



Willow Mead, Wildern Lane, Hedge End

ECOLOGICAL IMPACT ASSESSMENT

02/05/2023

CLIENT: Mr & Mrs Brennan

PROJECT NO.: WILLOW2023

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Executive Summary

SoEcology Ltd was commissioned by Mr and Mrs Brennan to produce an Ecological Impact Assessment Report to support a planning application for Willow Mead, Wildern Ln, Hedge End, Southampton SO30 4RB, grid reference: SU 48981 13508.

The development proposals are for the construction of a two-storey building comprising four one-bed retirement apartments. The development will result in the loss of the ephemeral/short perennial and the majority of the existing scrub habitat but the retention of the north boundary hedgerow and semi-mature oak on the south-east corner. There are opportunities to incorporate habitat creation opportunities within scheme.

A Preliminary Ecological Assessment was undertaken in November 2022, which included a Preliminary bat Roost Assessment of the trees on-site and a Habitat Suitability Index for great crested newt on an adjacent pond. Reptile presence/likely absence survey was undertaken between end of March and April 2023.

The Site is located 2.67km south-east of statutory designations Solent Maritime SAC and Solent and Southampton Water SPA. These designations have adopted a mitigation strategy whereby any development resulting in a net increase in dwellings within a 5.6km radius are within the identified zone of influence for recreational impacts. Therefore, mitigation has been provided in this report in the form of financial contributions, in accordance with the Solent mitigation strategy.

The Site is approximately 0.046ha in size and comprises bramble scrub (0.0339ha); ephemeral/short perennial (0.01ha); mixed scrub (0.0017ha); introduced shrub (0.0004ha); one semi-mature oak; and, 20m of native hedgerow. The Site does not support key habitats of nature conservation concern in Hampshire and the only habitat considered greater than site value is the native hedgerow, which is anticipated for retention within the proposals. However, the combined loss of the low value habitats has the potential to result in a net loss in biodiversity value. The baseline biodiversity value has been calculated using the Small Sites Metric to aid in the feasibility assessment of achieving a net gain in biodiversity. The calculation has influenced the mitigation and compensation measures recommended in this report to offset any losses.

Great crested newt, badger, roosting bats, reptiles and hazel dormouse have been scoped out.

The presence of bat activity, nesting birds, priority invertebrates, amphibians and hedgehog could not be scoped out, however, no further surveys are required, and precautionary mitigation measures will suffice, due to the nature of the development, the habitats on-site, and the protection afforded these species.

The reptile surveys concluded likely absence of reptiles. Sheltering non-breeding (land based) common newts were recorded during the survey and precautionary measures during the clearance of the Site and creation of hibernacula has been proposed as a result.

Compensation and enhancement recommendations are provided in this report with the aim of proactively influencing the design phase to achieve a net gain in biodiversity in accordance with the National Planning Policy Framework and Environmental Act 2021, as well as off-set potential protected species impacts.

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1 Introduction

SoEcology Ltd was commissioned by Mr and Mrs Brennan to produce an Ecological Impact Assessment (EclA) report to support a planning application for Willow Mead, Wildern Ln, Hedge End, Southampton SO30 4RB, grid reference: SU 48981 13508.

The purpose of the Ecological Impact Assessment (EclA) is to support a planning application for the construction of a two storey building comprising four one-bed retirement apartments

The Site is approximately 0.046ha in size and comprises scrub, tall ruderal vegetation, ephemeral/short perennial vegetation, scattered tree and a native species hedgerow. The development will result in the loss of the majority of the habitats but the retention of the north boundary hedgerow and semi-mature oak on the south-east corner. There are opportunities to incorporate habitat creation opportunities within the scheme.

The purpose of an EclA report is:

- To identify potential significant ecological effects associated with the development proposals;
- To provide appropriate mitigation measures to ensure compliance to relevant policies and legislation (see Section 2);
- To provide an assessment of significant residual effect;
- To identify how mitigation measures will be secured;
- To identify appropriate compensation and enhancement measures to negate any negative significant residual effects and with the aim of achieving a net gain in biodiversity, in compliance with relevant policy; and
- To set out requirements for post-construction monitoring, if required.

This report is suitable to support the planning application proposed at the time of this report write-up. This report may require amending if the proposals change since the report submission date displayed on the front page. It is important to note that the survey results are valid for 12 months from the date of the last site visit. If this time elapses prior to planning submission, updating surveys will be required.

This report was written by Sophie Lancaster, an Ecologist working in private consultancies since 2013. Sophie has completed a masters (MSc) in Environmental Consultancy and is an Associate member of the Chartered Institute of Ecology and Environmental Management (ACIEEM). Sophie holds protected species licences for bats (level 2 class licence) and great crested newt (class 1).

2 Planning Policy and Legislation

This section does not provide a comprehensive list of nature conservation policies and legislation within the United Kingdom. The policies and legislation listed below are those relevant to the project only.

2.1 National Planning Policy

The most recent National Planning Policy Framework (NPPF) (Defra, 2022) was published in July 2021. The NPPF sets out the Government's planning policies for England and how these should be applied. Paragraphs of relevance within the NPPF include:

Paragraph 174 of the NPPF states that *"Planning policies and decisions should contribute to and enhance the natural and local environment by:/... minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures."*

Paragraph 179 of the NPPF states that *"To protect and enhance biodiversity and geodiversity, plans should:/... promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity."*

Paragraph 180 of the NPPF states that *"When determining planning applications, local planning authorities should apply the following principles:*

- a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;*
- b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;*
- c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons¹ and a suitable compensation strategy exists; and*
- d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.*

Paragraph 181 of the NPPF also states that potential Special Protection Areas, possible Special Areas of Conservation and proposed Ramsar sites are to be afforded the same protection as designated Special Protection Areas, Special Areas of Conservation and Ramsar sites.

The NPPF is also complemented by the Circular 06/2005: Biodiversity and Geographical Conservation – Statutory Obligations and Their Impacts Within The Planning System (Office of the Deputy Prime Minister, 2005). Paragraph 99 states that *"It is essential that the presence or otherwise of protected*

¹ For example, infrastructure projects (including nationally significant infrastructure projects, orders under the Transport and Works Act and hybrid bills), where the public benefit would clearly outweigh the loss or deterioration of habitat.

species, and the extent that they may be affected by the proposed development, is established before the planning permission is granted, otherwise all relevant material considerations may not have been addressed in making the decision.”

The Hedgerows Regulations 1997 were made under Section 97 of the Environment Act 1995. The Circular provides a comprehensive statement of planning requirements in relation to hedgerows: *“They aim to protect important hedgerows in the countryside by controlling their removal through a system of notification to local planning authorities. The system applies to most countryside hedgerows in England and Wales, and covers hedgerows on, or adjoining land used for agriculture or forestry, the breeding or keeping of horses, ponies or donkeys, common land or village greens, SSSIs, or local nature reserves. They do not apply to garden hedges. To be important, the hedgerows must meet certain criteria set out in the Hedgerow Regulations 1997. Permission for removal of a hedgerow is not required if it is less than 20 metres long (unless both ends join with other hedgerows or it is part of a longer hedgerow), or is in, or borders a garden. Similarly, permission to remove a hedgerow is not required in certain circumstances for emergency/access purposes.”*

2.2 The Environment Act

The Environment Act was passed in November 2021, after the Environment Bill received Royal Assent. Under Schedule 14 of the Act biodiversity net gain is a mandatory condition for planning applications, with most developments required to achieve a 10% net gain in biodiversity. There is, however, a two-year transition period following Royal Assent, and therefore, Schedule 14 of the Act will not become mandatory until November 2023. Despite this transitional period the Act is considered in this report as Local Planning Authorities will be expected to progressively incorporate the Act in the decision-making process for planning applications and the request for a development to show a 10% net gain in biodiversity is already frequently requested as a condition. Subsequently, it is advised that Biodiversity Net Gain (BNG) is considered early in the planning process and considered within the design stages of the development.

The Act sets out in what manner the biodiversity gain objective is to be met; by undertaking calculations using the biodiversity metric, establishing the pre-development biodiversity value and the post-development biodiversity value with necessary habitat enhancements incorporated. The planning authority must be satisfied that habitat enhancements resulting from the works will be met, *“by virtue of:*

- a) A condition subject to which planning permission is granted,*
- b) A planning obligation, or*
- c) A conservation covenant.*

be maintained for at least 30 years after the development is completed.”

Where net gain cannot be achieved on-site a planning application is required to acquire *“Registered off-site biodiversity gain, means any habitat enhancement where:*

- a) The enhancement is required to be carried out under a conservation covenant or planning obligation, and*
- b) The enhancement is recorded in the biodiversity gain site register.*

The biodiversity value of registered offsite biodiversity gain is measured, under the biodiversity metric, in relation to development to which it is allocated.”

