



ENVIRONMENTAL CONSULTANTS

Ecological Impact Assessment Report

Proposed Accelerated Social Housing Scheme
Ballymakenny West

Document Details

Client: Louth County Council

Project Title: Ecological Impact Assessment

Document Title: Proposed Accelerated Social Housing Development at Ballymakenny

Prepared by: Flynn Furney Environmental Consultants

| Rev | Status | Date | Author(s) | Approved by |
|-----|--------|------------|-----------|-------------|
| 01 | DRAFT | 15/01/2024 | LW | |
| 02 | FINAL | 16/01/2024 | LW and ID | ID |
| 03 | Final | 21/03.2024 | LW and ID | |

Contents

| | | |
|-------|--|----|
| 1 | Introduction..... | 5 |
| 1.1 | Outline Description of the Proposed Site of Works..... | 5 |
| 1.2 | Planning Application and Description of Works..... | 6 |
| 2 | Legislation and Planning Policy | 9 |
| 2.1 | European Council Directives | 9 |
| 2.1.1 | Council Directive on the conservation of Natural Habitats of Wild Fauna and Flora..... | 9 |
| 2.1.2 | Council Directive on the Conservation of Wild Birds | 9 |
| 2.2 | Irish Legislation..... | 10 |
| 2.2.1 | The European Communities..... | 10 |
| 2.2.2 | European communities (Birds and Natural Habitats) | 10 |
| 2.3 | Planning Policy | 11 |
| 2.3.1 | National Planning Policy..... | 11 |
| 2.4 | Regional Policy | 13 |
| 2.4.1 | Louth Biodiversity Action Plan for County Louth 2021-2026 | 17 |
| 3 | Methodologies..... | 18 |
| 3.1 | Desk Study..... | 18 |
| 3.2 | Zone of Influence..... | 18 |
| 3.3 | Field Surveys | 19 |
| 3.3.1 | Flora | 20 |
| 3.3.2 | Terrestrial Fauna | 20 |
| 3.3.3 | Bat Surveys..... | 20 |
| 3.3.4 | Avifauna..... | 22 |
| 3.3.5 | Aquatic Environment..... | 22 |
| 3.4 | Statement of Authority of the Ecology Team | 22 |
| 3.5 | Ecological Impact Assessment Methodology | 22 |
| 3.5.1 | Introduction and Context..... | 23 |
| 3.5.2 | Assessing Ecological Value..... | 23 |
| 3.5.3 | Assessing Significance of Effects..... | 27 |
| 3.5.4 | Impact Duration and Likelihood..... | 29 |
| 3.6 | Key Ecological Receptors | 30 |

| | | |
|-------|---|----|
| 4 | Results | 31 |
| 4.1 | Designated Areas..... | 31 |
| 4.1.1 | European Sites | 32 |
| 4.1.2 | Nationally Designated Sites..... | 36 |
| 4.1.3 | All Ireland Wetlands Survey..... | 39 |
| 4.2 | Biodiversity Records | 39 |
| 5 | Field Surveys | 40 |
| 5.1 | Overview of Habitats and Habitats Classification..... | 40 |
| 5.2 | Fauna | 42 |
| 5.2.1 | Mammals | 42 |
| 5.2.2 | Birds | 42 |
| 5.2.3 | Bats..... | 43 |
| 5.2.4 | Amphibians and Reptiles | 43 |
| 5.2.5 | Protected Invertebrates | 44 |
| 5.2.6 | Invasive Species..... | 44 |
| 6 | Impact Assessment..... | 45 |
| 6.1 | Impact Assessment of the Proposed Development..... | 45 |
| 6.1.1 | Impact Assessment: Habitats | 45 |
| 6.1.2 | Impact Assessment: Fauna | 46 |
| 6.1.3 | Cumulative and In-combination Impacts..... | 47 |
| 7 | Discussion of Impact Assessment..... | 48 |
| 7.1 | Impacts on Habitats | 48 |
| 7.2 | Impacts on Fauna..... | 48 |
| 8 | Impact Mitigation | 49 |
| 8.1 | Mitigation Measures: Habitats | 49 |
| 8.2 | Mitigation Measures: Fauna | 51 |
| 8.3 | Residual Impacts after Mitigation..... | 52 |
| 9 | Conclusion..... | 52 |
| | References | 54 |
| | Appendix A: Pictures | 56 |

1 Introduction

The proposed house scheme is part of the Accelerated Delivery programme for residential social housing construction within County Louth. This overall scheme involves the fast tracking of a number of social housing developments with the county to help alleviate the shortage of social housing stock within the county.

The site was visited by Ecologists from Flynn Furney Environmental Consultants Ltd in August 2023 and January 2024. This survey was carried out to investigate whether any Annex I habitats (EU Habitats Directive), Annex II species (EU Habitats Directive), Annex I Bird Species (EU Birds Directive), 'stepping stones/Ecological Corridors' (as covered under Annex 10 of the EU Habitats Directive) or locally important habitats or species are likely to be impacted upon by the proposed development.

This assessment aimed to;

- Establish baseline ecological data for the proposed development site;
- Determine the ecological value of the identified ecological features;
- Assess the impact of the proposed development on ecological features of value (biodiversity);
- Apply mitigation measures to avoid, reduce, remedy or compensate impacts; and
- Identify any residual impacts after mitigation and compensation.

1.1 Outline Description of the Proposed Site of Works

The Ballymakenny West site is located on the Ballymakenny Road on the northern edge of Drogheda. The site is currently croplands surrounded by hedgerows on its western and north western sides. Adjacent to the south and west of the site is further housing developments. To the north is the McCloskey's Bakery and to the east is the Ballymakenny Road and Ballymakenny College. No sensitive ecological receptors were noted within or directly adjacent to the subject site. The closest receptor is the Tullyeskar River which is found 70m from the site north western boundary. The closest European Designated Site is the River Boyne and Blackwater SAC which is 1.6km south of the subject site.

1.2 Planning Application and Description of Works

The Ballymakenny West site is located in a Regional Growth Centre as defined in the Louth County Development Plan 2021-2027. Currently, the development is proposed to include:

The construction of 97no. houses including 12no. 2-bed bungalows, 40no. two storey 2-bed houses, 30no. two storey 3-bed houses, 13no. two storey 4-bed houses, and 2no. 3-bed bungalows.

The development will also include the construction of a new entrance onto the Ballymakenny Road; provision of new cycleway, footpath, and public lighting along the Ballymakenny Road; new estate roads and homezones within the site; 120no. car parking spaces including both on-street and in-curtilage parking; cycle parking; hard and soft landscaping including public open spaces, playground, and private gardens; boundary treatments; ESB substation; lighting; laying of underground sewers, mains and pipes; underground pump station and attenuation tanks; and all associated works.

The site area is 2.93 hectares and the density is 33 dwellings per hectare. The proposed development will also include 14.5% public open space. General works associated with the proposed development include:

- The removal of soil and overburden material
- Connection to services including water, wastewater, stormwater, electricity and broadband, where applicable
- The construction of 97 social housing units
- The installation of SuDS infrastructure including attenuation tanks, petrol/ oil interceptor, bio-retention systems/ rain gardens and tree pits
- Landscaping and;
- All associated site works.

Attenuation tanks will only be used as a last resort where other measures are not feasible. They will be provided on site and will have the capacity for site storage for 1/100 storm and 20% climate change with hydrobrake connection to mains. Petrol/ oil interceptors will be included in the overall drainage design. Bio-retention systems/ rain gardens and tree pits will be included in the landscape design but are not included in SuDS calculation due to impermeable ground conditions and poor infiltration however they

will still contribute to overall SuDS.



Figure 1.1 Proposed site layout at the Ballymakenny West site provided by EML Architects

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

2.1.1.1 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

2.1.2.1 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.

2.2 Irish Legislation

2.2.1 The European Communities

2.2.1.1 *(Birds and Natural Habitats) (Amendment) Regulations 2015 S.I. No. 355 of 2015*

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)

2.2.2 European communities (Birds and Natural Habitats)

2.2.2.1 *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.

2.2.2.2 *Wildlife Acts 1976 to 2012*

The Acts provide 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.

2.2.2.3 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.

2.3 Planning Policy

2.3.1 National Planning Policy

2.3.1.1 Project Ireland 2040 – National Planning Framework

The National Planning Framework (NPF) is a high-level strategy that will shape growth and development in Ireland up to 2040. The NPF draws upon lessons learned from the National Spatial Strategy 2002-2022 and provides a framework for the sustainable development of Ireland's existing settlements. As a framework document it sets in train a process by which more detailed planning documents must follow, including the relevant RSES and County Development Plan. The Strategy contains a range of National Policy Objectives (NPO's) providing a wider context for targeting future growth across the country, and which support the delivery of residential development at a suitable location and scale to achieve an overall target of 550,000 additional households nationwide by 2040.

The National Planning Framework 2040 sets out the importance of development within existing urban areas, and sets out strategic objectives which Planning Authorities are to have regard to.

Under the NPF Drogheda is recognised as a regional growth centre in the context of a Dublin-Belfast corridor, and being of importance due to its links with Dundalk and Newry.

