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# Blessington Greenway

**An Bord Pleanála Response to Request  
for Further Information on Ecology**

**Fauna Report**

## Document Details

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**Project Title:** Blessington Greenway

**Document Title:** Ecological Impact Assessment Blessington Greenway RIF Fauna Report

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## 1. Introduction

The following report presents the findings of a comprehensive survey conducted to assess the ecological impact to fauna species within the footprint of the proposed Blessington eGreenway (hereafter referred to as the Proposed Development) to address a further information request from An Bord Pleanála in relation to Proposed Development.

The report brings together information gathered from follow-up fauna surveys and reports completed between June and December 2023 in order to address the concerns raised in relation to mammals, amphibians and Lepidoptera. This document should be read in conjunction with the project Ecological Impact Assessment Report and Natura Impact Statement produced by the present authors in 2021 and updated accordingly as per the results of these surveys.

### 1.1 Requests for Further Information on Ecology

ABP raised a number of queries in relation to the potential impact of this project on the local environment including designated sites and protected species: As they related to Mammals these were:

An Bord Pleanála, in accordance with section 177AE(5) of the Planning and Development (Amendment) Act, 2010, requires further information in relation to the effects of the environment of the Proposed Development which is referenced below:

11, The applicant is referred to the detailed submission on the Proposed Development from the Development Applications Unit of the Department of Housing, Local Government and Heritage and in particular to matters relating to permanent habitat loss and significant disturbance. The applicant is requested to provide a comprehensive and detailed response to each of the issues raised in the submission received by the Department with regard to nature conservation. In particular, the applicant shall address the following:

- iii. The Department notes that the Greenway will require the removal of over 7,000 trees, some of which are likely to harbour bat species. The applicant shall ensure that all surveys for bat species, otters and all species protected under the Wildlife Act, 1976 to 2021 (badger, red squirrel, pine marten and common frog) are adequate to determine all impacts.
- iv. Further investigations are required to determine the presence of tufa forming spring/seepage with the development footprint, as well as March Fritillary and rare plants<sup>1</sup>

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<sup>1</sup> Surveys for rare plants are addressed in the Annex I Habitats and Rare Flora Assessment Report  
APB FRI Response: Fauna

## 1.2 Project Background

The proposed Blessington eGreenway consists of 33km of walking and cycling paths around the Poullapouca Reservoir/ Blessington Lake. This is an area of ecological significance, acknowledged through its designation as a Special Protection Area (SPA) and its inclusion in the Potential Natural Heritage Area (pNHA). The Proposed Development lies partly within the Poulaphouca Reservoir SPA (site code: 002122) and within 500m of the Wicklow Mountains Special Areas of Conservation (SAC) (site code: 002122).

The Wildlife Act is the principal mechanism for the legislative protection of wildlife in Ireland. It outlines strict protection for species that have significant conservation value. In summary, the Act protects species from injury, disturbance, and damage to breeding and resting sites. All species listed in the Act must therefore be a material consideration in the planning process. This assessment identifies areas and locations of mammal activity or their resting sites.

Otters [1355] are also afforded additional protection under the EU Habitats Directive [92/43/EEC] Annex II under the Wicklow Mountains SAC. The Conservation objectives are outlined in Table 1.

Table 1: Conservation objectives for Otter in Wicklow Mountains SAC.

Conservation Objectives for : Wicklow Mountains SAC [002122]			
1355 Otter <i>Lutra lutra</i>			
To maintain the favourable conservation condition of Otter in Wicklow Mountains SAC, which is defined by the following list of attributes and targets:			
Attribute	Measure	Target	Notes
Distribution	Percentage positive survey sites	No significant decline	Measure based on standard otter survey technique. Favourable Conservation Status (FCS) target, based on 1980/81 survey findings, is 88% in SACs. Current range is estimated at 93.6% (Reid et al., 2013)
Extent of terrestrial habitat	Hectares	No significant decline. Area mapped and calculated as 716.6ha along river banks/lake shoreline/ around ponds	No field survey. Areas mapped to include 10m terrestrial buffer along river banks and around water bodies identified as critical for otters (NPWS, 2007)
Extent of freshwater (river) habitat	Kilometres	No significant decline. Length mapped and calculated as 359.1km	No field survey. River length calculated on the basis that otters will utilise freshwater habitats from estuary to headwaters (Chapman and Chapman, 1982)
Extent of freshwater (lake) habitat	Hectares	No significant decline. Area mapped and calculated as 141.8ha	No field survey. Area mapped based on evidence that otters tend to forage within 80m of the shoreline (NPWS, 2007)
Couching sites and holts	Number	No significant decline	Otters need lying up areas throughout their territory where they are secure from disturbance (Kruuk and Moorhouse, 1991; Kruuk, 2006)
Fish biomass available	Kilograms	No significant decline	Broad diet that varies locally and seasonally, but dominated by fish, in particular salmonids, eels and sticklebacks in freshwater (Bailey and Rochford, 2006; Reid et al., 2013)
Barriers to connectivity	Number	No significant increase. For guidance, see map 6	Otters will regularly commute across stretches of open water up to 500m e.g. between the mainland and an island; between two islands; across an estuary (De Jongh and O'Neill, 2010). It is important that such commuting routes are not obstructed

## 2 Methodology

### 2.1 Survey Guidance Documents

These surveys have taken note of the following guidelines:

- Guidelines for Ecological Impact Assessment in the UK and Ireland Terrestrial, Freshwater and Coastal (CIEEM, 2016).
- Guidelines for Assessment of Ecological Impacts of National Road Schemes (NRA, 2009).
- Guidelines for the Protection and Preservation of Trees, Hedgerows and Scrub Prior to, During and Post Construction of National Road Schemes. National Roads Authority (2006b).
- Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes. National Roads Authority. National Roads Authority (2009a).
- Guidelines for assessment of Ecological Impacts of National Road Schemes (Revision 2, 1st June, 2009). National Roads Authority (2009b)

The following species-specific guidelines were referred to:

- Guidelines for the Treatment of Badgers prior to the Construction of National Road Schemes. National Roads Authority (2006a).
- Guidelines for the Treatment of Otters prior to the Construction of National Road Schemes. National Roads Authority (2008a).

### 2.2 Zone of Influence and Methodologies

According to the CIEEM Guidelines (CIEEM. 2016), the Zone of Influence (Zoi) for a project is 'the area over which ecological features may be subject to significant effects as a result of the proposed project and associated activities. This is likely to extend beyond the project site, for example, where there are ecological or hydrological links beyond the site boundaries.' In order to ensure that the entire potential Zone of Influence upon the local mammal population was covered, Mammal surveys were carried out 30 metres on either side of the proposed route. Considering the proposed works, this area was deemed sufficient to cover the potential zone of influence for these mammal species. Ad hoc mammal data was also recorded within this area. Where access was available, mammal surveys were also conducted within sections of the adjacent fields. Otters are found throughout Ireland and generally occupy linear territories along watercourses but are occasionally found further inland. A 150m strip up and downstream of the crossing point of each watercourse including a 10m riparian buffer (both banks) was surveyed for potential otter habitat.

