groundwater may be contaminated by human activities.

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All land area is assigned one of the following groundwater vulnerability categories:

- Rock near surface or karst (X)
- Extreme (E)
- High (H)
- Moderate (M)
- Low (L)

These categories indicate the likelihood of groundwater contamination and help to ensure that a groundwater protection scheme is not unnecessarily restrictive on human activities.

Where the subsoil thickness is less than 3.0 m, the vulnerability is rated as Extreme (the highest risk situation). Where the subsoil thickness is greater than 3.0 m, the vulnerability is rated as High, Moderate or Low (depending on the permeability and thickness of the subsoil).

The GSI's National Groundwater Vulnerability map indicates that the southern, western and northern sections of the proposed site are located within an area with a groundwater vulnerability rated as "Extreme (E)", while the centre strip of the site has a groundwater vulnerability classification of High (H) (**Figure 9.10**).

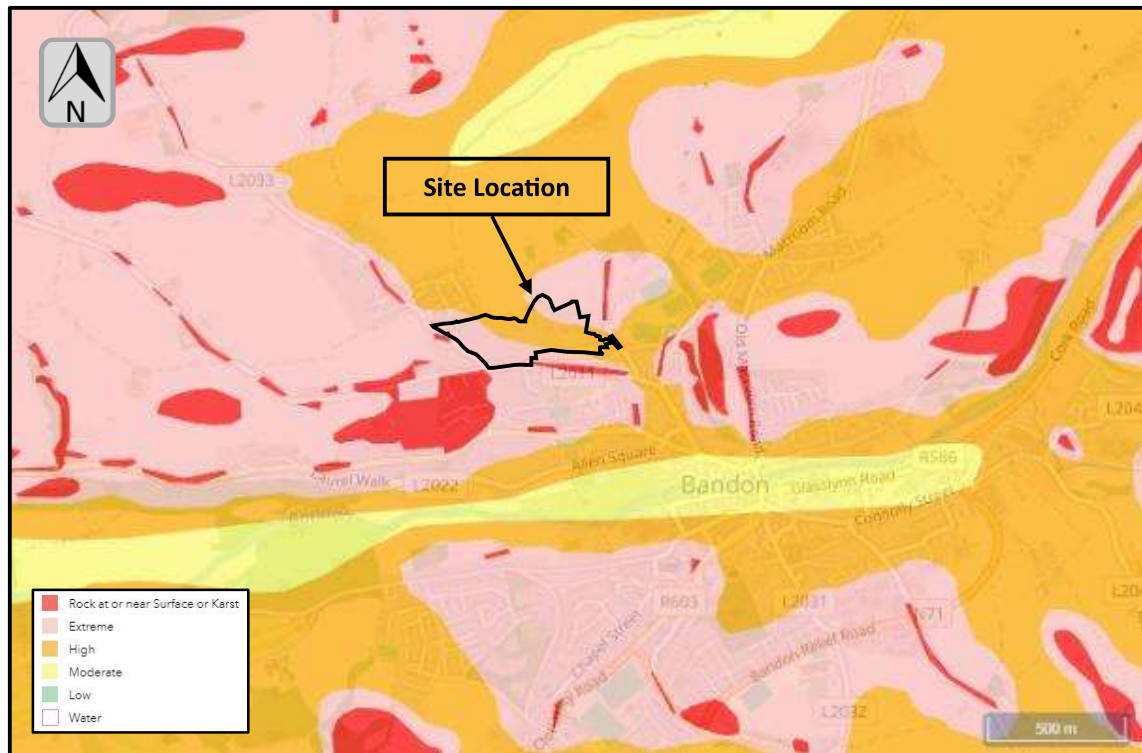


Figure 9.10: Groundwater Vulnerability (GIS map).

The site is located the outskirts of Bandon town. Enabling works for a previous development occurred approximately 15 years ago and the site has remained as a brownfield with no historical evidence of groundwater contamination. The Waste Classification Assessment carried out by Gound Investigations Ireland concluded that the subsoil material sampled across the site, if being considered a waste, can be classified as non-hazardous.

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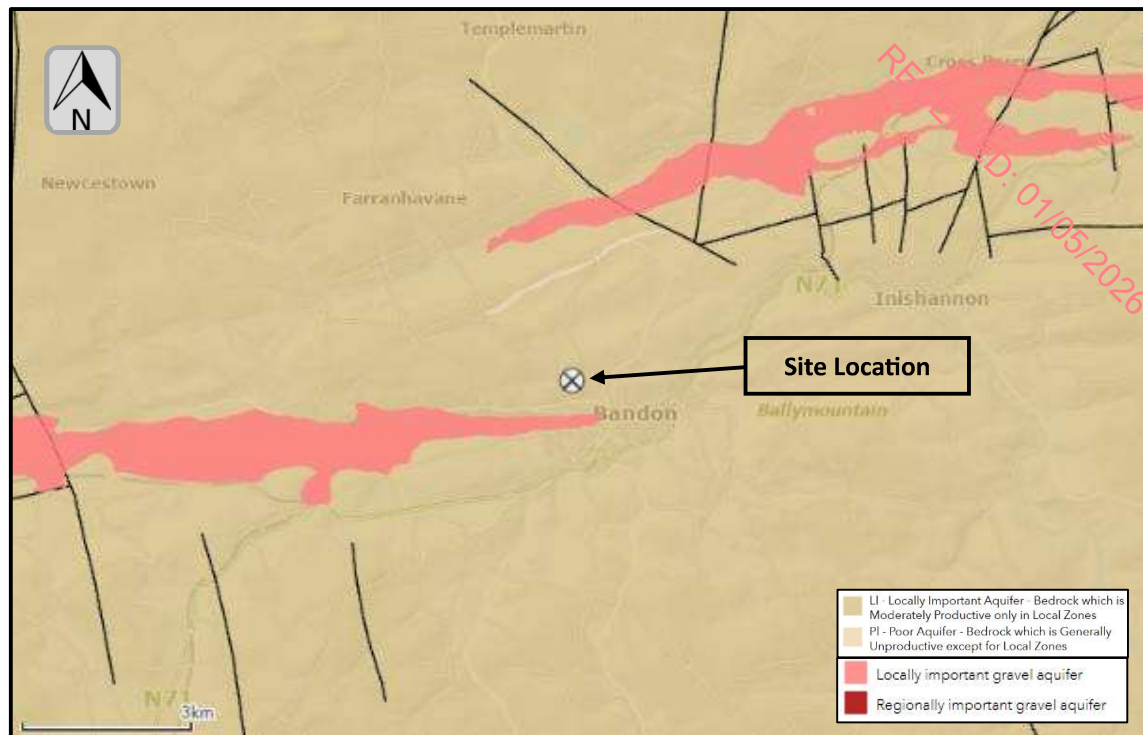


Figure 9.11: Groundwater Resources – Aquifer (GIS map).

In Ireland, the Geological Survey (GSI) classifies aquifers in terms of nine different categories which can be used to define the relative value of aquifers.

The classification system is based on the UNESCO-IHP system and on progressive developments within the GSI in consultation with the Irish hydrogeological community.

Different aquifers have differing abilities to store and transmit water. This means that the chances of obtaining large new groundwater supplies would vary with location. In risk terms, the environmental consequences of, for example, a groundwater pollution incident, would also vary.

GSI's aquifer classification map indicates that the site of the proposed development is situated on a bedrock aquifer, which is classified as a Locally Important Aquifer, which is moderately productive only in local zones (LI) (**Figure 9.11**).

The site is not located within or in the vicinity of a surface or groundwater source protection area.

The nearest groundwater source protection zones are the Crookstown Bellmount BH2 PWS and Crookstown Pound Cross PWS, located c. 11.0 km to the north-west. However, these source protection zones are located in a distinct groundwater body than the proposed site and it is not considered that there would be a hydrological connection. There are no other drinking water protection areas within 10 km from the site (**Figure 9.12**).

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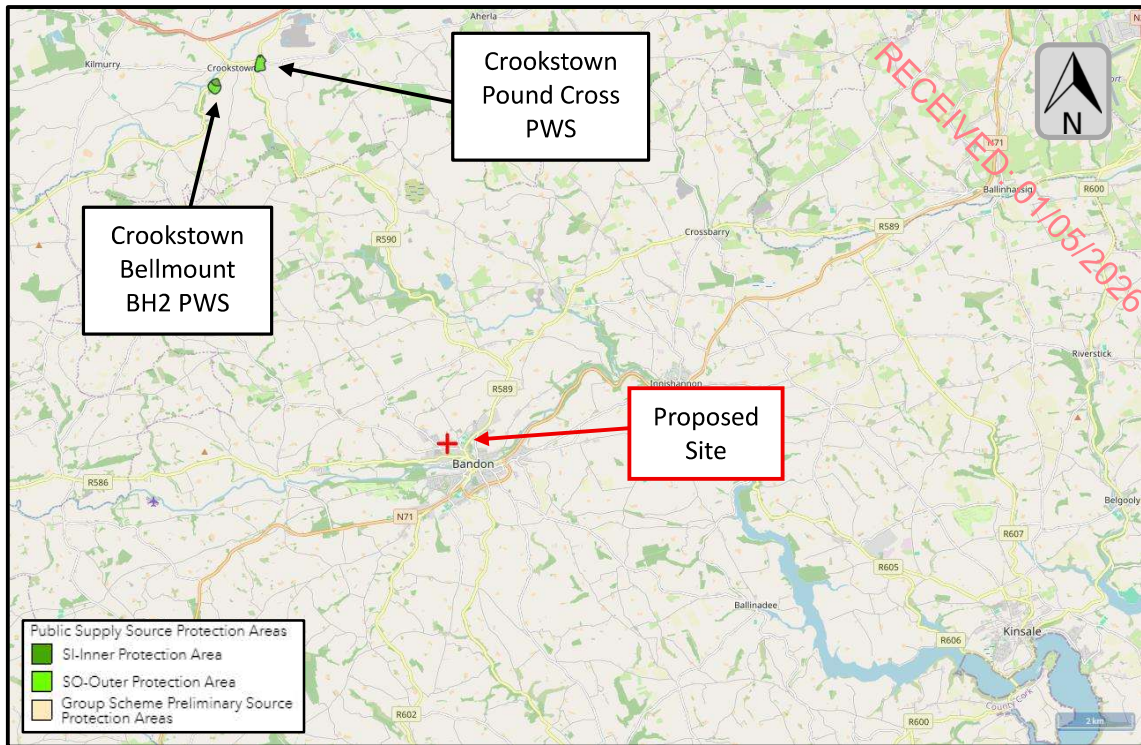


Figure 9.12: Groundwater Source Protection Areas (EPA maps).

A number of groundwater abstractions have been recorded in the wider area of the site, mainly comprising of boreholes and dug wells (**Figure 9.13**).

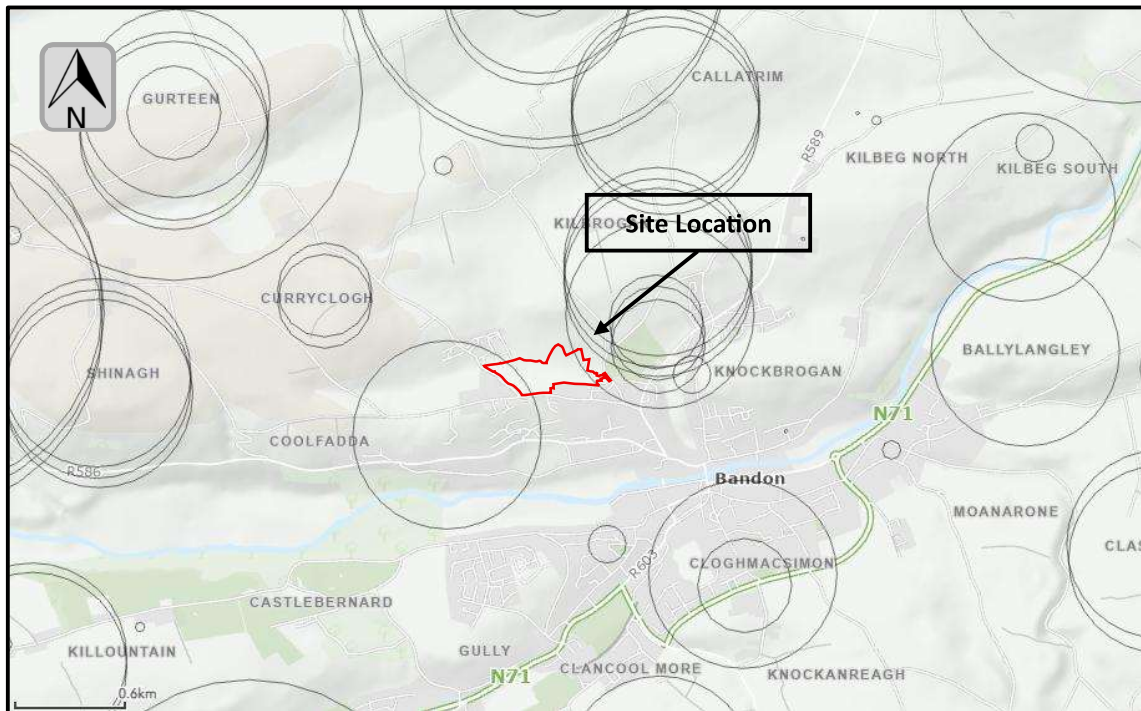


Figure 9.13: Groundwater Wells & Springs (GSI maps).

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GROUNDWATER ABSTRACTION

The development will source its water from a new connection to the water mains supply. Irish Water has confirmed feasibility of connection without infrastructure upgrade.

Groundwater recharge in the area of the site is c. 111.35 mm/y, which is considered to have a moderate permeability and high vulnerability.

GROUNDWATER QUALITY

The excavation of and exposure of the subsoil layer during the construction phase will result in an increased risk to the groundwater vulnerability. Subsoils in the northeast and southwest sections of the site are anticipated to be limited in depth and bedrock excavations may be required to accommodate the proposed development.

Mitigation measures are included in **Section 9.5**.

DESIGNATED SITES & GROUNDWATER DEPENDENT TERRESTRIAL ECOSYSTEMS

The nearest known protected groundwater dependant terrestrial ecosystem (GWDTE) is The Gearagh Special Area of Conservation (SAC) which is 19.8 km north-west of the site. There are no other known protected GWDTE within 20.0 km of the proposed development site.

The Gearagh SAC is described as comprising *Chenopodium rubri* habitat and alluvial woodland, which are listed on Annex I of the E.U. Habitats Directive and would be influenced by groundwater.

This SAC, however, falls within the Lee, Cork Harbour and Youghal Bay Catchment, while the site is located within the Bandon-Ilen Catchment.

9.4 IMPACTS

9.4.1 CONSTRUCTION PHASE

The construction phase holds a number of activities which could potentially impact on the soils, geology and water environment. Potential construction phase impacts are detailed in the following sections.

SOIL REMOVAL

It would be necessary to create some excavation on the site for pad foundations and to accommodate the proposed buildings. These excavations would generally be between 1.5 m and 2.5m deep.

Suitable fill, in most cases hardcore or non-hazardous building rubble would be used to screen the bottom of the excavated area prior to the installation of the concrete floor and mass concrete walls.

The areas outside the tank would be backfilled with suitable fill and concrete footing / foundations would be poured to accommodate the steel make-up of the site's structures.

There would be no permanent removal of soil and subsoils from the proposed development site. During the site levelling and excavation phase it is expected that a large amount of soil and subsoil would be disturbed.

It is proposed to re-use all of the excavated soils and subsoils on the site for levelling and landscaping. The excavations would extend into the natural subsoils on the site.

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The removal and disturbance of soils and subsoils during the construction phase may also temporarily increase the risk to groundwater as the protective soil/subsoil layer is removed and the vulnerability of the groundwater to surface contaminants is increased.

Given that excavation works in each section of the site would occur on a phased basis and given that these activities would be completed within a short timeframe, there should only be a *slight to moderate temporary impact* on groundwater vulnerability. The vulnerability would not change following backfilling and reinstatement.

BEDROCK EXCAVATION

Subsoils in the northeast and southwest sections of the site are anticipated to be limited in depth. However, should any bedrock excavations be required to accommodate the proposed development, these would be localised and no significant increase in groundwater vulnerability is anticipated.

VEHICULAR MOVEMENT & SOIL COMPACTION

Soil compaction can occur due to movement of construction and maintenance traffic on the site. The majority of the areas to be trafficked will be hardcore yard areas. Similar hardcore surfaces would be installed surrounding and leading to proposed structures. This area would be moderate in size, therefore it would be considered to be a *negative slight long-term impact* on the soil and in-situ earth materials. Construction traffic occurring outside of planned road and yard areas would be minimal and any compaction of soils would be considered to be short term and not significant.

ACCIDENTAL HYDROCARBON LEAKAGE / SPILLAGE FROM MOBILE PLANT & EQUIPMENT

Possible contamination of soil, subsoils, surface water and groundwater by accidental leakage or spillage of hydrocarbons from mobile plant and associated equipment has the potential to occur during the construction phase.

Because of the indications of subsoil depth and the moderate permeability of the till derived from sandstones and shales subsoil beneath the site, the contamination of the underlying groundwater is likely to occur in the event of an accident / spill.

Any uncontrolled spillages/leaks would likely infiltrate through the subsoils and eventually move down slope towards the Kilbrogan stream or River Bandon south of the site or move deeper into the ground towards groundwater bodies.

Depending on the magnitude of any uncontrolled leakages or spillages, they would have a *negative slight-moderate short term impact* on the surface water quality of the Kilbrogan stream or River Bandon, if not quickly contained and removed. An accidental hydrocarbon spillage would also have a *negative moderate short-medium term impact* on soil quality and groundwater quality. Such an event may impact upon the viability of the underlying aquifer as the source of potable water for locations downstream of the site.

SEDIMENT LADEN RUN-OFF

The construction of the proposed development would involve stripping and removal of some portion of topsoil and earthworks to facilitate the construction of the proposed buildings. There is potential for erosion of temporarily exposed soil during the excavation stage and consequently the generation of run-off with high levels of silt / sediment. If uncontrolled, this run-off would infiltrate through the subsoils and impact on the Kilbrogan stream, River Bandon or groundwater bodies.

All rainwater percolates to ground. In the event of sediment contamination of rainwaters, the sediment would be deposited to the surface of existing soils within the construction site.

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It is expected that there would be very little run-off from uncovered soils on site given the limited time that soils would be exposed.

Measures would be put in place to mitigate against any potential impact on the Kilbrogan stream or on any downstream surface water bodies (e.g. River Bandon).

SPILLAGE OF CONCRETE / CEMENT MATERIAL

The spillage of concrete/cement material poses a potential risk to surface water and groundwater quality as this material is alkaline and corrosive. During the construction phase, this risk may be realised during the construction of buildings and equipment washdown.

As stated above with regard to sediments, cement material from a spill would be entrained within soils as rainwaters percolate to groundwater. In the event of a spill, there would be a *negative long-term significant* impact on the composition of the soil in the small area underlying the spill. However, this would have a similar effect to overlying soils with hardcore.

Such a spill would increase the alkalinity of the underlying groundwater. However, it is likely that there would be a degree of dilution with groundwater and percolating rainwater. Depending on the magnitude of any spills, the release of such cement material into nearby surface water would have a *negative slight-moderate short-term impact* on groundwater quality and potentially downstream in the Kilbrogan stream or River Bandon.

PUMPING OF GROUNDWATER INGRESS TO EXCAVATIONS

It is not anticipated that there would be any need for significant pumping of groundwater from excavations during the construction phase as the excavations are generally to a depth of c. 2.5m only and given the type of soil recorded at the site.

9.4.2 OPERATIONAL PHASE

During the operational phase of the proposed development, there is a potential for impact on soils, geology and water. Potential operational phase impacts are detailed in the following sections.

STORMWATER

The proposed site will be divided into three separate catchments for the management of clean rainwater from roofs and hard surfaces during the operational phase of the development. Stormwater from each catchment will be directed to its corresponding attenuation tank, which will then discharge into the existing stream. Permeable paving will also be installed to allow water to infiltrate to ground and water butts will be provided to each house to harvest rainwater.

FLOOD RISK

Assessment of the post-development scenario indicates that flood risk within the site or in the surrounding area does not increase as a result of the development. Additionally, it was concluded that the proposed FFLs set appropriately to mitigate existing and future flood risk to the development.

DISRUPTION OF GROUNDWATER FLOW PATHS

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Subsurface structures have the potential to impact on groundwater flow regimes if they are built in the aquifer's flow path. Theoretically, groundwater mounding can occur where large impermeable structures are placed perpendicular to groundwater flow paths.

The depth of the proposed excavations is unlikely to penetrate to bedrock, except in localised areas to the north-east and south-west of the site. Taking this into account there would be a *negative not significant* impact on the groundwater flow paths.

WATER USAGE

The development will source its water from a new connection to the water mains supply. Irish Water has confirmed feasibility of connection without infrastructure upgrade. The demand on the municipal water supply would increase once the operational phase of the development is complete, however, there would be sufficient supply to accommodate the development.

FOUL WATER

Wastewater generated by sanitary facilities at the dwelling units and creche would be directed to the existing pump station and public wastewater network along L2039 to the east. Foul water will then be directed to the Bandon WWTP, which will discharge to Bandon River. The most recent available Annual Environmental Report (AER) from 2024 determined that the WWTP discharge was compliant with the ELV's set in the wastewater discharge licence and that the discharge from the wastewater treatment plant does not have an observable negative impact on the Water Framework Directive status. As designed, the WWTP has a capacity of 14,456 population equivalent (p.e.) and the existing p.e. of the agglomeration, according to the EPA, is 10,777. Furthermore, the AER reports a peak hydraulic capacity of the WWTP as constructed of 13,500 m³/day and a Dry Weather Flow (DWF) of 4,500 m³/day, while the proposed wastewater flow for this development has been estimated as approximately 666.2 m³/day for the peak DWF and 112.4 m³/day for the average DWF. The 2024 AER concluded that no capacity exceedances are expected over the subsequent three years and the WWTP would be able to accommodate the proposed development. Therefore, no significant impacts to hydrogeological receptors are anticipated.

ACCIDENTAL LEAKAGE / SPILLAGE OF HYDROCARBONS

Possible localised contamination of soils, subsoils, groundwater and the Kilbrogan stream or River Bandon by accidental leakage or spillage of hydrocarbons from private vehicles may occur during the operational phase. However, it is not considered likely that there would be a significant risk of leaks or spillages of hydrocarbons during the operation of the proposed development.

Therefore, it is not anticipated that there would be significant risk of contamination of the Kilbrogan stream or River Bandon during the operational phase of the proposed development.

SOIL SEALING

The proposed development would occur on a site with a total area of 9.590 ha (net area of 7.025 ha). Most of the soil within the area of the proposed developments is currently a mixture of grassland, scrub and recolonising bare ground. The footprint of the proposed buildings would effectively seal the soil.

This sealing effect can impact on natural exchanges occurring between soils and the atmosphere which influence the natural function and associated biodiversity of soils. This would have a *negative not significant permanent impact* on the soil.

9.4.3 “DO-NOTHING” SCENARIO

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Should the proposed development not be built, the area where the proposed development would have taken place would remain as a brownfield.

9.5 MITIGATION MEASURES

This section describes a range of mitigation measures designed to avoid, reduce or offset any potential adverse impacts identified. The main objective of the mitigation measures is to avoid any potential adverse impacts in the first instance, and where this is not possible then to reduce the effects of any impacts on the receiving environment.

Many of the mitigation measures below have been based on CIRIA (Construction Industry Research and Information Association, UK) technical guidance on water pollution control and on currently accepted best practice.

9.5.1 CONSTRUCTION PHASE

CONSTRUCTION MANAGEMENT

In order to reduce the impacts on the soils, geology and water environment a number of mitigation measures would be adopted as part of the construction works on site as follows:

- The construction works contractor would adhere to standard construction best practice, taking cognisance of the Construction Industry Research and Information Association (CIRIA) guidelines “Control of Water Pollution from Construction Sites; guidance for consultants and contractors” 2001, “Control of Water Pollution from Construction Sites – Guide to Good Practice”, 2002, and the 2016 guidelines published Inland Fisheries Ireland, “Guidelines on Protection of Fisheries During Construction Works in and adjacent to Waters”;
- Excavations and earth-moving activities would be planned outside periods of heavy rainfall, to limit the potential for suspended solids to become entrained within surface water run-off;
- All construction plant machinery and equipment would be maintained in good working order and regularly inspected;
- Existing topsoil would be retained on site to be used for the proposed development. Topsoil would be stored in an appropriate manner on site for the duration of the construction works and protected for re-use on completion of the main site works;
- Top-soiling and landscaping of the works would take place as soon as finished levels are achieved, in order to reduce weathering and erosion and to retain soil properties;
- Stockpiled material would be covered/dampened during dry weather to prevent spreading of sediment/dust;
- The temporary site compound would be used for the storage of all machinery and plant when not in use, the re-fuelling of plant and the storage of all associated oils and fuels for plant;
- Handling, transport and storage of fuel and chemicals would be controlled e.g. oil and fuel stored on site would be stored in designated areas. These areas would be bunded and located away from any surface water drainage. Refuelling of construction machinery would be undertaken in designated areas located away from surface water drainage;
- Where construction plant shows signs of hydrocarbon leakage, site personnel would cease the operation of the item in plant in question and notify the Project Manager. Any defective plant would be kept out of service until the necessary repairs are undertaken;
- Spill kits shall be kept in these areas in the event of spillages;
- Controls for storage of any other potentially polluting materials/chemicals on-site e.g. any chemicals used on site would be required to be stored in designated bunded areas and the construction manager would be responsible for ensuring that a copy of all relevant material safety data sheet for each product is available at the site office;

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- Any uncured concrete works would be supervised at all times, and would be scheduled outside of periods of expected heavy rainfall;
- The wash-out of Ready-Mix Truck drums would not be permitted onsite, in the environs of the site, or at a location which could result in a discharge to surface water;
- Surplus uncured concrete would be returned to the batching plant where possible;
- Wheel wash facilities to prevent soil and mud being tracked onto the adjoining roads would be provided.

