Ecological Impact Assessment

Large-scale Residential Development

Gortnahomna More, Castlemartyr, Co. Cork

Doherty Environmental Consultants Ltd

Nov. 2024

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Table of Contents

1.0 INTRODUCTION 6

1.1 LEGISLATION 6

2.0 PROJECT DESCRIPTION 10

2.1 SURFACE WATER MANAGEMENT 10

2.1.1 EXISTING SURFACE WATER INFRASTRUCTURE 10

2.1.2 PROPOSED SURFACE WATER INFRASTRUCTURE 10

2.1.3 PRINCIPLE DESIGN CONSIDERATIONS 10

2.2 SUDS 12

2.2.1 PROPOSED SUDS HIERARCHY 12

2.3 FOUL WATER DRAINAGE 13

2.3.1 EXISTING FOULWATER DISCHARGE 13

2.3.2 UISCE ÉIREANN PRE-CONNECTION ENQUIRY & CONFIRMATION OF FEASIBILITY (COF) 14

2.3.3 PROPOSED WASTEWATER DRAINAGE 15

2.4 WATER SUPPLY 15

2.4.1 EXISTING WATER SUPPLY 15

2.4.2 UISCE ÉIREANN PRE-CONNECTION ENQUIRY 15

2.4.3 PROPOSED WATER SUPPLY 15

2.5 LANDSCAPING 16

2.6 LIGHTING 17

3.0 METHODS 17

3.1 DESKTOP REVIEW 17

3.2 MULTIDISCIPLINARY HABITAT & FAUNA SURVEY 18

3.3 ECOLOGICAL EVALUATION 21

3.4 IMPACT ASSESSMENT 22

3.4.1 IDENTIFICATION & CHARACTERISATION OF EFFECTS 23

3.4.2 SIGNIFICANT EFFECTS ON ECOLOGICAL RECEPTORS 24

3.4.3 INTEGRITY 25

3.4.4 CONSERVATION STATUS 26

4.0 DESCRIPTION OF THE RECEIVING ENVIRONMENT 27

4.1 REVIEW OF HISTORICAL MAPS 27

4.2 GEOLOGY OVERVIEW **27**
4.3 HYDROLOGY **28**
4.4 DESIGNATED CONSERVATION AREAS **29**
4.5 SURVEY RESULTS **35**
4.5.1 HABITATS 35
4.5.2 RARE, THREATENED OR PROTECTED FLORA 37
4.5.3 INVASIVE SPECIES 37
4.5.4 FAUNA 39

5.0 IMPACT ASSESSMENT **43**

5.1 CONSTRUCTION PHASE **43**
5.1.1 DESIGNATED CONSERVATION AREAS 43
5.1.2 HABITAT LOSS & DEGRADATION 44
5.1.3 DISTURBANCE TO/LOSS OF BEE ORCHID 44
5.1.4 DISTURBANCE TO/LOSS OF HABITAT FOR TERRESTRIAL MAMMALS 46
5.1.5 IMPACTS TO BIRDS 46
5.1.6 SPREAD OF NON-NATIVE INVASIVE SPECIES 47
5.2 OPERATION PHASE **47**
5.2.1 DESIGNATED CONSERVATION AREAS 47
5.2.2 HABITAT LOSS 47
5.2.3 IMPACTS TERRESTRIAL FAUNA 48
5.3 CUMULATIVE IMPACTS **48**

6.0 MITIGATION MEASURES **49**

6.1 ECOLOGICAL CLERK OF WORKS **49**
6.2 MEASURES TO MINIMISE IMPACTS OF CONSTRUCTION WORKS **50**
6.3 MANAGEMENT OF WASTEWATER **52**
6.4 MITIGATING & COMPENSATING IMAPCTS TO HABITATS **52**
6.5 MITIGATING & COMPENSATING IMAPCTS BEE ORCHID **53**
6.5.1 TRANSLOCATION 54
6.5.2 ONGOING MANAGEMENT OF TRANSLOCATION AREA 56
6.6 MITIGATING IMPACTS TO BATS **59**
6.7 MEASURES TO MINIMISE DISTURBANCE TO BREEDING BIRDS **59**
6.8 MEASURES TO REDUCE THE SPREAD OF INVASIVE SPECIES **61**
6.8.1 PRE-CONSTRUCTION SURVEY 61

6.8.2 MEASURES TO PREVENT THE MOVEMENT OF INVASIVE SPECIES ON SITE DURING THE CONSTRUCTION PHASE 61

6.9 EVALUATION OF MITIGATION MEASURES 62

7.0 RESIDUAL IMPACTS 63

REFERENCES 64

1.0 INTRODUCTION

Doherty Environmental Consultants (DEC) Ltd. has been commissioned by Marshall Yards Development Company Ltd to undertake an Ecological Impact Assessment (EcIA) for a proposed large-scale housing development at Gortnahomna More, Castlemartyr, Co. Cork. The location of the proposed site is shown on Figure 1.1 while an aerial view of the proposed site is shown on Figure 1.2.

1.1 LEGISLATION

Flora and fauna in Ireland is protected at a national level by the Wildlife Act, 1976 and the Wildlife (Amendment) Act, 2000 and the Flora (Protection) Order, 1999 (SI 94/1999). They are also protected at a European level by the EU Habitats Directive (92/43/EEC) and the EU Birds Directive (79/409/EEC).

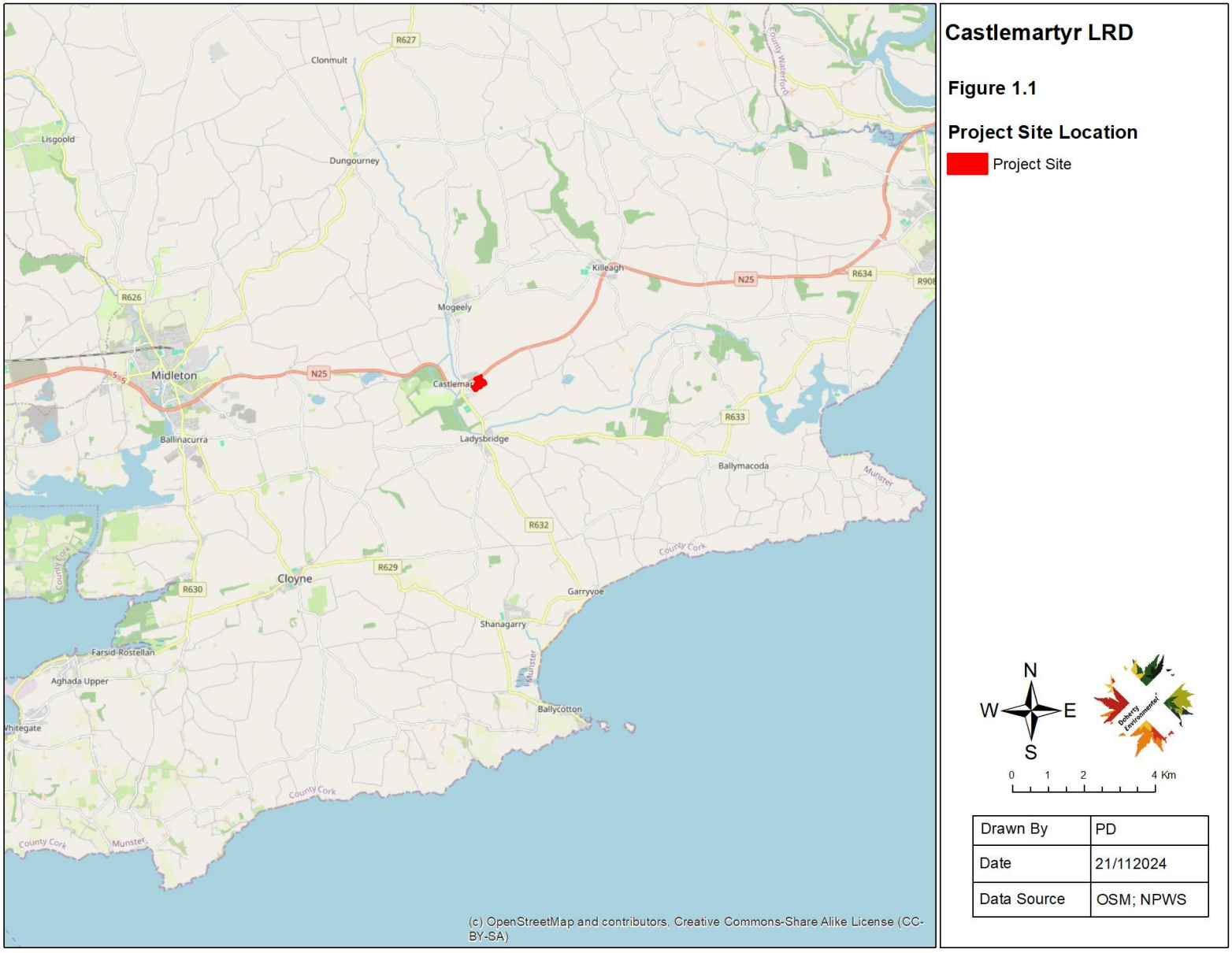
The transposition of the EU Habitats Directive by the European Communities (Natural Habitats) Regulations 1997 – 2011 (referred to as the Habitat Regulations) provides the legal basis for the protection of habitats and species of European importance in Ireland.

The legislative protection of habitats and species provided by the Habitats Directive has been implemented in Ireland and throughout Europe through the establishment of a network of designated conservation areas known as the Natura 2000 (N2K) network (with individual sites being referred to as Natura 2000 Sites). The N2K network includes sites designated as Special Areas of Conservation (SACs), under the EU Habitats Directive and Special Protection Areas (SPAs) designated under the EU Birds Directive. SACs are designated in areas that support habitats listed on Annex I and/or species listed on Annex II of the Habitats Directive. SPAs are designated in areas that support: 1% or more of the all-Ireland population of bird species listed on Annex I of the EU Birds Directive; 1% or more of the population of a migratory species; and more than 20,000 waterfowl. Under the National Habitat Regulations all designated Natura 2000 Sites are referred to as European Sites.

The Wildlife Act 1976 (as amended) also provides for the statutory designation of nature conservation areas. These areas are referred to under the Wildlife Acts as Natural Heritage Areas and are designated in areas that support habitats and/or species of national importance.

Other relevant national legislation concerning the protection of flora, fauna and fisheries include the:

- Planning Act 2010;
- European Communities (Quality of Salmonid Waters) Regulations, 1988;
- The Freshwater Fish Directive 1978 (78/659/EEC); and
- The Surface Water Regulations, 2009.


Castlemartyr LRD
Figure 1.1
Project Site Location
Project Site
Clonmult
Lisgoold
Dungourney
Killeagh
Mogeely
Midleton
Castlemartyr
Ballinacurra
Ladysbridge
Ballymacoda
Cloyne
Garryvoe
Shanagarry
Farsid-Rostellan
Aghada Upper
Ballycotton
Whitegate
R627
R626
N25
R634
R633
R632
R629
R630
County Cork
Munster
N
W
E
S
0 1 2 4 Km
Drawn By PD
Date 21/112024
Data Source OSM; NPWS
(c) OpenStreetMap and contributors, Creative Commons-Share Alike License (CC-BY-SA)

Castlemartyr LRD

Figure 1.2

Aerial View of the Project Site

Project Site

N
W E
S

0 0.03 0.06 0.12 Km

Drawn By	PD
Date	21/11/2024
Data Source	Bing

2.0 PROJECT DESCRIPTION

The project consists of a proposal for a Large-scale Residential Development (LRD) comprising the construction of 150 no. residential units, a creche and all associated development works at Gortnahomna More (townland), Castlemartyr, Co. Cork.

2.1 SURFACE WATER MANAGEMENT

2.1.1 Existing Surface Water Infrastructure

The public surface water network maps do not indicate an existing surface water network along the N25 to the north of the application lands. The applicant commissioned topographical and Gound Penetrating Radar (GPR) surveys to identify the extents of any existing networks along the N25. The surveys confirmed the location and extents of an existing 300mm diameter surface water network along the N25 adjacent to the site and discharging to the Kiltha River to the west of the lands. An existing field boundary drain is apparent along the north west boundary of the northern portion of the site. The existing rainfall runoff from the site appears to discharge directly to ground at source or discharge overland to the field boundary drain prior to discharging to ground.

2.1.2 Proposed Surface Water Infrastructure

The design and management of surface water for the proposed development will comply with the requirements of the Greater Dublin Strategic Drainage Study (GDSDS) and the Cork County Development Plan 2022 – 2028. The design of the surface water network and SuDS measures within the application site shall include a 20% climate change factor in accordance and the Cork Co. Co. Water Services requirements.

2.1.3 Principle Design Considerations

Surface water from the proposed residential development will be managed via a surface water network that includes Sustainable Drainage Systems (SuDS). The surface water will be attenuated and controlled on-site before being discharged at a rate lower than the existing run-off rate. This will be achieved as part of the proposed surface water infrastructure design through the interception and attenuation of existing runoff from the N25. The 300mm diameter public stormwater system along the N25 will serve as the discharge point. Water will be conveyed along

the existing 300mm stormwater system and will discharge to the Kiltha River to the west of the project site (see **Figure 1.3** above).

The development has been split into 6 no. sub-catchment areas for the surface water attenuation design in order to reduce flows within the site. the development surface water catchments are shown on **Figure 2.1** below. The post development overland flow route is illustrated on **Figure 2.2**. The discharge rates will be regulated using vortex flow control devices (Hydrobrakes) and attenuation will be provided using reinforced concrete attenuation tanks (due to the karst risk in the area). The discharge from the site will also pass through a bypass petrol/oil separator, which is sized according to the allowable discharge rate.