- Badger surveys were conducted to determine the presence or absence of badger signs within and in close proximity to the Proposed Development. This involved a search for all potential badger signs as per NRA (2009) (latrines, badger paths and setts). If encountered, setts would be classified as per the convention set out in NRA (2009) (i.e., main, annexe, subsidiary, outlier).

- Otter surveys involved a search for all otter activity signs e.g., spraints, scat, prints, slides, trails, couches and holts.
- Surveys for Pine Marten and Red Squirrel aimed to identify possible Red Squirrel dreys and pine marten den sites. Surveys also recorded direct observations, feeding remains and suitable habitat.
- Surveys for Common Frogs focused on suitable habitats for spawning found within the Proposed Development site.
- Marsh Fritillary surveys firstly assessed the presence of its food plant Devils bit scabious. Where this was found follow up surveys were conducted.
- Bats survey results are presented in a separate standalone report.

## 2.3 Desktop study

Information previously collected as part of the Ecological Impact Assessment for the Proposed Development in 2021 was analysed. Previous sightings of protected fauna logged through the National Biodiversity Data Centre were reviewed. This material informed the field surveys.

## 2.4 Field Surveys

Fauna surveys for field signs and refugia were carried out across the entire proposed works area between the 13<sup>th</sup> and the 24<sup>th</sup> of November 2023 for Badger *Meles meles*, Otter *Lutra lutra*, Red Squirrel *Sciurus vulgaris*, pine marten *Martes martes*, common frog *Rana temporaria*. Marsh Fritillary *Euphydryas aurinia* were carried out in August and September.

## 2.5 Survey limitations

In some sections of the proposed project footprint surveys were constrained due to dense vegetation or wind-blown trees. Where areas could not be surveyed in detail clearance under the supervision (CUS) of an Ecologist is required. Maps of CUS areas have been provided to the client.

As mammals are highly mobile species, it is possible that with a lapse in time following surveys, new burrows, dreys, holts etc. may be created. As such, this is considered further within the recommendations in this report.

# 3 Results

## 3.1 Desktop Study

Records from the National Biodiversity Data Centre (NBDC) for the four hectads (10 x 10m square) within which the site is located (N91, O01, N90 & O00) were downloaded and reviewed for species-specific records. The results are presented in Table 2.

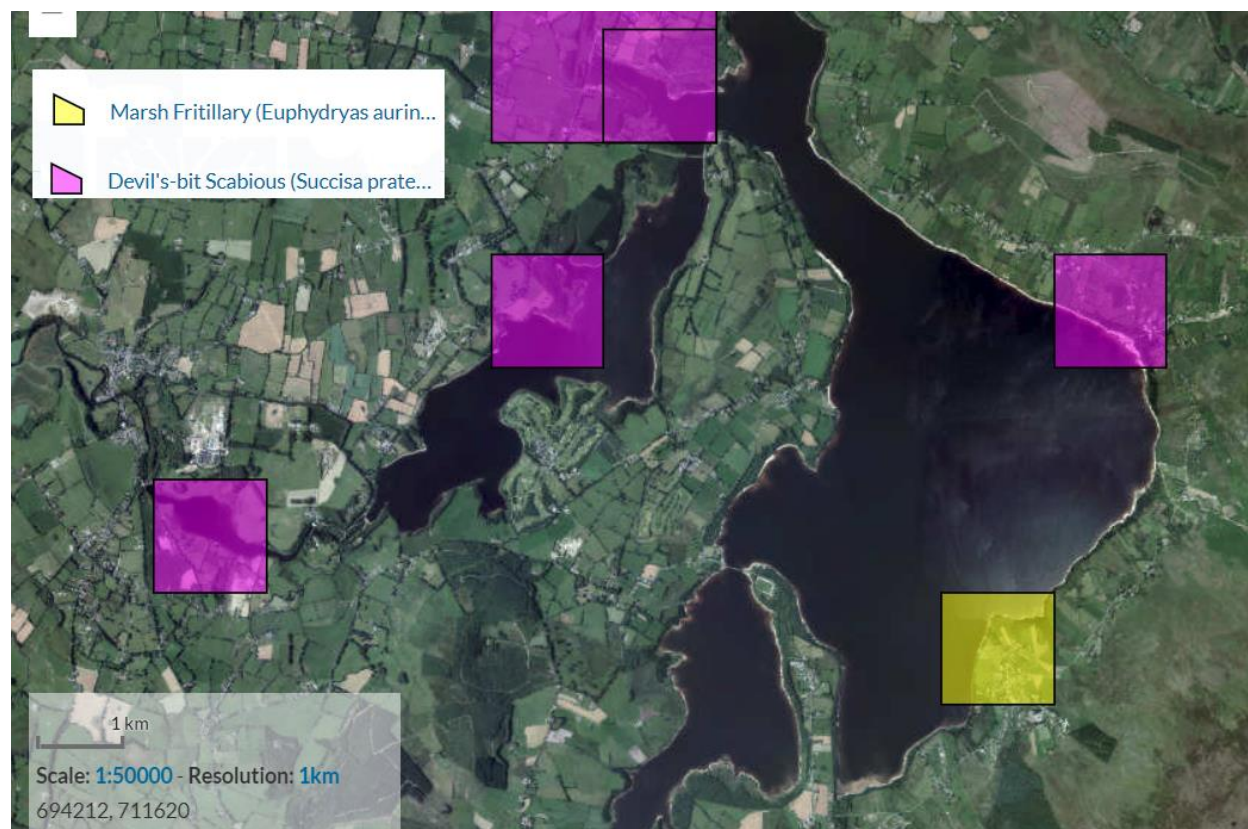
Table 2: NBDC records.