CONTROLS ON DAMAGE TO UNDERLYING GEOLOGICAL MATERIALS

The disturbing of soils and subsoils is an unavoidable impact of the development. One of the primary mitigation measures already employed at the preliminary design stage has been the minimisation of volumes of subsoil and bedrock that would be excavated.

It is proposed that all of the excavated subsoils removed during construction would be re-used on site in the form of landscaping. Any subsoils that cannot be re-used on-site will be treated, recycled or disposed of where suitable using a licenced waste contractor. Specialist machinery (such as tracked machinery) would be used to minimise compaction of the subsoils and would be confined to designated routes. Additionally, traffic flows on site would be minimised as much as possible.

CONTROL AND RE-USE OF POTENTIALLY CONTAMINATED MATERIAL ON-SITE

It is not anticipated that any contaminated materials would be produced during construction of the proposed development.

Should any material appear to be contaminated, samples would be analysed by an appropriate testing laboratory.

All potentially contaminated material would be either left in situ and characterised through laboratory testing; or segregated and stockpiled in a contained manner and characterised through laboratory testing. Any contaminated material would be appropriately disposed of or treated using a licensed waste contractor and in accordance with the Waste Management Regulations, 1998.

CONTROL ON SOURCES OF FILL AND AGGREGATES

All fill and aggregate imported for use on the proposed development site would be sourced from reputable suppliers. All suppliers would be vetted for:

- Aggregate compliance certificates/declarations of conformity for the classes of material specified for the project;
- Environmental Management status;
- Regulatory and Legal Compliance status of the Company.

9.5.2 OPERATIONAL PHASE

In order to reduce the impacts on the soils, geology and water environment, a number of mitigation measures would be adopted as part of site operations as follows:

STORMWATER

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The site levels and gradients have been planned to maximise gravity-based stormwater drainage to the proposed attenuation tanks.

Stormwater from each catchment will be collected by the proposed surface water drainage network and directed to its respective surface water attenuation tank. The attenuation tanks will then discharge collected water to the watercourse after passing through a hydrocarbon interceptor. Permeable paving will also be installed to allow water to infiltrate to ground.

FLOOD RISK

The FRA recommends that the current greenfield runoff rate be maintained post-development. A combination of SuDS components have been included in the design including the riparian corridor which allows existing flow paths and flooding to remain unchanged. Additional features for the management of surface water throughout the site include permeable paving, tree pits, bioretention gardens, and swales.

FOUL WATER

All foul water generated by future dwellings and creche facility will be collected by the proposed foul network and directed to the public network. Foul water will then be directed to the Bandon WWTP.

SOIL SEALING

The covering of soil with impermeable materials would mostly be restricted to the footprint of the proposed buildings. Private gardens, amenity spaces, communal open spaces and ecological areas would mitigate the extent of impacts related to soil sealing.

9.6 RESIDUAL IMPACTS

The predicted residual impacts of the proposed development are described in **Tables 9.2** and **9.3** below in terms of quality, significance and duration. The relevant mitigation measures are detailed and the corresponding residual impacts are determined, which take into account of these mitigation measures.

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Table 9.2: Summary of Predicted Construction Phase Impacts

Activity/ Source	Environmental Receptor	Impact/Effect Description	Quality	Significance	Duration	Mitigation	Residual Impact
Earthworks	Soils	Natural soil excavation for building foundations	Negative	Slight	Permanent	Material will be reused on site where possible	Negative slight
Earthworks	Soils	Vehicular movement and soil compaction.	Negative	Slight	Short term	Specialist machinery (such as tracked machinery) will be used to minimise compaction of the subsoils.	Slight
Storage of potentially polluting materials	Soils / Bedrock	Potential leak or spillage from vehicles/machinery or construction related liquids on site resulting in soil/bedrock contamination	Negative	Slight-moderate	Short-medium term	Good housekeeping during construction and proper handling, storage and disposal of any potentially polluting substances. Designated and bunded storage areas will be used and maintained. Designated refuelling areas will be used. Spill kits retained on-site.	Imperceptible
Earthworks	Surface Water (site drain)	Erosion of exposed soils/subsoils and entry of sediment laden run-off to nearby surface water	Negative	Slight-moderate	Temporary	Stockpiles of topsoil/soils will be covered/dampened during dry weather to prevent spreading of sediment/dust. Run-off from the site will pass through settlement ponds prior to discharge to the site drain. Top-soiling and landscaping of the works will take place as soon as finished levels are achieved.	Negative slight
Earthworks/ Excavations	Groundwater in the LI aquifer	Temporary removal of part of the protective soil/subsoil cover thus increasing groundwater vulnerability to contamination	Negative	Slight-moderate	Temporary	Excavations would be backfilled as soon as is possible to prevent any infiltration of potentially polluting compounds to the subsurface and the aquifer.	Negative slight
Hydrocarbons from construction vehicles/machinery/	Surface Water (site drain)	Potential accidental leakage or spillage of hydrocarbons from vehicles/machinery resulting in surface water contamination	Negative	Slight-moderate	Short-medium term	Oil and fuel will be stored on-site in designated bunded areas located away from any surface water drainage. Refuelling of	Slight

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Activity/ Source	Environmental Receptor	Impact/Effect Description	Quality	Significance	Duration	Mitigation	Residual Impact
equipment						construction machinery will be undertaken in designated areas located away from surface water drainage. All machinery will be inspected at the start of each work shift for signs of leaking hydrocarbons. Parking areas will be inspected on a daily basis for evidence of hydrocarbons leaking from machinery. Spill kits will be kept on-site.	
Cement material of other potentially polluting substances	Surface Water (site drain)	Potential leakage or spillage of cement or other potentially polluting substances resulting in soil/bedrock/groundwater contamination	Negative	Slight-moderate	Short term	Good housekeeping during construction and proper handling, storage and disposal of any potentially polluting substances. Designated and bunded storage areas will be used and maintained. Spill kits retained on-site. Cement mixing will take place in designated areas on-site with impervious surface.	Negative slight

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Table 9.3: Summary of Predicted Operational Phase Impacts

Activity/Source	Environmental Receptor	Impact/Effect Description	Quality	Significance	Duration	Mitigation	Residual impact
Site Drainage	Soils/groundwater and surface water	Run-off from impermeable areas within the site resulting in localised contamination of soils/subsoils/surface water.	Negative	Slight-Moderate	Temporary	Programme of inspection and maintenance of the site drainage network will ensure that any issues are identified and remedied.	Imperceptible-Slight
Wastewater from dwellings/creche	Soils/groundwater and surface water	Uncontrolled release could result in localised contamination	Negative	Moderate	Short term	Regular inspection and maintenance of the septic tank will ensure good working condition.	Imperceptible-Slight

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SECTION C - MATERIAL ASSETS

This section of the Environment Impact Assessment Report deals with material assets that would potentially be affected by the proposed development of a Large-scale Residential Development and all ancillary site works and services at Convent Hill, Bandon, Co. Cork.

Material assets are grouped into:

Material Assets: **Roads & Traffic**, including traffic volumes potentially generated by the development.

Material Assets: **Utilities** including electricity, gas, foul sewer, telecommunications and potential waste streams during both the construction and operational phases.

Material Assets are generally considered to be the physical resources in the environment which may be either of human or natural origin. The object of the assessment of these resources is to identify the impact of the development on individual enterprises or properties and to ensure that resources are used in a sustainable manner in order to ensure availability for future generations.

Residential developments interact, to a large extent, with the natural environment in terms of climate, air quality, soil, hydrology and hydrogeology. Nuisances, such as traffic-generated noise, may also impact sensitive receptors.

Resources required for the proposed development include existing land, fill material which would have to be sourced from quarries, water and electricity required for the operation of the proposed development.

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10.0 MATERIAL ASSETS – ROADS & TRAFFIC

10.1 INTRODUCTION

This section outlines the effect of traffic, caused by the proposed development during both the construction and operational phases, on the existing network.

10.2 METHODOLOGY

MHL Consulting Engineers produced a Traffic and Transportation Assessment, a Mobility Management Plan and a DMURS Statement, the findings of which were used to inform this section of the report.

The Traffic and Transportation Assessment report was compiled by MHL Consulting Engineers to determine if the capacity of the existing road network is sufficient to cater for the traffic generated by the proposed development in combination with other developments in the area. The assessment took account of the adequacy and safety of existing roads and junctions locally within the area of influence of the proposed development. The report established the projected occupation on the local road network for the 15 years following the opening year of the development (2027 and 2042). Traffic counts were taken at each of the assessed junctions, which allowed to produce morning and evening O/D Matrices.

The assessed junctions were:

- Junction 1: T-Junction – The Tannery Rd / L2033 Coolfadda Rd;
- Junction 2: T-Junction- Convent Hill Rd / Kilbrogan St.;
- Junction 3: T-Junction- Convent Hill Rd / Macroom Rd;
- Junction 4: T- Junction N Main St / Kilbrogan Hill Rd;
- Junction 5: T- Junction– Cork Rd/ N Main St/ St Finbarr’s Pl.

10.3 DESCRIPTION OF EXISTING ENVIRONMENT

The overall site topography varies from approximately 75m mAOD to 45m mAOD and generally slopes from west to east. The site is accessed via the L2033 to the west, L2039 (Kilbrogan Street) to the east and via the L2011 (Convent Hill) to the south (speed limit set at 50 km/h). The L2011 connects to the R589 (Kilbrogan Hill) approximately 200m to the south-east and to the local road network. The site has good connectivity to the N71 national road via the regional roads R589, R586 and R603 which intersect Bandon town. The N71 connects Bandon town to Cork city.

The Mobility Management Plan by MHL Consulting Engineers notes that pedestrian facilities are of varying quality in Bandon with issues such as narrow footpaths, lack of crossing facilities and poor surfacing and public lighting. There is a footpath provided on the south side of Convent Hill which runs from the junction with the L2033 to the junction with Kilbrogan Hill. On Kilbrogan Street there is approximately 130m of footpath which extends north from the junction with Convent Hill but terminates 50m from the proposed development entrance. There is no footpath provision on the L2033 in the vicinity of the proposed development entrance. Existing cycle facilities are also very poor in the area, with no dedicated cycle lanes currently provided on any routes within the town centre. A large number of HGVs, narrow road widths and steep gradients all create a poor cycling environment. Walking has been identified as an appropriate mode of transport for trips of 5km or less and while cycling is more suited to trips of over 5km (except where topography poses a significantly limiting factor). Existing public bus stops are located approximately a 15-minute walk southeast of the proposed development on Glasslynn Road.

Based on the recorded traffic flows at key junctions, it was determined that the most heavily trafficked period is between 08:00 and 09:00 in the morning and 17:00 and 18:00 in the evening.

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10.4 IMPACTS

10.4.1 CONSTRUCTION PHASE

During the construction phase, vehicles would access the site via the L2011 Convent Hill road to the south. Site entrance works would be required to make the site accessible to vehicles. Vehicles will approach the L2011 road from the west and east. HGV construction traffic is anticipated to arrive via the N71 national road southeast of the site.

There is adequate space to accommodate parking on site during the entire duration of the construction phase of the development. In the event that, at a later stage during the construction programme, adequate parking is not available on site, off-site parking and shared car arrangements will be organised by site management.

10.4.2 OPERATIONAL PHASE

The operational phase of the proposed development would result in an increase in traffic. The proportion of additional traffic attributable solely to the applicant's development at each junction is represented in the Table below.

Table 10.1: Additional Traffic from Applicant's Development (2027).

Opening Year 2027	Average % Traffic Added by Applicant's Development
Junction 1	20%
Junction 2	22%
Junction 3	7%
Junction 4	5%
Junction 5	3%

Junctions 1 and 2 will experience the largest increases in traffic. However, no operational issues are expected as these are within modelled capacity. The Junction Analysis demonstrates that:

- Junction 1 continues to operate effectively even under full development conditions, with all values remain comfortably below capacity thresholds set in TII document PE-PDV-02045, "Traffic and Transport Assessment Guidelines";
- Junction 2 continues to operate efficiently even with the applicant's proposal included, with all RFC values staying comfortably below capacity thresholds and delays remaining minimal;
- Junction 3 shows a steady increase in traffic demand across the assessment years, particularly in the AM peak, while PM peak conditions remain relatively stable and well below capacity thresholds;
- Junction 4 to continues to perform well in the near term, with the applicant's share of the traffic increase remaining proportionally small;
- Junction 5 is anticipated to approach and exceed capacity during peak periods, with the applicant's development contributing only a portion of this demand.

Future measures are detailed below to manage traffic increases at assessed junctions and ensure overall traffic flow remains efficient.

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10.4.3 POTENTIAL CUMULATIVE EFFECTS

The proposed development is located within a peri-urban setting, with residential housing estates, schools, restaurants, local GAA club, industrial facilities, retail stores and other services to the west, south and east; agricultural lands to the west and north; and River Bandon to the south.

Seven other developments have been identified in the TTA as having the potential for cumulative impacts on the local road network together with the proposed development.

Across all five assessed junctions, cumulative traffic growth associated with the eight planned developments—including the applicant's site—has been evaluated under three scenarios:

- without any development,
- with surrounding developments but excluding the applicant's site, and
- with both surrounding and the applicant's developments included.

The results demonstrate a consistent trend: while overall traffic demand increases steadily due to the scale of cumulative growth in the area, the applicant's development accounts for only a modest share of this uplift. Importantly, the applicant's site does not independently generate capacity issues at any junction, with pressures primarily arising from wider background and third-party development traffic.

In summary, the cumulative assessment highlights that while certain junctions – particularly Junctions 3, 4, and 5 – are forecast to experience higher levels of demand in the longer term, these pressures are largely the result of extensive background traffic growth and multiple third-party developments in the area. The applicant's development contributes only a portion of total traffic, with the majority driven by surrounding growth. The applicant's development alone does not give rise to capacity concerns.

Traffic mitigation measures are detailed below for both the construction and operational phases of the proposed development.

10.5 AVOIDANCE, REMEDIAL & MITIGATION MEASURES

10.5.1 CONSTRUCTION PHASE

A Construction Environmental Management Plan (CEMP) has been carried out for this project (Doc Ref: PES_CEMP_22616), which proposes control measures to mitigate against construction traffic associated with the development. This report should be read in conjunction with the CEMP document. The client will ensure the following:

- Contact details of the site will be provided to all anticipated arrivals and made publicly available to allow the local community to directly communicate with the site;
- Access to the site will be restricted to authorised vehicles only;
- The site entrance will be kept unobstructed to allow both access and egress from the site;
- Any HGV traffic requiring additional road space to manoeuvre will be carefully managed to ensure the safety of residents and other road users;
- Deliveries to the site will occur during normal working hours (7:00 a.m to 7:00 p.m Monday to Friday and 7:00 a.m to 1:00 p.m on Saturdays);
- Larger HGVs could be required to communicate with the site ahead of their arrival to ensure their movement will not result in any conflict with others;
- Where possible, large-scale vehicle movements will be timed outside peak hours on the local road network to avoid traffic;

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- Allocated delivery time slots may be required to be adhered to by large construction vehicles, during periods when larger vehicle movements may be more frequent;
- Materials will be delivered to the site in such manner to keep vehicle movements to a minimum;
- Materials will not be delivered to the site until required and should be retained on-site for the duration of its requirement in order to avoid unnecessary repeated deliveries;
- Delivery trucks will queue at the designated area to avoid obstructions to the general traffic in the area;
- Where vehicles cross the public footway, measures need to be taken to protect members of the public and control their movement to ensure safety, e.g. by using barriers;
- The deployment of banksmen to assist HGVs at junctions and prevent conflicts with other road users will be considered and carried out, if deemed necessary;

10.5.2 OPERATIONAL PHASE

The proposed scheme has been designed in accordance with the requirements for the design of urban roads and streets as set out in DMURS. The quality of pedestrian and cycle facilities, coupled with the level of public transport available to residents of the development means that achieving an appropriate, sustainable modal split is entirely achievable.

The TTA concluded that proposed development is expected to generate a moderate increase in traffic flows at the surrounding junctions. The assessment shows that the impact varies by junction, with some operating within capacity and others requiring some level of improvement works in the future design years.

An assessment of the capacity of Junction 5 has demonstrated that signalisation of this junction would not be a viable long-term solution, as it would operate significantly over capacity when future traffic growth and development are taken into account. Instead, it is proposed a mini-roundabout, which would improve vehicular capacity, accommodate HGV movements, and enhance pedestrian safety through upgraded crossings, footpaths, and traffic-calming measures. This alternative offers a robust, future-proof solution, maintaining safe and efficient operation under projected traffic conditions.

The applicant's development is not expected to cause any notable operational problems across the network.

10.5.3 POTENTIAL CUMULATIVE EFFECTS

The proposed development will increase traffic volumes within the local road infrastructure, generating cumulative impacts with other nearby developments.

However, it is considered that impacts attributable to the proposed development would be proportionally small and would be amenable to mitigation.

The Bandon Transportation Public Realm Enhancement Plan (TPREP) report includes recommendations for mitigation measures and infrastructure improvements, which will strengthen network resilience, ensuring that the local road system can continue to operate safely and efficiently as planned development across the area comes forward.

Therefore, no significant cumulative impacts upon the local road infrastructure are anticipated.

10.5.4 "DO-NOTHING" SCENARIO

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Should the proposed development not take place, there would be no associated changes or impacts upon the local road network.

10.6 RESIDUAL IMPACTS

The TTA concluded that the proposed development is not anticipated to generate any significant capacity issues at any location by itself. It was also determined that, with the TPREP recommended junction enhancements, all five junctions will continue to function efficiently in both the short and long term, and the applicant's development will not cause any notable operational problems across the network.

10.7 REFERENCES

Environmental Protection Agency (2022) *Guidelines on the information to be contained in Environmental Impact Assessment Reports*.

Cork County Development Plan 2022 – 2028. Available at:

<https://www.corkcoco.ie/en/resident/planning-and-development/cork-county-development-plan-2022-2028> Accessed January 2026.

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11.0 MATERIAL ASSETS – UTILITIES & OTHER

11.1 INTRODUCTION

This section outlines the utilities that would potentially be affected by the proposed Large-scale Residential Development at Bandon, Co. Cork during both the construction and operational phases. Material assets are generally considered to be the physical resources in the environment, which may be either of human or natural origin.

The objective of the assessment of these resources is to identify the impact of the development on individual enterprises or properties and to ensure that natural resources are used in a sustainable manner in order to ensure availability for future generations.

Economic assets of human origin, i.e. utilities are considered in this section. Economic assets of natural origin are addressed in other sections of this EIAR, namely: *Land - Soils, Geology & Hydrogeology; Archaeological, Architectural & Cultural Heritage and Material Assets – Roads & Traffic*. The purpose of this section is to assess the impacts of the proposed development on the existing utility network, which includes the following infrastructure:

- Electricity;
- Water;
- Wastewater;
- Natural Gas;
- Telecommunications;
- Waste

11.2 METHODOLOGY

A desktop study was conducted to assess the potential impact of the proposed development on the utilities and waste management infrastructure in the area, which took cognisance of relevant legislation, guidelines and other documents. Data from the proposed development and its environs were collected and mitigation measures were identified.

11.3 DESCRIPTION OF THE ENVIRONMENT

11.3.1 ELECTRICITY

Electricity supply and transmission is available throughout the county on the low (38kV, 20kV, and 10kV) and high transmission networks. High voltage transmission within the county is available at 110kV and 220kV (**Figure 11.1**). The closest power generation station is the Dunderrow solar farm in County Tipperary, approximately 11.8 km to the south-east.

A 110 kv power line system runs from east to west approximately 2.5 km north of the site. This connects Bandon 110 kV station to the 110 kV station in Dunmanway.

There are a number of power line systems within the vicinity of the site. An overhead distribution line runs along the southern section of the site. The ESB Networks Availability Capacity Heatmap shows a number of nearby substations with available capacity.

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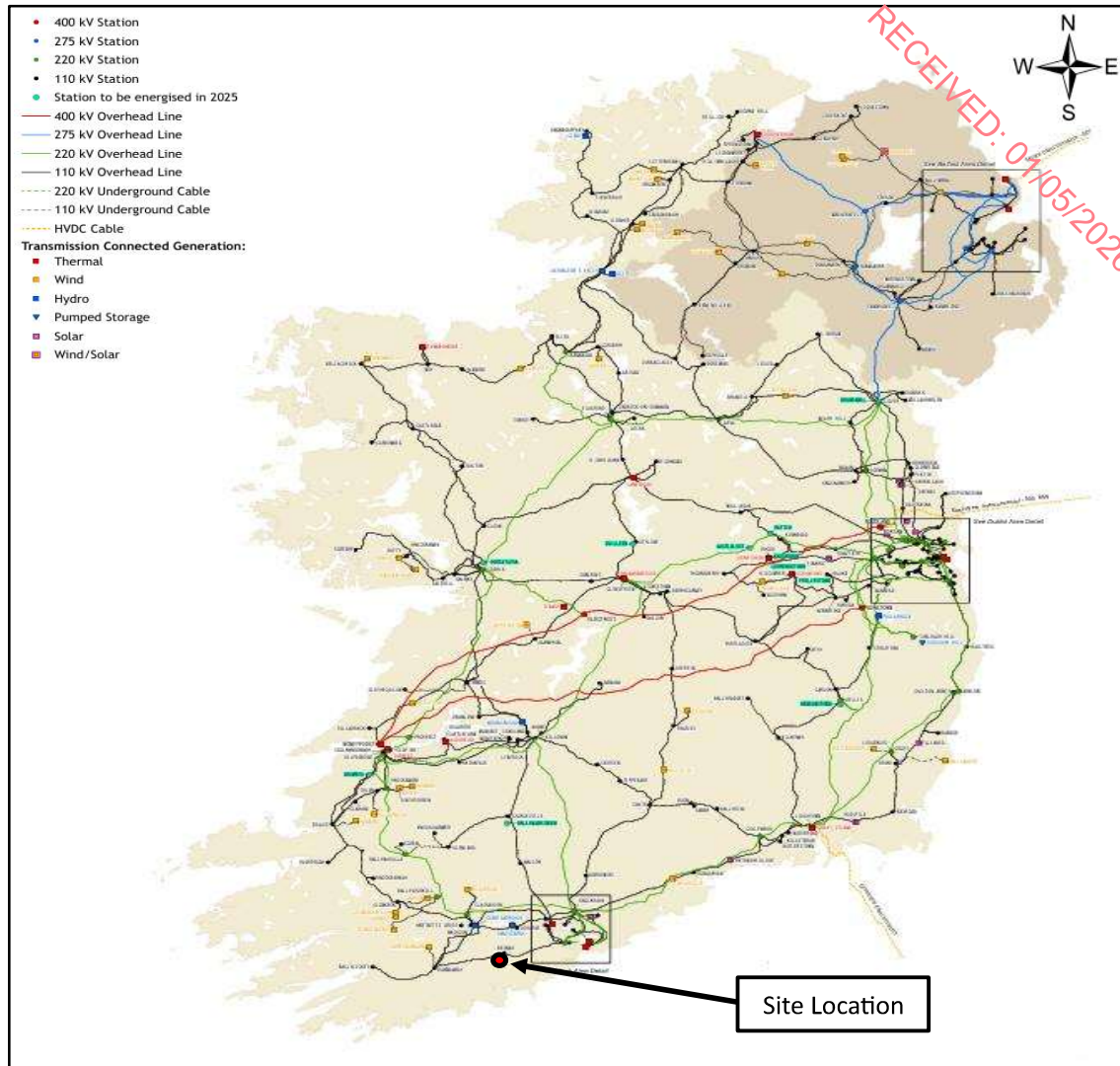


Figure 11.1: Irish Electrical Grid Map.

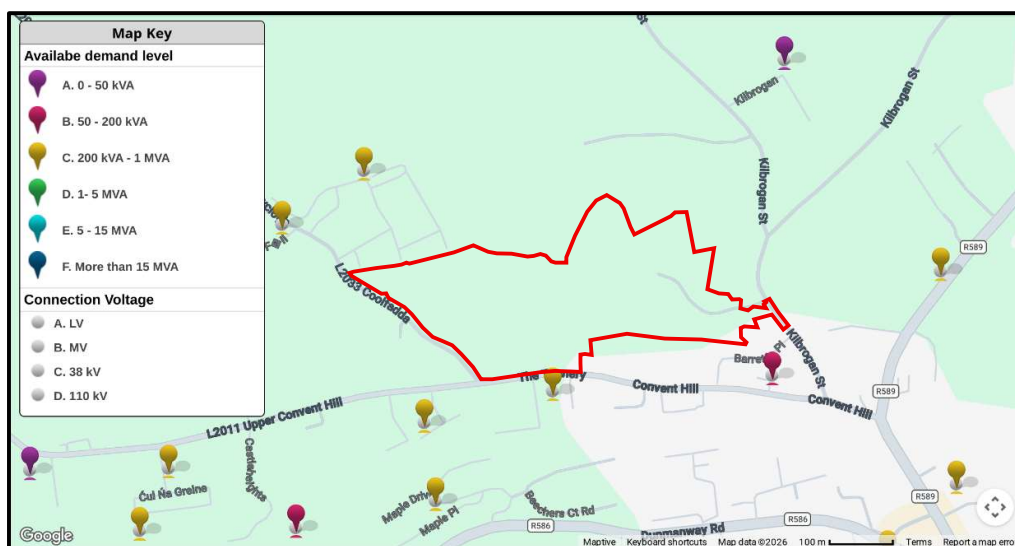


Figure 11.2: Demand Capacity Heatmap (ESB Networks).

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11.3.2 GAS

Gas Networks Ireland has responsibility for developing, maintaining and operating the natural gas transmission and distribution networks in Ireland. Bandon is directly serviced by a major gas network line (Figure 11.3).



Figure 11.3: Gas Network of Ireland.

11.3.3 TELECOMMUNICATIONS

The county broadband services have improved significantly over the past number of years. The area has a number of broadband, phone and television channel providers, including Three®, Digiweb®, pure-telecom®, SIRO®, Sky®, Virgin® and Vodafone®.

