Laois County Council

Stradbally Road, Portlaoise
Preliminary Ecological Assessment Report, excl. badgers

Final report
Prepared by LUC
May 2021

Laois County Council

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Preliminary Ecological Assessment Report, excl. badgers

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11298

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1.	Draft 01 – Desk Study	Sofie Swindlehurst	Steve Jackson-Matthews	Steve Jackson-Matthews	19.01.2021
2.	Draft 02 – Addition of field survey data	Sofie Swindlehurst	Steve Jackson-Matthews	Steve Jackson-Matthews	25.05.2021

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Contents
Excl. badgers

Executive Summary

The concept masterplan at Stradbally Road, Portlaoise, includes four landscape zones:

- 4.81ha residential land use located immediately south of Stradbally Road;
- 7.65ha open space and amenity land capturing the designated, proposed Natural Heritage Area (pNHA) esker ridge which runs through the west of the site;
- 7.36ha open space and amenity land spanning across the centre and east of the site;
- 5.91ha community, educational and institutional land located in the south of the site, adjacent to the relatively recently built school.

This Preliminary Ecological Appraisal (PEA) was commissioned to inform the development of the concept masterplan. A desk study was completed in early 2021, with initial field surveys completed in the spring. The PEA presents the method and results. Recommendations are provided in relation to:

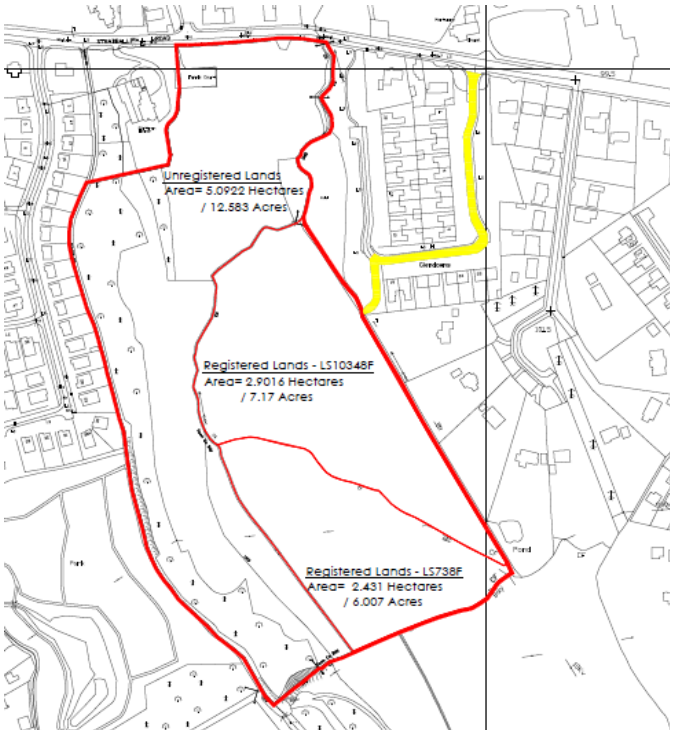
- Phase 2 surveys to inform the masterplan, which include:
  - botanical survey (to coincide with the flowering of target species in July) and
  - badger survey. Owing to the high level of interest and long-term persecution to which badger is subject, all information regarding the location of species has subsequently been removed
- Phase 2 surveys to inform a future planning application i.e. of longer-term timeframe, which include:
  - bat roosts and activity (sampling through the period May to September), and
  - depending on the extent of unavoidable tree loss, red squirrel (transects sampling March to May and/or September to November).
- Recommendations for design in relation to the pNHA, to habitats and species.
- Overview of the key documents recommended to ensure that sensitive design principles are successfully delivered on site. These documents may suitably serve as planning conditions and/or part of the future contractor tender process to ensure all parties are clear on and committed to their delivery.

Chapter 1
Introduction

Background

1.1 LUC was commissioned in November 2020 to provide a Preliminary Ecological Appraisal (PEA) to inform the masterplan to be developed for the Stradbally Road site, located as illustrated in Figure 1.1.

Figure 1.1: Study site boundary



1.2 The masterplanning zones identified in the Portlaoise Local Area Plan 2018-2024 extend beyond the study site to include land to the south (where Portlaoise Educate Together Maryborough / Gaelscoil Campus now stands, off New Road) and to the west (known as The People's Park). Figure 1.2 provides an aerial photograph illustrating the layout of these two additional areas. These remain important considerations to the concept masterplan and will influence the design objectives.

Figure 1.2: Aerial photograph of the study site and adjacent land uses (source: Esri Basemapping, Maxar Microsoft)

1.3 The study site encompasses three land use zones as illustrated in Figure 1.3). These are:

- Residential 2 (1.95ha) – north field adjoining Stradbally Road and Portrain House. '*To provide for new residential development, residential services and community facilities'.*
- Community, Educational & Institutional (2.39ha) – south east field adjoining and accessed from the school. '*To protect and provide for local neighbourhood, community, ecclesiastical, recreational and educational facilities*'.
- Open Space & Amenity (west parcel 3.10ha, east 2.98ha) – the central (majority) of the site including the wooded corridor of the esker ridge through the Natural Heritage Area. '*To preserve, provide for and improve active and passive recreational open space*'.

1.4 Owing to the high level of interest and long-term persecution to which badger is subject, all information regarding the location of species has been removed.

Figure 1.3: Concept masterplan zones

Site Overview

1.5 The site is located east of Portlaoise town centre, and south of Stradbally Road. The west boundary runs outside the wooded esker ridge. The woodland appears to be broadly commensurate with the wider woodland surrounding Portlaoise Retail Park, the River Triogue and the People's Park, and residential development at The Downs. Portrain House – a private residence – adjoins the northwest corner of the site. The eastern boundary is formed by a narrow watercourse and is abutted by private greenspace associated with the residential development at Glen Down's and Glenlahan. The recently built school adjoins the southern boundary.

1.6 The majority of the site supports horse grazed pasture and a network of well-established intact hedgerows. The esker ridge forms a vegetated corridor of woodland, mature trees and scrub. Trees also stand along the boundary hedgerows and as individuals across the north field, akin to parkland in layout. Small watercourses – tributaries to the Trigogue – extend along some of the field boundaries and a pond and lake lie within the residential land east of the site.

1.7 The Ridge of Portlaoise – the remnants of an esker ridge of sand or gravel deposited during the last ice age, which extends approximately north-south through Portlaoise, forms a linear feature through the west of the site (see Figure 1.4). The esker ridge is It is important for wildlife and is proposed for designation as a Natural Heritage Area (pNHA). It is also of importance for geology, social and cultural reasons.