Key policies of the NPF in this regard include ‘a focused approach to compact, sequential and sustainable development of the larger urban areas along the Dublin- Belfast economic and transport corridor, along which there are settlements with significant populations such as Dundalk and Drogheda.’ (p. 35)

Furthermore, we highlight a number of objectives contained within the NPF which specifically refer to the subject site such as:

Objective 3a ‘To deliver at least 40% of all homes Nationally within the built-up footprint of existing urban settlements.’

Objective 3b ‘Deliver at least 30% of all new homes that are targeted in settlements other than the five Cities and their suburbs, within their existing built-up footprints’.

Objective 4 states to ‘ensure the creation of attractive, liveable, well designed, high quality urban places that are home to diverse and integrated communities that enjoy a high quality of life and wellbeing.’

Objective 5 ‘To develop cities and towns of sufficient scale and quality to compete internationally and be drivers of national and regional growth, investment and prosperity.’

Objective 6 ‘Regenerate and rejuvenate cities, towns and villages of all types and scale as environmental assets, that can accommodate changing roles and functions, increased residential population and employment activity and enhanced levels of amenity and design quality, in order to sustainably influence and support their surrounding area.’

Objective 7 ‘Reversing the stagnation or decline of many smaller urban centres, by identifying and establishing new roles and functions and enhancement of local infrastructure and amenities’; and

‘Encouraging population growth in strong employment and service centres of all sizes, supported by employment growth.’

In more self-contained settlements of all sizes, supporting a continuation of balanced population and employment growth.’

Objective 11 ‘In meeting urban development requirements, there will be a presumption in favour of development that can encourage more people and generate more jobs and activity within existing cities, towns and villages, subject to development meeting appropriate planning standards and achieving targeted growth.’

Objective 13 states ‘In urban areas, planning and related standards, including in particular building height and car parking will be based on performance criteria that seek to achieve well- designed high quality outcomes in order to achieve targeted growth.’

Objective 35 states ‘Increase residential density in settlements through a range of measures including reductions in vacancy, re-use of existing buildings, infill development schemes, area or site-based regeneration and increased building heights.’

2.4 Regional Policy

The RSES for the Eastern and Midland Region (EMRA) sets out the strategic plan and investment framework aimed to ‘shape future development and to better manage regional planning and economic development throughout the Region.’

In line with the NPF, Drogheda is recognised by the Regional Spatial and Economic Strategy for the Eastern and Midland Region (RSES 2018) as a regional growth centre and a regional driver.

The policy for the Dublin-Belfast corridor encourages focused growth in the Regional Growth Centres of Drogheda and Dundalk to grow to city scale, with Drogheda having been identified for significant population growth to achieve a population in the region of 50,000 by 2031.

In terms of the development strategy outlined in the RSES, it echoes the NPF in that it states:

‘Facilitating housing is paramount to ensuring the sustainability, vitality and viability of the rural places of the Region. Support for housing and population growth within rural towns and villages will help to act as a viable alternative to rural one-off housing, contributing to the principle of compact growth.’

As stated in the County Development Plan, the Drogheda Port Access Northern Cross Route (PANCR) is an arterial road that is planned to provide a direct link between Drogheda Port and the M1 Motorway. This is critical infrastructure which will remove HGVs and port related traffic from the town centre. Ballymakenny Rd is included in the planned upgrades. This falls under Policy Objective MOV52.

MOV 52 *To support the progression of the Drogheda Port Access Northern Cross Route and to continue to engage with stakeholders and local landowners in securing the funding to deliver the project.*

Regarding natural heritage, green infrastructure and biodiversity (Chapter 8), the County Development Plan commits the County to the promotion of a sustainable management of the landscape and coast, defining specific objectives such as:

NBG 2 *To promote and implement the objectives of the Local Biodiversity Action Plan for County Louth 2021 - 2026 and any subsequent Louth Biodiversity Action Plan published during the life of this Plan.*

NBG 3 *To protect and conserve Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) designated under the EU Habitats and Birds Directives.*

NBG 4 *To ensure that all proposed developments comply with the requirements set out in the DECLG 'Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities 2010'*

NBG 5 *To ensure that no plan, programme, or project giving rise to significant cumulative, direct, indirect or secondary impacts on European sites arising from their size or scale, land take, proximity, resource requirements, emissions (disposal to land, water or air), transportation requirements, duration of construction, operation, decommissioning or from any other effects shall be permitted on the basis of this Plan, either individually or in combination with other plans, programmes or projects.*

NBG 6 *To ensure a screening for Appropriate Assessment (AA) on all plans and/or projects and/or Stage 2 Appropriate Assessment (Natura Impact Report/ Natura Impact Assessment) where appropriate, is undertaken to make a determination. European Sites located outside of the County but within 15km of the proposed development site shall be included in such screenings as should those to which there are*

pathways, for example, hydrological links for potential effects.

NBG 7 To co-operate with the Regional Planning Assembly and adjoining local authorities, public agencies and community interests to protect regionally significant heritage assets, environmental quality, and to identify threats to existing environmental quality in a transboundary context throughout the region including Northern Ireland.

NBG 8 To consult with the National Parks and Wildlife Service, taking account of their views and any licensing requirements, when undertaking, approving or authorising development, which is likely to affect plant, bird or other animal species protected by law.

NBG 9 To ensure that proposals for development, where appropriate, protect and conserve biodiversity sites outside designated sites and require an appropriate level of ecological assessment by suitably qualified professionals to accompany development proposals likely to impact on such sites.

NBG 10 To ensure that development proposals, where relevant, improve the ecological coherence of the Natura 2000 Network of European Sites and encourage the retention and management of landscape features as per Article 10 of the Habitats Directive.

NBG 11 Where feasible, ensure that no ecological networks, or parts thereof, which provide significant connectivity between areas of local biodiversity, are lost without remediation as a result of implementation of this Plan.

NBG 12 Prevent and control the spread of invasive plant and animal species within the County.

NBG 13 Development sites must be investigated for the presence of invasive species, which if present must be treated and/or eradicated in accordance with best practice. Where appropriate, Invasive Species Management Plans will be prepared for such sites

NBG 14 To protect from inappropriate development and maintain the character, integrity and conservation value of those features or areas of ecological interest listed as pNHA or that may be designated as NHA, during the lifetime of this Plan.

NBG 15 To ensure that any development within or adjacent to a NHA or pNHA is designed and sited to minimise its impact on the ecological value of the site and to resist development that would result in a significant deterioration of habitats or a disturbance of species.

NBG 20 To protect and enhance wetland sites that have been rated A (International), B (National), C+ (County), C and D importance in the Louth Wetland Surveys and any subsequent versions thereof.

NBG 21 To support the implementation of recommendations included in the Louth Wetland Survey and any subsequent versions thereof.

Chapter 11 sets out policies for the environment, natural resources and the coast. With the objective to: “Harness the County’s natural and coastal resources in a manner that is compatible with the sensitivity of rural areas, the existing quality of life, and the protection and enhancement of the County’s natural environment”

Furthermore, we highlight a number of objectives contained within Chapter 11 which specifically refer to the subject site such as:

ENV 1 To implement European, National and Regional policy in relation to the protection of the environment, climate action and the pursuance of sustainable development principles in respect of the Council’s policies and procedures.

ENV 4 To support the goals and objectives of the EU Green Deal, the Climate Action Plan 2019 and the Climate Action Charter in ensuring sustainable development across the County.

ENV 8 To ensure that all external lighting whether free standing or attached to a building shall be designed and constructed so as not to cause excessive light spillage, glare, or dazzle motorists, and thereby limiting light pollution into the surrounding environment and protecting the amenities of nearby prop

ENV 15 To implement the recommendations contained in the River Basin District Management Plans for Ireland 2018-2021 or any subsequent plan. Proposed plans, programmes and projects shall not have an unacceptable impact on the water environment, including surface waters, groundwater quality and

quantity, river corridors and associated woodlands. Also, to have cognisance of, where relevant, the EU's Common Implementation Strategy Guidance Document No. 20 and 36 which provide guidance on exemptions to the environmental objectives of the Water Framework Directive.

ENV 19 To implement the requirements of the Groundwater Protection Scheme to protect known and potential ground water reserves.

ENV 39 Protect and preserve existing hedgerows in new developments, particularly species rich roadside and townland boundary hedgerows, and where their removal is necessary during the course of road works or other works seek their replacement with new hedgerows of native species indigenous to the area.

ENV 38 To retain and protect significant stands of existing trees/ hedgerows/woodlands, and seek increased planting of native trees, where appropriate, in new developments.

2.4.1 Louth Biodiversity Action Plan for County Louth 2021-2026

The vision of this biodiversity plan is for County Louth to have healthy people and wildlife, thriving in a healthy, natural environment. The county intends to move from a goal of "No net loss of biodiversity" to "Net gain", that is active management and restoration of our life support systems. It sets out a number of draft objectives to protect biodiversity within the county:

Objective 1: Mainstream biodiversity into decision-making across all sectors

Objective 2: Strengthen the knowledge base for conservation, management, and sustainable use of biodiversity

Objective 3: Increase awareness and appreciation of biodiversity and ecosystem services

Objective 4: Conserve and restore biodiversity and ecosystem services in the wider countryside

Objective 5: Conserve and restore biodiversity and ecosystem services in the marine environment

Objective 6: Expand and improve management of protected areas and species

This Louth Local Biodiversity Action Plan will be reviewed and updated, as necessary, within six months of the publication of the fourth National Plan, to ensure that it continues to align with national priorities for biodiversity.