The Government's 2020 National Broadband Plan will provide high speed broadband services to all premises in Ireland. According to the Irish government's national broadband plan, high speed broadband

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has already been made available to c. 77% of Irish premises and significant additional investment is expected over the coming years.

At present, telecommunication lines run along the local roads in the vicinity of the proposed development site. A number of telecommunication towers are located in Bandon town.

11.3.4 WASTE

The site is located on a brownfield site in the townland of Coolfadda and Kilbrogan, Co Cork. The National Waste Management Plan for a Circular Economy 2024-2030 replaces the three former Regional Waste Management Plans (RWMP), including the Southern Region Waste Management Plan 2015-2021. The plan sets out a framework for the prevention and management of waste in Ireland for the period 2024 to 2030.

Bandon Civic Amenity site is located approximately 3.4 km to the south-west of the proposed site. The site accepts a wide range of household waste and recyclable materials, and also includes a dedicated green compost area.

11.3.5 WASTEWATER

Bandon Waste Water Treatment Plant (WWTP), operated by Cork County Council, holds a Waste Water Discharge Licence with the EPA (D0136-01) and is the nearest WWTP to the site, which caters to a population equivalent (P.E.) of 10,777 with a design P.E. of 14,456. The WWTP discharges the treated effluent to River Bandon (150411E, 55785N). The most recent publicly available Annual Environmental Report (AER) for Bandon WWTP from 2024 determined that the discharge from the plant was compliant with the ELV's set in the wastewater discharge licence and that the discharge from the wastewater treatment plant does not have an observable negative impact on the Water Framework Directive status. The 2024 AER reports a peak hydraulic capacity of the WWTP as constructed of 13,500 m³/day and a Dry Weather Flow (DWF) of 4,500 m³/day, and no hydraulic and organic capacity exceedances are expected over the subsequent three years. Furthermore, Irish Water's wastewater treatment capacity register indicates that Bandon WWTP has currently available spare capacity to treat additional loads at the plant. Currently, the plant is undergoing a license review (Reference No: D0136-02).

River Bandon's Water Framework Directive (WFD) ecological status 2019-2024 oscillates between 'Moderate' and 'Good', with some stretches of the watercourse considered to be 'At Risk' of failing to meet its WFD objectives by 2027, while others are considered 'Not at Risk' and some remain under 'Review'. The Upper Bandon estuary has a WFD ecological status of 'Bad', and the Lower Bandon estuary has a WFD water quality status of 'Poor', with the whole estuary considered to be 'At Risk' of failing to meet its WFD objectives by 2027.

11.3.6 WATER

The site is located within a locally important aquifer which is moderately productive in local zones and groundwater recharge in the area of the site is 200.00 mm/y, which is considered to have a moderate permeability and high vulnerability. The site is not located within a surface or groundwater source protection area.

Irish Water's water supply capacity register for Bandon Regional Water Resource Zone shows that the settlement has potential to supply water to support planned growth, subject to the improvement of existing levels of service.

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11.4 IMPACT & MITIGATION

11.4.1 CONSTRUCTION PHASE

During the construction phase of a residential development, impacts upon the local electrical and telecommunications networks can occur through a short-term increase in demand or accidental physical damage to existing infrastructure. Prior to any works commencing at the proposed site, local utilities will be mapped out to avoid damaging any unidentified lines or cables within the site or in its immediate vicinity. The installation of new electricity infrastructure at the site will be undertaken by a certified contractor, according to ESB Networks standards and Irish Standard 10101:2020 published by the National Standards Authority of Ireland, as amended. Similarly, the installation of new telecommunications infrastructure will be carried out in accordance with established national methodologies and guidance.

The proposed development will not require any connections to the gas network and it is not anticipated any impacts upon the existing infrastructure.

The proposed development will generate a number of non-hazardous and hazardous waste streams during the construction phase. A small volume of municipal waste, such as food waste and packaging, would also be generated by the construction staff. There is a potential for waste generated during construction of the proposed development to impact upon the local waste management network. Unmitigated, impacts to the existing local infrastructure would be significant, negative and short-term.

During construction, waste management at the site would involve the employment of practices such as raw material management, storage, prevention, reuse, recycling and recovery. A Resource & Waste Management Plan (RWMP) has been carried out for this project (Doc Ref: PES_RWMP_22616), which proposes control measures to mitigate against construction traffic associated with the development. This report should be read in conjunction with the RWMP document. The primary objective is to safeguard the environment and address potential issues such as noise and odours. In order to prevent and minimise the generation of wastes, the Contractor will ensure raw materials are ordered in a just in time process. This will reduce storage volumes, breakage, and waste volumes produced, preventing unnecessary waste disposal to landfill. The reuse of materials on-site will be maximised whenever feasible, with any surplus materials returned to the supplier. This will reduce the requirement for imported material to the site. Materials deemed unsuitable for reuse will be effectively segregated, labelled as waste and stored for off-site disposal. Where it is not possible to avoid the generation of wastes, wastes will be sent for recycling or recovery as a priority. All construction waste generated on-site will be transported off-site for disposal in compliance with Irish and EU Legislation and guidance. Confirmation will be obtained in writing from the proposed authorised waste disposal facility prior to materials being removed from the site by a suitably permitted haulier.

Given the nature of the project, it is expected that the primary waste types generated would arise from the excavation of soil and stones during site preparation, foundation excavation, and from the installation of services and roads.

The EPA National Waste Reports have been summarised in **Table 11.1** to demonstrate the typical breakdown of C&D waste types produced on a typical Irish construction site.

Table 11.1: Waste Materials Generated on a Typical Irish Construction Site (EPA 2023)

Waste types	Percentage
Soils, stones & dredging spoil	81.2
Concrete, brick, tile & gypsum	7.5
Mixed C&D waste	6.8
Metal	2.3
Bituminous mixtures	1.3

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Segregated wood, glass & plastic	0.8
Total	100

The contractor will establish a designated waste storage area within the contractor's compound at the site, specifically for storing waste materials, including soils and stones. This area will be strategically positioned near the initial construction phase of the development to facilitate waste segregation at its source. Waste segregation will be enforced through the use of dedicated waste skips or receptacles. The contractor will minimise the on-site storage of hazardous waste by appropriately storing all hazardous materials in a dedicated and secured storage unit. Depending on the type of wastes requiring storage, bunding may be necessary to prevent potential loss to the ground or surface waters. The site is a brownfield site with a previous development having commenced enabling works approximately 15 years ago. The Waste Classification Assessment carried out by Gound Investigations Ireland concluded that the subsoil material sampled across the site, if being considered a waste, can be classified as non-hazardous. Therefore, the likelihood of encountering hazardous soil and stones during the construction phase of the development is expected to be low. However, if contaminated soil is discovered during excavation or suspected due to odour or other signs, it will be quarantined and stockpiled separately from other materials on impervious heavy gauge polythene and covered to prevent runoff.

The contractor's approach is to maximise the reuse of excavated soil and stone for fill and landscaping purposes whenever feasible. Any remaining soil will be transported off-site as waste material, unless it meets the criteria for classification as a soil by-product, potentially suitable after temporary storage on-site or within a dedicated soil stockpile. Each soil and stone stockpile will be identified, labelled, and subjected to a thorough risk assessment for reuse before placement.

During the project construction, waste concrete will be produced. All surplus concrete must be transported back to the concrete batching plant. Concrete washout from truck storage will not be permitted on-site; instead, it will be conducted off-site at the batching facility. On-site concrete washout from the delivery chute will be accommodated, with a dedicated sealed unit utilised to store and prevent concrete runoff from reaching the ground or surface water drainage on-site.

During the construction phase, there will be a production of waste materials such as blocks, bricks, and tiles. The primary sources of waste during this phase are anticipated to be off-cuts, trimmings, and material breakages. Any reusable blocks, bricks, or tiles will be allocated a designated temporary storage area, while materials deemed waste will be temporarily stored after being segregated at the source.

Waste metal materials generated during the construction phase will be produced during the project's construction stages. Metal materials will be cut into smaller pieces to facilitate transportation using licensed vehicles for recovery off-site. These metal pieces will then be placed in a separate skip until they can be recovered off-site at an appropriate waste disposal or recovery facility.

Wood waste will be produced during construction, mainly from off-cuts or damaged timber pieces. Supply pallets will be returned to the supplier for reuse, while construction methods will incorporate off-cuts into the project as it advances. A designated waste storage skip for wood waste, preferably covered, will be located in the designated waste storage area. It is anticipated that the wood waste will be recovered at an appropriate wood recycling facility.

During the construction phase, insulation waste will be generated, primarily from off-cuts resulting from the use of insulation materials. These off-cuts will be stored in a dedicated temporary storage unit, covered to prevent exposure. Any unusable off-cuts will be appropriately disposed of. These waste materials will be managed and disposed of separately from other waste streams.

All packaging waste will be separated on-site and placed in appropriate covered containers within the waste storage compound. In case an on-site staff canteen is provided during the construction phase,

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separate receptacles will be used for recyclable materials like plastics, metals, and glass. These will be managed as distinct waste streams. The staff canteen is expected to generate food and packaging waste. The contractor will supply designated receptacles for food waste, dry recyclables, and residual waste that isn't suitable for recycling, such as wet waste (a mix of food waste and food packaging) and contaminated cardboard or plastic.

Regular maintenance of the toilet facilities will be conducted, with any temporary utilities used during construction being serviced by an approved and permitted contractor. Wastewater and septic tank waste, if present, will be contained within a sealed unit to prevent ground contamination before disposal at a licensed waste facility. The contractor will manage wastewater and ensure its safe removal off-site by licensed hauliers and waste disposal contractors.

During the construction phase, risks to water quality could arise with potential releases of suspended solids, uncured concrete, and hydrocarbons (fuels and oils). The proposed development will require works within the Kilbrogan stream located on site. Works will be required within the watercourse to facilitate the surface water and foul water drainage network as described in **Section 2** of this EIAR. In addition, a new bridge will be constructed over the Kilbrogan watercourse to facilitate vehicular access to the north of the site. A Construction Method Statement (Doc Ref: 25072-MMS-XX-XX-RP-C-0003) has been developed by MMOS for the proposed bridge, which details an appropriate methodology for the proposed works. A Construction Environmental Management Plan (Doc Ref: PES_CEMP_22616) and an Ecological Impact Assessment (Doc Ref: PE_EcIA_10432) have also been carried out for this project, which propose control measures to mitigate the potential for a deterioration in water quality associated with the development. This report should be read in conjunction with the CEMP and EcIA documents. Among other measures, a 10 m buffer will be maintained from the top of the Kilbrogan stream's banks on either side, where no construction works other than those outlined will take place.

Impacts to local water supply can occur during the construction phase of a residential development via short-term increased demand or accidental physical damage to existing water mains. The installation of new water mains at the site will be undertaken in accordance with the *Code of Practice for Water Infrastructure* (Document IW-CDS-5020-03) published by Uisce Éireann. Uisce Éireann has confirmed feasibility of connection with no infrastructure upgrade needed.

11.4.2 OPERATIONAL PHASE

There will be increased demand on electricity supply and telecommunication networks, as a result of the operational phase of the proposed development. It is anticipated that local infrastructure would be able to accommodate the proposed development and no significant impacts are expected.

The proposed heating system for the residential units are air to water heat pumps and the site will not require the provision of gas.

An Operational Waste Management Plan (OWMP) has been carried out for this project (Doc Ref: PES_OWMP_22616), intended to ensure proper waste management associated with the operational phase of the proposed development. This report should be read in conjunction with the OWMP document.

The typical waste streams that will be generated by the development include:

- Non-recyclable residual waste;
- Recyclable waste;
- Biodegradable organic waste;
- Additional waste;

The following tables detail the types of waste which would be generated:

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Table 11.2: Expected Typical Wastes Generated

Waste Type	EWG / LoW Code	Notes
Paper and Cardboard	20 01 01	Newspapers, magazines, packaging cardboard, office paper, etc.
Glass	20 01 02	Bottles, containers, tubes, jars, mixed glass, etc.
Biodegradable kitchen and canteen waste	20 01 08	Waste food from dining, kitchen and amenities
Textiles	20 01 11	Waste clothing and bed clothes
Pesticides	20 01 19*	Disinfectants, preservatives, biocides, etc.
Fluorescent tubes and other mercury-containing waste	20 01 21	Lamps, light bulbs, cathode ray tubes, thermostats, hydrometers, etc.
Edible oil and fat	20 01 25	Cooking oil
Paints / inks / adhesives	20 01 27* 20 01 28	Printer ink/ toner cartridges, hair dye etc
Detergents containing hazardous substances and others	20 01 29* 20 01 30	Cleaners, Cleansers, Powders, Flakes, Surfactants, etc.
Batteries and Accumulators	20 01 33* 20 01 34	Batteries (hazardous and non-hazardous)
WEEE	20 01 35* 20 01 36	Waste Electrical and Electronic Equipment
Plastics	20 01 39	PVC, PS, PET, latex rubber, mixed plastics, etc.
Metals	20 01 40	Aluminum, iron, steel, copper, zinc, etc.
Garden biodegradable waste	20 02 01	Grass clippings, weeds, tree/bush clippings
Mixed non-recyclable	20 03 01	General wastes not segregated
Bulky waste	20 03 07	Waste too large to be collected by regular waste collection services

*hazardous wastes

Household Waste Statistics for Ireland for 2022 has been used to estimate the waste types and weights that would be generated by the residents per year at the proposed development.

Table 11.3: Expected Main Wastes Generated by the Proposed Development

Bin Type	Development Waste Volume (kg/year)	Per Individual Household (kg/year)
Residual	69,840	291
Recyclable	39,360	164
Organic	17,040	71
Other	58,800	245
Total	185,040	771

Private bin storage will be provided for all residential units and creche. New residents of the proposed development are expected to segregate generated waste in their households using a three-bin storage system into the following streams: Non-recyclable residual waste (black bin), Recyclable waste (green/blue bin) and Biodegradable organic waste (brown bin). All waste will be transported from the site by contractors with appropriate NWCPO-issued collection permits.

The development will source its water from a new connection to the water mains supply. Irish Water has confirmed feasibility of connection without infrastructure upgrade. It is also proposed to provide rainwater butts behind the back of each house to harvest rainwater within the development, which can

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be used for irrigation purposes. Water usage at the site would be typical of other residential developments in the area. The proposed water demand for the entire development has been estimated as 1.479 l/s for the average demand, and 7.393 l/s for the peak hours. The demand on the municipal water supply would increase once the operational phase of the development is complete, however, there would be sufficient supply to accommodate the development.

Wastewater generated by sanitary facilities at the dwelling units and creche would be directed to the existing pump station and public wastewater network along L2039 to the east. Foul water will then be sent to Bandon WWTP. The proposed wastewater flow for this development has been estimated as approximately 666.2 m³/day for the peak DWF and 112.4 m³/day for the average DWF and it is anticipated that the WWTP would be able to accommodate the proposed development. Irish Water has confirmed feasibility of connection to the networks without infrastructure upgrade.

Possible localised contamination of the Kilbrogan stream or River Bandon by accidental leakage or spillage of hydrocarbons from private vehicles may occur during the operational phase. However, it is not considered likely that there would be a significant risk of leaks or spillages of hydrocarbons during the operation of the proposed development.

The proposed site will be divided into three separate catchments for the management of clean rainwater from roofs and hard surfaces during the operational phase of the development. Stormwater from each catchment will be directed to its corresponding attenuation tank, which will then discharge into the existing stream. Permeable paving will also be installed to allow water to infiltrate to ground.

11.4.3 POTENTIAL CUMULATIVE EFFECTS

The proposed development could act in combination with other existing or approved developments in the area to impact upon local utilities and waste infrastructure during the construction and operational phases.

The following figure and table provide information from the EIA portal of proposed developments requiring Environmental Impact Assessment (EIA) within 10 kilometres of the proposed development.

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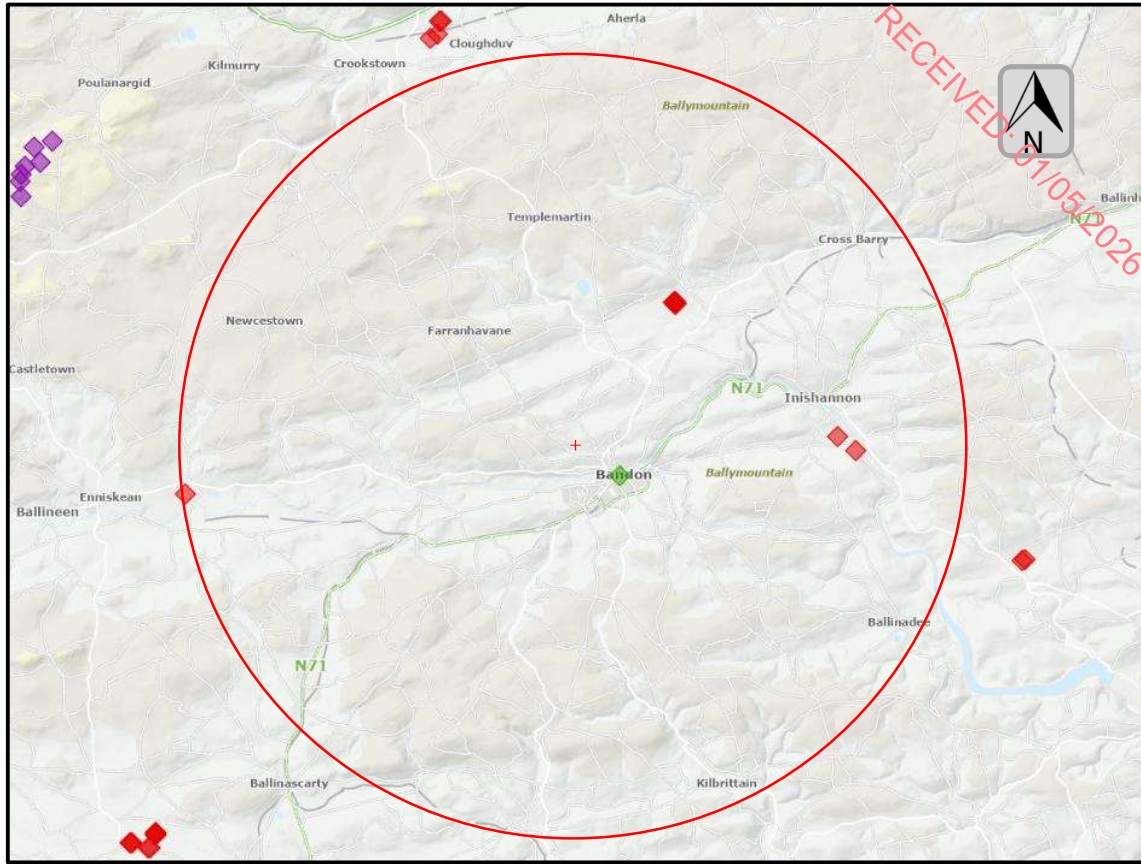


Figure 11.4: EIA developments within 10km (EIA Portal)

Table 11.4: EIA developments within 10km.

Planning Ref No.	Description	Decision Date	Location, Distance / Orientation
25/6376 (Cork Co Co)	A 7-year planning permission for a Large-scale Residential Development (LRD) comprising of the construction of 212 no. residential units, 3 no. ESB substations, and all associated site development works.	N/A	Knockbrogan, Bandon, Co. Cork c. 660 m east
D0136-02 (EPA)	An EIAR has been prepared in support of a review application made to the EPA by Irish Water for the Bandon Wastewater Discharge Licence D0136-01. The subject matter of this EIAR solely relates to the Bandon agglomeration operational discharges.	N/A	Bandon Wastewater Treatment Plant, Main Cork Road Ballylangley Bandon, Co. Cork c. 1.61 km east
23/4780 (Cork Co Co)	Continuance of use of existing sand & gravel pit, concrete plant, block production, block storage yard and associated ancillary facilities / buildings; extension of the existing pit over an area of 5.5 Ha., within a planning application area of 26.9Ha.	14/02/2024	Dromkeen, Inishannon, Co. Cork c. 5.91 km east
25/4666 (Cork Co Co)	Extraction of sand & gravel pit over an area of c. 3.5 Ha. by dry working to a level of 2m above groundwater level at a maximum rate of 100,000 tonnes per year; restoration to	N/A	Knockroe, Bandon, Co. Cork

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	agricultural and natural habiat use, all within an application area of 4.0 Ha.		c. 6.69 km east
25/6942 (Cork Co Co)	Permission to extend existing sand & gravel quarry, importation of clean stone & soil for reinstatement works, carrying out of associated landscaping / biodiversity works & all other associated works	N/A	Mawbeg East, Enniskeane, Bandon, Co Cork c. 7.12 km west
23/260 (Cork Co Co)	Sand & gravel pit development (32 hectares) including phased sand & gravel extraction, soil storage; and restoration over six phases within an extraction area of 25.9 hectares; processing of aggregates; ancillary facilities; landscaping & final restoration.	N/A	Murragh, Enniskeane, Co. Cork c. 9.81 km west

Local planning files were assessed to identify plans or projects in the area which would have the potential to commence during the construction phase of the project:

Table 11.5: Other developments within the vicinity of the site.

Planning Ref No.	Description	Decision Date	Location, Distance / Orientation
224960	The construction of 42 no. dwelling houses, a two storey crèche and all ancillary site development works. (...)	20/09/2022	Coolfadda, Bandon, Co.Cork Adjacent south
234231	The construction of 3 no. dwelling houses comprising of 2 no. 3-bedroom townhouses and 1 no. 2-bedroom townhouse, and a two-storey creche with ancillary bicycle and bin stores and all other ancillary site development works. (...)	26/7/2023	Coolfadda, Bandon, Co. Cork Adjacent south
254019	Permission to:- 1) demolish existing single storey extension and out buildings at rear (north elevation) of existing dwelling house. 2) construct a two storey extension at the rear (north elevation) of existing dwelling house, and sub divide existing dwelling house to create 2 no. dwelling houses. 3) Alterations to south and eastern elevations with all associated site works.	29/5/2025	Convent View, Convent Hill, Coolfadda, Bandon, Co. Cork. c. 42m south
214026	The construction of 43 no. residential units and all ancillary site development works. (...)	22/06/2021	Coolfadda, Bandon, Co. Cork c. 60m south
234423	Full planning permission to construct 25 no. new dwelling houses and all ancillary site development works at site known as 'Tanners Field' at lands at Coolfadda, Bandon, Co. Cork. (...)	4/7/2023	Tanners Field, Coolfadda, Bandon, Co. Cork c. 80m south
224047	The construction of a single storey, rear extension to an existing dwelling house, together with minor alterations and associated siteworks. (...)	3/11/2022	Craglia, Convent Hill, Coolfadda, Bandon, Co. Cork c. 85m west
226426	The construction of 24 no. residential units comprising of 12 no. 2 bedroom duplex/apartment units and 12 no 1 bedroom apartment units to be provided in 6 no. 2-3 storey buildings and all ancillary site development works. (...)	27/02/2023	Coolfadda, Bandon, Co.Cork c. 105m south
205604	The construction of 18 no. 3 bedroom semi-detached dwelling houses, relocation of permitted play area, modifications to permitted estate road	2/12/2020	Coolfadda, Bandon, Co.Cork c. 175m south

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Planning Ref No.	Description	Decision Date	Location, Distance / Orientation
	layout and associated infrastructure services and all ancillary site works. (...)		
235039	Permission for retention of rear first floor extension to dwelling.	11/10/2023	No. 22 Kilbrogan Street, Coolfadda, Bandon, Co. Cork c. 120m south-east
206541	(a) Retention and completion of existing house 3, (b) Completion of house 2, (c) Demolition of existing unfinished house 4, (d) Construction of 2 no. new detached dwelling-houses and garages with separate on-site sewage treatment units and siteworks, (e) Completion of all other associated ancillary siteworks to those granted under Planning Ref: 042631.	20/8/2021	Kilbrogan, Bandon, Co. Cork c. 170m north-east
224620	(A) demolish existing domestic shed, (B) modify and extend existing dwelling house, (C) new vehicular entrance to site and all associated site works	6/7/2022	Travarra Dunmanway Road, Coolfadda, Bandon, Co Cork c. 170m south
246218	Permission to i) construct a two-storey side extension, ii) carry out alterations to elevations and iii) associated site works, all to their dwelling	23/1/2025	Travarra, Dunmanway Road, Coolfadda, Bandon, Co.Cork c. 170m south
216472	The replacement of two existing 10m high support poles carrying associated antennae for a 24 metre high free standing communications structure with its associated antennae, communication dish, ground equipment and all associated site development works within an existing fenced compound. (...)	3/3/2022	Convent Hill Waterworks, Coolfadda, Bandon, Co. Cork c. 190m south-west
236443	Permission for retention and completion of building works comprising extension to rear/north of existing dwelling, parking platform with basement to underside as constructed, vehicular entrance, modification to site boundary and all ancillary site works as previously permitted Pl.Reg.No. 05/8713 & extension for duration Pl.Reg.No. 11/4418.	11/4/2024	Kilmoylan Dunmanway Road, Coolfadda, Bandon, Co Cork c. 240m south
246205	Permission to construct a machinery storage shed along with all associated site works	30/04/2025	Town Park, Kilbrogan, Bandon, Co.Cork c. 245 m east
ACP-319659	Retention and completion of building works. Extension, parking platform with basement, vehicular entrance and modification to site boundary together with all associated site works previously permitted under PL. Reg. No. 05/8713 & extension for duration permitted under PL. Reg. No. 11/4418.	25/02/2025	Kilmoylan, Dunmanway Road, Coolfadda, Bandon, Co. Cork c. 245 m south
244248	Permission to demolish an existing domestic garage and to construct a proposed granny flat together with widening of the existing vehicular entrance and construction of pedestrian gate including all associated site works, all ancillary to the existing dwelling house.	04/08/2024	Glensalney, Dunmanway Road, Coolfadda, Bandon, Co.Cork c. 245 m south