Biodiversity credits can also be purchased to off-set any short fallings in a planning applications biodiversity metric calculation. *“Biodiversity credits means credits under section 101 of the Environment Act 2021.”*

2.3 Local Planning Policy

Local planning policy within Eastleigh Borough is provided by the saved policies within the Adopted Local Plan Review 2001 – 2011 with seven policies referring specifically to ecology and biodiversity:

- I. Policy 21.NC: European Nature Conservation Designations. “Development which is likely to adversely affect the integrity of a European nature conservation site will not be permitted”
- II. Policy 22.NC: Sites of Special Scientific Interest. This policy prevents development which will have a direct or indirect adverse impact on SSSIs unless the reasons for development clearly outweigh the harm to the nature conservation value of the site.
- III. Policy 23.NC: Sites of Importance for Nature Conservation. This policy prevents development likely to have a direct or indirect adverse impact on a SINC unless it can be demonstrated that the benefits of the development clearly outweigh the need to safeguard the site and that appropriate mitigation measures can be taken to mitigate for the adverse effects.
- IV. Policy 24.NC: Protected Species. Development will not be permitted where it would adversely affect species or habitat protected by legislation unless suitable mitigation can be demonstrated.
- V. Policy 25.NC: Biodiversity. Refers to the protection of habitats or features of importance for wild flora and fauna unless benefit outweighs impacts, impacts are unavoidable and mitigation is incorporated.
- VI. Policy 26.NC: Biodiversity. Seeks to enhance features and habitats of nature conservation importance through development proposals.
- VII. Policy 27.NC: Local Nature Reserves. Specifically lists a number of Local Nature Reserves where development preventing their designation would be refused.

Further guidance on planning policy in relation to development within Eastleigh Borough is provided by the adopted the Biodiversity SPD December 2009. The forthcoming Eastleigh Borough Local Plan 2011-2029 revised pre-submission draft contains a single overarching policy referring to ecology and biodiversity Policy DM9 which largely reflects the existing adopted policy framework with specific reference also made in relation to the Solent Disturbance and Mitigation Project (SDMP).

2.4 International Designated Sites

Internationally designated sites include Special Protection Areas (SPAs), Ramsar sites and Special Areas of Conservation (SAC).

SPAs, Ramsar sites and SACs form the Natura 2000 network of sites of nature conservation significance within Europe. SACs are designated under the Habitats Directive² to ensure the favourable conservation status of each habitat type and species. SPA's are designated under the Birds Directive and are designated for 194 threatened species, all of which being migratory bird species. Ramsar are afforded to wetlands of international importance, designated under the Ramsar Convention.

Within the UK these designations are protected under the Conservation of Habitats and Species Regulations 2017 (as amended) and Local Planning Authorities (LPA) are required to review all planning applications for potential to affect internationally designated sites. The application site does not need to be on or adjacent to an internationally designated site to have a potential impact. Where an LPA deems a significant effect on a European site to be likely, an Appropriate Assessment is to be undertaken to determine the implications of the development for the site's conservation objectives.

2.5 Nationally Designated Sites

National designations include Sites of Special Scientific Interest (SSSI) and National Nature Reserves (NNR).

In accordance with Section 28 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 9 of the Countryside and Rights of Way Act 2000, LPAs are required to notify Natural England of a developments potential to likely damage a SSSI before granting planning permission. If a development is anticipated to affect a national designation an Appropriate Assessment is not required, however, the LPA will determine appropriate course of action to prevent adverse effects on the designation. Natural England will be consulted whether or not the application site is located on or adjacent to a SSSI, as indirect effects are also considered. SSSIs designations also frequently cover the same footprint of international designations.

NNR are offered the same level of protection under the National Parks and Access to the Countryside Act 1949, strengthened by the Wildlife and Countryside Act 1981 (as amended).

2.6 Locally Designated Sites

Local Nature Reserves (LNRs) are statutory designations afforded by Local Authorities, protected under the National Parks and Access to the Countryside Act 1949 and the Natural Environment and Rural Communities Act 2006. LNRs qualify for their importance to wildlife, geology, education or public enjoyment and are frequently also SSSIs. They are protected against on site or adjacent development and development that negatively impacts a LNR will only be granted in exceptional circumstances. The level of protection is decided locally via Local Plans and local-by-laws and varies from site to site.

2.7 Non-statutory Locally Designated Sites

Non-statutory designations are site designated by Local Authorities for their nature conservation value at a local level. The name given to such designations differs between Local Authorities from Local Wildlife Sites (LWSs), Sites of Importance to Nature Conservation (SINCs) or Sites of Nature Conservation Importance (SNCIs). The means of their protection is the same as for LNR (see paragraph 2.6).

² Council Directive on the conservation of wild birds of 2nd April 1979 (79/409/EEC) and Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora of 21st May 1992

2.8 Protected Species Legislation

2.8.1 Amphibians

Great crested newt *Triturus cristatus* and natterjack toad *Epidalea calamita* are fully protected as European protected species under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended), which makes it an offence to:

- a) Deliberately capture, disturb, injure or kill;
- b) Damage or destroying a breeding or resting place;
- c) Damage or destroy a breeding site or resting place;
- d) Obstruct access to structures or places of shelter and protection;
- e) Keep, transport, sell or exchange, or offer for sale or exchange, any live or dead animal; and
- f) Take or destroy eggs.

If found guilty of any of the above offences you can be sent to prison for up to six months and receive an unlimited fine.

Smooth newt *Lissotriton vulgaris*, palmate newt *L. helveticus*, common toad *bufo bufo* and common frog *Rana temporaria* are protected from sale under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended).

2.8.2 Reptiles

There are six species of reptile within the UK. The smooth snake *Coronella austriaca* and sand lizard *Lacerta agilis* are our only European protected species under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended), which makes it an offence to:

- a) Deliberately capture, injure or kill;
- b) Deliberately disturb or recklessly disturb whilst in its structure or place of shelter or protection;
- c) Damage or destroy a breeding site or resting place;
- d) Obstruct access to structures or places of shelter and protection;
- e) Keep, transport, sell or exchange, or offer for sale or exchange, any live or dead animal; and
- f) Take or destroy eggs.

If found guilty of any of the above offences you can be sent to prison for up to six months and receive an unlimited fine.

Slow-worm *Anguis fragilis*, common lizard *Zootoca vivipara*, adder *Vipera berus* and grass snake *Natrix helvetica* are protected in the UK under Schedule 5 of the Wildlife and Countryside Act (1981), which makes it illegal to intentionally kill, injure, sell or trade such animals.

2.8.3 Birds

All birds, their nests and eggs are protected under the Wildlife and Countryside Act 1981 (as amended), which makes it an offence to:

- a) Intentionally kill, injure or take a wild bird;
- b) Possess a wild bird or the egg of a wild bird;
- c) Damage and destroy or take an egg of a wild bird;
- d) Take, damage or destroy a nest whilst in use;
- e) Advertise or sell any wild bird or their eggs; and

- f) Use prohibited methods to kill or take wild birds.

Additional protection is offered to birds listed under Schedule 1 of the Wildlife and Countryside Act, such as barn owl *Tyto alba*. The Schedule makes it an offence to intentionally or recklessly disturb listed birds when nest building, in or near a nest that contain young and disturb dependent young.

If found guilty of any of the above offences you can be sent to prison for up to six months and receive an unlimited fine.

Additional protection is offered to birds listed under Annex I of the Birds Directive. Species listed on Annex I are those where their conservation requires the designation of SPA's. Although it is important to note that the recording of the species listed does not automatically qualify a site for SPA status. The species listed include a large number of waders found along the south coast of England, as well as, but not limited to, kingfisher *Alcedo atthis*, Dartford warbler *Sylvia undata*, nightjar *Caprimulgus europaeus* and stone curlew *Burhinus Oedicnemus*.

2.8.4 Bats

All UK species of bat are fully protected as a European Protected Species under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended), which makes it an offence to:

- a) Deliberately capture, injure or kill;
- b) Deliberately disturb a bat while in a structure or place of shelter or protection;
- c) Damage or destroy a breeding site or resting place;
- d) Obstruct access to their resting or sheltering place; and
- e) Keep, transport, sell or exchange, or offer for sale or exchange, any live or dead animal.

If found guilty of any of the above offences you can be sent to prison for up to six months and receive an unlimited fine.

Four British bat species are afforded additional protection under Annex II of the Habitats Directive. These species include barbastelle *Barbastella barbastellus*; Bechstein's bat *Myotis bechsteinii*; greater horseshoe bat *Rhinolophus ferrumequinum*; and, lesser horseshoe bat *Rhinolophus hipposideros*. Species listed on Annex II are those where their conservation requires the designation of SACs.

2.8.5 Other mammals

The Wild Mammal Protection Act 1996 makes it an offence for any person to mutilate, kick, beat, nail or otherwise impale, stab, burn, stone, crush, drown, drag or asphyxiate any wild mammal with intent to inflict unnecessary suffering to any wild mammal. This includes red fox *Vulpes Vulpes*, deer and European rabbits *Oryctolagus cuniculus*.

2.8.6 Habitats and Species of Principle Importance

Section 41 of the Natural Environment and Rural Communities (NERC) Act, provides a list of habitats and species of principle importance for the conservation of biodiversity in England. The list provided under Section 41 succeeds the UK Biodiversity Action Plan (BAP). The Act provides a guide for governing bodies such as LPA's to ensure the conservation of biodiversity is regarded during their decision making. The species list includes many species referred to within Section 2.0 of this report, as well as, brown hare *Lepus europaeus* and harvest mouse *Micromys minutus*.

3 Methodology

This section of the report details the scope of the assessment, data acquired, surveys undertaken and how potential impacts are assessed.

3.1 Scope of the Assessment

For all projects it is imperative that the zone of influence is established. CIEEM defines zone of influence to be *“the area over which ecological features may be affected by biophysical changes as a result of the proposed project and associated activities”* (CIEEM, 2018). The zone of influence is determined by a suitably experienced ecologist, taking into consideration the site proposals, desk study and field survey results. The zone of influence differs for each ecological feature³. Section 4.0 identifies the projects zone of influence for each ecological feature.