3 Methodologies

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 OSI Geohive Database
- The NPWS Protected Species Database and Online Mapping
- The Environmental Protection Agency Database and;
- The EPA Water Quality in Ireland Report

Designated sites were identified using the current boundary shapefiles (SAC 2023, SPA 2023, NHA 2019/06, pNHA 2015), downloaded from the NPWS website. Other online mapping reviewed included Geohive maps, All Ireland Wetland Survey maps, aerial photography and EPA shapefile datasets. Habitat mapping reviewed included the Irish Semi-Natural Grassland Surveys (ISGS), the National Survey of Native Woodland (NSNW) and the Ancient and long-established Woodland (NPWS shapefiles). Desk research also included review of records available through the National Biodiversity Data Centre mapping system.

3.2 Zone of Influence

Following the guidance set out by the (NRA, 2009b), the proposed development has been evaluated based on an identified zone of influence (Zoi) with regard to the potential impact pathways to ecological feature (habitats, flora and fauna). The Zoi for terrestrial habitats is limited to the footprint of the proposed

development. Hydrological linkages between the proposed development and aquatic habitats/species can occur over significant distances; however, the significance of the impact will be site specific depending on the receiving water environment and nature of the potential impact. Adopting a precautionary approach, the distance over which surface water discharges could have a significant impact on receiving watercourses is considered to extend downstream of the proposed development site to the Irish Sea. The Zol for significant impacts to breeding birds is considered to extend no more than 100m from the proposed development to take account of disturbance during construction. The Zol for mammals such as bats, badgers and otters may extend over larger distances due to the fact that they can commute and forage many kilometres from their breeding sites.

3.3 Field Surveys

Field work for this survey was carried out in August 2023 and January 2024. The primary aims of the field surveys were to:

- Identify habitat types within the study area
- Assess for the presence of protected species of flora and fauna
- Identify ecological and environmental constraints to the construction of this residential development
- Identify ecological sensitivities around and within the study area
- Identify any protected fauna species that may be present.

These surveys considered a broad survey area to ensure all other important features that could be impacted by the development due to connectivity to the proposed development site were considered. These included significant treelines and hedgerows, mammal paths, streams and other watercourses feeding and surrounding parts of the application site. Gross habitat mapping was carried out and is presented in Appendix A. Surveys were carried out for mammals, birds, invertebrates, mature and veteran trees, habitats, bat roosting habitats and botanical features where considered necessary. The surveys and impact assessment have been carried out in accordance with the following guidelines:

- Habitat survey and mapping was carried out as per the guidelines given by Smith et al (2011).
- Habitats were classified according to Fossitt's Guide to Habitats in Ireland (Fossitt, 2000).
- Surveys for invertebrates were carried out National Road Scheme's Ecological Surveying Techniques for protected Flora and Fauna (NRA, 2008).
- Mammal survey methodology followed NRA (2008) and NRA (2005).
- Bat surveys methodology followed Collins (2016) and classification of bat roost potential followed Billington & Norman (1997) .

These surveys were all carried out by experienced competent ecologists of Flynn Furney Environmental Consultants during optimal time periods. No ecological survey constraints exist for this project.

3.3.1 Flora

Habitats on site were classified using A Guide to Habitats in Ireland (Fossitt, 2000) and mapped in accordance with the 'Best Practice Guidance for Habitat Survey and Mapping' (Smith, O'Donoghue, O'Hora, & Delaney, 2011). The classification is a standard scheme for identifying, describing and classifying wildlife habitats in Ireland. The classification is hierarchical and operates at three levels, using codes to differentiate habitats based on the plant species present. Species recorded in this report are given both their Latin and common names, following the nomenclature as given in the 'New flora of the British Isles' (Stace, 2010). Invasive species listed on Schedule 3 of the Birds and Natural Habitats Regulations 2011 (as amended) were also recorded during site visits and findings are discussed in this report.

3.3.2 Terrestrial Fauna

The site survey conducted included an assessment of the presence, or likely presence, of a range of rare or protected fauna species. Habitats were assessed for field signs and/or usage by fauna, such as well-used pathways, droppings, places of shelter and features or areas likely to be of particular value as foraging resources.

3.3.3 Bat Surveys

The proposed works are largely planned for arable land, with immature treeline/ hedgerow / linear

woodland to the west and northwest. Bat surveys included a visual inspection during daylight hours of trees and hedgerows within the area, an assessment for roosting bats. Bat habitat suitability was assessed as per Collins' Bat surveys for professional ecologists: Good practice guidelines (3rd edn.) which sets out the need for bat surveys and the methodology to assess habitats for bat suitability. It is considered that a bat roost survey was not required owing to the nature and condition of the hedges that would be impacted by the project. With the assumption made that the hedgerows on site is providing a commuting and foraging habitat irrespective of activity levels. The hedgerows have low suitability bat habitat as it does not provide enough space, shelter, protection to be used by a large number of bats on a regular basis. However, the habitat is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water and can be determined 'Moderately suitable' in terms of connectivity.

Table 3.1 Impacts on bats (Bat Conservation Trust, 2016)

| Impacts on bats that can arise from the proposed activities | | |
|---|--|--|
| Bats | Roosting habitats | Commuting and foraging habitats |
| Physical disturbance through, for example, increased human presence or the use of noise-generating equipment. | Modification of access points to roost either physically or through, for example, lighting or removal of vegetation | Modification of commuting or foraging habitats either physically or through disturbance, e.g. light spill/ noise |
| Lighting disturbance. | Modification of roost either physically, for example by roof removal, or through, for example, changed temperature, humidity, ventilation or lighting regime | Severance of commuting routes (fragmentation) |
| Injury/ mortality (e.g. in roost during destruction or collision with traffic. | Loss of roosts | Loss of foraging habitat |

3.3.4 Avifauna

The site was assessed for the suitability of bird breeding habitats. Birds were observed and recorded during field surveys. Surveys targeted BOCCI species but also recorded common species.

3.3.5 Aquatic Environment

The ecological survey included the assessment of the site for drains which may drain into waterbodies, which in turn would impact water quality and aquatic fauna.

3.4 Statement of Authority of the Ecology Team

Flynn Furney Environmental Consultants have more than 20 years of experience in ecological surveying and management. The company has detailed knowledge on the principles and implementation of both Irish and European environmental legislation. FFEC has worked closely with statutory bodies including the National Parks and Wildlife Service and Waterways Ireland on habitat management and protection projects. Other expertise includes Ecological Impact Assessment, Habitat and Floral Surveys, Bird Surveying, Bat Surveying, Fish and Waterways surveys.

The surveying and reporting were carried out by **Ian Douglas and Lauren Woods**.

3.5 Ecological Impact Assessment Methodology

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).

- Guidelines for Assessment of Ecological Impacts of National Road Schemes (NRA, 2009).

Ecological features (habitats and species) were evaluated for their conservation importance according to the National Roads Authority's scheme (NRA 2009). For habitats or species, significance of effects was assessed with reference to their conservation status, abundance and distribution. Description of significant effects follows guidance outlined in the EPA Draft Revised Guidelines on the Information to be Contained in EIS (EPA, 2015b). The term 'significant effect' as used in this report follows guidance (CIEEM, 2018) and is an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general. In the case of designated sites, a negative significant effect would be one that undermines the conservation objectives and targets for that site. The significance of impacts on habitats was determined with reference to the value of the feature being affected and the magnitude of the impact. Impacts are considered ecologically significant at a stated geographic scale or are considered not significant.

3.5.1 Introduction and Context

The impacts which may be expected from the development of the proposed recreational area are assessed below. These possible impacts have been assessed under the CIEEM (2018) and the National Roads Authority guidelines (NRA, 2006). Criteria for assessment of duration of impacts used (EPA 2002). These provide guidance on assessing impact significance upon features of sites proposed for works. Impact significance must be given in context of their respective ecological value of the site and features under study.

3.5.2 Assessing Ecological Value

The 'ecological value' of an area or feature is therefore 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 3.2**.

Table 3.2 Ecological Value Criteria

| 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. |
| <p>Regional</p> | <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 semi-natural • habitats or natural heritage features identified in the National or Local Biodiversity Action Plan (BAP), if this have been prepared. |

| | |
|---------------------|---|
| | <ul style="list-style-type: none"> • 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. |
| <p>Local</p> | <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 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 (2018) 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”.

