25 BLIANA YEARS

Comhairle Contae Fhine Gall
Fingal County Council

Flora and Fauna Report
Ecological Assessment

February 2019

Appendix 5

Fingal Development Plan 2017 - 2023

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Biodiversity, Flora and Fauna

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Biodiversity is a relatively recently derived term to enshrine the concept that there is an enormous diversity to biological life on the planet that interacts in measurable and immeasurable ways and that introduces an inter-dependency of species. This includes many aspects of human agriculture and environment and the protection of biological diversity is an indirect measure to protect the biotic (and abiotic) factors that contribute to human health and environment.

The level of impact varies from negligible to severe and from brief or short term to permanent and may only be identifiable when all of the events or proposals within an immediate area are considered.

In the European Union, biodiversity conservation is enshrined within a single directive (European Communities (Birds And Natural Habitats) Regulations 2011) that is the amalgamation of the former Birds Directive of 1979 and the Habitats Directive of 1992.

In the urban and suburban environment, the need to protect and enhance biodiversity may be challenging where the need to house and provide recreational facilities may involve the modification of the vegetation and landscape elements and may have an immediate effect upon the biodiversity of the area or of adjoining and surrounding areas.

Flora

The list of recorded habitats within the lands covered within this LAP is listed in Table 1. The most predominant habitat is Improved Agricultural Grassland (GA1). It supports little biodiversity, as it is mainly composed of Italian ryegrass.

Occasional specimens of other species, including Docks (*Rumex* sp.), Nettle (*Urtica dioica*), White clover (*Trifolium repens*) and Hogweed (*Heracleum sphondylium*), Thistles (*Cirsium sp*.) occur, especially in the vicinity of hedgerows. There are wetter parts of this type of grassland, where mosses are prevailing. These fields are being closely grazed by cattle and horses. This habitat is of low ecological importance.

Table 1: Habitats within the Barnhill Lands

Habitat Name	Habitat Code (Fossitt 2000)
Improved Agricultural Grassland	GA1
Hedgerows	WL1
Drainage Ditches	FW4
Depositing Lowland Rivers	FW2
Dry Meadows and Grassy Verges	GS2
Ornamental/Non-native Shrub	WS3
Flower Beds and Borders	BC4
Buildings and Artificial Surfaces	BL3
Spoil and Bare Ground	ED2
Recolonising Bare Ground	ED3

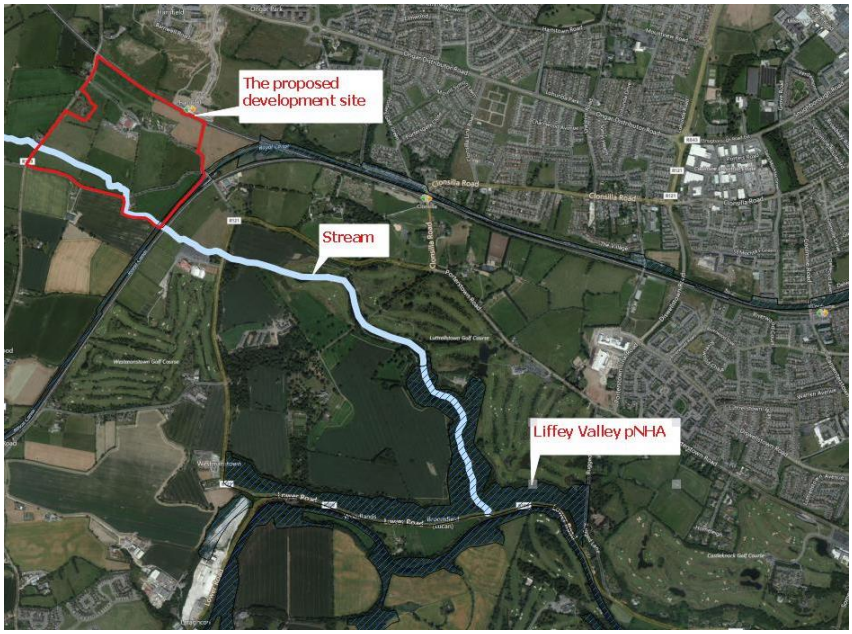

Fig. 1.
A stream crossing the site and feeding into the River Liffey

Plate 1. Improved agricultural grassland – typical for the site.