Species	Record Count	Date of last record	Title of Datasheet	Hectad
Eurasian Badger ( <i>Meles meles</i> )	45	23/04/2017	Mammals of Ireland 2016-2025	N91
Eurasian Red Squirrel ( <i>Sciurus vulgaris</i> )	5	16/09/2018	Mammals of Ireland 2016-2025	N91
European Otter ( <i>Lutra lutra</i> )	2	12/02/2012	Atlas of Mammals in Ireland 2010-2015	N91
Pine Marten ( <i>Martes martes</i> )	9	15/11/2021	Mammals of Ireland 2016-2025	N91
Marsh Fritillary ( <i>Euphydryas aurinia</i> )	4	27/09/2014	All Ireland Marsh Fritillary Database	O01
Eurasian Badger ( <i>Meles meles</i> )	80	05/09/2018	Mammals of Ireland 2016-2025	O01
Eurasian Red Squirrel ( <i>Sciurus vulgaris</i> )	37	29/08/2018	Mammals of Ireland 2016-2025	O01
Pine Marten ( <i>Martes martes</i> )	16	05/04/2023	Mammals of Ireland 2016-2025	O01
Marsh Fritillary ( <i>Euphydryas aurinia</i> )	4	20/06/2015	All Ireland Marsh Fritillary Database	N90
Eurasian Badger ( <i>Meles meles</i> )	60	31/12/2016	Badger Setts of Ireland Database	N90
Eurasian Red Squirrel ( <i>Sciurus vulgaris</i> )	11	29/09/2015	Atlas of Mammals in Ireland 2010-2015	N90
European Otter ( <i>Lutra lutra</i> )	2	09/10/2015	Atlas of Mammals in Ireland 2010-2015	N90
Pine Marten ( <i>Martes martes</i> )	15	07/12/2021	Mammals of Ireland 2016-2025	N90
Marsh Fritillary ( <i>Euphydryas aurinia</i> )	2	11/09/2020	All Ireland Marsh Fritillary Database	O00
Eurasian Badger ( <i>Meles meles</i> )	8	12/04/2013	Atlas of Mammals in Ireland 2010-2015	O00
Eurasian Red Squirrel ( <i>Sciurus vulgaris</i> )	2	31/12/2010	Atlas of Mammals in Ireland 2010-2015	O00
European Otter ( <i>Lutra lutra</i> )	7	13/09/2010	Atlas of Mammals in Ireland 2010-2015	O00
Pine Marten ( <i>Martes martes</i> )	5	13/07/2020	Atlas of Mammals in Ireland 2010-2015	O00

Records of marsh fritillary and the associated food plant devil's-bit Scabious *Succisa pratensis* were analysed. Surveys were conducted within areas of the proposed greenway that intersect with the grid squares identified for marsh fritillary and devil's-bit scabious from the NBDC.



Figure 1: Marsh Fritillary and Devils-bits scabious results on the NBDC



## 3.2 Badgers

Badger activity was recorded throughout the survey area around the reservoir. This survey identified the presence of setts within the Proposed Development ZOI in addition to field signs including tracks, latrines and evidence of foraging. A full list of all badger setts (active and inactive) and other activities recorded within the survey area can be seen in Appendix 1. A total of 12 badger setts were identified within the Proposed Development ZOI. Of these 4 were noted as active.

### 3.2.1 Impact Assessment and Mitigation

Mitigation measures as per the EclA Report and NRA (2006) should be adhered to for the treatment of Badgers on this scheme. A large Badger sett near Ballyknockan is an active main sett and much of this is within the footprint of the proposed Greenway. Given the age and importance of the sett it should be a priority of mitigation to retain this as a breeding place. It is proposed therefore that a partial exclusion of the sett is carried out. This will exclude Badgers from the areas of the sett that are entirely within the scheme footprint. It will however allow for the retention of the majority of the sett to be retained. It is further recommended that an artificial sett be created here to serve as an annex sett for the sett area that will be retained. Further to

this groundworks will be minimised around this sett. Screening and mammal proof fencing will also be installed along Greenway to keep dogs and walkers away from the sett. All other active setts recorded are in areas where path rerouting can occur within EBS lands thus avoiding set disturbance.

Mitigation measures that are in place to minimise the potential for impacts follow TII (2006b) and are described in the following sub-sections below.

- All contractors/operators on site should be made fully aware of the procedures pertaining to each sett on site.
- A pre-construction Badger survey will be undertaken to ensure that Badger has not taken up residence within or close to the land-take and that the supporting information submitted in this survey is still accurate. Pre-construction surveys will reassess the status of the setts recorded during the multidisciplinary walkover survey in order to establish any change during the intervening period between planning and construction.
- Works within 30m of a Badger sett (50m during the breeding season) will be supervised by an Ecological Clerk of Works (ECoW) and will be undertaken under licence from NPWS.
- Any excavations over 1 m deep will be securely covered at night or a ramp provided to enable animals to escape should they fall in.
- Works will be programmed to occur during the hours of daylight only.
- Works involving noisy plant and machinery located near Badger protection zones will cease at least two hours before sunset (SNH, 2012).
- Existing vegetation around Badger setts will be left intact, as far as practicable.
- Additional screening will be provided to reduce acoustic disturbance from the construction and operation of the Greenway.
- No fencing will be used that would inhibit access for Badger across the Greenway. Lighting design will be sensitive to areas with Badger setts.
- Areas of additional planting will reduce both visual and acoustic disturbance and well as providing cover for Badgers.

Where exclusions of badger setts cannot be avoided these will be carried out from July to November, inclusive, in order to avoid the Badger breeding season and under the provision of appropriate licensing from NPWS. Exclusion methodologies are detailed below

- Exclusion of Badgers from disused or currently inactive setts may be completed throughout the year. Should active setts be encountered prior to construction, TII (2006c) will be followed for the exclusion of active setts.
- The destruction of a main sett requires the provision of an artificial sett within 100 m of the original. One-way gates should be installed on all entrances of active setts to allow badgers to exit but not re-enter. These gates should be tied open for the first three days. Once no badger activity is observed for a period of 21 days, the sett should be destroyed.
- If the gates are left in place for long periods of time Badgers may attempt to dig around them or to create new entrances. Therefore, setts should be destroyed as soon as the 21 day period has elapsed.
- Disused setts are considered to be unused by Badgers. Further survey work will be required to ensure the setts are inactive at the time of construction. In the case of disused

setts, initial exclusion involves lightly blocking entrances with vegetation and a light application of soil, i.e. soft-blocked. Soft blocking confirms the absence or presence of Badgers. If all entrances remain undisturbed for 5 days, setts should be destroyed immediately under licence and supervision from the NPWS. If it is not possible to destroy the sett immediately, the entrance should be hard blocked using buried fencing material and compacted soil and destroyed as soon as possible.

### 3.3 Otter

Several signs of Otters, including spraints and feeding remains were recorded during this survey. One active Otter holt was recorded within 25m of the current scheme alignment along a water course which feeds into a reservoir. The majority of the evidence for otter was found along the shoreline, which is outside of the works areas (See Appendix 2).

#### 3.3.1 Impact Assessment and Mitigation - Otter

Details of the mitigation measures for Otters are found in the project EclA and are aligned with NRA (2005<sup>2</sup>) guidelines. Mitigation measures are outlined in section 4 of this report.

The Proposed Development has been deliberately designed such that infrastructure avoids the main watercourses within the site of works. Instream and bank works will be required on several small water courses to facilitate the installation of culverts and bridge crossings. A number of these will occur within the habitat suitable for Otters, these works will be minor in nature. Bridge and culvert construction in all instances will be suitable to ensure the free movement of mammals including otters.

