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Ecological Impact Assessment (EclA)

**Proposed Residential Development
Drishane Rd., Millstreet, Co. Cork**

Document Details

Client: Walsh Design Group
Project Title: Proposed Residential Development at Páirc Chatháin,
Drishane Road, Millstreet, Co. Cork
Document Title: Ecological Impact Assessment (EclA) Report
Prepared by: Flynn Furney Environmental Consultants

Rev	Status	Date	Author(s)	Approved by
01	DRAFT	14/02/2023	JC	JN

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1. INTRODUCTION

1.1 Outline Description of the Proposed Site of Works

This project involves the construction of a residential estate at Páirc Chatháin, Drishane Road, Millstreet, Co. Cork. The proposed site is approximately 2.82 acres in area, grid reference 52.056317, -9.054638. The site contains mostly improved agricultural grassland with some scattered scrub, mainly on the northwestern edge. The site is enclosed by a hedgerow on the north, east, and south. Private back gardens border the site to the west. The Millstreet stream lies roughly 440m to the east of the proposed site.

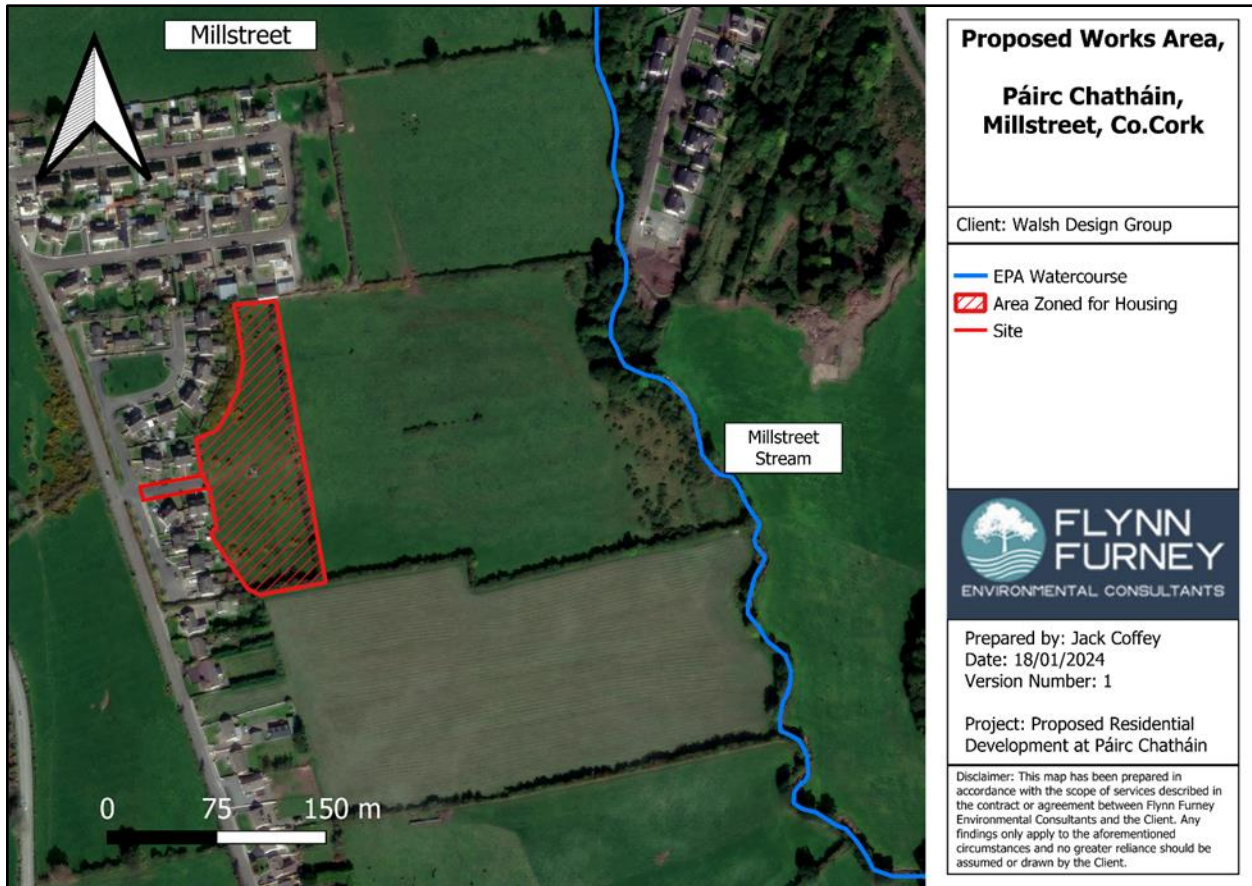


Figure 1: Satellite image with the proposed works area marked in red. Note these plans no longer include a drain leading to the Millstreet stream.

1.2 Description of the Proposed Works

The proposed development on the site will consist of 26 dwelling units including 8 No. 1 bedroom apartments, 16 No. 2 bedroom townhouses and 2 No. 3 bedroom semi-detached units as well as associated green areas, estate roads, boundary treatments, services and all other infrastructure required to develop a housing project.

Earthworks will consist of moving fill from the higher ground at the east to the lower ground to the

west. Material will be excavated by 360° excavators and transported to the deposition area by articulated dumpers. The fill will then be placed by dozers and compacted using vibratory rollers. A testing regime will be implemented to ensure the acceptability of the fill and that the degree of compaction is sufficient. Fill will be brought to the required level across the site to allow construction of roads and foundations. An overall earthworks balance has been targeted i.e., no imported fill will be required for the bulk earthworks and no soil will be removed from the site.