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Planning Ref No.	Description	Decision Date	Location, Distance / Orientation
235428	Construct a single storey extension onto the west side of existing dwelling house together with all ancillary site work.	04/09/2023	Glensalney Dunmanway Road, Coolfadda, Bandon, Co Cork c. 245 m south
214812	A new 20 meter long and 5 meter high hurling wall to the North of the existing school, along with all associated site works within the site curtilage of the existing school, also within the curtilage of existing protected structures together at Hamilton High School.	18/8/2021	Hamilton High School, Allen Square, Coolfadda, Bandon, Co. Cork c. 290m south
244067	Permission for the construction of a 539.14sq.m stand-alone school sports hall (incl 35.04sqm first floor mezzanine storage space) to serve the existing secondary school, connection to existing services, and all ancillary works. (...)	4/7/2024	Hamilton High School, Allen Square, Coolfadda, Bandon, Co.Cork c. 290m south
234787	A) The existing all-weather playing surface measuring 60.00m. x 22.50m. B) The existing 2.40m. high mesh perimeter fencing with high level sports netting serving the all-weather playing surface. C) The existing concrete access path serving the all-weather playing surface. D) All ancillary works. (...)	16/6/2023	Hamilton High School, Allen Square, Coolfadda, Bandon, Co. Cork c. 290m south
206697	The demolition of an existing shed/agricultural structure and the construction of a residential development of 85 no. dwelling houses, a single storey creche with associated bicycle racks and bin stores, open space, landscaping, public lighting and all ancillary site development works. (...)	16/09/2021	Coolfadda, Bandon, Co. Cork c. 320 m south-west
215149	The construction of a new split-level, three storey, standalone extension, with associated siteworks, west of the existing school. The extension is designed to accommodate specialist teaching rooms, including 3 science laboratories, an art room, home economics, as well as 4 classrooms and ancillary accommodation. (...)	29/07/2021	St. Brogan's College, Macroom Road, Kilbrogan, Bandon, Co. Cork c. 350 m north-east
245362	Permission for Retention of the demolition of single storey domestic garage and demolition of 2 no. single storey rear extensions of existing dwelling consisting of 1 no. domestic storage shed and 1 no. outside toilet and Permission for the construction of new two storey extension to the northern and eastern elevations of existing dwelling house, together with all other ancillary siteworks.	28/01/2025	Glenmaris, 1 Allen Square, Coolfadda, Bandon Co Cork c. 360 m south-east
245568	Permission for the construction of a development consisting of 22 no. residential units and all ancillary site development works. (...)	03/04/2025	Castleheights, Coolfadda, Bandon, Co. Cork c. 360 m south-west
205448	Permission for retention of development of second floor for use as storage of dwellinghouse permitted under 09/4932, including the installation of two gable windows and for permission for retention of alterations to site boundaries to those permitted under 09/4932 and associated siteworks.	02/09/2020	Coolfadda, Bandon, Co. Cork c. 380 m west

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Planning Ref No.	Description	Decision Date	Location, Distance / Orientation
224663	Planning permission for the construction of a ground floor extension and modifications to existing dwelling including new windows to rear and side elevation and all associated site work	29/09/2022	Kilbrogan, Bandon, Co.Cork c. 390 m north
255229	Permission to construct a first floor side extension and alterations to the front and side elevations, all to their dwelling.	13/08/2025	Heather Bank, Allen Square, Coolfadda, Bandon, Co.Cork c. 390 m south
205216	a) The demolition of an existing dwelling house and b) the construction of a new domestic garage and granny flat with vehicular entrance onto Dunmanway road with new water mains and foul connection and all associated site works and c) the construction of a new single storey dwelling house with domestic garage, and new vehicular entrance onto Laurel walk road, along with new water mains and foul connection and all associated site works.	15/02/2021	Coolfada, Coolfadda, Dunmanway Road, Bandon, Co. Cork c. 435 m south-west
254069	Permission to a) retain existing dwelling house, previously granted demolition planning reference 20/5216, b) the construction of a new extension to the rear of the existing dwelling and c) all associated site works	12/01/2026	Coolfada, Coolfadda, Dunmanway Road, Bandon, Co.Cork c. 435 m south-west
ACP-312689	Construction of a residential development of 65 units and a two storey creche with ancillary surface car park, bicycle parking racks, bin stores and all associated site development works.	14/06/2022	Knockbrogan, Bandon, Co. Cork c. 470 m east
236540	Permission for the construction of a residential development consisting of 77 no. dwelling houses and a single storey creche facility with ancillary surface car park, bicycle parking racks, bin stores and all ancillary development works. (...)	22/01/2025	Cork Road, Knockbrogan, Bandon, Co. Cork c. 485 m east
215836	The construction of a single storey extension to the rear of existing dormer dwelling and all associated site works.	25/08/2021	Cork Road, Knockbrogan, Bandon, Co. Cork c. 485 m east
245147	Permission for the construction of a new single storey childcare/creche facility including, bike store, bin store, associated parking and new entrance to Cork Road along with site and ancillary works.	17/07/2025	Knockbrogan, Bandon, Co. Cork c. 490 m east
255336	Permission for the construction of a residential development comprising of 69 no. residential units and all ancillary site development works. The proposed development consists of the construction of 8 no. 4 bedroom semi-detached dwelling houses, 48 no. 3 bedroom semi-detached/townhouse dwelling houses, 9 no. 2-bedroom semi-detached/townhouse dwelling houses and 4 no. 1bedroom simplex units located within a 2 storey building. Vehicular and pedestrian access to the proposed development will be provided via the estate entrance, internal road network and pedestrian infrastructure permitted by Cork County Council planning reference 20/6697,	N/A	Coolfadda, Bandon, Co. Cork c. 550 m south-west

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Planning Ref No.	Description	Decision Date	Location, Distance / Orientation
	serving the 'Cúl na Gréine' residential development which is currently under construction.		

It should be noted that it is not known at this time if the identified approved developments within the area will commence or carry on construction during the project construction phase. However, the construction phase of each project would be temporary or short-term. The adoption of standard construction management practices would prevent significant impacts from the proposed development and reduce the potential for in-combination effects upon the local waste infrastructure.

It is not considered that the proposed development would significantly increase the demand for local utilities or waste infrastructure during its operational phase. It is anticipated that existing services and management facilities in the region would have the available capacity to cater for the proposed development.

11.4.4 “DO-NOTHING” SCENARIO

Should the proposed development not take place, there would be no associated changes or impacts upon utilities and waste management infrastructure in the area.

11.5 RESIDUAL IMPACTS

Given the nature of the proposed development and following the implementation of mitigation measures, it is considered that residual impacts during the construction phase would be not significant and short-term. Given the reduced volume of wastes anticipated during the operational phase and following the implementation of mitigation measures, it is considered that residual impacts during this phase would be not significant and permanent. The operational phase of the proposed development is also not anticipated to significantly impact upon other local utilities.

11.6 DIFFICULTIES ENCOUNTERED IN COMPILING INFORMATION

No difficulties were encountered during the assessment of potential impacts of the proposed development on utilities and waste management infrastructure in the area.

11.7 REFERENCES

Cork County Development Plan 2022 – 2028. Available at: <https://www.corkcoco.ie/en/resident/planning-and-development/cork-county-development-plan-2022-2028> Accessed January 2026.

Environmental Protection Agency (2022). *Guidelines on the information to be contained in Environmental Impact Assessment Reports*.

EPA Maps, Available at: <https://gis.epa.ie/EPAMaps/> Accessed January 2026.

Gas Networks Ireland, available at: <https://www.gasnetworks.ie/home/>. Accessed January 2026.

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SECTION D – CULTURAL HERITAGE

This section of the EIAR examines the impacts of the proposed development on archaeology, architecture and cultural heritage.

Archeologically important sites, buildings of historic, artistic or architectural interest and sites of cultural heritage form part of the landscape of County Cork. As part of the scope and examination of alternatives phases of this development, every effort has been made to avoid known Archaeological, Architectural and Cultural Heritage sites.

This section of the EIAR examines the impacts of the development on known sites (which could not be avoided) or potential sites which have come to light during the field survey of the proposed development.

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12.0 ARCHAEOLOGICAL, ARCHITECTURAL & CULTURAL HERITAGE

12.1 INTRODUCTION

This chapter of the Environmental Impact Assessment Report (EIAR) assesses the potential effects of the proposed Large Residential Development (LRD) at Convent Hill, Bandon, Co. Cork, on the archaeological, architectural and cultural heritage environment (**Figure 12.1**).

The study was undertaken by Lane Purcell Archaeology and comprised a desk-based assessment, walkover survey, geophysical survey, archaeological testing and consultation with the County Archaeologist.

12.1.1 KEY ARCHAEOLOGICAL AND HERITAGE CONSTRAINTS

The key findings of the EIAR are summarised as follows:

- There are no recorded archaeological sites or protected structures within the footprint of the proposed development site.
- A geophysical survey (Licence 25R0152) on the western portion of the site (Survey of the eastern portion was not possible due to dense overgrowth) identified no anomalies of clear archaeological significance.

Archaeological testing (Licence No. 25E0836) on the western portion of the site identified the truncated remains of two fulachtaí fia. These side-by-side sites will be preserved *in situ* within an agreed shared buffer zone which falls inside a designated riparian buffer along a stream corridor.

Their retention within this undeveloped green buffer will safeguard the surviving archaeological deposits from ground disturbance while maintaining their historic association with the riverine landscape.

- The eastern portion of the site could not be tested due to overgrowth and previous ground disturbance. While it is clear that much disturbance has taken place in this area in the recent past it is possible that there may be some unrecorded subsurface archaeological remains in the less disturbed areas. These areas will be subject to licensed archaeological monitoring during construction works, as agreed in principle with the Cork County Council Archaeologist.

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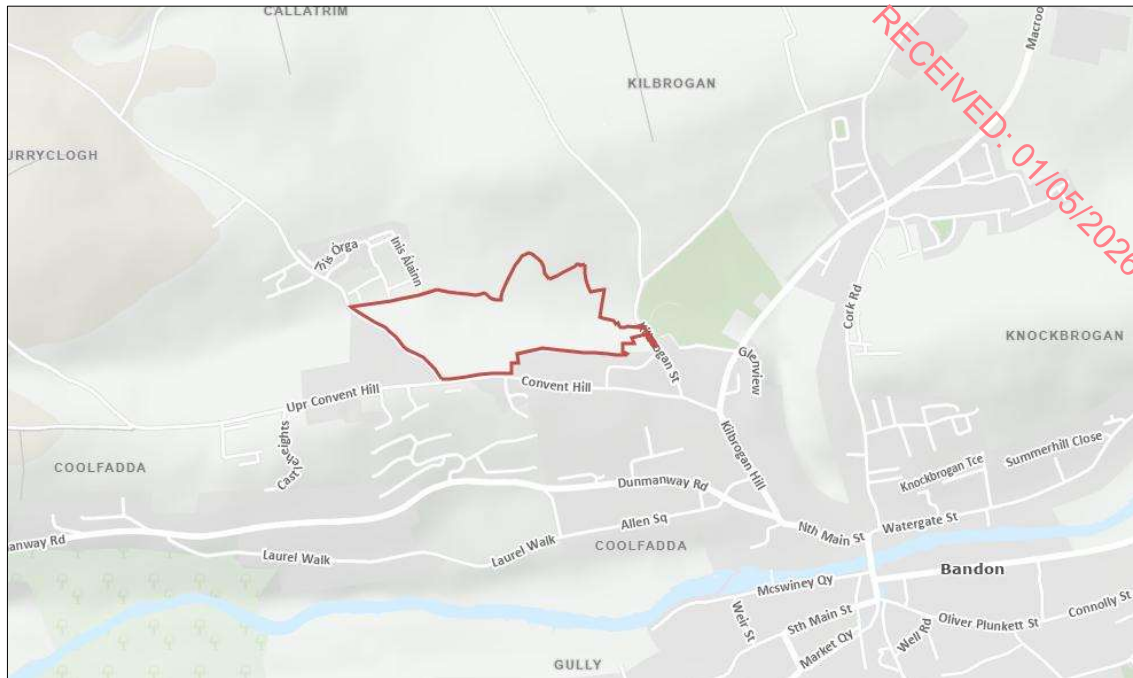


Figure 12.1: Proposed Development Site outlined in red on OS map. Source: www.archaeology.ie

12.1.2 DEFINITION OF ARCHAEOLOGICAL, ARCHITECTURAL & CULTURAL HERITAGE

For the purposes of this EIAR, cultural heritage is understood in accordance with national legislation, international conventions and Environmental Protection Agency (EPA) guidance.

Archaeological Heritage

Archaeological heritage comprises the material remains of past human activity and includes structures, constructions, groups of buildings, developed sites, artefacts, and their contexts, whether situated on land or underwater. The European Convention on the Protection of the Archaeological Heritage (Valletta Treaty, 1992) defines archaeological heritage as “all remains and objects and any other traces of humankind from past times”. In an Irish planning context, archaeological heritage typically relates to sites, monuments, and artefacts which generally pre-date c. AD 1700, though later sites of archaeological interest may also be included.

Architectural Heritage

Architectural heritage refers to structures, buildings, their settings, attendant grounds, fixtures and fittings, groups of such structures, and sites of architectural, historical, artistic, cultural, scientific, social, or technical interest. This definition follows the Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act 1999. Architectural heritage generally encompasses post-medieval and later structures, including vernacular buildings, industrial heritage, and designed landscapes.

Cultural Heritage

Cultural heritage is a broader term encompassing archaeological and architectural heritage, along with elements of historical, social, and cultural value associated with place and landscape. EPA Guidelines for the Preparation of EIARs (2022) group cultural heritage under three principal headings: archaeology, architectural heritage, and folklore and history. Cultural heritage therefore includes tangible heritage (movable, immovable, and underwater) and intangible heritage, such as placenames, folklore, traditions, and historical associations that contribute to landscape character and community identity.

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12.2 LEGISLATIVE FRAMEWORK & POLICY

This assessment of archaeological, architectural and cultural heritage has been undertaken in accordance with the relevant statutory framework, policy context and professional guidance governing heritage protection in Ireland.

12.2.1 LEGISLATIVE CONTEXT

The principal national legislation relevant to cultural heritage includes:

- National Monuments Acts 1930–2004
- Planning and Development Act 2000 (as amended)
- Architectural Heritage (National Inventory) and Historic Monuments Act 1999
- Heritage Act 1995

Ireland is also a signatory to international conventions relating to the protection of cultural heritage, including the European Convention on the Protection of the Archaeological Heritage (Valletta Convention, 1992) and the European Convention on the Protection of the Architectural Heritage (Granada Convention, 1985).

This assessment has also been prepared with regard to relevant professional guidance, including:

- *EPA Guidelines on the Information to be Contained in Environmental Impact Assessment Reports* (2022)
- *Frameworks and Principles for the Protection of the Archaeological Heritage* (1999)
- *Policy and Guidelines on Archaeological Excavation* (1999)
- *Architectural Heritage Protection: Guidelines for Planning Authorities* (2011)

12.2.2 PLANNING POLICY

The Cork County Development Plan 2022-2028 (CCDP) outlines Cork County Council's objectives and policies regarding the preservation of the archaeological, architectural, and cultural heritage of the county. The Plan *'recognises the importance of identifying, valuing and safeguarding our archaeological, architectural and cultural heritage for future generations through appropriate protection, management and enhancement measures or via the sensitive development of this resource'* (CCDP, Vol. 1, Chapter 16, 353).

Protected Structures (PS) and Architectural Conservation Areas (ACA)

Volume 2 of the CCDP contains the statutory Record of Protected Structures (RPS) and identifies designated Architectural Conservation Areas (ACA) within County Cork. The protection and management of architectural heritage are supported by specific Heritage Objectives (HE 16-1 to HE 16-26). The closest PS to the proposed development site are listed in **Table 12.3**.

The CCDP includes policies requiring the identification, assessment and appropriate mitigation of potential impacts on heritage assets, with a presumption in favour of preservation in situ where feasible.

Relevant Development Plan objectives have informed this assessment. A detailed schedule of applicable legislative provisions and planning policy objectives is provided in **Appendix 12.1**.

12.3 METHODOLOGY

This assessment of archaeological, architectural and cultural heritage has been undertaken in accordance with the *Guidelines on the Information to be Contained in Environmental Impact Assessment Reports* (EPA, 2022) and relevant professional standards. The methodology comprised a detailed desktop review, targeted archaeological field investigations (including geophysical survey, archaeological testing and walkover inspection), consultation with the Planning Authority, and an impact assessment carried out in accordance with EPA (2022) criteria.

12.3.1 STUDY AREA

The Study Area comprises the proposed development site and its receiving environment.

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Recorded archaeological sites were assessed within a 1km radius of the proposed development site. This radius is considered appropriate to establish the wider archaeological context of the site, having regard to the dispersed and frequently subsurface nature of archaeological remains, which may not be visible above ground and may extend beyond individual monument boundaries.

Registered architectural heritage assets, including Protected Structures (PS) and Architectural Conservation Areas (ACA), were assessed within an approximate 500m radius of the proposed development site. Architectural heritage assets are fixed, above-ground features, and their assessment at baseline stage is focused on establishing the local architectural environment and the presence of designated structures in proximity to the site. A 500m radius is considered proportionate to identify nearby architectural heritage assets and to define the immediate architectural context.

The assessment of character, visual amenity and landscape setting is addressed separately within the Landscape and Visual Impact Assessment Chapter 7. Accordingly, this chapter does not evaluate visual impacts or broader townscape character.

12.3.2 DESKTOP STUDY

12.3.2.1 Archaeological Sources

Record of Monuments and Places (RMP)

The RMP, established under Section 12 of the National Monuments (Amendment) Act 1994, identifies monuments and places considered to be of archaeological importance and affords them statutory protection. Each recorded site is assigned an alphanumeric code: the county code (CO for Cork) followed by the Ordnance Survey (OS) six-inch map sheet number and the monument number within that sheet (e.g. CO110-082). Each monument is accompanied by a mapped Zone of Archaeological Potential (ZAP), or Zone of Notification, representing the area within which archaeological material associated with the monument may survive.

All RMP sites within 1km of the proposed development site are listed in **Table 12.1** and shown on **Figure 12.2**.

Archaeological Survey of Ireland (ASI)/National Monuments Service (NMS) Database

The ASI maintains a national database of known archaeological sites and monuments, forming the basis of the RMP and which is continually updated as new sites are identified. The database is publicly accessible through the NMS Historic Environment Viewer (www.archaeology.ie). All recorded sites within 1km of the proposed development site are included in **Table 12.1**.

Archaeological Inventory

The published Archaeological Inventories of County Cork provide descriptions and interpretations of recorded archaeological sites. The following volumes were consulted:

- Archaeological Inventory of County Cork, Volume 1: West Cork (Power *et al.*, 1992)
- Archaeological Inventory of County Cork, Volume 5 (Ronan *et al.*, 2009)

NMS Protection Records

NMS records were consulted to identify sites afforded additional statutory protection, including:

- National Monuments in State ownership or guardianship
- National Monuments in local authority ownership or guardianship
- Monuments subject to Preservation Orders or Temporary Preservation Orders
- Monuments listed in the Register of Historic Monuments

No monuments in the study area are subject to these forms of protection.

Excavations Database

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The Excavations database provides summary reports of licensed archaeological excavations and investigations undertaken in Ireland from 1970 to 2026. Relevant investigations are summarised in Table 12.2.

12.3.2.2 Architectural Sources

Protected Structures (PS) and Architectural Conservation Areas (ACA)

Volume 2 of the CCDP contains the statutory RPS. The Plan also identifies designated ACA within the county, supported by mapped boundaries and associated heritage objectives.

The protection and management of architectural heritage are supported by specific Heritage Objectives (HE 16-1 to HE 16-26) set out in the CCDP. All PS and ACA within the Study Area are listed in Table 12.3.

National Inventory of Architectural Heritage (NIAH)

The NIAH was established on a statutory basis under Section 2 of the Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act 1999. The NIAH identifies and records Ireland's architectural heritage from 1700 to the present day through the Building Survey and Historic Garden Survey (www.buildingsofireland.ie).

The NIAH survey of County Cork (2006–2011) includes approximately 6,500 items of architectural interest. Structures of regional, national or international importance identified in the survey may be recommended for inclusion in the RPS under Section 53 of the Planning and Development Act 2000. All NIAH-listed Structures within the Study Area are listed in Table 12.3.

12.3.2.3 Cartographic and Aerial Sources

Analysis of historic cartographic and aerial sources was undertaken to identify historic buildings, routeways, land divisions and other cultural landscape features. These are reproduced and discussed in Section 12.4.8.

Historical and recent aerial imagery from the Ordnance Survey of Ireland (OSI) and Google Maps (1995–2025) was reviewed to identify cropmarks, soilmarks or other features of archaeological potential. No features of archaeological significance were identified. LiDAR data is not currently available for this site.

12.3.2.4 Toponymy and Documentary Sources

Toponymy Sources

Townland names were reviewed using the Placenames Database of Ireland (www.logainm.ie) and Joyce (1910). Placenames can preserve information relating to topography, land use, ownership and historic activity, and contribute to an understanding of the cultural landscape.

Documentary Sources

A review of relevant documentary material was undertaken, including historical texts, local histories, estate records and academic sources. These sources were used to contextualise the development site within its wider historical landscape. Relevant documentary references are cited in Section 12.10.

12.3.3 GEOPHYSICAL SURVEY

A geophysical survey (Licence No. 25R0152) was undertaken across the western portion of the proposed development site (Dowling, 2025). The survey, comprising high-resolution magnetometry, was carried out over an area of approximately 2.4 hectares; however, only c. 2 hectares was suitable for survey due to ground conditions. The results of the survey are presented in Section 12.4.5.1, and the full report is included in Appendix 12.2.

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12.3.4 ARCHAEOLOGICAL TESTING

Archaeological testing (Licence No. 25E0836) comprised the excavation of 22 machine-dug test trenches within the accessible western portion of the site. The eastern portion of the site will be subject to licensed archaeological monitoring during construction works. The results of the testing are presented in Section 12.4.5.2, and the full report is included in **Appendix 12.3**.

12.3.5 WALKOVER SURVEY

A walkover survey of the proposed development site was undertaken to assess topography, land use, visible archaeological or architectural features, and areas of archaeological potential. Observations from the survey informed the baseline description and impact assessment. The results of the walkover survey are presented in Section 12.4.5.3, and photographic records are provided in **Appendix 12.4**.

12.3.6 CONSULTATION

Consultation was undertaken with the Cork County Council Archaeologist regarding the scope of archaeological testing, the proposed monitoring strategy and mitigation measures.

12.3.7 IMPACT ASSESSMENT CRITERIA

The impact assessment presented in this chapter has been undertaken in accordance with the *Guidelines on the Information to be Contained in Environmental Impact Assessment Reports* (EPA, 2022).

Impacts on archaeological, architectural and cultural heritage were assessed having regard to:

- The nature, extent and sensitivity of the receiving environment;
- The type, scale and characteristics of the proposed development;
- The magnitude of potential impacts;
- The duration, frequency and reversibility of effects; and
- The potential for cumulative impacts in combination with other permitted or proposed developments.

Impact significance has been determined using the EPA (2022) criteria, which classify effects as imperceptible, slight, moderate, significant, or profound. Both direct and indirect impacts have been considered, including impacts on setting, character, and cultural landscape context.

Impacts are assessed in Section 12.6. Mitigation measures are given in Section 12.7. Residual impacts following mitigation are presented in Section 12.8.

12.4 DESCRIPTION OF EXISTING ENVIRONMENT (BASELINE ENVIRONMENT)

12.4.1 SITE DESCRIPTION

The proposed development site is located in the townlands of Coolfadda and Kilbrogan, parish of Kilbrogan, barony of Kinalmeaky, on the north-western outskirts of Bandon, Co. Cork (**Figure 12.1**). The site lies north of Convent Hill (L-2011) and east of Upper Convent Hill (L-2033).

The lands are currently undeveloped and form part of the semi-rural fringe of the existing built-up area. Within the red-line boundary, the site comprises two principal land parcels: improved grassland under pasture to the west, and scrub and rough grassland to the east. The western portion of the site was accessible at the time of survey and exhibited good ground visibility. No upstanding archaeological monuments or surface features were identified within this area.

The eastern portion was characterised by dense scrub, rough grassland and mature vegetation. This area was largely inaccessible at the time of inspection due to extensive overgrowth of gorse, briars and trees, resulting in severely restricted ground visibility. Consequently, a full visual inspection of this portion of the site was not possible. No structures are present within the site boundary.

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12.4.2 BASELINE ARCHAEOLOGICAL AND ARCHITECTURAL

The baseline cultural heritage assessment includes a review of recorded archaeological sites within a 1km Study Area in order to characterise the archaeological and historical context of the receiving environment and to inform an assessment of the archaeological potential of the proposed development site. This wider spatial review allows for an understanding of settlement patterns, land use and heritage trends within the surrounding landscape, which is necessary to evaluate the likelihood of previously unrecorded subsurface archaeological remains occurring within the site.

The architectural heritage assessment is more geographically focused and considers PS and ACA in proximity to the proposed development, including the Barretts Hill ACA and Christchurch ACA, together with the nearest NIAH-listed structures, primarily located along Convent Hill.

Potential indirect effects on the setting and visual context of nearby archaeological monuments are assessed as part of the Townscape and Visual Impact Assessment (TVIA) in the Landscape and Visual Impact Assessment (LVIA) (Chapter 7), which includes a Visual Assessment of Archaeological Monuments in accordance with the LRD Opinion. Similarly, potential effects on the setting, character or visual amenity of architectural heritage assets are addressed in the LVIA (Chapter 7), prepared by Purser and forming part of this EIAR.

Overall, the baseline assessment has been structured to proportionately reflect the nature and scale of the proposed development, with a wider archaeological Study Area informing assessment of archaeological potential, and a focused architectural heritage review undertaken where potential interactions may arise. The assessment concludes that no direct impacts on RMP sites, or PS or NIAH-listed structures are predicted.