One otter holt was found within the ZOI of the Proposed Development. This was recorded within 25m of the current scheme alignment along a water course which feeds into a reservoir near Ballyknockan.

Pre-construction surveys including camera trapping will be required during the summer months to determine if this is a breeding holt site. Preconstruction surveys should be conducted along all water courses 150m up and downstream of the crossing points. The pre-construction survey should be conducted no more than 10-12 months in advance of construction. Surveys of the confirmed holt should begin at least 6 months prior to works within the area of this holt. This timeframe is required to ensure that if the holt is an active breeding holt adequate time is available to allow for the weaning of cubs.

Construction activity will be confined to daytime hours, thus minimising potential disturbance-related impacts on the species. Alignment and mitigation during construction will ensure no impacts to this holt occur during construction. NPWS will be consulted upon the results of the

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<sup>2</sup> NRA (2009a). Guidelines for the Treatment of Otters Prior to the Construction of National Road Schemes. Transport Infrastructure Ireland.

preconstruction survey and will sign off on the onsite avoidance and mitigation measures proposed.

### 3.3.2 Disturbance During Operation

Otters are predominantly crepuscular in nature (prefer dim light and tend to be active during dawn/dusk) and are unlikely to be adversely impacted by the operation of the Proposed Development which will not be lit and is not designed for nighttime use.

Construction activity will be confined to daytime hours, thus minimising potential disturbance-related impacts on the species. The NPWS Threat Response Plan for Otter acknowledges that “Little evidence has come to light in recent studies to suggest that disturbance by recreation is a significant pressure.”

Channin P. (2003)<sup>3</sup> provides a literary review with regard to anthropogenic disturbance and refers to several reports which have found that disturbance is not detrimental to Otters (Jefferies (1987), Durbin 1993, Green & Green 1997). The report also describes successful breeding in towns, under ferry terminals and under the jetties of one of Europe’s largest oil and gas terminals at Sullom Voe in North Scotland.

Irish Wildlife Manual No. 23 (National Otter Survey of Ireland 2004/2005)<sup>4</sup> found no significant relationship between disturbance and otter occurrence. In addition, no significant difference in otter presence was found between sites with and without recreational activity. It also states, “The lowest percentage occurrence was found at the sites with the lowest recorded disturbance” Irish Wildlife Manual No. 76 (National Otter Survey of Ireland 2010/2012)<sup>5</sup> notes that the occurrence of Otter was unaffected by perceived levels of disturbance at the survey sites. It also notes that there is little published evidence demonstrating any consistent relationship between Otter occurrence and human disturbance

Based on the above review of scientific literature, and the survey results, there is no potential for significant effects on otter as a result of disturbance during the operation of the greenway.

#### **Addressing limitations**

Pre-construction otter surveys should be undertaken prior to the commencement of any works in order to identify any changes in otter activity, holt locations, etc., since the original surveys. This will ensure that the prescribed mitigation measures remain adequate to address possible impacts on otters. It is also important to ensure that no new holts have been created in the intervening

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<sup>3</sup> Chanin, P. R. F. (2003). Ecology of the European otter (Conserving Natura 2000 Rivers Ecology Series No 10). Peterborough, UK: Joint Nature Conservation Committee.

<sup>4</sup>Bailey, M., and Rochford, J. (2006). Otter Survey of Ireland 2004/2005. Irish Wildlife Manuals, No. 23. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland.

<sup>5</sup> Reid, N., Hayden, B., Lundy, M.G., Pietravalle, S., McDonald, R.A., Montgomery, W.I. (2013). National Otter Survey of Ireland 2010/2012. Irish Wildlife Manuals, No. 76. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Dublin, Ireland.

period. The pre-construction survey should be conducted no more than 10 months in advance of construction. This will ensure that there will be sufficient time to comply with all licensing requirements and that the necessary actions can be undertaken to protect otter populations prior to the commencement of construction.

### 3.4 Red Squirrel

The project site is suitable for this species, and they are known to occur in the study area.

Direct observations and evidence of red squirrels were recorded throughout the survey area. Red squirrels were commonly seen foraging in Larch plantations. They are known to prefer conifers with large seeds, such as Larch and Norway spruce. However, as Larch is a deciduous conifer, they may have been more visible in the canopy in these plantations. All recorded dreys and red squirrel evidence is detailed in the Appendix 3. A total of 14 confirmed and possible dreys were recorded within the ZOI of the Proposed Development.

#### 3.4.1 Impact Assessment and Mitigation - Red Squirrel

Works should aim to avoid dreys. Where this is not possible, a Section 42 license must be sought before their disturbance and destruction. All possible and confirmed dreys identified in this report should be treated as active and will require licencing. Artificial dreys (nest boxes) should be provided for each drey removed. All works must be undertaken under the supervision of an experienced mammal ecologist.

Habitat loss and fragmentation are major factors in red squirrel population declines (NRA, 2009), and steps should be taken to minimise the effects of the project through small-scale realignments and the retention of strategically important habitat links and habitat features. It is important to maintain a habitat of sufficient size to sustain the red squirrel population and prevent the creation of barriers to the movement of red squirrels and the isolation of habitat blocks. This can be done by minimising the loss of woodland and creating new woodland to replace any felled areas. Where fragmentation is likely to occur between different areas of woodland the provision of safe crossing points, such as rope bridges, should be considered.

#### Addressing Limitations

Any tree older than 15 years (conifer or broadleaf) is suitable for squirrel dreys. Given the difficulty in observing all red squirrel dreys, the possibility of new dreys being formed prior to tree felling, and disturbance from adjacent felling (within 50metres of a drey), tree felling should only take place within woodlands over 15 years of age between October–January inclusive.

Pre-clearance surveys are needed to check for any new dreys that may have arisen between the time of the original survey and the start of works.



## 3.5 Pine Marten

The project site is suitable for this species, and they are known to occur in the study area. As pine martens are elusive and largely nocturnal mammals, surveys focus on a systematic search for evidence of their presence such as scats (dung). Evidence of pine marten was abundant throughout the survey area. No den sites were confirmed. However, several highly suitable probable den sites were identified. No 3 were recorded within the development ZOI. All evidence of pine Marten recorded is shown in Appendix 4.

### 3.5.1 Impact Assessment and Mitigation – Pine Marten

Mature trees containing large cracks and crevices should be retained where possible for their considerable habitat value for a range of species including pine marten. Where any tree with denning potential is removed (See trees with High Bat Potential in the Bat Report) an artificial pine marten den box should be installed in a suitable nearby tree.

Pre-clearance surveys are needed to check for any new dreys that may have arisen between the time of the original survey and the start of works. A pre-clearance survey of all trees older than 15 years old is recommended to determine the presence of dens. All possible and confirmed dreys identified in this report should be treated as active and will require licencing to remove.