3.5.3 Assessing Significance of Effects

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 3.3 Criteria for Assessing Significance of Effects

| Impact Significance | | 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 |

| | | |
|------------------------------|-------------------------|--|
| | | <ul style="list-style-type: none"> • 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; |

| | | |
|------------------------------------|----------------------------|--|
| | | <ul style="list-style-type: none"> 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. |

3.5.4 Impact Duration and Likelihood

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 when quantifying duration:

Table 3.4 Impact Duration and Timescales

| Impact Duration | Timescale |
|------------------------|------------------|
| Temporary | Up to 1 year |
| Short-term | 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. The assessed likelihood are as follows:

Table 3.5 Likelihood and Probability of Impacts

| Likelihood | Probability |
|--------------------|---|
| 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% |
| Almost Certain | Probability estimated at greater than 95% |

3.6 Key Ecological Receptors

In accordance with National Roads Authority guidelines (2009), impact assessment is only undertaken of ‘key ecological receptors’ (KERS). KERS are within the zone of influence of the project and are “both of sufficient value to be material in decision making and likely to be affected significantly”. To qualify as KERS, features must be of local ecological importance (higher value) or higher.

Features falling below this threshold are not assessed. Impacts are described as being either significant or not significant. Broadly, significant effects encompass impacts on the structure and function of defined sites, habitats or ecosystems and the conservation status of habitats and species (including extent, abundance and distribution) (CIEEM, 2018).

4 Results

4.1 Designated Areas

The proximity of the proposed development area to European sites, and Qualifying Interests (QIs)/ Special Conservation Interests (SCIs) of European sites, is of importance when identifying potentially likely significant effects. Mobile species have ‘range’ outside of the European site in which they are QI/SCI. The range of mobile QI/SCI species varies considerably, from several meters (e.g. in the case of whorl snails *Vertigo* spp.), to hundreds of kilometres (in the case of migratory wetland birds). Whilst static species and habitats are generally considered to have Zols within close proximity of the proposed development, they can be significantly affected at considerable distances from an effect source; for example, where an aquatic QI habitat or plant is located many kilometres downstream from a pollution source. Hydrological linkages between the proposed development and European sites (and their QIs/SCIs) can occur over significant distances; however, any effect will be site specific depending on the receiving water environment and nature of the potential impact. A reasonable worst-case Zol for water pollution from the proposed development is considered to be the ground and surface water, wherein the proposed works are to be located. The likely effects of the proposed development on European sites has been appraised using a source-pathway-receptor model, where:

- A ‘source’ is defined as the individual element of the proposed development that has the potential to impact on an European site, its qualifying features and its conservation objectives;
- A ‘pathway’ is defined as the means or route by which a source can affect the ecological receptor;
- A ‘receptor’ is defined as the Special Conservation Interests of Special Protection Areas (SPA) or Qualifying Interests (QI) of Special Areas of Conservation (SAC) for which Conservation Objectives have been set for the European sites being screened.
- A source-pathway-receptor model is a standard tool used in environmental assessment. In order for an effect to be likely, all three elements of this mechanism must be in place. The absence or removal of one of the elements of the mechanism results in no likelihood for the effect to occur.

The source pathway-receptor model was used to identify a list of European sites, and their QIs/SCIs, with potentially links to European sites. These are termed as ‘relevant’ European sites/QIs/SCIs throughout this report

4.1.1 European Sites

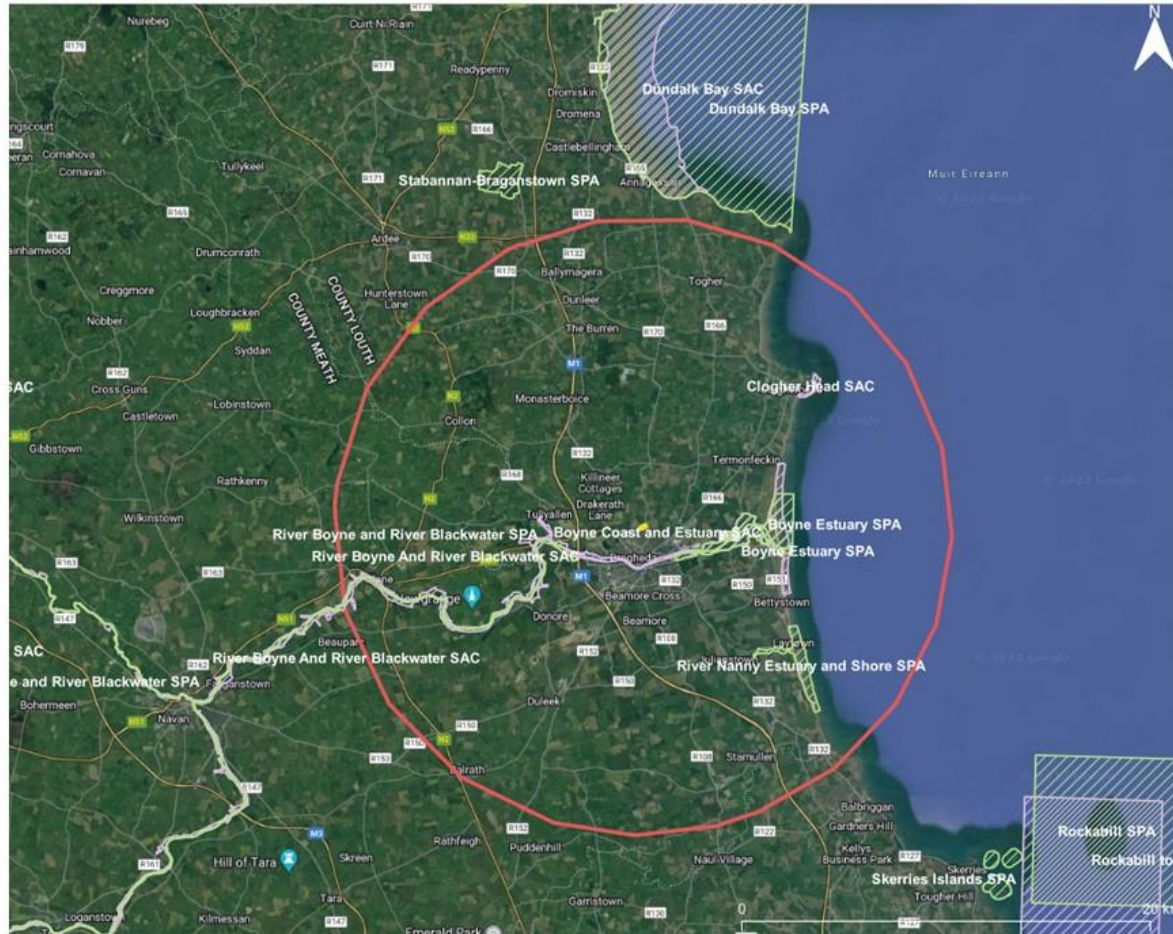
SACs are sites of international importance due to the presence of Annex I habitats and/or Annex II species listed under the EU Habitats Directive (92/43/EEC). SPAs are designated for the protection of bird species listed on Annex I of the Bird Directive (2009/147/EC), regularly occurring populations of migratory species and areas of international importance for migratory birds. The European sites correspond to those that were subject to Screening for Appropriate Assessment (presented under separate cover). The assessment considered the European sites within the ZoI of the proposed development and/or with hydrological connectivity to the proposed development sites, and concluded that there is no likelihood of effects as a result of the proposed development, either alone or in combination with other plans and projects, if the correct mitigation measures are enacted. All sites designated for the conservation of nature within 15km of the proposed works are detailed in **Table 4.1**

Table 4.1 Internationally designated sites within 15km of the proposed development

| Site Name, Designation and Code | Qualifying Interest | Approximate Distance from the Site |
|---|---|------------------------------------|
| River Boyne And River Blackwater SAC [002299] | <ul style="list-style-type: none"> • Alkaline fens [7230] • Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> <i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i> [91E0] • <i>Lampetra fluviatilis</i> (River Lamprey) [1099] • <i>Salmo salar</i> Salmon [1106] • <i>Lutra</i> Otter [1355] | 1.6km |
| Boyne Estuary SPA | <ul style="list-style-type: none"> • Shelduck <i>Tadorna tadorna</i> [A048] | 1.9km |

| | | |
|---|---|-------|
| [004080] | <ul style="list-style-type: none"> • Oystercatcher <i>Haematopus ostralegus</i> [A130] • Golden Plover <i>Pluvialis apricaria</i> [A140] • Grey Plover <i>Pluvialis squatarola</i> [A141] • Lapwing <i>Vanellus vanellus</i> [A142] • Knot <i>Calidris canutus</i> [A143] • Sanderling <i>Calidris alba</i> [A144] • Black-tailed Godwit <i>Limosa limosa</i> [A156] • Redshank <i>Tringa totanus</i> [A162] • Turnstone <i>Arenaria interpres</i> [A169] • Little Tern <i>Sterna albifrons</i> [A195] • Wetland and Waterbirds [A999] | |
| Boyne Coast and Estuary SAC [001957] | <ul style="list-style-type: none"> • Estuaries [1130] • Mudflats and sandflats not covered by seawater at low tide [1140] • Annual vegetation of drift lines [1210] • Salicornia and other annuals colonising mud and sand [1310] • Atlantic salt meadows (<i>Glaucopuccinellietalia maritimae</i>) [1330] • Embryonic shifting dunes [2110] • Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] • Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] | 1.9km |
| River Boyne and River Blackwater SPA [004232] | <ul style="list-style-type: none"> • Kingfisher <i>Alcedo atthis</i> [A229] | 3.4km |

| | | |
|--|---|--------|
| River Nanny Estuary and Shore SPA [004158] | <ul style="list-style-type: none"> • Oystercatcher <i>Haematopus ostralegus</i> [A130] • Ringed Plover <i>Charadrius hiaticula</i> [A137] • Golden Plover <i>Pluvialis apricaria</i> [A140] • Knot <i>Calidris canutus</i> [A143] • Sanderling <i>Calidris alba</i> [A144] • Herring Gull <i>Larus argentatus</i> [A184] • Wetland and Waterbirds [A999] | 8.4km |
| Clogher Head SAC [001459] | <ul style="list-style-type: none"> • Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] • European dry heaths [4030] | 10.3km |








| | |
|--|--|
| Ballymakenny West Accelerated Social Housing | |
| Client: Louth County Council | |
| Legend  Special Protected Areas  Special Areas of Conservation  Ballymakenny West Location  15km Buffer | |
|  | |
| Prepared by: Lauren Woods Date: 16/01/2023 Version: 1 Project: Ballymakenny West Accelerated Social Housing Imagery from: Google | |
| Disclaimer: This map has been prepared in accordance with the scope of services described in the contract or agreement between Flynn Furney Environmental Consultants and the Client. Any findings only apply to the aforementioned circumstances and no greater reliance should be assumed or drawn by the Client. | |