The scope of the assessment initially takes into consideration all possible ecological features that have potential to be impacted by the proposal. The baseline ecological conditions (Section 4.0) includes the outcomes of the desk study and field survey(s), which results in a process of elimination, with ecological features assessed to be likely absent not considered further in the report. Scoping is an ongoing process influenced by further surveys and assessment. Further surveys are required where an impact on an ecological feature cannot be avoided.

3.2 Desk Study

Local Environmental Record Centre

Hampshire Biodiversity Information Centre (HBIC) was contacted in November 2022 to provide data on statutory and non-statutory designated sites and protected species recorded within a 1km radius of the application site. The record search included the recordings of invasive species and habitats and species of principle importance (see paragraph 2.8.6) within a 1km radius.

3.2.1 Multi-Agency Geographic Information for the Countryside

Defra’s Multi-Agency Geographic Information for the Countryside (MAGIC) online resource was also accessed in November 2022. A search was undertaken to identify any statutory designated sites within a 1km radius and to detect whether the Site is located within the varying buffer zones of internationally designated sites, which require additional consideration in regard to in-direct effects. The Impact Risk Zones (IRZ) were also obtained from MAGIC, which are used to help guide and assess planning applications for likely effects on SSSIs. MAGIC was also accessed to identify any European Protected Species (EPS) mitigation licence applications for protected species within a 1km radius and to identify whether the Site is within the Core Sustainance Zone (CSZ)⁴ for a communal bat roost, to help define the Zone of Influence for the species.

3.2.2 Additional Data Sources

Online mapping resources such as OS mapping was used to identify the presence of habitats such as ponds and woodland and hedgerow networks within the surrounding landscape to aid in assessing the Sites connectivity to notable habitats/green corridors and its potential for protected and notable species colonisation. Particular attention was given to the presence of ponds and other waterbodies within a 500m metre (m) radius to assess the Sites potential to support great crested newt.

³ Ecological features – habitats, species and ecosystems that may be affected given the nature of the proposals and geographical location of the application site.

⁴ Core Sustainance Zone (CSZ) is defined as “the area surrounding a communal bat roost within which habitat availability and quality will have a significant influence on the resilience and conservation status of the colony using the roost” (Collins, 2016).

GoogleEarth and MAGIC maps were used to collate existing baseline habitat data in advance of the habitat survey in order to plan the survey appropriate and determining the hierarchal level of classification and scale of mapping required (Butcher, 2020). GoogleEarth timeline is also useful for determining historic management and the possibility for ecological features to be present despite existing sub-optimal conditions, due to habitual tendencies.

3.3 Field Survey

3.3.1 Habitat Survey

The survey followed the UK Habitat Classification (UKHab) system. This classification system integrates with the Phase 1 habitat survey classification which has been the prominent mapping system for ecologists until recently. UKHab also integrates NVC, European Nature Information System (EUNIS) and Farm Environment Plan (FEP). The UKHab is also the classification system for in Natural England's Biodiversity Metric 4.0 and thus, is used to determine biodiversity net loss/gain resulting from a development.

UKHab is hierarchical in the level of classification that can be attained, comprising a total of 5 levels. Level 1 being broad and Level 5 being very specific (NVC level classification). This survey followed the professional edition hierarchy (UKHab-P) and surveyed up to Level 4.

Extra detail on the classified habitats is provided by the inclusion of secondary codes. Secondary codes provide additional information on the environment, management and origin of mapped features. Secondary codes also replace mosaic habitats, which are now mapped by the primary habitat with a secondary code combination. In some instances, secondary codes provide important subdivisions of habitats not covered by Primary Habitat levels and are always included where relevant within a survey.

The Site is mapped using the fine-scale minimum mapping unit (MMU) 25m², 5m length, as detailed survey effort is deemed necessary for the planning application.

The UKHab survey is mapped using QGIS mapping software. The key follows the UK Hab Basic Edition Suggested Symbolology (Butcher, 2020). The variation in habitats is distinguished by an Alpha Code (A-Z). Where the UKHab primary habitat is the same but the secondary codes differ, a separate Alpha Code is required. A table of the variations of primary and secondary codes recorded on site is in Section 4.2 of this report.

For each habitat species composition, management, vegetation structure and age or permanence, where evident is recorded and an assessment of the habitats suitability to support protected and notable species is undertaken.

3.3.2 Preliminary bat Roost Assessment

The habitat survey considers the potential for protected species, as mentioned in the above paragraph, however, some species require more detailed assessment in the field to confirm potential for presence, such as roosting bats. For this reason, Preliminary bat Roost Assessment is detailed separately in this methodology, below.

The Site supports trees at risk of being directly or indirectly impacted by the development and therefore, a PRA assessment was undertaken following the Bat Tree Habitat Key (BTHK, 2018).

The Equipment used during a PRA of trees includes a recording form, a camera, Grid Reference App, binoculars, torch and endoscope.

Using the above equipment PRFs formed by disease and decay⁵, damage⁶ and association⁷ were recorded for each tree anticipated to be impacted directly or indirectly by the proposals. An endoscope was used on accessible PRFs and their height, width and depth, smell, orientation and position recorded in accordance with Bat Roosts in Trees (BTHK, 2018). The desk-study assessing which species of bat are likely to occupy the site using LERC data and aerial footage is considered alongside the PRA field survey data, to help in determining the trees potential to support a bat roost and the further survey effort required in accordance with current Bat Conservation Trust best practice guidance (Collins, 2016).

The habitat survey and PRA was undertaken by SoEcology Ltd Ecologist Sophie Lancaster. Sophie attained an MSc in environmental Consultancy in 2013, since which she has worked full-time as an Ecologist for private consultancies undertaking habitat and protected species surveys. Sophie is an Associate member of the Chartered Institute of Ecology and Environmental Management (CIEEM). The survey was undertaken on the 24 November 2022 9:40am and for the duration of the survey the weather was 9°C/Beaufort Scale 1 (light air)/80% cloud cover.

3.3.3 Habitat Suitability Index

An adjacent pond named Merlin Gardens Pond is located approximately 7m south of the Site and was surveyed from the public right of way at the time of the Habitat Classification survey. The pond was assessed for its suitability to support great crested newt using the Habitat Suitability Index (HSI) scoring system (Oldham R.S., 2000).

The HSI assesses all features that are valued by newts (e.g. size of pond, extent of shading, abundance of aquatic plants, presence of fish and quality of surrounding habitat) to determine the potential of a pond to support great crested newts. In general, ponds with a high HSI score are more likely to support GCN than those with lower scores, and scores are classified according to Table 3-1. HSI results are provided in Appendix 11.5

Table 3-1: Categorisation of HSI Scores

HSI Score	Pond Suitability
<0.5	Poor
0.5-0.59	Below average
0.6-0.69	Average
0.7-0.79	Good
>0.8	Excellent

The HSI system is not a substitute for presence/absence surveys and is not intended to predict the occurrence of great crested newt. However, a correlation between the presence of great crested newts and a high HSI score is observed in ponds.

3.3.4 Reptile Survey

The Phase 1 survey undertaken of the Site in November 2022 assessed the habitat on-site to be suitable for reptiles, therefore, a reptile survey was undertaken between end March to April 2023

⁵ E.g. woodpecker-holes, squirrel-holes, knot-holes, pruning-cuts, tear-outs, wounds, cankers, compression forks & butt-rots

⁶ E.g. lighting-strikes, hazard-beams, subsidence-cracks, shearing-cracks, transverse-snaps, welds, lifting bark, desiccation-fissures, and, frost-cracks.

⁷ E.g. fluting and ivy.

following survey guidance (Froglife, 1999). The survey included the deployment of 20 artificial refugia in the form of tins and bitumen 1f felt tiles approximately 50cm x 50cm in size on 15th March 2023.

The total area of the Site is approximately 0.046ha. In accordance with Froglife guidance (Froglife, 1999), refugia is to be deployed at a density of at least 10 per hectare. Therefore, the deployment of 20 refugia within a 0.046ha site far exceeds the minimum requirement.

To establish presence or likely absence of reptiles, the refugia was left to “bed-in” for at least two weeks and a total of seven checks of the refugia were carried out in suitable weather conditions during end of March to April 2023, with at least two days spacing between each survey.

The reptile surveys were undertaken by experienced surveyor Sophie Lancaster. Sophie Lancaster, has worked as an Ecologist in private consultancies since 2013. Sophie has completed a masters (MSc) in Environmental Consultancy and is an Associate member of the Chartered Institute of Ecology and Environmental Management (ACIEM).

The weather conditions during the survey were as shown in Table 3.1 below.

Table 3-2: Weather Conditions recorded during reptile surveys

Survey No.	Date	Time	Weather Conditions
1	30/03/2023	13:45 to 14:00	14°C, gentle breeze (Beaufort Scale), 50% cloud cover
2	03/04/2023	11:15 to 11:30	11°C, light air (Beaufort Scale), 20% cloud cover
3	06/04/2023	12:15 to 12:30	13°C, light breeze (Beaufort Scale), 50% cloud cover
4	11/04/2023	13:30 to 13:45	12°C, light breeze (Beaufort Scale), 100% cloud cover
5	18/04/2023	12:00 to 12:15	14°C, gentle breeze (Beaufort Scale), 30% cloud cover
6	20/04/2023	16:00 to 16:15	15°C, gentle breeze (Beaufort Scale), 10% cloud cover
7	25/04/2023	12:30 to 12:45	11°C, light breeze (Beaufort Scale), 0% cloud cover

Relative population size and density is estimated by taking the maximum number of adults recorded by one person in one day, as recommended by Froglife (Froglife, 1999). The Froglife system classifies populations as either ‘low’, ‘good’ or ‘exceptional’ based on the peak adult count seen by observation and/or under tins (placed at a density of up to 10 per hectare), by one person in one day. A peak count of less than 5 adults equates to a low population, a peak count of 5-20 adult slow-worm equates to a good population, and a peak count of more than 20 adults equates to an exceptional population. Juvenile records do not count towards the population estimate.

