

Preliminary Ecological Appraisal Report

Date: 23.11.2020

Site: Widnell Lane, Piddington

Client: J. Sweeney

Version 001

aLyne Ecology Ltd.

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The information which we have prepared and provided is true and has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct.

Contents

1. Summary	1
2. Introduction	4
2.1 Site Details	4
2.2 Site Context	5
2.3 Proposed Development	5
2.4 Brief and Objectives	5
3. Relevant Legislation and Planning Policy	6
3.1 Biodiversity Net Gain	11
4. Methods	11
4.1 Data Search	11
4.2 Phase 1 Habitat Survey	12
4.3 Protected Species Assessment	12
4.4 Survey Limitations	12
5. Baseline Ecological Conditions	13
5.1 Data Search	13
5.2 Phase 1 Habitat Survey - Habitats	16
5.3 Phase 1 Habitat Survey - Species	20
6. Ecological Constraints and Opportunities Assessment	21
7. Recommendations	28
7.1 Priority Habitats	28
7.2 Protected Species and Species of Conservation Concern	28
7.3 Biodiversity Net Gain	30
8. References	31
9. Figure 1 – Results of Phase 1 Habitat Survey	34
10. Appendix 1 – Site Photographs	35
11. Appendix 2 – Full Species List and Target Notes	38
12. Appendix 3 – Legislation and Planning Policy	40
12.1 Habitats Directive, EC Council Directive 92/43/EEC	40
12.2 The Birds Directive 2009/147/EC	40
12.3 Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019	40
12.4 The 1949 National Parks and Access to the Countryside Act	41
12.5 The Wildlife and Countryside Act, 1981 (As Amended)	41
12.6 Countryside & Rights of Way Act, 2000	42
12.7 Hedgerow Regulations 1997	42
12.8 The Protection of Badgers Act, 1992	42
12.9 Natural Environment and Rural Communities (NERC) Act, 2006	42

12.10	National Planning Policy Framework (NPPF) 2019	42
12.11	Water Framework Directive	43
12.12	Bern Convention.....	44
13.	Appendix 4 – Biodiversity Net Gain.....	45
13.1	Introduction	45
13.2	Biodiversity Net Gain Principles	45
13.3	Exclusions	47
13.4	Biodiversity Net Gain Processes and Pathways.....	47
13.5	Measuring Biodiversity Net Gain	47
13.6	Management and Monitoring.....	48

1. Summary

Site Details
<ul style="list-style-type: none"> • Site Address: Widnell Lane, Piddington, Bicester, OX25 1AE. • OS grid reference: SP 6285 1737. • Approximate Area of Site: 10, 382 m² (1.04 ha).
Scope of Works
<ul style="list-style-type: none"> • aLyne Ecology Ltd was commissioned by J. Sweeney to undertake a Preliminary Ecological Appraisal (PEA), comprising a data search and Phase 1 habitat survey to assess the baseline ecological conditions of the site and its potential to support protected species and species of conservation concern. A search for signs of protected species was extended to the adjacent ponds in the locality. • The number of baseline biodiversity units for the site have been calculated based on the biodiversity metric 2.0 (Defra, 2019), with the objective of achieving biodiversity net gain once the development proposals have been finalised (see Appendix 4 for further details).
Development Proposals
<ul style="list-style-type: none"> • The development proposals are for the change of land use of the site to a residential caravan site, comprising plots for six mobile homes and six touring caravans, with associated water treatment plants, fencing and hard standing.
Key Ecological Constraints and Opportunities
<ul style="list-style-type: none"> • There are four Local Wildlife Site's (LWS's) located within 1 km of the site. LWSs are afforded protection through local planning policy. • At least eight areas of deciduous woodland are located within 1 km of the site, mainly associated with HM Prison Bullingdon to the west, Piddington Training Area to the east and Piddington Wood LWS to the south. There are three further types of Priority Habitat located within 1 km of the site, including hedgerows and ponds adjacent to the site. Deciduous woodland, hedgerows and ponds are Priority Habitats, as listed on Section 41 of the Natural Environment and Rural Communities (NERC) Act, 2006. Under the NERC Act, 2006, Local Planning Authorities are required to give due regard to biodiversity. • The hedgerows on site could support invertebrates of conservation of concern, namely species of butterfly recorded in the data search. • Ponds are absent from the site but four are located within 250 m of the site, the closest being approximately 2 m from the south-western corner of the site. These ponds could support the great crested newt. The great crested newt and its habitats are fully protected under the Wildlife and Countryside Act, 1981 and the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. • Tall grassland habitats and rubble and brash piles, with the potential to support reptiles are located at target notes 1 and 2 on Figure 1. Reptiles are protected against killing and injury under the Wildlife and Countryside Act, 1981, as amended. All reptile species are Priority Species as listed on Section 41 of the NERC Act, 2006.