Figure 4.1 SACs and SPAs within 15km of the proposed development

The project has already been screened for AA by the current authors, Flynn Furney Environmental Consultants (2023). The AA Screening report concluded:

‘In our professional opinion and view of the best scientific knowledge and view of the conservation objectives of the European sites reviewed in the screening exercise, the proposed development individually/in combination with other plans and projects (either directly or indirectly) is not likely to have any significant effects on European designated site. **Therefore, progression to Stage 2 Appropriate Assessment is not required.**’

4.1.2 Nationally Designated Sites

Natural Heritage Areas (NHAs) are sites deemed to be of national ecological importance and are afforded protection under the Wildlife (Amendment) Act 2000. Many NHA boundaries overlap with European sites. The proposed NHAs (pNHAs) have not been statutorily proposed or designated under the Wildlife Act (as amended). However they are afforded some protection under planning legislation and objectives are included in the current County Development Plan specifically aimed at protecting pNHAs or providing complimentary protective measures that enhance the network of pNHAs.

The Louth County Council Development Plan 2021-2027 sets out policies and objectives to develop and improve the social, economic, environmental and cultural assets of the County. Regarding natural heritage, green infrastructure and biodiversity, it commits the County to the promotion of a sustainable management of the landscape and coast, defining specific objectives for the protection of pNHAs.

NBG 14 To protect from inappropriate development and maintain the character, integrity and conservation value of those features or areas of ecological interest listed as pNHA or that may be designated as NHA, during the lifetime of this Plan.

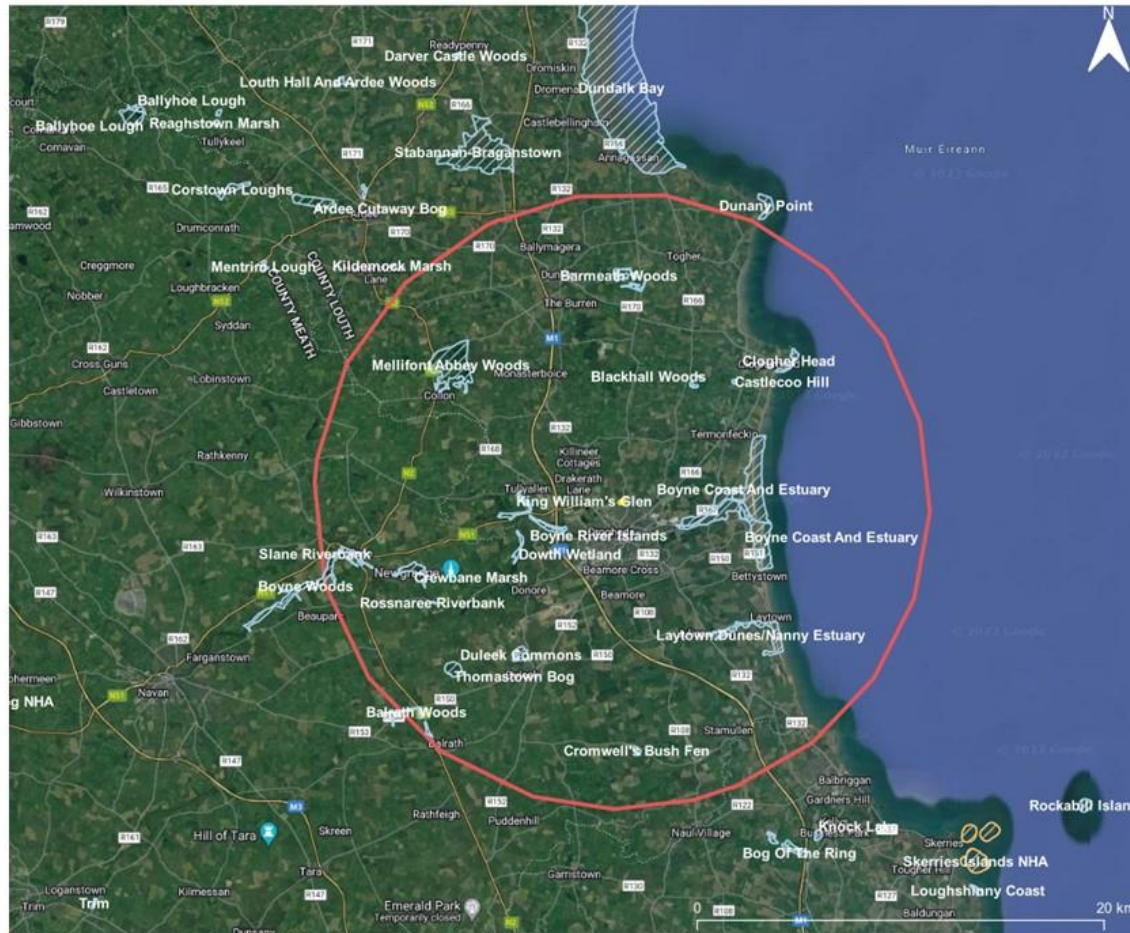
NBG 15 To ensure that any development within or adjacent to a NHA or pNHA is designed and sited to minimise its impact on the ecological value of the site and to resist development that would result in a significant deterioration of habitats or a disturbance of species.

There are no NHAS within 15km of the proposed development. However, there are 17 pNHAs within 15km

of the proposed development. These sites are at a great remove and have no identifiable connectivity with the proposed works. Given the nature and scale of the works, there is no known vector, pathway or conduit for impacts between the proposed works and NHAs/ pNHAs. Therefore, the proposed works are considered *extremely unlikely* (NRA, 2009) to have any significant direct or indirect impacts on the remaining the sites and they are not considered further.

Table 4.2 NHA/ pNHA sites within 15km of the proposed development

| Site Name and Code | Designation | Approximate Distance to Site |
|------------------------------|-------------|------------------------------|
| Barmeath Woods | pNHA | 10.3km |
| Blackhall Woods | pNHA | 6.6km |
| Castlecoo Hill | pNHA | 7.8km |
| Clogherhead | pNHA | 9.8km |
| Boyne Coast and Estuary | pNHA | 4.2km |
| Laytown Dunes/ Nanny Estuary | pNHA | 8.2km |
| Cromwell's Bush Fen | pNHA | 12km |
| Duleek Commons | pNHA | 8.7km |
| Thomastown Bog | pNHA | 11km |
| Balrath Woods | pNHA | 14.1km |
| Boyne River Islands | pNHA | 3km |
| Dowth Wetland | pNHA | 5.2km |
| Crewbane Marsh | pNHA | 10.4km |
| Slane Riverbank | pNHA | 13.1km |
| King William's Glen | pNHA | 4.7km |
| Mellifont Abbey Woods | pNHA | 9.4km |



| | |
|---|--|
| Ballymakenny West Accelerated Social Housing | |
| Client: Louth County Council | |
| Legend <ul style="list-style-type: none"> Proposed Natural Heritage Areas Natural Heritage Areas Ballymakenny West Location 15km Buffer | |
| | |
| Prepared by: Lauren Woods Date: 16/01/2023 Version: 1 Project: Ballymakenny West Accelerated Social Housing Imagery from: Google | |
| Disclaimer: This map has been prepared in accordance with the scope of services described in the contract or agreement between Flynn Furney Environmental Consultants and the Client. Any findings only apply to the aforementioned circumstances and no greater reliance should be assumed or drawn by the Client. | |

Figure 4.2 pNHAs within 15km of the proposed development

4.1.3 All Ireland Wetlands Survey

Wetland is a collective term for ecosystems (habitats and their associated species) whose formation has been dominated by water, and whose processes and characteristics are largely controlled by water. A wetland is a place that has been wet enough for a long enough time to develop specially adapted vegetation and other organisms (Maltby 1986). They occur where the water table is at or near the surface of the land, or where the land is covered by a layer of shallow water, either throughout the entire year or seasonally.

The All-Ireland Wetland Survey In conjunction with Foss Environmental Consulting, Wetland Surveys have developed an online map of all known wetlands in the Republic of Ireland. This map was investigated to identify any wetlands which may be affected by the proposed development.

