A bat assessment of the Teagasc Kinsealy site

2023 and 2024

For LDA

By Wildlife Surveys Ireland Ltd

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Maio, Tierworker, Kells Co Meath

Survey dates June 10th, 11th and 14th 2024

And September to October 2023

www.wildlifesurveys.net

Summary of report

Bat species found feeding and commuting

Common pipistrelle – *Pipistrellus pipistrellus*
Soprano pipistrelle – *Pipistrellus pygmaeus*
Leisler's bat – *Nyctalus leisleri*
Brown long eared bat – *Plecotus auritus*

Mitigation

(1) All buildings will be checked by a bat specialist for the presence of bats prior to demolition. Should a bat be discovered, the structure concerned is a bat roost and the NPWS will be advised of the presence of the bat immediately. Additionally, a derogation will be acquired from NPWS following the provision of a bat conservation plan to ensure that any bat is afforded full protection from injury, that alternative roosts are provided to compensate for roost loss and that bats are removed under licence by a suitably qualified bat specialist to facilitate work on the roost.

(2) If mature or ivy clad trees are to be felled, they must be checked by a bat specialist with a hoist for bat presence, immediately prior to felling. Felling must not take place in the bird nesting season.

(3) The existing reservoir will be replaced by a waterbody (pond or other water feature with standing water) with flanking vegetation.

The proposed pond is a standing water reservoir spanning approximately 250 square meters, designed to support local bat and bird wildlife in the area. The pond is engineered to function as both an ecological habitat and a sustainable stormwater management feature.

Design Features:

1. **Construction and Base Design:**
   The pond will have a clay backfill base to ensure impermeability and long-term water retention. Its base will feature a gentle 1:5 slope, creating a variety of depths to accommodate diverse wildlife and promote natural sediment settling. The permanent pool will maintain a consistent water depth of 600mm, supporting aquatic ecosystems throughout the year.
2. **Water Source and Management:**
   The pond will be fed by a Sustainable Drainage Systems (SuDS) network, collecting and filtering runoff from within the development. This will ensure a sustainable water supply, mitigate flood risks, and enhance local water quality by naturally filtering pollutants through vegetation and sedimentation.
3. **Marginal Planting:**
   A robust selection of native marginal and aquatic plants will be established along the edges and in shallow areas, including species such as *Iris pseudacorus* (yellow flag iris), *Carex acutiformis* (greater pond sedge), and *Juncus effusus* (soft rush). These plants will stabilize the banks, provide habitat and food sources for invertebrates, and act as natural biofilters for water quality improvement.
4. **Wildlife Habitat:**
   The pond will feature gently sloping edges to allow safe access for birds, small mammals, and amphibians, while open water zones will serve as a vital foraging habitat for bats during dusk and dawn.
5. **Fence Perimeter:**
   A low-impact fence will enclose the pond. The design will include gaps to allow passage for smaller wildlife while deterring larger disturbances, ensuring safety and habitat protection.

6. **Ecological and Aesthetic Benefits:**
The pond will contribute to local biodiversity, functioning as a hub for native species while providing seasonal visual interest with flowering plants and grasses. Submerged vegetation will help oxygenate the water, maintain clarity, and support aquatic life.
The proposed pond will not only enhance the ecological value of the site but also function as a critical element of the stormwater management system, reflecting sustainable design principles and fostering community engagement with nature.

(4) 12 x 2F Schwegler bat boxes must be installed on site. These must be placed on trees, buildings, or poles, at least 3 metres high, with a clear drop below them – as bats must drop to fly. They must be placed in a dark area. They can be purchased from https://www.veldshop.nl/en/schwegler-bat-box-2f.html. If these boxes cannot be erected on trees within the site, built-in bat boxes will be required in their place. The proposed type are Schwegler 2FR for each 2F that cannot be placed on a tree in a suitable unlit location at a height of 3 metres or greater.

(5) If bats or nesting birds are discovered at any stage of the building work, building work must cease and a bat specialist and the Conservation Ranger must be contacted.

(6) Planting with native species will enhance the area for bats and birds. Plant species from the All-Ireland Pollinator Plan must be included. https://pollinators.ie/wp-content/uploads/2022/05/AIPP-A5-Flyer-Garden-2022-PRINT.pdf Consideration should be given to providing a range of vegetation heights, by the use of ivy and climbers on walls, and the retention and planting of trees and hedgerows.

(7) A dark sky area must be designated. This must provide suitable commuting opportunities for all bats through the site into neighbouring lands.

Other lighting must be in accordance with

Bats and Lighting – Guidance Notes for Planners, Engineers, Architects, and Developers (Bat Conservation Ireland, 2010).

- Bats and Lighting in the UK – Bats and the Built Environment Series (Institute of Lighting Professionals, September 2018).
- Guidance Notes for the Reduction of Obtrusive Light GN01 (Institute of Lighting Professionals, 2011).

Introduction

Most of Ireland's mammals enjoy protection under the Wildlife Act (1976) and the more recent updating of this legislation (Wildlife (Amendment) Act 2000, S.I. No. 94 of 1997, S.I. No. 378 of 2005, S.I. No.477 of 2011 as amended, European Communities (Natural Habitats) (Amendment) Regulations, 2005). In conjunction with the enactment of the Habitats Directive into Irish legislation, all native mustelid species and bat species are protected with further protection given to otters and lesser horseshoe bats.

Determining the bat fauna within a site requires an examination of the entire site concerned through night-time and daytime assessments, paying attention to all buildings and trees affected by the proposed development and all hedgerow, woodland, watercourses, fence lines, paths etc. with the aid of an ultrasonic receiver ("bat detector"). Bats may be affected through roost loss, loss of feeding and interruption to their ability to exploit different roosts and different feeding areas. A survey of any site involves an evaluation of the existing roosts within the site, the feeding availability within the site and the means by which bats utilise the existing habitats to feed and commute between roosts and feeding areas.