Estate roads are proposed to provide circulation routes around the development. The proposed roads will consist of bituminous surfacing on granular capping and subbase layers. Concrete footpaths will be provided. Services such as foul and surface water drainage, water, electricity, public lighting, and telecommunications will be run under or next to the roads.

Surface water run-off during the operational phase will be allowed to percolate into the ground via infiltration trenches, 1 no. retention basin and back garden raingardens. Site investigations for infiltration rates have confirmed this proposed system to be adequate. A hydrocarbon interceptor will also be included within the drainage system. A detention pond is included in the design. A drawing showing the proposed drainage system is included in **Appendix 1**.

1.3 Objectives of this Ecological Impact Assessment EclA:

1. Map and describe existing habitats.
2. Identify sensitive areas within the site.
3. Identify potential ecological conflicts or impacts.
4. Identify ways to avoid the above and mitigate against if necessary.

2. LEGISLATION AND PLANNING POLICY

2.1 European Council Directives

2.1.1 Council Directive on the Conservation of Natural Habitats of Wild Fauna and Flora (92/43/EEC) (The Habitats Directive)

The main aim of the Directive is to promote the maintenance of biodiversity through the conservation of natural habitats and wild species listed on the Annexes of the Directive. Member States are required to take measures to maintain or restore, at favourable conservation status, biodiversity whilst taking account of economic, social, cultural requirements and regional and local characteristics.

It gives effect to site and species protection measures through establishment of the Natura 2000 network and designation of European Sites including Special Areas of Conservation (SAC) and Special Protected Areas (SPA). It also establishes a list of species (other than birds) whose habitats must be protected to secure their survival. These priority species and habitats are subject to a higher level of protection.

The Directive also requires appropriate assessment of any plan or project not directly connected with or necessary to the management of a European Site, but likely to have significant effects upon a European site, either individually or in combination with other plans or projects.

2.1.2 Council Directive on the Conservation of Wild Birds (2009/147/EC) (The Birds Directive)

The Directive provides a framework for the conservation and management of, and human interactions with, wild birds in Europe. It makes provisions for the maintenance of the wild bird populations across their natural range; conserves the habitats for rare or vulnerable species listed in Annex I and of migratory species through the classification of SPAs and provides protection for all wild birds.

2.1.3 Irish Legislation

The European Communities (Birds and Natural Habitats) (Amendment) Regulations provides that the following shall be construed together as one:

- Wildlife Act 1976
- Wildlife (Amendment) Acts of 2000, 2010 and 2012
- European Communities (Birds and Natural Habitats) (Restrictions of the Use of Poison Bait) Regulations 2010
- European Communities (Birds and Natural Habitats) Regulations 2011
- European Communities (Birds and Natural Habitats) (Amendment) Regulations of 2013, 2015
- Wildlife Amendment Bill 2016 (proposed legislation)

2.1.4 European Communities (Birds and Natural Habitats) Regulations 2011 to 2015

The Regulations give effect to requirements relating to the designation of protected sites under the Birds Directive and Habitats Directive. The Regulations provide for the protection and management of European Sites and place obligations on all public authorities to have regard to the requirements of the Habitats Directive beyond the realms of planning related consents issued under the Planning and Development Act 2000, as amended (the PDA). The Regulations also provide for the protection of species of European importance.

2.1.5 Wildlife Acts 1976 to 2012

The Acts provides for inter alia the protection of wildlife. The Acts prohibit the intentional killing, taking or injuring of certain wild birds or wild animals; or the intentional destruction, uprooting or picking of certain wild plants.

2.1.6 Wildlife Amendment Bill 2016

The purpose of the Bill is to provide for the implementation of a reconfiguration of the Raised Bog Natural Heritage Area Network arising from (i) the proposals from the Review of Raised Bog Natural Heritage Area Network published in January 2014; (ii) an assessment of the effects on the environment of the proposals arising from the Review and, if required, any other screening for an assessment or as the case may be, assessment, including public consultation undertaken and (iii) observations or submissions received during the course of public consultation.

Taken as a whole, nature conservation legislation is of key importance in undertaking EclA for proposed development as it shapes planning policy.

3. SURVEY METHODOLOGY

Walkover surveys of the site were carried out on November 29th, 2023. Habitats were identified, mapped and classified and dominant plant species noted in accordance with the guidelines given by the JNCC (2007) and The Heritage Council (2010). Habitats were classified as per Fossitt (2000).

Assessment of ecological impact followed CIEEM (2018), NRA (2006) and EPA (2002).

3.1 Desk Study

Prior to the main fieldwork contributing to this assessment, a desktop survey of available information sources was carried out. These included:

- The National Biodiversity Data Centre Online Database
- The National Biodiversity Network Online Atlas
- The NPWS Protected Species Database and Online Mapping
- The Environmental Protection Agency Database
- The EPA Water Quality in Ireland Report

Desk research also included a review of records available through the National Biodiversity Data Centre mapping system. These included rare and protected species. Records were requested for all species appearing within the study area or immediately surrounding the study area. The results of which can be seen in Appendix B.

Designated sites were identified using the current boundary shapefiles downloaded from the NPWS website. Records of species from within the relevant Km squares were also obtained. Habitat mapping also reviewed included the Irish Semi-Natural Grassland Surveys (ISGS), the National Survey of Native Woodland (NSNW) and Ancient woodland inventory.

3.2 Field Study

Field work for this survey was carried out on November 29th, 2023. The field survey habitat assessments were carried out according to guidelines given by the Heritage Council (2011) and the JNCC (2010). A primary purpose of this survey was to:

- Identify habitat types within the study area Assess for the presence of protected species.
- Identify ecological and environmental constraints to the development.
- Identify ecological sensitivities around and within the study area.