Figure 2.1: Development Catchments

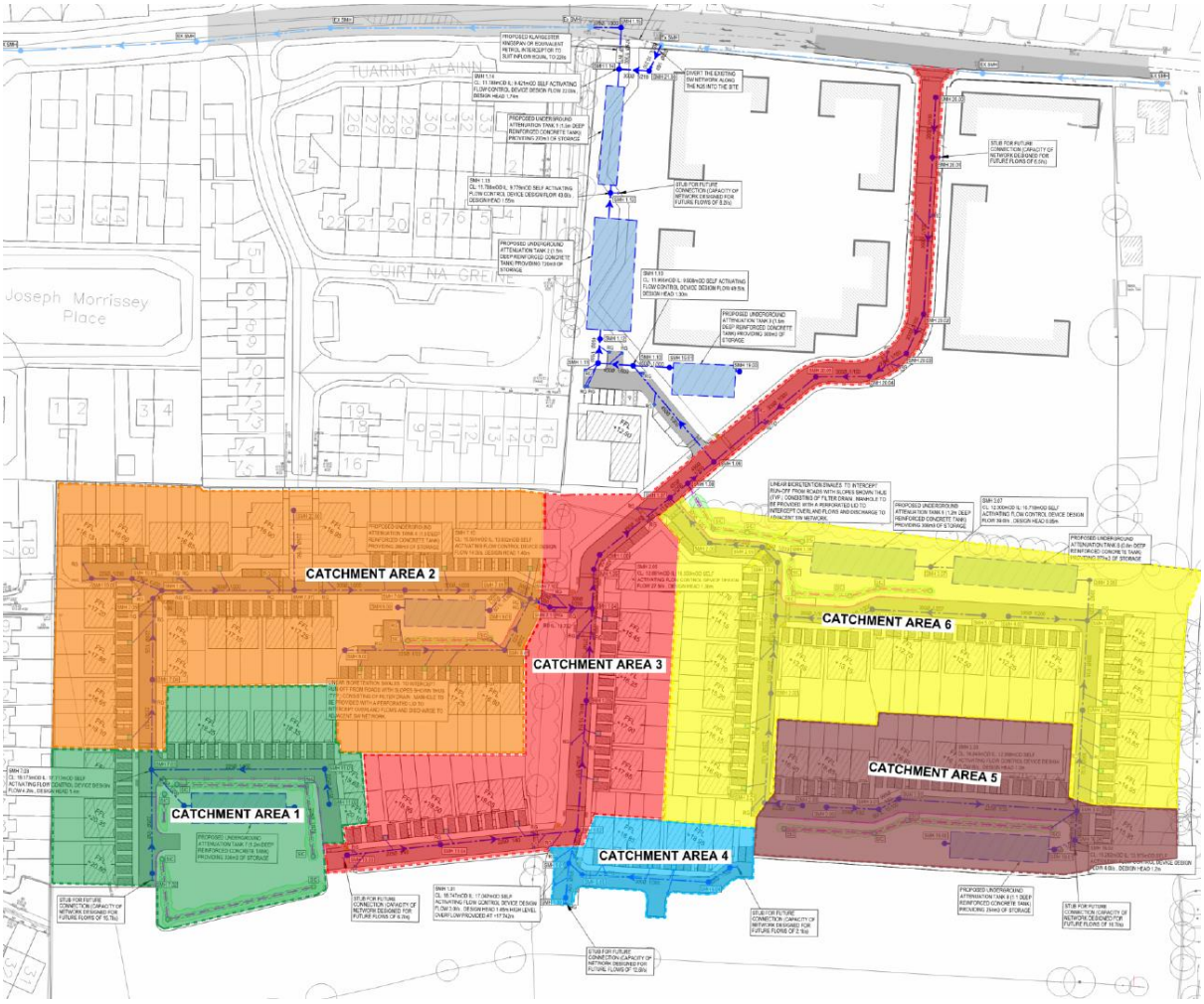


Figure 2.2: Post Development Flow Path

2.2 SUDS

2.2.1 Proposed SuDS Hierarchy

The SuDS hierarchy outlined below has been considered for this site in accordance with the Cork County Council SuDS selection hierarchy for LRD developments. The following SuDS elements form part of the surface water management infrastructure to be provided for the operation phase of the project:

- Source Control
    - Swales

- Integrated constructed tree pits
- Downpipe planters
- Rainwater harvesting
- Permeable pavement
- Bio-retention systems/raingardens
- Filter drains

- Site Control
  - Detention basins

- Other
  - Petrol/oil interceptor/grit trap
  - Attenuation tank

All SuDS measures are described in full in the DOBA Infrastructure Design Report, provided under separate cover with the planning application documentation.

2.3 FOUL WATER DRAINAGE

2.3.1 Existing Foulwater Discharge

The Applicant commissioned Metroscan to carry out Topographical and Gound Penetrating Radar (GPR) surveys to confirm the extents and size of the existing wastewater network along the N25 downstream of the proposed connection point. The surveys confirmed 2 No. existing wastewater networks along the N25 discharging to the west towards the Castlemartyr Bridge WwPS as follows;

A 225mm diameter pipe along the northern side of the N25 which appears to correlate with the existing wastewater network illustrated on the current Uisce Eireann maps. This network appears to serve the existing developments along the N25 according to the GPR survey drawing;

A 300mm diameter pipe along the southern side of the N25 which appears to commence at the site boundary.

The Topographical and GPR survey drawings confirm that both existing wastewater sewers discharge towards the existing Castlemartyr Bridge WwPS. Based on the as-constructed invert levels of the existing networks, the existing 300mm wastewater network is more suitable to serve the proposed application development.

2.3.2 Uisce Éireann Pre-Connection Enquiry & Confirmation of Feasibility (COF)

The Applicant has liaised with Uisce Eireann (UE) in relation to the proposed development and submitted a pre-connection enquiry (PCE) to which UE responded. The Connection & Developer Services (CDS) Response states that a wastewater connection is "feasible subject to upgrades" and "*in order to accommodate the proposed connection at the Development, upgrade works are required to increase the capacity of Castlemartyr WWTP. Uisce Éireann currently has a project underway which will provide the necessary upgrade and capacity. This upgrade project is scheduled to be completed in 2026 (may be subject to change) and the proposed connection could be facilitated as soon as possibly practicable after this date".*

With respect to the examination set out in this report reference is made to a previous planning application for a residential development (in2018) at the project site was refused by An Bord Pleanála (Planning Reference No. 301316-18) on the basis of issues relating to wastewater discharges and potential risks to the Ballymacoda Bay European Sites. It is noted that the previous planning application was completed prior to the receipt of planning approval for the upgrade of the Castlemartyr wastewater treatment plant, which is currently at an advance stage of construction (construction works commenced in September 2023). As such and as per the Uisce Éireann COF, it can now be confirmed that sufficient capacity will be available for the adequate treatment of all wastewater generated by the proposed development. As such the generation of wastewater by the project and its discharge to the wastewater treatment plant will not pose a risk to the water quality of the receiving Kiltha Riverand will in turn no pose a risk of likely significant effects to the Ballymacoda Bay European Sites downstream.

2.3.3 Proposed Wastewater Drainage

The proposed wastewater drainage will collect effluent from the residential units via a main wastewater drainage network located within the development's access roads and discharge by gravity to the existing wastewater network to the north of the site as illustrated on DOBA Engineering drawing C-0300. The new wastewater sewer network will be designed in accordance with the principles and methods set out in Irish Water's Code of Practice for Wastewater Infrastructure IW-CDS-5030-03, IS EN 752 Drain & Sewer Systems outside Buildings, IS EN 12056 Gravity Drainage Systems inside Buildings and the Building Regulations Technical Guidance Document Part H Drainage & Wastewater. The estimated peak Wastewater loading generated by the proposed development's Dry Weather Flow is estimated at 0.61 l/s while the Design Wastewater Flow of 6DWF is 3.63 l/s.

2.4 WATER SUPPLY

2.4.1 Existing Water Supply

An existing 150mm DI watermain was installed along the N25 adjacent to the application site as part of the N25 pavement strengthening scheme undertaken in 2018. The applicant commissioned Metroscan to carry out topographical and Gound Penetrating Radar (GPR) surveys to locate the existing 150mm watermain along the N25. The GPR identified an existing spur off the new watermain extending to the boundary of the application site.

2.4.2 Uisce Éireann Pre-Connection Enquiry

DOBA have liaised with Irish Water (IW) in relation to the proposed development and submitted a pre-connection enquiry to which IW responded with a Confirmation of Feasibility (CoF). The Connection & Developer Services (CDS) Response noted that a new water connection is "Feasible without infrastructure upgrade by Uisce Éireann".

2.4.3 Proposed Water Supply

The proposed water supply networks within the subject site will include a 150mm dia. watermain with 100mm dia. loops, associated connections, valves, hydrants, meters etc. designed in accordance with Irish Water's Code of Practice for Water Infrastructure IW-CDS-5020-03/ Standard Details and the Department of the Environment's Building Regulations "Technical Guidance Document Part B Fire Safety". The site watermain network will adequately serve the

firefighting requirements with Fire Hydrants provided on the loop main in accordance with Part B of the Building Regulations. The proposed watermains are illustrated on the DOBA Engineering C-0400 drawing series. The estimated peak hour water demand generated by the proposed development is 4.69 l/s.

2.5 LANDSCAPING

The Landscape masterplan has been developed with a strong emphasis on the importance of the application site within the Green infrastructure network. The existing hedgerows form a strong component of the overall plan, helping to bed the development in the existing environment. The open space is mainly consolidated to 4 zones to give maximum park frontage for the dwellings. The allocated communal space within that includes informal and formal play provision dotted throughout as well as some flexible spaces for amenity activities like exercise as well as quieter areas with seating. Routes through the open spaces offer pleasant & accessible access throughout the site, creating a variety of experiences throughout, including semi-formal 'manicured' spaces, wilder areas with reduced mowing & pockets of wooded areas. Future pedestrian connections to the existing estates to the North & West form a pedestrian street typology with the opportunity for additional greening and seating. A strong boundary condition is proposed to set the development to create a suitable link to the main road and improve the quality of the road edge. A pedestrian link with a cycleway, planting and play features is proposed to link the development to the main road. The willow area is proposed as an additional amenity & nature space.

Bee orchid (*Ophrys apifera*) has been recorded within the project site. A total of 25 no. flowering spikes were recorded in the area of recolonising bare ground/spoil and bare ground occurring to the north of the project site. As part of the landscape plan it is proposed translocate the existing stand of bee orchid from their current position to an area of landscaped verge to be provided as part of the landscape design. The bee orchid will be positioned on free draining soils with an unshaded south facing aspect. It will be planted with a mix of other small herb species. The receptor area will be subject to a mowing regime to maximise suitability of the receptor area for bee orchid on an ongoing basis. This will comprise mowing twice yearly, during early spring and autumn. A key element of the mowing regime will be the lifting of all cutting from the receptor area and disposal elsewhere. No cutting will be lift within the receptor area.

2.6 LIGHTING

The Outdoor Lighting Schemehas taken into account best practice, as published by the UKBat Conservation Trust, in respect of a design strategy to minimise the impact of outdoor lighting upon bat populations.

LED type lanterns, of the Warm White type, have been specified, with a Colour Temperature of 3,000K, as is considered least disruptive to the emergence of bats from roosts at dusk, and subsequent movement from habitats to foraging locations. LED lanterns do not emit any ultraviolet or infra-red radiation, this again being a desirable feature in relation to impact upon bats, in terms of causing spatial exclusion from artificially lit areas. Light levels have been kept as low as possible by reference to levels specified in BS EN 5489: 2020 for trafficked roads in residential areas. Lanterns are of the fully cut off type with no light output above the horizontal plane. In addition to the low illuminance level of the (LED) adjusted P3 Lighting Class selected, dimming of the light levels to Class P4 between 23.00 hrs. and 06.00hrs. has been specified to further reduce the environmental impact of the scheme.

3.0 METHODS

3.1 DESKTOP REVIEW

A range of scientific site investigations have been completed for the project and these are relied upon in this Natura Impact Statement. The investigations include ecological field surveys, hydrological field surveys and geotechnical field surveys.

Desk-based investigations were completed to identify pathways connecting the proposed project to European Sites. Datasets used to assist with the desk-based investigations include:

- NPWS European Sites and site-specific conservation objectives datasets;
- EPA Rivers and Lakes dataset;
- EPA surface water catchment and sub-catchment datasets;

- NPWS Article 17 Habitats and Species Reports datasets;
- OSI Geohive and OSI Historic townlands online mapping portal;
- National Biodiversity Data Centre (NBDC) online mapping portal; and
- NPWS Protected Species Dataset for the proposed development site and surrounding area.

3.2 MULTIDISCIPLINARY HABITAT & FAUNA SURVEY

Multidisciplinary ecological surveys of the project site were undertaken by DEC Ltd during 2024. Surveys were completed during July, August and October 2024. The dates of surveys were 18th July, 28th August and 24th October 2024.

The methodology used during this survey was based on the Heritage Councils *Best Practice Guidance for Habitat Survey and Mapping* (2011). The classification of habitats recorded during the field survey is based on the Heritage Council's *A Guide to Habitats in Ireland*.

The *Guide to Habitats in Ireland* classifies habitats according to a hierarchical framework with Level 1 habitats representing broad habitat groups, Level 2 representing habitat sub-groups and Level 3 representing individual habitat types. The Phase I Field Survey focused on identifying habitats to Level 3 of the *Guide to Habitats in Ireland*.

The annotation of vegetation occurring within sites was undertaken using the DAFOR scale. This scale refers to plant species in terms of dominance, abundance, frequency, occasional and rare (DAFOR). Plant nomenclature in this report follows Webb (1996) for vascular plants and Smith (2004) for mosses.

A survey for field signs indicating the presence of otters or other protected non-volant mammal species such as Irish stoat and badgers was undertaken during the field surveys. This survey was undertaken during the daytime and particular attention was given to habitat features normally associated with otters. Any mammal field signs typical of otter activity were recorded during the

surveys. These field signs, as described in Neal & Cheeseman (1) and Bang & Dahlstrom (2), include:

- mammal breeding and resting places, such as setts, holts, couches, lairs;
- pathways;
- prints;
- spraints and faecal deposits;
- latrines (and dung pits used as territorial markers);
- prey remains and feeding signs (snuffle holes);
- hair; and
- scratch marks.

All bird species seen using the site (as opposed to simply flying over it) were recorded.

Dedicated bat activity surveys were completed on site. This involved continuous static detector bat activity survey at the project site using two no. static bat detectors. MP1 was positioned along the southern boundary of the project site. MP2 was positioned along the eastern boundary of the project site. Continuous nighty monitoring was completed at MP1 between the 18th July and 27th August 2024. Continuous automatic monitoring was completed between the 18th July and 16th August 2024. The static detector was mounted at a height of 3m above the ground and was set to recorded bat activity continuously throughout each night of the monitoring period, with recording commencing at 30 minutes prior to sunset and 30 minutes after sunrise.

(1) Neal, E., & Cheeseman, C., (1996). 'Badgers'. Poyser Natural History, London.

(2) Bang, P., & Dahlstrom, P., 'Animal Tracks and Signs'. Oxford University Press, Oxford.

In addition to the static detector survey, manual bat detector surveys were completed on the 18th July and 28th August 2024. The manual bat detector survey was completed using a handheld Echometer Touch Pro bat detector. The manual survey comprised walking three loops of the same looped transect around the project site.

Bat calls recorded by the SM4 Bat detectors during the automatic bat monitoring sessions were analysed using Kaleidoscope Pro (v. 5.6.8) software. Kaleidoscope automatic bat identification software was used to assign bat calls to species level. Bat calls assigned to Myotis species were grouped together under the Myotis genus.

No structures occur within the project site and as such none were inspected for bat roost potential. A mature beech tree and Lawson Cypress tree occurs at the site boundary adjacent to Old Road, whilst mature trees also occur along the southern boundary of the site. An assessment of these trees for their potential to function as roost sites for bats was completed. The tree roost assessment methods follows that outlined by Collins et al. (2023). All trees to be removed at each of the three nodes were inspected for their potential to function as bat roosts. The inspections were based on a ground level tree assessment. Each tree was inspected for the presence of preferred roost features (PRFs). Examples of PRF types are set out in Table 3.1 below.