12.4.3 HISTORICAL BACKGROUND AND LANDSCAPE CONTEXT

The proposed development site is located within an expanding suburban area of Bandon, c. 665m northwest of the northern extent of the historic 17th-century town (CO110-019001) (**Fig. 12.2**). Bandon (Irish: *Droichead na Bandan*, meaning “Bridge of the Bandon”) is a plantation town and its development is closely linked to the early 17th-century Munster Plantation following the Desmond Rebellions. Established in the early 1600s, the town developed as a planned settlement at a strategic crossing point on the River Bandon (Smith, 1750; Lewis, 1837). Its growth as a plantation centre and regional market town continued through the 17th to 19th centuries.

The River Bandon has been central to the town’s historical development, influencing its location, economy, and transport routes. The river facilitated trade, milling, and industry, and formed a defining element of the historic townscape and settlement pattern. The historic nucleus of the town was focused on the river crossing and principal street alignment. Historically, the proposed development site would have been part of the agricultural hinterland associated with the town.

The surrounding landscape reflects long-standing patterns of rural land use associated with agriculture and estate management. While Bandon’s urban core is plantation in origin, the wider landscape, including the townlands of Coolfadda and Kilbrogan, contains evidence of earlier activity, illustrating the continuity of settlement and land use in the area prior to the establishment of the town.

Table 12.1: RMP/SMR sites within a 1km radius of the proposed development site

RMP/SMR No.	Site Type	Townland	Approximate Distance from Development
CO096-064001	Church	Kilbrogan	730m to NE
CO096-064002	Graveyard	Kilbrogan	730m to NE

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RMP/SMR No.	Site Type	Townland	Approximate Distance from Development
CO096-102	Souterrain	Curryclogh	630m to NW
CO110-009	Fulacht fia	Curryclogh	925m to W
CO110-010	Standing stone	Curryclogh	600m to NW
CO110-011	Ringfort	Curryclogh	500m to W
CO110-013	Quarry	Coolfadda	945m to SW
CO110-019001	Historic town	Coolfadda, Gully	665m to SE
CO110-019003	Brewery	Gully	845m to S
CO110-019005	Graveyard	Gully	825m to S
CO110-019006	Church	Gully	825m to S
CO110-019007	Graveyard	Coolfadda	570m to SE
CO110-019008	Church	Coolfadda	600m to SE
CO110-019009	Bridge	Coolfadda, Gully	730m to SE
CO110-019010	Church	Cloghmacsimon	755m to SE
CO110-019011	Church	Knockbrogan	730m to SE
CO110-019013	Barracks	Coolfadda	425m to SE
CO110-019014	Town defences	Gully	725m to SE
CO110-019015	Earthwork	Coolfadda	585m to SE
CO110-020	Shambles	Coolfadda	415m to SE
CO110-021001	Church	Kilbrogan	75m to NE
CO110-021002	Holy well	Kilbrogan	75m to NE
CO110-021003	Holy well	Kilbrogan	65m to NE
CO110-024	Standing stone	Knockbrogan	880m to SE
CO110-025001	Brewery	Knockbrogan	1km to SE
CO110-025002	Gasworks	Cloghmacsimon	1km to SE
CO110-040	Burial ground	Gully	940m to S
CO110-082	Ringfort	Coolfadda	50m to W
CO110-091	Market cross	Coolfadda	520m to SE
CO110-092	Unclassified mill	Coolfadda	540m to SE
CO110-094	Prison	Coolfadda	700m to SE
CO110-095	Bridge	Coolfadda, Gully	725m to SE
CO110-096	Market house	Gully	750m to SE
CO110-097	Unclassified mill	Cloghmacsimon	900m to SE
CO110-098	Market house	Coolfadda	520m to SE

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RMP/SMR No.	Site Type	Townland	Approximate Distance from Development
CO110-099	Bridge	Coolfadda, Gully	600m to SE
CO110-100	Bridge	Gully	830m to SE
CO110-101	Bridge	Gully	840m to SE
CO110-110	17 th century house	Coolfadda	550m to SE

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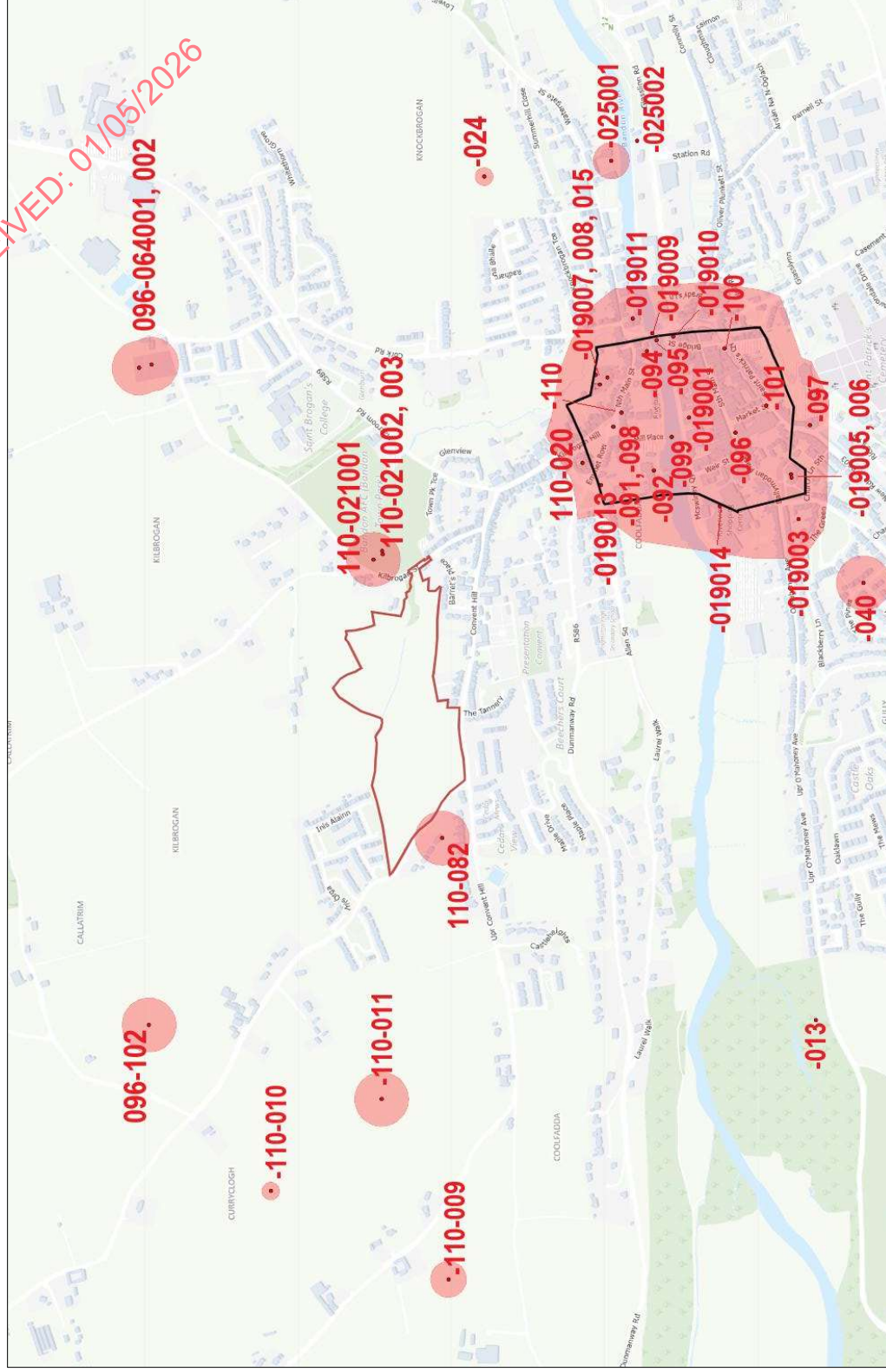


Figure 12.2: Proposed development site (outlined in red) showing RMP sites and their associated ZAP within a 1km Study Area. The line of the town wall is indicated in black within the ZAP for the historic town of Bandon (CO110-019001). Source: www.archaeology.ie

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12.4.3.2 Archaeological Period Overview

For clarity, Ireland's archaeological record is generally divided into the following broad periods:

- **Prehistoric:** Mesolithic (c. 8000–4000 BC), Neolithic (c. 4000–2400 BC), Chalcolithic (c. 2450–2200 BC), Bronze Age (c. 2200–700 BC), Iron Age (c. 700 BC–AD 400).
- **Medieval:** early medieval (5th–12th century), high medieval (12th–c. 1400), late medieval (c. 1400–16th century)
- **Post-medieval:** 17th century onwards

12.4.3.3 Prehistoric Period

The earliest evidence for human colonisation and settlement in County Cork can be dated to c. 8000 BC, the Mesolithic Period. People of this era were hunter-gatherers, entirely dependent on what food could be obtained through hunting, fishing and foraging, including edible plants, and shellfish. There are no sites of this period in the Study Area.

The transition of these early settlers from hunter/gatherers to a farming way of life in the Neolithic Period brought about more permanent settlements and a more complex and structured social hierarchy. The Neolithic period is particularly noted for the construction of megalithic tombs, reflecting increased social complexity and the growing importance of communal ritual activities. The Chalcolithic period, meaning the 'Copper and Stone Age' represents a transitional phase between the Neolithic and Bronze Age in Ireland. It is characterised by the gradual adoption of copper metallurgy prior to the widespread use of bronze. This period is often identified archaeologically by the widespread appearance of Beaker Ware, a distinct form of pottery associated with this cultural phase. There are no sites dating to this period in the Study Area.

The Irish Bronze Age is characterised by the widespread use of bronze, the emergence of distinctive pottery styles, changing burial traditions, and increasing population. Burial practices became simpler than the elaborate megalithic tombs of the Neolithic, though such tombs were sometimes reused. Most Bronze Age burials, whether cremations or inhumations, were placed in stone-lined cists or simple earth-cut pits, often accompanied by grave goods. Some were marked by stone cairns or earthen barrows. Many of these monuments are now visible only as ring-ditches in the archaeological record.

Evidence of prehistoric activity in the wider study area reflects long-term use of the landscape prior to historic settlement. Although many prehistoric sites are now levelled or survive only as sub-surface features, the recorded monuments in the vicinity demonstrate occupation and ritual activity in the surrounding hinterland. There are three recorded archaeological sites in the Study Area dating to the Bronze Age. These comprise a fulacht fia (CO110-009) in Curryclogh, 925m to the west and two standing stones, one in Curryclogh (CO110-010) and one in Knockbrogan (CO110-024), situated 600m and 880m, respectively, to the north-west and south-east of the proposed development site.

Fulachtaí fia are generally interpreted as prehistoric cooking sites, although they may have been used for any activity requiring large quantities of heated or boiling water. They are the most common type of prehistoric monument in Ireland and typically comprise a trough or pit, often lined with stone, wattle, or timber planks, into which heated stones were placed to raise the water temperature. These sites are frequently identifiable as horseshoe-shaped mounds of heat-shattered stone and are commonly located near streams or waterlogged ground. Radiocarbon dating indicates that the majority of fulachtaí fia date to the Middle to Late Bronze Age (c. 1500–500 BC). Following repeated use, burnt stone was removed from the trough and deposited nearby, gradually forming the characteristic crescent-shaped mound. While cooking and feasting is the most widely accepted use for these sites, alternative or additional uses may have included bathing, textile processing, tanning, brewing, fat extraction, or soap production, or a combination of these activities (Ó Drisceoil 1988; Monk 2007; Quinn & Moore 2007). Burnt mounds and spreads are often interpreted as the ploughed-out remains of fulachtaí fia. The fulacht fia in Curryclogh (CO110-009) was described as a low circular mound when it was inspected by the ASI in 1986 (Power *et al.* 1992).

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Standing stones have a broad date range in Ireland. They were erected in the landscape from the early prehistoric period, possibly as early as the Neolithic (*circa* 4000-2400 BC), through to the Bronze Age (2,400BC – 500BC), Iron Age (*circa* 500 BC to AD 400) and early medieval period (5th to the 12th century AD). Some can even date to more recent centuries when they were erected as cattle scratching posts. However, most standing stones probably date to the Bronze Age and many are found in association with stone circles and stone rows and share the NE-SW orientation that these monuments exhibit, as is the case with the Curryclogh stone (CO110-010) while the Knockbrogan stone (CO110-024) had an east-west orientation. Standing stones may have had a number of functions in the prehistoric landscape and these functions may have changed over time (O'Brien, 2012). They were often erected in prominent locations and may have marked routeways or tribal boundaries. Others may have marked burials or had a ceremonial or ritual purpose and some bear ogham inscriptions or Christian crosses. Excavation of standing stones has yielded differing results. At Killountain, west of Bandon, a small pit covered by a slab was found adjacent to a knocked down standing stone. The pit contained a cremation and was covered by a slab (O'Brien, 1993). A standing stone excavated in Ballynagrumbolia, SW of Cork city, revealed three pits containing charcoal and charred bone as well as a line of post holes and pits extending southwest from the stone (O'Brien, 1996). At Moneyreague, NW of Dunmanway, a standing stone was excavated and revealed three pits and the stone socket. One of the pits contained a deposit of cremated bone and charcoal. The remains were dated 1387-1129 BC (O'Brien, 2002).

12.4.3.4 Early Medieval Period

A number of archaeological sites in the Study Area date to the early medieval period (5th–12th centuries AD). This period is characterised by the introduction of Christianity to Ireland from the late 4th century onwards, becoming widely established by the second half of the 6th century AD. The most characteristic monument types of this period are ringforts and souterrains, which represent the dominant settlement and defensive features within the rural landscape.

Ringforts (also known as raths, lios, cathair or caiseal/cashel) are defended farmsteads and typically date to the principal phase of early medieval occupation between the 7th and 9th centuries AD. They are generally circular or oval in plan and are defined by an earthen bank with an external ditch or fosse. Larger examples with double (bi-vallate) or triple (tri-vallate) defences are commonly interpreted as higher-status sites and are sometimes associated with specialised craft activity. Excavation of ringforts frequently reveals the sub-surface remains of circular dwellings, associated outbuildings, corn-drying kilns and, in some cases, external structures.

Some ringforts contain associated souterrains—underground chambers connected by narrow creepways—which may have functioned as defensive refuges and/or storage areas. Souterrains also occur independently of ringforts and are generally earth- or rock-cut structures comprising one or more chambers. The term souterrain derives from the French *sous terre* (“under earth”), while in contemporary Irish they were likely known as *uam* (*uaimh* in modern Irish) or *óin*. On historic cartographic sources, souterrains are often recorded as “caves” (Power *et al.*, 1992; Clinton 2001).

Recent large-scale archaeological investigations in County Cork, particularly in association with road infrastructure projects, have demonstrated a broader diversity of early medieval settlement types than previously recognised. These include unenclosed farmsteads, suggesting a more complex and varied settlement pattern and challenging earlier assumptions regarding the dominance of ringforts as the primary settlement form (Monk, 2019).

The closest recorded monument to the proposed development is a ringfort (CO110-082) located in Coolfadda, approximately 50m to the west. Ó Riordáin (1933, 19) described this monument as being located “in Buckley’s, the ring in the surface of the field plainly marks the position of the lios”, with a diameter of approximately 30 yards. A modern dwelling and garden now occupy the site of this ringfort.

A second ringfort (CO110-011) and a souterrain (CO096-102) are located in the townland of Curryclogh. These monuments also date to the early medieval period and form part of the wider historic

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settlement landscape in the area. The Curryclogh souterrain occurs independently of a ringfort, illustrating the variable forms and functions of subterranean structures during this period.

12.4.3.5 Medieval and Post Medieval Period

The later medieval and post-medieval archaeological record in the Study Area is closely associated with the historical development of Bandon and its surrounding hinterland. This record comprises a range of ecclesiastical, urban, industrial, defensive, and infrastructural sites reflecting Bandon's origins as a planned plantation settlement and its subsequent evolution as a commercial and industrial centre from the 17th century onwards.

Ecclesiastical Sites

The closest religious site to the proposed development is the reputed site of the monastery of Kilbrogan (CO110-021001). According to Ó Ríordáin (1932, 98), a mound immediately north of the associated holy wells is locally believed to mark the site of the "monastery of Kilbrogan"; however Power *et al.* (1992) found no surface remains. The site lies in a greenfield area to the west of Bandon AFC.

There are two holy wells nearby - CO110-021002 and CO110-021003. These comprise two oval, stone-lined wells set into a natural slope approximately 7m apart. One (CO110-021002) incorporates additional stone facing to the sides and rear, while the other (CO110-021003), traditionally known as St Brigid's Well, is associated in local tradition with cures for sore eyes (*ibid.*; Ó Ríordáin 1932, 99).

There are a number of historic churches and graveyards dating to the medieval and post-medieval periods in the Study Area. Kilbrogan Church (CO096-064001) and its associated graveyard (CO096-064002) are situated approximately 730m to the north-east. The church is a Protected Structure (PS 621) and is described in the NIAH as a large Roman Catholic church dating to c. 1780, now ruinous, and set within an enclosed graveyard containing numerous carved memorials of artistic and historical interest.

The church and graveyard in Coolfadda (CO110-019008 and CO110-019007; PS 701), located c. 600 m to the south-east, are of national significance. Described in the NIAH (Reg. 20844035) as a cruciform-plan Church of Ireland church built c. 1610, the building occupies the site of Carew's Old Fort and represents the oldest post-Reformation church in Ireland. Later alterations include the addition of a tower and spire in 1856. Deconsecrated in 1973, the building now functions as the West Cork Heritage Centre.

Other ecclesiastical sites in the Study Area include the church and graveyard in Gully (CO110-019006 and CO110-019005), the church in Cloghmácsimon (CO110-019010), and the church in Knockbrogan (CO110-019011). The Knockbrogan church (PS 951), a former Presbyterian church dating to 1847, occupies a prominent riverside location and retains elements of its original neo-medieval architectural character despite later conversion.

Urban, Defensive and Civic Heritage

The historic town of Bandon (CO110-019001), including the Coolfadda and Gully areas, lies approximately 665m to the south-east of the proposed development site. Bandon developed in the early 17th century as a fortified plantation town, strategically located at a fording point on the River Bandon and extending across both riverbanks. By 1622 it was one of the largest plantation towns in Ireland, with an estimated population of c. 1,000 inhabitants and approximately 250 houses (O'Flanagan 1988; Zajac *et al.* 1995).

The town walls, constructed under the direction of the Earl of Cork between 1620 and 1627, enclosed a sub-rectangular area of approximately 6.5ha north of the Bandon River and 10ha to the south. Although much of the defensive circuit has been lost, sections of the wall survive as property boundaries, particularly along the southern edge of the town, where a substantial flat-topped wall

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partially encloses St Peter's Church and graveyard. No riverside wall is recorded; instead, defences incorporated floodgates, timber palisades and natural water barriers formed by the river and its tributaries (Zajac *et al.* 1995).

Historical sources record up to eleven towers along the wall circuit, though their precise locations are largely unknown. One circular tower base survives submerged near the north bank of the river, and the former locations of the town gates may be reflected in street names such as Watergate Street and Castle Street. The town walls and associated fortifications were reportedly destroyed during Jacobite actions in 1689, although earlier disturbances, including the rebellion of 1641, caused little physical damage to the town fabric (*ibid.*). The approximate extent of the walled town and the surviving or inferred line of the defences, as identified through later mapping and surveys, is illustrated in **Figure 12.3**.

The Urban Archaeological Survey Constraint Map (**Fig. 12.4**) further defines the extent of the 17th-century town, indicating the Zone of Archaeological Potential (ZAP), the recorded and suspected line of the town wall, and associated tower locations. The proposed development site is located approximately 600m to the north-west of the Shambles (CO110-020) and western line of the town wall, and lies outside both the enclosed 17th-century settlement and its defined ZAP. While the historic development of Bandon provides important contextual background, no direct physical association with the town defences or early urban fabric is anticipated.

Surviving post-medieval urban features within the Study Area include town defences in Gully (CO110-019014), a former barracks (CO110-019013), a prison in Coolfadda (CO110-094), a shambles (CO110-020), market houses in Coolfadda and Gully (CO110-098; CO110-096), and a market cross in Coolfadda (CO110-091). Several of these structures are designated Protected Structures, reflecting their architectural and historical importance.

Industrial and Infrastructural Heritage

Industrial heritage sites illustrate the importance of manufacturing, energy and transport to Bandon's development from the 17th century onwards. These include former breweries in Gully and Knockbrogan (CO110-019003; CO110-025001), a gasworks in Cloghmacsimon (CO110-025002), and a number of mills in Coolfadda and Cloghmacsimon (CO110-092; CO110-097), generally located between c. 540m and 1km from the proposed development site. Historic bridges spanning the River Bandon and its tributaries (CO110-019009; CO110-095; CO110-099; CO110-100; CO110-101) further illustrate the development of transport infrastructure associated with the town's growth.

Additional post-medieval rural features include a quarry in Coolfadda (CO110-013), located c. 945m to the south-west, and a 17th-century house in Coolfadda (CO110-110), c. 550m to the south-east, demonstrating the mixed urban, industrial and agricultural character of the post-medieval landscape in the area of the proposed development site.

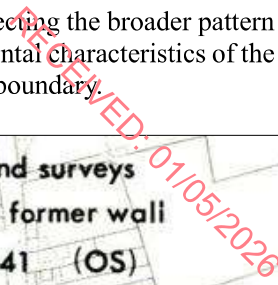
12.4.3.6 Archaeological Landscape Character and Potential

The proposed development site is located within lands that historically formed part of the agricultural hinterland of Bandon. The surrounding 1km Study Area contains a dispersed but varied pattern of recorded archaeological sites, including fulachtaí fia, ringforts, ecclesiastical sites, urban settlement features, defensive elements and post-medieval industrial infrastructure. These sites indicate sustained activity and land use from the prehistoric period through to the post-medieval period.

Although no RMP sites are located within the site boundary, the density and range of archaeological sites within the Study Area, together with the site's topographical position on productive agricultural land in proximity to the River Bandon and associated historic routeways, indicate potential for previously unrecorded subsurface archaeological remains.

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41 (OS)

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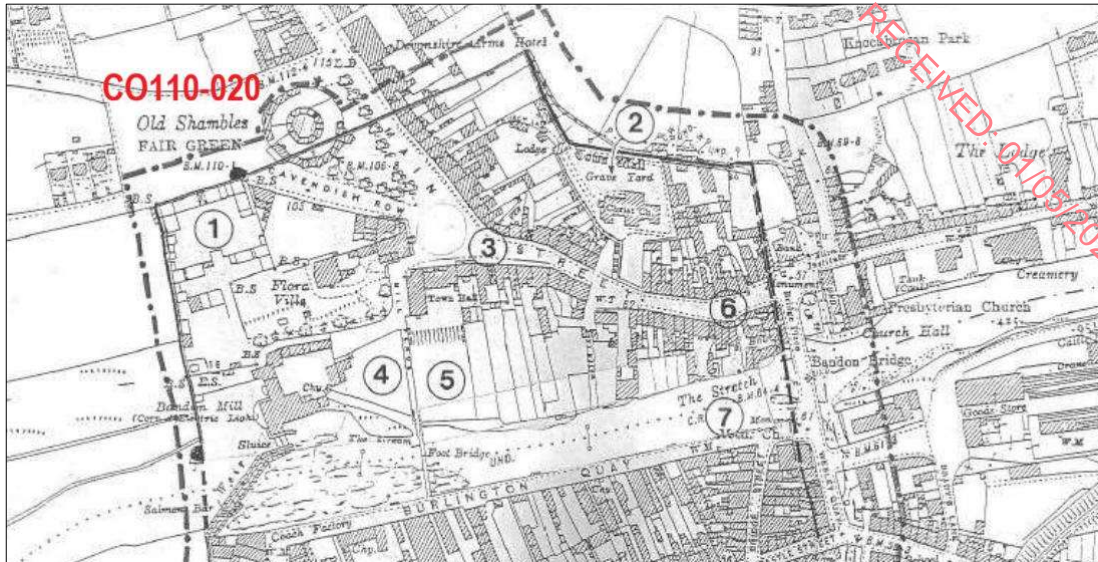


Figure 12.4: Urban Archaeological Survey of County Cork – Bandon. Northern sector of the former 17th-century walled town showing the recorded line of the town wall (continuous black line) and the suspected line of the wall (broken black line). Source: Zajac et al. 1995.

12.4.4 ARCHAEOLOGICAL INVESTIGATIONS

12.4.4.1 Geophysical Survey

A geophysical survey (Licence 25R0152) was undertaken across the western portion of the proposed development site (**Fig. 12.5**). Ground conditions in the eastern portion were unsuitable for survey due to dense overgrowth. The full Geophysical Survey Report is provided in **Appendix 12.2; Volume 3**.

The geophysical investigation did not identify any anomalies of clear archaeological significance. A small number of isolated ‘pit-type’ responses were recorded; however, their interpretation was considered tentative. These responses were thought to represent minor archaeological features such as small pits or deposits, but may equally reflect buried modern debris, ploughsoil accumulations, or natural soil variation.

Several former field boundaries corresponding with historic mapping were discernible within the dataset, together with evidence of possible former land divisions. Extensive signatures consistent with past cultivation were also identified.

Overall, the geophysical results indicated an agricultural landscape with limited evidence for substantial archaeological remains.

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Figure 12.5: Geophysical Interpretation of the western portion of the proposed development site, showing principal anomalies: Anomalies coloured blue represent isolated ‘pit-type’ responses. Source: Dowling, 2025.

12.4.5.2 Archaeological Testing

Archaeological testing was carried out on the western field of the proposed development site on 10th and 11th February 2026 under Licence No. 25E0836, following consultation with the County Archaeologist. Weather conditions were mixed but generally wet. A total of 22 trenches were mechanically excavated, each measuring 2.2m in width (**Fig. 12.6**). The testing programme targeted anomalies identified during the preceding geophysical survey and provided representative coverage across the western portion of the site. The full Archaeological Testing Report is provided in **Appendix 12.3; Volume 3**.

Results

Two small spreads of fulacht fia material were identified in Trenches 1 and 2 at the northern end of the field adjacent to the stream. The deposits comprised mixed grey-brown, charcoal-rich clay containing quantities of heat-fractured and fire-cracked stone. The material occurred in discrete pockets at the eastern ends of both trenches and corresponded spatially with a pit-type anomaly identified during the preceding geophysical survey (Dowling 2025).