This assessment considers the existing Teagasc site at Kinsealy in terms of the existing bat fauna and available bat habitat and a proposal to close all current operations within the site and to construct housing and associated infrastructure. The proposed development consists of the demolition of existing buildings and structures on the former Teagasc Research Centre site, and the construction of 193 residential dwellings The Teagasc facility includes a variety of permanent and semi-permanent buildings, greenhouses and planted areas that would be removed to accommodate the proposal.

Surveys are designed with reference to the recognised documents below:

- Heritage Council's Bat Survey Guidelines for the Traditional Farm Buildings Scheme
- National Parks and Wildlife's Bat Mitigation Guidelines for Ireland
- Bat Surveys: Surveying Buildings (Including Bat Identification) Developed on behalf of the Bat Conservation Trust
- English Nature's Bat Mitigation Guidelines
- - Bat surveys for Professional Ecologists - good practice guidelines; fourth edition (2023); Bat Conservation Trust; London.
- - A conservation plan for Irish Vesper Bats , Irish Wildlife Manual No. 20; National Parks and Wildlife Service; Department of Environment, Heritage, and Local Government. - The status of E.C. Protected Habitats and Species in Ireland - Conservation status in Ireland of habitats and species listed in the European Council directories on Conservation of Habitats; Flora and Fauna 92/43/EFC. (Department of Environment, Heritage, and Local Government) –
- Bat Mitigation Guidelines for Ireland (Irish Wildlife Manual no.25) Department of Environment, Heritage, and Local Government.

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Existing information on bats

Desktop Survey of the existing environment

Thanks to Bat Conservation Ireland for their data. All data from this report will be placed on their database. data on 15 June 2024. This summary is presented in the table below.

Distribution data - Bat data within 1km of the site (Irish Grid O 21325 42994)

BCIreland data: search results 15 Jun 2024			
Search parameters: Roosts Transects Ad-hoc observation sites with observations of all species within 1000m of O2132542994			
Roosts			
Name	Grid reference	Species observed	
Kinsaley House	O2142	Plecotus auritus ,Pipistrellus spp. (45kHz/55kHz)	
Transects			
Name	Grid reference start	Species observed	
Ad-hoc observations			
Survey	Grid reference	Date	Species observed
EIS surveys Brian Keeley	O2043	09/07/2004	Pipistrellus pipistrellus (45kHz),Pipistrellus pygmaeus, Nyctalus leisleri, Myotis mystacinus/brandtii, Plecotus auritus

Surveys of Teagasc site

The following summary is derived from the visits to the site commencing on September 27th 2023 and ending on June 14th 2024. The dates of visit are shown in the table below and the nature of the survey is given:

Date	Survey type	Timing
27th September 2023	Bat activity survey	Prior to Dusk and for 1.5 hours
6th October 2023	General Visual assessment Mainly external	Daytime only
10th June 2024	Bat activity survey	Prior to Dusk and for 1.5 hours
11th June 2024	Bat activity survey	From 1.5 hours prior to dawn up to dawn
14th June 2024	Visual inspection internally	Daytime only

Walk Over Surveys

The principal periods for identifying the overall layout and habitats within the site were the visits of October 6th and June 14th as these were daytime visits. The nighttime visits on 27th September, 10th and 11th June also added knowledge on the site. From the ground assessment of the site and from examination of aerial photography and maps of the site, there are several buildings ranging from a single storey office block that is in use, a single storey office block that is disused, a variety of outbuildings ranging from small pump houses to storage and laboratory areas and a small bungalow and a variety of greenhouses (all in disrepair). Please refer to the Appendices for images of the buildings and site.

Habitat Classification (Fossitt 2000)

The following is a general description based on the Walkover surveys and mapping of the site and the full habitats and botanical evaluation are to be found in the Flora and Habitats sections of this evaluation.

BC2 Horticultural land
BL3 Buildings and artificial surfaces
WL2 (Treelines) semi- mature and mature trees
WL1 (Hedgerow)
GAI (Grassland)

Bat Activity Surveys

Dates of surveys **:** 27th September 2023 and 10th to 11th June 2024

Temperature and weather conditions

27th September: Heavy winds and interspersed rain following on from sunset. No survey prior to sunrise. While bat activity was noted during this evaluation, the weather conditions had disimproved by sunset and it was considered that this assessment was not appropriate as an evaluation of the site without further surveys in more bat-friendly conditions (i.e. low winds to no winds, dry conditions, moderate night temperatures in excess of 6°C.)

10th June to 11th June: Temperature and weather conditions suitable for bat activity. Dry, calm with a start temperature of 11°C dropping to 8°C by sunrise.

Lux levels Light level 7 metres from light standard near school and former offices ("Stop" painted on road) = 165 lux

Complexity of lands and ability to cover ground during surveys

–All areas were accessible externally and most buildings were accessible internally. There are several buildings with bat roost potential based on an external evaluation and in the absence of clear evidence of bats. Conditions were relatively suitable for the movement of surveyors at nighttime within the site.

Survey constraints

(1) Mobility of bats – Bat species are mobile and can move from roost to roost, depending on roost availability, feeding availability and weather conditions. They may move to roosts which have not been identified in this report in order to hibernate or create mating or feeding perches. A bat survey is a snapshot of bat activity over the survey time.

(2) Identification of bats- It can be difficult to differentiate *Myotis* species. For this reason, sound files are included within the report. Brown long eared bats are very quiet, and their presence can be overlooked in bat surveys as they may not register on bat detectors.

(3) Timing of survey. Bat surveys generally take place when the bats are active – May – September. A bat survey which takes place outside these dates may miss roosting activity. Because of this, the precautionary principle is applied, and trees will be checked manually for roosting bats prior to any felling.