Table 3.1: PRF Types that can be exploited by bats and how they form

PRFs formed by disease and decay	PRFs formed by damage	PRFs formed by association
holes	Lightning strikes	Fluting
pruning cuts	Hazard beams	ivy
tear outs	Subsidence	
wounds	Cracks	
cankers	Shearing cracks	
compression	Welds	

forks butt rots	Lifting bark Desiccation Fissures Frost cracks	

All trees to be removed were inspected during the daytime. The inspections of the trees were undertaken using an LED head torch and Swarovski binoculars.

All trees inspected were classified as PRF-I and PRF-M trees as per Collins et al. (2023). PRF-I trees are described by Collins et al. as trees with PRFs only suitable for individual bats or very small numbers of bats either due to size or lack of suitable surrounding habitat. PRF-M trees are described as trees with PRFs suitable for multiple bats and may therefore be used by a maternity colony.

For PRF-I trees Collins et al. recommend that no further surveys are required. For PRF-M trees they recommend that at least two no. presence/absence surveys for bats are completed between May to September with at least two of the surveys being completed between May and August.

3.3 ECOLOGICAL EVALUATION

Commentary on the ecological value of habitats is provided in Section 4 of this report.

The nature conservation value of habitats and ecological sites occurring within the proposed site are based upon an established geographic hierarchy of importance as outlined by the National Roads Authorities (NRA, 2009). The outline of this geographic hierarchy is provided below and this has been used to determine ecological value in line with the ecological valuation examples provided by the NRA (see NRA, 2009). The geographic evaluation hierarchy is as follows:

- International Sites (Rating A);
- National Importance (Rating B);
- County Importance (Rating C);
- Local Importance (higher value) (Rating D); and

- Local Importance (lower value) (Rating E)

The evaluation of bat activity recorded during static monitoring surveys follows the approach outlined by Kepel (2011) who assigned bat activity based on bat passes per hour as follows:

Pipistrelle species and Leisler's bat: Low = <3.5 passes per hour; Moderate = 3.6 – 6.5 passes per hour; High = >6.5 passes per hour

All Other Bat species: Low = <4.0 passes per hour; 4.1 to 10 passes per hour; high = >10 passes per hour.

These categories apply to the median bat pass per hour per night recorded during monitoring. The median bat pass per hour per night has been recommended by Lintott & Matthews (2018) as the most accurate representation of bat activity as bat activity levels between nights can be highly variable.

3.4 IMPACT ASSESSMENT

The 'zone of influence' for a development is the area over which ecological features may be subject to significant impacts as a result of the Development and associated activities. The Zone of Influence (ZoI), or distance over which a likely significant effect may occur will differ across the Ecological Receptors identified for the proposed Development, depending on the potential impact pathway(s). The results of both the desk study and the suite of ecological field surveys undertaken has established the habitats and species present at and surrounding the Site. The ZoI is then informed and defined by the sensitivities of each of the ecological receptors present, in conjunction with the nature and potential impacts associated with the Development.

The ZoI of the proposed development in relation to terrestrial habitats is generally limited to the footprint of the proposed development, and the immediate environs. Disturbances to the hydrological regime of wetland/aquatic habitats from impact sources can often result in impacts occurring at distances beyond the immediate adjacent areas of the impact source. For instance the distances over which aqueous pollutants are likely to remain at concentrations that have potential to result in perturbations to water quality and associated wetland/terrestrial habitats is difficult to quantify. The potential for such effects to occur are also highly site-specific and related to the predicted magnitude of any pollution event. The impact of a pollution event will depend on the

volumes of discharged waters, concentrations and types of pollutants (in the case of the proposed development these being comprised of sediment, hydrocarbons, cement-based products and other related construction solutions), volumes of receiving waters, and the sensitivity of the ecology of the receiving waters. With respect to the Development, this includes all freshwater habitats and fauna at and downstream of the Development that have been identified as ecological receptors.

The ZoI for terrestrial mammals in terms of potential impacts to breeding and resting places is 150m from the Development. This distance is in line with the maximum distance for potential disturbance to terrestrial mammals (otters and badgers) as specified by TII guidance documentation (NRA, 2009 a & b).

The ZoI for birds is species-specific and relates to the assemblage of avifauna recorded at project site and their sensitivity to disturbance. Goodship & Furness (2022) have published a review of disturbance distances for a range of bird species listed on Annex 1 of the EC Birds Directive. The habitat occurring at project site is not suitable for many of these species e.g. waders, geese etc.. However suitable breeding and foraging habitat for songbirds/passerines occur in woodland habitat beyond the eastern and northern boundaries of the project site. The only passerine species for which Goodship & Furness (2022) have assigned disturbance distances are crested tit and crossbill. For the purposes of this assessment and defining the ZoI for birds the disturbance distance for crested tit and crossbill is applied for the range of passerines occurring at project site.

The disturbance distance sensitivity assigned for passerines (based on crested tit and crossbill) is <50m. In light of the above the ZoI of the proposed development for birds is up to 50m.

The ZoI for herpetofauna is considered to be limited to the direct habitat loss arising from the Development.

3.4.1 Identification & Characterisation of Effects

When describing the scale of ecological impacts reference should be made to the following characteristics:

- Positive or negative
- Extent: the size of the affected area/habitat and/or the proportion of a population affected by the effect

- Duration: the period of time over which the impact will occur. The EPA's guidelines on information to be included in Environmental Impact Assessment Reports (EPA, 2022) sets out the following terms for defining the duration of an impact: Momentary Effects - effects lasting from seconds to minutes; Brief Effects - effects lasting less than a day; Temporary Effects - effects lasting less than a year; Short-term Effects - effects lasting one to seven years; Medium-term Effects - effects lasting seven to fifteen years; Long-term Effects - effects lasting fifteen to sixty years; Permanent Effects - effects lasting over sixty years.

- Frequency & Timing: how often the effect will occur; particularly in the context of relevant life-stages or seasons; and,

- Reversibility: will the effect be permanent or temporary. Will an impact reverse, either spontaneously or as a result of a specific action.

The assessment describes those characteristics relevant to understanding the ecological effect and determining the significance, and as such it does not need to incorporate all stated characteristics (CIEEM, 2018 v.1.1).

3.4.2 Significant Effects on Ecological Receptors

For the purpose of Ecological Impact Assessment, a 'significant effect', is an effect to an ecological feature from an impact, that either supports or undermines biodiversity conservation objectives for those ecological features which have been identified as important. Conservation objectives may be specific (e.g. for a designated site) or broad (e.g. national/local nature conservation policy). As such, effects can be considered significant in a wide range of geographic scales from international to local. Consequently, 'significant effects' should be qualified with reference to the appropriate geographic scale (CIEEM, 2018 v.1.1).

In order to predict likely ecological impacts and effects, the assessor must take account of the relevant aspects of the ecosystem structure and function, which include (CIEEM, 2018 v.1.1):

- The resources available (e.g. territory, prey availability, habitat connectivity etc.);

- Environmental processes (e.g. eutrophication, drought, flooding etc.);

- Ecological processes and relationships (e.g. population / vegetation dynamics, food webs etc.);

- Human influences (e.g. fertilisation, turbary, grazing, burning etc.);

- Historical context (natural range, trends etc.);

- Ecosystem properties (e.g. the carrying capacity, fragility etc.); as well as,
- Other environmental influences such as air quality, hydrology, water quality, nutrient inputs and salinity etc.

The determination of significance is made in line with the terminology set out in the EPA's guidelines on information to be included in Environmental Impact Assessment Reports. These criteria are as follows:

- No change – no discernible change in the ecology of the affected features
- Imperceptible effect - An effect capable of measurement but without noticeable consequences
- Not Significant - An effect which causes noticeable changes in the character of the environment but without significant consequences.
- Slight effect - An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
- Moderate effect - An effect that alters the character of the environment that is consistent with existing and emerging trends.
- Significant effect - An effect which, by its character, its magnitude, duration or intensity alters a sensitive aspect of the environment
- Very Significant - An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment
- Profound effect - An effect which obliterates sensitive characteristics

3.4.3 Integrity

The integrity of an ecological receptor refers to the coherence of the ecological structure and function that enables the ecological receptor to be sustained (NRA, 2009). The term 'integrity' is most often used when determining impact significance in relation to designated areas for nature conservation (e.g. SACs, SPAs or pNHA/NHAs) but can often be the most appropriate method to use for non-designated areas of biodiversity value where the component habitats and/or species exist with a defined ecosystem at a given geographic scale.

An impact on the integrity of an ecological site or ecosystem is considered to be significant if it moves the condition of the ecosystem away from a favourable condition: removing or changing the processes that support the sites' habitats and/or species; affect the nature, extent, structure and

functioning of component habitats; and/or, affect the population size and viability of component species.

3.4.4 Conservation Status

An impact on the conservation status of a habitat or species is considered to be significant if it will result in a change in conservation status.

As per the definitions provided in the EU Habitats Directive, the conservation status of a habitat is favourable when:

- Its natural range and areas it covers within that range are stable or increasing
- The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future
- The conservation status of its typical species is favourable as defined below under species

The conservation status of a species is favourable when:

- Population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats
- The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future
- There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis

According to the TII/CIEEM methodology, if it is determined that the integrity and/or conservation status of an ecological feature will be impacted on, then the level of significance of that impact is related to the geographical scale at which the impact will occur (i.e. local, county, national, international). In some cases, an impact may not be significant at the geographic scale at which the ecological feature has been valued but may be significant at a lower geographical level. For example, a particular impact may not be considered likely to have a negative effect on the overall conservation status of a habitat which is considered to be internationally important. However, an impact may occur at a lower geographic scale on this internationally important habitat. Under such a scenario, such an impact on an internationally important habitat is considered to be significant only at the lower scale e.g. local, county, rather

4.0 DESCRIPTION OF THE RECEIVING ENVIRONMENT

4.1 REVIEW OF HISTORICAL MAPS

A review of historical mapping (6-inch colour map 1829 to 1842; 6 inch Cassini, 1830's) and the 25 inch map, 1888 to 1913) for the site indicates that the site was enclosed and subdivided into agricultural fields with hedgerow field boundaries by the early 1800's. At this stage the northern 'field' of the project site was subdivided into two no. fields; the southwest field is depicted on the first 6 inch map as it is today; whilst the southeast field was subdivided into 4 no. smaller fields. The arrangement of the field pattern at the project site changed by the time of the publication of the 25 inch map in 1899. By this time the northern field was amalgamated into a large field stretching towards the cross roads at Castlemartyr. The 4 no. small fields in the southeast of the project site were amalgamated into the one field, as it is today.

The 1995 satellite imagery for the site shows northern field forming the eastern half of a larger field that stretched west from the project site boundary. The two southern fields within the project site remained unchanged from those depicted on the historical mapping. The 2001 – 2005 imagery shows the commencement of housing development within the western half of the larger field, that spread east into the project site. Residential development continued to be development between 2001 and 2018, establishing the existing footprint of residential land cover to the west and north of the project site. The latest Ordnance Survey Ireland aerial imagery for the site from 2013 – 2018 shows the presence of the existing hedgerow field boundaries, and indicates the presence of arable land in the two southern fields, whilst the northern field appears to comprise a mix of rough grassland and small patches of scrub. This imagery does not indicate the presence of the area of willow scrub that now occupies the southern extent of the northern field, indicating that this scrub habitat has become established in the last 6 to 10 years.

4.2 GEOLOGY OVERVIEW

The bedrock underlying the site changes from north to south, with Massive and crinoidal fine limestone of the Little Island Formation occurring within the project site to the north. A band of Red brecciated calcilutite limestone of the Cork Red marble Formation occupies the southern portion of the project site's northern 'field' that is now largely colonised by willow scrub woodland, as well as the northern portion of the southwestern field and the majority of the

southeastern field. To the south of this band the bedrock consists of Massive unbedded lime-mudstone of the Waulsortian limestone.

The subsoils are dominated by till derived from Devonian sandstone, while the soils are dominated by acid brown earth. The Geological Survey of Ireland (GSI) map viewer does not indicate the presence of any wells within the project site.

The project site is located within the Midleton Groundwater body (IE_SW_G_058) which encompasses the limestone valley from Midleton in the west to Youghal in the east. Groundwater vulnerability underlying the subject lands ranges from Medium to High. Two no. karst features are identified by the GSI to the south of the project site. These are both enclosed depressions (ID no. IE_GSI_Karst_40K_15432 & IE_GSI_Karst_40K_15613). The GIS note in their first draft Midleton GWB Description that the nature of the karstic system occurring at and surrounding the project site leads to rapid interchanges of water between surface and underground. Swallow holes and caves receive surface water, and groundwater is discharged to surface as springs or as baseflow to rivers crossing the groundwater body. As such it is likely that surface waters draining to ground at the project site are likely to discharge to the Kiltha River to the west or the Dower River, which is located at a greater distance (c. 800m) to the east.

4.3 HYDROLOGY

The site is located within Hydrometric Area 19 Lee, Cork Harbour and Youghal Bay. It is located within the Womanagh_SC_010 sub-catchment. There are no watercourses occurring within or bounding the project site. The nearest watercourse to the project site is the Kiltha River, located approximately 315m to the west. No surface drains occur at the project site.

A Flood Risk Assessment (SSFRA) has been prepared by JBA (provided under separate cover with the planning application documentation) which summarises that the proposed residential portion of the development is situated within Flood Zone C and is not at risk of flooding arising from Tidal, Fluvial, Pluvial, Groundwater or Human/ Mechanical Error sources.

4.4 DESIGNATED CONSERVATION AREAS

No European Sites occur at or in the area (e.g. 5 km radius) surrounding the project site. The European Sites in the wider surrounding area are shown on **Figure 4.1** and **Figure 4.2**. The nearest European Sites to the project site are the Ballycotton Bay SPA (Site Code: 004022), approximately 6.7km (as the crow flies) to the south and the Ballymacoda (Clonpriest and Pillmore) SAC (Site Code: 000077) and SPA (Site Code: 004023) approximately 7km (as the crow flies or c. 11km downstream along Kiltha and Womanagh Rivers) to the east. Of these European Sites, the Ballymacoda Bay European Sites have been identified as occurring within the zone of influence of the project by virtue of hydrological pathways connecting the project site to these European Sites. There are no pathway connecting the project site to the Ballycotton Bay SPA. The following subsections sets out further details for the Ballymacoda Bay European Sites, whilst Section 4.4.1.3 provides baseline information with respect to the current Water Framework Directive status of the Womanagh Estuary, which will eventually receive all waters draining from the project site.

4.4.1.1 Ballymacoda Bay SAC

This coastal site stretches north-east from Ballymacoda to within about 6 km of Youghal, Co. Cork. Though moderate in size, it has a good diversity of coastal habitats, including several listed on Annex I of the E.U. Habitats Directive.