- The hedgerows, scrub and tall grassland could support nesting birds, including birds of conservation concern. Under the Wildlife and Countryside Act (1981) as amended, it is illegal to take, damage or destroy the nests of wild birds whilst being built or in use.
- The hedgerows could support foraging and commuting bats. Bats and their habitats are strictly protected under the Wildlife and Countryside Act (1981) as amended and the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019.
- The hedgerows could support the hazel dormouse. The hazel dormouse and its habitats are strictly protected under the Wildlife and Countryside Act (1981) as amended and the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019.
- A badger latrine, trails and access points were recorded adjacent to the northern site boundary. Badgers are protected under the Protection of Badgers Act, 1992.
- The total number of baseline biodiversity units for the site is 9.84.

Recommendations for Avoidance, Mitigation and Enhancement

- Hedgerows on site should be retained, protected, and enhanced. The development should include a buffer zone of a minimum of 10 m in width along the northern, southern, and western boundaries of the site. The buffer should comprise areas of grassland, managed to increase its floristic diversity with a native species-rich hedgerow planted to separate the buffer from the site. The buffer zone will provide protection to the hedgerows and the wildlife they could support, including butterflies, great crested newts and other amphibians, reptiles, foraging/commuting bats, and the hazel dormouse. There should be no direct access from the development into the buffer. The buffer should only be accessed for maintenance. Materials should not be stored in the buffer zone during construction.
- **Providing the hedgerows are protected and retained, further survey for foraging/commuting bats and the hazel dormouse should be avoided.**
- If the rubble or brash piles require removal, this should be carried out carefully by hand, to ensure that any reptiles, which may be present, can escape unharmed.
- Any removal of vegetation should be undertaken outside of the bird breeding season (March to August inclusive) to avoid destruction/disturbance of nesting birds.
- As badgers could be foraging within the site, any holes/trenches created as part of the construction works, should be closed at night or a mammal ladder provided to enable mammals a means of escape.
- A sensitive lighting plan should be adopted, to ensure that outside lighting does not adversely affect adjacent habitats and wildlife, particularly bats when foraging and commuting.

Below is a summary of measures, which should be implemented on site to achieve biodiversity net gain, i.e., following development, the site continues to support the same broad habitat types, or habitats of higher distinctiveness, totalling more than 9.84 biodiversity units:

- The existing hedgerows should be enhanced, where appropriate. This could include laying of the hedge to form a thicker base and planting any gaps with native tree and shrub species.

- The retained areas of grassland should be enhanced.
- The development should include appropriate SUDS.
- Open spaces should include a suitable wildflower seed mix.
- Construction of log piles for invertebrates and reptiles.
- The installation of appropriate bat and bird boxes.
- The installation of a Royal Hedgehog House.
- The installation of a hibernacula for invertebrates.

These recommendations, including measures to protect and enhance priority habitats on site, should be included in a Biodiversity Management and Maintenance Scheme, covering at least the first 30 years following completion of the development.

Further Survey Requirements

- Great crested newts.
- Reptiles.