3.3.5 Limitations

The desk-top study data does not provide an exhaustive list of species present within the surrounding area and is only used to aid in the assessment in determining the likelihood of presence and inform the zone of influence of a project.

The PRA of the trees was a ground assessment only and not all PRFs are accessible to the surveyor, e.g. gaps holes or cracks in trees greater than 2m in height, and therefore assessments are based upon the potential for these features to provide suitable roosting opportunities. Furthermore, there is a risk of PRFs being missed due to being masked by vegetation and branches.

The habitat survey was undertaken in November, which is considered sub-optimal as many flora and fauna are dormant or not visible. However, an uncharacteristically warm autumn has occurred and many plants that should be dormant are still present and flowering. The surveyor has sufficient experience to confidently identify habitats during dormant periods and assess the habitats potential to support protected species.

It is not possible for the surveyor to confirm presence/likely absence for all ecological receptors and assessments are made on the likelihood of presence based on whether there is suitable habitat on-site, the site connectivity and geographical positioning and desk-top study data.

There are no limitations to the reptile surveys. The refugia was scattered throughout the Site at a high density and all surveys were carried out during suitable weather conditions; with temperatures between 9°C - 18°C, dry and low winds.

3.4 Biodiversity Net Gain Feasibility Assessment

It is highly likely that the proposed development will be expected to show that it can achieve a Biodiversity Net Gain (BNG) of 10%. A Feasibility Assessment has been undertaken as part of the PEAR to inform the client on how a 10% gain in biodiversity can be achieved and provide constructive engagement with stakeholders during the design stage and avoid the requirement for unnecessary design amendments further down the line.

BNG feasibility assessment was undertaken using the Small Sites Metric – Calculation Tool, which was downloaded in April 2023. The habitat units attained for a habitat parcel is influenced by strategic significance and distinctiveness, with the condition of each habitat pre-determined within the Small Sites Metric.

Distinctiveness is another measure used in Small Sites Metric, which scores habitats based on their relative biodiversity value. Habitats that are scarce/declining tend to receive a higher distinctiveness score. Distinctiveness is automatically determined within the calculator.

A strategic significance score was assigned to each habitat, alongside a habitat condition score. Strategic significance of a habitat is treated as a component of the quality of a habitat parcel and works on a landscape scale. It gives additional biodiversity unit value to habitats that have been identified as habitats of strategic importance to that local area. The strategic significance of a habitat parcel can be determined by published local strategies and objectives to identify local priorities for targeting biodiversity and nature improvement, such as Local Nature Recovery Strategies, local biodiversity plans, National Character Area objectives, Local Planning Authority Local Ecological Networks, Shoreline Management Plans, estuary strategies and green infrastructure strategies.

In this instance, Strategic significance was determined based on the Ecological Network Opportunities map provided with the LERC request and Magic Maps (Defra, 2022) Network Enhancement Zones layer and professional judgement based on general knowledge of the area and online mapping tools.

Strategic Significance can be assigned either low, medium or high, defined as:

- High - Within area formally identified in local strategy, plan or policy
- Medium - Location ecologically desirable but not identified in a local strategy, plan or policy
- Low - Not identified in a local strategy, plan or policy OR No strategy or plan is in place in the area

The classification of habitats in the Small Sites Metric are largely based on the UK Habitat Classification system explained in Section 3.3, the results of the BNG are available in Section 5.2 of this report.

3.5 Assessment

The assessment evaluates the importance of ecological features and the impact and residual effect of a development in accordance with CIEEM (2018) guidance⁸.

The importance of an ecological feature is based on geographical context, in accordance with the following scale of reference:

- International and European
- National
- Regional
- County
- River Basin District
- Local
- Site

The geographical evaluation is determined by professional judgement and legislation and policy documents and data on the distribution of species and habitats. Ecological features assessed to be of site value in Section 4.0 are not considered to be important and their loss is not deemed to have a significant negative impact to overall biodiversity. Subsequently, habitats of site value are not considered for further assessment of effects or mitigation in Section 5. It is important to note that habitats are assessed separately to species and a habitat assessed to be of site value may have potential or be confirmed to support protected species and will indirectly undergo further assessment regarding said specie(s).

The assessment considers potential impacts on each ecological feature assessed to be of local value or greater from all phases of the development e.g. construction, operation and decommissioning. The impacts are characterised as follows:

- Complexity – e.g. direct/indirect, cumulative
- Positive or negative
- Magnitude – numerical value of area of habitat lost and percentage decline in species population.
- Extent – the spatial or geographical area the impact may occur
- Duration – timeframe of impact, taking in consideration the life cycle of the species impacted
- Reversibility – can determine the significance of the effect as some habitats/populations are easier and quicker to replace/recover than others
- Frequency – this can influence the resulting effect e.g. recreational activity
- Timing – similar to frequency and can avoid impacts in some instances.

Once impacts of the proposal have been established attempts are made to avoid and mitigate negative impacts. Once the measures to avoid and mitigate ecological impacts have been finalised, an assessment of the residual impact(s) is to be undertaken to determine the significance of the effects on ecological features. Where significant residual effects cannot be avoided compensatory measures

⁸ CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.1. Chartered Institute of Ecology and Environmental Management, Winchester.

are to be provided. Compensatory measures will be considered against ecological objectives in determining the outcome of the application. Compensation measures are detailed in a separate section of this report, alongside recommendations for enhancements. This clear differentiation between avoidance/mitigation, compensation and enhancement, ensures the report adheres to the 'mitigation hierarchy'.

Where the residual impact is so minor that the proposals are unlikely to have an effect on an ecological feature at a local scale or above, then the significance of the residual impact is referred to as 'non-significant positive/negative effect'.

A significant effect is referenced to a geographical scale, taking into consideration the geographical importance of an ecological feature and the overall scale of impact the proposals will have on the ecological feature itself. Significant effect is specified in CIEEM (2018), as follows:

"Significant effect is simply an effect that is sufficiently important to require assessment and reporting so that the decision maker is adequately informed of the environmental consequences of permitting a project. A significant effect is a positive or negative ecological effect that should be given weight in judging whether to authorise a project: it can influence whether permission is given or refused and, if given, whether the effect is important enough to warrant conditions, restrictions or further requirements such as monitoring."

The EclA report will accord to the precautionary principle and where uncertainty exists for determining no significant effect, a significant effect is to be assumed.

4 Baseline Ecological Conditions

This section of the report details the baseline ecological conditions of the Site based on the desktop study, UKHab survey results, reptile survey and potential for protected species presence. An assessment of ecological value at a geographical scale is made for each ecological feature based on the survey results.

4.1 Designated Sites

The desk top study identified two statutory designations within a 1km radius of the Site. The Site is also within the 5.6km buffer zone of an international statutory designation named Solent and Southampton Water SPA and Ramsar and Solent Maritime SAC, located 2.67km south-east.

The nearest statutory designation is Wildern LNR located approximately 110m south. The Site comprises wetland habitat featuring a mosaic of ponds, two flooded meadows, woodlands and a valley mire all linked by streams and is of value to local wildlife. Moorgreen Meadows SSSI is located approximately 950m north. The SSSI comprises neutral meadows and alder *Alnus* wood flanking a small tributary of the River Hamble. The Site is important for its population of marsh orchids *Dactylorhiza*.

The LERC returned records of four non-statutory designations within a 1km radius. The closest of which being Wildern Nature Park located approximately 110m south.

Table 4-1: Non statutory designations located within a 1km radius of the Site, in order of proximity.

Non-Statutory Designations		
Designation	Location	Qualifying Reason for Designation
Wildern Nature Park	110m south	Other woodland where there is a significant element of ancient semi-natural woodland surviving or supporting some characteristics of ancient woodland. Presence of wet woodlands such as alder <i>Alnus glutinosa</i> or willow <i>Salix</i> sp. woods and birch <i>Betula</i> sp. bog woods which support a good diversity of woodland and/or marsh/swamp/mire Species. As well as, purple moor-grass <i>Milinia caerulea</i> and rush <i>Juncus</i> sp. pasture
Bridget Garden Mary	340m south-west	Wet woodlands such as alder or willow woods and birch bog woods which support a good diversity of woodland and/or marsh/swamp/mire Species. As well as, purple moor-grass and rush-pasture
Hogsty Corner	400m south-west	Ancient semi-natural woodlands and wet woodlands such as alder or willow woods and birch bog woods which support a good diversity of woodland and/or marsh/swamp/mire Species. Heathland that has succeeded to woodland. Areas of open freshwater which support good floristic assemblages and spring-fed fens and flushes.
Bottom Copse/Bushy Copse	850m east	Ancient semi-natural woodlands and wet woodlands such as alder or willow woods and birch bog woods which support a good diversity of woodland and/or marsh/swamp/mire Species.