No intact *in situ* trough was identified within the tested areas. On the basis of stratigraphic context and association with drainage features, the material was interpreted as truncated and possibly redeposited fulacht fiadh remains, potentially disturbed during later drainage or stream modification works along the northern boundary.

A former NW-SE field boundary depicted on the First Edition OS six-inch map (1842) and identified during the geophysical survey, was confirmed in the trenches. Numerous agricultural furrows, also identified geophysically, were revealed during testing.

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Aside from the fulacht fia material adjacent to the stream, no other features or finds of archaeological significance were identified during testing.

Stratigraphy

Topsoil across the site was relatively deep, generally measuring approximately 0.30m and increasing locally to 0.36m, except in the extreme south-east where it averaged approximately 0.25m. The underlying subsoil comprised predominantly light brown-orange loamy clay with occasional stone in the northern field, becoming more stony toward the south. Broken angular bedrock was exposed in Trenches 10 to 15 in the central field. Occasional burnt roots and several modern drainage features were recorded.

Design Response and Embedded Protection

The stream corridor forms part of a designated riparian buffer within the proposed development layout. This buffer follows the natural watercourse and has been incorporated into the design to protect water quality, maintain biodiversity and preserve ecological integrity.

The area in which fulacht fia material was identified has been excluded from development and retained *in situ* within a minimum 10m buffer zone measured from the outer edge of the archaeological deposits. Given their proximity, these areas are incorporated within a single consolidated protected zone within the riparian corridor.

Retention within this undeveloped green buffer forms part of the project's embedded design approach and ensures that the surviving archaeological deposits will not be subject to ground disturbance. The preservation of the material within its riverine setting maintains its archaeological and landscape context (**Figs. 12.7 and 12.8**).

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Figure 12.6: Archaeological Test Trenches 1-22 (excavated by Purcell, 2026) overlaid on geophysical interpretation results (Nicholls, 2025). Areas of fulacht fia material indicated in black in Trenches 1 and 2.

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Figure 12.7: Proposed Development Layout showing the area where fulachtai fia material has been identified.
Source: MMOS Consultant Civil & Structural Engineers

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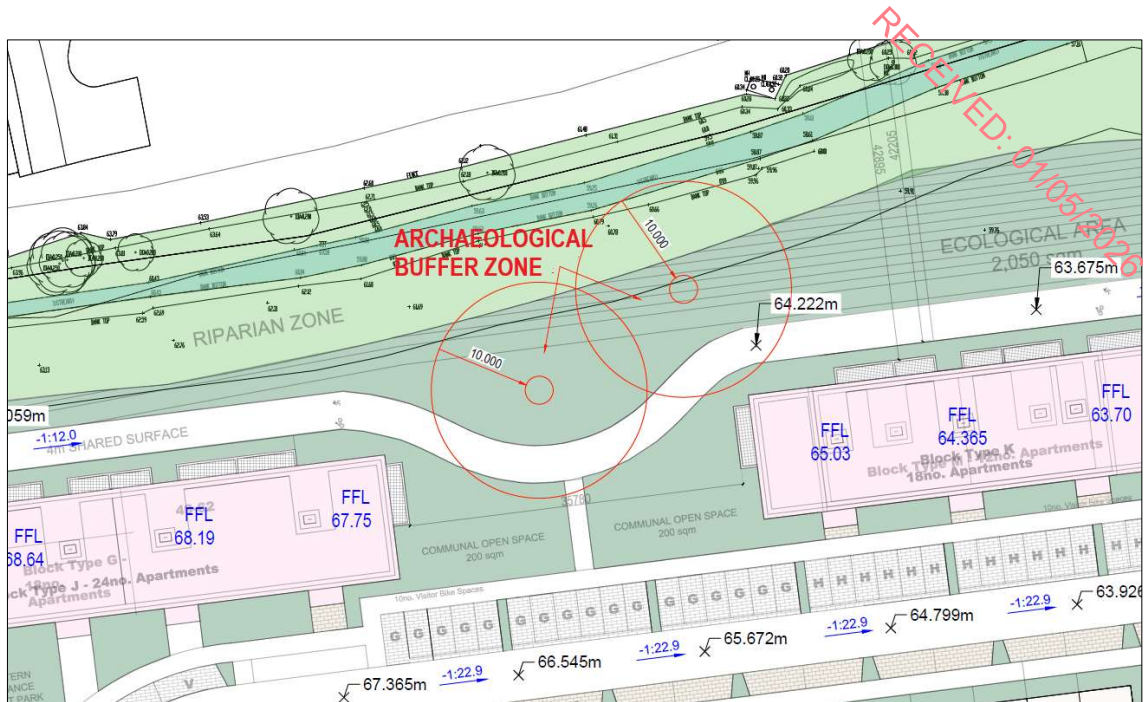


Figure 12.8: Enlarged section of the proposed development layout showing the archaeological buffer zones established around identified fulachtaí fia material.

Source: MMOS Consultant Civil & Structural Engineers

12.4.5.3 Walkover Survey

A walkover survey of the proposed development site at Coolfadda and Kilbrogan townlands was undertaken in February 2026 as part of the baseline archaeological assessment.

The western portion of the site comprised improved grassland under pasture, with good ground visibility at the time of inspection. No surface archaeological features, earthworks, artefact scatters or upstanding remains were identified in this area.

An unnamed stream runs broadly west-east through the northern portion of the site and forms the historic townland boundary between Coolfadda and Kilbrogan, as depicted on the First Edition OS six-inch map (1842) and subsequent mapping. At the time of inspection, the watercourse was observed along the western side of the site as an open channel approximately 1–1.5m wide, with active flow over a gravel and cobble bed. The banks are moderately steep and vegetated, with dense riparian growth comprising trees, scrub and rank grasses. The alignment of the watercourse corresponds with that shown on historic mapping, confirming its continuity as a landscape boundary feature.

In the eastern portion of the site, the stream corridor and adjoining lands were heavily overgrown with dense scrub, briars and mature vegetation and were not accessible due to extensive overgrowth. While the approximate alignment of the watercourse could be inferred from topography and vegetation patterns, full inspection of the channel and its banks was not possible in this area. No archaeological features were visible within the accessible sections of the stream corridor.

The eastern portion of the site more generally was characterised by dense scrub and rough grassland and was largely impenetrable at the time of inspection. Ground visibility was severely restricted and a comprehensive visual inspection of this area was not possible.

Extensive ground disturbance is evident in the eastern portion of the site on OS aerial imagery (MapGenie 2011–2013) (**Fig. 12.9**), including areas of apparent topsoil stripping, regrading and soil

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deposition. Planning records indicate that permission was granted in 2005 (Ref. 054559) for a residential development in this area (Cork County Council, 2026). Although the permitted development was not completed, and a subsequent application for extension of duration was refused in 2012 (Ref. 116604), the disturbance visible on the 2011–2013 imagery is likely to relate to site preparation works associated with that earlier scheme.

More recent satellite imagery (Google Maps, 2026) demonstrates substantial regeneration of scrub and vegetation across this disturbed area (**Fig. 12.10**), which now renders much of the eastern portion, including sections of the stream corridor, largely inaccessible and prevents full visual inspection. Photographs taken during the walkover survey are included in **Appendix 12.4**.



Figure 12.9: Proposed development site (red-line boundary) shown on OS aerial imagery (MapGenie 2011–2013), illustrating extensive ground disturbance within the eastern portion of the site. Source: www.archaeology.ie.



Figure 12.10: Proposed development site (red-line boundary) shown on Google Maps satellite imagery (2026), illustrating subsequent regeneration of dense scrub within the eastern portion of the site. Source: Google Maps.

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12.4.5.4 Excavations Database

No previous licensed archaeological investigations are recorded on the proposed development site. A search of the Excavations Database and other relevant sources identified a number of licensed archaeological investigations in the surrounding area, principally in the townlands of Coolfadda and Kilbrogan. These investigations are summarised in **Table 12.2**.

Excavations.ie Reference	Location	Details
1986:087	Coolfadda	No report issued
2004:282	Kilbrogan	Three test-trenches were excavated across the site at Kilbrogan, Bandon, in advance of development. No features or finds of archaeological significance were revealed (Purcell, 2004).
2006:272	Kilbrogan Hill	Test-trenching was carried out at a proposed development site located on Kilbrogan Hill on the north side of Bandon town. The proposed development will involve the construction of three houses in an enclosed yard located 25m inside the projected course of the eastern line of the 17th-century town wall. The consulted cartographic sources indicated that the development site was an open area to the rear of a tanner's yard in the 18th century and was enclosed by boundary walls during the 19th century. Five test-trenches were excavated across the areas to be impacted on by the proposed housing development. The stratigraphy consisted of a modern overburden layer sealing three distinct soil layers containing frequent inclusions of rubble, animal bones, 18th/19th-century pottery and ceramic drain fragments. The natural boulder clay was encountered between 0.95–1.25m below modern ground level and there were no archaeological features or finds uncovered during investigations at this site (Cummins, 2006).
2007:216	Mill Place, Coolfadda	Five test-trenches were excavated in advance of a proposed development at the site of a cornmill (CO110–019) on the north bank of the River Bandon in the north-west quadrant of Bandon town. The projected line of the 17th-century town wall runs immediately outside the western boundary of the development site. The town wall and its associated fortifications were partially demolished in 1689 and there are no surviving surface remains in the vicinity of the development site. There are historical references to milling at this site from the 17th century onwards and the site was extensively redeveloped in the 19th/20th centuries. The mill buildings were burned down in 1968 and the site was subsequently cleared and used as a County Council depot until recent years. The western half of the development site was reclaimed from the river after the mill was burned down. The stratigraphy encountered in the reclaimed western half of the site consisted of thick deposits of backfilled rubble and soil containing frequent inclusions of modern materials, such as scrap metal, plastics, bottles and concrete slabs. These backfilled reclamation deposits directly overlay the natural glacial till, which was encountered at a depth of 2m below modern ground levels. There were no traces of the town wall encountered in this area of the site. Test-trenching in the area of the former mill building exposed the fragmented remains of concrete slab floors associated with modern upgrading works in the mill. The concrete floors sealed a 19th/20th-century rubble deposit and this overlay the natural glacial till, which was encountered at a depth of 1.4m below modern ground level. There were no archaeological features or finds recorded during test-trenching at this site (Cummins, 2007).
2016:631	Gully, Coolfadda	The Office of Public Works is undertaking a major flood alleviation scheme in the west Cork town of Bandon – Bandon Flood Relief Scheme. The works

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		for the scheme are two-fold, involving works 1) in the River Bandon from the centre of the historic town to 3.6km to the east and 2) on dry land in the historic town centre and its environs. Ministerial Consent C578 was granted for archaeological works within the Zone of Archaeological Potential in the town of Bandon, under excavation licence (E4481). Work is ongoing. Bandon town is situated on the north and south banks of the Bandon River in West Cork and developed during the early years of the 17th century. It was built on lands confiscated following the Desmond Rebellion of the late 16th century and was the most important town of the early Munster Plantation. A bridge very probably existed on the site of the town of Bandon given that its Irish name was Droichead Uí Mhallahamhna, also referred to as Mahon Bridge. The town developed on either side of the river, the area of the north side being known as Coolfadda. The two areas were joined by a bridge. The walls enclosing the town were built by the 1620s when the town was under the control of the Earl of Cork. By 1622 it was one of the largest plantation towns in Ireland. Archaeological work commenced on the scheme at the beginning of September, 2016 and comprised monitoring, testing and architectural recording. Bandos historic mill on the north bank of the river was one of its main features in the 17th century. Monitoring took place at Mill Place where an east-west revetment pile wall is to be built as part of the flood defence scheme. Engineers' trial pits were monitored here in September 2016 and revealed that the ground in this area, currently the recreation area of the Cluid building, was reclaimed from the river and built up with infill. A north-south revetment pile wall was also proposed to run north-south at Mill Place to the west of the Cluid building. This new wall was positioned very close to the west line of the 17th-century town wall and hand digging in this area was recommended by NMS. It was decided to test the trench in advance to locate any features related to the town wall. Testing revealed a stone wall abutting the town wall which was found to be part of a 19th-century revetment wall predating the reclamation of the area. On the south side of the river, opposite Mill Place is McSwiney Quay. Here, a portion of the quay wall was to be removed to accommodate a new footbridge as part of the scheme. An arched culvert was present on McSwiney Quay at the point of the abutment for the new footbridge and probably dated to the late 18th century. Survey and investigation of the McSwiney Quay culvert took place on 9 September. While it was not possible to dismantle and enter the culvert for safety reasons, the culvert was partly opened and examined from photographs taken of its interior. The face of the culvert and adjacent quay wall to the west was drawn at 1:20 scale. The culvert was subsequently opened and investigated from the road in November 2016 when it was located during monitoring during digging for new drainage pipes. Monitoring and metal detecting took place on Brady's lane and other areas of the scheme within the Zone of Archaeological potential. Though post-medieval pottery, glass and pipe stems came to light, there were no metal finds apart from debris. The archaeological work on the scheme continues (Carroll, 2016).
2016:627		A non-intrusive dive survey took place around Bandon Town Weir for a new fish pass to be constructed, and dredging of the River Bandon downstream for the Bandon Flood Relief Scheme. Feature 2 is dry stone walling on the river bank and is a revetment wall that also acts as a field boundary dating from the late 18th century. It is found on the north side of the river. Opposite the island (F5) the stone walling of Feature 2 continues until reaching the town wall. Feature 4, a stone wall, is on the south bank of the river extending 20m west of the town wall. The

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		western side of the wall has been further reinforced with 20th-century concrete. It may have been a quay for boats upstream of the river. Feature 5 is the island on the north side of the river to the west of the weir. This is marked as a tower on Bernard Scalé's 1775 map of Bandon. It has dry-stone walling on its southern, northern and western sides. The walling is 1.8m high above the river bed and disappears into soil for 0.6m until the top of the island cliff. Apart from the middle of the island, where the town wall crosses the island north to south, there is no evidence of walling on top of the island but a deep soil has built up from the vegetation obscuring any features. The town wall on the north side of the island has protruding slabs under the waterline, which may relate to the steps marked beside a round tower on the Hardiman 1620 map. The survey revealed three 'steps' visible below the waterline. They are 500mm long and there is a gap of 400mm between each step. They protrude from the wall into the river for 300mm. Feature 6, Bandon Weir, extends from the town wall on the southern side to a hydroelectric turbine near the north bank. The weir is made of vertically set stones averaging 400mm by 200mm in size. The southern side has the concrete fish pass with an iron grate on the upstream side. The remains of the salmon bar (F9) can clearly be seen immediately north of the concrete fish pass. This is referred to locally as the 'Queen Anne fish pass' dating it to the early 18th century. In profile the weir has vertical sides and a downstream sloping upper surface. Pebbles and gravel concrete repair on the upstream and downstream sides of the weir has led to some parts on the upstream side having a concrete ledge. An iron rectangular peg was recorded placed vertically on the north side of the weir near the turbine intake. It is 130mm by 30mm by 30mm and snapped off at the top. It is a construction peg associated with the weir and lies 53m from the fish pass. A second rectangular peg is placed 7m from the fish pass into the river bed on the upstream side of the weir. It is the same shape but has corroded. A hammer-forged gate latch was found on the riverbed upstream of the weir (0.5m west from the weir and 23m from the modern concrete fish pass). This may have come from the heavy iron gate that was supposed to have guarded the river entrance to the town. Feature 7 is the wall downstream of the weir and upstream of the early 20th-century footbridge. It is built on a bedrock island. On the eastern end of the wall, Feature 7 is thin shuttering concrete (similar to that in F4) with bands of mixing that are probably 20th century in date. Within the wall is an older wall made of limestone blocks. This wall section is 2.9m long and 0.7m wide. The old wall corresponds with the steps at MacSweeney Quay. The old wall was probably a quay for boats taking goods and materials to and from Bandon with the later concrete structure associated with 20th-century fishermen taking advantage of salmon gathering below the weir. The location of the older wall close to the steps of MacSweeney Quay and the tan yard, fish store and Scott's Factory, present nearby in the town in the 19th century, indicate that many industries would have been using water transport. 'The Stream' is shown flowing past this wall in the 19th-century OS maps indicating a deeper navigable channel was previously here (Pollard, E. Carroll, J. 2016).
2016: 621		Test trenching was undertaken within a vacant riverside plot in order to comply with planning requirements for a new commercial building. This revealed a mixed layer of demolition rubble, with 19th- and 20th-century inclusions, above natural subsoil and nothing of archaeological significance

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		was identified. This layer appeared to be a combination of rubble from a previous house on the site subsequently augmented with additional material introduced to raise the ground surface above flood levels. The proposed new building will sit on a 1m deep layer of new fill material to be introduced across the site as a flood prevention measure and the raft foundations will not extend down into existing ground surface (Cummins, 2016).
2022:011	Coolfadda	A programme of archaeological testing consisting of the excavation of 14 linear trenches, was conducted on 2 and 3 February 2022. Some of these trenches were designed to target geophysical anomalies identified during a previous survey (licence 21R0075) carried out in May 2021. A number of these anomalies were located and investigated within the trenches, however, none of them has proven to be of an archaeological nature. Overall, the trenches contained evidence of certain disturbance caused by intense agricultural activity (furrows and drains), as well as stone quarrying. No features, or deposits of archaeological consequence were observed within the trenches during this programme (Hindli, 2022).
2025:116	Coolfadda	Archaeological monitoring of topsoil removal was undertaken at a site in Coolfadda, Bandon, County Cork; this involved the reduction of topsoil down to the upper levels of the underlying natural subsoil across the site. Nothing of archaeological significance was revealed during the topsoil stripping works (Looney, 2025).
2025:354	Coolfadda	Archaeological testing at the site at Coolfadda was carried out on 22 and 23 September 2025. Twelve test trenches with a total length of 705m were excavated within the field. Natural subsoil and bedrock were found between 0.01m and 0.55m below surface level. Test trenches included those that were placed to target anomalies identified from a geophysical survey; these were found to relate to areas of root burning and drainage. Field boundaries that were depicted on the historic OS maps were identified and investigated; these were shallow due to the bedrock in the area, which was generally close to the surface. Agricultural furrows running parallel to these field boundaries were identified in most of the trenches; these had been identified from the geophysical survey. Nothing of archaeological significance was identified during the testing programme (Looney, 2025).
2025:355	Coolfadda	Archaeological test trenching at the site at Coolfadda, Bandon, County Cork was carried out on 24 and 25 September 2025. The testing was undertaken following a programme of geophysical survey. Ten test trenches with a total length of 490m were excavated within the site. Natural subsoil and shale were found between 0.1m and 0.65m below the surface level. Test trenches included those that were placed to target anomalies identified from a geophysical survey that had been carried out in the north-western part of the site (25R0168), but none of those were found to represent archaeological features. A range of linear features was identified within the trenches, as had been seen from the geophysical survey; a sample of these were manually investigated and all were found to be of a similar profile consistent with agricultural furrows; material found within these linear features confirmed them to be modern. Nothing of archaeological significance was identified during the testing programme (Looney, 2025).

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12.4.5 ARCHITECTURAL HERITAGE OF THE STUDY AREA

Architectural heritage comprises buildings, structures and built features of historical, social or architectural interest. This includes PS, ACA, NIAH-listed buildings, and vernacular or historic buildings that contribute to local character, streetscape and townscape value.

12.4.5.1 PS and NIAH-Listed Buildings

A review of the RPS contained in the CCDP, together with the NIAH, confirms that there are no PS, ACA or NIAH-listed buildings on the proposed development site.

There are a number of PS, ACA and NIAH-listed structures in the wider Bandon area and these contribute to the architectural and historic character of the receiving environment (**Figs. 12.11 and 12.12**). These are described below for baseline contextual purposes only, as no direct or indirect physical impacts on architectural heritage are proposed.

Barretts Hill ACA

The nearest ACA is Barretts Hill ACA, located to the south-east. This area comprises a coherent grouping of ecclesiastical, institutional and residential buildings dating from the late 18th to early 20th centuries. Key Protected Structures include:

- Kilbrogan Roman Catholic Chapel (PS No. 621; NIAH 20909620), c. 1780, approx. 530m north-east.
- Kilbrogan House (RPS No. 976; NIAH 20844023), c. 1818, approx. 250m south-east.
- The Retreat Country House (PS No. 954), c. 1860, approx. 340m south.
- Ball Alley (PS No. 955), shown on OS 25-inch mapping (1897–1903), approx. 370m south.
- Hamilton High School (PS No. 962; NIAH 20844016–20844019), c. 1810, approx. 380m south.

The closest PS is Kilbrogan House (PS No. 976), located on Kilbrogan Hill. This five-bay, three-storey townhouse dates to c. 1818 and retains significant historic fabric, including a slate roof, timber sash windows and decorative iron railings. The structure is identified on the NIAH as being of architectural and historical interest and forms part of the historic streetscape character of the Barretts Hill area.

The Convent Hill cluster (approx. 85–200m south and south-east) comprises a group of NIAH-listed structures of regional significance, including:

- Presentation Convent (NIAH 20844003; 1829)
- Presentation Convent Chapel (NIAH 20844001; c. 1860)
- Associated post box and terraces of 19th–early 20th-century houses (NIAH 20844002; 20844004–20844011; 20844020–20844021)

Together, these illustrate the institutional and residential expansion of this part of Bandon during the 18th and 19th centuries.

Christchurch ACA

To the south-east lies Christchurch ACA, which contains several structures of regional and national importance, including:

- Christ Church (PS No. 701; NIAH 20844035), originally dated c. 1610 with later additions (tower and spire added 1856) – National rating – approximately 570m to the south-east.
- Bandon Court House (PS No. 943; NIAH 20844202), dated 1806 – approximately 500m to the south-east.
- Bandon Town Hall (PS No. 942; NIAH 20844201), dated 1862 – approximately 560m to the south-east.
- Old Shambles (PS No. 700; NIAH 20844206), built 1817 – approximately 400m to the south.
- Associated gates, railings and boundary features (PS No. 1368).

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These structures collectively reflect the civic, ecclesiastical and commercial development of Bandon from the 17th to 19th centuries.

Further to the south-east lies South Main Street ACA, which includes Bandon Bridge (PS No. 952; NIAH 20844063), dated 1773, located approximately 730m from the proposed development site.

Other NIAH-Listed Structures

Additional NIAH-listed structures of regional importance are located within the wider study area but outside any ACA, including:

- Mount Grellan House (NIAH 20911037; built 1813)
- Mount Grellan Gate Lodge (NIAH 20911035; dated c. 1815)
- Sun View, Curryclogh (NIAH 20911011; dated c. 1880)

These are located between approximately 410m and 530m from the development site boundary.

Summary

There are no PS, ACA or NIAH-listed buildings within the footprint of the proposed development. The nearest architectural heritage assets comprise the Convent Hill cluster of NIAH-listed structures (c. 85–200m distant) within Barretts Hill ACA, together with Kilbrogan House (PS No. 976) located approximately 250m to the south-east, on Kilbrogan Hill.

All identified architectural heritage assets lie outside the proposed development boundary and are separated from the proposed works by intervening development, road infrastructure and changes in level. Architectural heritage considerations therefore relate to potential indirect effects on setting, character and townscape context only. These matters are assessed separately within the Townscape and Visual Impact Assessment (TVIA) in Chapter 7 (LVIA).

Table 12.3: PS/NIAH sites in the Study Area site.