The Louth County Council Development Plan 2021-2027 sets out policies and objectives to protect wetlands recognising that while many protected areas include wetlands, most wetland areas occur outside protected sites. It specifically defines objectives for the protection of these wetlands.

NBG 20 To protect and enhance wetland sites that have been rated A (International), B (National), C+ (County), C and D importance in the Louth Wetland Surveys and any subsequent versions thereof.

No wetlands were identified as having the possibility to be affected by the development.

4.2 Biodiversity Records

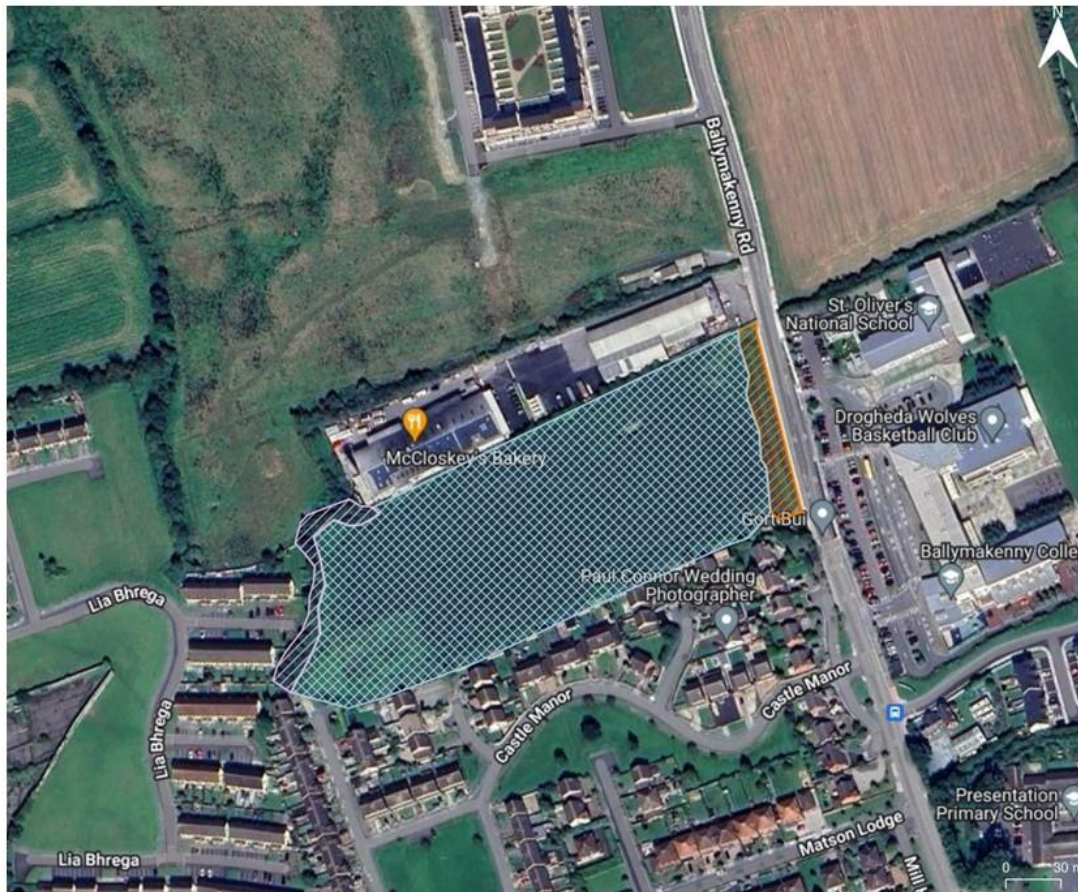
Records of rare and protected species of fauna were obtained from the National Biodiversity Data Centre (NBDC) online database, the National Biodiversity Network (NBN) Atlas and the Flora Protection Order (FPO) Map Viewer. **In summary there are no records of any protected species recorded on the application site.**

5 Field Surveys

5.1 Overview of Habitats and Habitats Classification

An overview of the main habitats recorded is detailed below.




Habitats within the study area were mapped according to Level 3 of the Heritage Council classification (Fossitt, 2000) following the Heritage Council's Best Practice Guidance (Smith et al., 2011) and the Joint Nature Conservation Committee's (JNCC) Handbook for Phase 1 Habitat Survey – a technique for environmental audit (JNCC, 2010). The Heritage Council's *A Guide to Habitats in Ireland* (Fossitt, 2000) is the standard habitat classification system used in Ireland. Habitats were also assessed for correspondence to the Habitats Directive Annex I habitat types (European Commission, 2013).



Habitat Map for Ballymakenny Accelerated Social Housing

Client: Louth County Council

Legend

-  Grassy verge (GS2)
-  Hedgrows (WL1)
-  Arable land (BC1)



Prepared by: Lauren Woods
 Date: 21/03/2023
 Version: 2
 Project: Ballymakenny Accelerated Social Housing
 Imagery from: Google

Disclaimer: This map has been prepared in accordance with the scope of services described in the contract or agreement between Flynn Furney Environmental Consultants and the Client. Any findings only apply to the aforementioned circumstances and no greater reliance should be assumed or drawn by the Client.

Figure 5.1 Ballymakenny habitat map

The proposed development site is composed entirely of **Arable Land (BC1)** at the time of surveys these lands were growing Maize. **Hedgerows (WL1)** border the west and northwest boundaries of the site. Hedgerows usually contained Blackthorn (*Prunus spinosa*), Ash (*Fraxinus excelsior*), and Hazel (*Ulmus spp.*). Bramble (*Rubus fruticosus agg.*), Butterfly-bush (*Buddleja davidii*) and Hawthorn (*Crataegus monogyna*) were abundant throughout. A large bank **Grassy verge (GS2)** separates the subject site from the Ballymakenny Road this was vegetated with Rape (*Brassica napus*) and lesser amounts of Black Medick (*Medicago lupulina*), Hogweed (*Heracleum sphondylium*) and Cow parsley (*Anthriscus sylvestris*).

No Annex I habitat types were recorded within or surrounding the proposed development area. Habitat types encountered were typical of those of arable land. The table below gives a detailed summary of the main habitat types found within the survey area and their ecological significance.

5.2 Fauna

5.2.1 Mammals

The survey area was surveyed by direct search (during daylight hours) for signs of mammalian activity which included prints, tracks, hairs, droppings, odour, digging and evidence of feeding. Places of refuge, rest and other activity such as Badger (*Meles meles*) setts were sought. Any tangible signs were recorded. Mammals which were recorded on the NBDC Mammals of Ireland 2016-2025 Database within 1km of the site included West European Hedgehog *Erinaceus europaeus* and European Otter *Lutra lutra*, however there were no recordings within the site. No mammal refugia (e.g. setts of Badger *Meles meles* or Otter holts) were found within the survey area. No impacts to any protected mammal species is therefore deemed possible.

5.2.2 Birds

A dedicated bird survey was not carried out at this site. Birds recorded during field surveys were typical urban species. Birds recorded on the NBDC Birds of Ireland Database within 1km of the site included Common Buzzard (*Buteo buteo*), Common swift (*Apus apus*), Barn swallow (*Hirundo rustica*), Blue Tit (*Cyanistes caeruleus*), European Greenfinch (*Carduelis chloris*), Eurasian Sparrowhawk (*Accipiter nisus*) and Song Thrush (*Turdus philomelos*) however none were recorded within the perimeters of the Ballymakenny

site. One of these species (Common swift) is on the Red List of the Birds of Conservation Concern in Ireland and one species is on the Amber List of the Birds of Conservation Concern in Ireland.

A desktop study along with field surveys confirmed that this site does not offer ex-situ feeding for any species protected in the SPAs listed above. Although the hedgerows along the site's perimeter lack diversity, it is possible that birds could use this habitat for breeding. All birds recorded during site surveys were typical amber and green listed species seen in agricultural and urban settings.

5.2.3 Bats

All bat species are protected by law in Ireland under the Bonn Convention (1992), the Bern Convention (1982) the EU 'Habitats' Directive (92/43/EC; transposed into Irish law by S.I. No. 94 of 1997) and the Wildlife Acts 1976 and 2000. Lesser Horseshoe Bats are listed as Annex II species of the Habitats Directive (afforded special protection). All other Irish bat species are listed in Annex IV (general protection) of this Directive. Daubenton's Bat (*Myotis daubentonii*) was recorded in 2009 on the NBDC National Bat Database of Ireland within 2km of the site.

The proposed works are largely planned for arable land with hedgerows bordering sections of the site. Bat surveys included a visual inspection during daylight hours of trees within the area and an assessment for roosting bats. The hedgerows on site have low suitability bat habitat as it does not provide enough space, shelter, protection to be used by a large number of bats on a regular basis. Trees did not contain obvious holes, cracks or cavities and there were no large dead trees covered with mature ivy.

An assessment of the sites suitable for bat roosting and foraging was carried out based on Colins (2016). The site was noted as having Negligible Roosting habitat and Low commuting and foraging habitat .