The nearest habitat of principle importance to the Site is Wildern Nature Park located 110m south.

The Southampton and Solent Water SPA and Solent Maritime SAC have adopted a mitigation strategy (The Solent Recreation Mitigation Partnership, 2017), whereby any development resulting in

a net increase in dwellings within a 5.6km radius of the designations are within the identified zone of influence for recreational impacts. Therefore, impacts on these designations are considered in Section 5 of this report.

4.2 Habitats

The habitats present on-site are listed in Table 4-2 below. The table should be read in conjunction with the UKHab survey plan and the plant species list found in Appendix 8.2 and 8.3, respectively.

Table 4-2: List of habitats present on-site based on the UKHab classification system and the geographical scale of value of each habitat. The Alpha code referring to the location of each habitat type as per UKHab survey plan in Appendix 8.2.

Alpha Code	UKHab Primary Code	UKHab Secondary Code	Description	Scale of Importance
A	h3d	16	Bramble scrub – Tall herb	Site
B	u1c	17	Artificial unvegetated, unsealed surface – Ruderal/ephemeral	Site
C	u1c	17, 73	Artificial unvegetated, unsealed surface – Ruderal/ephemeral; bare ground	Site
D	h3h	11	Bramble scrub – Scattered trees	Site
E	u1c	14, 17, 121	Artificial unvegetated, unsealed surface – Scattered rushes; Ruderal/ephemeral; waterlogged	Site
F	u1	1160	Built-up areas and gardens – introduced shrub	Site
G	h2a		Priority hedgerow	Local

The predominant habitat on-site is bramble *Rubus fruticosus* agg. scrub with frequent to abundant elm *Ulmus* sp. saplings and a high density of common nettle *Urtica dioica* and willowherb species. It is evident from aerial imagery timeline that the Site had been cleared a couple years prior and the scrub/ruderal mix is relatively short in height. The alpha code “D” scrub habitat is a patch of mature scrub of bramble with hawthorn *Crataegus monogyna*, firethorn *Pyracantha* sp., paper birch *Betula papyrifera* and a semi-mature oak *Quercus robur* present.

Around the edge of the Site is short ephemeral growth with dove’s-foot crane’s-bill *Geranium mole* dominating along the northern extent. The alpha code area “C” comprises a lot of bare ground with a lot of leaf litter covering and likely resulting from shading. The alpha code area “E” is a small waterlogged section located at the lowest point of the Site and comprises scattered soft rush *Juncus effusus*.

The hedgerow along the northern boundary is 20m long and dominated by hawthorn. As the hedgerow comprises more than 80% native woody species it is classified as a priority hedgerow and therefore, has been given the scale of importance of “Local”. However, it is important to note that the hedgerow is urban situated and isolated and offers no connection value within the wider landscape. It does not and cannot qualify as an “important” hedgerow as it bounds residential curtilage. The introduced shrub is the small section of Leyland cypress *Cupressus × leylandii* hedge on the north-east corner of the Site.

A mature oak is immediately adjacent and overhangs into the southern boundary of the Site.

4.3 Baseline Biodiversity Value

The Sites baseline biodiversity value has been calculated to help provide constructive advice during the design stage of the development, on how a 10% net gain in biodiversity can be achieved. The Sites baseline value has been determined using Natural England's Small Sites Metric.

Table 4-3 below provides an overview of the baseline habitat units for area and linear habitats. The strategic significance score of low has been assigned to the habitats based on the Sites positioning surrounded by existing urban development.

Table 4-3: The Sites baseline units for both habitat areas and hedgerow units.

Habitat Type	Area	Distinctiveness	Strategic Significance	Habitat Units
Bramble scrub	339	Medium	Low	0.1356
Sparsely vegetated land-Ruderal/ephemeral	100	Low	Low	0.04
Mixed scrub	17	Medium	Low	0.0068
Introduced shrub	4	Low	Low	0.0008
Total Habitat Units				0.2226
Habitat Lengths in Kilometres				
Native Hedgerow	20	Low	Low	0.08
Total Hedgerow Units				0.08

The “sparsely vegetated land – ruderal/ephemeral” category is given to the UKHabitat classification u1c (Artificial unvegetated, unsealed surface). This is as such derelict parcels are not sufficiently covered within the UKHab primary habitat options and “sparsely vegetated land – ruderal/ephemeral” is not a habitat classification option within UKHab but is within the metric and is more fitting for ephemeral/ruderal habitats.

4.4 Protected Species

4.4.1 Plants

The survey did not record any flora species of conservation significance. No invasive species were also recorded on-site, therefore, notable plant species and assemblages are considered **likely absent** and are not considered further in this report.

4.4.2 Invertebrates

The Site offers a nectar resource for invertebrates, however, due to the Sites small size and presence of habitats and species considered widespread, it is unlikely that notable species and assemblages rely on it. Overall, the Site is assessed to be of **Site Value** for invertebrates.

4.4.3 Amphibians

There are no records of great crested newt within a 2km radius of the Site in the last 10 years, however, this does not confirm their absence in the local area. MAGIC returned an absent great crested newt record from Goodalls Pond survey located approximately 350m south-west in 2019. The record search did return records of common toad located within Wildern Nature Reserve in 2020.

The Site does not support any waterbodies, however, there is a pond located approximately 7m south named Merlin Gardens Pond. A Habitat Suitability Index (HSI) was undertaken of the pond and it attained a HSI score of 0.68, which is of average suitability for great crested newt. Great crested newt have been concluded to be absent from Merlin Gardens Pond, as Hedge End Town Council underwent restoration work in 2022 to avoid it drying up and clear the dense shading by willows. Taken into account these conditions which would have been present only a few months back, the HSI calculator concludes the pond to have been below average for great crested newt. Furthermore, such intrusive works would have been undertaken under a Natural England mitigation licence if great crested newt were considered present and there are no records of such mitigation licences being applied and the sign detailing the restoration made no reference to great crested newt. The pond is also relatively isolated as it is bounded by dense housing and it is not a historic pond of potential to hold a remnant population as it was built as a sustainable drainage system for the surrounding housing development.

Additional ponds within the maximum dispersal range of 500m include the wetland area within Wildern LNR located 130m south and Goodalls Pond to the south-west of the wetland area some 350m south-west. The latter pond was identified by Magic to have been surveyed in 2019 and assessed to be absent of great crested newt. It is considered unlikely that Wildern LNR waterbody supports great crested newt, considering the absence recorded in 2019 surveys with the only connecting waterbody, which according to the Wildern LNR outline management plan (Hedge End Town Council, 2018) was the suspected area to have potential to support great crested newt. It is also assumed that as the absent survey record is one year after the Wildern LNR outline management plan was published, which advised eDNA testing, that this has concluded likely absence of the species for those managing the reserve.

Furthermore, the Site itself is surrounded by dense residential development and research has been attained that suggests great crested newt are rarely found greater than 100m from their breeding ponds (Cresswell, 2004).

The Sites terrestrial habitat of scrub, tall ruderal, ephemeral and rough, uneven ground offers suitable terrestrial habitat for amphibians such as smooth newt, palmate newt, common toad and common frog, which are more readily found within urban settings and are considered more resilient and have greater dispersal ranges compared to the great crested newt. All four species are confirmed to be present within Wildern LNR according to the outline management plan and therefore, there is potential for them to be present within the adjacent Merlin Gardens Pond. The potential for smooth newt, palmate newt, common toad and common frog to be present on-site during the terrestrial phase cannot be ruled out.

The reptile surveys inadvertently recorded presence of non-breeding common newts within the scrub/ruderal mosaic on-site. The non-breeding common newts were recorded within the north-east corner of the Site only and away from the more waterlogged conditions along the southern boundary. A maximum count of six non-breeding common newts were recorded on 3rd April 2023. Non-breeding common newts were recorded again on 11th April 2023 (max count of 2) and 25th April 2023 (max count of 1). Therefore, the reptile survey confirmed that the Site is utilised by newts during their terrestrial non-breeding phase and likely utilised by adults and non-breeding age common newts between late summer and winter for shelter, foraging and hibernation.

Overall, the Site is assessed to be **likely absent** of great crested newt. The Site has potential to be used by smooth newt, palmate newt, common toad and common frog during their terrestrial phase. Due to the small size of the Site and absence of suitable breeding habitat is considered unlikely to be greater than **site value** for these amphibian species.

4.4.4 Reptiles

The data search returned records of slow-worm and common lizard approximately 150m south of the Site (within Wildern Nature Reserve) in 2014 and 2019, respectively.

The scrub, tall ruderal vegetation, ephemeral growth and hedgerow habitats, which make up the entirety of the Site are suitable for supporting foraging, sheltering and basking reptiles. The uneven footing and nature of the ground also offers potential for hibernation. Merlin Gardens Pond has potential to support grass snake and the newly created log piles on the western end of the pond offers hibernacula potential for reptiles.

Due to the Sites suitability to support reptiles and identified opportunities for reptiles to colonise the Site a reptile presence/likely absence survey was undertaken as detailed in Section 3.3.4. The survey did not record any reptiles to be present on-site. Overall, reptiles are assessed to be **likely absent**.