2. Introduction

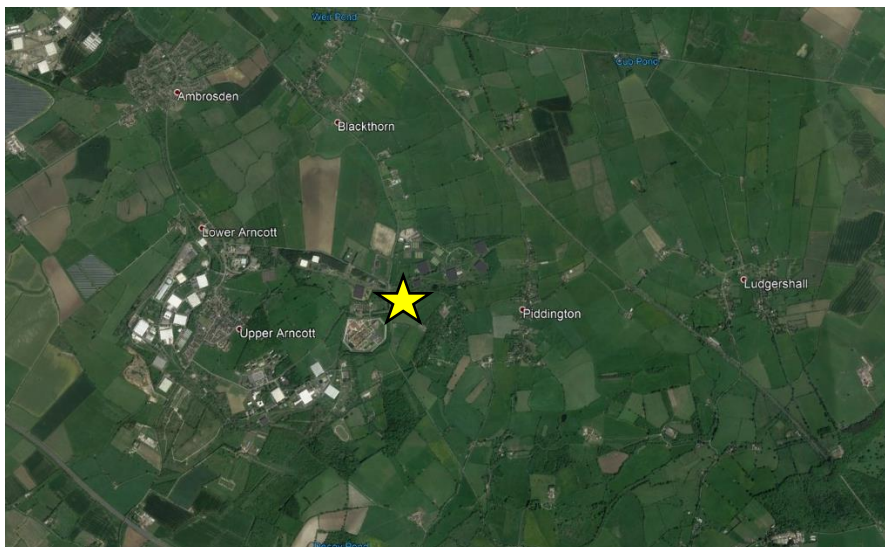
2.1 Site Details

Table 1 provides details of the site, intended as a summary of key features, derived from the data search received from Thames Valley Environmental Records Centre (TVERC) and www.magic.gov.uk. The habitats recorded on site during the Phase 1 habitat survey, including the adjacent ponds are shown on Figure 1. Photographs of the site are provided in Appendix 1. A full species list, with target notes, is provided in Appendix 2.

Table 1. Site Details

Site Name	Widnell Lane, Piddington
Site Address	Widnell Lane, Piddington, Bicester, OX25 1AE
OS Grid Reference	SP 6285 1737
Total Area of Site	10, 382 m ² (1.04 ha)
Landowner and Local Authority	J. Sweeney, Cherwell District Council
Geology and Soils	Lime-rich, loamy, and clayey soils with impeded drainage
Hydrology	Slightly impeded drainage
Nature Conservation Designations	None on site
Other Designations	None on site
The Woodland Trust Ancient and Notable Tree Inventory	None on site
Biodiversity Opportunity Area	None on site
National Habitat Network	None on site
Primary Habitats	Poor semi-improved grassland, species-poor hedgerow and trees, dense and scattered scrub
Protected Species	Potential for butterflies, amphibians, reptiles, hazel dormice (<i>Muscardinus avellanarius</i>), breeding birds, foraging/commuting bats
Current Land Use	Ungrazed field

An aerial plan showing the location of the site is provided below.



Site Location (© Google Earth Pro, accessed 9th November 2020).

2.2 Site Context

Table 2 provides details on the context of the site in terms of habitats, land use and connectivity to the wider landscape.

Table 2. Site Context

Surrounding Habitats and Land Use	Rural location, comprising a mixture of arable and grazed fields, hedgerows, and woodland. Numerous waterbodies are also located within 1 km of the site, the closest being approximately 2 m from the south-west corner of the site. The wider landscape is characterised by scattered residential and light industrial buildings, farmland, and further areas of woodland
Urban Context / Locality	The site is located off Widnell Lane, between the villages of Upper Arcott and Piddington. HM Prison Bullingdon is situated south-west of the site
Connectivity to Wider Landscape	The site had good connectivity via existing hedgerows and lines of trees to areas of key foraging habitat for bats associated with Piddington Training Area to the east and Piddington Wood LWS to the south.
Non-Statutory Designated Sites within 1 km	Piddington Wood LWS is located approximately 730 m to the south of the site. There are three other LWS's (one of which is a proposed Cherwell District Wildlife Site) located within 1 km of the site. A Conservation Target Area (CTA) is located approximately 270 m north of the site
Statutory Designated Sites within 1 km	None
European Designated Sites within 5 km	None
European Protected Species Licence (EPSLs) within 2 km	Granted EPSL for damage and destruction of a hazel dormouse breeding and resting place, 520 m south east of the site

2.3 Proposed Development

The development proposals are for the change of land use of the site to a residential caravan site, comprising plots for six mobile homes and six touring caravans with associated water treatment plants, fencing and hard standing.

2.4 Brief and Objectives

2.4.1 Preliminary Ecological Appraisal

- Map and identify the existing habitats within the survey area.
- Check for evidence of protected species and assess the potential for protected species to be present on site.
- Check for evidence of invasive species.
- Identify potential ecological impacts and constraints relating to the proposed works.
- Make recommendations for further survey work, as appropriate.
- Propose mitigation measures to avoid, mitigate or compensate for ecological impacts, as appropriate.

2.4.2 Biodiversity Net Gain

The objective is to achieve biodiversity net gain on site, as described in Appendix 4 of this report, through the delivery of habitat enhancements and creation, following the implementation of the mitigation hierarchy. The approach to Biodiversity Net Gain on site will be aligned with local, regional, and national planning policy and guidance, as detailed in Section 3 in this report.

Where possible, biodiversity net gain for the site will be based on the biodiversity metric 2.0 (Defra, 2019) and will take into account habitats and protected species relevant to the site. However, where a site is very small and is of negligible or low ecological value, the presentation of biodiversity net gain using areas and/or qualitative descriptions of features is considered more appropriate.