Figure 1.4: Location of Ridge of Portlaoise which extends through the town (source: Turley Partners)

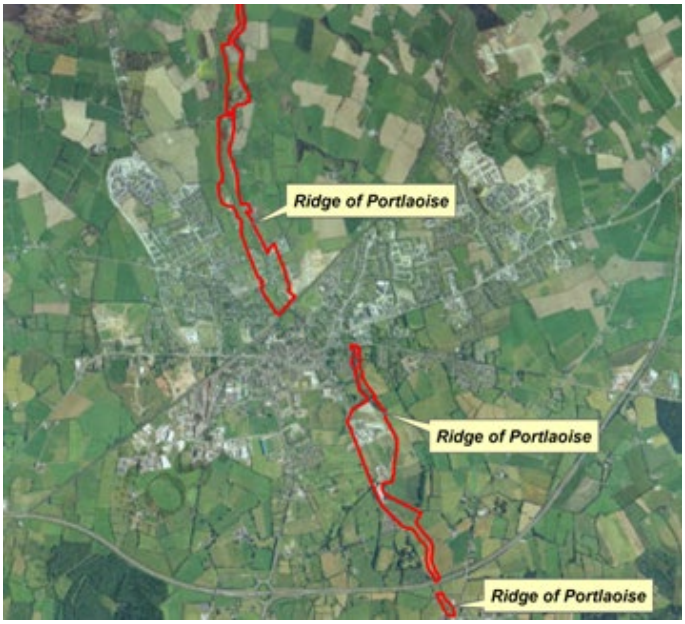


Figure 1.5: View south east from esker ridge to school (source: Eolas Ecology)

Figure 1.6: View toward the esker from eastern boundary (source: Healy Partners Architects)

Concept Masterplan

1.8 The masterplan is currently at concept stage. Key considerations at the time of writing are:

- To accommodate amenity facilities for the school (including basketball and tennis courts across the

southern edge of the site), which are also available to the general public.

- To open recreational access across the site, bringing a sense of 'open countryside' and natural play through creation of SUDs and ephemerally wet grassland in lower lying areas, taller sward grassland, tree planting (individual and as clusters) and provision of low 'amphitheatre' seating built into the existing slope.
- To reinstate heritage features (including reinstatement of an existing track along the top of the esker ridge) and encourage local understanding and ownership thereof.
- To facilitate access to the People's Park as part of wider pedestrian and cycle connectivity through the local landscape[1].
- To avoid antisocial behaviour in new public green spaces and, where possible, seek to address that which occurs in the adjacent People's Park (e.g. through natural surveillance and throughflow of access).

Timeframe for Delivery

1.9 The initial draft PEA collated the desk study information and advice provided to the design team to inform the initial concept design, public consultation completed in spring 2021, and client team co-design process.

1.10 The second draft includes the initial 'Phase 1' field survey data completed collated in spring 2021 after access restrictions during the CV19 pandemic were sufficiently eased. Recommendations for appropriate 'Phase 2' surveys to inform the evolving design and robust ecological assessment, are made.

1.11 Relevant information from other technical disciplines contributing to the masterplan design are included as this becomes available. Arboricultural or topographical data were not available at the time of writing.

1.12 The programme of tasks for completion of the masterplanning process is summarised as follows (programme update awaited at time of writing):

- Fixed design – estimated Q2 2021;
- Final stakeholder consultation following consolidation of concept masterplan – estimated Q3 2021;
- Concept masterplan final issue – estimated Q3 2021.

1.13 Any future outline design planning application is anticipated to follow in Spring 2022 at the earliest.

[1] The 2020 Vision for Portlaoise also incl connection betw greenspaces which specifically identifies the Peoples Park as part of the River Triogue Blueway, west of the study site.

Chapter 2
Policy and Legislation

2.1 This PEA has been prepared with due consideration of relevant legislation and policy, including European and domestic environmental legislation, Irish nature conservation policy and local biodiversity guidance.

2.2 Key legislation, policy and guidance relevant to the site and concept masterplan are listed as follows:

- EU Habitats Directive (Council Directive 92/43/EEC);
- EU Birds Directive (Council Directive 79/409/EEC);
- Wildlife Act 1976 and Wildlife (Amendment) Act 2000;
- Flora (Protection) Order 1999 (SI 94/1999);
- National Planning Framework: Project Ireland 2040[2];
- National Climate Action Plan 2019[3];
- National Biodiversity Action Plan (BAP) 2017-2021[4];
- Local BAP for Portlaoise, Co. Laois 2015[5];
- All-Ireland Pollinator Plan[6].

2.3 The Ridge of Portlaoise pNHA was identified under the Wildlife Act 2000 and is afforded protection through the Laois County Development Plan 2017-2023 as follows:

- Policy NH11: Protect NHA from development that would adversely affect their special interests.
- Policy NH13: Support and co-operate with statutory authorities and others in support of measures taken to manage designated nature conservation sites to achieve their conservation objectives.
- Policy NH14: Promote development for recreational and educational purposes that would not conflict with maintaining favourable conservation status and the meeting of the conservation objectives for designated sites.

[2] https://npf.ie/wp-content/uploads/Project-Ireland-2040-NPF.pdf
[3] https://assets.gov.ie/25419/c97cdecddf8c49ab976e773d4e11e515.pdf
[4] https://www.npws.ie/legislation/national-biodiversity-plan
[5] https://www.laois.ie/wp-content/uploads/Local-Biodiversity-Action-Plan-for-Portlaoise.pdf
[6] https://pollinators.ie/

- Policy NH20: Ensure no ecological networks, or parts thereof which provide significant connectivity between areas of local biodiversity, are lost without remediation as a result of implementation of the Plan.

Chapter 3
Method

Overview

3.1 The PEA baseline comprises the desk study and initial ecological field survey completed in April 2021. Components of the PEA are described under the subheadings below in chronological order.

3.2 Local field survey support during the pandemic was provided by Eolas Ecology.

Desk Study

3.3 Existing information was collated of designated nature conservation sites, legally protected habitats and species, and those of local conservation importance (such as are listed on the BAP[7] or as Birds of Conservation Concern[8]), that occur on site and within the surrounding 2km. Ancient and semi-ancient woodlands were identified within 1km. Sources are summarised as follows:

- National Parks & Wildlife Service (NPWS)[9];
- National Biodiversity Data Centre (NBDC) Biodiversity Maps[10] (NPWS Biodiversity Indicator recording programme);
- National Biodiversity Database[11];
- Birdwatch Ireland.

Consultation

3.4 Early ecological recommendations and the draft PEA was circulated within the design and client Council team to inform the masterplan design process from the outset.

Habitat Survey

3.5 The site and adjacent land which could be seen were surveyed on 31 March and 07 April 2021, with due consideration for Heritage Council guidance (Smith, 2011)[12]. Habitats were classified according to Fossitt (2000)[13], with due

[7] https://www.npws.ie/legislation/national-biodiversity-plan
[8] Birds of Conservation Concern in Ireland (BoCCI) current list (2014-2019) published by Birdlife Ireland. Available: https://birdwatchireland.ie/birds-of-conservation-concern-in-ireland-2014-2019/
[9] www.npws.ie/maps-and-data
[10] https://maps.biodiversityireland.ie/
[11] https://nbnatlas.org/
[12] Smith, G.F. et al (2011) Best Practice Guidance for Habitat Survey & Mapping. The Heritage Council Available: https://www.heritagecouncil.ie/content/files/best_practice_guidance_habitat_survey_mapping_onscreen_version_2011_8mb.pdf
[13] Fossitt, J.A. (2000) A Guide to Habitats in Ireland. The Heritage Council

consideration of the standard Phase 1 Habitat Survey method (JNCC, 2010)[14].