There is scope to add both Pine Martin and Red squirrel boxes within the study area. These species favour above-ground arboreal dens and drey sites to rest and breed in. Sheltered, elevated den sites are particularly crucial for meeting the needs of breeding females of both species and a scarcity of suitable sites may be a critical constraint upon Pine marten populations. Pine marten boxes are particularly effective (Cruise et al., 2016). The den boxes can be implemented as a habitat enhancement and conservation tool, particularly in commercial forests. At least 15 artificial red squirrel boxes and 20 artificial pine martin boxes will be installed in the retained woodlands and along the reservoir prior or during to any tree felling. The placement of these should be determined by the onsite ecologist

Where pine martin dens or red squirrel dreys removed under license, an artificial box will be added to replace each, in addition to the 35 boxes already recommended.

#### **Addressing limitations**

Pine martens in Ireland typically give birth in the spring, usually from March to July. Mothers will often abandon their young with disturbance. There should be no tree clearance works inside any woodland within the project footprint during this season when pine martin populations are especially vulnerable to disturbance.

During the breeding season, females seek out suitable den sites to raise their young, sometimes returning to old dens but often not. A pre-clearance survey of all trees older than 20 years is recommended to determine the presence of dens.

## 3.6 Amphibians

Both Common Frog *Rana temporaria* and Smooth Newt *Lissotriton vulgaris* and their breeding places are protected in Ireland through the Wildlife Acts. Surveys consisted of the identification of amphibian breeding sites. Potential breeding sites were associated with areas of wet woodland, ditches, flushes, streams, springs and pools. The location of all areas of suitable amphibian habitat is provided in Appendix 5

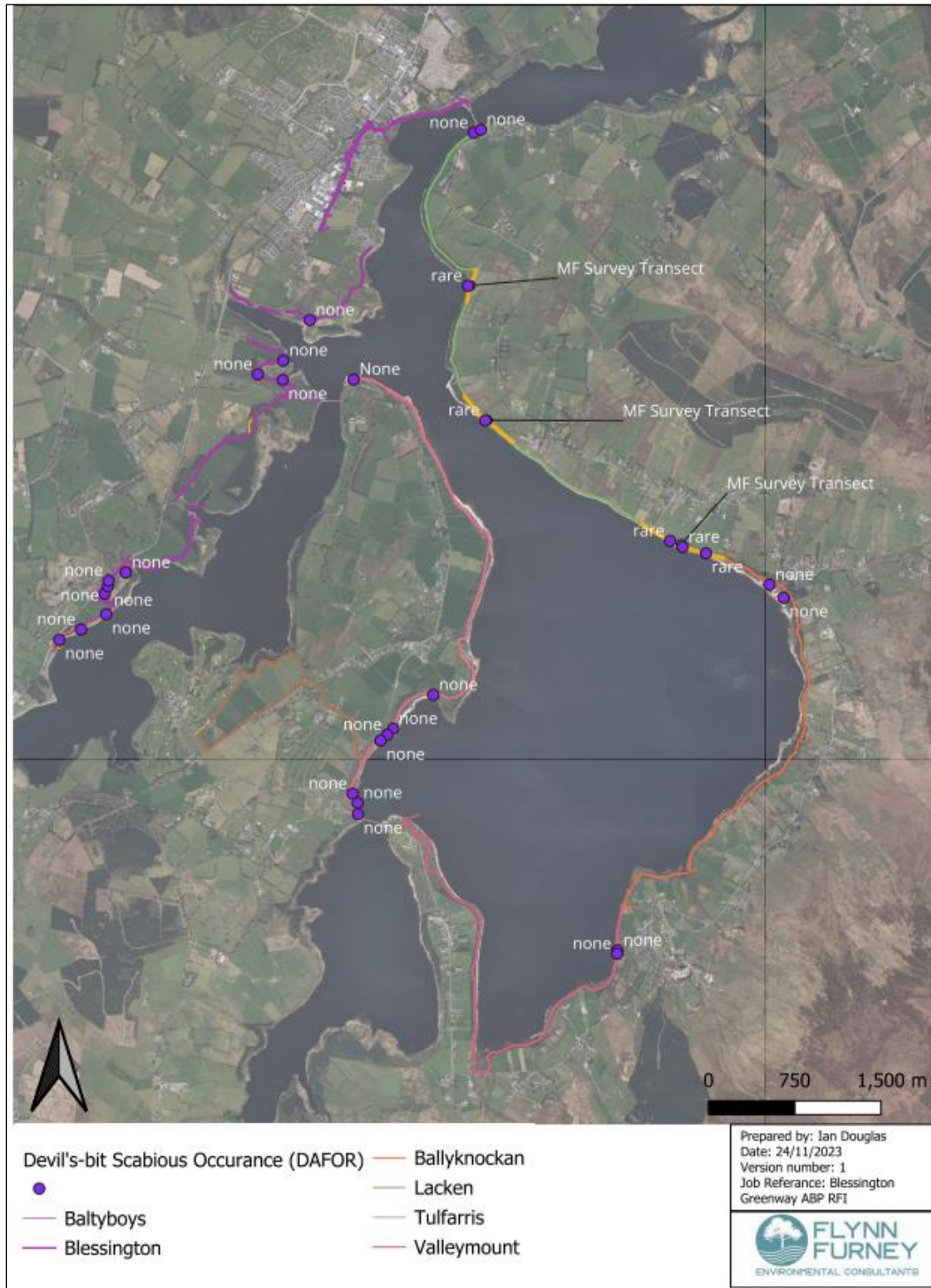
### 3.6.1 Impact Assessment and Mitigation – Amphibians

Avoidance of suitable habitat areas and timing of works are the most appropriate mitigation for amphibians. No areas of still water – including seasonal pools – shall be entered between December and May, unless inspected by an ecologist prior to works. Over-wintering habitat areas such as log piles or fallen trees should be cleared between September and October only. Ample opportunity for compensation and enhancement of habitat for amphibians exists as part of the scheme: Brash, log piles and soil created during clearance can be used to create numerous hibernacula throughout the site.

## 3.7 Marsh Fritillary

The Marsh Fritillary butterfly is found in wet or marshy areas hence its name. They rely on Devil's Bit Scabious, *Succisa pratensis*, for their lifecycle. Marsh Fritillary surveys followed NRA (2009) guidelines. Surveys consisted of an initial desktop assessment of existing records for the species and its food plant Devil's-bit scabious. Surveys were conducted within areas of the proposed greenway that intersect with the grid squares identified for marsh fritillary and devil's-bit scabious from the NDBC. Field surveys also assessed the presence of devils-bit scabious within areas of wet grassland, dry calcareous and neutral grassland within the Proposed Development identified in the previously submitted EclA Report in 2021. Where Devil's-bit Scabious was found larval web searches were conducted in September 2023.