5.2.4 Amphibians and Reptiles

No evidence of breeding activity of Frog (*Rana temporaria*) or Smooth Newt (*Lissotriton vulgaris*) was found within the survey area. No Common (or Viviparous) Lizard (*Zootoca vivipara*) were recorded within the site.

5.2.5 Protected Invertebrates

The Marsh Fritillary butterfly (*Euphydryis aurinia*) is Ireland's only Habitats Directive Annex II insect species. In Ireland, the species relies solely on Devil's-Bit Scabious as its larval food plant.

No stands of Devil's-Bit Scabious were recorded within or surrounding the proposed development site. No larval webs can therefore occur on site.

5.2.6 Invasive Species

A search of records for invasive non-native species on the National Biodiversity Data Centre¹ was carried out as part of this project. **Table 5.1** shows the Third Schedule and Non-Third Schedule Invasive species recorded on the NBDC database within 2km of any of the works.

Table 5.1 Invasive species recorded on the NBDC within 2km of the works area

| Species Name | Record count | Date of record | Data source | Found during field surveys | Management required |
|--|--------------|----------------|--|----------------------------|---------------------|
| House Mouse (<i>Mus musculus</i>) | 1 | 14/04/1969 | Northern Ireland Mammal Database | No | None |
| Brown Rat (<i>Rattus norvegicus</i>) | 1 | 14/04/1969 | Northern Ireland Mammal Database | No | None |
| Common Garden Snail (<i>Cornu aspersum</i>) | 2 | 31/12/1912 | All Ireland Non- Marine Molluscan Database | No | None |
| Jenkins' Spire Snail (<i>Potamopyrgus</i>) | 2 | 31/12/1912 | All Ireland Non- Marine Molluscan | No | None |

| antipodarum) | | | Database | | |
|---|---|------------|--|----|------|
| Keeled Slug (Tandonia sowerbyi) | 1 | 31/12/1905 | All Ireland Non- Marine Molluscan Database | No | None |
| Wrinkled Snail (Candidula intersecta) | 2 | 31/12/1912 | All Ireland Non- Marine Molluscan Database | No | None |
| European Rabbit (Oryctolagus cuniculus) | 2 | 22/08/2015 | Atlas of Mammals in Ireland 2010-2015 | No | None |
| Greylag Goose (Anser anser) | 2 | 31/12/2011 | Bird Atlas 2007 - 2011 | No | None |

Butterfly-bush (*Buddleja davidii*) was abundant throughout the site hedgerows however no invasive species noted on the Third Schedule of the of the European Communities (Birds and Natural Habitats) Regulations 2011 were noted on site. Butterfly bush is naturalised into the Irish landscape and does not require management under the legislation.

6 Impact Assessment

6.1 Impact Assessment of the Proposed Development

The potential impacts on the habitats and species within and surrounding the proposed development site is provided below.

6.1.1 Impact Assessment: Habitats

The potential impacts on the habitats identified within and surrounding the proposed development site is provided in table below.

Table 6.1 Impact Assessment: Habitats

| Impact Assessment: Habitats | | | | |
|--|------------|--|---------------|------------------------------|
| Ecological Feature | Evaluation | Nature of Impact | Significance | Duration & Likelihood |
| Habitats within the Proposed Development Site | | | | |
| Arable land | Low local | Loss and alteration of all of this habitat area | Negligible | Permanent/ Almost certain |
| Hedgerows | High Local | Loss and alteration of all of this habitat area. | Minor adverse | Permanent/ Almost certain |
| Grassy verge | Low local | Loss and alteration to all of this habitat area | Negligible | Permanent/ Almost certain |

6.1.2 Impact Assessment: Fauna

The potential impacts on the fauna within and surrounding the proposed development site is provided in the table below.

Table 6.2 Impact Assessment: Fauna

| Impact Assessment: Fauna | | | |
|--------------------------|---|---------------|-----------------------|
| Species/Group | Nature of Impact | Significance | Duration & Likelihood |
| Protected Mammals | Possible impacts to foraging habitat | Negligible | Permanent/ Likely |
| Birds | Disturbance to nesting habitat during works. Increased anthropogenic disturbance locally | Minor adverse | Permanent/ Likely |
| Bats | Possible impacts to foraging and commuting habitat Impacts of lighting in a previously unlit | Minor adverse | Permanent/ Likely |

| | | | |
|--------------------------------|----------------------|-----|-----|
| | area | | |
| Amphibians | No impacts predicted | N/A | N/A |
| Protected Invertebrates | No impacts predicted | N/A | N/A |

6.1.3 Cumulative and In-combination Impacts

Louth County Council's online planning portal (<https://louthco.maps.arcgis.com/>) was searched for planning applications within this area. Planning permission has been granted in the area for numerous other developments, mostly residential developments and commercial units. The largest of which is planning reference 23329. Permission was granted in 2023 for development of 1056no. residential units and 2no. creche facilities on lands measuring approx. 32.90ha. The development provides for a total of 816no. dwelling houses consisting of the following; Type A; 36no. 4 bed detached houses; Types B & B1; 196no. 4 bed semi-detached houses, Types C & C1; 164no. 3 bed semi-detached houses. Types D & D1; 116no. 3 bed terraced houses, Types J & J1; 304no. 2 bed houses comprising of 224 no. semi-detached houses and 80 no. terraced houses. An Environmental Impact Statement was prepared to accompany this application. With the implementation of the mitigation measures as outlined on cumulative impacts are predicted.

The Louth County Development Plan in complying with the requirements of the Habitats Directive requires that all Projects and Plans that could affect the Natura 2000 sites in the same zone of impact of the Project site would be initially screened for Appropriate Assessment and if requiring Stage 2 AA, that appropriate employable mitigation measures would be put in place to avoid, reduce or ameliorate negative impacts. Similarly, objectives to protect biodiversity are set out in Louth's County Development Plan and Louth's Biodiversity Action Plan. In this way any in-combination impacts with Plans or Projects for the development area and surrounding townlands in which the development site is located, would be avoided. Any new applications for the Project area will be assessed on a case-by-case basis by Louth County Council which will determine the requirement for AA Screening as per the requirements of Article 6(3) of the Habitats Directive and determine any impact a plan or project may have on any other area of biodiversity. Having regard to the determination that the proposed project will not have any direct or

indirect impacts on European sites, it can be concluded that there will be no significant cumulative impacts in terms of the proposed project or from another other plans or projects in the development area. This is similar for other areas of biodiversity which may be impacted.

7 Discussion of Impact Assessment

7.1 Impacts on Habitats

Impacts upon habitats types within the proposed development footprint are considered of *Minor Adverse* or of lesser significance, given the conservation value, scale and likelihood of the impacts predicted from the construction and operation of the proposed development. Negligible ecological impacts of a permanent duration are predicted for arable land which makes up the majority of the proposed site. This habitat type will be converted into built land and amenity grassland as a result of the proposed development. Impacts of *Minor Adverse* significance are also predicted to hedgerows surrounding the proposed development site.

The overall impact significance of the proposed development upon these habitats (taken as a whole) can therefore be considered to be *Minor Adverse* or lower. Measures to mitigate any impacts as defined here are given in the following section.

7.2 Impacts on Fauna

Impacts upon fauna within the proposed development footprint are considered of *Minor Adverse* or of lesser significance, given the habitat types being affected and the scale and likelihood of the impacts predicted from the construction and operation of the proposed development. No impacts are predicted on mammalian species bar the loss of foraging/commuting habitat. This is based upon the absence of any signs definite signs of mammal activity here but the presence of mammal trails on the field margins. Possible impacts of *Minor Adverse* significance are predicted on bird species. This is due to the loss of some feeding and foraging areas that will occur from the development of some arable land and hedgerows. In addition to disturbance impacts due to greater human presence within the site

The proposed development may be predicted as having some permanent impacts upon bat populations due to the loss of grassland and possible disturbance to commuting corridors and increased artificial lighting. This may cause minor impacts to feeding opportunities for local bat populations. The habitat areas to be removed are poor and would not constitute a significant loss of support habitat for any local bat population. Given that no bat roosts will be impacted by the proposed development and the availability of similar better-quality habitat locally the impacts to local bat populations due to the construction of the proposed development is considered *Minor adverse*.

Lighting can severely impact on bat roosting behaviour, foraging behaviour and commuting behaviour with knock-on effects on accessing feeding areas. Many species of bats forage along dark corridors like rivers and hedgerows and are known to stay clear of well-lit areas. Lighting in the new development could impact upon bats’ home ranges. Bat vision is an important sense during dusk and dawn as bats begin to move to and from the roosting sites. Excessive luminance particularly around roosting sites can lead to bats becoming disorientated and can also lead to abandonment of roosts. On review it is our professional opinion that given the proposed development is on the edge of an existing lit area impacts to bats due to lighting of the operational phase of the proposed development is considered *minor adverse* as it would result in ‘a minor impact on legally protected species but no significant habitat loss or reduction in favourable conservation status’.

8 Impact Mitigation

Mitigation measures to address the potential impacts from the proposed development on habitats and fauna within and surrounding the proposed developed (as required) are provided below.