The site is selected as a SAC for the following qualifying features of interest:

[1130] Estuaries

[1140] Tidal Mudflats and Sandflats

[1310] Salicornia Mud

[1330] Atlantic Salt Meadows

[1410] Mediterranean salt meadows (Juncetalia maritimi)

The distribution of the qualifying habitats of this SAC at the Womanagh River estuary, downstream of the project site are shown on **Figure 4.3** below. Aside from Mediterranean salt meadows and Salicornia Mud, the remaining three qualifying habitats of the SAC are located downstream of the project site at the Womanagh River estuary. As such the qualifying habitats of the SAC that are considered to occur within the zone of influence of the project are estuaries, tidal mudflats and sandflats and Atlantic salt meadows.

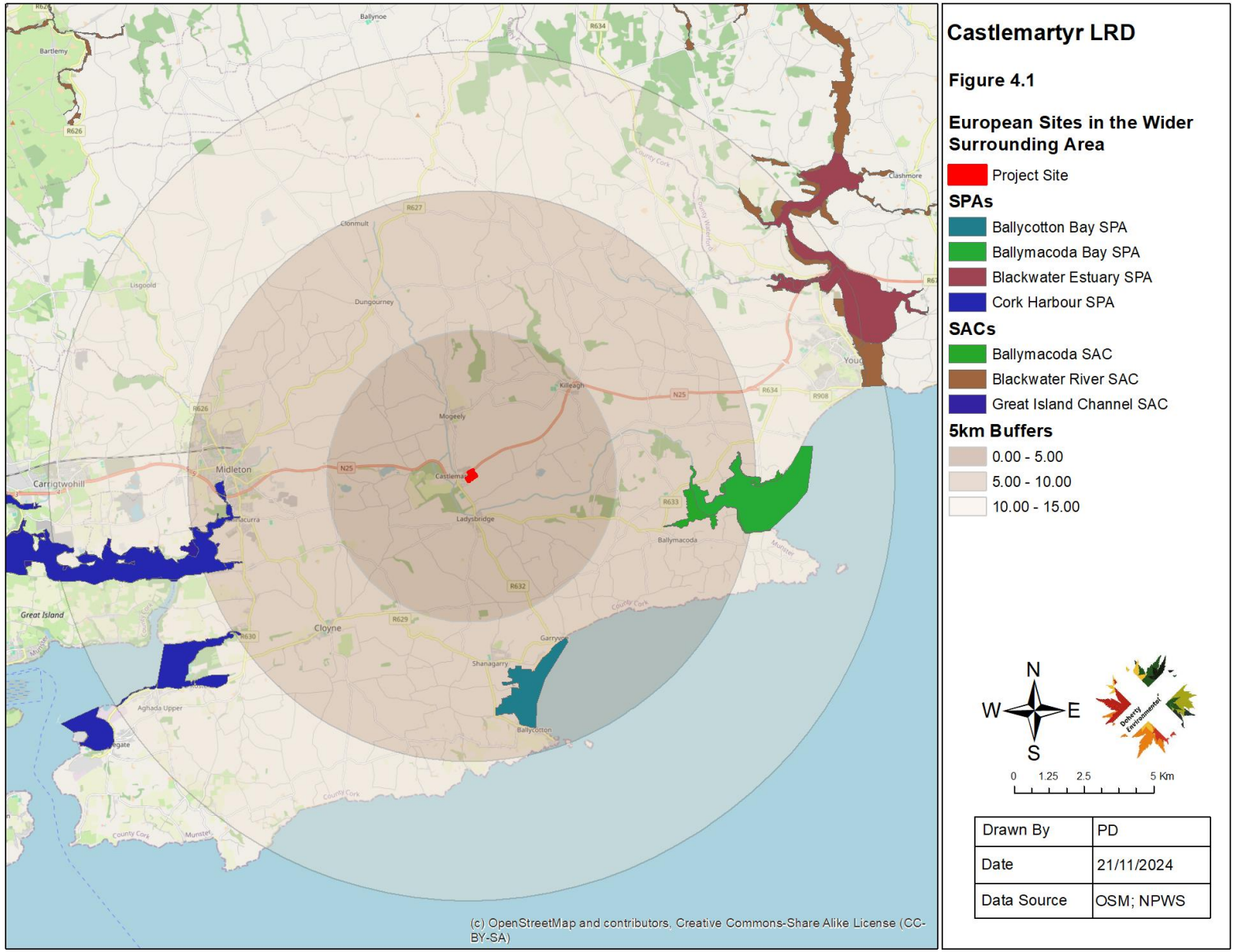
Conservation objectives have been published for the Ballymacoda Bay SAC (NPWS, 2015a). The conservation objectives attributes and targets pertaining to the qualifying habitats of the SAC occurring within the zone of influence of the project are set out in Section 5 below.

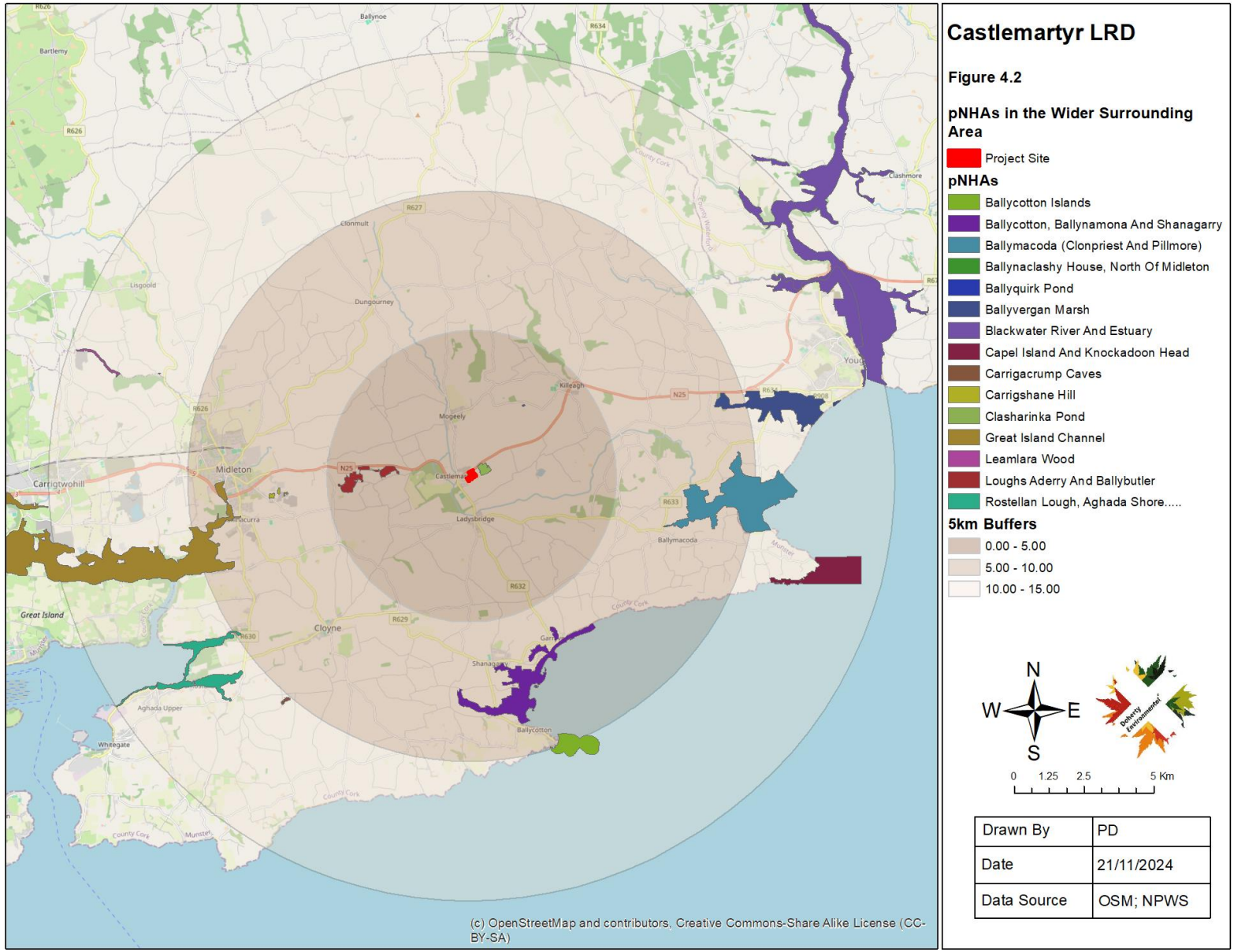
4.4.1.2 Ballymacoda Bay SPA

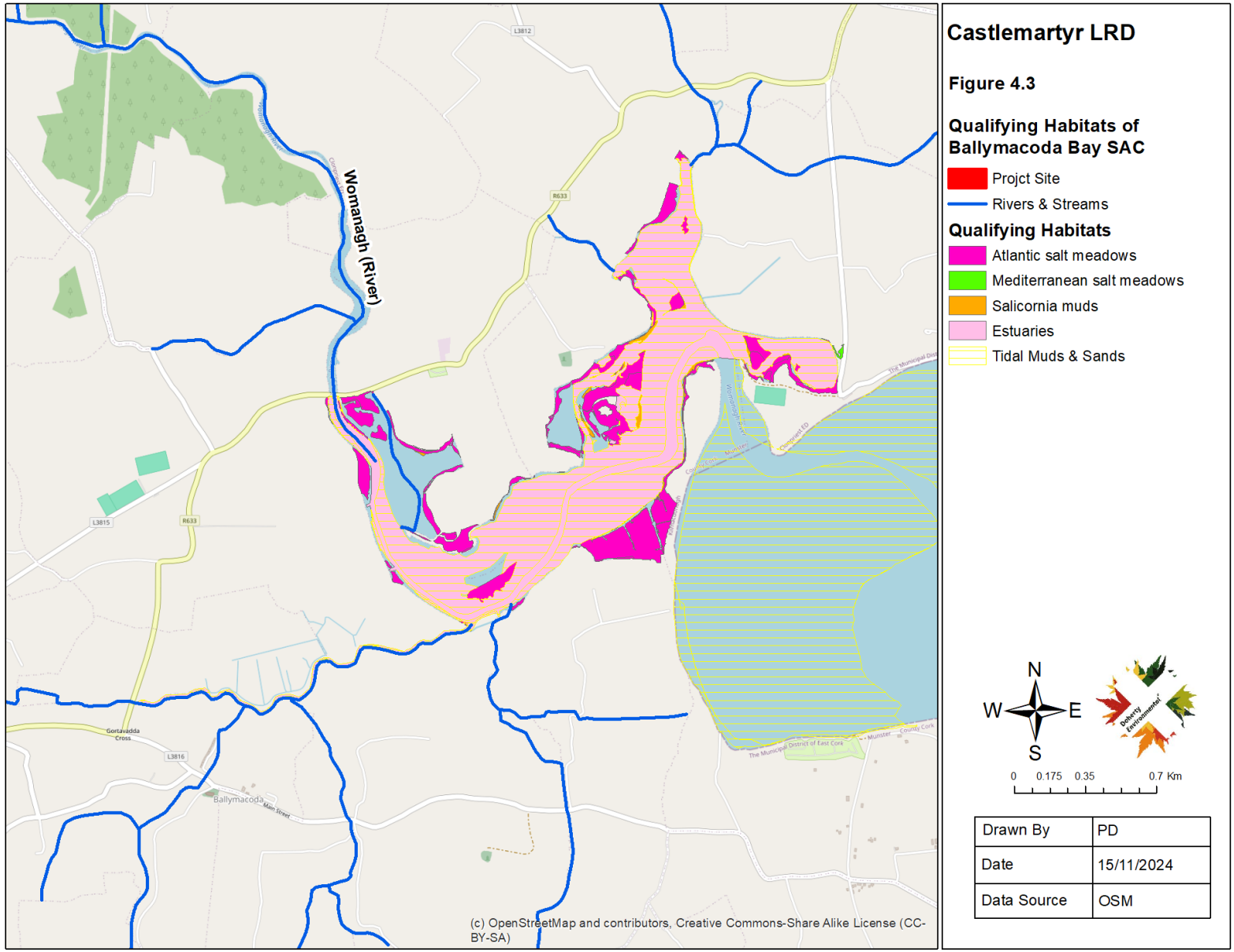
This coastal site stretches north-east from Ballymacoda to within several kilometres of Youghal, Co. Cork. It comprises the estuary of the Womanagh River, a substantial river which drains a large agricultural catchment. Part of the tidal section of the river is included in the site and on the seaward side the boundary extends to, and includes, Bog Rock, Barrel Rocks and Black Rock. The inner part of the estuary is well sheltered by the Ring peninsula, a stabilised sand spit with sand dunes at its northern end and salt marshes on the landward side. The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species:

Wigeon	Grey Plover	Black-tailed Godwit	Turnstone
Teal	Lapwing	Bar-tailed Godwit	Black-headed Gull
Ringed Plover	Sanderling	Curlew	Common Gull
Golden Plover	Dunlin	Redshank	Lesser Black-backed Gull

The site is also of special conservation interest for holding an assemblage of over 20,000 wintering waterbirds. The E.U. Birds Directive pays particular attention to wetlands and, as


Castlemartyr LRD
Figure 4.1
European Sites in the Wider Surrounding Area
Project Site
SPAs
Ballycotton Bay SPA
Ballymacoda Bay SPA
Blackwater Estuary SPA
Cork Harbour SPA
SACs
Ballymacoda SAC
Blackwater River SAC
Great Island Channel SAC
5km Buffers
0.00 - 5.00
5.00 - 10.00
10.00 - 15.00
N
W
E
S
0 1.25 2.5 5 Km
Drawn By PD
Date 21/11/2024
Data Source OSM; NPWS
(c) OpenStreetMap and contributors, Creative Commons-Share Alike License (CC-BY-SA)


Castlemartyr LRD
Figure 4.2
pNHAs in the Wider Surrounding Area
Project Site
pNHAs
Ballycotton Islands
Ballycotton, Ballynamona And Shanagarry
Ballymacoda (Clonpriest And Pillmore)
Ballynaclashy House, North Of Midleton
Ballyquirk Pond
Ballyvergan Marsh
Blackwater River And Estuary
Capel Island And Knockadoon Head
Carrigacrump Caves
Carrigshane Hill
Clasharinka Pond
Great Island Channel
Leamlara Wood
Loughs Aderry And Ballybutler
Rostellan Lough, Aghada Shore.....
5km Buffers
0.00 - 5.00
5.00 - 10.00
10.00 - 15.00
N
W
E
S
0 1.25 2.5 5 Km
Drawn By PD
Date 21/11/2024
Data Source OSM; NPWS
(c) OpenStreetMap and contributors, Creative Commons-Share Alike License (CC-BY-SA)


Womanagh (River)
L3812
R633
L3815
L3816
Gortavadda Cross
Ballymacoda
Main Street
(c) OpenStreetMap and contributors, Creative Commons-Share Alike License (CC-BY-SA)
Castlemartyr LRD
Figure 4.3
Qualifying Habitats of Ballymacoda Bay SAC
Projct Site
Rivers & Streams
Qualifying Habitats
Atlantic salt meadows
Mediterranean salt meadows
Salicornia muds
Estuaries
Tidal Muds & Sands
N
W
E
S
0 0.175 0.35 0.7 Km
Drawn By PD
Date 15/11/2024
Data Source OSM

these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds

There is a hydrological pathway between the project site and the wetland habitats of Ballymacoda Bay SPA that support the wetland bird species listed above.