The fields described above are mostly bordered by Hedgerows (WL1). They are in quite a good condition, maintained regularly. They include the following woody species:

- Hawthorn (*Crataegus monogyna*)
- Elder (*Sambucus nigra*)
- Holly (*Ilex aquifolium*)
- Ash (*Fraxinus excelsior*)
- Blackthorn (*Prunus spinosa*)
- Beech (*Fagus sylvatica*)
- Goat willow (*Salix caprea*)
- Sycamore (*Acer pseudoplatanus*)
- Pedunculate oak (*Quercus robur*).

These hedgerows are also rich in Brambles (*Rubus sp.*) and Ivy (*Hedera helix*). The hedgerows support a wide variety of herbaceous plants.

Plants identified during this survey include:

- Buttercup (*Ranunculus acris*)
- Cow parsley (*Anthriscus sylvestris*)
- Ground elder (*Aegopodium podagraria*)
- Hart's-tongue (*Asplenium scolopendrium*)
- Hogweed (*Heracleum sphondylium*)
- Lesser celandine (*Ranunculus ficaria*)
- Lords and ladies (*Arum maculatum*)
- Nettle (*Urtica dioica*)
- Primrose (*Primula vulgaris*)
- Vetch (*Vicia sp.*)
- Wood avens (*Geum urbanum*).

Semi-natural hedgerows are of high local ecological importance, as they support a variety of wildlife, act as a woodland substitute and are important ecological corridors in both the rural and urban environments.

Plate 2. Hedgerows as field boundaries and growing along the stream (far right).

There are stretches of ornamental hedgerow along some of the dwelling properties and these include Laurel and Privet hedges. These hedges are of low ecological importance.

Plate 3. A drainage ditch associated with a hedgerow.

Many of the hedgerows within the site are associated with Drainage Ditches (FW4). All of them are well maintained and contain water. They dry out during the summertime or in times of low rainfall, as the only aquatic plants found during in spring are Water-cress

(*Nasturtium* sp.) and Water-crowfoot (*Ranunculus aquatilis*), which can occur in temporarily flooded habitats. All the drainage ditches within the site are screened by hedgerows. These provide shade, so the ditches are overgrown with shade-loving plants like Hart's-tongue fern (*Asplenium scolopendrium*) and Male-fern (*Dryopteris filix-mas*). Drainage ditches are of medium local importance, as they provide habitat and spawning grounds for amphibians.

There is a stream crossing the south-western part of the site. It can be classified as a Depositing Lowland River (FW2). This stream flows underneath the Royal Canal and feeds into River Liffey which is part of Liffey Valley pNHA. The stream is screened by naturally formed hedgerow made of scrub and trees. Because of overshading, the aquatic vegetation is scarce. At the time of the survey, the following aquatic plants were recorded:

- Water-cress (*Nasturtium* sp.)
- Water-crowfoot (*Ranunculus aquatilis*)
- Water-plantain (*Alisma plantago-aquatica*).

Plate 4. The stream and its position in the landscape (left).

There are houses with gardens within the site. The habitats present in the gardens can be classified as Ornamental/non-native shrub (WS3) and Flower beds and borders (BC4). They can support some biodiversity and can provide a nesting and feeding space, therefore they are of low ecological importance.

The houses themselves, as well as a farm/industrial yard and roads belong to Buildings and Artificial Surfaces (BL3). They support little biodiversity; therefore, they are of little ecological importance.

Both house gardens and the yard have areas of bare or recolonising ground. These habitats are classified as Spoil and bare ground (ED2) and Recolonising Bare Ground (ED3). They are both of low ecological importance.

Roads are bordered with grassy verges which are classified as Dry Meadows and Grassy Verges (GS2). They are regularly mowed and associated with hedgerows and drainage ditches. They provide some space for flowering plants on which insects can feed. These plants can be scarce in the surrounding improved grassland. Because of that, they can be considered to be of medium local importance.

Plate 5.
A road and its grassy verge.

Overall, the most important habitats within the site are hedgerows (including mature trees) and the stream. These habitats should be protected to support biodiversity within the local area. See Figure 7 for the map of the recorded habitats.

No habitats within the Barnhill lands are protected under Annex I of the EU Habitats Directive (92/43/EEC) were recorded within the site. None of the recorded plant species within the Barnhill lands are listed in the Flora Protection Order (1999) and The Irish Red Data Book.