The first active survey period was restricted to a dusk assessment on 27th September and a static monitor assessment in late September and early October. This is too late in the season to draw any conclusions regarding the importance of any sight to breeding bats. All that can be derived as a general picture of bat activity from the data.

(4) Weather conditions

The weather conditions were exceptionally poor on 27th September with very strong winds commencing early in the survey and continuing overnight.

The second active survey period was in June 2024. This is an ideal time for summer bat surveys and to identify maternity roosts. The morning temperature had dropped on 11th June from 10 degrees Celsius at the end of the sunset survey to 7 degrees Celsius prior to dawn and bat activity was very suppressed at this time.

(5) Access to the site. All lands were accessible with relatively dense scrub present in some areas.

Bat Survey - Equipment September 2023

Exide Lamps and Head torches
One Song Meter Mini Bat remote detector with Kaleidoscope Pro sound analysis
One Pulsar Helion 2 XP50 thermal imager
One ladder
One handheld Echometer Touch detector (EMT)

Survey Methodology

The survey in September 2023 was undertaken from prior to sunset and over a period of 1.5 hours. The site was covered by a single surveyor using a EMT and all buildings and mature trees were examined during a walked transect through the site. A static monitor was installed on the roller shutters of one of the buildings and remained in place up to the 6th October 2023.

Bat Survey - Equipment June 10th to 11th 2024

Exide Lamps and Head torches

One Song Meter Mini Bat remote detectors with Kaleidoscope Pro sound analysis

One Pulsar Helion 2 XP50 thermal imager

Three handheld Echometer Touch detectors

One handheld Elekon Batlogger M2

Survey Methodology

The survey on June 10th to 11th 2024 was undertaken by 4 bat surveyors focusing on different areas of the site from prior to sunset and up to 1.5 hours after sunset. The buildings and trees around each surveyor were examined for any evidence of bat emergence. All signals noted were identified to species level and locations of bats or direction of flight were noted where the bat was visible to the surveyor. Surveying re-commenced 1.5 hours prior to sunrise and continued up to sunrise.

A Songmeter Mini Bat (Mini) was placed outside sheds within the site (where the greatest concentration of buildings occurred) and remained here overnight up to sunrise.

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A Songmeter Mini Bat (Mini) was placed outside sheds within the site (where the greatest concentration of buildings occurred) and remained here overnight up to sunrise.

Survey constraints

(1) Mobility of bats – Bat species are mobile and can move from roost to roost, depending on roost availability, feeding availability and weather conditions. They may move to roosts which have not been identified in this report in order to hibernate or create mating or feeding perches. A bat survey is a snapshot of bat activity over the survey time.
(2) Identification of bats- It can be difficult to differentiate *Myotis* species. For this reason, sound files are included within the report.
Brown long eared bats are very quiet, and their presence can be overlooked in bat surveys as they may not register on bat detectors.

Bat Survey - Equipment June 14th 2024

Exide Lamps and Head torches and One ladder

The site was re-examined on June 14th 2024 in daylight to check buildings internally and again externally for evidence of bat occupancy. This survey sought actual living bats, bat corpses, bat droppings, bat staining from body oils or urine, bat droppings and insect remains evidencing feeding activity of bats. All staff encountered (i.e. one office staff member in the office building and also two horticulturalists with regular access to the outbuildings) were questioned regarding bat observations. Records from Bat Conservation Ireland and the National Biodiversity Data Centre were checked for previous distribution data.

Survey constraints

There were a number of buildings that could not be entered or were only partially accessible either due to an absence of keys or from boarding up of doors and windows. All buildings were examined externally and the current offices, former offices and a number of sheds were thoroughly inspected internally and externally. In addition to this, the two bat activity surveys in September 2023 and June 2024 allowed observations for emerging and returning bats. It is not considered that this would have led to any large roost being overlooked and no external cues indicated any bat occupancy within inaccessible buildings.

Survey Results

Preliminary Ecological Appraisal
Daytime Assessment/ Preliminary Roost Appraisal

(1) Description of each building numbered with photos, and description of roof type.

1 Current offices –Full access available. mainly concrete roof with small raised attic area. No bat evidence within the building. Ease of access for bats via hole for electric conduit and water pipes in wall.

2. Former offices – Full access available. Flat roof with two attics and felt cover. Eaves rotting and jackdaws present within the roof. No signs of bat usage from droppings on or in the building.

3. Stores – No access to the building. Large fascia and asbestos slates. There were no droppings on the building and nothing visible through the windows.

4. Northern Shed – Access to most areas. Large fascia. Felt covering. No evidence of bats.

5. Shed – Access to all areas except a small pump room. Bird usage but no bats present. No bat droppings.

6. Metal store barn – Visible through gaps in the door only. No evidence of bats discernible.

7. Metal stores– Visible through gaps in the door only. No evidence of bats discernible.

8. Overgrown shed – Inaccessible. Corrugated concrete tile roof. Large fascia.

9. Pump house – no signs of bat droppings or staining.

10. Water supply at greenhouses – a building that is too low for most bats and there are no bat signs.

11. Storage building on perimeter – Inaccessible but no evidence around the eaves or windows or ground.

12. Pump house or substation at former offices – Inaccessible but no evidence around door and the building is a sealed concrete building with no suitable roost sites for bats.

There were no bats, no bat droppings, no staining or any indications of bats emerging from or entering any building within the site. There is no evidence of any bat roosts within the site.

(2) Tree Evaluation

The trees within the sites were assessed for roost potential according to the Tree Bat Roost Category Classification System (Collins, 2016).