8.1 Mitigation Measures: Habitats

Table 8.1 Mitigation Measures for Habitats

| Ecological Feature | Nature of Impact | Recommended Mitigation Measures |
|--------------------|------------------|---------------------------------|
| | | |

| Habitats within and around the Proposed Development Site | | |
|--|---------------|---|
| Hedgerows | To be removed | <ul style="list-style-type: none"> • Area to be cleared to be kept to an absolute minimum • Any hedgerows and trees to be retained will be fenced off at the outset of works and for the duration of construction to avoid damage to the trunk, branches or root systems of the trees. • Where possible mature hawthorns should be retained and moved as opposed to being cut out using a large excavator. The operator should first clear around the tree outside its dropline. Which is the area directly located under the outer circumference of the tree branches. They then carefully dig out of the tree while taking as much of the roots and soils of the tree as possible. Ideally, trees should be placed directly into a prepared hole or bank of the same diameter as the removed tree's root ball. While it is unlikely that all moved trees will reestablish, the retention of any mature tree is more ecologically advantageous than their removal and replacement with new stock. • Temporary fencing will be erected at a sufficient distance from trees and hedges to enclose the Root Protection Areas (RPAs) of the larger trees that are not within the works areas (National Roads Authority, 2005-2011). In general, the RPA covers an area equivalent to a circle with a radius 12 times the stem diameter (measured at 1.5m above ground level for single-stemmed trees); • Soil will not be placed within the Root Protection Area for retained trees or within 5m of hedgerows; New planting scheme, including trees, to align with development plan requirements for replacement ratio to ensure no net loss of vegetation cover overall over the lifetime of the scheme. New trees to be native species only. Any hedges or trees planted as part of the landscape plans should be native species only. • |

8.2 Mitigation Measures: Fauna

Table 8.2 Mitigation measures for fauna

| Species/ Group | Nature of Impact | Recommended Mitigation Measures |
|-------------------|-----------------------------------|---|
| Birds | Loss of feeding/ foraging area | <ul style="list-style-type: none"> • All clearance of tall vegetation (woody or herbaceous) to facilitate construction works will be undertaken outside of the breeding bird season (1st March to 31st August, inclusive), • Where this seasonal constraint cannot be adhered to, the area of proposed clearance will be checked for nesting birds by a suitably qualified project ecologist. If birds are encountered, clearance works will be suspended in the relevant areas until nesting has finished; • Landscape planting is to include seed/fruit bearing plants and flowering plants attractive to invertebrates. • Landscape planting to be guided by recommendations given in All-Ireland Pollinator Plan. |
| Bats | Loss of feeding/ foraging area | <ul style="list-style-type: none"> • No permanent lighting should be placed on, near or directed towards any of the sites hedgerows during construction or occupancy of the housing on site. • Landscape planting is to include seed/fruit bearing plants and flowering plants attractive to invertebrates. There is opportunity to expand habitat corridors on site through the planting of native shrubs and trees. • Night-flowering plants (e.g. honeysuckle <i>Lonicera periclymenum</i>) and strong smelling plants should be included within the planting plan on completion to attract night pollinators for bats. |
| | Potential | <ul style="list-style-type: none"> • Lighting at site is to be kept to the minimum required. |

| | | |
|--|--|--|
| | disturbance disruption from lighting | <ul style="list-style-type: none"> • LED luminaires should be used due to the fact that they are highly directional, lower intensity, good colour rendition and their dimming capability. • A warm white spectrum (<2700 Kelvins should be used to reduce the blue light component of the LED spectrum). • Luminaires will feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats. • Column heights should be carefully considered to minimise light spill. The shortest column height allowed should be used where possible. Bollard lighting should be considered for pedestrian and walking areas, if deemed necessary. Construction lights should be cowed and/or directional to reduce light pollution affecting surrounding features. |
|--|--|--|

8.3 Residual Impacts after Mitigation

Residual impacts after mitigation are:

- Permanent loss of improved arable land. This habitat is of low, local significance.
- Permanent loss of some feeding and foraging areas for birds and bats will also result. However, these habitat areas are widely represented in the immediate area surrounding the area proposed for development.

Following the implementation of the mitigation measures set out in Sections 8.1 and 8.2, the significance of any residual impacts may be described as *negligible*.

9 Conclusion

Ecological surveys were carried out within and surrounding the proposed development site in January 2024. Surveys included those for mammals, invertebrates, birds, bats, habitats and invasive species. An

extensive desktop survey was carried out which used available data from suitable sources which included online databases (e.g. National Parks and Wildlife Service and National Biodiversity Data Centre).

Habitat types recorded were typical of arable land areas that are common in Co. Louth. No habitats listed in Annex I of the Habitats Directive were noted. No habitats of higher than *High Local* ecological value were found with the proposed development site.

No ecologically sensitive habitats were noted within the proposed development site. The development will not result in the loss of an internationally, nationally, regionally important habitat areas.

No protected mammal species were found to occur within or surrounding the proposed development area. It is unlikely that any protected mammal species will be impacted upon as a result of the construction and operation of this residential development.

A survey of bat habitat within and surrounding the study area found no potential bat roost habitat areas. A number of measures have been described to mitigate against any impacts on commuting and foraging bat populations during the construction and operation of this residential development.

No Annex II (Birds Directive) bird species or red-listed species were recorded during field surveys of the site and surrounds. Mitigation measures have been drawn up to address any potential impacts to local bird populations. These include the limiting of works areas, and the protection of woody vegetation during the bird nesting season and the creation/ enhancement of ecological corridors (hedgerows) on site.

Finally, it will be a condition of the contract between proponent and the Main Contractor that the Project Construction Management Plan (CMP) prepared for the project (and provided as part of the application under separate cover) will be implemented by the contractor and overseen by the project proponent. The Preliminary Construction Management Plan (PCMP) specifies how materials with the potential to adversely affect surface water quality, for example, fuel and oil, will be stored and handled in a manner that minimises the risk of accidental spills or leaks. The PCMP also specifies measures that will ensure that spill containment and clean-up equipment is provided and maintained during the construction phase of the development.

References

CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal 2nd Edition. The Chartered Institute of Ecology and Environmental Management, Winchester.

Collins, J. ed. (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edition). The Bat Conservation Trust. London. ISBN – 13 978-1-87-2745-96-1

Curtis, T.G.F. and MacGough, H.N., 1988. *The Irish red data book*. Wildlife Service Ireland. EPA (2015a). The EPA's Advice Notes on Preparing Environmental Impact Statements Draft.

EPA (2015b). The EPA's Draft Revised Guidelines on Information to be Contained in Environmental Impact Statements.

European Commission (2007) Interpretation manual of European Union habitats – EUR27. Fossitt, J.A. (2000) *A Guide to Habitats in Ireland*. The Heritage Council, Kilkenny.

Gilbert, G, Stanbury, A and Lewis L (2021) Birds of Conservation Concern in Ireland 2020-2026. *Irish Birds*, 9: 523—544.

(JNCC, 2010) Handbook for Phase 1 Habitat Survey – a technique for environmental audit. Joint Nature Conservation Committee, Peterborough (UK).

Kelleher, C. & Marnell, F. (2006) Bat Mitigation Guidelines for Ireland. Irish Wildlife Manuals, No.

25. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland.

Louth County Council (2021) Louth County Development Plan 2021- 2027.

Louth County Council (2021) Louth Biodiversity Action Plan 2021-2026.

Lewis, L. J., Coombes, D., Burke, B., O'Halloran, J., Walsh, A., Tierney, T. D. & Cummins, S. (2019)

Countryside Bird Survey: Status and trends of common and widespread breeding birds 1998- 2016. Irish Wildlife Manuals, No. 115. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht, Ireland.

Lysaght, L. and Marnell, F. (Eds) (2016) *Atlas of Mammals in Ireland 2010 – 2015*, National Biodiversity Data Centre, Waterford.

National Roads Authority (2009). *Guidelines For The Assessment Of Ecological Impacts Of National Road Schemes*. NRA, Dublin.

National Roads Authority (2006). *Guidelines for the Treatment of Badgers Prior to the Construction of National Roads Schemes*. NRA, Dublin.


National Roads Authority (2005). *Guidelines for the Treatment of Bats Prior to the Construction of National Roads Schemes*. NRA, Dublin



NRA (2009) *Guidelines for Assessment of Ecological Impacts of National Road Schemes*. National Roads Authority (now Transport Infrastructure Ireland) Dublin.


Smith, G. F., O'Donoghue, P., O'Hora, K., & Delaney, E. (2011) *Best Practice Guidance for Habitat Survey and Mapping*. The Heritage Council, Kilkenny.

Wyse Jackson, M., FitzPatrick, Ú., Cole, E., Jebb, M., McFerran, D., Sheehy Skeffington, M. & Wright, M. (2016). *Ireland Red List No. 10: Vascular Plants*. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs, Dublin, Ireland

Appendix A: Pictures

| Figure no. | Description | Image |
|------------|---|--|
| 1 | Maize crop and surrounding housing estate |  |
| 2 | Area of fallow grassland |  |

| | | |
|---|--|---|
| 3 | Fallow grassland areas and surrounding hedgerows |  |
| 4 | Vegetated bank at the site entrance |  |

| | | |
|---|------------------------------------|---|
| 5 | Arable lands of the site in winter |  |
|---|------------------------------------|---|