3.2.1 Ecological Impact Assessment Methodologies

This ecological impact assessment has been prepared in accordance with relevant legislation and best practice guidance including:

- The Chartered Institute of Ecology and Environmental Management Guidelines for Ecological Impact Assessment in the UK and Ireland: terrestrial, freshwater and Coastal, 2nd Edition. CIEEM (2018).
- The EPA’s Draft Advice Notes on Preparing Environmental Impact Statements (EPA, 2015a).
- The EPA’s Draft Revised guidelines on Information to be Contained in Environmental Impact Statements (EPA, 2015b).

The ‘ecological value’ of an area or feature is defined with reference to geographical context. That is, whether it is of value locally, regionally, nationally or internationally. This is assessed by ecologists on reviewing survey outcomes. Key criteria are the presence of designated sites, the site or feature containing protected species or areas of high biodiversity. The criteria for ecological value are given in Table 1, below.

Table 1: Information ecological value of habitats.

Ecological Value	Criteria
International	<ul style="list-style-type: none"> • ‘European Sites’ including Special Areas of Conservation (SAC) & Special Protection Areas (SPA). • Sites that satisfy the criteria for designation as a ‘European Site’ (see Annex III of the Habitats Directive, as amended). • Features essential to maintaining the coherence of the Natura 2000 Network. • Sites containing ‘best examples’ of the habitat types listed in Annex I of the Habitats Directive. • Resident or regularly occurring populations (assessed to be important at the national level) of the following: <ul style="list-style-type: none"> • Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; and/or • Species of animal and plants listed in Annex II and/or IV of the Habitats Directive. • Ramsar Sites • World Heritage Sites (Convention for the Protection of World Cultural Natural Heritage, 1972). • Sites hosting significant species populations under the Bonn Convention • Sites hosting significant populations under the Berne Convention
National	<ul style="list-style-type: none"> • Areas of Special Scientific Interest (ASSI) or Natural Heritage Area (NHA). • National Nature Reserves (NNR). • Marine Nature Reserves (MNR). • Area of Outstanding Natural Beauty (AONB). • Refuge for species protected under the Wildlife (Northern Ireland) Order 1985 (as amended).

	<ul style="list-style-type: none"> • Undesignated sites fulfilling the criteria for designation as an ASSI; NNR; MNR; and/or refuge for species protected under the Wildlife (Northern Ireland) Order 1985 (as amended). • Resident or regularly occurring populations (important at the national level) of the following: <ul style="list-style-type: none"> • Species protected under Wildlife (Northern Ireland) Order 1985 or Wildlife Act 1976, as amended); and/or • Species listed on the relevant Red Data list. • Sites containing 'viable areas' of the habitat types listed in Annex I of the Habitats Directive.
Regional	<ul style="list-style-type: none"> • Sites of Local Nature Conservation Importance (SLNCI). • Areas subject to a Tree Preservation Order. • Resident or regularly occurring populations (assessed to be important at the Regional level) of the following: <ul style="list-style-type: none"> • Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; • Species of animal and plants listed in Annex II and/or IV of the Habitats Directive; • Species protected under the Wildlife (Northern Ireland) Order 1985 (as amended); and/or • Species listed on the relevant Red Data list. • Sites containing areas of the habitat types listed in Annex I of the Habitats Directive that do not satisfy the criteria for valuation as of International or National importance. • Regionally important populations of species or viable areas of seminatural habitats or natural heritage features identified in the National or Local Biodiversity Action Plan (BAP), if this have been prepared. • Sites containing semi-natural habitat types with high biodiversity in a regional context and a high degree of naturalness, or populations of species that are uncommon within the region. • Sites containing habitats and species that are rare or are undergoing a decline in quality or extent at a national level
Local	<ul style="list-style-type: none"> • Locally important populations of priority species or habitats or features of natural heritage importance identified in the Local BAP, if this has been prepared; • Resident or regularly occurring populations (assessed to be important at the Local level) of the following: <ul style="list-style-type: none"> • Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; • Species of animal and plants listed in Annex II and/or IV of the Habitats Directive; • Species protected under the Wildlife (Northern Ireland) Order 1985 (as amended); and/or • Species listed on the relevant Red Data list. • Sites containing semi-natural habitat types with high biodiversity in a local context and a high degree of naturalness, or populations of species that are uncommon in the locality; • Sites or features containing common or lower value habitats, including naturalised species that are nevertheless essential in maintaining links and ecological corridors between features of higher ecological value • Sites containing small areas of semi-natural habitat that are of some local importance for wildlife; • Sites or features containing non-native species that are of some importance in maintaining habitat links.

Ecological Impact Assessment must also consider the significance of effects that may be expected arising from a proposed development. CIEEM guidelines (2016) define a significant effect as:

“an effect that either supports or undermines biodiversity conservation objectives for ‘important ecological features’... or for biodiversity in general. Conservation objectives may be specific (e.g. for a designated site) or broad (e.g. national/local nature conservation policy) or more wide-ranging (enhancement of biodiversity). Effects can be considered significant at a wide range of scales from international to local”.

It also states that:

“an effect that is sufficiently important to require assessment and reporting so that the decision maker is adequately informed of the environmental consequences of permitting a project. A significant effect is a positive or negative ecological effect that should be given weight in judging whether to authorise a project: it can influence whether permission is given or refused and, if given, whether the effect is important enough to warrant conditions, restrictions or further requirements such as monitoring”.

The criteria for assessment of significance of effects is given in the following table. It should be noted that significant effects may also include beneficial effects.