Tree Category

Description 1 Trees with multiple, highly suitable features (Potential Roosting Features = PRFs) capable of supporting larger roosts

Description 2 Trees with definite bat potential but supporting features (PRFs) suitable for use by individual bats;

Description 3 Trees have no obvious potential although the tree is of a size and age that elevated surveys may result in cracks or crevices being found or the tree supports some features (PRFs) which may have limited potential to support bats;

Description 4 Trees have no potential.

Most trees within the site are almost entirely devoid of roost potential. There is one mature broadleaf tree on the perimeter with bat roost potential.

(3) Description of trees with PBR values – Ground level tree assessment

Buildings within the site (see previous page for titles of each building and Appendices for photographs.

Nighttime assessment – Emergence and re-entry assessment

This survey involved an examination of the site by 1 surveyor in September 2023 availing of an Echometer Touch 2 Pro bat monitor for the active part of the bat activity survey and the placement of a Songmeter Mini Bat at one building from 27th September 2023 and its retrieval on 6th October 2023. The static monitor data (Mini) was assessed with Kaleidoscope Pro software on a PC. The Echometer Touch (EMT) data was analysed automatically on a smartphone using an app and confirmed by a bat specialist with Kaleidoscope Pro on a PC subsequently.

The activity survey allows consideration of the following elements of the bat ecology of a site under examination:

(4) Commuting areas
(5) Feeding areas
(6) Roosts
(7) Species found
(8) Map of main bat activity incomplete at present
(9) Connectivity with other landscape features

Bat activity Survey Results combined with daytime evaluation

Bat species roosting within the site based on surveys (daytime and nighttime)

None

There were no bats seen to emerge or return to any building or tree. There were no droppings or other signs of bats in any building.

Bat species noted feeding and commuting

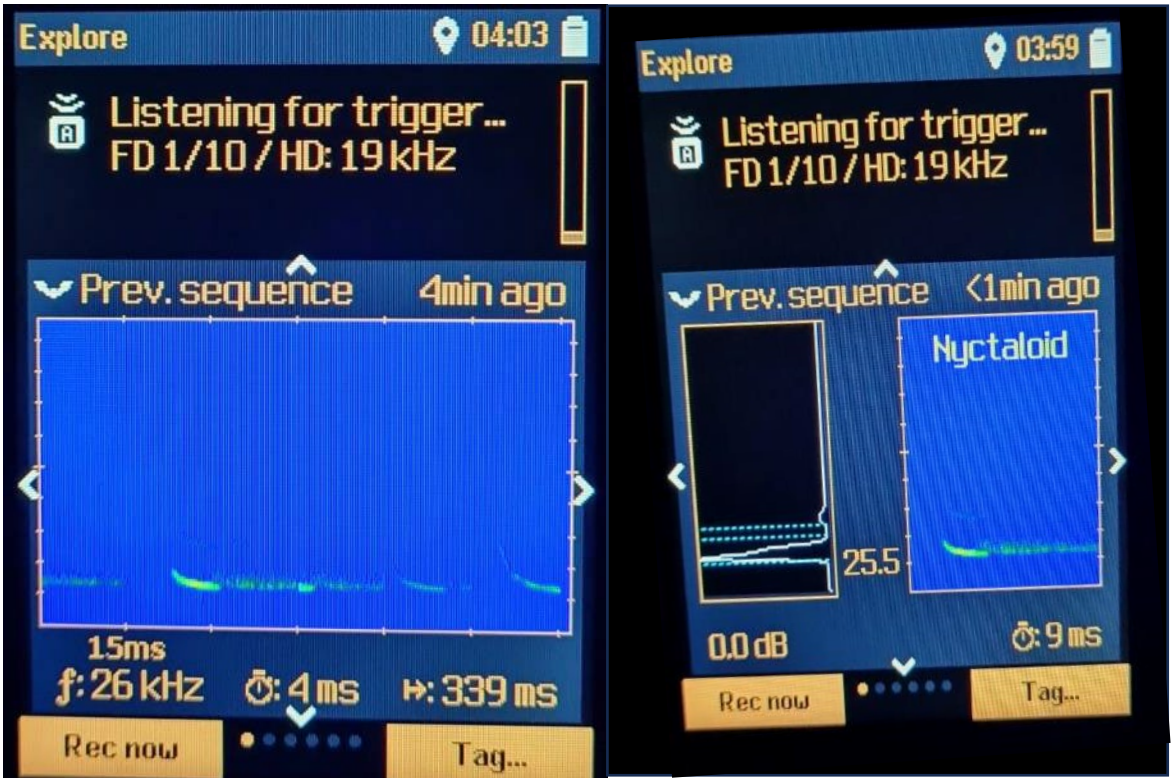
Common pipistrelle –	Pipistrellus pipistrellus
Soprano pipistrelle –	Pipistrellus pygmaeus
Leisler's bat –	Nyctalus leisleri
Brown long eared bat –	Plecotus auritus

September 2023
There was evidence of 4 species of bat commuting and feeding within the site. Of these, the brown long-eared bat was least frequently encountered. In 9 days, there were only 3 bat passes noted. No brown long-eared bat activity was noted in the active bat survey undertaken from sunset on 27th September 2023. During this assessment, bat activity was based on a very small number of bat passes of Leisler's bat, common pipistrelle, and soprano pipistrelle. Each were similarly low in activity (2 to 3 bat passes in the survey period).

June 2024

In June 2024, weather conditions were suitable for bat activity at emergence time and the night was warm and dry and with low wind exposure. There were three areas where bat activity was noted repeatedly: the reservoir, the area close to the former offices and the house and current offices. All other bat activity was much more occasional and transient. Soprano pipistrelles were not encountered frequently and even at the reservoir, common pipistrelles were active in a situation where typically soprano pipistrelles would be heard. Up to 3 common pipistrelles were present at the reservoir at any one time and this was the most bat activity noted. Second to this was the former offices where two common pipistrelles and a Leisler's bat were noted but mainly one common pipistrelle was present over a sustained period. Thirdly, there was bat activity at the offices and close to the nearest house to the site.