3.6 In the absence of a topographic plan, habitats were mapped onto arial photography. Description of the plant species, habitat condition and incidental records of fauna were recorded.

Invasive Plant Survey

3.7 In parallel with the habitat survey, the site was searched for invasive plants including, but not limited to, Japanese knotweed *Fallopia japonica*, giant hogweed *Heracleum mantegazzianum*, Himalayan balsam *Impatiens glandulifera* and rhododendron *Rhododendron* sp.

Phase 2 Protected Species Surveys

3.8 Select Phase 2 surveys were completed in parallel with the 'Phase 1' habitat survey. These have been scoped as a result of the desk study and the surveyor's understanding and experience of surveying protected species in Ireland.

3.9 Recommendation for further Phase 2 surveys to inform a robust baseline on which to assess the potential impacts associated with the masterplan are listed in Chapter 5.

Breeding Bird Habitat Suitability Assessment

3.10 In parallel to the habitat survey, areas within the site were assessed for their suitability to support breeding birds. During the assessment, and whilst leaf cover is minimal during the winter, attention was given to recording incidental records of red squirrel dreys or pine marten dens. Note that searches for dreys and dens may not be diagnostic and, if present, appropriate Phase 2 survey would be scoped.

Bats

Ground-based Assessment of Trees

3.11 In parallel with the habitat survey, a ground-based preliminary roost assessment (PRA) was carried out of trees within and around the site, with due consideration of current BCT guidance (Collins, 2016)[15]. The PRA focused on trees that may be impacted by the masterplan (e.g. by loss or subject to artificial lighting); some trees or tree groups may be omitted from inspection where these are known to be safeguarded, taking into account NPWS mitigation guidance (2006)[16].

3.12 The PRA entails detailed inspection of the tree exterior from ground level using close-focussing binoculars to identify features suitable for bats to roost and evidence of bat occupation. Survey conducted whilst trees are out of leaf allows greater visibility.

3.13 The suitability of features reflect the seasonal roosting requirements of individual species but in general, these may include holes and cavities, splits, cracks and crevices that occur within the wood, beneath bark or between close-growing trunk folds or branches. Ivy which has matured sufficient to create a plate behind matted stems may also offer opportunity for bats to roost, as well as artificial bat boxes. Evidence of bat activity may include characteristic stains, scratch marks or droppings.

3.14 Trees were categorised as Negligible, Low, Medium or High suitability, or as a confirmed roost. The requirement for subsequent aerial or nocturnal roost survey, and for nocturnal activity survey was reviewed in light of the suitability of habitats present to support bat roosting, foraging and dispersal, as well as potential impacts of the proposed emerging masterplan.

Badger

3.15 In parallel with the habitat survey, the site was assessed for its suitability for badger.

3.16 [Removed for confidentiality]

Otter

3.17 In parallel with the habitat survey, the stream corridor, connecting drainage ditches and pond to the east of the site were assessed (where appropriate from for their suitability to support otter. Accessible watercourses and bodies were surveyed for evidence including holts (underground shelters) and couches or lie ups, spraints, feeding remains, urination 'green spots', pawprints, paths and slides. Watercourses and bodies in adjacent land were visually assessed. None considered suitable and of potential significance to the project were inaccessible.

3.18 Survey was undertaken following a period of two dry days to minimise risk that field evidence be washed away by rain.

Limitations

3.19 There are no significant limitations to the survey or assessment at this stage. The PEA provides an assessment

[14] JNCC (2010) Handbook for Habitat Survey: A technique for Environmental Audit. Peterborough
[15] Collins, J. (ed.) 2016: Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn.). The Bat Conservation Trust, London
[16] Kelleher, C. & Marnell, F. (2006) Bat Mitigation Guidelines for Ireland. Irish Wildlife Manuals, No. 25. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland

of the site and provides recommendations to inform the masterplan and future development design, based on the desk study, habitat survey and initial Phase 2 surveys. Further recommendation to inform a full Ecological Assessment are provided in Chapter 5.

Chapter 4
Results

Desk Study

Designated Sites

4.1 There are no international designated sites (such as SACs, SPAs) within 2km of the site.

4.2 The single national designated site identified in the 2km search area is the Ridge of Portlaoise pNHA (full synopsis provided in Appendix A). The pNHA forms a corridor c.60km through Portloaise (see Figure 4.1), approximately 465m of which run through the west of the study site (Figure 4.2). The esker ridge is fragmented by development and the stretch that runs through the site provides some connection between the north and south sections that have been separated as a result of development of the town centre. It supports mature broadleaved woodland and species-rich calcareous grassland. NHA and pNHA protect sites that have national importance that may contain Annex I habitats or support Annex II species. The Ridge of Portlaoise supports contains two rare species of plant – the legally protected nettle-leaved bellflower *Campanula Trachelium* and Red Data Book-listed blue fleabane *Erigeron acer*.