3. Relevant Legislation and Planning Policy

This section provides a summary of legislation and planning policy for designated sites, Priority Habitats, ancient woodland, trees, and protected species, which are assessed to be present or potentially present on site, as detailed in Table 14, Section 6.

The legislation and planning policy detailed in this section is intended to be a summary only. The relevant pieces of legislation and planning policy should be referred to for full information. Legislation and planning policy pertaining to protected habitats and species can be found at the following websites:

- The Birds Directive 2009/147/EC:
http://ec.europa.eu/environment/nature/legislation/birdsdirective/index_en.htm
- The Habitats Directive 1992/43/EEC:
http://ec.europa.eu/environment/nature/legislation/habitatsdirective/index_en.htm
- Water Directive Framework: https://ec.europa.eu/environment/water/water-framework/info/intro_en.htm
- Wildlife and Countryside Act, 1981 (as amended):
<http://www.legislation.gov.uk/ukpga/1981/69>
- Conservation of Habitats and Species (Amendment) (EU Exit) Regulations, 2019:
http://www.legislation.gov.uk/uksi/2010/490/pdfs/uksi_20100490_en.pdf
- Countryside Rights of Way Act, 2000: <http://www.legislation.gov.uk/ukpga/2000/37/contents>
- Natural Environment and Rural Communities Act, 2006:
<http://www.legislation.gov.uk/ukpga/2006/16/contents>
- National Planning Policy Framework, 2019:
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6077/2116950.pdf
- OPDM Circular 06/2005 Biodiversity and Geological Conservation – Statutory Obligations and their Impact within the Planning System:
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/7692/147570.pdf
- Biodiversity 2020: A Strategy for England's Wildlife and Ecosystem Services:
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69446/pb13583-biodiversity-strategy-2020-111111.pdf
- Cherwell District Local Plan 2011-2031 (Part 1):
<https://www.cherwell.gov.uk/info/83/local-plans/376/adopted-cherwell-local-plan-2011-2031-part-1>

The valued ecological receptors, which could be impacted on by development are highlighted in blue in Table 3 and further details on relevant legislation and planning policy are provided in Appendix 3.

Table 3. Legislation and Planning Policy Relating to Valued Ecological Receptors

Key Ecological Receptor	Legislation and Planning Policy	Annex I (Habitats) Habitats Directive, EC Council Directive 92/43/EEC	Annex II (Species) Habitats Directive, EC Council Directive 92/43/EEC	Annex I of Birds Directive 2009/147/EC	Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019	The Wildlife and Countryside Act, 1981 (as amended), Schedules 1, 5, 9	Countryside and Rights of Way Act, 2000	The Protection of Badgers Act, 1996	Natural Environment and Rural Communities Act, 2006	National Planning Policy Framework	Relevant Regional Planning Policy	Relevant Local Planning Policy
Statutory Designated Sites – SACs and SPAs	✓	✓			✓					✓		Policy ESD 10, Cherwell District Local Plan.
Statutory Designated Sites – SSSIs						✓	✓			✓		Policy ESD 10, Cherwell District Local Plan.
Statutory Designated Sites – LNRs										✓		Policy ESD 10, Cherwell District Local Plan.
Non-Statutory Designated Sites - SINCs									✓	✓		Policy ESD 10, Cherwell District Local Plan.
Priority Habitats									✓	✓		Policy ESD 10, Cherwell District Local Plan.
Ancient Woodland										✓		Policy ESD 10, Cherwell District

	Legislation and Planning Policy										
Key Ecological Receptor	Annex I (Habitats) Habitats Directive, EC Council Directive 92/43/EEC	Annex II (Species) Habitats Directive, EC Council Directive 92/43/EEC	Annex I of Birds Directive 2009/147/EC	Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019	The Wildlife and Countryside Act, 1981 (as amended), Schedules 1, 5, 9	Countryside and Rights of Way Act, 2000	The Protection of Badgers Act, 1996	Natural Environment and Rural Communities Act, 2006	National Planning Policy Framework	Relevant Regional Planning Policy	Relevant Local Planning Policy
											Local Plan.
Trees											Policy ESD 10, Cherwell District Local Plan.
Priority Species - Plants								✓			Policy ESD 10, Cherwell District Local Plan.
Invasive Plant Species					✓ (Schedule 9)						Policy ESD 10, Cherwell District Local Plan.
Priority Species - Invertebrates								✓	✓		Policy ESD 10, Cherwell District Local Plan.
Great Crested Newts (<i>Triturus cristatus</i>)		✓		✓	✓ (Schedule 5)			✓	✓		Policy ESD 10, Cherwell District Local Plan.
Common Toads (<i>Bufo bufo</i>)								✓	✓		Policy ESD 10, Cherwell District