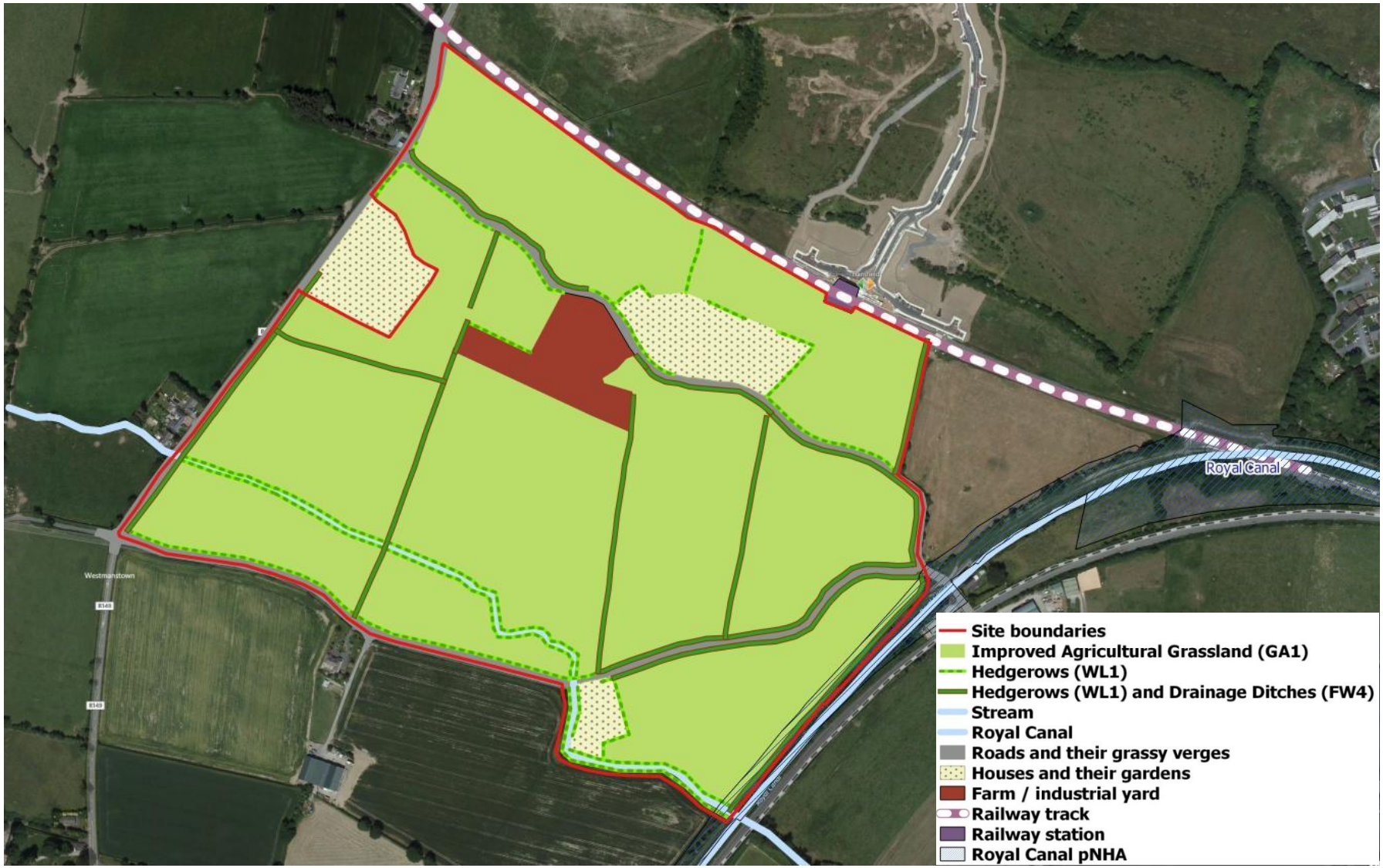

Fig.2. Habitat map of the site.

Fauna

The bird fauna primarily comprises the most common and widespread species with little shelter throughout the lands with the exception of some bramble along the stream and treelines close to the Royal Canal. Much of the bird activity and diversity is associated with denser hedgerow and mature trees.

There is little bird activity within the pasture. The main species associated with the pasture in spring is a pair of buzzards soaring over the lands close to the railway station. Other commonly encountered species include blue tit, great tit, goldcrest, wren and robin around the mature trees in the hedgerow. Chaffinches and to a lesser extent, greenfinches are also widespread. Species of crow including hooded crow, magpie, rook and jackdaw are all repeatedly seen with jackdaws nesting in sheds along the perimeter of the road through the lands. Ravens are almost certain to pass through the lands and jays are present within the Luttrellstown estate.