Leisler's bat activity was the most widespread. This was due to the fact that this bat feeds high and was flying over the site and hence was detectable over a greater distance and from many locations.



Example of Leisler's bat on a Batlogger M2 – This was the only bat noted prior to sunrise

Social calls of two species were noted within the site: Leisler's bat and common pipistrelle. No roost sites were associated with these calls. Leisler's bats will call in flight but commonly perch and call from trees. A mature tree on the perimeters of the site and close to the reservoir offers potential as a Leisler's perch.

Tree roost Potential

Most trees within the site have no bat roost potential. This is due to the absence of cavities, crevices, loose bark and any other obvious roost features. The best description for these from the Collins code is **Description 4** Trees have no potential.

There is one mature broadleaf (species unrecorded) on the perimeter of the site close to the reservoir and overgrown shed (Building 8) that offers potential as a mating perch (at least) for Leisler's bats but there were no obvious access points for bats. This tree is most correctly considered as **Description 3 -** Trees have no obvious potential although the tree is of a size and age that elevated surveys may result in cracks or crevices being found or the tree supports some features (PRFs) which may have limited potential to support bats;

Project Description

The proposed development consists of the demolition of existing buildings and structures on a site associated with the former Teagasc Research Centre, and the construction of 193 no. residential dwellings comprising 153 no. two storey houses (consisting of 30 no. two-bed; and 123 no. three-bed terraced houses) and 40 no. duplex units (comprising 20 no. two-bed ground floor apartments with 20 no. three-bed duplexes above) arranged in three storey blocks.

The proposed development includes a single storey childcare facility (approx. 283 sqm gross floor area) with the capacity for approximately 50 children.

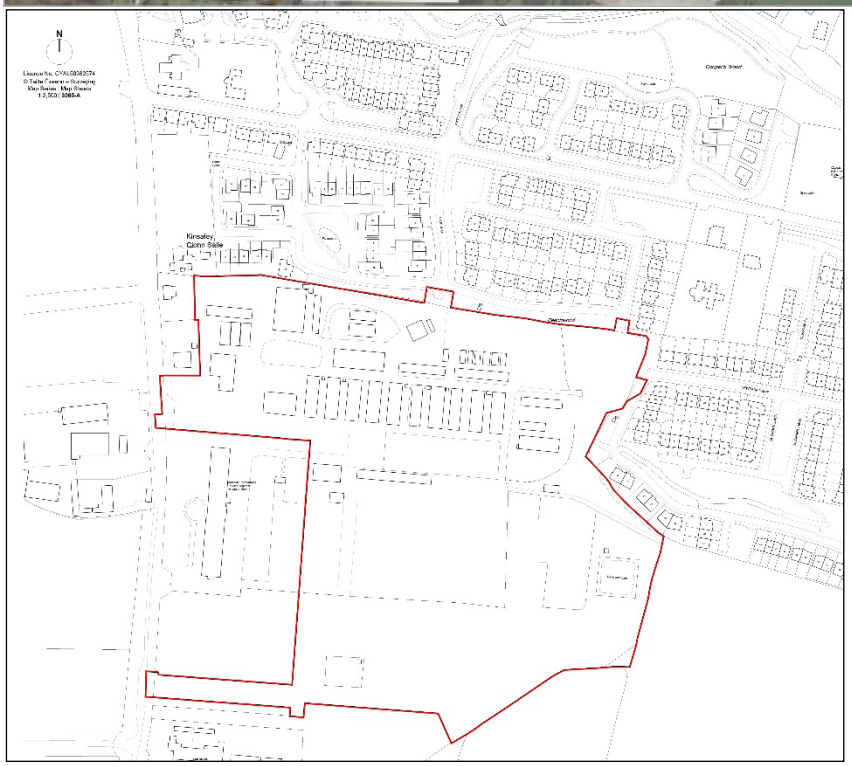
The proposed development incorporates approximately 1.65 ha of dedicated public open space comprising a series of open spaces and a central east-west green route linear park and parklands along the east boundary. In addition, 2.2 ha of green belt lands are included to the south and south-east of the residential development area to accommodate a playing pitch.

Vehicular access to the site will be via a new vehicular entrance at Gandon Lane to the north (providing access to the northern part of the site) and a new vehicular access from the Malahide Road, located to the south of the existing Malahide Portmarnock Educate Together National School (providing access to the southern part of the site).

The proposed development includes 229 no. car parking spaces (comprising 193 no. residential spaces, 4 no. childcare drop off spaces, 3 no. childcare staff spaces, and 29 no. visitor spaces), and 345 no. bicycle parking spaces (201 no. private secure on-curtilage spaces for houses without independent garden access, 100 no. private secure spaces and 20. no. visitor spaces for duplex units, 20 no. childcare drop-off spaces, and 4 no. childcare staff spaces).

The proposed development facilitates pedestrian and cycle links to existing and proposed adjoining developments, including the provision of an east-west greenway connecting residential lands to the east of the site at Newpark to the Malahide Road and the provision of a north-south link connecting Beechwood in the north to the green belt lands in the south, with provision for a future link to the St Nicholas of Myra national school. .

The proposed development has an overall site area of 8.2ha, and includes bin storage, internal roads, boundary treatments, public lighting, 3 no. ESB unit substations, water supply, surface water drainage and foul water drainage infrastructure, and all associated and ancillary site and development works.



Site Location Map

Proposed housing and landscaping

Predicted Impacts Before Mitigation

Loss of roosts

There is the potential for roost loss due to the number of buildings for removal and the potential for roosting within a small number of the trees on site (most are unsuitable for bats). Surveying has shown no evidence of maternity roosts or of any roosts that may hold several bats but for any complex site such as that at Kinsealy, it is impossible to rule out the presence of individual bats in small crevices or behind individual slates without exhaustive evaluations.