Table 2: Significance of habitat impacts.

Impact Significance	Effect	Criteria
Significant Negative Effect	Major Adverse	<ul style="list-style-type: none"> Loss of, permanent damage to or adverse impact on any part of a site of international or national importance; Loss of a substantial part or key feature of a site of regional importance; Loss of favourable conservation status (FCS) of a legally protected species; Loss of or moderate damage to a population of nationally rare or scarce species.
	Moderate Adverse	<ul style="list-style-type: none"> Temporary disturbance to a site of international or national importance, but no permanent damage; Loss of or permanent damage to any part of a site of regional importance; Loss of a key feature of local importance; A substantial reduction in the numbers of legally protected species such that there is no loss of FCS but the population is significantly more vulnerable; Reduction in the amount of habitat available for a nationally rare or scarce species, or species that are notable at a regional or county level.
No Significant Effect	Minor Adverse	<ul style="list-style-type: none"> Temporary disturbance to a site of regional value, but no permanent damage; Loss of, or permanent damage to, a feature with some ecological value in a local context but that has no nature conservation designation; A minor impact on legally protected species but no significant habitat loss or reduction in FCS; A minor impact on populations of nationally rare or scarce species or species that are notable at a regional or county level.
	Negligible	<ul style="list-style-type: none"> No impacts on sites of international, national or county importance; Temporary disturbance or damage to a small part of a feature of local importance; Loss of or damage to land of negligible nature conservation value; No reduction in the population of legally protected, nationally rare, nationally scarce or notable (regional level) species on the site or its immediate vicinity. Beneficial and adverse impacts balance such that resulting impact has no overall affect upon feature.
	Minor Beneficial	<ul style="list-style-type: none"> A small but clear and measurable gain in general wildlife interest, e.g. small-scale new habitats of wildlife value created where none existed before or where the new habitats exceeds in area that habitats lost.
Significant Positive Effect	Moderate Beneficial	<ul style="list-style-type: none"> Larger new scale habitats (e.g. net gains over 1 ha in area) created leading to significant measurable gains in relation to the objectives of biodiversity action plans.

	Major Beneficial	<ul style="list-style-type: none"> Major gains in new habitats (net gains of at least 10 ha) of high significance for biodiversity being those habitats, or habitats supporting viable species populations, of national or international importance cited in Annexes I and II of the habitats Directive or Annex I of the Birds Directive.
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3.2.2 Impact duration

The duration of impact must also be considered when assessing overall ecological impacts. Criteria for assessment of duration of impacts used (EPA 2002), the following terms are defined when quantifying duration:

- Temporary: up to 1 year
- Short-term: from 1-7 years
- Medium-term: 7-15 years
- Long-term: 15-60 years
- Permanent: over 60 years

The likelihood of impacts should also be defined. Assessment of likelihood of impact followed CIEEM guidelines. These assesses likelihood as follows:

- Almost Certain: probability estimated at greater than 95%
- Probable or Likely: probability estimated between 50% and 95%
- Unlikely: probability estimated between 5% and 50%
- Extremely Unlikely: probability estimated at less than 5%

4. RESULTS

4.1 Designated Areas

All sites designated for the conservation of nature within 15km of the proposed works are detailed in Table 3. For more information relating to potential impact on designated site, please see the AA Screening report for this proposed development.