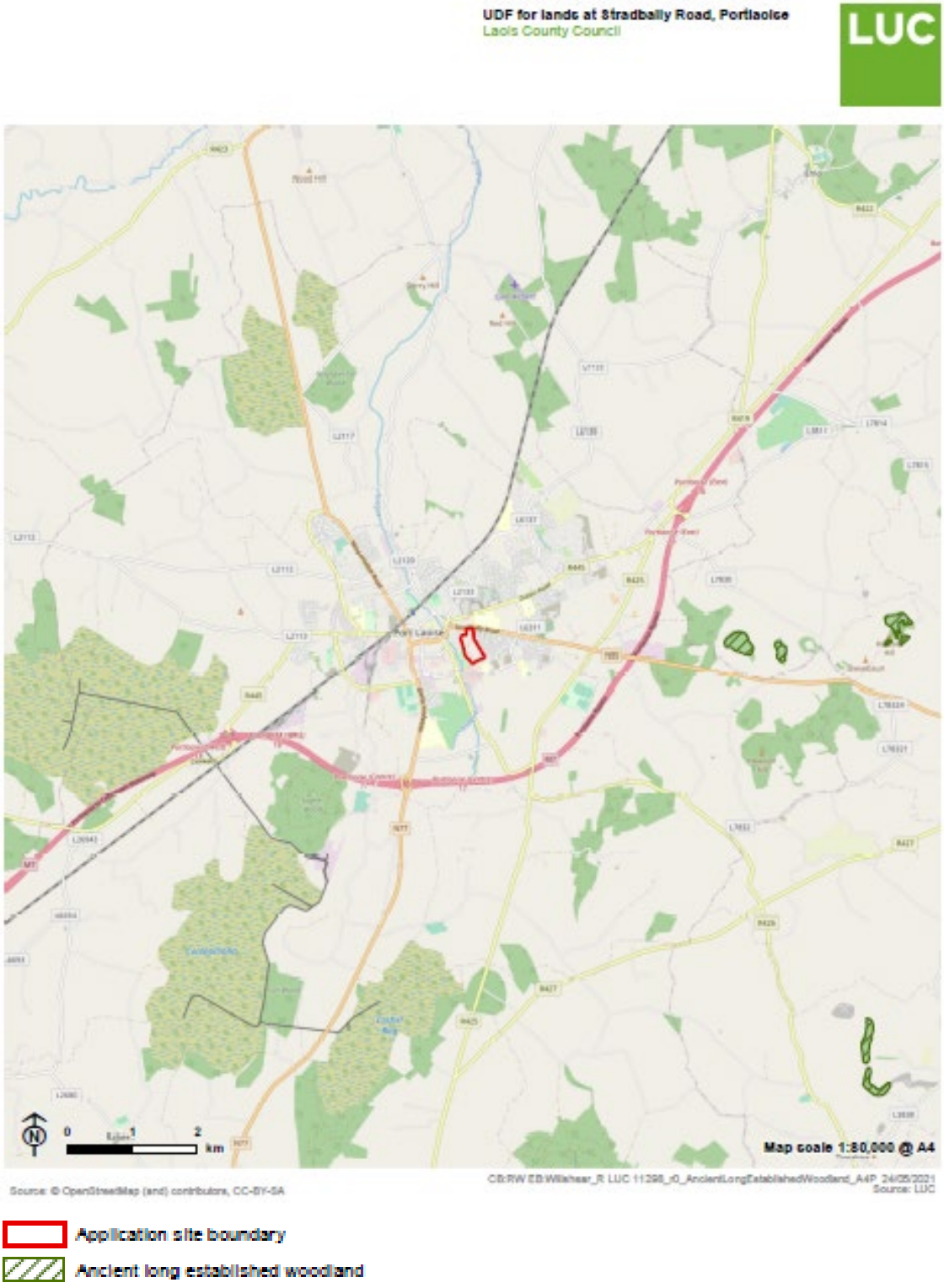
Figure 4.1: Ridge of Portlaoise pNHA, south section (source: Portlaoise Local Area Plan 2018-2024)

Figure 4.2: Ridge of Portlaoise pNHA, section through Stradbally Road site (source: Portlaoise Local Area Plan 2018-2024)

Notable Habitats

4.3 As illustrated in Figure 4.3, there are no ancient or long-established woodlands on or in close proximity to the site. The closest is Dunamase Woods, located approximately 3.7km east of the application site boundary.

Figure 4.3: Ancient and long-established woodland (polygon mapping source: NPWS)



Protected & Notable Species

4.4 Table 4.1 lists the flora and fauna species recorded within 2km of the site within the past 20 years, sourced from NBDC.

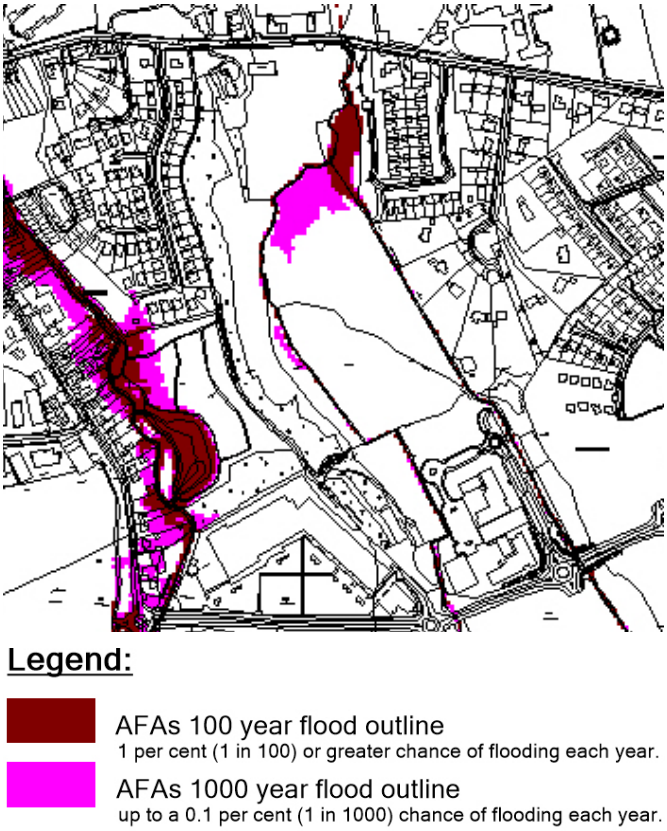
Table 4.1: Species records sourced from NBDC since 2000 (asterisk * indicates non-native invasive species)

Common Name	Scientific Name	Latest Record Date
Birds		
Common linnet	*Carduelis cannabina*	31/12/2011
Common starling	*Sturnus vulgaris*	24/05/2015
Common swift	*Apus apus*	31/12/2011
House martin	*Delichon urbicum*	31/12/2011
House sparrow	*Passer domesticus*	31/12/2011
Skylark	*Alauda arvensis*	31/07/1991
Spotted flycatcher	*Muscicapa striata*	31/07/1991
Swallow	*Hirundo rustica*	11/05/2013
Wood pigeon	*Columba palumbus*	22/05/2016
Yellowhammer	*Emberiza citronella*	31/12/2011
Mammals		
Brown long-eared bat	*Plecotus auritus*	15/07/2006
Badger	*Meles meles*	29/05/2017
Common pipistrelle	*Pipistrellus pipistrellus*	31/12/2008
Daubenton's bat	*Myotis daubentonii*	31/12/2008
Fallow deer	*Dama dama*	09/06/2011
Greater white-toothed shrew *	*Crocidura russula*	25/08/2018
Leisler's bat	*Nyctalus leisleri*	24/05/2008
Natterer's bat	*Myotis nattereri*	15/07/2006
Pine marten	*Martes martes*	02/04/2016
Red squirrel	*Sciurus vulgaris*	06/05/2011
Soprano pipistrelle	*Pipistrellus pygmaeus*	24/05/2008
West European hedgehog	*Erinaceus europaeus*	05/09/2012
Amphibians		
Common frog	*Rana temporaria*	01/06/2002
Flora		
Butterfly-bush	*Buddleja davidii*	02/09/2016

Common Name	Scientific Name	Latest Record Date
Himalayan honeysuckle *	*Leycesteria Formosa*	24/06/2020
Indian balsam *	*Impatiens glandulifera*	28/07/2020
Japanese knotweed *	*Fallopia japonica*	15/08/2017
Narrow-leaved ragwort *	*Senecio inaequidens*	12/05/2014
Sycamore *	*Acer pseudoplatanus*	31/07/2005

4.5 The site is known to flood in the southeast of the residential zone / northeast of the open space zone. Figure 4.3 provides an extract of the flood map in the Local Plan.