4.4.5 Birds

HBIC returned an extensive list of birds recorded within a 1km radius, many of which included species associated with wetland habitat, due to the proximity of the Wildern Nature Reserve. Such species records are not relevant to the Site. Species recorded considered of relevance include spotted flycatcher *Motacilla cinerea*, house sparrow *Passer domesticus* and starling *Sturnus vulgaris*. Breeding swifts were located approximately 800m north in 2018. Farmland species were also recorded such as lesser redpoll *Acanthis cabaret*, redwing *Turdus iliacus*, song thrush *T. philomelos*, fieldfare *T. pilaris* and mistle thrush *T. viscivorus* and although would not utilise the Site for breeding, they may opportunistically utilise urban areas for winter foraging. The data search also returned a record of barn owl *Tyto alba* located within 20m of the Site in 2020, although it is important to note that the precision of the grid reference is by 100m. It is unlikely that barn owl would actively forage within the immediate dense urban surroundings with small, enclosed gardens and this record is more likely from Wildern Nature Reserve, which comprises a larger area of open space for barn owl to opportunistically forage within.

The habitats suitable to support birds within the Site are widespread and makes up a very small percentage of suitable nesting habitat within the local landscape, therefore the habitats are assessed to be of **Site value** for birds.

4.4.6 Badgers

There are no records of badger *Meles meles* within a 2km radius of the Site in the last 10 years, however, this does not confirm their absence in the local area.

The likelihood of badger being present on-site is considered low due to the absence of evidence recorded during the survey, in combination with the developed location, small size and rough state. Overall badgers are considered **likely absent**.

4.4.7 Bats

HBIC returned records of at least five bat species within a 1km radius in the last 10 years. No bat species considered rare and afforded extra protection under Annex II of the Habitats Directive were recorded. species recorded within a 1km radius of the Site include soprano pipistrelle *Pipistrellus pygmaeus*, noctule *Nyctalus noctula*, common pipistrelle *P. pipistrellus*, serotine *Eptesicus serotinus* and brown long-eared bat *Plecotus auritus*.

The only confirmed bat roost record from HBIC is of a common pipistrelle roost located approximately 550m south-west in 2012.

Magic returned records of one European Protected Species (EPS) mitigation licence application within a 1km radius, to facilitate the destruction of a resting place. The licence application is from 2013 located approximately 550m south-west.

The on-site semi-mature oak located within alpha code D underwent a PRA from the ground and it was concluded to be absent of potential roosting bat features. The tree is still relatively short in height and in good condition and thus, confidently assessed to be of **negligible suitability** to support roosting bats.

The mature oak tree located immediately adjacent to the southern boundary is a mature oak. The tree was searched from the ground for potential roosting bat features and it was in good condition with no potential roosting features apparent. However, due to the large size, maturity and species being oak, which are a species of tree more inclined to support crevices for bats, potential for roosting opportunities could not be confidently ruled out and it is assessed to be of **low suitability** to support roosting bats.

The Site's urban location makes it sub-optimal for bat species that are considered less tolerant to artificial light. Furthermore, the Site is not positioned within a "wildlife/green corridor" and therefore, is not considered to be of value as part of a wider foraging and commuting route. However, the adjacent Merlin Gardens Pond will attract high numbers of prey such as midges *Culicoides impunctatus* and is likely to be utilised by bat species frequently recorded within urban environments.

Overall, the Site is not of sufficient size to be utilised in isolation by foraging and commuting bats and does not provide an important connection feature within the landscape and therefore is assessed to be of **site value** for foraging and commuting bats.

4.4.8 Hazel Dormice

There are no records of hazel dormouse within a 1km radius of the Site in the last 10 years. In this instance, this is considered a realistic representation of hazel dormouse presence, as the Site is centrally positioned within a built-up area and hazel dormouse are heavily impacted by fragmentation and are considered to be restricted to rural areas.

The Site is too small to support a viable hazel dormouse population in isolation and is significantly fragmented from the countryside by existing development. Overall, due to the Site's isolation from suitable hazel dormouse habitat, such as, extensive hedgerow network and woodland copses, hazel dormouse are assessed to be **likely absent** and are not considered further in this report.

4.4.9 Other Wildlife

There is potential for hedgehog *Erinaceus europaeus* to utilise the Site and they are a species of principal importance under Section 41 of the NERC Act and a Biodiversity Action Plan (BAP)⁹ species. Hedgehog are also listed as vulnerable to extinction in the UK by the Red List for British Mammals.

4.5 Baseline Conditions Overview

The Site is located within the zone of influence of the following designated sites: Southampton and Solent Water SPA and Solent Maritime SAC.

⁹ UK BAP was superseded in 2012 by the UK Post-2010 Biodiversity Framework. However, UKBAP it is still referred to as the species and habitats agreed under UK BAP still form the basis of conservation action today.

The majority of the Site comprises habitats of site value and do not require mitigation. The habitat requiring further consideration is native hedgerow.

The baseline biodiversity value of the Site is 0.2226 for habitat areas and 0.08 for hedgerow units. Effort should be made to retain this value during the design phase, with the aim to achieve a 10% net gain.

The following protected species are considered likely absent from Site and are not considered further in this report: badger, great crested newt, reptiles, roosting bats and hazel dormouse.

The Site is considered to be of site value for the following protected species: nesting birds, bat activity, priority invertebrates, amphibians and hedgehog. No further surveys are deemed necessary, however, precautionary mitigation measures will be provided in Section 5 of this report to avoid the risk of a wildlife offence being committed.

5 Assessment of Effects and Mitigation/Compensation Measures

In accordance with CIEEM guidelines, where ecological features have been evaluated at “site value”, no further assessment is deemed necessary as the impact on these receptors is not likely to be of significance. However, mitigation measures may still be required to ensure compliance with current wildlife legislation and best practice guidelines.

The Site is approximately 0.046ha in size and comprises scrub, tall ruderal vegetation, ephemeral/short perennial vegetation, scattered tree and a native species hedgerow. The design of the proposed development has followed the mitigation hierarchy; firstly impacts to biodiversity have been largely avoided by retaining the more valuable habitats on site, such as the hedgerow and semi-mature oak. Secondly, adverse effects have been avoided or minimised through mitigation measures and lastly where there are significant residual adverse ecological effects despite the mitigation proposed, these have been offset by appropriate compensatory measures.

The Southampton and Solent Water SPA and Solent Maritime SAC are located approximately 2.67km south-east. These designations have adopted a mitigation strategy (The Solent Recreation Mitigation Partnership, 2017), whereby any development resulting in a net increase in dwellings within a 5.6km radius of the designations are within the identified zone of influence for recreational impacts. Therefore, impacts on these designations and appropriate mitigation measures are required.

The Site does not support key habitats of nature conservation concern in Hampshire. The only habitat on-site considered to be greater than site value is the native hedgerow. No other habitats have been brought forward for assessment of effects and mitigation measures.

The habitats assessed to be of site value are considered collectively within this report in Paragraph 5.2.1 ‘Biodiversity Value’, as although they are of low intrinsic ecological value, their loss without mitigation, compensation and/or enhancements would risk a net loss of biodiversity, which is not in keeping with the NPPF and the Environment Act 2021. Habitat provisions considered sufficient to offset any loss are provided as mitigation/compensation and those, anticipated to provide a net gain in biodiversity are enhancements.

Great crested newt, roosting bat, reptile, badger and hazel dormice are considered likely absent and are not considered further. The presence of bat activity, nesting birds, priority invertebrates, amphibians and hedgehog could not be scoped out, however, no further surveys are required and precautionary mitigation measures will suffice, due to the nature of the development, the habitats on-site, and the protection afforded these species.

5.1 Designated Sites

Potential Impacts

The Site is located within a Nitrate Vulnerable Zone (NVZ). An increase in residential property within the area will generate additional nitrogen, and thus, mitigation is required.

The Site is located approximately 2.67km from Solent Maritime SAC and Southampton and Solent Water SPA and Ramsar site. This is within the zone of influence for recreational impacts to be likely as a result of an increase in residential homes. The Site is not considered to be within proximity to the designations to directly impact via light or noise pollution.

Wildern LNR is distanced from the Site and no noise, light or air pollution impacts are anticipated. LNRs qualify for their value to both wildlife and people and their purpose is for education and enjoyment and thus, increase recreational use is promoted.

Mitigation measures

The Site is located within a NVZ, therefore, mitigation is required in the form of “nitrate trading” and buying credits from private landowners to create new habitats that will help remove nitrates that will pollute the Solent’s international and national designations. The involvement of a water design engineer is advised to appropriately mitigate for potential increases in nitrates and provide advice on in-situ pollution prevention opportunities, such as reed bed sewage treatment plants. Mitigating for pollutants is beyond the remit of an ecological consultant and specialist advice is to be sort.

Any development resulting in a net increase in dwellings within 5.6km of the Solent Maritime SAC and Southampton and Solent Water SPA designations needs to provide a financial contribution to mitigate for recreational impact. The 2017 Solent Recreation Mitigation Strategy states that the financial contribution for four one bed dwellings would be in the region of £1,348.00 (subject to review each tax year). Due to the nature of the proposals and distance from the designations, no further mitigation would be required.

Natural England’s SSSI Impact Risk Zones (SSSI IRZs) identifies specific criteria that determine the potential for certain developments to impact SSSIs within a given area. The Site is within the outer edge of the Moorgreen Meadows and Upper Hamble Estuary and Woods SSSI IRZ which requires development of 100 or more residential units to consult Natural England. As the development will not in such an increase in residential units, no further consultation is required.

Compensation and Enhancement Measures

Not applicable.

Significance of Residual Effects

Provided that the mitigation measures are followed, the development will result in a **non-significant negative effect**.