	Legislation and Planning Policy										
Key Ecological Receptor	Annex I (Habitats) Habitats Directive, EC Council Directive 92/43/EEC	Annex II (Species) Habitats Directive, EC Council Directive 92/43/EEC	Annex I of Birds Directive 2009/147/EC	Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019	The Wildlife and Countryside Act, 1981 (as amended), Schedules 1, 5, 9	Countryside and Rights of Way Act, 2000	The Protection of Badgers Act, 1996	Natural Environment and Rural Communities Act, 2006	National Planning Policy Framework	Relevant Regional Planning Policy	Relevant Local Planning Policy
											Local Plan.
Reptiles					✓			✓	✓		Policy ESD 10, Cherwell District Local Plan.
Breeding Birds					✓				✓		Policy ESD 10, Cherwell District Local Plan.
Priority Species - Birds								✓	✓		Policy ESD 10, Cherwell District Local Plan.
Protected Bird Species					✓ (Schedule 1)				✓		Policy ESD 10, Cherwell District Local Plan.
Roosting, Foraging and Commuting Bats		✓		✓	✓ (Schedule 5)			✓	✓		Policy ESD 10, Cherwell District Local Plan.
Hazel Dormouse		✓		✓	✓ (Schedule 5)			✓	✓		Policy ESD 10, Cherwell District

Key Ecological Receptor	Legislation and Planning Policy										
	Annex I (Habitats) Habitats Directive, EC Council Directive 92/43/EEC	Annex II (Species) Habitats Directive, EC Council Directive 92/43/EEC	Annex I of Birds Directive 2009/147/EC	Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019	The Wildlife and Countryside Act, 1981 (as amended), Schedules 1, 5, 9	Countryside and Rights of Way Act, 2000	The Protection of Badgers Act, 1996	Natural Environment and Rural Communities Act, 2006	National Planning Policy Framework	Relevant Regional Planning Policy	Relevant Local Planning Policy
											Local Plan.
Badger (<i>Meles meles</i>)					✓		✓				Policy ESD 10, Cherwell District Local Plan.
European Hedgehog (<i>Erinaceus europaeus</i>)								✓	✓		Policy ESD 10, Cherwell District Local Plan.
Brown hare (<i>Lepus europaeus</i>)								✓			Policy ESD 10, Cherwell District Local Plan.
European Otter (<i>Lutra lutra</i>)		✓		✓	✓ (Schedule 5)			✓	✓		Policy ESD 10, Cherwell District Local Plan.
Water Vole (<i>Arvicola amphibius</i>)					✓ (Schedule 5)			✓	✓		Policy ESD 10, Cherwell District Local Plan.

3.1 Biodiversity Net Gain

The following is a summary of relevant planning policy and guidance, which relates to biodiversity enhancement and the achievement of biodiversity net gain on development sites.

3.1.1 Cherwell District Local Plan 2011-2031 (Part 1):

Ecological enhancement is supported through Policy ESD 10 (Protection and Enhancement of Biodiversity and the Natural Environment) of the Cherwell District Local Plan, which states:

- *‘A net gain in biodiversity will be sought by protecting, managing, enhancing and extending existing resources, and by creating new resources.’*
- *‘Development proposals will be expected to incorporate features to encourage biodiversity and retain and where possible enhance existing features of nature conservation value within the site. Existing ecological networks should be identified and maintained to avoid habitat fragmentation, and ecological corridors should form an essential component of green infrastructure provision in association with new development to ensure habitat connectivity.’*
- *‘Planning conditions/obligations will be used to secure net gains in biodiversity by helping to deliver Biodiversity Action Plan targets and/or meeting the aims of Conservation Target Areas. Developments for which these are the principal aims will be viewed favourably.’*
- *‘A monitoring and management plan will be required for biodiversity features on site to ensure their long-term suitable management.’*

Conservation Target Areas (CTA’s) have been identified within Cherwell District to restore biodiversity at a landscape scale and are supported through Policy ESD 11 (Conservation Target Areas) of the Cherwell District Local Plan, which states:

- *‘Biodiversity enhancements sought in association with development could include the restoration or maintenance of habitats through appropriate management, new habitat creation to link fragmented habitats, or a financial contribution towards biodiversity initiatives in the Conservation Target Area.’*

4. Methods

This report has been produced with reference to current guidelines for Preliminary Ecological Appraisals (CIEEM, 2017) and BS42020:2013: Biodiversity – Code of Practice for Planning and Development.