Figure 4.4: Flood Map (source: Portlaoise Local Area Plan 2018-2024)



Habitats

4.6 Figure 4.4 presents the habitat map. Photographs are subsequently provided in Appendix B. The site is broadly divided into three fields of horse-grazed pasture – north, central and south, with a fourth area of open grassland in the west, running alongside the esker ridge pNHA. The field boundaries are typically marked by intact species-poor hedgerows, with wet ditch running south to north at the base of the hedgerow which approximately marks the boundary of the pNHA. Woodland habitats extend along the esker ridge and at the periphery of the northern field. Scattered trees in this field reflect a 'parkland' character, possibly reminiscent of historic association with Portrain House. Each habitat type is described under the subheadings below.

Figure 4.5: Habitat Map

Oak-Ash-Hazel Woodland WN2

4.7 This broadleaf woodland type extends through the west of the site, along the esker ridge pNHA. The majority of trees occur on the western face of the slope but at the north and southern extents the woodland widens to straddle the ridge. Trees within the south of the woodland are more mature than that farther north. In the south, the canopy is commensurate with that of the People's Park to the west. The ground flora includes lesser celandine, garlic mustard and ground ivy. Dense thickets of snowberry were recorded (see subsection on 'Invasive Plants'). Informal paths between the site and the People's Park span east-west across the ridge. In contrast, the ground flora in the north is dominated by large thickets of bramble.

4.8 Species recorded:

- Ash *Fraxinus excelsior*
- Scots pine *Pinus sylvestris*
- Hazel *Corylus avellana*
- Bramble *Rubus fruticosus* agg.
- Hogweed *Heracleum sphondylium*
- Lesser celandine *Ficaria verna*
- Common nettle *Urtica dioica*
- Beech *Fagus sylvatica*
- Elder *Sambucus nigra*
- Hawthorn *Crataegus monogyna*
- Rose *Rosa* sp.
- Sycamore *Acer pseudoplatanus*
- Garlic mustard *Alliaria petiolata*
- Ivy-leaved speedwell *Veronica hederifolia*
- Yew *Taxus baccata*
- Oak *Quercus* sp.
- Bluebell *Hyacinthoides non-scripta*
- Lords and ladies *Arum alpinum*
- Ivy *Hedera helix*
- Larch *Larix decidua*
- Snowberry *Symphoricarpos albus*
- Common dog-violet *Viola riviniana*
- Cleavers *Galium aparine*
- Ground elder *Aegopodium podagraria*
- Blackthorn *Prunus spinosa*
- Foxglove *Digitalis purpurea*
- Hart's-tongue fern *Asplenium scolopendrium*
- Red deadnettle *Lamium purpureum*
- Herb Robert *Geranium robertianum*
- Tufted vetch *Vicia cracca*

Mixed Woodland WD2

4.9 Mixed woodlands stand in the north east and north west of the site. In the north east, the woodland canopy has a slight dominance towards conifer trees (namely larch) which have been planted in rows, with beech and ash interspersed throughout. Ground flora is dominated by ground elder. The woodland opens to the south to a large pond (located offsite, immediately east).

4.10 In the north west, the mixed woodland stands on a moderate slope which grades down from west to east. The canopy is dominated by beech and horse chestnut with a small number of conifer trees throughout. The area also comprises of a small number of ornamental shrubs such as bloody currant. Species recorded include:

- Ash *Fraxinus excelsior*
- Beech *Fagus sylvatica*
- Larch *Larix decidua*
- Elder *Sambucus nigra*
- Yew *Taxus baccata*
- Sycamore *Acer pseudoplatanus*
- Hawthorn *Crataegus monogyna*
- Spruce *Picea sitchensis*
- Holly *Ilex aquifolium*
- Douglas fir *Pseudotsuga menziesii*
- Cedar *Pinus* sp.
- Leyland cypress *Cupressus x leylandii*
- Horse chestnut *Aesculus hippocastanum*
- Cherry laurel *Prunus laurocerasus*
- Bloody currant *Ribes sanguineum*
- Ivy *Hedera helix*
- Bramble *Rubus fruticosus* agg.
- Ground elder *Aegopodium podagraria*
- Lord and ladies *Arum maculatum*
- Cleavers *Gallium aparine*
- Lesser celandine *Ficaria verna*
- Bluebell *Hyacinthoides non-scripta*
- Field Scabious *Knautia arvensis*

Scrub WS1

4.11 An area of scattered scrub is located to the west of the site, along the eastern slope of esker ridge following the linear woodland. The area is dominated by bramble, interspersed with rose and hawthorn.

Scattered Trees WD5

4.12 Scattered mature trees are present across the north field, reflecting a 'parkland' character within the grazed pasture. Mature ash and beech are also present to the north west of the site. A group of six mature beech and sycamore stand in the north of the site close to Stradbally Road.

4.13 Scattered semi-mature beech occur through the hedgerow which separates the north and central fields. More widely, scattered trees within the wider hedgerow network include sycamore, beech and ash.

Tree Line WN2

4.14 A treeline forms the southern and eastern boundaries of the site and is dominated by hawthorn and hazel, with tall trees such as sycamore, ash, beech, goat willow. The habitat also comprises of blackthorn, dogrose, bluebell, common nettle, primrose, cotoneaster, yarrow, lesser celandine, tufted vetch, ground ivy, germander speedwell, honeysuckle, holly, dandelion, lords and ladies and bramble.

Hedgerows WL1

4.15 The north boundary hedgerow along Stradbally Road, and those in close proximity to Portrain House, are dominated by beech and well-maintained. Internal hedgerows within the site are dominated by hawthorn, interspersed with oak, alder, elder, blackthorn, beech, goat willow and bramble. The hedgerow network provides habitat connectivity through the site. Mammal holes were noted at the base of most. The ground flora included sporadic areas of bluebell and ground ivy and, along the southern stretch of the wet ditch, snowberry and hart's tongue fern.

Improved Agricultural Grassland GA1

4.16 The site is dominated by improved grassland (horse-grazed pasture). With the exception of the esker ridge, the grassland is relatively flat and low-lying. In the west, the grassland slopes from the esker ridge down to the drainage ditch. The site is grazed by horses and the sward short, species diversity relatively low and not especially reflective of wet ground conditions or calcareous soil. Species present include:

- Perennial rye-grass *Lolium perenne*
- Meadow-grass *Poa* sp.
- Yorkshire fog *Holcus lanatus*
- Cock's-foot *Dactylis glomerata*
- Sweet vernal grass *Anthoxanthum odoratum*
- Spear thistle *Cirsium vulgare*
- Creeping buttercup *Ranunculus repens*
- Meadow buttercup *Ranunculus acris*
- Daisy *Bellis perennis*
- Red deadnettle *Lamium purpureum*
- Common nettle *Urtica dioica*
- Broadleaved dock *Rumex obtusifolius*
- Field speedwell *Veronica persica*
- Ragwort *Jacobaea vulgaris*
- Wavy bittercress *Cardamine flexuosa*
- Common sorrel *Rumex acetosa*

Drainage Ditch FW4

4.17 A wet drainage ditch flows along the pNHA boundary hedgerow, from the southern boundary to its junction with the northern field, before turning east, to end inside the west boundary hedgerow. The south stretch of the ditch supports an abundance of aquatic and marginal vegetation:

- Water mint *Mentha aquatica*
- Fool's water-cress *Apium nodiflorum*
- Yellow flag *Iris pseudacorus*
- Marsh marigold *Caltha palustris*
- Soft rush *Juncus effusus*
- Meadowsweet *Filipendula ulmaria*

Artificial Surfaces BL3

4.18 A path extends south from Stradbally Road along the western boundary. Connecting informal paths cross esker ridge to the People's Park west of the site.