5.2 Habitats

5.2.1 Biodiversity Value

Potential Impacts

The Small Sites Metric was populated with the Sites baseline habitat units (see Table 4-3) and calculated the Sites total habitat units to be 0.2226 and the hedgerow units to be 0.08.

A draft design proposal, absent of soft landscaping inputs was provided at the time of writing this report. Therefore, a total net change in habitat units was estimated on the assumption that the proposals will result in the retention of the semi-mature oak and introduced shrub (alpha code F), but the loss of all other habitats to buildings/hardstanding (210m²) and vegetated garden (246m²). This approximated to a total habitat units of 0.0475 within the Small Sites Metric, which is a percentage loss of habitat units of -44.92%.

In regards to the hedgerow units, it is assumed that the existing boundary hedgerow is to be retained and therefore, no impact is anticipated.

Mitigation Measures

Inherent mitigation as part of the proposals is the retention of the hedgerow on-site. It is also recommended that the alpha code D scrub and semi-mature oak are retained.

Root protection Areas (RPA) are to be established around the existing trees and shrubs proposed for retention in line with BS5837:2012 through use of Heras fencing or similar.

Compensation and Enhancement Measures

A total net change of 14.37% was made possible when trialling options in the Small Site Metric. This outcome was based on approximately 210m² of hardstanding and 89m² of vegetated garden; the retention of mixed scrub with oak (alpha code D) and introduced shrub (alpha code F); and, the creation of 140m² of mixed scrub to the eastern end of the Site and southern boundary area (located outside of the construction zone) and two new trees planted, see example compensation and enhancement locations in Appendix 8.4.

The scrub habitat is to include native woody species such as blackthorn *Prunus spinosa*, hawthorn, hazel *Corylus avellana*, spindle *Euonymus europaeus*, willow *Salix* sp., elder *Sambucus nigra*, guelder rose *Viburnum opulus* and dogwood *Cornus sanguinea*. Despite the inclusion of more diverse scrub habitat and a total net change in habitat units of 14.37% it is important to note that the trading rule for the loss of the bramble scrub has not been met, with a net change of -0.0118 remaining. However, it is considered that the compensation measures more than compensate for the loss, as a short falling of the Small Site Metric is that it automatically generates conditions for the existing bramble scrub and does not take into consideration the scraggly, low-lying nature of the existing scrub habitat which is predominantly mixed with low distinctiveness ruderal/ephemeral habitat.

Signage can be installed next to the mixed scrub explaining the purpose of the habitat as a wildlife feature and for its management not to be interfered with.

Mixed scrub is best managed for wildlife by rotational cutting between September and February, which is outside of the nesting bird season. Berry producing scrub species should be left until January, to allow a winter food resource for birds. Due to the small extent of scrub, handheld tools are sufficient for the rotational management of the habitat.

One year after planting the saplings it would be beneficial to trim at least 50% of the saplings to encourage low growth of foliage.

Rotational management can be undertaken in a means of cutting the front 0.5m of scrub back annually and the remaining interior area of scrub managing 1/3 every two years. Some species grow faster than others and would benefit from harder pruning such as elder. Overall, management should be undertaken by eye by an experienced landscaper/gardener.

Tree varieties of benefit to wildlife and with small root spread include fruiting trees such as cherry and apple *Malus* sp., rowan *Sorbus aucuparia* and whitebeam *S. aria*

The enhancement of the existing hedgerow via plug planting of native varieties will also achieve a net gain of hedgerow units of 46.56%.

New plantings are to be watered regularly. Any failures due to drought shall be replaced by the Management Company at their own cost. It is advised that watering is undertaken after 10 consecutive days of no rainfall during the months of June to August.

Significance of Residual Effects

Provided that the mitigation measures are followed, the development will result in a **non-significant negative effect** the incorporation of the compensation and enhancement measures have the potential to provide a **non-significant positive effect**.

5.2.2 Native Hedgerow

Potential Impacts

The northern boundary hedgerow has been afforded local value due to it meeting the priority hedgerow habitat criteria. It is anticipated that the hedgerow will be retained as part of the proposal. However, there is a risk of the hedgerow being damaged during the works.

Mitigation Measures

Root protection Areas (RPA) are to be established around the hedgerow proposed for retention in line with BS5837:2012 through use of Heras fencing or similar.

Compensation and Enhancement Measures

As mentioned in Section 5.2.1, it is recommended that the hedgerow is enhanced by plug planting native woody varieties other than hawthorn. A gap currently exists on the western end of the hedgerow and would benefit from this gap being planted up.

Significance of Residual Effects

Provided that the mitigation measures are followed, the development will result in a **no significant effect** the incorporation of the compensation and enhancement measures have the potential to provide a **non-significant positive effect**.

5.3 Protected Species

5.3.1 Invertebrates

Potential Impacts

The Site has been assessed to be of site value for invertebrates due to its small size and supporting widespread flora and thus, invertebrate assemblages are not going to depend on the habitats present. However, the loss of the habitats will result in a minor loss of suitable larvae food plants and pollinating opportunities.

Mitigation measures

N/A

Compensation and Enhancement Measures

The minor loss of suitable food plants can be compensated within the soft landscaping proposals, through the incorporation of habitats with a diversity of native species and pollinator friendly ornamental planting.

Invertebrate species of principle importance recorded within a 1km radius in the last 10 years include grey dagger *Acronicta psi*, knot grass *Acronicta rumicis*, rustic *Hoplodrina blanda*, White-letter hairstreak *Satyrrium w-album*, buff ermine *Spilosoma lutea* and cinnabar *Tyria jacobaeae*.

The food plants for the larvae of these species that could be incorporated into the proposals include elm *Ulmus sp.*, ragwort *Senecio jacobaea*, apple *Malus domestica*, rowan *Sorbus aucuparia*, common nettle and dandelion *Taraxacum officinale* agg.

Significance of Residual Effects

The development will result in a **non-significant negative effect**, however, the incorporation of the compensation and enhancement measures have the potential to provide a **non-significant positive effect**.

5.3.2 Amphibians

Potential Impacts

The proposals have the potential to harm smooth newt, palmate newt, common toad and common frog and the minor loss of suitable terrestrial habitat. The habitats of these species and the species themselves are only protected under the Wildlife and Countryside act from sell or trade.

Mitigation measures

To avoid harming amphibians it is recommended that the scrub is strimmed in phases, with the first strim no lower than 15cm from the ground and directionally cut towards Merlin Gardens Pond. The scrub is then to be left for at least 24 hours prior to the second final directional (towards Merlin Gardens Pond) strim to ground level.

Where any deadwood is found on-site it is to be moved by hand or a toothed bucket with care. If any amphibians are found, they are to be carefully handled with gloved hands and moved out of harm's way e.g. Merlin Gardens Pond.

Compensation and Enhancement Measures

The creation of replacement scrub habitat as mentioned in Section 5.2.1 or creation of new habitat that amphibians also benefit from e.g. a small pond, tussocky grassland and hibernacula. Hibernacula can be created by forming a log pile with any dead wood found on-site or by bringing untreated logs onto Site and creating a log pile. Earth can be placed on top of the log pile and grass seed sown on top to further enhance its value for amphibians. The hibernacula can be hidden within the proposed scrub habitat (see Appendix 8.4).

Significance of Residual Effects

Provided that the mitigation measures are followed, the development will result in a **non-significant negative effect** the incorporation of the compensation and enhancement measures have the potential to provide a **non-significant positive effect**.

5.3.3 Birds

Potential Impacts

The removal of the scrub habitat on-site risk harming active bird nests and the reduction of suitable nesting habitat. The construction phase also risks disturbing birds nesting within suitable habitat such as the native hedgerow and oak tree.

Mitigation measures

The retained hedgerow and tree will be protected via Heras fencing or similar, as detailed in 5.2.1 and 5.2.2.

The removal of the scrub should be undertaken outside the breeding bird season which extends from March to September, inclusive. However, this recommendation is dependent on the results of the

reptile survey, as if reptiles are present scrub clearance to ground level during the reptile hibernation period is not appropriate. If winter clearance is not possible, a suitably experienced ecologist will be present within 24 hours prior to clearance to inspect the suitable nesting habitat for active nests. Any active nests will be retained within a suitable buffer determined by the ecologist until the young have fledged.

Compensation and Enhancement Measures

The hedgerow enhancement recommendations, scrub creation and tree planting recommended as compensation and enhancement measures in Section 5.2.1 will provide additional nesting and foraging habitat for birds.

The installation of three integrated swift bricks into the northern elevation of the proposed building would provide additional nesting opportunities (see Appendix 8.4). The swift bricks are to be installed as close to the eaves/apex as possible and away from window shelves and avoid positioning directly above doors.

Significance of Residual Effects

Provided that the mitigation measures are followed, the development will result in a **non-significant negative effect** the incorporation of the compensation and enhancement measures have the potential to provide a **non-significant positive effect**.

5.3.4 Bats

Potential Impacts

The proposals are not anticipated to impact roosting bats, with no roosting features recorded within the on-site and adjacent oak trees.

The proposals are not anticipated to notably impact bat activity due to its small size in an urban location and with a column streetlamp already present on the footpath that extends along the southern boundary. An increase in light levels is likely to result from the proposals as the Site is currently absent of artificial lighting. Although no significant impact is likely it is best practice to avoid and reduce light pollution within a proposals design.