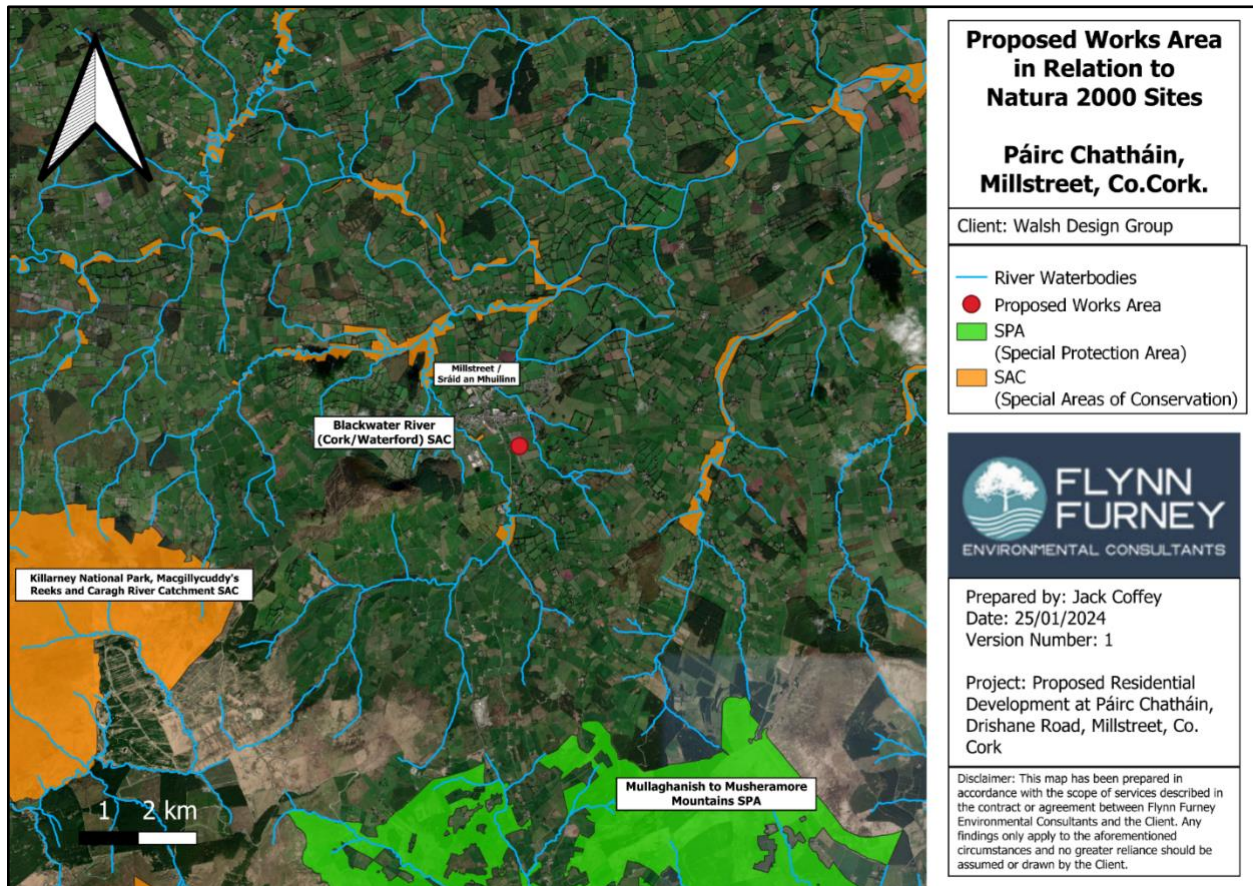


Figure 1: Proposed works area in relation to nearby designated sites.

Table 3: Nearby Designated Sites.

Site Code	Site Name	Designation	Distance from designated site	Likelihood of impact
002170	Blackwater River (Cork/ Waterford) SAC	SAC	560m	None
000365	Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC	SAC	5.2 km	None
004162	Mullaghanish to Musheramore Mountains SPA	SPA	5.77km	None

It has been determined that there is no potential for likely significant effects (LSE) to the conservation objectives of the Blackwater River (Cork/Waterford) SAC due to:

- Proposed works are due to take place in a green field site outside of the Natura 2000 site.
- There are no habitats within the project site which has value to Qualifying Interests of this Natura 2000 site.
- Agricultural related activity regularly occurs on the land situated between the proposed project site and Blackwater River.
- Signs of otter activity was not recorded.
- There is no direct hydrological connectivity as watercourses are absent within the site.
- The red line boundary, within which works will take place, is set back 220m from the Millstreet Stream.
- The site proposed for development slopes downwards from an east to west direction, away from the Millstreet Stream which is situated 220m to the east.
- Proposed water supply is via mains.
- The site is 20m above the water level of the Millstreet Stream and is not subject to flooding.
- Irish Water (Uisce Eireann) have indicated 45m of water network upgrades will be required to provide additional network capacity and 105m of wastewater network upgrades will be required to provide additional network capacity. These works are required on the local road network immediately adjacent to the site proposed for development.
- Proposed lighting will be screened by the retention of the existing hedgerow on the eastern side of the proposed housing development.
- Surface water run-off during the operational phase will be allowed to percolate into the ground via infiltration trenches, 1 no. retention basin and back garden raingardens. Site investigations for infiltration rates have confirmed this proposed system to be adequate. A hydrocarbon interceptor will also be included within the drainage system.
- No works are proposed which may lead to the spread of invasive species into the Natura 2000 site.

No risks to the conservation objectives of any other Natura 2000 sites are considered likely.