It is evident that no attic space is used by bats and that no bat droppings were present in any building examined. The bat activity survey provided no evidence of bats emerging from or entering trees or buildings within the site.

There is the potential for bat roost loss albeit that no building or tree was noted to be a bat roost during the survey period. Bat roosts are most evident when there are large numbers of bats and are more difficult to confirm if there is a single bat present. While it can be clearly stated that no building has a large roost of bats, it is very difficult rule out individual bats in buildings. For trees, this is even more relevant, as

there is limited potential for finding signs such as droppings or staining without intensive evaluations on a repeated basis.

Should a roost be removed, this in itself may have implications for local bats but if this occurs while a bat is present, it may lead to death or injury. This would be a breach of the Wildlife Act were it to occur.

The impact would be local, potentially medium to long-term negative from such an event.

Loss of feeding

Bats feed around the mature trees on site and other areas of cover, at the reservoir and to a lesser extent, around the buildings The reservoir and former offices area are two feeding sites that would be lost in addition to all movement between the sites and throughout the Teagasc property if vegetation removal were undertaken without any replacement of vegetation or unintentional restriction on bats through a combination of the vegetation loss and lighting interference. This would be a long-term to permanent light negative impact on the local bat fauna.

All of the feeding sites will be removed for construction of the housing. Vegetation is proposed as part of landscaping, but this will require a bedding-in period during which time bat activity will be hugely reduced.

Mitigation

(1) All buildings will be checked by a bat specialist for the presence of bats prior to demolition. Should a bat be discovered, the structure concerned is a bat roost and the NPWS will be advised of the presence of the bat immediately. Additionally, a derogation will be acquired from NPWS following the provision of a bat conservation plan to ensure that any bat is afforded full protection from injury, that alternative roosts are provided to compensate for roost loss and that bats are removed under licence by a suitably qualified bat specialist to facilitate work on the roost.

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(3) The existing reservoir will be replaced by a waterbody (pond or other water feature with standing water) with flanking vegetation.

(4) 12 x 2F Schwegler bat boxes must be installed on site. These must be placed on trees, buildings, or poles, at least 3 metres high, with a clear drop below them – as bats must drop to fly. They must be placed in a dark area. They can be purchased from https://www.veldshop.nl/en/schwegler-bat-box-2f.html. If these boxes cannot be erected on trees within the site, built-in bat boxes will be required in their place. The proposed type are Schwegler

2FR for each 2F that cannot be placed on a tree in a suitable unlit location at a height of 3 metres or greater.

(5) If bats or nesting birds are discovered at any stage of the building work, building work must cease and a bat specialist and the Conservation Ranger must be contacted.

(6) Planting with native species will enhance the area for bats and birds. Plant species from the All-Ireland Pollinator Plan must be included. https://pollinators.ie/wp-content/uploads/2022/05/AIPP-A5-Flyer-Garden-2022-PRINT.pdf Consideration should be given to providing a range of vegetation heights, by the use of ivy and climbers on walls, and the retention and planting of trees and hedgerows.

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Predicted Impacts After Mitigation

There will be a loss of feeding and a potential for loss of roost sites immediately following clearance (none are evident from this assessment and there are clearly no maternity roosts or roosts that were occupied at the time of survey in 2023 and 2024), construction and for a number of years following construction. With time, (e.g. 4 to 5 years), roosting opportunities shall be taken up in bat boxes and buildings within the site. There will be a long-term loss in vegetation cover and a long-term increase in lighting.

There will be a long-term slight negative impact upon bats from the construction of housing within the site.

Appendices

Appendix 1 Legislation

Bats are protected under the 1996 Wildlife Act, the 2000 Wildlife (Amendment) Act, Stat Ist 94 of 1997, Stat Ist 378 of 2005, The Habitats Directive, The Bonn and Bern Convention, and the Euro bats agreement.

The European Community (Natural Habitats) Regulations S.I. No 94 of 1997 states:

23(1) The Minister shall take the requisite measures to establish a system of strict protection for the fauna consisting of the animal species set out in Part 1 of the First Schedule prohibiting –

a) All forms of deliberate capture or killing of specimens of those species in the wild.

1. The deterioration or destruction of breeding sites or resting places of those species.

The EU Habitats Directive

Article 12(1) of the 'Council Directive 92/43/EEC on the conservation of natural habitats and wild fauna and flora (Habitats Directive) states:

"Member States shall take the requisite measures to establish a system of strict protection for the animal species listed in Annex IV(a) and their natural range, prohibiting:

a) all forms of deliberate capture or killing of specimens of these species in the wild.

b) deliberate disturbance of these species, particularly during the period of breeding, rearing, hibernation, and migration.

c) deliberate destruction or taking of eggs from the wild.

d. deterioration or destruction of breeding sites or resting places."

The EU Habitats Directive (92/43/EEC) lists all Irish bat species in Annex IV and one Irish species, the lesser horseshoe bat (Rhinolophus hipposideros), in Annex II. Annex II includes animal and plant species of community interest whose conservation requires the designation of Special Areas of Conservation (SACs) because they are endangered, rare, vulnerable, or endemic. Annex IV includes various species that require strict protection. Article 11 of the Habitats Directive requires member states to monitor all species listed in the Habitats Directive and Article 17 requires States to report to the EU on the findings of monitoring schemes.

The Bern and Bonn Conventions

Ireland is also a signatory to a number of conservation agreements pertaining to bats such as the Bern and Bonn Conventions. The European Bats Agreement (EUROBATS) is an agreement under the Bonn Convention. Ireland and the UK are two of the 31 signatories. The Agreement has an Action Plan with priorities for implementation. Devising strategies for

monitoring of populations of selected bat species in Europe is among the resolutions of EUROBATS.