4.1 Data Search

TVERC was contacted on 9th November 2020 to provide a data search report for the site and land within 1 km of the site boundary (comprising information on protected species, species of conservation concern and statutory and non-statutory designated sites). The following published materials were also consulted:

- The Multi-Agency Geographical Information for the Countryside (www.magic.gov.uk) (accessed 13th November 2020).
- Section 41: Priority Species in England (NERC Act, 2006) (www.jncc.defra.uk, accessed on 13th November 2020).
- Cherwell District Local Plan 2011-2031 (Part 1) (accessed 13th November 2020).

4.2 Phase 1 Habitat Survey

A Phase 1 habitat survey (JNCC, 2010) was undertaken of the site by Josh Brown BSc (Hons) on 11th November 2020. The weather conditions during the survey were 11°C, wind force 2, and 100% cloud and dry.

The survey technique was extended to provide more detail on the potential for the site to support protected species. Target notes (TN) were used to identify potential for protected or notable species or habitats, and to give more detailed site descriptions. The standard habitat definitions were used, and plant species nomenclature were noted following Stace (2010).

Where grassland was recorded on site, presenting as species-poor, rank, overgrown and dominated by coarse grassland species such as Yorkshire-fog (*Holcus lanatus*), false oat-grass (*Arrhenatherum elatius*) and cock's-foot (*Dactylis glomerata*), an additional classification of COG was used, to indicate coarse grassland habitats.

4.3 Protected Species Assessment

As part of the PEA, the site was assessed for its potential to contain protected or notable species. The assessment was made based on the habitats present within the site and their suitability for protected species (information on the legislation of protected species can be found in Section 3). Protected species assessed for, but not limited to, were:

- Plants of conservation concern.
- Invertebrates of conservation concern.
- Great crested newts.
- Common toad.
- Reptiles.
- Breeding birds.
- Bats.
- Hazel dormice.
- Badgers.
- European hedgehog.
- Brown hare.
- Otters.
- Water voles.

In addition, a search was undertaken for evidence of non-native, invasive species.

4.4 Survey Limitations

The data search should not be taken as a definitive list of the protected species and species of conservation concern that occur within the search area.

The site was visited over the period of one day, as such seasonal variations cannot be observed and only a selection of all species that potentially occur within the site have been noted. Therefore, the survey provides a general assessment of potential nature conservation value.

The Phase 1 habitat survey was undertaken at the optimal time of year. There were no limitations to the survey in terms of the following:

- The site could be fully accessed.

- Weather conditions (dry and sunny).
- Personal competence (qualifications, training, skills, and experience).
- Time spent surveying.

5. Baseline Ecological Conditions

5.1 Data Search

A copy of the data search report from TVERC can be supplied on request (TVERC/20/554).

5.1.1 Designated Sites

The site is not located within 5 km of a Special Protection Area (SPA) or Special Area of Conservation (SAC). There are no nationally designated sites for nature conservation within 1 km of the site. Piddington Wood, which is designated as both a Cherwell District and Oxfordshire LWS and a Woodland Trust Reserve, is located approximately 580 m south of the site. There are two other LWS's located within 1 km of the site as well as one CTA. Table 4 provides details on designated sites, which are present within 1 km of the site.

Table 4. Designated Sites within 1 km of the Site

Site Name and Designation	Central Grid Reference	Approximate Distance from Site (m)	Area (Ha)	Description
Piddington Wood LWS	SP628162	720	13.4	A small lowland mixed deciduous woodland, comprising predominantly of English oak (<i>Quercus robur</i>), which is known to support several important species of butterflies of limited distribution including black hairstreak (<i>Satyrrium pruni</i>), brown hairstreak (<i>Thecla betulae</i>), purple emperor (<i>Apatura iris</i>), white admiral (<i>Limenitis Camilla</i>) and white letter hairstreak (<i>Satyrrium w-album</i>). Twenty-eight ancient woodland indicators are present.
Piddington Wood LWS	SP628166	580	6	Smaller area of Piddington Wood, comprising young plantation woodland and open grassland.