4.2 Recorded Habitats

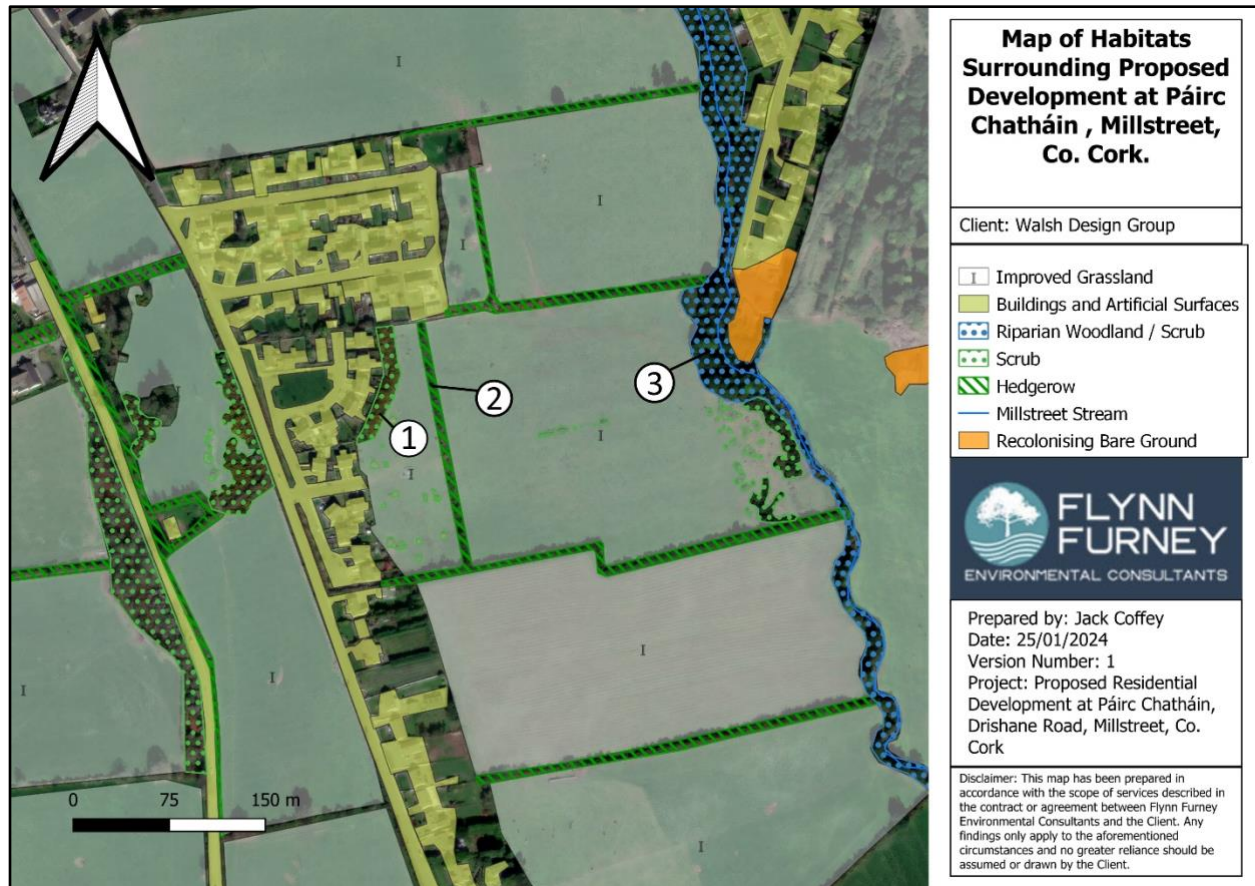


Figure 2: Recorded habitats in and around the proposed development. Note that the woodland at the top right of the image has since been felled and converted to improved grassland; indicated by the grey colour. Important habitats labelled 1-3.

The following habitat types were recorded within or surrounding the site during field work in November 2023. The habitat assessment was carried out according to guidelines given by the Heritage Council (2011) and the JNCC (2010). Maps of all habitat types found within and surrounding the site can be seen in Appendix 1.

4.2.1 Improved Grassland GA1

This habitat had been significantly altered by human activity and is dominated by perennial ryegrass (*Lolium perenne*), dandelion (*Taraxacum officinale*), ribwort plantain (*Plantago lanceolata*) and creeping buttercup (*Ranunculus repens*). Other species present include annual bluegrass (*Poa annua*), tansy ragwort (*Senecio jacobaea*), mouse eared chickweed (*Cerastium fontanum*), sorrel (*Rumex acetosa*) and bull thistle (*Cirsium vulgare*).

4.2.2 Buildings and Artificial Surfaces BL3

No species were recorded.

4.2.3 Riparian Woodland WN5

Located along the Millstreet Stream. It contains hazel (*Corylus avellana*), oak (*Quercus spp.*), alder (*Alnus glutinosa*), ash (*Fraxinus excelsior*) and beech (*Fagus sylvatica*).

4.2.4 Scrub WS1

Composed of furze (*Ulex europaeus*), bramble (*Rubus fruticosus*) and nettle (*Urtica dioica*), is present within the site proposed for development. It is located in small patches within the field and also borders the north-western area, adjacent to an existing residential housing estate.

4.2.5 Hedgerows WL1

Dominated by hawthorn (*Crataegus monogyna*). Holly (*Ilex aquifolium*), sycamore (*Acer pseudoplatanus*), furze (*Ulex europaeus*), hazel (*Corylus avellana*), bramble (*Rubus fruticosus*) and bracken (*Pteridium aquilinum*) are also present.

4.2.6 Upland / Eroding River FW1

The stream found to the east of the proposed development site is known as the Millstreet stream. This watercourse supports the small riparian woodland mentioned above. This stream is of a medium gradient, with some limited salmonid spawning potential. This was confirmed by the presence of 1 no. trout (*Salmo trutta*) redd. Shading is provided by the aforementioned woodland.

5. SIGNIFICANCE OF RECORDED HABITATS

Table 4: Significance of recorded habitats.

Habitat Type	Evaluation	Rationale
Improved Grassland GA1	Low Local	<ul style="list-style-type: none"> Highly modified intensive agricultural grassland.
Buildings and Artificial Surfaces BL3	Low Local	<ul style="list-style-type: none"> Housing and road surfaces, negligible ecological importance.
Riparian Woodland WN5	Medium Regional	<ul style="list-style-type: none"> Composed primarily of native species. Habitat for mammals, birds and bats present.
Scrub WS1	Medium Local	<ul style="list-style-type: none"> Native woody and herbaceous plant species. Suitable nesting habitat for birds. Furze, bramble and nettles provide food and shelter for the larvae of various lepidopterans (butterflies and moths). Bird species recorded onsite included wren (<i>Troglodytes troglodytes</i>), rook (<i>Corvus frugilegus</i>) and starling (<i>Sturnus vulgaris</i>).
Hedgerows WL1	High Local	<ul style="list-style-type: none"> Native woody and herbaceous plant species Can support invertebrate community providing nectar and food and shelter in the form of leafy and woody material. Potential for mammal burrows in earth banks.
Upland / Eroding River FW1	Moderate Local	<ul style="list-style-type: none"> Some limited salmonid spawning potential. This was confirmed by the presence of 1 no. trout (<i>Salmo trutta</i>) redd. This habitat is most suited to the juvenile stage of salmonids, primarily trout (<i>Salmo trutta</i>). Juvenile sea lamprey (<i>Petromyzon marinus</i>), juvenile river lamprey (<i>Lampetra fluviatilis</i>) and brook lamprey (<i>Lampetra planeri</i>) have been recorded downstream in the Finnow River (King & Linnane, 2004), which the Millstreet Stream flows into, approx. 3km downstream of the site proposed for development. It is considered that this section of stream may only be occasionally used by foraging otter (<i>Lutra lutra</i>), due to its size and likely low prey biomass.