4.19 A second area of bare ground mapped in the north of the site is an old tennis court associated with Portrain House. This area is currently used to house chickens.

Invasive Plants

4.20 Snowberry is an invasive species commonly found in hedgerows and is assessed as an 'amber' listed species within the Invasive Species Ireland report[17]. Plants were recorded in the south of the site associated with hedgerow and woodland habitats. Snowberry spreads vegetatively by suckering through the root system. Although it does not seem to produce viable seeds in Ireland, it has the ability to outcompete native flora, creating a monoculture habitat that has little value to wildlife.

Nesting Bird Habitat Assessment

4.21 The woodland, scrub, trees and hedgerow habitats on site offer habitat for birds to nest and to forage. The grazed pasture is suitable for foraging.

4.22 Large rook colonies were recorded in the mixed woodland in the north east of the site and int the broadleaved woodland in the west. The pond located east of the site supported small number of waterfowl such as mallard, moorhen, grey heron and little egret. Pheasant were also flushed from the undergrowth within the area of mixed woodland to the north east.

4.23 Buzzard was heard calling passing over the site. A dead buzzard was recorded within the mixed woodland area in the east, close to the entrance from the adjacent housing area.

[17] http://invasivespeciesireland.com/toolkit/risk-assessment/amber-list-recorded-species/

4.24 Passerines heard on site included coal tit, great tit, robin, wren and chaffinch; the thrushes song thrush and blackbird; and woodpigeon.

Bats

4.25 The linear woodland and hedgerow network that extend through and beyond the site offers habitat suitable for bats to disperse, forage and – where tree with suitable features occur – to roost. Surrounding buildings, including Portrain House, may also offer roost opportunities. The majority of the open grassland is close grazed and of limited species diversity. As such this offers some additional value for foraging but is anticipated to be suboptimal. The site is unlit.

Ground-based Assessment of Trees

4.26 Trees observed during the initial surveys to support features that may be suitable for roosting bats are illustrated on aerial imagery in Figure 4.5 and summarised in Table 4.2. Photographs are provided in Appendix B. All were categorised at this stage as of Moderate suitability.

Table 4.2: Trees Supporting Bat Roost Potential

Location	Description
North boundary, close to Stradbally Road	Six mature beech and sycamore. PRF include rot holes and crevice features associated with broken limbs.
North field, scattered	Mature ash, beech and sycamore. PRF include rot holes and areas of decay.
North field, north west	Mature ash and beech. In various states of decay, PRF include snags and rot holes resulting from dropped limbs.
Hedgerow network	Scattered sycamore, beech and ash. PRF present and may be covered by dense ivy.
Broadleaved woodland, southern section of esker ridge.	Tree group. PRF include dense matted cover of ivy stems.

Figure 4.6: Trees with Bat Roost Potential Identified in 2021

4.27 Nocturnal roost survey would be required of trees supporting features of moderate or high suitability, or supporting confirmed roosts, that may unavoidably be impacted by development – for example by felling or as a result of artificial light spill. Survey is required to ascertain the species and status of any roost/s present (see Chapter 5).

4.28 Similarly, nocturnal activity survey would be required of habitats suitable to bats – including woodland edges and hedgerows – that may unavoidably be impacted by development. This information will be used to inform design and appropriate mitigation.

Badger

4.29 [Removed for confidentiality]

Red Squirrel

4.30 The woodland areas and mature treelines on site have potential to be utilised by red squirrel moving through the local area or as part of a larger range. No evidence of this species was noted during the survey and no likely drey locations were observed. Where unavoidable tree loss results in loss of canopy connectivity through the south, east or western boundaries, targeted red squirrel survey may be appropriate.

Otter

4.31 Drainage ditches were searched for signs of otter. The suitability of the off-site fish pond located east of the site was assessed from distance (public highway). The wet diches on site are suitable for otter to disperse between other areas of rest, shelter or foraging (such as the fish pond), as part of a larger range. These features are suboptimal for otter given the proximity of residential housing and associated disturbance. No evidence of otter was noted during the survey. No further survey is considered necessary at this stage.

Chapter 5
Discussion & Recommendations

Overview

5.1 This section discusses the potential constraints and opportunities for the masterplan, associated with the ecological features that are present, or may be present on site.

5.2 Recommendations for avoidance of potential adverse impact and for beneficial design are set out. Where potential impact cannot be avoided or acceptably minimised, recommendation for appropriate Phase 2 ecological survey is set out. This information can inform the project programme and risk management as well as design.

5.3 The PEA is intended to inform a sensitive and locally beneficial masterplan. Opportunities for enhancement will reflect those of the Portlaoise BAP. Future, full Ecological Assessment will in due course provide complete baseline data, identify all predicted impacts associated with the proposed development, and detail appropriate mitigation and enhancement measures. Measures will be described in the context of planning conditions, licence requirements where appropriate.

Ridge of Portlaoise pNHA

Phase 2 Botanical Survey to inform Masterplan

5.4 The pNHA (in its entirety) is designated for the presence of plants associated with calcareous grassland - the protected nettle-leaved bellflower *Campanula Trachelium* (flowers July to September) and Red Data Book-listed blue fleabane *Erigeron acer* (flowers July to August). Whilst grazing occurs across much of the site, botanical survey of the grassland across and adjacent to the ridge is recommended to inform the masterplan. Survey should be completed during the flowering period to ascertain whether either species is present and to map their presence. A full species list, recording abundance, should be generated.

5.5 Any areas of high botanical value will be identified and protected as far as possible within the proposed development and landscape design. Areas of high value, which are integral to the pNHA designation, that may unavoidably be impacted by construction or operation will be identified and appropriate mitigation or compensation agreed with the NPWS.

Recommendations for Design

5.6 Vegetation along the ridge forms one of the principal habitat corridors within the local landscape. Recommendations for the masterplan and future development design are as follows:

- Maintain habitat connectivity along the length of the ridge, with particular attention to areas that would newly be opened to recreational access.
- Protection of valuable ground flora from recreational damage or changes in environmental conditions which may result in loss or degradation. Clear delineation of any access will be important to achieve this. Of particular relevance to the qualifying ground flora and to badgers.
- Maintain canopy connectivity along the ridge and to the neighbouring habitats to which this currently links. Expansion of the woodland canopy, with locally-appropriate species and to encourage a range of age-classes offers opportunity for enhancement. This is of particular relevance to bats and red squirrel.
- Create a more diverse woodland structure with intermediary understorey layer at appropriate locations. This may be achieved by native planting or by encouraging this to naturally establish.