Conservation objectives have been published for the Ballymacoda Bay SPA (NPWS, 2015b). The conservation objectives attributes and targets pertaining to the special conservation interests of the SPA are set out in Section 5 below.

4.4.1.3 Womanagh Estuary Water Framework Directive Status

The latest Water Framework Directive reporting for the Womanagh Estuary (Cycle 2 report for Sub-catchment Womanagh_SC_010) has placed the estuary Water Framework Directive risk status under review due to the identification of existing anthropogenic pressures. The Womanagh River which drains to the estuary and to which surface waters generated at the project site will eventually drain has been categorised as At Risk owing to the identification of significant pressures the source of which are listed as agricultural, urban waste water and channelisation. It is noted that the current project will not have the potential to contribute to channelisation along the river given that no works are proposed as part of the project to any watercourses. Neither will it have the potential to contribute to urban wastewater inputs given that there will be no potential for a wastewater impact pathway to connect the project to the Womanagh sub-catchment (see Screening Report for Appropriate Assessment).

4.4.1.4 NHAs/pNHAs

There are no NHAs occurring in the wider area surrounding the project site. The nearest proposed NHA (pNHA) to the project site is the Clasharinka Pond pNHA, located approximately 200m to the east. The next pNHA is the Loughs Aderry and Ballybutler, located approximately 2.5km to the west.

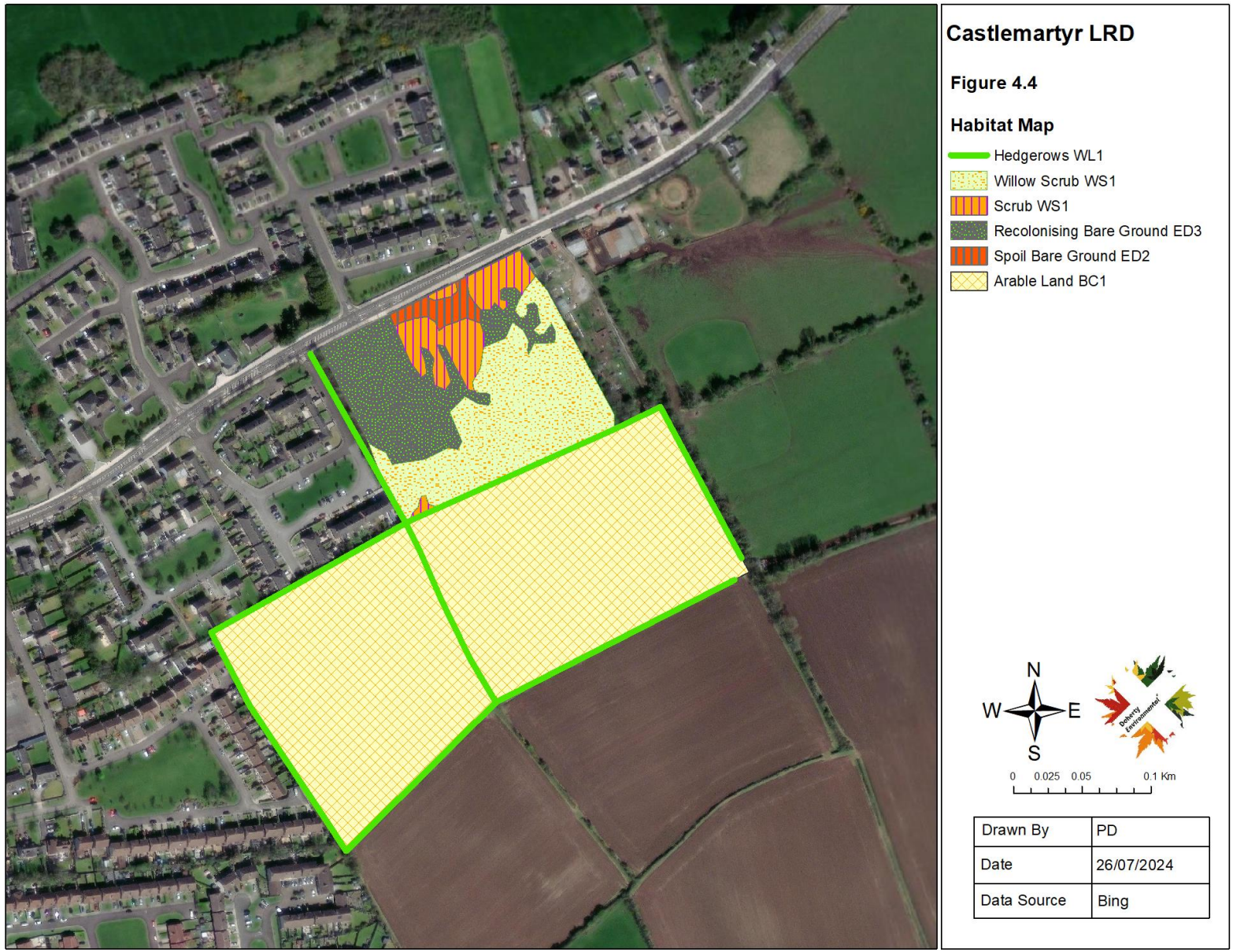
4.5 SURVEY RESULTS

4.5.1 Habitats

The following Sub-Sections describe the habitats occurring within and immediately adjacent to the project site. Each habitat described below has been identified to Level 3 of Fossitt's *Guide to Habitats in Ireland*. The alpha-numeric code for each habitat is also provided alongside the habitat name (e.g. hedgerow WL1). The locations and extent of each habitat described below are illustrated in Figure 4.4: Habitat Map.

The current land cover within the project site is characterised by arable land bounded by hedgerows in the two southern fields. The northern 'field' consists of areas of spoil and bare ground, recolonising bare ground and immature willow scrub. The extent of each habitat occurring within the project site is shown on **Figure 4.4** Habitat Map. Hedgerows bound the site, whilst one number hedgerow, orientated north to south separates the southwestern and southeastern fields of the project site. These hedgerows are shown on historical maps and are of local value from a historical boundary perspective. The eastern boundary hedgerow is dominated by a line of Fraxinus excelsior, many of which are infected with ash dieback. They are considered to be of local importance (higher value) (Rating D).

An area of species-poor willow (Salix aurita & Salix caprea) has become established on site in recent years. As noted in Section 3.1 above this scrub habitat is not apparent in the latest OSI aerial imagery and is likely to have become established in the last 6 to 10 years. This is established by time lapse google street view imagery for the project site, which shows the absence of willow scrub in September2009and September 2011 and indicates the emergence of willows by September 2014. Ecological surveys of the project site, completed in 2016, for a previous planning application (Cork County Council Planning Ref. No 17/4624) described the willow scrub on site as an area of willow sapling and categorised this as immature woodland habitat. The scrub habitat is dense with high levels of shading resulting a depauperate and species-poor herb layer. Informal desire line paths are established within the existing willow scrub habitat, indicating its current use as an informal recreational area. The willow scrub habitat is of local importance (higher value) owing to the habitat it provides for fauna species. As part of the landscape plan for the project the woodland habitat will be largely retained within the existing footprint of the willow scrub habitat and will be buffered to the south along the existing hedgerow bounding the south of this area. This buffer has been designated as an


Castlemartyr LRD
Figure 4.4
Habitat Map
Hedgerows WL1
Willow Scrub WS1
Scrub WS1
Recolonising Bare Ground ED3
Spoil Bare Ground ED2
Arable Land BC1
N
W
E
S
0 0.025 0.05 0.1 Km
Drawn By PD
Date 26/07/2024
Data Source Bing

ecological corridor (Open Space B) in the landscape plan. Given the approach to the retention of the willow scrub habitat and the provision of an additional and contiguous ecological corridor buffering this area to the south, the potential impact of the proposed development to this habitat will be negligible.

Other habitats occurring within the project site include dense and species-poor bramble and gorse scrub; recolonising bare ground; spoil and bare ground and arable land. These habitats are of Local importance (lower value) (Rating E).

In summary the habitats occurring within the project site that have been identified as key ecological receptors (KERs) are the hedgerow/treeline field boundaries bounding the southwest and southeast fields and the willow scrub habitat

4.5.2 Rare, threatened or protected Flora

As noted in Section 2 above the relatively rare bee orchid (*Ophrys apifera*) has been recorded on site with a total of 25 no. flowering spikes being observed during surveys in May and June 2024. The distribution of this species within the project site is shown on Figure 4.5 below. Bee orchid is considered to be a rare species in County Cork, although its presence may be under-recorded. the presence of this species at the project site is of nature conservation interest and is considered to be of County importance (Rating C). As such the stand of bee orchid at the project site is identified as a KER.

4.5.3 Invasive Species

No high impact non-native invasive plant species have been recorded at the project site during baseline surveys between April and November 2024. One medium impact species, namely Buddleja davidii has been recorded on site. *B. davidii* is native to China and was first recorded in Ireland in the 1950's. It was introduced as a garden ornamental and is widely planted as a landscape garden ornamental throughout Ireland. It establishes readily on naturally or on anthropogenically disturbed sites such as quarries, urban waste grounds, abandoned cultivated areas, clearcut forests, along railway lines etc. (Tallent-Halsell & Watt, 2009).

In the UK and Ireland naturalised *B. davidii* plants retain seeds on the plant throughout winter and then release the seeds in early spring into summer (Tallent-Halsell & Watt, 2009). Large.

Castlemartyr LRD

Figure 4.5

Bee Orchid Distribution

Bee Orchid Castlemartyr

No = No. of Flowering Spikes

N
W
E
S

0 0.015 0.03 0.06 Km

Drawn By	PD
Date	14/11/2024
Data Source	Bing

numbers of seeds are produced by each of the flowering spikes on the plant and the lightweight, winged nature of the seeds facilitates dispersal. Seeds can remain viable for three to five years. Plants also readily reproduce asexually from stem and root fragments and can regenerate from buried stems, stumps and roots soon after disruption.

4.5.4 Fauna

An overview of the fauna supported by the site is outlined in the following sections. The nature conservation value of the site in supporting populations of fauna is also outlined in the following sub-section

4.5.4.1 Non-Volant Mammals

No evidence indicating the presence of protected non-volant mammals, such as badgers, has been recorded within the project site during field surveys completed between April and November 2024. Rabbits are present within the site. Other small mammals such as hedgehog and pygmy shrew which have a widespread distribution are likely to occur at the project site in association with hedgerows and willow scrub

4.5.4.2 Volant Mammals – Bat

4.5.4.2.1 Tree Roost Survey

There are no structures on site and as such there is no potential for roosting to occur in buildings within the project site. Mature trees occur along the eastern boundary hedgerow and the medium hedgerow within the project site. The trees occurring along these hedgerow have been categorised as PRF-I trees, given that they do not support PRF types associated with disease, decay or damage. Ivy cover is the only features on some of these trees that are listed as PRFs. The ivy cover present on the trees is considered to have limited potential to support roosting bats. During the manual bat surveys completed in May and July emergence surveys was completed at the eastern boundary and the medium hedgerow. The location of the emergence surveys are shown on Figure 4.6. No bats were recorded emerging from these trees during the emergence surveys.

During the manual survey 3 no. species were recorded. These include Leisler's bat, Soprano pipistrelle and Common pipistrelle. During the May survey 4 no. Leisler's bat passes; 12 Common pipistrelle passes; and 5 Soprano pipistrelle passes were recorded.

During the July survey 14 Soprano pipistrelle passes; 7 Leisler's bat passes; and 2 Common pipistrelles were recorded.

During the October survey 4 Common pipistrelle passes; 2 Leisler's bat passes; and 1 Soprano pipistrelle pass were recorded.

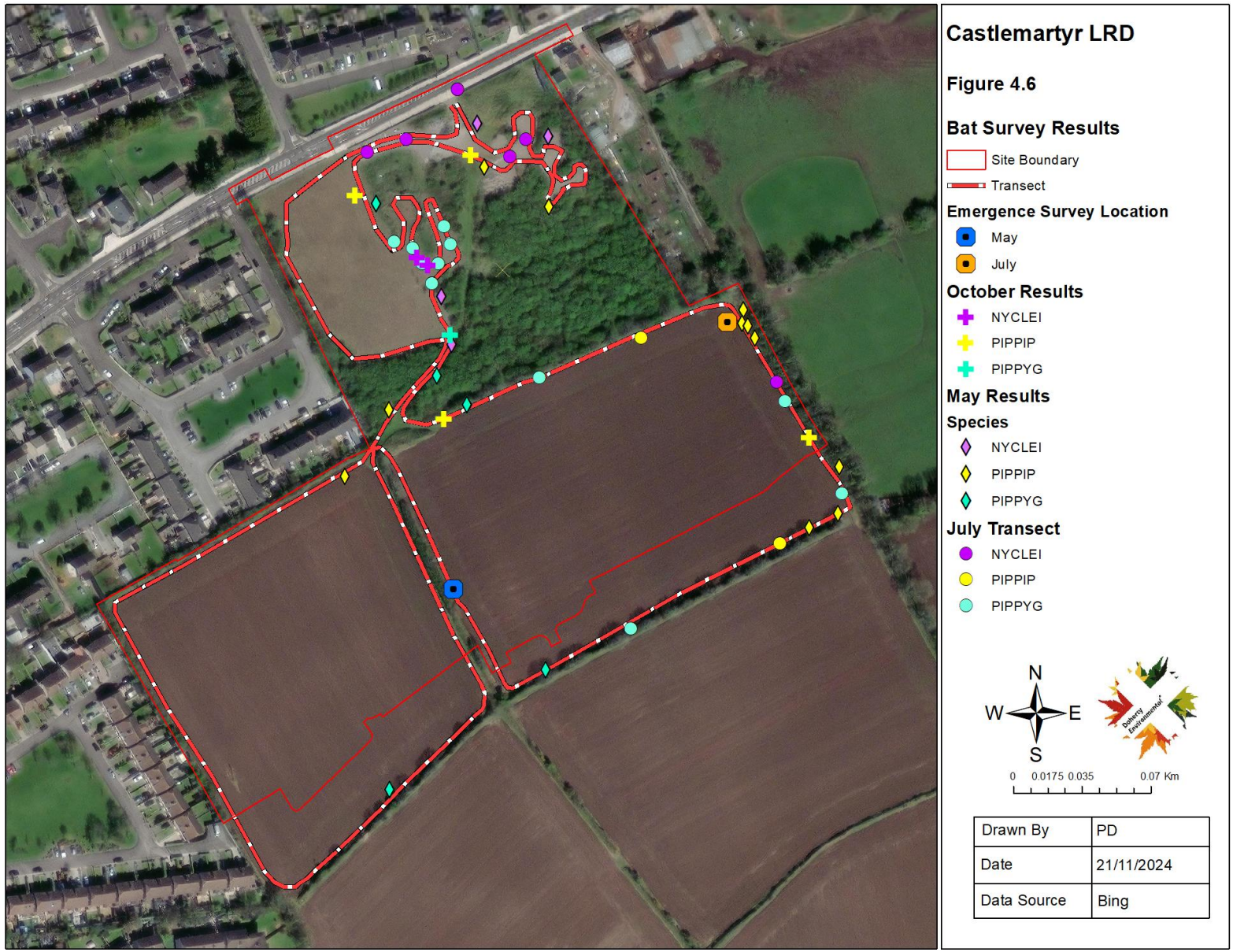
The results of the seasonal bat activity surveys completed at the project site are shown on Figure 4.6.