6. POTENTIAL IMPACTS ON RECORDED HABITATS

Table 5: Potential impacts on recorded habitats.

Ecological feature	Evaluation	Nature of Impact	Significance	Duration & Likelihood
Improved Grassland GA1	Low Local	All habitat within the site will be lost.	Negligible	Long term, Almost certain.
Buildings and Artificial Surfaces BL3	Negligible	No impact.	Negligible	N/A
Riparian Woodland WN5	Medium Regional	Some low-level light pollution.	Negligible	Long-term, Almost Certain.
Scrub WS1	Medium Local	<ul style="list-style-type: none"> Existing scrub on north western side of site will be removed. 	Minor Adverse	Long-term, Almost certain
Hedgerows WL1	High Local	<ul style="list-style-type: none"> To be retained Light trimming may be required Gaps will be planted up 	Negligible	Long term, Almost certain.
Upland / Eroding River FW1	Moderate Local	No impact is expected.	Negligible	Long term, Likely

7. HABITAT & SPECIES IMPACT MITIGATION

Table 6: Recommended mitigation measures for each recorded habitat.

Ecological feature	Nature of Impact	Recommended Mitigation Measures
Hedgerows WL1	To be retained	<ul style="list-style-type: none"> • Light trimming to be undertaken only where required. • Hedge cutting to be avoided during bird nesting season (March 1st to August 31st). Any cutting required during the bird nesting season requires a bird nesting survey to be conducted by an ecologist beforehand. Any nests recorded will be left alone. If nests are absent, works will be undertaken within 48 hours of the survey. A further survey will be required if works have not been undertaken in that timeframe. • Erect fencing and signage to protect hedgerows from construction activities. • Do not stockpile within close proximity to hedgerows. • Additional planting in hedgerow to use native, locally occurring species only.
Improved Grassland GA1	All grassland within site boundary will be lost.	No mitigation required.
Buildings and Artificial Surfaces BL3	No impact.	No mitigation required.
Riparian Woodland WN5	Some low-level light pollution.	Retain hedgerow to screen light.
Scrub WS1	Existing scrub on north western side of site will be removed.	<ul style="list-style-type: none"> • Removal of scrub to be avoided during bird nesting season (March 1st to August 31st). Any cutting required during the bird nesting season requires a bird nesting survey to be conducted by an ecologist beforehand. Any nests recorded will be left alone. If nests are absent, works will be undertaken within 48 hours of the

		<p>survey. A further survey will be required if works have not been undertaken in that timeframe.</p> <ul style="list-style-type: none"> • Area of scrub to be removed will be replaced with shrub area, trees, wildflower meadow and grass swale. • All trees and shrubs used are non-invasive, pollinator friendly and selected from the All-Ireland Pollinator Plan. • Wildflower meadow will utilise the local seed base and no new seed mixture is to be used. Plants in the wildflower lawn and grass bio-swale will also be locally sourced. • Future maintenance of shrub and tree areas will be conducted in a sensitive manner and be cognisant of the bird nesting season.
Upland / Eroding River FW1	No impact is expected.	<ul style="list-style-type: none"> • No mitigation required during the construction phase due to the distance of works from any watercourses. • Run-off allowed to percolate into the ground via infiltration trenches, 1 no. retention basin and back garden raingardens. Hydrocarbon interceptor recommended.

7.1.2 Mitigation for Breeding Birds

A dedicated bird survey was not carried out. Birds observed during the survey can be seen below in table 7. No significant impacts are expected to any of these species as a result of the proposed development. No 'red-listed' birds - i.e. birds of highest conservation concern - were noted occurring on site. Two species observed are 'amber status' with the remaining species being 'green status'. These species are widespread and common. The boundary hedgerows, treeline and semi-natural grassland perimeter of the proposed development site are likely to be of local importance for birds.

Bird species recorded onsite included Wren (*Troglodytes troglodytes*), Rook (*Corvus frugilegus*) and Starling (*Sturnus vulgaris*). Bird species are not a Qualifying Interest (QI) of the Blackwater River (Cork/Waterford) SAC. The closest SPA is the Mullaghanish to Musheramore Mountains SPA, which is 4.8km away from the proposed site of works. Hen harrier (*Circus cyaneus*) is a QI

species for this Natura 2000 site. Vegetation which may require removal at the proposed development site did not present any suitable nesting habitat for this species.

Table 7: Recorded bird species to the proposed site.

Species Name	Common name	Conservation of Concern - Status
<i>Troglodytes troglodytes</i>	Wren	Green
<i>Corvus frugilegus</i>	Rook	Green
<i>Sturnus vulgaris</i>	Starling	Amber

Table 8: Impacts on bird species and recommended mitigation.

Birds	
Impact Severity	Low Local
Mitigation	<ul style="list-style-type: none"> No hedge-cutting to be undertaken during nesting season March 1st – August 31st. Any cutting required during the bird nesting season requires a bird nesting survey to be conducted by an ecologist beforehand. Any nests recorded will be left alone. If nests are absent, works will be undertaken within 48 hours of the survey. A further survey will be required if works have not been undertaken in that timeframe. Installation of bird boxes by an ecologist is recommended due to loss of some nesting opportunities.

7.1.3 Mitigation for Invasive Plant Species

No invasive plant species were recorded during the site visit.

Ireland is a signatory of a number of international treaties and conventions, including the Convention on Biological Diversity. Such treaties and conventions require the Irish Government to address issues of invasive alien species. This has been implemented through national legislation via the Wildlife Acts 1976 and 2000 (as amended) and further regulated through the European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477).