Figure 2: Devil's bit scabious occurrence.





No areas where devils-bit scabious recorded on the NBDC are found within the Proposed Development footprint. Suitable wet grassland areas are found adjacent to the reservoir along the existing Blessington Greenway and will not be disturbed by the current alignment as proposed.

A 2020 record for marsh fritillary was found within the Ballyknockan section on the NDBC. No suitable habitat was found within the Proposed Development and the suitable habitat is associated with fallow grassland on adjacent private lands.

Presence/absence surveys for devils-bit scabious were conducted in areas as shown in Figure 2 and detailed in the appendix 4. Devils-bit scabious was absent from all suitable habitats within the scheme area except for small stands and scattered individuals found along a thin strip of dry grassland in Lacken. Follow-up larval web surveys were conducted along this section of the scheme in September 2023. No larval webs were found.

## 4 Conclusion

This report has provided updated survey information on the status of a number of protected fauna species. This was provided as a response to further information requested by An Bord Pleanála.

A desktop survey of existing records of these species was carried out. This was followed by a suite of field surveys carried out in 2023. Accepted best practice methodologies were employed in the completion of these surveys. Any survey limitations that were encountered have been detailed.

Mammal surveys carried out in November 2023 sought field signs and refugia of protected species. The surveys for Badger recorded a number of setts. One of these is within the footprint of works and a partial exclusion of this sett is recommended. The construction of an artificial sett is also recommended here. All other Badger setts recorded may be retained.

A single Otter holt was found within the zone of influence of the development, although outside the footprint of the scheme. A range of mitigation measures are recommended that will allow this holt to be retained without significant impact during construction. No operational impacts are predicted.

A number of Red Squirrel dreys were recorded. Works should avoid the trees in which these are located. Where this is not possible, these trees should be felled under licence outside the squirrel breeding season.

No den sites of Pine Marten were confirmed. However, trees offering suitable habitat for same should be retained. These will be identified in a preconstruction survey which will be required. If such trees must be felled, these are to be replaced with artificial Pine Marten boxes. Works will avoid the Pine Marten breeding season.

Areas suitable for breeding by Amphibians were identified. These will not be disturbed between December and May unless inspected by an ecologist prior to works.

Surveys for Devil's-bit Scabious – the only foodplant of the Marsh Fritillary butterfly were carried out. This plant is absent from almost all areas within the footprint of works. Where it did occur, the plants were surveyed for the presence of larval webs. None were found.

It is the consideration of the authors that with the correct implementation of mitigation, the construction of the Greenway will not give rise to significant negative impacts upon any of the subject species

## Appendix 1: Badgers

- **TbRWP: To be Retained Where Possible**
- **TbP: To be Protected**

Point	Notes	Date	Actions	X(ITM)	Y(ITM)	Location in Scheme	Sett Type	Sett Activity
P83	Badger Sett	2021	TbP	698775.1	707585.2	ZOI	Main	Inactive
P91	Badger Sett	2021	TbP	698514.4	708102.8	ZOI	Outliner	Inactive
P108	Badger Sett	2021	TbRWP	698933	710000	Scheme	Main	Active
P241	Badger Sett	16/11/2023	TbP	700452	710832.3	ZOI	Outliner	Inactive
P243	Badger Sett	17/11/2023	TbP	700205.5	707141.8	ZOI	Main	Active
P244	Badger Sett	17/11/2023	TbP	700209.8	707143	ZOI	Main	Active
P248	Badger Sett	17/11/2023	TbP	700217.7	707119.5	Scheme	Annex	Active
P257	Badger Sett	17/11/2023	TbP	699903.9	706804.5	ZOI	Annex	Active
P264	Badger Sett	16/11/2023	TbP	698646.4	711388	Outside ZOI	Outliner	Active
P270	Badger Sett	16/11/2023	TbP	698840.9	709888.7	Outside ZOI	Outliner	Inactive
P271	Badger Sett	16/11/2023	TbP	698454.8	709330.1	ZOI	Outliner	Inactive
P272	Badger Sett	16/11/2023	TbP	698323.2	709200.5	ZOI	Outliner	Inactive
P275	Badger Sett	17/11/2023	TbP	698967.3	706922.4	ZOI	Outliner	Inactive
P358	Badger Sett	16/11/2023	TbP	698670.6	711348.2	Scheme	Outliner	Inactive
P242	Badger Sett	17/11/2023	TbP	700236.1	707368.7	ZOI	Outliner	Inactive
P268	Badger Sett	16/11/2023	TbP	699092.3	710672.6	ZOI	Outliner	Inactive
P30	Badger digging	2021	Notes	698986.6	706728.6	Scheme		
P50	Badger latrine	2021	Notes	701209.3	708339	Outside ZOI		
P73	Badger latrine	2021	Notes	698769.8	712296.1	Outside ZOI		
P31	Badger prints	2021	Notes	699576.7	706392.4	Outside ZOI		
P32	Badger Scat	2021	Notes	698781.4	707595.2	Scheme		
P33	Badger Scat	2021	Notes	698858.6	707544.6	Scheme		
P52	Badger Scat	2021	Notes	701113.5	708136	Outside ZOI		
P54	Badger Scat	2021	Notes	701320.8	710500.7	Outside ZOI		
P55	Badger Scat	2021	Notes	701815.5	709909.5	Outside ZOI		

P56	Badger Scat	2021	Notes	701570.8	708647.8	Outside ZOI		
P34	Badger scratching	2021	Notes	698577.1	707991.3	Scheme		
P35	Badger scratching	2021	Notes	698481.8	708128.7	Outside ZOI		
P236	fresh Scat	15/11/2023	Notes	701544.3	708608.2	Outside ZOI		
P238	Scat	16/11/2023	Notes	701807.7	709845	Scheme		
P255	Scat	17/11/2023	Notes	700215.4	707158.2	Outside ZOI		
P263	Scat	15/11/2023	Notes	699195.2	711633.8	Outside ZOI		
P266	Scat	16/11/2023	Notes	698733.8	711195	Scheme		
P274	Scat	17/11/2023	Notes	698980.6	707059.9	Outside ZOI		
P276	Scat	15/11/2023	Notes	701775.4	709970.4	Outside ZOI		
P278	Scat	15/11/2023	Notes	701804.3	709865.8	Outside ZOI		
P258	Scat	17/11/2023	Notes	699898.8	706800.4	ZOI		
P259	snuffling	15/11/2023	Notes	698927.7	714206	Outside ZOI		
P260	snuffling	15/11/2023	Notes	698605.4	713778.7	Scheme		
P261	snuffling	15/11/2023	Notes	698555.5	713488.3	Outside ZOI		
P262	snuffling	15/11/2023	Notes	698918.3	712757.2	Outside ZOI		
P265	snuffling	16/11/2023	Notes	698695.2	711293.7	Earthworks		
P267	snuffling	16/11/2023	Notes	698854.3	710979.7	Scheme		
P281	Snuffling	15/11/2023		698582.7	713406.5	Outside ZOI		