1.3.1 The Bern Convention

Article 6 of the “Convention on the Conservation of European Wildlife and Natural Habitats’ (Bern Convention) reads:

“Each Contracting Party shall take appropriate and necessary legislative and administrative measures to ensure the special protection of the wild fauna species specified in Appendix II. The following will in particular be prohibited for these species:

a) all forms of deliberate capture and keeping and deliberate killing.

b) the deliberate damage to or destruction of breeding or resting sites.

c) the deliberate disturbance of wild fauna, particularly during the period of breeding, rearing and hibernation, insofar as disturbance would be significant in relation to the objectives of this Convention; ...

Appendix II lists strictly protected fauna species and this list includes “Microchiroptera, all species except Pipistrellus pipistrelles”.

The EUROBATS Agreement

The ‘Agreement on the Conservation of Populations of European Bats’ (EUROBATS) was negotiated under the ‘Convention for the Conservation of Migratory Wild Species’ (Bonn Convention) and came into force in January 1994. The legal protection of bats and their habitats are given in Article III as fundamental obligations:

“1. Each Party shall prohibit the deliberate capture, keeping or killing of bats except under permit from its competent authority.

2. Each Party shall identify those sites within its own area of jurisdiction which are important for the conservation status, including for the shelter and protection, of bats. It shall, taking into account as necessary economic and social considerations, protect such sites from damage or disturbance. In addition, each Party shall endeavour to identify and protect important feeding areas for bats from damage or disturbance.”

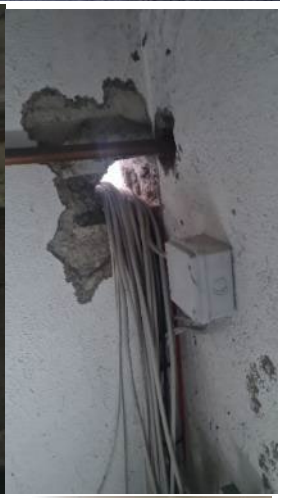
The Agreement covers all European bat species.

Appendix 2 - Bat Biology

Female bats gather in groups known as maternity roosts in summer to have their young. They generally have one baby each year, so are slow to reproduce, and disturbance of a maternity roost can be catastrophic.

In winter bats move to old stonework, trees, and caves to hibernate. They are also found in modern buildings during building work or demolition. They are especially vulnerable here as they are slow to awaken, and if tree felling is carried out without checking for bats, they can easily be killed.

Appendix 3 – Site images - Buildings



Building 1: Offices

Building 2 – Former offices

Building 3 – Stores and location of Mini September 2023

Building 4 – Large shed and Mini location June 2024

Building 5 – Northern shed

Building 8, overgrown shed


Building 9 at reservoir with animal bedding within (unidentified)