Habitats

5.7 This section addresses each habitat type in turn. Note that overarching sensitive design principals that are appropriate to the site are provided under separate subheading at the end of this chapter.

Woodland, Trees & Hedgerows

5.8 The concept masterplan is progressing on the principal of no tree loss, although some is anticipated to accommodate the visibility splays around the access/es off Stradbally Road. Some loss of hedgerows will be required to accommodate access through the site and potentially to accommodate the footprint of sports courts along the southern edge.

5.9 Recommendations for the masterplan and future development design are as follows:

- Recommendations described for the woodland canopy connectivity, understorey structure and ground flora, apply as described for the pNHA.
- Artificial lighting of the woodland should be avoided to ensure this remains available to nocturnal and crepuscular species. As a general guide, the canopy +10m should not be subject to artificial light spill. As far as practicable, this also applies to the trees and hedgerow network. This is of particular relevance to nocturnal and crepuscular species resident in or dispersing through the site.
- Identification of appropriate Root Protection Zones for all areas of retained woodland, trees and hedgerows through appropriate (arboricultural survey understood to be underway at the time of writing).
- Maintain hedgerow connectivity at canopy and ground level, allowing ground level to widen and thicken where possible to provide habitat refuges. Minimise loss to access infrastructure where possible.
- Extension of the hedgerow network in length, provision of diverse grassland verges flanking the base, encouraging natural colonisation of pockets of scrub at select foci and installation of part-buried deadwood habitats in close proximity all offer opportunity for enhancement.

Grassland Habitats

5.10 Recommendations for the masterplan and future development design are as follows:

- Recommendations described for the survey and protection of potentially botanically important grassland applies as described for the pNHA.
- Diversification of retained and created grassland habitats in both species and structure. Appropriate target assemblage should be determined in light of soil type (calcareous soils are reported, although the grassland assemblage is neutral as a result of grazing), ground conditions (seasonal flooding), and intended use.
- Opportunities for diversification include creation of taller sward verges in association with the hedgerow network, with woodland edge habitats, across the esker slopes, and the creation of naturalised surface SUDS (explored further under 'Wetland Habitats' below).

Wetland Habitats

5.11 Recommendations for the masterplan and future development design are as follows:

- Maintenance of connectivity through the network of ditches, together with any new wetland or SUDs habitats created. Where crossing points for pedestrian, cycle or road are required, connectivity of channel substrate and banks should be maintained.
- Maintenance and, where appropriate, reinstatement of naturalised bank structure and substrate is recommended at all watercourses. Protection of ditches,

streams and ponds should consider a generous width of bank top habitat, permitting dispersal of wildlife.

- Creation of ponds on site should optimise opportunity for wildlife, including both open water and vegetated areas, and accommodating locally-appropriate submerged, emergent and marginal vegetation.
- Where public access is open or encouraged near open wetland it is recommended this be delineated; appropriate measure may range from mown grass paths to board walks or dipping platforms.
- Natural flooding in existing greenfield conditions must be considered in any future design (see 'Sustainable Drainage Strategy' described under the 'Sensitive Design Principles' below). Creation of naturalised surface SUDS to manage flood risk offers opportunity for habitat creation on site.

Invasive Plants

5.12 Removal of snowberry should be completed where this is encountered in areas subject to construction or long-term management, including in areas adjacent to proposed recreational access.

5.13 Use of native and locally appropriate species within landscape planting is described further under 'Sensitive Design Principles'.

Nesting Birds

5.14 In the absence of any significant impact predicted on birds as a result of the concept masterplan, breeding bird surveys are not proposed.

5.15 The overall range and extent of habitats suitable for nesting birds should be maintained and where possible increased as part of the masterplan and future development design. Habitat principally relates to the unlit woodland, trees and hedgerows on site.

5.16 Retention of undisturbed opportunities for shelter within hedgerow habitats will require the network to be maintained intact, of generous width, and with associated ditch or verge to serve as a buffer from the majority of recreational activity.

5.17 Enhancements may be achieved through tree and hedgerow planting, diversification of the woodland understorey structure, and provision of artificial nest boxes on new built structures (principally through the residential development).

5.18 Creation of more diverse grassland – both in species and structure – and inclusion of nectar-rich and berry-bearing species within the landscape planting provides a broad benefit to biodiversity, including the foraging resource for birds.

Bats

Phase 2 Nocturnal Roost Survey to inform future planning application

5.19 Nocturnal roost survey will be required of trees supporting features suitable for roosting bats, that may unavoidably impacted by proposed development. Table 5.1 summarises the survey scope as prescribed in BCT guidance (Collins, 2016). Note that the scope for trees differs from that for built structures.

5.20 In the event that a roost is recorded, the full suite of three survey visits will be required. Where unavoidable impacts on a roost remain, this data will be used to inform an appropriate mitigation strategy and NPWS licence application.

Table 5.1: Nocturnal roost survey scope (trees)

Tree category	Nocturnal survey scope
Confirmed roost	3x surveys
High suitability	3x surveys
Moderate suitability	2x surveys
Low suitability	0x surveys, although alternative mitigation such as elevated inspection prior to felling may be required.
Negligible	0x surveys

5.21 Surveys should be completed during the period May to September, with reasonable spread of surveys through this period. To ensure survey data is up to date at the time of submission of any future planning application, it is recommended that:

- For planning submission prior to the end of June 2022, survey be completed the previous year i.e. 2021.
- For submission in July 2022 (or later), survey be completed that year (or later).

5.22 Surveys should be recorded against a topographic or arboricultural plan once this becomes available.

Phase 2 Nocturnal Activity Survey to inform future planning application

5.23 Nocturnal activity survey will be required of habitats suitable to bats that may unavoidably be impacted by development. This information will be used to inform development design and appropriate mitigation.

5.24 The scope of survey will reflect the nature and extent of potential impact associated with the development design. However, it is anticipated that as a minimum, three surveys will be required during similar seasonal window as that for nocturnal roost surveys.

5.25 To ensure survey data is up to date at the time of submission of any future planning application, it is recommended that roost surveys be completed in similar timeframe to that previously described for roost surveys.

Recommendations for Design

5.26 The principal habitats of value to bats – woodland, trees and hedgerow habitats should be retained unlit where possible. Hedgerows with associated wet ditches and trees, such as oak, known to support high invertebrate numbers, are of particular value for foraging. Linear features suitable for dispersal through and connecting beyond the site at canopy level are also considered priorities for retention.

5.27 Opportunities for enhancement are similar to those described above for habitats and for nesting birds – to increase the species and structural diversity of woodland and grasslands as dispersal corridors and to optimise foraging capacity. Provision of artificial roost features at appropriate locations, suitable for the species found to occur on site, may also serve as a benefit.

Badger

5.28 [Removed for confidentiality]

Red Squirrel

Phase 2 survey to inform future planning application

5.29 No further survey is recommended at this stage. In the event that loss of canopy connectivity is unavoidable, targeted transect surveys for red squirrel and cone searches (where tree species permit) may be required. This would be anticipated to inform the detailed development design.