Mitigation measures

Light pollution is detrimental to bats, as well as other wildlife and therefore, is to be avoided where feasible. Where lighting is required there are mitigation options for both external and internal luminaires to reduce luminance (brightness) and illuminance (light spill), as follows:

External lighting mitigation options:

- Careful aiming, positioning and selection of luminaires. LEDs with no UV component are to be installed and it's preferable to distance lights from 'dark zones/wildlife corridors' than to have the lights installed immediately behind, as the brightness of a luminaire is a deterrent even where there is no light spill and directional lights can still result in a small amount of light spill behind;
- Luminaires are to be directed away from ecological receptors such as the oak trees, Merlin Gardens Pond and bird and bat roosting provisions.
- Avoid white light and warm colour recommended. Preferable colours are 3000°k to 2700°k (where feasible) with peak wavelengths greater than 550nm;
- 0% upward light output and no tilting of the light head;

- Change luminaire to one with more suitable luminous intensity distribution;
- Use vegetation, fencing and walls as a light buffer. Climbers can also be planted on the fences and walls to provide a biodiversity enhancement;
- Consideration of column heights to reduce light spill;
- Where bollards are a consideration within the design opt for specialist bollards designed to avoid sky pollution only;
- Motion sensors for security lighting;
- For street lighting consider part night lighting and dimming, the latter viable with LED's only;
- As a last resort, the incorporation of shields, baffles and cowls fitted to the luminaires;
- Early liaison between Ecologist and Lighting Engineer; and
- Local Planning Authorities (LPA) can deviate from lighting standards and therefore, where Ecologists and Lighting Engineers design requirements are conflicting the LPA should be consulted.

Internal lighting mitigation options:

- Install recessed luminaires or install luminaires above the window head height. Studies have identified the incorporation of recessed luminaires within properties have reduced the extent of light spill from 30m to 8m; and,
- Glazing treatments, such as low transmission glazing treatments.

Compensation and Enhancement Measures

The compensation and enhancement recommendations detailed in section 5.2.1. will also benefit foraging bats as it should promote invertebrates for bats to predate on.

The Site can be enhanced for bats via the installation of two integrated bat boxes on the southern and/or eastern elevation of the proposed property (see Appendix 8.4). The bat boxes are to be installed as close to the eaves/apex as possible and distanced away from window shelves and avoid positioning directly above doors.

Significance of Residual Effects

Provided that the mitigation measures are followed, the development will result in a **non-significant negative effect** the incorporation of the compensation and enhancement measures have the potential to provide a **non-significant positive effect**.

5.3.5 Other Mammals

Potential Impacts

The construction phase has potential to harm hedgehogs commuting through the Site and sheltering within the scrub habitat.

The development will retain its suitability for hedgehog to commute through the Site and will retain the hedgerow, which hedgehog may shelter within.

Mitigation measures

Root protection Areas (RPA) are to be established around the existing hedgerows proposed for retention in line with BS5837:2012 through use of Heras fencing or similar.

The phased clearance of the scrub habitat as explained within Section 5.3.2 for amphibians is also relevant for hedgehog.

Compensation and Enhancement Measures

The compensation and enhancement recommendations detailed in section 5.2.1. will also benefit hedgehog.

It is also recommended that where any close board fencing or brick walls are proposed, that a hole is made at the base at a minimum of 5" sq. in size. It is recommended that a "hedgehog highway" sign is installed above the holes to prevent future residents from covering them up.

Significance of Residual Effects

Provided that the mitigation measures are followed, the development will result in a **non-significant negative effect** the incorporation of the compensation and enhancement measures have the potential to provide a **non-significant positive effect**.

6 Conclusions

The Site is approximately 0.046ha in size and comprises scrub, tall ruderal, ephemeral/short perennial, a native hedgerow and oak tree. The Site does not support key habitats of nature conservation concern in Hampshire and the only habitat on-site considered to be greater than site value is the native hedgerow, proposed for retention.

Great crested newt, badger, roosting bats, reptiles and hazel dormouse have been scoped out for further assessment. Measures to avoid ecological impacts have been inherently incorporated into the developments design proposals by retaining the hedgerow and semi-mature oak, which are the more valuable habitats on-site.

The presence of bat activity, nesting birds, priority invertebrates, amphibians and hedgehog could not be scoped out and the presence of non-breeding common newts was confirmed during the reptile survey, however, no further surveys are required and precautionary mitigation measures will suffice, due to the nature of the development, the habitats on-site, and the protection afforded these species.

The main mitigation measures recommended in this report, to avoid a loss in biodiversity value and potential impacts on protected species include:

- Provision of financial contribution for the potential increase in recreational pressure on Solent Maritime SAC and Solent and Southampton Waters SPA, in accordance with the 2017 Solent Recreation Mitigation Strategy;
- Root protection Areas (RPA) are to be established around the existing ash tree and hedgerows proposed for retention in line with BS5837:2012 through use of Heras fencing or similar;
- Precautionary destructive search methodology for the clearance of scrub for nesting birds, amphibians and hedgehog; and,
- Light pollution control measures.

The compensation and enhancement measures provided will reduce the likelihood of a net loss of suitable habitat for protected species and provide new opportunities (e.g. hibernacula, swift and bat boxes). The incorporation of the compensation and enhancement measures will ensure the development a net gain in biodiversity in accordance with the National Planning Policy Framework and the Environment Act 2021.

7 References

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8 Appendices

8.1 Photographs



Photograph 1: View looking south-east from the north-western end of the Site.



Photograph 2: View of the scrub looking east from the western boundary.



Photograph 3: View of the northern boundary from the western edge of the Site.



Photograph 4: View of the northern boundary and the hedgerow from the eastern corner.



Photograph 5: View of the eastern end of the Site with old access gate and ivy dominated ground cover.



Photograph 6: View of dense scrub looking west from eastern boundary.



Photograph 7: View of the eastern end of the southern boundary outside of the construction site.



Photograph 8: View of the Leyland cypress north-east corner on site, referred to as alpha code F.



Photograph 9: View of the semi mature oak located within alpha code D scrub habitat.



Photograph 10: View of the mature oak located off-site, adjacent to the southern boundary.



Photograph 11: View of the southern end of the Site from public right of way immediately south.



Photograph 12: View of waterlogged area within the southern end of the Site.



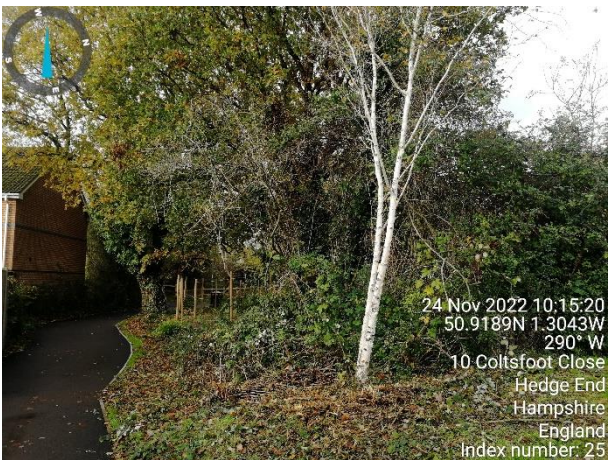
Photograph 13: View of the south-west corner looking onto the existing parking area located outside of Site boundary.



Photograph 14: View of Merlin Gardens Pond.



Photograph 15: View of the pond restoration sign placed in view of the public right of way.



Photograph 16: View of the eastern end of alpha code D mixed scrub.

8.2 UKHab Survey Plan



8.3 Plant Species List

Species	Alpha Codes						
	A	B	C	D	E	F	G
Bramble <i>Rubus fruticosus</i> agg.	A		F	A	R		
Bristly oxtongue <i>Helminthotheca echioides</i>		R					
Broadleaved dock <i>Rumex obtusifolius</i>	R				R		
Carrot species		F					
Cleaver's <i>Galium aparine</i>	F	R					
Common chickweed <i>Stellaria media</i>		R	R				
Common nettle <i>Urtica dioica</i>	A	R	F				
Creeping buttercup <i>Ranunculus repens</i>	R						
<i>Cyclamen</i> sp.	LF						
Daisy <i>Bellis perennis</i>		R					
Dandelion <i>Taraxacum officinale</i> agg.	R						
Dog rose <i>Rosa canina</i>	O						
Dove's-foot crane's-bill <i>Geranium molle</i>		D					
Elm <i>Ulmus</i> sp.	A						
English oak <i>Quercus robur</i>				Single			
Greater plantain <i>Plantago major</i>		O					
Groundsel <i>Senecio vulgaris</i>		R					
Hawthorn <i>Crataegus monogyna</i>				F			D
Hogweed <i>Heracleum sphondylium</i>		R/LF					
Holly <i>Ilex aquifolium</i>							R
Ivy <i>Hedera helix</i>			A				
Leyland cypress <i>Cupressus × leylandii</i>						D	
Paper birch <i>Betula papyrifera</i>							Single
Pendulous sedge <i>Carex pendula</i>					O		
Prickly sow-thistle <i>Sonchus asper</i>		R					
Firethorn <i>Pyracantha</i> sp.				R			
Red dead-nettle <i>Lamium purpureum</i>		R					
Soft rush <i>Juncus effusus</i>					O		
Willowherb sp.					LA		
Wood avens <i>Geum urbanum</i>		R					

DAFOR Scale = D – Dominant

A – Abundant

F – Frequent

O – Occasional

R - rare (L – Locally)

8.4 Compensation and Enhancement Plan