Building 10 Water supply at greenhouses

Building 11 – Storage building on perimeter

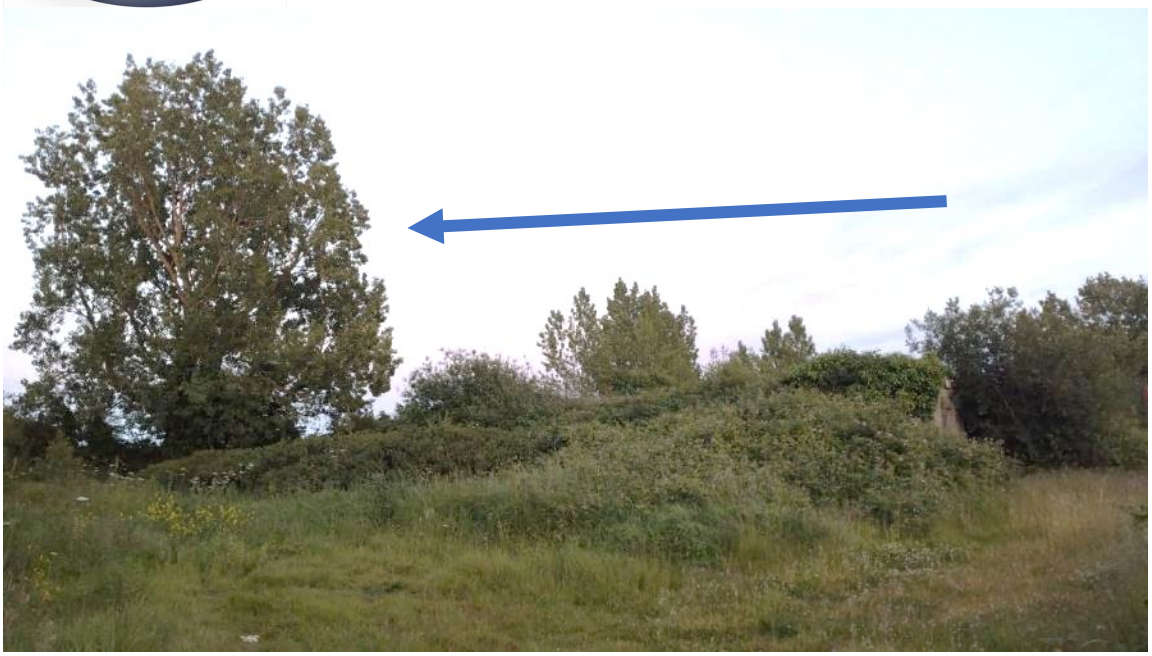
Building 12 at former offices

School lights

Office lighting

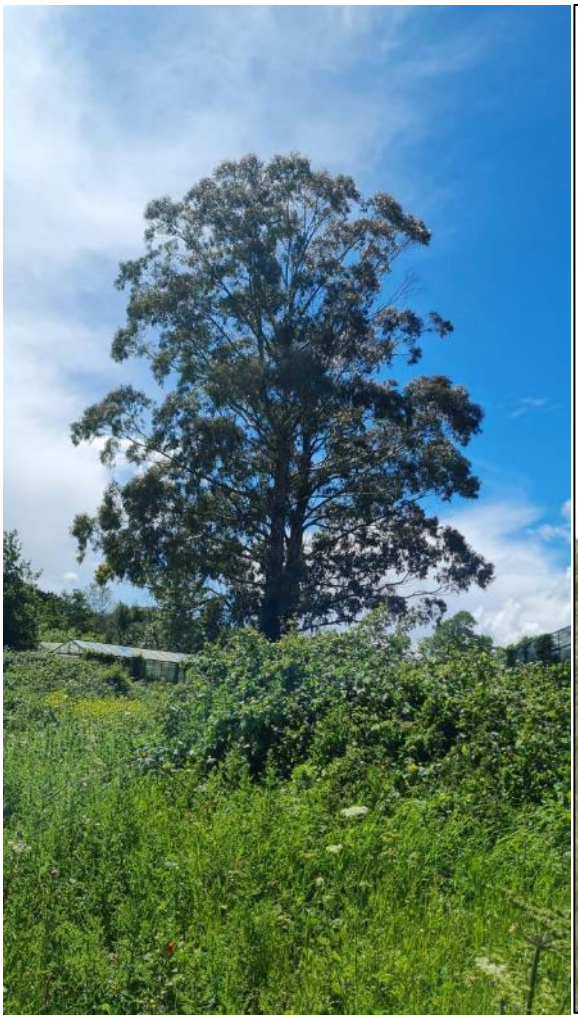
Appendix 3 – Site images - Trees

Trees within the site are typically unsuitable as bat roosts either due to the density of vegetation



Tree with low roost potential (on the left)

Trees that are mature but did not show obvious roost opportunities



Bat activity recorded by a hand held Echometer Touch 2 Pro September 27th 2023 at the Teagasc site, Kinsealy, Dublin

All times are on 24 hour clock

	Bat passes per hour			
Species	**19**	**20**	**21**	**Total**
Leisler's bat		2		2
Common pipistrelle			2	2
Soprano pipistrelle	3			3
Grand Total	**3**	**2**	**2**	**7**

Bat activity between 27th September 2023 and dawn of 6th October 2023 recorded by Songmeter Min Bat

	Bat passes per hour												
Date and Species	**0**	**1**	**2**	**3**	**5**	**6**	**7**	**19**	**20**	**21**	**22**	**23**	**Total**
27/09								**2**					**2**
Leisler's Bat								**2**					**2**
28/09				**1**						**3**			**4**
Common Pipistrelle				**1**						**3**			**4**
29/09								**15**	**14**	**22**	**5**	**1**	**57**
Leisler's Bat								**4**	**2**	**1**			**7**
Common Pipistrelle								**10**	**12**	**21**	**5**	**1**	**49**
Soprano Pipistrelle								**1**					**1**
30/09	**2**	**4**	**5**		**2**		**1**	**3**	**3**			**2**	**2**
Leisler's Bat			**2**		**1**		**1**	**3**	**2**			**2**	**11**
Common Pipistrell	**2**	**3**	**2**						**1**				**8**
Soprano Pipistrell		**1**											**1**
Brown Long-Eared Bat			**1**		**1**								**2**
01/10	**1**	**1**				**2**		**23**	**46**	**4**	**1**	**3**	**81**
Leisler's Bat						**1**		**2**	**2**	**2**		**1**	**8**

Common Pipistrelle	**1**							**21**	**44**	**2**	**1**	**2**	**71**
Soprano Pipistrelle						**1**							**1**
Brown Long-Eared Bat		**1**											**1**
02/10								**13**	**4**	**2**			**19**
Leisler's Bat								**1**	**2**				**3**
Common Pipistrelle								**12**	**2**	**2**			**16**
03/10								**2**	**1**	**1**			**4**
Leisler's Bat									**1**				**1**
Common Pipistrelle								**2**		**1**			**3**
04/10								**1**					**1**
Leisler's Bat								**1**					**1**
05/10								**5**		**1**			**6**
Leisler's Bat								**5**		**1**			**6**
06/10	**1**	**1**											**2**
Common Pipistrelle	**1**	**1**											**2**
Grand Total	**4**	**6**	**5**	**1**	**2**	**2**	**1**	**64**	**68**	**33**	**6**	**6**	**198**

Bat activity recorded on June 10th to 11th 2024 on static monitor (Mini)

	Bat passes per hour					
Bat species	0	2	3	22	23	Grand Total
Leisler's Bat	3			5	3	11
Common Pipistrelle		1	1	2	3	7
Soprano Pipistrelle				1		1
Total	**3**	**1**	**1**	**8**	**6**	**19**

Example of data from handheld monitor (Echometer Touch 2 Pro)

	Bat passes per hour	
Bat species	**22**	**Grand Total**
Leisler's Bat	5	5
Common Pipistrelle	8	8
Total	**13**	**13**

Example of data from handheld monitor of surveyor covering the entire site (Batlogger M2)

	Bat passes per hour			
Bat species				**Total**
	3	**22**	**23**	
Leisler's Bat	2	10	5	17
Common Pipistrelle Leisler's Bat		1		1
Common Pipistrelle		35	1	36
Total	**2**	**46**	**6**	**54**

Bat activity recorded near reservoir area June 10th to 11th 2024

Bat species	**Bat passes per hour**		
	22	**23**	**Grand Total**
Leisler's Bat	12	3	15
Common Pipistrelle	35	1	36
Common Pipistrelle	9	1	10
Total	**56**	**5**	**61**