## Appendix 2: Otters

Notes	Date	Actions	X(ITM)	Y(ITM)	Location on Scheme
Cray Fish remains	2021	Notes	698715.735	711273.6032	ZOI
Otter activity	2021	Notes	698722.1984	711257.6756	ZOI
Otter spraint	2021	Notes	699002.7774	711796.7313	Outside ZOI
Otter spraint	2021	Notes	701284.0454	708409.7528	Outside ZOI
Otter activity	2021	TbP	699122.2389	710687.5679	Outside ZOI
Otter spraint	15/11/2023	Notes	700863.9849	707779.945	ZOI
holt	15/11/2023	TbP	700863.2222	707774.584	Outside ZOI
Otter spraint	15/11/2023	Notes	700862.8703	707780.1097	ZOI
Otter spraint	16/11/2023	Notes	701777.5873	709003.9479	Outside ZOI
Otter print	16/11/2023	Notes	701785.8717	708977.1372	Outside ZOI
Otter spraint	16/11/2023	Notes	701869.703	709379.9315	Scheme
Otter spraint	17/11/2023	Notes	700212.2427	707242.4971	Outside ZOI

Otter print	17/11/2023	Notes	70000.4369	706814.1914	Outside ZOI
Otter spraint	17/11/2023	Notes	700061.7978	706761.9874	Outside ZOI
Otter spraint	16/11/2023	Notes	698192.4885	712039.4232	Outside ZOI
Potential otter holt	18/11/2023	TbP	701787.0714	708965.527	Outside ZOI
Otter spraint	19/11/2023	Notes	701776.7009	709002.3474	Outside ZOI
possible old holt	15/11/2023	Notes	700037.4067	706770.1549	ZOI

## Appendix 3: Red Squirrel

Notes	Date	Actions	X(ITM)	Y(ITM)	Location on Scheme
Red Squirrel feeding evidence	2021	Notes	698538.0504	713585.2351	Outside ZOI
Red Squirrel feeding evidence	2021	Notes	698557.9021	713521.8711	ZOI
Red Squirrel feeding evidence	2021	Notes	698556.5171	713499.2493	Outside ZOI
Red Squirrel feeding evidence	2021	Notes	698502.325	708109.816	Outside ZOI
Red Squirrel feeding evidence	2021	Notes	699017.468	707183.475	Outside ZOI
Red Squirrel feeding evidence	2021	Notes	699610.081	706435.314	ZOI
Red Squirrel feeding evidence	2021	Notes	699910.114	706792.614	Scheme
Red Squirrel feeding evidence	2021	Notes	699966.214	706791.744	Scheme
Red Squirrel feeding evidence	2021	Notes	697230.2894	711876.2395	Outside ZOI
Red Squirrel feeding evidence	2021	Notes	697059.4995	711774.7057	Outside ZOI
Red Squirrel feeding evidence	2021	Notes	695986.7667	710460.4685	Outside ZOI
Red Squirrel feeding evidence	2021	Notes	697275.2799	709659.9384	Scheme
Potential drey	2021	TbP	698544.5137	713475.7042	Outside ZOI
Mature Rowan, possible RS Cache	2021	TbP	699624.288	706481.297	Outside ZOI
Potential drey	2021	TbP	698783.106	707595.259	Scheme
Potential drey	2021	TbP	698988.656	706806.915	Scheme
Potential drey	2021	TbP	699602.52	706439.213	Scheme
Potential drey	2021	TbP	700202.51	706943.54	ZOI
drey	15/11/2023	TbP	701827.8416	708978.287	Scheme
drey	15/11/2023	TbP	701830.4458	708979.0368	Scheme
Potential drey	15/11/2023	TbP	698792.5417	712413.0319	ZOI
Potential drey	15/11/2023	TbP	698845.3496	712604.3386	Scheme
Potential drey	15/11/2023	TbP	698794.474	712528.986	Outside ZOI
Potential drey	15/11/2023	TbP	698876.2002	712697.8095	ZOI
print in mud	15/11/2023	Notes	700696.5669	707761.9698	Outside ZOI
Red squirrel	21/11/2023	Notes	697181.8141	712377.7897	Outside ZOI
2x Red squirrel in drey	21/11/2023	TbP	697156.5954	712363.0936	Outside ZOI

2x Red squirrel	21/11/2023	TbP	697036.4282	712473.4447	Outside ZOI
Red squirrel	23/11/2023	TbP	699077.5593	706208.3909	Outside ZOI
Red squirrel	23/11/2023	Notes	700764.4777	707765.8525	Outside ZOI
Red Squirrel feeding evidence	23/11/2023	Notes	696479.9182	710560.2777	Outside ZOI
Red Squirrel feeding evidence	23/11/2023	Notes	697082.531	712378.1068	Outside ZOI

## Appendix 3: Pine Marten

Notes	Date	Actions	X(ITM)	Y(ITM)	Location on Scheme
Pine Martin scat	2021	Notes	701794.8	709898.5	Outside ZOI
Pine Martin scat	2021	Notes	701794.1	709732.6	Outside ZOI
Pine Martin scat	2021	Notes	701228	708364.4	Outside ZOI
Pine Martin scat	2021	Notes	700872.5	707958.6	Scheme
Pine Martin scat	2021	Notes	697299.8	709676.3	Outside ZOI
Probable Pine Martin nest	2021	TbP	699088.1	706108.7	Outside ZOI
Pine Martin scat	15/11/2023	Notes	701567.1	708630.3	Scheme
Pine Martin scat	15/11/2023	Notes	699311.5	711548.4	Scheme
possible denning site	15/11/2023	TbP	700351.9	707685.5	Outside ZOI
Pine Martin scat	15/11/2023	Notes	700642.2	707765.8	Outside ZOI
possible denning site	15/11/2023	TbP	701177.2	708317.7	Scheme
Pine Martin scat	15/11/2023	Notes	701426.4	708517.1	Outside ZOI
possible denning site, mature oak	17/11/2023	TbP	700215.2	707183.3	Outside ZOI
Pine Martin scat	17/11/2023	Notes	700160.2	706866.6	Scheme
Pine Martin scat	17/11/2023	Notes	700113.8	706834.3	Outside ZOI
Pine Martin scat	21/11/2023	Notes	697153.6	709654.4	Outside ZOI
possible denning site, mature beech	21/11/2023	TbP	696573.5	711283.9	Scheme
possible denning site, mature beech	21/11/2023	TbP	696583.7	711307.6	Scheme
possible denning site	21/11/2023	TbP	696594.5	711328.3	Scheme
Pine Martin scat	23/11/2023	Notes	701129.8	708265.1	Outside ZOI
possible denning site	23/11/2023	TbP	697207.4	709667	Outside ZOI
possible denning site	23/11/2023	TbP	695928.3	710473.6	Outside ZOI
pine marten kill site	15/11/2023	TbP	698549.5	713527.6	Outside ZOI
Pine Martin scat	15/11/2023	Notes	698633.8	713266.9	Scheme
Pine Martin scat	15/11/2023	Notes	699341.9	711516.3	Scheme
Pine Martin scat	15/11/2023	Notes	699342	711516.6	Scheme