Plate 6: Mature trees and buildings along the road crossing through the Barnhill lands with bird nesting value and bat roost potential

Goldfinches can be seen and heard in trees along the Royal Canal while blackbirds and song thrushes are also noted in this area. Overwintering thrushes including redwing and fieldfare are also likely to frequent these fields. House sparrows are present in gardens along the Lucan Road and at the sheds noted as a jackdaw nest site above. No owls nest within the lands.

In neighbouring lands, grey heron, meadow pipits, bullfinch, jack snipe, woodcock, and reed bunting, moorhen and several other species have all been noted and given that the site is separated only by a railway line, it is likely that most or all of these species will avail of these lands. Given the presence of the Royal Canal, it is also possible that kingfishers travel along the stream occasionally and may commute through the lands while not dependent upon the lands for feeding or nesting.

Plate 7: The main mammal evidence at Barnhill – a rabbit warren

Much of the lands at Barnhill is intensively managed grassland and there is widespread evidence of rabbits and rodent activity and evidence of fox throughout the site.

The most notable protected mammal species is otter (Annex II of the Habitats Directive) which avails of the stream that runs into the River Liffey having passed under the Royal Canal. There are signs that otters travel along the river and then climb the canal bank and enter the Royal Canal close to the corner of the site. Fresh paw prints and otter spraints attest to regular use of the stream.

Plate 8: Otter paw print in mud where the stream meets the Royal Canal

The stream passes through the Barnhill lands and otters are probably passing through these lands.

Plate 9: Bridge over stream passing through the Barnhill lands

Plate 10: Otter signs at Barnhill and the Royal Canal

(top) Crossing point for otter from stream to Royal Canal

(bottom) Otter spraints within the stream passing the site and under the Royal Canal

Plate 11: Badger paw print in a fresh cow pat

The other protected mammal species in evidence within the site is the badger (*Meles meles* - protected under the Wildlife Act). This species commutes and feeds within the north-eastern corner of the site and enters the lands close to the Royal Canal.

Badgers are known to be present in the lands surrounding the hospital in Clonsilla and it is probable that these badgers feed in these lands. An artificial badger sett has been constructed in neighbouring fields and this may be occupied in the near future. There are also badgers within the Luttrellstown estate.

An American mink spraint was noted on the culvert passing under the railway line at the Hansfield station in December 2016 and a mink was seen in the hedgerow connecting with the lands under consideration in December 2016. This species is certain to feed within the lands and along the Royal Canal.

Plate 12: Culvert with evidence of Mink and frog spawn

Hedgehog activity has been noted in nearby lands and this species is very likely to be present. There is the potential for some foraging by Irish hares while rabbits are known to be present and relatively abundant. Pygmy shrews are a probable species for this area and they are known to occur within the surrounding area.

Of the nine species of bat in Ireland, all the most widespread species are present within a 5-km radius: common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, Leisler's bat, brown long-eared bat, Daubenton's bat, Natterer's bat and whiskered bat. Of these, only Nathusius' pipistrelle and whiskered bat are absent from a radius of 3 km from the site.

Surveying within and around the site in May 2017 indicates that three species of bat are present and all three may be roosting here. Of these, common pipistrelles are the most common and widespread species. Leisler's bats are present throughout the area and feed both over the Barnhill lands and over the Royal Canal. Soprano pipistrelle activity is less abundant but occurs within the Barnhill lands and along the Royal Canal.

Buildings within the site offer the highest roost potential. These include sheds and farm buildings, with houses providing high potential for the most common species (as listed above).

A small number of mature trees including horse chestnut within the site are of suitable quality as bat roosts while a row of trees along the Royal Canal hedgerow would offer some lesser potential and are of high value for commuting and feeding bats of the area.

Overall, the most important habitats within the site are hedgerows (including mature trees) and the stream. These habitats should be protected to support biodiversity within the local area. See Figure 7 for the map of the recorded habitats.

No habitats within the Barnhill lands are protected under Annex I of the EU Habitats Directive (92/43/EEC) were recorded within the site. None of the recorded plant species within the Barnhill lands are listed in the Flora Protection Order (1999) and The Irish Red Data Book.