5.30 The seasonal periods for transect surveys are March to May and September to November. Cone searches may be completed year-round.

Recommendations for Design

5.31 Retention of canopy connectivity across and beyond the site is recommended to maintain the availability of habitats suitable for red squirrel to disperse. This is a additional benefit of the same recommendation previously described for habitats and for other species.

Sensitive Design Principals

5.32 This section sets out the key documents to help ensure a sensitive design is derived and successfully delivered on site. The level of detail will reflect the design stage, for example, at the masterplanning stage, recommendations for the CEMP will be outline.

5.33 These documents may suitably serve as planning conditions and/or part of the future contractor tender process to ensure all parties are clear on and committed to their delivery. Reference to these documents can support a robust and consistent approach across all disciplines.

Sustainable Drainage Strategy

5.34 Assessment of the ground and surface water across this site is required to inform a robust masterplan. This should take recognise opportunities for maintenance or reinstatement of naturalised bank structures, and for naturalised surface level SUDS features.

Public Access

5.35 Connectivity through the local landscape for residents and the community must be balanced with the need to maintain ecological connectivity. If reinstatement of the historic route along the top of the esker is to be considered, this will require detailed assessment in light of comprehensive survey data to assess potential impact on the designation.

5.36 Access may consider three categories:

- Active areas – including disability and cycle access;
- Nature exploration areas – encouraging the sense of exploration into ‘wild’ nature;
- Undisturbed areas – reserved for wildlife to breed, feed and shelter away from recreational disturbance.

Sensitive Lighting Strategy

5.37 A Sensitive Lighting Strategy will be required to ensure habitat features suitable for the shelter, foraging and dispersal of nocturnal and crepuscular species are maintained unlit. This should be complimentary to the safe management of public open spaces, in avoiding creation of ‘artificial sense of security’.

Natural Play & Educational Engagement

5.38 Opportunities to provide natural play and educational engagement at this site are prime. Benefits include:

- provision of nature-based learning for both campus students and the public;

- complement of delineation of access routes and protection of sensitive ecological features.

Landscape Planting Plan

5.39 This Plan will prescribe locally-appropriate planting and sowing to optimise species and structural diversity. Examples include, as previously described, inclusion of nectar-rich and berry-bearing trees, shrubs and climbers to optimise the foraging value to biodiversity. Selection of species with a collectively extended flowering period may benefit local residents as well as invertebrate life. Detail will be developed to reflect the finalised masterplan and indeed development desing in due course.

Construction Environment Management Plan (CEMP)

5.40 The CEMP will prescribe all measures required to ensure successful implementation of all avoidance, mitigation and enhancement measures identified as a result of the ecological assessment. Measures may range from sensitive programming of works to installation of protective barriers, best practice working methods and habitat creation within the built development.

Landscape & Habitat Management Plan (LHMP)

5.41 The LHMP should set out all management and maintenance prescriptions, including any artificial habitat features such as bird or bat boxes. It should include cross-reference to any licence requirements, such as may be implemented for bats or badger. It may also be appropriate to include community-managed areas such as those identified as orchard (if applicable).

5.42 The LHMP should cover a minimum 25 year period, capturing the initial establishment period for all planting and sowing prescribed in the Landscape Planting Plan. The LHMP should be supported through SMART monitoring.

Appendix A

Ridge of Portlaoise pNHA Site Synopsis

SITE SYNOPSIS

SITE NAME: RIDGE OF PORTLAOISE

SITE CODE: 000876

The ridge of Portlaoise is an elongated raised ridge or esker formed of sand and gravel which was deposited when a mass of ice covered this area during the last period of glaciation. The esker runs through the eastern part of Portlaoise town and extends in a south-south-east to north-north-west direction. North of the town, the secondary road to Mountmellick runs along the top of the ridge, while south of Portlaoise the L26 road to Timahoe runs alongside it.

Much of the esker is wooded. In the southern part, Scots Pine (*Pinus sylvestris*) and Beech (*Fagus sylvatica*) form the canopy. Elsewhere, multi-stemmed Hazel (*Corylus avellana*) and/or Ash (*Fraxinus excelsior*) predominate, with a range of other native species, for example Wych Elm (*Ulmus glabra*), Elder (*Sambucus nigra*), Holly (*Ilex aquifolium*) and Hawthorn (*Crataegus monogyna*) occasionally present. Ground flora beneath the woodland canopy includes Wood Melic (*Melica uniflora*), Sanicle (*Sanicula europaea*), Bluebell (*Hyacinthoides non-scripta*), with a range of ferns such as Hart's-tongue (*Phyllitis scolopendrium*) and grasses including False Brome (*Brachypodium sylvaticum*).

Open grassland on the esker is calcareous and typically species-rich. Quaking-grass (*Briza media*), Crested Dog's-tail (*Cynosurus cristatus*) and Cock's-foot (*Dactylis glomerata*) are among the grasses which predominate. Herbs present include Yarrow (*Achillea millefolium*), Pignut (*Conopodium majus*) and Common Bird's-foot-trefoil (*Lotus corniculatus*).

There are a number of disused gravel pits located along the length of the esker which are assessed by means of old trackways. All of these add habitat diversity to the site.

Nettle-leaved Bellflower (*Campanula trachelium*) is a rare species which is legally protected under the Flora Protection Order of 1987. This plant has been recently recorded on this site – a new station for the species. Elsewhere in Ireland it is virtually confined to the south-east of the country, and has been reported from only three sites since 1970. Another rare plant, listed in the Red Data Book, Blue Fleabane (*Erigeron acer*), occurs in disused gravel pits within the site. It is a plant of eskers, dry grassland, sandy pastures and walls (especially on calcium-rich substrates) and has been recorded from only five 10km squares since 1970.

Light grazing by cattle/sheep is not necessarily incompatible with conservation of esker habitats although overgrazing can result in a lack of tree regeneration and damage to ground flora.

Eskers are under increasing threat in Ireland, due to the demand for sand and gravel for the construction industry. Of the few eskers which have survived, only a small percentage retain their semi-natural flora of woodland and this is one of the best

examples of esker in Co. Laois, along with those at Timahoe (000421) to the south-east and Clonaslee (000859), to the north-west. The ridge of Portlaoise also has two rare plants, one of which is protected under the Flora Protection Order.

Appendix B
Photographs

Cluster of trees supporting features with bat roost potential standing immediately south of Stradbally Road

Example tree supporting potential roost feature

Woodland structure on eastern boundary, northern end

Example potential roost feature within tree on eastern site boundary

View along esker ridge from northern end

Mixed tree species and age-classes standing across esker ridge south of portrain House

Example specimen tree with features of bat roost potential, standing within pasture, south of Portrain House: 1

Example specimen tree with features of bat roost potential, standing within pasture, south of Portrain House: 2

Western hedgerow with esker ridge beyond

View south, toward school, across grassy slopes of esker ridge

Heavily vegetated wet ditch running along base of western hedgerow

View south through south eastern woodland

Wooded esker ridge