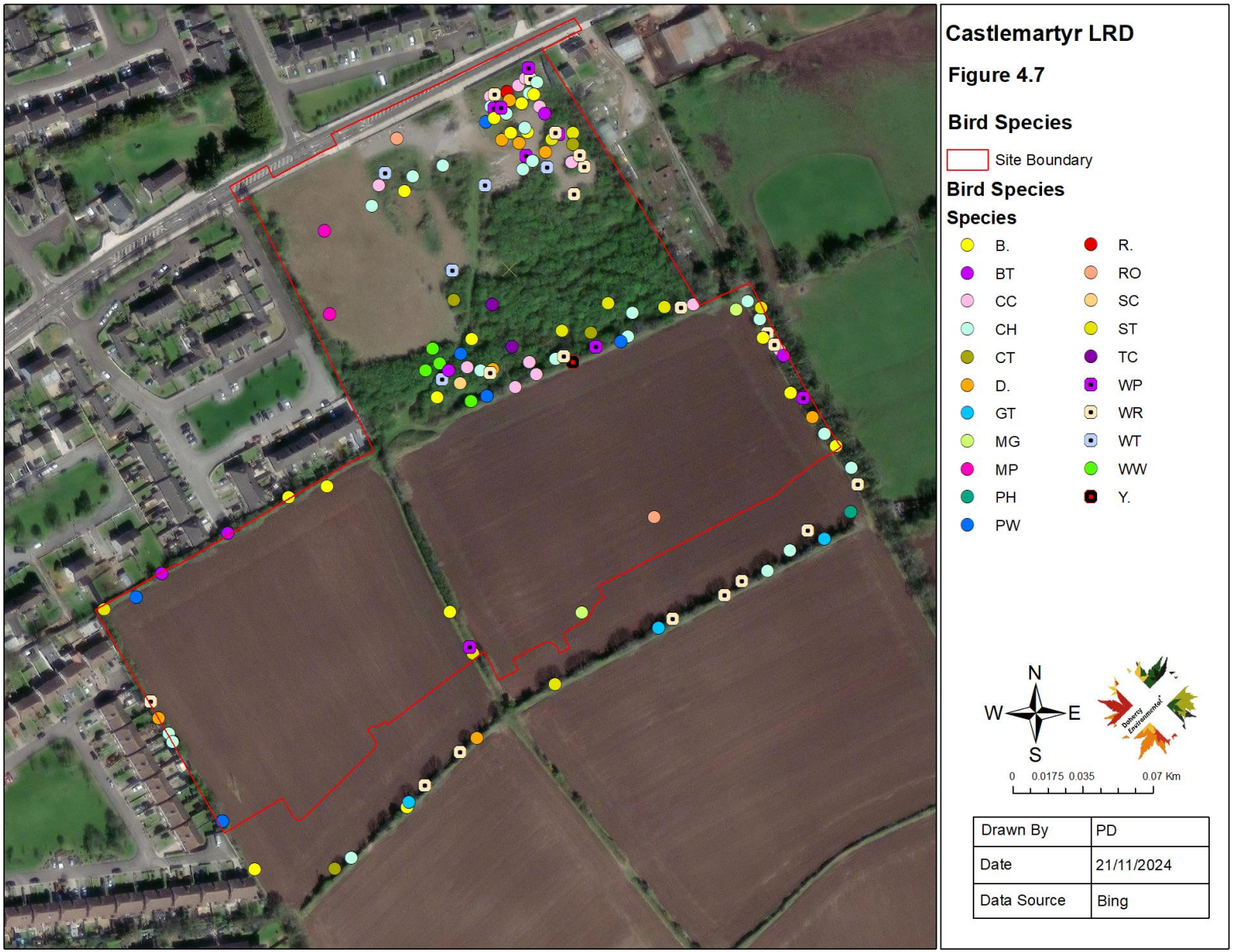
Activity was generally low during all monthly transects completed at the project site. Passes were recorded were representative of commuting passes rather than foraging. No foraging behaviour by bats within the project site was detected or observed during the transects.

4.5.4.3 Birds

A range of bird species have been recorded on site during monthly surveys completed between April and July 2024. Species recorded comprise blackbird, blue tit, chaffinch, chiffchaff, coal tit, dunnock, great tit, magpie, meadow pipit, pheasant, pied wagtail, robin, stonechat, song thrush, tree creeper, wood pigeon, wren, willow tit, willow warbler and yellowhammer. The results of the bird transect surveys are shown on Figure 4.7

All of the above species recorded on site during surveys are green listed and of low conservation concern with the exception of yellowhammer which is red listed of high conservation concern. It is noted that yellowhammer was heard calling on site during field surveys completed in June 2024. It was not heard calling during other monthly surveys in April, May and July. This result suggests that yellowhammer did not breed in hedgerow/woodland vegetation within or bounding the project site.


Castlemartyr LRD
Figure 4.6
Bat Survey Results
Site Boundary
Transect
Emergence Survey Location
May
July
October Results
NYCLEI
PIPPIP
PIPPYG
May Results
Species
NYCLEI
PIPPIP
PIPPYG
July Transect
NYCLEI
PIPPIP
PIPPYG
N
W
E
S
0 0.0175 0.035 0.07 Km
Drawn By PD
Date 21/11/2024
Data Source Bing


Castlemartyr LRD
Figure 4.7
Bird Species
Site Boundary
Bird Species
Species
B.
BT
CC
CH
CT
D.
GT
MG
MP
PH
PW
R.
RO
SC
ST
TC
WP
WR
WT
WW
Y.
N
W
E
S
0 0.0175 0.035 0.07 Km
Drawn By PD
Date 21/11/2024
Data Source Bing

5.0 IMPACT ASSESSMENT

5.1 CONSTRUCTION PHASE

5.1.1 Designated Conservation Areas

5.1.1.1 Direct Impacts

There will be no direct impacts to designated conservation areas occurring in the surrounding area. The nearest conservation area to the project site is the Clasharinka Pond pNHA, located approximately 300m to the west. This pNHA and all other conservation areas are buffered from the project site and as such activities associated with the project will not have the potential to result in direct impacts to these designated conservation areas.

5.1.1.2 Indirect Impacts

A hydrological pathway connects the project site to the Ballymacoda Bay European Sites by virtue of the proposal to drain waters during the operation phase to the Kiltha River and the potential for groundwater pathways from the project site to the Kiltha River and the Dower River. The potential for this hydrological pathway to function as an impact pathway between the project site and the Ballymacoda Bay European Sites has been examined as part of a Natura Impact Statement (NIS) and it has been concluded that, with the implementation of the surface water design measures as set out in the Natura Impact Statement water runoff from the project

site, which will be generally clean surface water, will not have the potential to undermine the water quality of the Kiltha or Dower Rivers or the Ballymacoda Bay European Sites downstream.

A potential groundwater pathway could also connect the project site to the Clasharinka Pond pNHA during the construction phase. In the event of contact between groundwater flow paths and contaminated surface water generated at the project site, such contaminated surface water could be directed to the Clasharinka Pond pNHA are result in perturbations to the water quality of this pond. Mitigation measures, which reflect those set out in the Natura Impact Statement for the project, are set out in Section 6 below that aim to ensure that perturbations to groundwater quality are avoided during the construction phase.

5.1.2 Habitat Loss & Degradation

The footprint of the proposed development will be predominantly restricted to arable land, recolonising bare ground, spoil and bare ground, and bramble scrub habitats, all of which are of low nature conservation value and are not representative of key ecological receptors at the project site. The project will result in the conversion of these habitats to areas of hardstanding which will not represent a significant impact to the baseline biodiversity, given the low nature conservation value of these habitats.

The willow scrub and hedgerow habitats occurring at the project site have been identified as KERs. The project will result in the loss of area associated with both habitats. The areas of willow scrub and hedgerow habitat loss that will arise as a result of the project are shown on Figure 5.1.

The project will result in the loss of c. 51% of the existing willow scrub habitat on site. In the absence of appropriate habitat compensation measures, this loss of recently established willow scrub woodland is representative of a significant impact to this habitat of local value.

The existing hedgerows on site will be largely retained and as such the potential impact of the proposed development to this habitat will be minor. Approximately 24m of hedgerow will be lost from the medium hedgerow between the southwest and southeast fields. This hedgerow loss represents a c. 2% loss of hedgerow habitat within and adjacent to the project site.

5.1.3 Disturbance to/Loss of Bee Orchid

In the absence of appropriate mitigation measures the development of the project will result in the loss of existing stands of bee orchid within the project site. This species is representative of a KER of County Importance (Rating C). The loss of this species will represent a negative impact to this species at the County level.

Mitigation measures are set out in Section 6 below to safeguard the presence of bee orchid within the project site.

Castlemartyr LRD

Figure 5.1

Habitat Loss

- Hedgrow Loss
- Willow Scrub Loss
- Site Boundary

N
W E
S

0 0.0175 0.035 0.07 Km

Drawn By	PD
Date	14/11/2024
Data Source	Bing

5.1.4 Disturbance to/Loss of Habitat for Terrestrial Mammals

No breeding sites or resting places of protected terrestrial non-volant mammals such as badgers or otters were noted within or immediately adjacent to the project site and the construction phase of the project will not have the potential to result in significant disturbance to non-volant terrestrial mammals.

Given that the hedgerows and drainage ditch on site are to be retained there will be no loss of linear habitat that has potential to function as foraging habitat for bats.

Any inappropriate siting of lighting during construction, may have the potential to indirectly impact on bat species that utilise the project site for foraging and/or commuting. It is noted that the species dominating activity at the project site i.e. soprano pipistrelle, common pipistrelle and Leisler's bat, during monitoring are some of the least sensitive species to artificial light spill.

5.1.5 Impacts to Birds

The clearance of the site and any recolonising vegetation within the project site during the breeding bird season will have the potential to result in the destruction of nest and nest or fatality to chicks.

Given the disturbed nature of the site, the local bird population supported by the project site is likely to be well habituated to human activity and the construction works associated with the project are not predicted to have the potential to result in significant disturbance to birds.

It is noted that the loss of arable land to the footprint of the proposed development will result in a loss of suitable habitat for yellowhammer. However given that yellowhammer was not confirmed as breeding at the project site during the 2024 breeding season as well as the small area of arable land to be lost to the proposed development, in the context of the extensive and widespread availability of this habitat in the surrounding area, the impact of this loss for the local yellowhammer population will not be significant and will not undermine the conservation status of this species at the local scale.

With respect to other bird species occurring at the project site the proposed approach to the landscape masterplan, which will retain the majority of hedgerows and existing willow scrub and provide additional habitat in the form of the ecological buffer, the impact to these species is considered to be low and insignificant.

5.1.6 Spread of Non-Native Invasive Species

During site surveys the only non-native species recorded on site was *Buddleja davidii*. The construction phase of the project has the potential to result in the spread of these species in the wider vicinity of the project site. In addition, the potential exists for site operatives and machinery to result in the inadvertent spread of non-native plant species on site, should clothing, plant and machinery be contaminated with these species prior to entry on site.

5.2 OPERATION PHASE

5.2.1 Designated Conservation Areas

In the absence of the provision of inappropriate surface water management for the operation phase the potential will exist for the conveyance of contaminated surface water from the project site (in the event of a pollution event on site) to the Kiltha River via the proposed surface water infrastructure and on downstream to the Womanagh River and the Ballymacoda Bay European Sites. The potential implication of the conveyance of pollution downstream to the Ballymacoda Bay European Sites have been examined as part of the Natura Impact Statement prepared for the project and provided under separate cover with the planning application documentation.

The operation phase of the project will not result in direct or indirect impacts to the Clasharinka Pond pNHA to the east of the project site. No surface water generated at the project site will be directed to this pond.

5.2.2 Habitat Loss

The operation phase of the development will not result in any further habitat loss within the project site.

5.2.3 Impacts Terrestrial Fauna

The operation phase of the project is not predicted to have the potential to result disturbance to protected terrestrial non-volant mammals or bird species. This is due to the absence of any evidence of protected terrestrial non-volant mammals within the project site during field surveys and the provision of suitable nesting habitat at the project site for the commonly occurring bird species that frequent the site. .

Pipistrelle species, in the form of Soprano pipistrelle and Common pipistrelle and Leisler's bat were the dominant species recorded during bat monitoring at the project site. These species are less sensitive to artificial light at night. Public lighting will be provided as part of the operation phase of the project and in the event that inappropriate lighting is provided and results in excessive lighting along the edge of and over linear woodland corridors to the north and east, there will be potential for disturbance to suitable bat foraging habitat.

Mitigation measures are set out in Section 6 below that aim to avoid illumination of linear woodland corridors along the east and north of the project site.

5.3 CUMULATIVE IMPACTS

The Cork County Development Plan 2022 to 2028 represents the key plan for the management and development of lands within County Cork. As part of the County Development Plan the project site forms part of the lands included within the land use zonings “Existing Residential/Mixed Residential and Other Uses” and “Residential”. The County Development Plan and associated zoning were subject to Strategic Environmental Assessment and it was determined that the implementation of the Plan, alone or in-combination with other plans or projects, will not have the potential to result in adverse effects to biodiversity.

The National Biodiversity Action Plan has been provided a statutory footing by way of an amendment to the Wildlife Act 1976 (As amended) in 2024. Section 59B of the Act requires public bodies to have regard to the objectives and targets of the National Biodiversity Action Plan. Action 3C1 of the Plan sets a target for 2030 for all public authorities and private section bodies to move towards no net loss of biodiversity through, strategies, planning, mitigation measures and appropriate offsetting and/or investment in blue-green infrastructure. It is considered that the current project will be consistent with the target of this action given the

design for the project that it will provide for a net increase in the area of woodland and hedgerow/treeline habitat at the project site as well as increasing the floral diversity of these habitats. Both measures will contribute towards supporting biodiversity at the project site.

In terms of the potential for cumulative impacts to arise with other projects it is noted that are number of development projects have been recently granted or applied for planning permission in the vicinity of the project site. These include Planning Reference No. 23/6054; 22/5738; 22/6416; 22/6414; 22/4084; 20/4771; 194734; and An Bord Pleanála Ref 310585-21. Each of these planning applications have been subject to environmental assessment including an assessment of the implication of the proposed development to biodiversity and where required have set out mitigation measures that aim to avoid the potential for these developments to have significant effects to local biodiversity, alone or in-combination with other plans or projects. In view of the findings set out for these other development projects, it is concluded that this current project will not have the potential to combine with them to result in significant cumulative effects to local biodiversity.