PS	ACA	NIAH	Name	Townland	Rating	Approx. Distance from development
621	None	20909620	Kilbrogan RC Chapel – dated c. 1780	Kilbrogan	None	530m to NE
976	Barretts Hill ACA	20844023	3-storey townhouse– Kilbrogan House – dated c.1818	Coolfadda	Regional	250m to SE
None	Barretts Hill ACA	20844022	House – 21-22 Kilbrogan Hill	Coolfadda	Regional	270m to SE
954	Barretts Hill ACA	20911012	The Retreat Country House – dated c. 1860	Coolfadda	Regional	340m to S
955	Barretts Hill ACA	None	Ball Alley – depicted on OS 25-inch map 1897-1903	Coolfadda	None	370m to S
962	Barretts Hill ACA	20844016 20844017 20844018 20844019	Hamilton High School (main building and associated ranges) – built c. 1810 former terrace of four houses	Coolfadda	Regional	380m to S

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PS	ACA	NIAH	Name	Townland	Rating	Approx. Distance from development
700	Christchurch ACA	20844206	Old Shambles – built 1817 – now in use as apartments and retail units	Coolfadda	Regional	400m to S
701	Christchurch ACA	20844035	Christ Church – now West Cork Heritage Centre – dated c. 1610 with later additions and alterations (tower and spire added in 1856)	Coolfadda	National	570m to SE
1368	Christchurch ACA	20844034	Gates/railings/walls of Christ Church – dated c. 1860	Coolfadda	Regional	580m to SE
943	Christchurch ACA	20844202	Bandon Court House – dated 1806	Coolfadda	Regional	500m to SE
1370	Christchurch ACA	None	17 th century timber framed house	Coolfadda	None	530m to SE
942	Christchurch ACA	20844201	Bandon Town Hall – date 1862	Coolfadda	Regional	560m to SE
952	South Main Street ACA	20844063	Bandon Bridge – dated 1773	Coolfadda, Gully	Regional	730m to SE
None	None	20844002	Post Box – dated c. 1930	Coolfadda along Convent Hill	Regional	85m to S
None	None	20844001	Presentation Convent church/chapel – dated c. 1860	Coolfadda along Convent Hill	Regional	85m to S
None	None	20844003	Presentation Convent – dated 1829	Coolfadda along Convent Hill	Regional	85m to S
None	None	20844004	House – dated c. 1870	Coolfadda along Convent Hill	Regional	100m to SE
None	None	20844005	House – 20 Convent Hill - dated c. 1870	Coolfadda along Convent Hill	Regional	120m to SE
None	None	20844006	House – 14 Convent Hill - dated c. 1910	Coolfadda along Convent Hill	Regional	145m to SE
None	None	20844007	Post Box – dated c. 1950	Coolfadda along Convent Hill	Regional	160m to SE

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PS	ACA	NIAH	Name	Townland	Rating	Approx. Distance from development
None	None	20844008	House – 7 Convent Hill - dated c. 1890	Coolfadda along Convent Hill	Regional	175m to SE
None	None	20844009	House – 4 Convent Hill - dated c. 1910	Coolfadda along Convent Hill	Regional	200m to SE
None	None	20844010	House – 2 Convent Hill - dated c. 1850	Coolfadda along Convent Hill	Regional	195m to SE
None	None	20844011	House – 1 Convent Hill dated c. 1800	Coolfadda – along Convent Hill	Regional	200m to SE
None	None	20844020	House – 2 Kilbrogan Place - dated c. 1830	Coolfadda along Convent Hill	Regional	180m to SE
None	None	20844021	House – 1 Kilbrogan Place - dated c. 1830	Coolfadda along Convent Hill	Regional	180m to SE
None	Barretts Hill ACA	20844025	House – 13E Kilbrogan Hill – dated c. 1810	Coolfadda along Kilbrogan Hill	Regional	340m to SE
None	Barretts Hill ACA	20844026	House – 14E Kilbrogan Hill – dated c. 1810	Coolfadda along Kilbrogan Hill	Regional	340m to SE
None	Barretts Hill ACA	20844027	House – 13 Kilbrogan Hill – dated c. 1810	Coolfadda along Kilbrogan Hill	Regional	340m to SE
None	Barretts Hill ACA	20844028	House – 12 Kilbrogan Hill – dated c. 1810	Coolfadda along Kilbrogan Hill	Regional	340m to SE
None	Barretts Hill ACA	20844223	Water Pump in Allen Square – dated c. 1880	Coolfadda	Regional	380m to SE
None	None	20911011	House - Sun View – dated c. 1880	Curryclogh	Regional	410m to NW
None	None	20911035	Gate Lodge - Mount Grellan House – dated c. 1815	Kilbrogan	Regional	470m to NE

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PS	ACA	NIAH	Name	Townland	Rating	Approx. Distance from development
None	None	20911037	House - Mount Grellan house – built 1813	Kilbrogan	Regional	530m to NE

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Figure 12.11: ACA, PS in proximity to the proposed development site. Source: Cork County Development Plan 2022-2028

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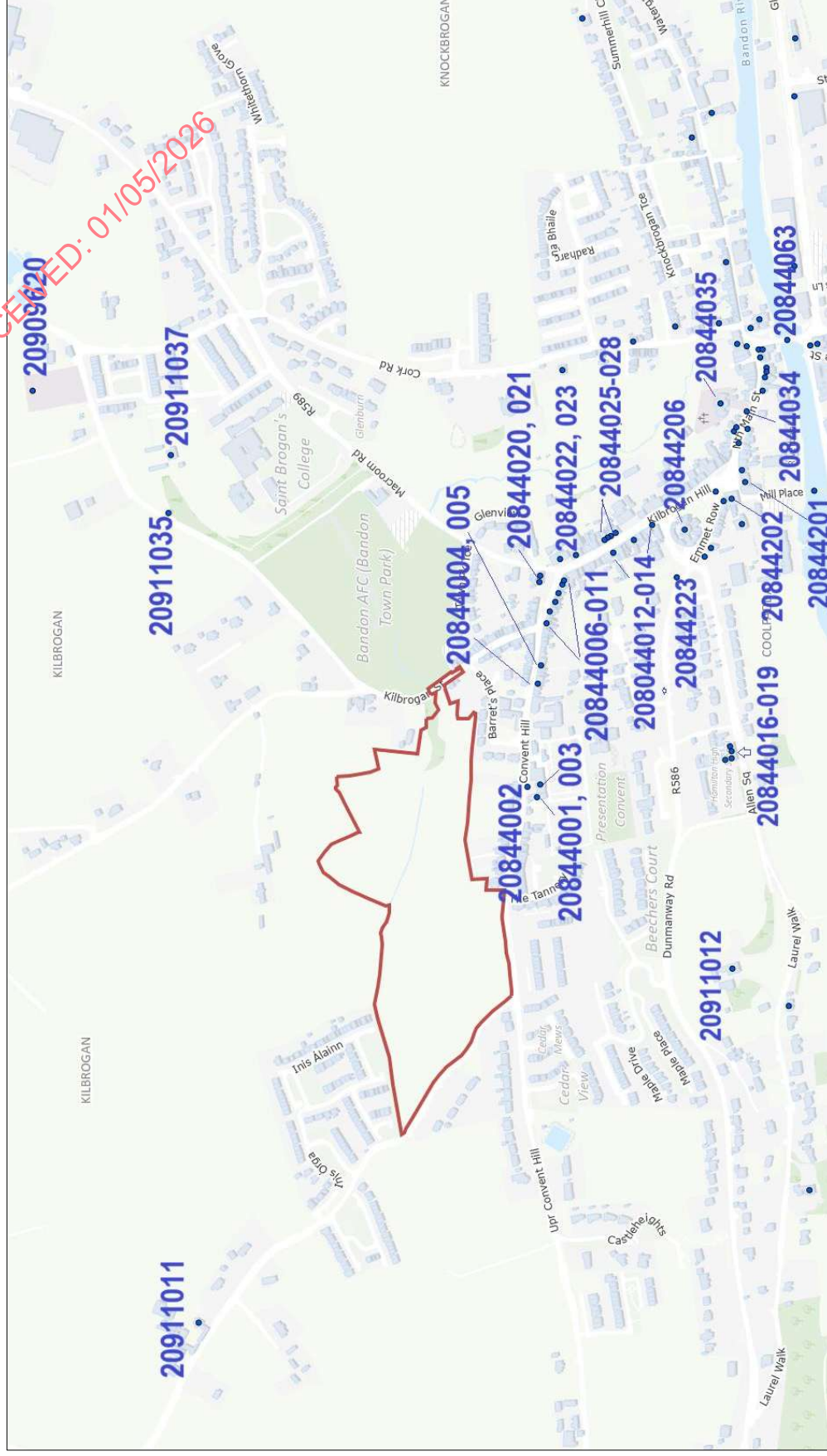


Figure 12.12: NIAH-listed structures within proximity to the proposed development site. Source: www.archaeology.ie

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12.4.6 CULTURAL HERITAGE OF THE STUDY AREA

12.4.6.1 TOWNLANDS, PLACENAMES AND HISTORIC LAND DIVISION

The cultural landscape of the Study Area reflects a long-established system of land division and agricultural organisation. Ireland's landscape is divided into over 62,000 townlands, a system unique in Western Europe in terms of both scale and antiquity. Townlands represent the fundamental and enduring unit of the Irish landscape and pre-date the formation of parishes and counties. Many are pre-Anglo-Norman in origin, and historical sources consistently use townland names throughout the medieval and post-medieval periods to describe places and locate events geographically.

Townland boundaries frequently follow natural features such as rivers, streams, ridgelines and changes in topography, thereby preserving evidence of historic landholding patterns and land use. An unnamed, east-running stream within the proposed development site forms the townland boundary between Coolfadda and Kilbrogan. The retention of this watercourse within the riparian corridor preserves the historic townland boundary as a discernible landscape feature within the development layout and maintains its legibility within the evolving suburban context.

The townland framework was standardised during the nineteenth century as part of the Ordnance Survey (OS) mapping programme; however, the underlying territorial divisions are considerably older. Irish placenames were recorded in anglicised form, reflecting contemporary pronunciation as interpreted by English-speaking surveyors and scribes.

Placenames frequently preserve information relating to topography, land use, ownership, folklore and early settlement, and form an important component of the cultural landscape. The Placenames Database of Ireland (logainm.ie) and historical sources, including Joyce (1910), were consulted to inform interpretation.

The townland name **Coolfadda** derives from the Irish *An Chúil Fhada*, meaning “the long corner” or “long recess/angle” (logainm.ie). The placename likely reflects a local topographical characteristic, possibly referring to the configuration of the historic landholding or a corner of higher ground within the surrounding landscape. The earliest documentary reference to the townland dates to 1601, when it appears as *Culefady* in the *Calendar of Fiants*. The Fiants comprise Tudor administrative records, including royal warrants for grants, pardons and land transactions, and provide evidence for landholding and territorial organisation in the late 16th and early 17th centuries. The modern spelling Coolfadda was established by the early nineteenth century, appearing by 1811 in Neville Bath's *Survey of the County of Cork*.

The townland name **Kilbrogan** derives from the Irish *Cill Bhrogáin*, meaning “the church of (St.) Brogan” (logainm.ie). The prefix *cill* denotes an early ecclesiastical foundation and indicates that the placename preserves a tradition of early medieval religious activity within the wider landscape. Kilbrogan is documented in ecclesiastical records as early as 1481 (*Clerical and Parochial Records of Cork, Cloyne and Ross*, Vol. I, p. 139), confirming its established medieval parish status. The recorded ecclesiastical site at Kilbrogan (CO096-064001) comprises the remains of a medieval parish church, likely 15th–16th century in date. While the upstanding fabric is medieval, the placename suggests the possibility of an earlier ecclesiastical foundation on or near the same site. The survival of the placename, together with the documentary and archaeological record, reflects the long-standing ecclesiastical association and territorial identity of this part of the Bandon hinterland.

The endurance of these placenames from the late medieval period through to the first OS mapping (1841–42) demonstrates continuity in land division, territorial identity and agricultural use within the hinterland of Bandon, reinforcing the interpretation of the Study Area as part of a long-established rural cultural landscape.

12.4.6.2 Historic Land Use and Landscape Evolution

While 12.4.6.1 addresses historic land division and identity, the physical landscape of the Study Area reflects the long-term agricultural use associated with that framework. Historically, the area formed part

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of the rural hinterland of Bandon, functioning as productive farmland supporting the market town and its estate-based economy.

Nineteenth-century mapping demonstrates substantial continuity in field layout and boundary alignment. Many of these boundaries remain extant, expressed through hedgerows, drainage ditches and minor routeways that contribute to the legibility of the historic landscape.

Although suburban expansion has extended the built edge of Bandon in recent decades, the Study Area retains elements of its semi-rural character. The surviving field structure and boundary morphology reflect gradual adaptation over time rather than wholesale reorganisation.

The River Bandon valley provided fertile land and facilitated communication, influencing settlement and agricultural patterns from early periods through the seventeenth-century plantation development of the town. While Bandon itself represents a planned intervention, the surrounding lands, including Coolfadda and Kilbrogan, exhibit long-term continuity in agricultural occupation. The evolution of the Study Area is further illustrated through historic cartographic and aerial sources, which document both continuity and change in land division, settlement pattern and agricultural use over time.

12.4.7 CARTOGRAPHIC AND AERIAL SOURCES

Analysis of historic cartographic and aerial sources was undertaken to identify historic buildings, routeways, land divisions and other cultural landscape features that illustrate landscape development over time. The following mapping sources were consulted, with relevant extracts presented in Figures 12.13 to 12.17:

- Down Survey (1650s) (**Figure 12.13 and 12.14**)
- First Edition OS six-inch mapping (c. 1840s) (**Figure 12.15**)
- OS 25-inch mapping (late 19th / early 20th century) (**Figure 12.16**)
- OS six-inch map 1939 (**Figure 12.17**)

12.4.7.1 Down Survey Maps 1656-58

The Down Survey provides the earliest mapped representation of the townland and parish framework in the mid-seventeenth century. Although schematic in nature, it illustrates the broad territorial organisation of the landscape at the time of the Cromwellian settlement.

The parish map records the Coolfadda area as *Coolerada*, forming part of an established rural landscape organised within historic townland and parish divisions. Kilbrogan is also recorded, reflecting its status as an established parish centre by the mid-seventeenth century.

The River Bandon is depicted as the dominant landscape feature and would have strongly influenced settlement, agriculture and movement along its course. The walled town of Bandon is shown on both sides of the river, with the bridge crossing clearly indicated. Surrounding territorial and ecclesiastical placenames, including those incorporating *Kil-* and *Temple-*, indicate integration within a medieval parish and church framework by this period.

Figure 12.13 presents a close-up extract of the area west of Bandon Bridge, including *Coolerada* and *Kilbrogan*. The surrounding townlands are named, reflecting long-established rural landholding patterns rather than newly imposed plantation field systems.

Coolerada is shown as agricultural land extending along the northern side of the River Bandon to the west of the walled town. No discrete nucleated settlement is depicted within the townland at this date, indicating that its character in the mid-seventeenth century remained predominantly agricultural.

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Figure 12.13: Down Survey map of County Cork, 1656-512. Source: www.downsurvey.tcd.ie



Figure 12.14: Close up view of Coolerada to the west of Bandon Bridge. Source: www.downsurvey.tcd.ie

12.4.7.2 Ordnance Survey Maps

The first large-scale survey of Ireland was undertaken by the OS between 1829 and 1842, producing highly accurate maps at various scales. On the OS First Edition 6-inch map (c. 1841/42; **Fig. 12.15**), the area corresponding to the proposed development site is shown as entirely rural in character.

On the 1842 Ordnance Survey (OS) six-inch map (**Fig. 12.15**), the proposed development site extends across parts of eight fields within Coolfadda and five fields within Kilbrogan, separated by an unnamed stream forming the townland boundary. The stream is depicted as straight along the western side of the

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site, in contrast to its more sinuous course to the east, suggesting that its western section had been realigned or straightened prior to the mid-nineteenth century.

No structures or features are shown within the fields in Coolfadda. At the eastern edge of the site within Kilbrogan, the western end of an unnamed L-shaped building is depicted. This building is accessed via a lane extending from the western side of Kilbrogan Street. The proposed development site does not extend to the road frontage of Kilbrogan Street, which is lined by terraces of street-fronting buildings.

Along the southern boundary in Coolfadda, the site extends to the street frontage of Barretts Hill (now Convent Hill), located at the north-western edge of the town. The terrace of houses along its northern side does not extend as far west as the proposed development site.

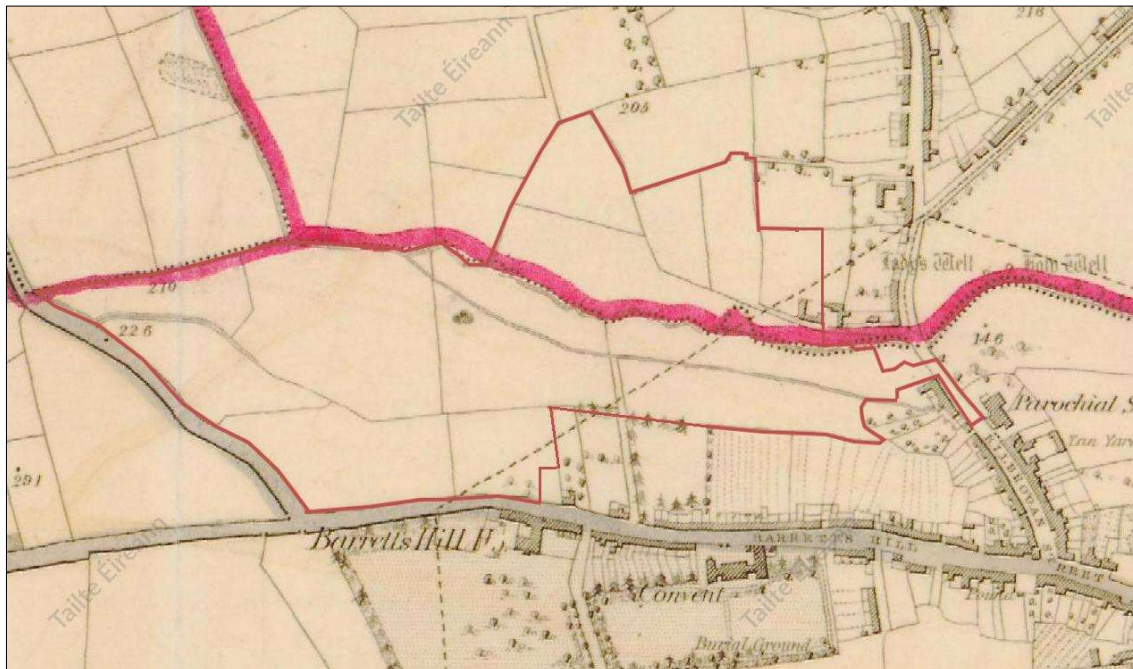


Figure 12.15: Extract from First Edition six-inch Ordnance Survey map (published 1841-42), showing the proposed development site. Source: www.archaeology.ie

The OS 25-inch map (surveyed c. 1897–1903; published 1901) shows the entire area of the proposed development site within Coolfadda consolidated into a single irregular field (**Fig. 12.16**). A well is named and depicted at the eastern edge of this field, close to Kilbrogan Street. In Kilbrogan, slight modifications to field boundaries are evident, including the amalgamation of two earlier fields into one.

The L-shaped building previously shown at the eastern edge of the proposed development site on the 1842 six-inch map is no longer depicted; instead, a spring is marked within the field at approximately the same location.

The OS six-inch map of 1939 (**Fig. 12.17**) shows further minor changes within the proposed development site, including the amalgamation of two additional fields in Kilbrogan. Neither the spring in Kilbrogan nor the well in Coolfadda is shown on the 1939 mapping.

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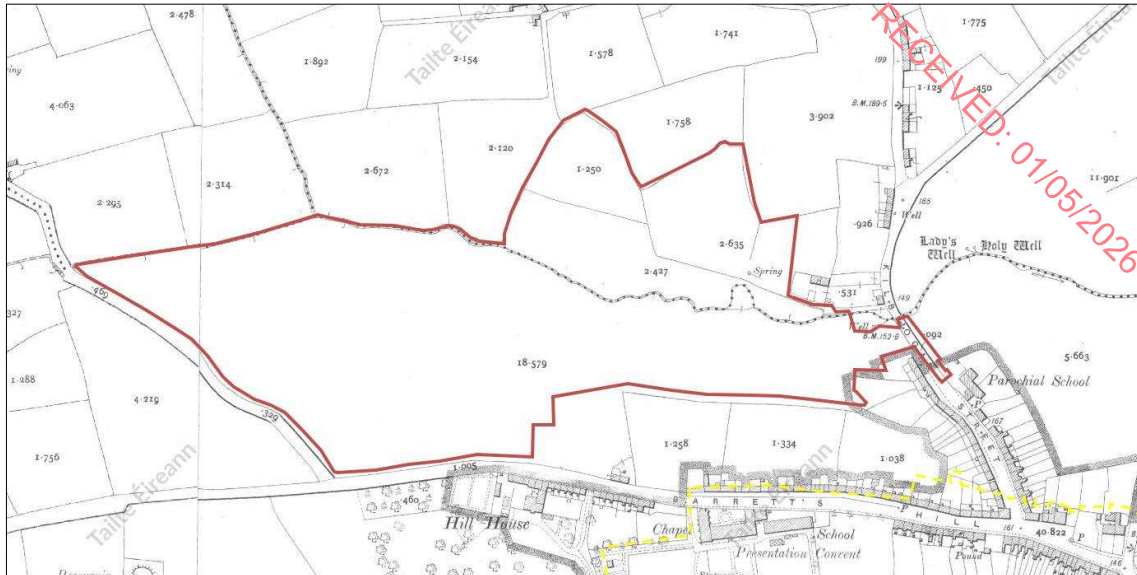


Figure 12.16: Extract from revised 25-inch Ordnance Survey map (published 1904), showing the proposed development site outlined in red. Source: www.archaeology.ie

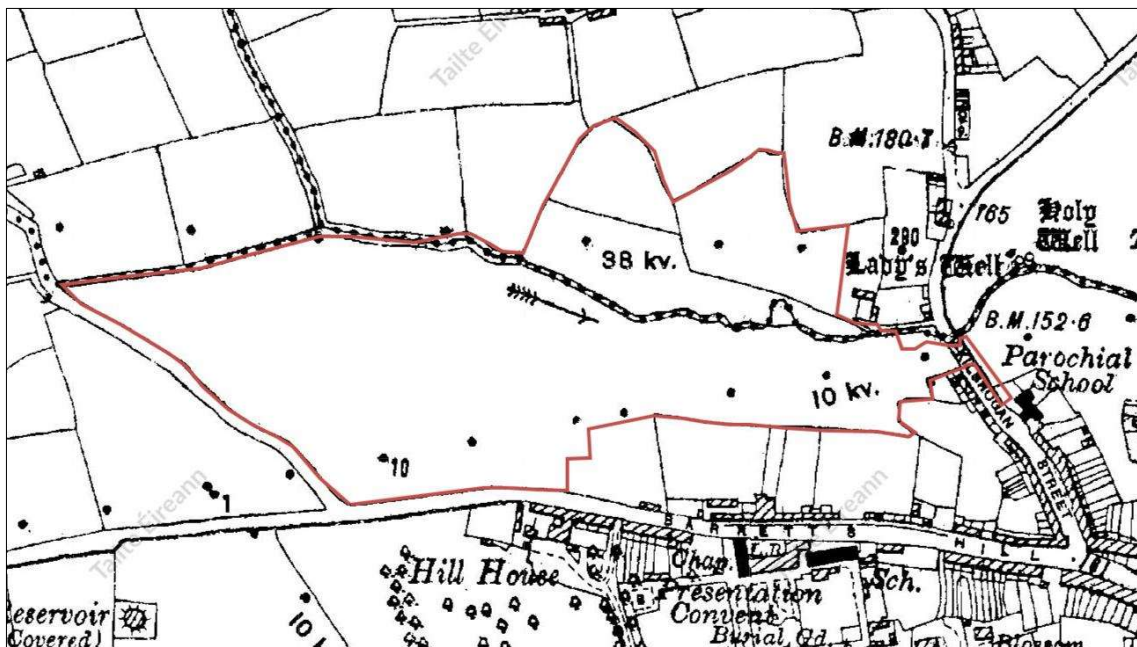


Figure 12.17: Extract from revised six-inch Ordnance Survey map (published 1939), showing the proposed development site outlined in red. Source: www.archaeology.ie

12.4.7.3 AERIAL PHOTOGRAPHS

Aerial Photographic Analysis and Interpretation

A review of aerial imagery dating from 1995 to 2006-2012 depicts the proposed development site as entirely greenfield in character, comprising open agricultural land with established field boundaries and no evidence of structural development. The site appears to have remained in agricultural use throughout this period.

OS MapGenie digital aerial imagery (2011-2013) shows a marked change within the eastern portion of the site. This area exhibits extensive ground disturbance, including apparent topsoil stripping, regrading

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and the formation of informal trackways or haul routes. Planning records indicate that permission was granted in 2005 (Ref. 054559) for a residential development on lands corresponding to the eastern portion of the site (Cork County Council, 2026). Although the permitted development was not completed, and a subsequent application for extension of duration was refused in 2012 (Ref. 116604), the disturbance visible on the 2011–2013 imagery is likely to relate to site preparation or enabling works associated with that earlier scheme.

More recent aerial imagery demonstrates substantial natural regeneration across the disturbed area, with scrub and vegetation now obscuring much of the previously exposed ground. The western portion of the site remains largely unchanged and retains its agricultural character.

Overall, the aerial record indicates long-term agricultural use of the site, interrupted by a relatively recent episode of disturbance within the eastern lands associated with a permitted but unimplemented residential development.

12.5 CHARACTERISTICS OF THE PROPOSED DEVELOPMENT (RELEVANT TO CULTURAL HERITAGE)

A full description of the proposed development, including enabling works, site preparation and construction methodology, is provided in Chapter 2 of this EIAR. For the purposes of this chapter, only those aspects relevant to archaeological, architectural and cultural heritage are summarised below.

The proposed development comprises the construction of a residential scheme of 240 residential units (156 dwelling houses and 84 apartments), together with a crèche facility and associated ancillary site development works. Vehicular and pedestrian access will be provided via new entrances from Upper Convent Hill (L-2033) and Kilbrogan Street (L-2039), with two additional shared accesses from Convent Hill (L-2011) serving 22 dwellings. A vehicular bridge over the existing watercourse will provide access to 26 dwellings in the northern portion of the site.

From a cultural heritage perspective, the principal elements of the development with potential to give rise to impacts are those involving ground disturbance, including site clearance and vegetation removal, topsoil stripping, excavation, ground reduction and the construction of foundations, drainage and road infrastructure. These activities have the potential to result in direct and permanent impacts on subsurface archaeological remains during construction. In the absence of mitigation, impacts could arise through excavation, truncation or removal of archaeological deposits.

A geophysical survey undertaken on the site did not identify anomalies of clear archaeological significance. However, subsequent archaeological testing identified two disturbed fulachtaí fia spreads on low-lying ground adjacent to the watercourse in the northern portion of the site. These features confirm prehistoric activity within the proposed development boundary in a typical riverine setting.

The eastern portion of the site is shown on aerial imagery to have been subject to extensive ground disturbance, likely associated with a previously permitted but unimplemented residential development. While such disturbance may have altered or removed near-surface deposits in parts of this area, the potential for surviving intact archaeological remains cannot be discounted, particularly in areas adjacent to the watercourse.

The western portion of the site, which retains its agricultural character and has not been subject to comparable disturbance, similarly retains potential for previously unrecorded subsurface archaeological remains.

There will be no direct physical impacts on designated archaeological or architectural heritage assets, as no RMP sites, PS or ACA are located within the proposed development boundary. Potential impacts on the setting, character or visual context of surrounding heritage assets are indirect in nature and are

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assessed separately within the Townscape and Visual Impact Assessment (TVIA) in the LVIA (Chapter 7).

12.6 IMPACT ASSESSMENT

12.6.1 CONSTRUCTION PHASE – ARCHAEOLOGICAL HERITAGE

Registered Archaeological Monuments

There are no RMP sites located within the footprint of the proposed development site.

Impact

As no RMP sites occur within the site boundary, there will be no direct impact on designated archaeological heritage during the construction phase.

Effect

In accordance with EPA (2022) criteria, the effect on Recorded Monuments is assessed as Imperceptible and Not Significant.

Unrecorded Archaeological Remains

Two spreads of fulachtaí fia material were identified during archaeological investigation of the site.

A geophysical survey (Licence No. 25R0152) was carried out across the western portion of the site; the eastern portion was unsuitable for survey due to dense overgrowth. The survey did not identify anomalies of clear archaeological significance. A small number of isolated ‘pit-type’ responses were recorded, though their origin was considered uncertain.