Site Name and Designation	Central Grid Reference	Approximate Distance from Site (m)	Area (Ha)	Description
Site B, Arncott LWS	SP624165	710	15	Species-rich grassland, rough grassland, wetland, ponds, scrub, and broadleaved woodland. The site is important for butterflies and birds with records for nightingale (<i>Luscinia megarhynchos</i>) and black hairstreak.
Piddington Training Area Proposed LWS	SP632170	150	19.3	This is an area of grassland, scrub, and woodland on an old military site, west of Piddington. It has good potential for grassland and invertebrate interest
Ray CTA	N/A	270	1192	Alluvial floodplain of the River Ray which includes lowland meadow, floodplain grazing marsh, reedbeds, ponds, hedgerows.

5.1.2 Ancient Woodland

The site is not located within an area of ancient woodland or plantation on ancient woodland. There is one parcel of ancient woodland located within 1 km of the site associated with Piddington Wood LWS.

5.1.3 Priority Habitats

Four types of Priority Habitats are located within 1 km of the site, as detailed in Table 5.

Table 5. Priority Habitats within 1 km of the Site

Habitat Type	Number of Land Parcels	Nearest Land Parcel to Site (m)
Deciduous woodland	8	100
Traditional orchards	1	950
Hedgerow	Specific number not known	0 (on site)
Pond	4	2 (adjacent to site)

5.1.4 Protected Species and Species of Conservation Concern

Examples of protected species and species of conservation recorded in the data search from the previous 10 years, which could potentially occur on or in the vicinity of the site are provided below. The data search report should be referred to for the full list of species, which occur within 1 km of the site.

- Barn owl (*Tyto alba*).
- Black hairstreak.
- Brown Hairstreak.
- Brown Hare.
- Common toad.
- Dunnock (*Prunella modularis*).
- Great crested newt.
- Hazel dormouse.
- Palmate newt (*Lissotriton helveticus*).
- Purple emperor.
- Skylark (*Alauda arvensis*).
- Smooth newt (*Lissotriton vulgaris*).
- Yellowhammer (*Emberiza citronella*).

There are no records of invasive species within 1 km of the site, and none for the site itself.

5.2 Phase 1 Habitat Survey - Habitats

The results of the Phase 1 habitat survey undertaken on 11th November 2020 are presented in map form on Figure 1 and described in Table 6. Photographs of the site are provided in Appendix 1 and a full list of species, with scientific names, is provided in Appendix 2. The following habitats were recorded on or immediately adjacent to the site:

- Dense scrub.
- Scattered scrub.
- Poor semi-improved grassland.
- Tall ruderal.
- Standing water.
- Species-poor hedge and trees.
- Fence.

Table 6. Results of Phase 1 Habitat Survey – Habitats

Primary Habitat Code	Approximate Area (ha) / Length (m)	Location in Site	General Description and Land Use	Main Common Plant Species	Rare/Scarce or Protected Plant Species	Habitat Mosaic	Priority Habitat	Signs of Protected Species	Potential for Protected Species	Current Management
<i>Dense Scrub</i>										
DS		Mainly in the south-western corner of the site surrounding the adjacent pond	Extensive bramble growth of almost 2 m in height	Bramble, dog rose	None recorded	Species-poor hedge, poor semi-improved grassland	N/A	None recorded	Nesting birds, foraging/commuting bats and hazel dormice	None
<i>Scattered Scrub</i>										
SS		Frequent along eastern site boundary adjacent to the wire fence and sparsely scattered throughout the grassland	Mixture of saplings and climbers	Hawthorn, dog rose	None recorded	Poor semi-improved grassland	N/A	None recorded	Nesting birds	None
<i>Poor Semi-Improved Grassland</i>										
SI		Forms the majority of the site	The site is un-grazed resulting in a tall, tussocky sward dominated by grasses such as smooth meadow grass, crested dog's-tail, meadow foxtail and false oat-grass. A mixture of common forb species are also present as well as small patches of scattered	Smooth meadow grass, crested dog's-tail, meadow foxtail, false oat-grass, creeping buttercup, white clover, red clover	None recorded	Scattered scrub, tall ruderal, species-poor hedge and trees	N/A		Ground nesting birds, reptiles, great crested newts	None