6.0 MITIGATION MEASURES

The mitigation measures outlined in the following sections aim to ensure that a best practice approach to minimising ecological disturbance during the construction phase is implemented and that the design of the project's operational phase avoids significant effects the surrounding ecology.

6.1 ECOLOGICAL CLERK OF WORKS

An Ecological Clerk of Works (ECoW) as well as a Project Landscape Architect will be appointed prior to the commencement of construction. The ECoW will be an ecologist with experience of baseline ecological surveys, pre-construction surveys and construction phase supervision. The ECoW will be responsible for completing pre-construction surveys and supervising construction works where necessary and advising on the implementation of woodland enhancement measures.

6.2 MEASURES TO MINIMISE IMPACTS OF CONSTRUCTION WORKS

The construction phase of the project will adhere to best practice guidance, particularly the CIRIA guidance document C532 Control of water pollution from construction sites.

During site operations key requirements for control of pollution risk will include measures that will be put in place for the safe storage of potentially polluting materials and the collection, filtration and treatment of surface water runoff prior to discharge from the site. These measures will include features outlined in the following bullet points:

The construction phase of the project will adhere to best practice guidance, particularly the CIRIA guidance document C532 Control of water pollution from construction sites.

During site operations key requirements for control of pollution risk will include measures that will be put in place for the safe storage of potentially polluting materials and the collection, filtration and treatment of surface water runoff prior to discharge from the site. These measures will include features outlined in the following bullet points:

- Silts & Fines – a silt fence will be installed in the development site catchment no. 2 along the southern and eastern boundary of the site nearest the Ferganstown Stream/Millrace. The silt fence will be returned west and north into the site Strategic Plan that any surface water leaving the site along preferential slope pathways first passes through the silt fence and is thereby treated by the silt fence. The silt fence will be installed as per the silt fence specifications detailed in Section 18.6.12 of the CIRIA guidance document "Control of Water Pollution from Linear Construction Projects, Technical Guidance (C648)". The geotextile/fabric membrane will be buried in a trench (measuring 100mm X 100mm) to ensure that water does not flow under the silt fence barrier. The purpose of this membrane will be to prevent any sediment discharge from development site catchment no 2 towards the Ferganstown Stream/Millrace.

- Silt & Fines: Maintenance – maintenance of the silt fence will be undertaken throughout the duration of the construction works.

- All potentially contaminating construction phase substances such as hydrocarbons and other chemicals will be stored in secured and bunded containers within the temporary construction compound.

- Storage – potentially polluting construction materials, such as fuels, oils, cementitous materials and chemicals will be stored on impervious bases and within a secured bund of 110% of the storage capacity, within a designated lay down in this area of the site compound. The storage of such materials on an impervious base will eliminate the potential for their discharge to ground and groundwaters during the construction phase.

- Temporary construction compound – The storage of potentially polluting materials and their use at the temporary construction compound represents the risk to groundwater and establishing a groundwater pathway between the project site and the Kiltha and Dower River or the Clasharinka Pond. The temporary construction and decommissioning phase site compounds will be installed over an impermeable barrier. This will ensure that surface water draining from the site compound is prevented from draining to ground. Surface water arising from the site compound will be directed to temporary construction phase perimeter drains which will bound the compound. The perimeter drains will be fitted with regularly spaced check dams in the form of straw bales and/or stone filter dams. The perimeter drain will convey surface water runoff to a buffered outfall that will discharge waters over ground. The treatment provided along the drains will in turn provide for effective treatment of the surface water runoff prior to draining to ground.

- Cement and cement-based products will also be stored in a securely bunded area at the temporary construction compound.

- The integrity and water tightness of all the bunding structures and their resistance to penetration by water or other materials stored therein shall also be tested and demonstrated.

- Refuelling of vehicles and machinery will be carried out on an impermeable surface in designated areas, well away from any surface drain at the southern end of the site compound as detailed under the first bullet point above.

- All fuel oil fill areas will have an appropriate spill apron and spill kits will be provided on site.

- Vehicles and refuelling – standing machinery will have drip trays placed underneath to prevent oil and fuel leaks causing pollution..

6.3 MANAGEMENT OF WASTEWATER

All wastewater generated during the operation phase will be directed to the Irish Water sewer network prior to being pumped to the municipal WWTP. As noted at Ssction 6.3 above the Castlemartyr wastewater treatment plant is currently being upgraded with the upgrade works scheduled for completion by 2026 and the proposed connection for the project site to the wastewater treatment plant can be facilitated as soon as possibly practicable after this date.

6.4 MITIGATING & COMPENSATING IMAPCTS TO HABITATS

The project will result in the loss of woodland habitat on site as well as a small stretch (c. 25m) of hedgerow habitat. .

A landscape masterplan has been prepared for the project and this provides for the retention and enhancement of the existing hedgerow along the western and eastern boundary of the project site. Native species, comprising oak, alder birch, hawthorn, Scot's Pine and cherry will be used as part of the tree planting mix to enhance these boundaries.

As noted in Section 5.1.2 above the project will result in a c. 51% loss of the existing willow scrub habitat at the north of the site. This willow scrub habitat is of recent origin and species poor. Notwithstanding this it has been identified as a KER for the project. In order to offset the loss of this willow scrub woodland habitat will be provided throughout the project site. The woodland to be provided will be centred on a large area of woodland at the centre of the site overlapping the footprint of existing willow scrub. The woodland will be extended south, the south of the existing east to west orientated hedgerow that currently forms the southern boundary of the willow scrub. The woodland species mix will consist of native trees comprising hazel, crab apple, rowan, oak, birch and Scot's pine. The southern area of the central block of woodland has been identified as an ecological corridor in the Landscape Masterplan and will consist of wetland habitats, provided as part of the SuDS drainage features. The area of

woodland to be provided at the centre of the site will measures approximately provision of the 0.9 Ha or c. 80% of the original extent of willow scrub habitat on site.

In addition to the central area of woodland habitat, other pocket woodland areas in the form of scattered trees and parkland and scattered trees and wetland will be provided throughout the site. The scattered trees associated with these woodland pockets will include native oak and birch. The scattered trees and wetland will be provided through the provision of mature specimen trees alongside SuDS raingarden features. The areas of woodland, scattered trees and parkland and scattered trees and wetland to be provided as part of the operation phase landscaping is shown on Figure 6.1. The total area of woodland habitat to be provided as part of the operation phase landscaping will amount to c. 1.17 Ha. Given that the existing stand of willow scrub at the project site is c. 1.15 Ha in size the proposed woodland habitat landscaping will result in a net increase in the extent of such habitats at the project site. In addition it is noted that the proposed woodland habitat landscaping will have the potential to provide a more diverse woodland habitat within the site in terms of floral diversity and habitat heterogeneity, particularly with respect to the provision of woodland and wetland mosaics, such as that to be provided along the landscape plans ecological corridor.

6.5 MITIGATING & COMPENSATING IMAPCTS BEE ORCHID

In order to compensate for the loss of existing stands of bee orchid to the footprint of the proposed development, all stands of bee orchid within the project site will be translocated to a dedicated translocation area located within the project site. The translocation of bee orchid as set out below will be completed subsequent to the preparation of a translocation method statement that will set out the approach to the translocation as specified in this section. The method statement will be issued to the Planning Authority in advance of the commencement of works and to any other organisation/body from which the Planning Authority requires comment or opinion.

Two polygon areas have been identified as translocation areas for bee orchid. These areas are shown on Figure 6.2. The more northerly of the two polygon areas shown on Figure 6.2 will be used as the primary area to which the existing stands of bee orchid on site will be translocated. The southern translocation area will be managed in the same manner as the primary translocation area so that additional suitable grassland habitat is provided for the natural spread and colonisation of this species, subsequent to translocation.

6.5.1 Translocation

The existing stand of bee orchid at the project site will be translocated to the receptor area, consisting of the northerly polygon on Figure 6.2. Sub-surface works will be required below the bee orchid areas shown on Figure 6.2 to accommodate drainage infrastructure. This work will be completed at an early stage of the project. The following approach for all works associated with and potential influencing the successful translocation of bee orchid will be implemented:

A survey will be completed during the bee orchid flowering season immediately prior to the commencement of construction works so that an updated map of the extent of the bee orchid population on site is prepared.

A plan will be prepared that buffers all recorded spikes by a 1m buffer. The location of the 1m buffer around spikes or stands of spikes will be delineated on the ground and marked off by temporary post and rope or similar.

Subsurface works are required as part of the drainage infrastructure under the proposed translocation receptor area. All works associated with the provision of drainage infrastructure will be completed at the start of the construction phase. The existing overburden layer in this area will be stripped and saved for latter reuse in the translocation area. Orchid spikes present in the construction footprint of drainage infrastructure works under the translocation receptor area will be removed as turves and temporarily stored in the temporary translocation area, as shown on Figure 6.2. The method for turve removal is set out below.

Once all infrastructure works to be provided under and immediately adjacent to the translocation area is completed, the surface will be dressed with a layer of overburden saved during stripping. The initial layer to be provided will be c. 200mm in depth. Once this free draining layer is in place, bee orchid turves will be excavated and translocated to the receptor area.

Turves will be excavated using a flat metal plate attached to the excavator. An example of the plate to be used is shown on Plate 6.1. The turves will be excavated to a minimum depth of 300mm. This will allow for excavation of turves to a depth below the typical maximum depth of bee orchid (i.e. <200mm) and will also include in the sward soil fungi that are essential for

the survival of bee orchid. All turves to be excavated will be well watered with the overburden saturated at the time of excavation. This is to increase the integrity of the turve during excavation and minimise friability and loss of substrate whilst turves are being excavated. The turves will be translocated directly to translocation receptor area. All turves will be placed on the ground and knitted together so that a consolidated surface, free of gaps between turves is achieved. Where gaps arise they will be filled in with the overburden material originally stripped from the receptor site.

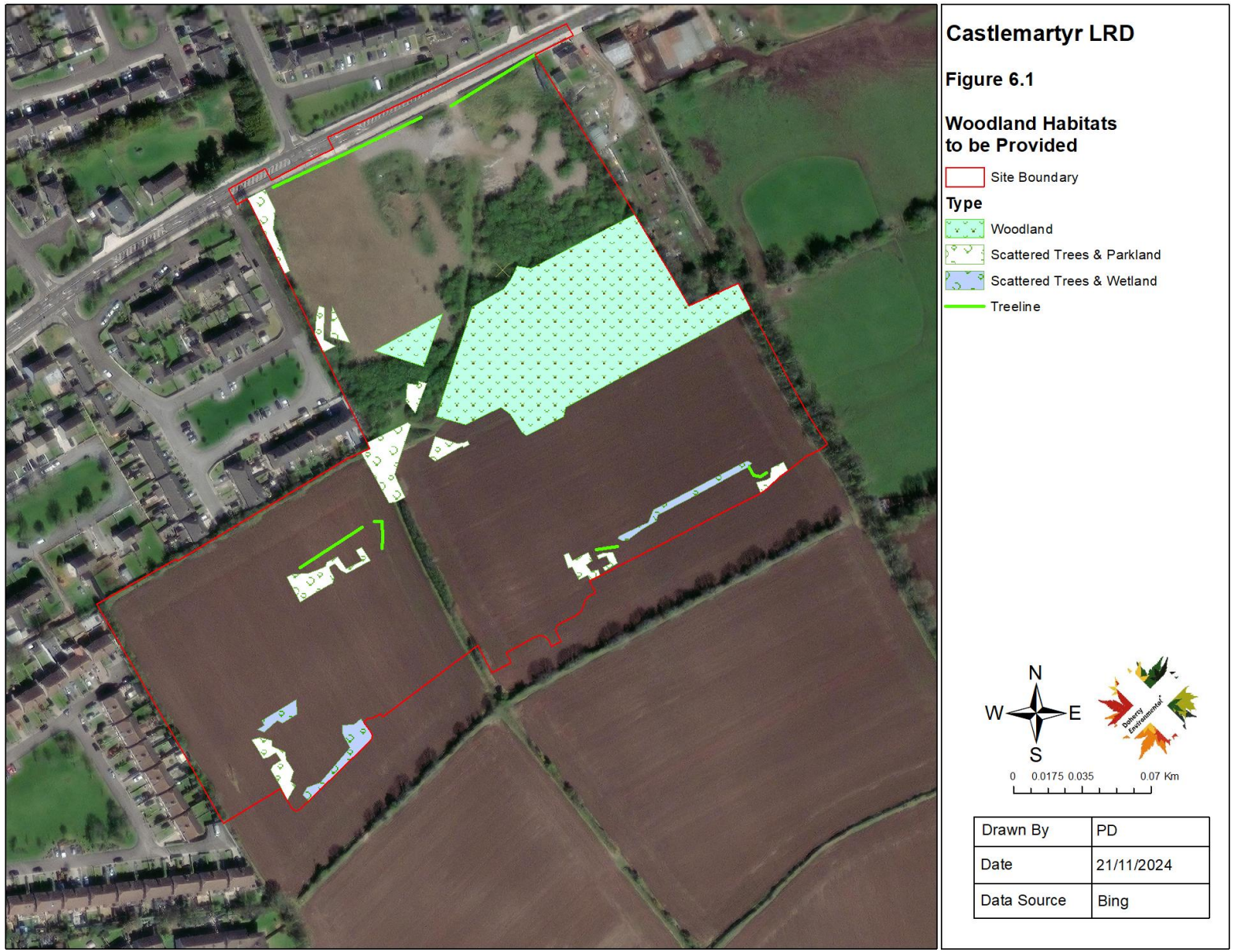
Translocations will be completed during spring or early summer so that optimum growing conditions prevail subsequent to the translocation.