Ecological Considerations For The Development Of The Barnhill Lands

- Protection of the Royal Canal
- Protection of the hedgerow along the Royal Canal boundary
- Protection of the stream passing through the lands
- Provision of protection for otters along the stream
- Protection of bat fauna by appropriate surveys and mitigation

The above guidelines will allow avoidance of long-term interference with the most important ecological features of the site. This can be achieved by keeping construction away from the Royal Canal and the hedgerow along its towpaths. Houses, roads etc. should not encroach upon this area. Equally, keeping a distance from the watercourse through the lands will avoid interrupting otter movements to and from the Royal Canal and will provide for other species of flora and fauna.

Table 2: Species of flora and fauna at Barnhill, Clonsilla, Dublin

Scientific name	Common name
Herb layer	
Acer pseudoplatanus L. (seedling)	Sycamore
Bellis perennis L.	Daisy
Cardamine hirsuta	Hairy bitter-cress
Centaurea nigra L.	Common knapweed
Cerastium fontanum Baumg.	Common mouse-ear
Cirsium sp.	Thistle
Epilobium montanum L.	Broad-leaved willowherb
Fumaria bastardii Boreau	Tall ramping-furmitory
Galium aparine L.	Cleavers
Geranium robertianum L.	Herb-Robert
Geum urbanum L.	Wood avens
Glechoma hederacea L.	Ground ivy
Heracleum sphondylium L.	Hogweed
Lactuca sativa L.	Lettuce
Lamium purpureum L.	Red deadnettle
Lolium sp.	Rye-grass
Narcissus agg. L.	Daffodil
Plantago lanceolata L.	Greater plantain
Plantago major L.	Ribwort plantain
Potentilla anserina L.	Silverweed
Ranunculus acris L.	Meadow buttercup
Ranunculus ficaria L.	Lesser celandine
Rumex acetosa L.	Common sorrel
Rumex crispus L.	Curled dock
Rumex obtusifolius L.	Broad-leaved dock
Senecio jacobaea L.	Common ragwort
Senecio vulgaris L.	Groundsel
Taraxacum officinale agg.	Dandelion
Trifolium repens L.	White clover
Trifolium pratense L.	Red clover
Tussilago farfara L.	Colt's-foot
Urtica dioica L.	Nettle
Veronica chamaedrys L.	Germander speedwell
Vicia sativa L.	Common vetch
Shrub layer	
Betula pendula Roth	Silver birch
Buddleja davidii Franch.	Butterfly bush
Crataegus monogyna Jacq.	Hawthorn
Fagus sylvatica L.	Beech
Hedera helix L.	Ivy
Ilex aquifolium L.	Holly
Pinus sylvestris L.	Scots pine
Quercus robur L.	Pedunculate oak
Rubus fruticosus agg.	Brambles
Sorbus aria (L.) Crantz	Whitebeam
Symphoricarpos albus (L.) S. F. Blake	Snowberry
Viburnum opulus L.	Guelder rose

Scientific name	Common name
Mammalia	
Oryctolagus cuniculus	Rabbit
Rattus norvegicus	Brown rat
Vulpes vulpes	Fox
Meles meles	Badger
Lutra lutra	Otter
Neovison vison	American Mink
Nyctalus leisleri	Leisler's bat
Pipistrellus pipistrellus	Common pipistrelle
Pipistrellus pygmaeus	Soprano pipistrelle
Along Royal Canal and Locally	
Myotis daubentonii	Daubenton's bat
Myotis nattereri	Natterer's bat
Myotis mystacinus	Whiskered bat
Pipistrellus nathusii	Nathusius' pipistrelle
Plecotus auritus	Brown long-eared bat
Likely species	
Mus musculus	House mouse
Apodemus sylvaticus	Wood mouse
Erinaceus europaeus	Hedgehog
Sorex minutus	Pygmy shrew
Amphibia	
Rana temporaria	Common frog
Aves	
Buteo buteo	Buzzard
Regulus regulus	Goldcrest
Prunella modularis	Dunnock
Corvus frugilegus	Rook
Corvus monedula	Jackdaw
Corvus cornix	Hooded crow
Pica pica	Magpie
Fringilla coelebs	Chaffinch
Carduelis chloris	Greenfinch
Cyanistes caeruleus	Blue tit
Parus major	Great tit
Erithacus rubecula	Robin
Troglodytes troglodytes	Wren
Turdus merula	Blackbird
Turdus philomelos	Song thrush
Columba palumbus	Woodpigeon
Motacilla alba yarrellii	Pied wagtail
Passer domesticus	House sparrow
Sturnus vulgaris	Starling
Royal Canal	
Anas platyrhynchos	Mallard
Motacilla cinerea	Grey wagtail
Carduelis carduelis	Goldfinch
Gallinula chloropus	Moorhen
Phalacrocorax carbo	Cormorant
Likely species not present during periods of survey	
Columba livia f. domestica	Feral pigeon
Accipiter nisus	Sparrowhawk
Phasianus colchicus	Pheasant
Turdus viscivorus	Mistle thrush
Turdus iliacus	Redwing
Turdus pilaris	Fieldfare
Phylloscopus collybita	Chiffchaff