Archaeological testing (Licence No. 25E0836), comprising 22 trenches excavated in February 2026, targeted the identified anomalies and provided representative coverage across the western portion of the site. Two disturbed spreads of fulachtaí fia material were identified at the northern end of the site adjacent to the stream corridor. No additional archaeological features or deposits of significance were identified.

Impact

The identified fulachtaí fia material will be retained *in situ* within a minimum 10m buffer zone measured from the outer edge of the archaeological deposits. These areas will form a protected zone within the riparian corridor and will not be subject to ground disturbance.

While a proposed pathway will traverse part of this buffer zone, it will be constructed using a no-dig methodology, ensuring that the fulachtaí fia deposits are preserved *in situ* with no disturbance to underlying archaeological material. The construction methodology and section drawing (**Fig. 12.18**) is outlined in Section 12.7.1.

Effect

Indirect, Neutral and Permanent

The fulachtaí fia deposits will be fully preserved *in situ* within an appropriate buffer zone and therefore the residual effect on archaeological heritage is assessed as neutral and not significant. Following the implementation of these embedded design measures, together with licensed archaeological monitoring of all groundworks, the residual construction phase effect on archaeological heritage is assessed as Imperceptible and Not Significant.

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Previously Unknown Archaeological Remains

Much of Ireland's archaeological heritage survives as subsurface remains that may not be visible at ground level and may remain unrecorded until exposed by development works. Construction activities associated with the proposed development, including site clearance, topsoil stripping, excavation for foundations, drainage installation, road construction and service trenches, have the potential to disturb, truncate or remove previously unknown archaeological deposits should they be present within the site.

In order to assess this potential, a programme of archaeological investigation was undertaken in advance of the proposed development. This included geophysical survey and targeted archaeological testing across the site to identify any archaeological features or deposits.

The investigations identified two spreads of fulachtaí fia material which will be preserved in situ. No additional archaeological features or deposits of significance were identified, indicating that the likelihood of encountering further archaeological remains within the site is low.

Impact

In the absence of mitigation, any previously unknown archaeological remains encountered during construction could be subject to direct and permanent negative impact through ground disturbance.

Given the results of the archaeological investigations undertaken across the site, the potential for significant previously unrecorded archaeological remains to occur within the development footprint is considered limited.

Proposed Bridge Over Watercourse

The proposed development includes the construction of a vehicular bridge crossing the unnamed watercourse forming the historic townland boundary between Coolfadda and Kilbrogan.

Impact

Construction of the bridge will involve localised excavation associated with bridge abutments, foundations and temporary construction works within the vicinity of the watercourse. Watercourses and associated floodplains are recognised as areas of archaeological sensitivity, particularly for prehistoric activity such as fulachtaí fia.

The identified fulachtaí fia lie well outside the footprint of the proposed bridge works and within a retained buffer zone, and therefore no direct impact on these archaeological deposits will occur.

There remains a limited potential for previously unrecorded subsurface archaeological remains within the immediate footprint of the bridge works. In the absence of mitigation, any such impact would be direct, permanent and negative.

Effect

With licensed archaeological monitoring of all bridge-related groundworks, any previously unrecorded archaeological material encountered will be identified and resolved in accordance with National Monuments Service requirements.

The construction phase effect of the bridge on archaeological heritage is therefore assessed as slight adverse and not significant in EIAR terms.

12.6.2 CONSTRUCTION PHASE – ARCHITECTURAL HERITAGE

There are no PSs, ACAs, or NIAH-listed buildings within the footprint of the proposed development site.

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Impact

The proposed development will not result in the demolition, alteration, or physical encroachment upon any designated architectural heritage assets.

Potential indirect impacts relating to setting, views or townscape character are addressed separately within the Townscape and Visual Impact Assessment (TVIA) in the LVIA (**Chapter 7**).

Effect

In accordance with EPA (2022) criteria, the construction phase effects on architectural heritage is assessed as not significant.

12.6.3 CONSTRUCTION PHASE – CULTURAL HERITAGE

Townland Boundary (Riparian Corridor)

The unnamed stream forming the townland boundary between Coolfadda and Kilbrogan constitutes a historic territorial division within the landscape. The proposed development retains this watercourse within a designated riparian corridor. No culverting, diversion or infilling is proposed, and the alignment of the historic boundary will remain intact.

While the bridge introduces a new crossing point, the watercourse will remain open and physically preserved, and the historic boundary will remain visually legible within the development layout.

Effect

The construction phase effect on the historic townland boundary is assessed as Slight and not Significant.

12.6.4 OPERATIONAL PHASE – ARCHAEOLOGICAL, ARCHITECTURAL AND CULTURAL HERITAGE

No direct or indirect impacts on RMP sites, PS, ACA or NIAH-listed structures are anticipated during the operational phase.

The retained fulachtaí fia will remain protected *in situ* within the riparian corridor and will not be subject to disturbance during the operational life of the development. The watercourse forming the historic townland boundary will likewise remain open and legible within the landscaped corridor.

The operational use of the residential development will not involve further ground disturbance beyond that addressed during construction and will not give rise to processes capable of affecting archaeological, architectural or cultural heritage assets.

In accordance with EPA (2022), the operational phase effect on archaeological, architectural and cultural heritage is assessed as imperceptible and not significant.

12.6.5 “DO-NOTHING” SCENARIO

In the event that the proposed development is not implemented, there would be no change to the existing baseline environment and no effects on archaeological, architectural or cultural heritage.

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12.7 MITIGATION MEASURES

12.7.1 CONSTRUCTION PHASE

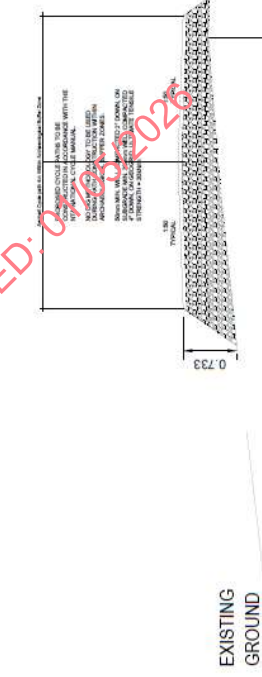
Protection of Fulachtaí fia (Western Portion of the Site)

Archaeological testing undertaken by Lane Purcell on the western portion of the site identified the two fulachtaí fia spreads. The following mitigation measures will be implemented to ensure that no significant impacts arise during construction works:

- The fulachtaí fia identified during archaeological testing will be retained *in situ* within a minimum 10m buffer zone measured from the outer edge of the archaeological deposits. The buffer zone will be excluded from development, with the exception of a portion of the proposed 4m wide shared walkway/cycleway, which will be installed using a no-dig construction methodology in compliance with archaeological protection requirements and engineering best practice (see **Figs. 12.18** and **12.19**).
- All works involving the laying of the walkway/cycleway will be monitored by an appointed archaeologist, who will liaise with site crew on constraints and required protections.
- The 10m buffer will be clearly delineated on all construction drawings and fenced off prior to the commencement of development works using post-and-wire fencing. The fencing may be removed temporarily during the installation of the walkway/cycleway and will be reinstated as soon as practicable or if works cease.
- No ground disturbance, excavation, service installation, landscaping works, material storage or access will be permitted within the protected area for the duration of construction. The area will be retained as meadow and will not be subject to formal landscaping.
- Adjoining ground levels within the buffer zone will be raised (up to c.0.73m in places) to accommodate the no-dig construction methodology and existing steep ground conditions. This build-up will comprise engineered fill placed above existing ground level, ensuring no disturbance to underlying archaeological deposits. A detailed landscape plan for the buffer area shall be prepared as part of the overall landscape design.
- Vegetation treatment may be undertaken only on surface vegetation with no mechanical disturbance and no excavations deeper than 100mm. In the event ground exposure deeper than 100mm is detected, all works will cease and the appointed archaeologist will be informed. The archaeologist will then assess the presence or absence of archaeological material in the exposed area.
- The surfacing shall be made permeable to avoid hydrological changes over the archaeological remains.
- The section of the proposed walkway/cycleway falling within the 10m buffer will be installed using light machinery only and no heavy plant will be allowed within the buffer zone under any circumstance.
- Once installed, the surface will be allowed to cure for a period specified by the manufacturer.

Provision may be made for discreet heritage interpretation, such as a low-level information panel, to acknowledge the presence of the fulachtaí fia and provide educational value. The scale, design and placement of any interpretative element will be agreed in advance with the County Archaeologist.

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undisturbed. Source: MMOS Consultant Civil & Structural Engineers

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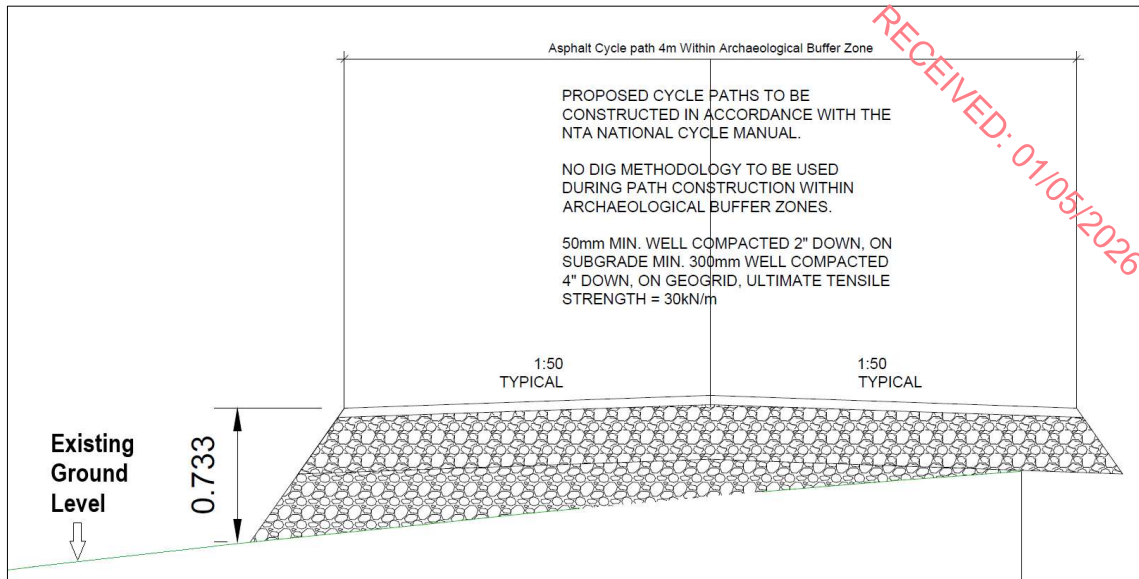


Figure 12.19: Enlarged section of the proposed cycle path illustrating the no-dig construction methodology within the archaeological buffer zone, showing build-up above existing ground level.
Source: MMOS Consulting Civil & Structural Engineers

Archaeological Monitoring

Licensed archaeological monitoring will be undertaken throughout the entire site during all ground disturbance works associated with the proposed development. Particular attention will be focused on the area of the proposed bridge crossing.

Should archaeological features or deposits be revealed, both the National Monuments Service and the Planning Authority will be consulted. All newly identified archaeological sites will be preserved *in situ* or by record, as appropriate and sufficient time and resources will be allowed to resolve all archaeological matters.

Preservation *in situ* will require the relocation of the element of the development beyond the area of archaeological sensitivity. Preservation by record will require the excavation of the archaeological material, which will be undertaken in accordance with best professional practice (Policy and Guidelines on Archaeological Excavation – Department of Arts, Heritage, Gaeltacht, and the Islands). This work will be funded by the developer.

12.7.2 OPERATIONAL PHASE

There are no direct physical archaeological, architectural or cultural heritage impacts requiring mitigation during the operational phase of the development.

The retained archaeological buffer area will remain undeveloped and will form part of the permanent green infrastructure of the site.

No further archaeological monitoring will be required following completion of construction and resolution of any archaeological material encountered.

12.8 RESIDUAL IMPACTS

Following implementation of the mitigation measures outlined above, including retention *in situ* of identified archaeological features and licensed archaeological monitoring of groundworks, residual impacts on archaeological heritage are assessed as Imperceptible and Not Significant.

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Any archaeological material encountered during construction will be preserved either *in situ* or by record in accordance with statutory requirements and best archaeological practice.

No residual impacts on architectural heritage are anticipated.

12.9 DIFFICULTIES ENCOUNTERED IN COMPILING INFORMATION

No difficulties were encountered in compiling information for this report.

12.10 REFERENCES

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SECTION E – INTERACTIONS & INTER-RELATIONSHIPS

In line with requirements of EC Directive 85/337/EC (as amended) and the Planning and Development Regulations 2001, any interactions/inter-relationship between the various environmental factors was also taken into account as part of the EIAR scoping and assessment.

Where a potential exists for interaction between two or more environmental topics, the relevant specialists have taken the potential interactions into account when making their assessment and where possible complementary mitigation measures have been proposed. An overview of these potential interactions is provided in **Table 13.1**, with the main interactions or inter-relationships discussed in **Sections 13.1 to 13.13** below.

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13.0 INTERACTIONS & INTER-RELATIONSHIPS

Table 13.1: Summary of Potential Interactions/Inter-Relationships.

Receptor Source	Human Beings	Air	Noise	Landscape & Visual	Biodiversity	Water	Soils	Climate	Material Assets	Cultural Heritage
Human Beings		✓	✓	✓	✓	✓	✓	✓	✓	✓
Air	✓		x	x	✓	x	x	✓	✓	x
Noise	✓	x		x	✓	x	x	x	✓	x
Landscape & Visual	✓	x	x		x	x	x	x	x	✓
Biodiversity	✓	✓	✓	✓		✓	x	✓	x	x
Water	✓	x	x	x	✓		✓	x	x	x
Soils	✓	✓	x	✓	✓	✓		x	✓	✓
Climate	✓	✓	x	x	✓	x	x		x	x
Material Assets	✓	✓	✓	x	✓	x	x	x		✓
Cultural Heritage	✓	x	x	✓	x	x	x	x	✓	

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13.1 AIR & SOILS

Excavations and earth moving operations during construction works may generate quantities of dust, which have the potential to impact upon air quality in the vicinity of the proposed development. Consequently, an impact upon air quality has the potential to impact upon human health, cause dust nuisance and cause disturbance to fauna (further discussed in **Section 5**).

The extent of dust generation depends on the nature of the construction dust (soils, sands, gravels, silts etc.) and the construction activity. The potential for dust dispersion depends on the local meteorological conditions such as rainfall, wind speed and wind direction.

Mitigation measures to control dust emissions would be implemented, which would include good working practices, dust suppression measures and the undertaking of reinstatement works as soon as practicable.

13.2 AIR & CLIMATE

The main potential sources of air pollutants from the construction of the development would be combustion by-products from the operation of machinery and dust generated from excavations. During the operational phase of the proposed development, air emissions would arise mainly from exhaust fumes from traffic and residential heating systems.

Air emissions from construction machinery would be expected to be minor in a regional context. The potential for construction dust emissions is discussed further in Section 5 of this report. There would be anticipated to be no significant emissions to air from the site during the operational phase, due to the nature of the development (residential housing estate).

13.3 AIR, HUMAN HEALTH & BIODIVERSITY

An adverse impact on air quality has the potential to impact upon human health, cause dust nuisance to humans and fauna and has the potential to adversely impact upon flora by blocking leaf stomata, interfering with photosynthesis, respiration and transpiration processes. The risk to air quality as a result of the proposed development would not be considered significant, both at the local community level and on a broader national/global scale.

During the construction phase of the development, there would be potential for dust emissions, which could impact upon the communities and residents on the roads to the site and flora in the surrounding area. The potential impact of dust would be temporary, given the temporary nature of construction works. Dust control would be an integral part of construction management practices, with mitigation measures implemented where required, including sweeping of roads and hardstand areas, appropriate storage and transport of material and dust suppression measures where required.

Dust generation as a result of the operational phase would be anticipated to be negligible once seeding has become established and due to the nature of the proposed development (residential housing estate).

It should be noted that an important interaction exists between air quality and flora, whereby vegetation can play an important role in acting as an air purifier by absorbing carbon dioxide and giving out oxygen. It would therefore be anticipated that potential carbon dioxide emissions discharged via vehicle exhausts would be somewhat mitigated by vegetation in the environs of the site.

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13.4 NOISE, HUMAN HEALTH & BIODIVERSITY

Noise generated during the construction and operational phases of the proposed development has the potential to impact upon human beings and fauna within the vicinity of the site.

During the construction phase, it would be anticipated that there would be an impact, for a limited period of time, on local residences and commercial dwellings within close proximity to the proposed development. Control and mitigation measures to reduce the potential for noise are outlined in **Section 6**. Given the transient nature of construction works and provided the recommended control and mitigation measures are implemented, noise from construction would not be considered to pose a significant impact upon human beings, or upon fauna, in the area.

No significant additional noise impact would be anticipated during the operational phase of the proposed development. During the normal operation of the proposed development, noise levels at the nearest noise sensitive locations would not cause a significant impact.

While noise occurring during the construction phase of the development may disturb fauna in the area, high noise levels would be intermittent and would only occur over brief periods of the planned 3 year construction works. Noise from the operation of the development would be typical of other residential estates in the vicinity and would be unlikely to have a negative impact upon biodiversity.

13.5 MATERIAL ASSETS & HUMAN BEINGS

The proposed development would be constructed within the bounds of a brownfield site in the ownership of the applicant. Therefore, there would be land use change to built land at the proposed development site. Given the nature and design of the proposed development, it is considered that impacts upon utilities and waste management infrastructure in the area during both the operational and construction phases would not be significant.

During the construction phase, there would be an increase in traffic volume using the local road network. However, given the nature of activities and short-term duration of construction works, this would not be considered significant. The full operation will not have significant impacts upon the operation of the adjacent road network, as per the Traffic and Transportation Assessment. Therefore, there should be no major impact upon traffic volumes during the operational phase of the proposed development.

The potential of the proposed development to create short-term employment during the construction phase and an increase in the local workforce during the operational phase would positively impact on the material assets/human beings of the region.

The development will source its water from a new connection to the existing water mains supply. Irish Water has confirmed feasibility of connection without infrastructure upgrade. The demand on the municipal water supply would increase once the operational phase of the development is complete, however, there would be sufficient supply to accommodate the development.

Should waste be incorrectly handled or stored at the development site, it has the potential to cause an adverse impact upon human beings through nuisance, including visual, odour, pests, and pollution to groundwater and surface-water.

During the construction phase, wastes would be segregated and stored in suitably contained waste receptacles at the site compound. This would considerably reduce the potential risk of pollution to groundwater. Waste would be removed from the development on a regular basis, to avoid the

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accumulation of high waste volumes, which could cause nuisance. It should also be noted that given the inert nature of the majority of C&D waste types, it is unlikely that issues regarding odour or pests would arise.

Any hazardous waste generated during the construction phase would be managed in accordance with the Waste Management (Hazardous Waste) Regulations 1998 and 2000, and would be stored separately from non-hazardous waste, appropriately labelled and stored upon bunds where appropriate.

The operational phase of the proposed development would give rise to a variety of waste types, with waste management undertaken by suitably licenced waste contractors. Collections of waste / recyclables would be undertaken on a regular basis, therefore the potential for odour and pest nuisance would not be considered significant.

13.6 MATERIAL ASSETS, BIODIVERSITY, WATER QUALITY & SOILS

The proposed development would result in a change of habitat use at the proposed development footprint, resulting in the loss of scrub (GS1) and dry calcareous and neutral grassland (GS1) habitats. However, this would not be considered significant, given that these habitats are modified and of low ecological value, given these habitats are common in the general area, and given that replacement planting would be undertaken to compensate for the removal of boundary vegetation.

Waste has the potential to impact upon water quality and biodiversity during both the construction phase and operational phase, by causing pollution to soils and water through leaching of materials, and subsequently to aquatic biodiversity, and by potentially attracting pests / vermin to the site. However, as discussed in **Section 13.5**, wastes generated during the construction phase would be stored in suitably contained waste receptacles at the site compound, with the majority of the waste inert in nature, reducing the potential of pollution to soils and water.

It is not considered that there would be any significant impact upon soils and water, and thus biodiversity, due to waste management during the operational phase, given that waste would be collected by licenced waste contractors and recovered, recycled or disposed of at appropriately licenced waste facilities, which would have environmental controls in place as standard.

13.7 MATERIAL ASSETS & NOISE

The proposed development is located in a peri-urban area, with agricultural lands to the west and north as well as urban elements in Bandon, including residential housing estates, schools and stores. Increased noise emissions during the construction or operational phases would have the potential to impact upon noise sensitive receptors due to disturbance. The potential for significant noise impacts associated with the proposed development on sensitive receptors would be considered low, given the short term duration of construction works and given that no significant increase in noise emissions would be anticipated for the operation of the proposed development. Furthermore, noise from the proposed site would be similar to the existing noise character of the area and any sensitive receptors within the immediate area of the proposed development would be acclimatised to the existing noise environment from other residential estates in Bandon town.

13.8 MATERIAL ASSETS & AIR

As noted above, the proposed development is located in a peri-urban area. The proliferation of dust during construction has a nuisance value and sensitive receptors would be at risk from high levels of wind blowing dust particles. Given the proposed mitigation measures for dust control and dust

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suppression, in addition to the transient nature of construction works, the potential for dust to impact upon sensitive receptors would be considered low.

13.9 WATER QUALITY & SOILS

It is considered unlikely that there would be a potential impact on water quality during the construction phase of the proposed development due to the potential release of suspended solids during soil disturbance works. Headwalls will be installed at the Kilbrogan watercourse that runs through the site, with potential for impacts caused by run-off from construction activities. With appropriate control measures implemented during the construction stage, it is deemed that the risk of the development impacting upon water quality would be greatly reduced.

13.10 WATER QUALITY & HUMAN BEINGS

A deterioration in groundwater quality has the potential to impact upon human beings by adversely affecting drinking water quality. The proposed development would have the potential to impact on groundwater quality during both the construction and operational phases.

During the construction phase, the development would have a potential impact on groundwater quality due to potential hydrocarbon and uncured concrete spillages. Groundwater would be protected through the implementation of mitigation measures, which include the appropriate storage of potentially polluting substances, the regular inspection and maintenance of construction plant, the provision of spill kits onsite and supervised concrete works.

The operational phase of the development has the potential to impact upon groundwater and surface water quality through surface-water run-off emissions.

The proposed site will be divided into three separate catchments for the management of clean rainwater from roofs and hard surfaces during the operational phase of the development. Stormwater from each catchment will be directed to its corresponding attenuation tank, which will then discharge into the existing stream. Permeable paving will also be installed to allow water to infiltrate to ground. This water should be uncontaminated and therefore should have no impact on surface or groundwater.

Wastewater generated by sanitary facilities at the dwelling units and creche would be directed to the existing pump station and public wastewater network along L2039 to the east. Foul water will then be directed to the Bandon WWTP, which will discharge to Bandon River.

There are no drinking water protection areas within 10 km from the site, with the nearest groundwater source protection zones being located in a distinct groundwater body than the proposed site. Therefore, in the unlikely event of groundwater contamination at the site, there would be no significant risk of impacts upon human beings.

13.11 WATER QUALITY & BIODIVERSITY

The construction phase of projects has the potential to impact upon flora and fauna due to a deterioration in water quality. Risks to water quality could arise due to the potential release of suspended solids during soil disturbance works, the release of uncured concrete and the release of hydrocarbons (fuels and oils). The proposed development will require works within the Kilbrogan stream located on site. Works will be required within the watercourse to facilitate the surface water and foul water drainage network. In addition, a new bridge will be constructed over the Kilbrogan watercourse to facilitate vehicular access to the north of the site. Among other measures, a 10 m buffer will be maintained from the top of the

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Kilbrogan stream's banks on either side, where no construction works other than those outlined will take place.

As mentioned above, during the operational phase, surface-water run-off from roofs and hardstanding areas would be collected, discharged to the attenuation tanks and into the existing stream via a suitably designed drainage system. This water should be uncontaminated and therefore should have no impact on the ground. Domestic foul water will be directed and treated at Bandon WWTP. Therefore, no significant impact on water quality would take place due to drainage from the site.

No adverse potential impacts upon water quality would be anticipated due to accidents and potential spills and leaks, given the buffer distances to the watercourse within the site, and given the proposed storm and soiled water management.

13.12 LANDSCAPE & VISUAL, SOILS & HUMAN BEINGS

There would be no significant adverse landscape or visual effects due to the proposed development.

The proposed development has been designed as a high-quality residential scheme that responds appropriately to its context within Bandon.

Any potential adverse effects on residential amenity will be limited, localised and not significant. Interactions with material assets in landscape and visual terms are considered neutral and not significant. There will be no significant interaction between the landscape and visual effects of the proposed development and cultural heritage assets. Any potential effects on the setting or visual context of such assets are negligible. The interaction between landscape and visual effects and biodiversity is considered to be positive, with the proposed development contributing to the enhancement of both ecological value and visual amenity.

Refer to **Section 7.5.9** of this EIAR for more details on interactions between landscape and visual effects and other identified environmental factors.

13.13 CULTURAL HERITAGE, SOILS & HUMAN BEINGS

Archeologically important sites, buildings of historic, artistic or architectural interest and sites of cultural heritage form part of the landscape of County Cork. Potential impacts to archaeological, architectural and cultural sites may occur during excavation and soil movements during the construction phase of the development.

No records of protected archaeological, architectural or cultural heritage sites occur within the proposed development site. Four known recorded monuments occur within 100m of the proposal. The majority of the proposed site would be completely disturbed during the construction phase. Two spreads of fulachtaí fia material were identified during archaeological testing and will be retained *in situ* within a minimum 10m buffer zone measured from the outer edge of the archaeological deposits. No direct or indirect impacts on RMP sites, PS, ACA or NIAH-listed structures are anticipated during the operational phase of the proposed residential development. No residual impacts on architectural heritage are anticipated.

Therefore, it is not anticipated that the proposed large-scale residential development would have any significant adverse physical or visual impacts upon the known cultural heritage of the area.