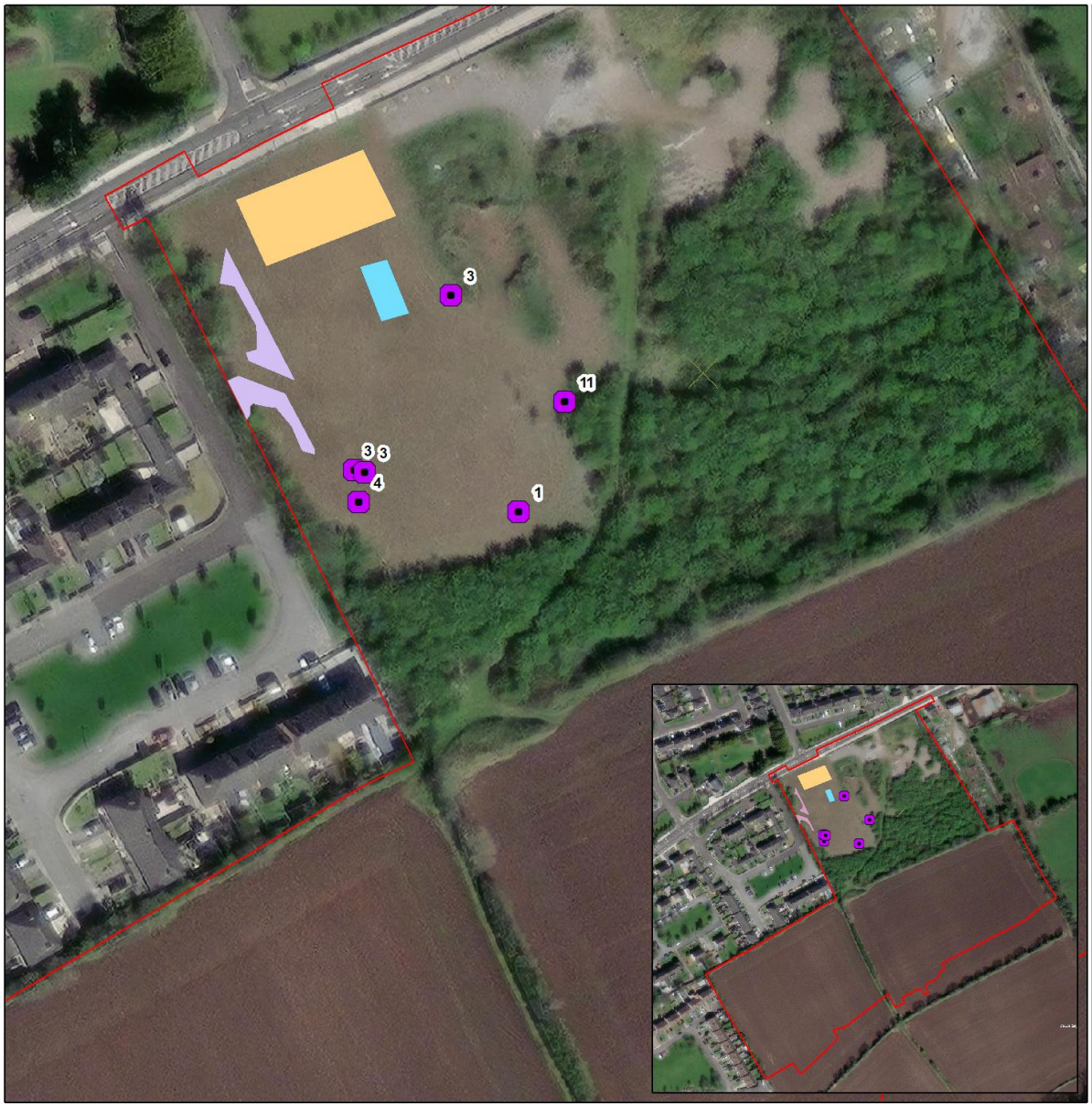
Once the translocation is complete, the translocation receptor area will be fenced off and an exclusion zone will be erected around it for the remainder of the construction phase. No construction plant, machinery or personnel will enter the exclusion zone.

Plate 6.1: View of Plate to be used for translocating turves

6.5.2 Ongoing Management of Translocation Area

Following translocation the translocation areas will be managed such that the sward that develops consists of ephemeral herbs with a high level of bare ground cover. Once the sward becomes established a mowing regime of one cut per year will be implemented. The cut will occur in later summer/early autumn (August/September) following the flowering and seed


Castlemartyr LRD
Figure 6.1
Woodland Habitats to be Provided
Site Boundary
Type
Woodland
Scattered Trees & Parkland
Scattered Trees & Wetland
Treeline
N
W
E
S
0 0.0175 0.035 0.07 Km
Drawn By PD
Date 21/11/2024
Data Source Bing



Castlemartyr LRD

Figure 6.2

Bee Orchid Translocation Area

- Bee Orchid Translocation Area
- Temporary Translocation Area
- Overburden Storage
- Site Boundary

N
W E
S

0 0.0075 0.015 0.03 Km

Drawn By	PD
Date	21/11/2024
Data Source	Bing

setting period for bee orchid. All cuttings will be lifted from the translocation area and disposed of off site.

No herbicides use will be permitted at the translocation area during the operation phase

6.6 MITIGATING IMPACTS TO BATS

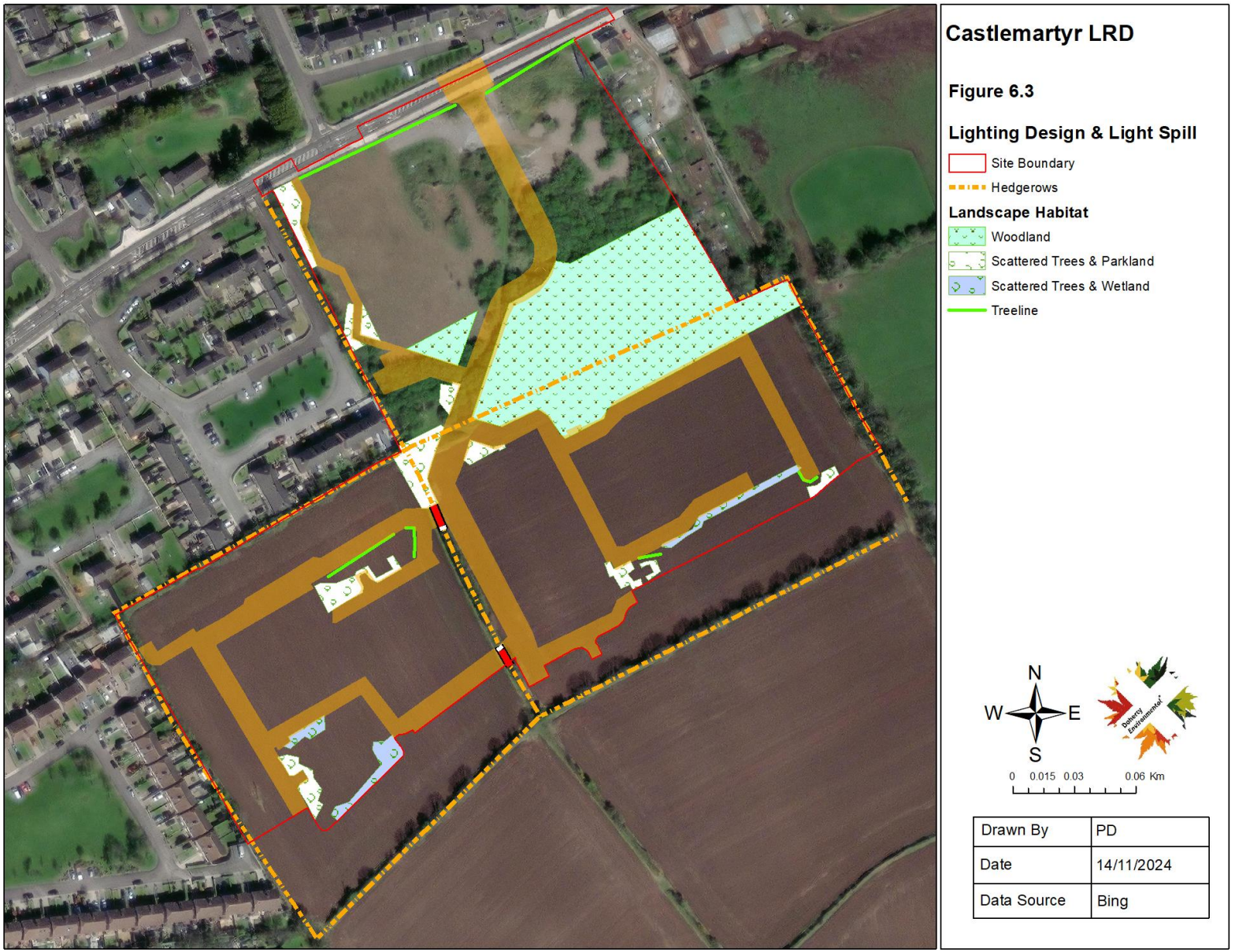
In order to minimise the impact of the operation phase to bats, the public lighting for the project will be designed to avoid light spill on to existing woodland habitats that will surround the project to the east and north. Light columns will be positioned and designed to ensure that the footprint of the hedgerow corridor to be retained and the woodland habitat that is to be provided as part of the landscape plant is located outside the area of light spill associated with public lighting. This will provide for unlit conditions at these habitat locations so that disturbance to fauna from lighting does not arise.

The proposed public lighting design has been informed by best practice guidelines with respect to bats as published by the Institute of Lighting Professionals (ILP) Bats and Artificial Light at Night Guidance Note 08/23. Sensitive approach to the public lighting design that has been informed by these guidelines are illustrated on Figure 6.3, which shows the area of light spill associated with the public lighting and how the spill has been restricted from falling over areas of habitat to be provided as part of the landscape design.

The final lighting design will follow this design rationale and be informed by the Guidance Note 08/23 of ILP regarding Bats and Artificial Lighting. LED type Lanterns will be used throughout the development. LED fittings do not emit any ultraviolet or infra-red radiation which is desirable for bat habitats as they do not attract insects in the same manner that traditional SON/SOX fittings do. Light levels will be minimised as much as possible for this type of development and overspill to adjacent woodland habitats will be avoided.

6.7 MEASURES TO MINIMISE DISTURBANCE TO BREEDING BIRDS

Wherever possible, vegetation clearance associated with the construction phase shall be completed outside the breeding bird season, which is from 1st March to 31st August inclusive. Where vegetation clearance is required to be completed during the breeding bird season, the vegetation will be inspected by the project ECoW within 48 hours prior to the proposed


Castlemartyr LRD
Figure 6.3
Lighting Design & Light Spill
Site Boundary
Hedgerows
Landscape Habitat
Woodland
Scattered Trees & Parkland
Scattered Trees & Wetland
Treeline
N
W
E
S
0 0.015 0.03 0.06 Km
Drawn By PD
Date 14/11/2024
Data Source Bing

clearance. In the event that bird nests are identified in vegetation during the pre-clearance survey the ECoW will recommend a suitable buffer distance surrounding the nest where vegetation clearance will not be undertaken until the nest has become inactive. The ECoW will monitor the nest to confirm its inactive status prior to the clearance of the vegetation supporting the nest

6.8 MEASURES TO REDUCE THE SPREAD OF INVASIVE SPECIES

6.8.1 Pre-Construction Survey

A pre-construction survey will be completed within the project site to determine the presence, distribution and extent of any specimens/stands of non-native invasive plant species on site. Particular attention will be given to mapping the locations of Buddleja davidii occurring within the site project site. In addition, given the historical records for *Heracleum mantegazzianum* in the surrounding area the project site will be surveyed to confirm the continued absence of this species from the site.

6.8.2 Measures To Prevent the Movement Of Invasive Species On Site During The Construction Phase

No precise studies have been done on the level of impact of *B. davidii*, likely due to its long history of naturalisation (Talent-Hassell & Watt, 2009), but it is likely to displace native plants where it is present. It has been assessed as having a Medium Risk of impact as an invasive species by the National Biodiversity Centre (Invasiveness Risk Score of 15).

All *B. davidii* plants will be marked out with visible markings prior to the commencement of felling. Strips of hazard tape will be tied to each plant so that they are visible to the site clearance operatives.

In order to minimise the dispersal of seed it is recommended that *B. davidii* is felled on site and stockpiled locally to the area it which it is felled. Freshly cut plant material will not be transported large distances across the site to minimise the spread of seed. Other plant material can be deposited on top of the *B. davidii* so that the cut plant material buried beneath this material. The stockpiles containing *B. davidii* at the base should be left undisturbed on the

ground for a period of one week to whither. Once whithered the stockpiles containing felled *B. davidii* material can be removed for disposal.

To minimise the dispersal of seed, the felling of *B. davidii* be undertaken during period of prevailing calm conditions.

The implementation of these measures will ensure that the proposed development will not result in the risk of spread of this species.

All plant and equipment employed on the construction site (e.g. excavator, footwear, etc.) must be thoroughly cleaned down using a power washer unit prior to arrival on site to prevent the introduction and spread of high impact invasive plant species such as Japanese knotweed, Rhododendron and Himalayan Balsam (all of which currently do not occur at the project site).

All works during the construction phase will be carried out in accordance with the following guidelines:

- The Management of Invasive Alien Plant Species on National Roads – Technical Guidance (TII, 2020);
- NRA (2008). Guidelines for the Management of Waste from National Road Construction Project. National Roads Authority;
- Biosecurity protocols available for aquatic and riparian species available on the Control of Aquatic Invasive Species and Restoration of Natural Communities in Ireland (CAISIE) www.caisie.ie, and
- All maintenance operators will carry out their works under the guidance of the Inland fisheries Ireland Biosecurity Protocol for Field Survey Work. (2011) to ensure no negative impacts are caused to other watercourses. http://www.fisheriesireland.ie/fisheries-research-1/73- biosecurity-protocol-for-field-survey-work-1.

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6.9 EVALUATION OF MITIGATION MEASURES

The mitigation measures outlined above for the construction and operation phase of the project are taken from established best practice guidelines that have been successfully implemented for

a wide range of project-level infrastructural developments. These measures have undergone extensive and rigorous monitoring for their effectiveness at development sites where they have previously been applied to ensure adverse environmental impacts are avoided.

The results of this monitoring and the recommendation of these measures as standard best practice guidelines is based upon their high degree of success in ensuring negative environmental impacts are avoided.

The best practice guidance that has informed the mitigation measures proposed in this assessment and that will be adhered to throughout the construction and operation of the proposed development include:

- The Good Practice Guidance notes proposed by EA/SEPA/EHS:
- PPG1: General Guide to the Prevention of Water Pollution
- PPG4: The disposal of sewage where no Main Drainage is Available
- PPG5: Works In, Near or Liable to Affect Watercourses
- PPG10: Working at Construction and Demolition Sites.
- PPG21: Pollution Incident Response Planning
- PPG26: Dealing with Spillages on Highways
- CIRIA Environmental Good Practice on Site.
- CIRIA Control of Water Pollution from Construction Sites. Technical Guidance C648.
- CIRIA SuDS Manual Technical Guidance C697.
- Development on Unstable Land. Department of Environment (DOE), UK.
- Bat Conservation Ireland: Bats and Lighting: Guidance Notes for Planners, Engineers, Architects and Developers
- Bat Conservation Trust: Bats and Lighting in the UK – Bats and the Built Environment

7.0 RESIDUAL IMPACTS

The project site will not result in any residual impacts to designated conservation areas.

There will be no residual loss of habitat of conservation value as a result of the project. the proposed landscape design and the provision of woodland habitats as part of the design will have the potential to result in a minor net increase in the extent of woodland habitat on site and

will also have the potential to improve the quality of woodland habitat through an increase in floral diversity and habitat heterogeneity.

Measures have been set out for the translocation of bee orchid within the project site and the preservation of suitable conditions for this species within the project site.

The application of mitigation and compensation measures will ensure that the construction phase will result in negligible to minor significant residual effects to fauna supported by the project site.

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