Phylloscopus trochilus	Willow warbler
Sylvia atricapilla	Blackcap
Carduelis cabaret	Redpoll
Larus argentatus	Herring gull (red listed)
Larus ridibundus	Black-headed gull (red listed)
Larus fuscus	Lesser Black-backed gull (amber listed)
Corvus corax	Raven
Aegithalus caudatus	Long-tailed tit
Certhia familiaris	Treecreeper
Species present in adjoining / surrounding lands	
Scolopax rusticola	Woodcock
Lymnocryptes minimus	Jack snipe
Pyrrhula pyrrhula	Bullfinch
Anthus pratensis	Meadow pipit
Emberiza schoeniclus	Reed bunting
Tyto alba	Barn owl
Asio otus	Long-eared owl

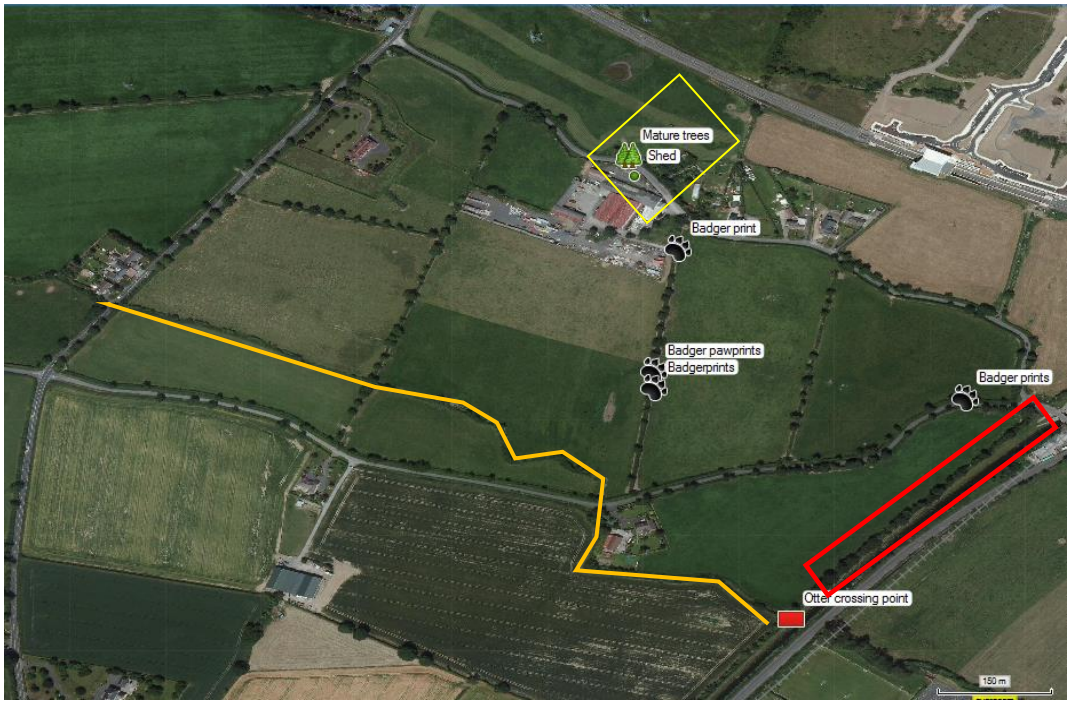

Figure 3: Mammal usage of the lands at Barnhill

Areas with the greatest ecological sensitivity are denoted by;

1) a red box (tree line close to the Royal Canal)
2) a yellow box at mature trees and farm buildings
3) a yellow line following the stream course

Figure 4: Bat activity at Barnhill in May 2017

Bat activity was concentrated on the buildings within the site and along the Royal Canal hedgerow. In all, three species of bat were noted including Leisler's bat (the most widely / commonly encountered species), common pipistrelle (probably the most abundant species) and soprano pipistrelle (the least common species in the 2017 assessment).