Pine Martin scat	15/11/2023	Notes	699359.5	711497.7	Earthwork
Pine Martin scat	16/11/2023	Notes	698672.7	711351.2	Outside ZOI
Pine Martin scat	16/11/2023	Notes	699064.1	710400.8	Scheme
Pine Martin scat	16/11/2023	Notes	698092.8	712091.8	Outside ZOI

## Appendix 4: Marsh Fritillary and Devils-bit Scabious

Notes	Date	Actions	X(ITM)	Y(ITM)	Location on Scheme
DBS Survey Points	01/08/2023	Notes	697927.2	712092.4	Outside ZOI
DBS Survey Points	01/08/2023	Notes	697314.2	712256.6	Outside ZOI
DBS Survey Points	01/08/2023	Notes	697309.7	712089.1	Outside ZOI
DBS Survey Points	01/08/2023	Notes	697094.2	712137.6	Outside ZOI
DBS Survey Points	01/08/2023	Notes	697546.5	712609.9	Outside ZOI
DBS Survey Points	01/08/2023	Notes	695760.9	710224.6	Outside ZOI
DBS Survey Points	01/08/2023	Notes	695788.7	710289.3	Outside ZOI
DBS Survey Points	01/08/2023	Notes	695943.3	710410.2	Outside ZOI
DBS Survey Points	01/08/2023	Notes	695793.9	710339.1	Outside ZOI
DBS Survey Points	01/08/2023	Notes	695773.2	710047.3	Outside ZOI
DBS Survey Points	01/08/2023	Notes	695555.7	709914.8	Outside ZOI
DBS Survey Points	01/08/2023	Notes	695364.3	709824	Outside ZOI
DBS Survey Points	01/08/2023	Notes	698620.7	709344	Outside ZOI
DBS Survey Points	01/08/2023	Notes	698272	709049	Scheme
DBS Survey Points	01/08/2023	Notes	698221.6	708997.1	Outside ZOI
DBS Survey Points	01/08/2023	Notes	698161.4	708945	Outside ZOI
DBS Survey Points	01/08/2023	Notes	697919.8	708482.5	Outside ZOI
DBS Survey Points	01/08/2023	Notes	697962.8	708402.9	Scheme
DBS Survey Points	01/08/2023	Notes	697965.6	708304.2	Scheme
DBS Survey Points	01/08/2023	Notes	700224.7	707118.5	Scheme
DBS Survey Points	01/08/2023	Notes	700220.5	707088	Scheme
DBS Survey Points	01/08/2023	Notes	701547.4	710305.3	Outside ZOI
DBS Survey Points	01/08/2023	Notes	701671.6	710190.2	Outside ZOI
DBS Survey Points	01/08/2023	Notes	700994.9	710577.7	Scheme
DBS Survey Points	01/08/2023	Notes	700791.1	710632.7	Scheme
DBS Survey Points	01/08/2023	Notes	700682.8	710685.8	Scheme
DBS Survey Points	01/08/2023	Notes	699073.8	711735.1	Scheme
DBS Survey Points	01/08/2023	Notes	698923	712908.4	Outside ZOI
DBS Survey Points	01/08/2023	Notes	698973.5	714242.7	Earthworks
DBS Survey Points	01/08/2023	Notes	699035.2	714268.3	Outside ZOI

## Appendix 5: Amphibian Habitat

Habitat	X(ITM)	Y(ITM)
(Mixed) broadleaved woodland/Dry meadows and grassy verges	698071	713178
(Mixed) broadleaved woodland/Reed and large sedge swamps	697132	712723
Dry calcareous and neutral grassland/Wet grassland	695846	710353
Dry calcareous and neutral grassland/Wet grassland	698955	710861
Dry calcareous and neutral grassland/Wet grassland	698986	714252
Dry calcareous and neutral grassland/Wet grassland	698918	712978
Dry calcareous and neutral grassland/Wet grassland	698903	712844
Dry calcareous and neutral grassland/Wet grassland	701038	708071
Marsh	697978	712941
Marsh	698003	712927
Reed and large sedge swamps	696999	712618
Rich fen and flush	697233	709705
Wet grassland	697824	712819
Wet grassland	697891	712749
Wet grassland	697839	712647
Wet grassland	697926	712688
Wet grassland	697666	712588
Wet grassland	697497	712558
Wet grassland	696441	711175
Wet grassland	696533	711173
Wet grassland	696434	711059
Wet grassland	701928	709455
Wet grassland	697921	708472
Wet grassland	697971	708569
Wet grassland	697940	708599
Wet grassland	698163	708945
Wet grassland	698667	709289
Wet grassland	699059	710712
Wet grassland	698816	714137
Wet grassland	698764	712428
Wet grassland	698819	712142
Wet grassland	698841	712053
Wet grassland	698930	714551
Wet grassland	697287	709579
Wet grassland	698624	709340
Drainage ditches	697851	709163



Rivers	299108	205988
Rivers	299509	206274
Rivers	300118	206725
Rivers	300271	206936
Rivers	296765	211346
Rivers	300840	207745
Rivers	301046	207506
Rivers	301023	208035
Rivers	301214	208254
Rivers	301361	208369
Rivers	301632	208591
Rivers	301884	208893
Rivers	301833	208824
Rivers	301963	209382
Rivers	301946	209466
Rivers	301860	209891
Rivers	301881	209723
Rivers	301855	209965
Rivers	301813	210065
Rivers	301774	210250
Rivers	301598	210323
Rivers	301598	210323
Rivers	301480	210356
Rivers	301371	210442
Rivers	301225	210505
Rivers	297996	208586
Rivers	297940	208435
Rivers	298631	209351
Rivers	298955	209879
Rivers	298990	209956
Rivers	299005	210884
Rivers	299051	212978
Rivers	299206	211682
Rivers	299493	211411
Rivers	299589	211403
Rivers	299700	211318
Rivers	299893	211144
Rivers	299819	211176
Rivers	300050	211054
Rivers	300190	211014

Rivers	301136	210604
Rivers	297312	209607
Rivers	297132	209517