Articles 49 and 50 of these latter regulations sets out the legal implications associated with alien invasive species and Schedule 3 of the regulations lists non-native species subject to the restrictions of Articles 49 and 50.

Under Article 49 and 50 of these Regulations it is an offence to:

- Plant, disperse, allow dispersal or cause the spread of invasive species.
- Keep the plants in possession for the purpose of sale, breeding, reproduction,
- propagation, distribution, introduction or release.

- Keep anything from which the plant can be reproduced, or propagated from, without a granted licence.

No invasive species listed on schedule 3 were recorded on site. As such invasive species are not predicted to be a constraint to the proposed development.

7.1.4 Mitigation for Amphibians and Reptiles

No suitable breeding habitat for the Common Frog (*Rana temporaria*) or Smooth Newt (*Lissotriton vulgaris*) exists within the proposed development site.

7.1.5 Mitigation for Terrestrial Mammals

Badger (*Meles meles*) droppings were recorded within the broadleaved woodland next to the Millstreet Stream. Rabbit (*Oryctolagus cuniculus*) burrows were also present within hedgerows and the woodland.

An otter (*Lutra lutra*) survey was conducted along the stream for a distance of 150m either side of the proposed works area. No signs of otter activity were recorded. It is considered that this section of stream may only be occasionally used by foraging otter, due to its size and likely low prey biomass.

Table 9: Impacts on badgers as a result of the proposed development and recommended mitigation.

Badger (<i>Meles meles</i>)	
Impact severity	<ul style="list-style-type: none"> • Minor Adverse
Impacts	<ul style="list-style-type: none"> • Temporary light pollution due to construction lighting, security lighting • Light pollution from post-development lighting • Some loss of forage opportunities within proposed site.
Mitigation	<ul style="list-style-type: none"> • Retention of hedgerows as much as possible • Avoid construction works during the periods of dawn and dusk • If works do not commence within 12 months of the original surveys being undertaken, a subsequent mammal survey will be conducted prior to any works commencing.

Table 10: Impacts on otters due to the proposed development and recommended mitigation.

Otter (<i>Lutra lutra</i>)	
Impact severity	<ul style="list-style-type: none"> Negligible
Impacts	<ul style="list-style-type: none"> Temporary light pollution due to construction lighting, security lighting Low-level Light pollution from post-development lighting
Mitigation	<ul style="list-style-type: none"> No mitigation required.

7.1.6 Mitigation for Bat Species

A dedicated bat survey was not carried out as part of this survey work. Potential bat roosting opportunities were investigated, no suitable trees or ruins were recorded.

It is possible that the area in and around the proposed development is used by bats to forage for flying invertebrates at night.

All Irish bat species are protected under the Wildlife Act (1976) and Wildlife Amendment Act (2000). Also, the EC Directive on The Conservation of Natural habitats and of Wild Fauna and Flora (Habitats Directive 1992), seeks to protect rare species, including bats, and their habitats and requires that appropriate monitoring of populations be undertaken. Across Europe, they are further protected under the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention 1982), which, in relation to bats, exists to conserve all species and their habitats. The Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention 1979, enacted 1983) was instigated to protect migrant species across all European boundaries. The Irish government has ratified both these conventions. All bats are listed in Annex IV of the Habitats Directive and the greater horseshoe bat and lesser horseshoe bat are further listed under Annex II.

Table 11: Impacts on bats due to the proposed development and recommended mitigation.

Bats	
Impact severity	<ul style="list-style-type: none"> • Minor Adverse
Impacts	<ul style="list-style-type: none"> • Temporary light pollution due to construction lighting, security lighting • Light pollution from post-development lighting
Mitigation	<ul style="list-style-type: none"> • No works to be conducted after sunset • Any security lighting should be kept to an absolute minimum. • Post-development lighting should be directed away from boundary hedgerow. • Installation of any required lighting columns at the lowest practical height level with box shield fittings will minimise glare and light spillage. • The Lux level of lamps, if needed, should be kept as low as possible. Sodium lamps should be used rather than metal halide. Covers should be made from glass rather than plastic as this minimises the amount of UV light, reducing the attraction effects of lights on insects. • Security lights, if required, should be set on short timers and be sensitive to large moving objects only. • Installation of bat boxes by an ecologist on the site away from any sources of light, for example in sheltered locations on mature whitethorn or blackthorn trees, is recommended.

8. CONCLUSIONS

Significant negative impacts were not predicted for any habitats or species.

Some minor negative impact on local habitats and species is expected due to the loss of scrub habitat. All existing hedgerows will be retained, with only light pruning required and gaps will be interplanted.

Lighting mitigation is important to reduce light pollution on retained hedgerows.

Area of scrub to be removed will be replaced with shrub area, trees, wildflower meadow and grass swale. As shrub areas and trees grow, bird nesting habitat will increase. Bird boxes will also be erected in areas within the site, as directed by an ecologist.

All trees and shrubs used are non-invasive, pollinator friendly and selected from the All-Ireland Pollinator Plan.

Wildflower meadow will utilise the local seed base and no new seed mixture is to be used. Plants in the wildflower lawn and grass bio-swale will also be locally sourced.

The establishment of trees, shrub areas, wildflower meadows, lawns and swales will increase habitat area for invertebrates which will increase foraging opportunities for birds. It is considered this mosaic of habitats will provide enhanced benefit to local bird species and result in a biodiversity net gain overall.

Installation of bat boxes by an ecologist is also recommended. If works do not commence within 12 months of the original surveys being undertaken, a subsequent mammal survey will be conducted prior to any works commencing.

Surface water run-off during construction and post-construction wastewater will be adequately handled and will not negatively affect the local habitats or nearby designated site.