Primary Habitat Code	Approximate Area (ha) / Length (m)	Location in Site	General Description and Land Use	Main Common Plant Species	Rare/Scarce or Protected Plant Species	Habitat Mosaic	Priority Habitat	Signs of Protected Species	Potential for Protected Species	Current Management
			scrub, which have seeded from the adjacent hedgerows. At the time of the survey, the soil was relatively waterlogged, particularly along the eastern site boundary (see target note 6 on Figure 1)							
<i>Tall Ruderal</i>										
TR		Patchy, along site boundaries as well as an isolated patch in the south-eastern corner of the site	Scattered	Common nettle, broad-leaved dock, and creeping thistle	None recorded	Poor semi-improved grassland	N/A	None recorded	None	None
<i>Standing Water</i>										
SW		A small pond is located adjacent to the south-western corner of the site behind an area of dense scrub but is not included within the site boundary	The pond appears to be shallow and is choked with aquatic and marginal vegetation, comprising mainly sedges, scattered scrub and fallen trees	Pendulous sedge	None recorded		Yes – Pond	None recorded	Great crested newts, common toads	None
<i>Species-Poor Hedge and Trees</i>										
PHT		Forms the northern, southern, and western site boundaries	Dominated by a mixture of blackthorn and hawthorn scrub, with semi-mature elm trees. The	Blackthorn, Elm, bramble	None recorded	Dense scrub, poor semi-improved grassland	Yes-Hedgerow		Nesting birds, foraging/commuting bats and hazel dormice	None

5.3 Phase 1 Habitat Survey - Species

The following fauna was recorded during the survey:

Birds:

- Blackbird.
- Blue tit.
- Fieldfare.
- Goldfinch.
- Jackdaw.
- Long-tailed tit.
- Magpie.
- Meadow pipit.
- Raven.
- Red kite.
- Robin.
- Wood pigeon.
- Wren.

Invertebrates:

- Mossy rose gall wasp

6. Ecological Constraints and Opportunities Assessment

Table 7 sets out known and potential ecological constraints to development, derived from the data search and Phase 1 habitat survey, including designated sites, ancient woodland, Priority Habitats, and protected species/species of conservation concern. Where a potential ecological constraint has been identified, further survey work and/or appropriate avoidance, mitigation, and compensation (as appropriate) is likely to be required to address the issue. **Further survey and/or mitigation measures are required for the value ecological receptors highlighted in blue.**

Table 7. Ecological Constraints and Opportunities Assessment

Valued Ecological Receptor	Potentially Present / Known to be Present on Site	Assessment and Justification for Impacts of Development on Value Ecological Receptor
Designated Sites	None on site	<p>The site is not located within a designated site for nature conservation and is not located within 5 km of a SPA or SAC. There are no nationally protected sites for nature conservation within 1 km of the site.</p> <p>Piddington Wood, which is designated as both a Cherwell District and Oxfordshire LWS and a Woodland Trust Reserve, is located approximately 580 m south of the site. There are two other LWS's located within 1 km of the site as well as one CTA.</p> <p>The development should not result in significant adverse impacts on non-statutory designated sites for the following reasons:</p> <ul style="list-style-type: none"> • The proposed development site is separated from the nearest designated site by 580 m of existing pasture, woodland, hedgerows, and roads. • The proposed development will be confined to the site and is currently for a residential caravan site comprising plots for six mobile homes and six touring caravans. • The proposed development will comply with legislation relevant to reducing the impacts of construction, namely the Control of Pollution Act, 1974, the Environmental

Valued Ecological Receptor	Potentially Present / Known to be Present on Site	Assessment and Justification for Impacts of Development on Value Ecological Receptor
		<p>Protection Act, 1990, The Clean Air Act, 1993, The Environment Act, 1995 and the Pollution Prevention and Control Act, 1999.</p> <ul style="list-style-type: none"> The proposed development will conform to British Standards on noise and vibration (BS 5228-2009. Code of Practice for Noise and Vibration Control on Construction and Open Sites). <p>For the above reasons, non-statutory designated sites should not be impacted upon by the development and further survey and avoidance/mitigation measures are not required in relation to the proposed development and non-statutory designated sites.</p>
Priority Habitats	Hedgerows present on site and ponds adjacent to the site	<p>Priority Habitats are located within 1 km of the site. Hedgerows are also located within the site boundary and four ponds within 250 m (the closest being approximately 2 m from the site).</p> <p>In the absence of avoidance and mitigation measures, construction and development operation activities could result in significant adverse effects on Priority Habitats. Recommendations for avoidance and mitigation measures relating to Priority Habitats have, therefore, been provided (see Section 7.1).</p> <p>There are also significant opportunities to enhance the site for biodiversity, which would benefit Priority Habitats, as set out in Section 7.3.</p>
Ancient woodland	None present on site	<p>One parcel of ancient woodland is located within 1 km of the site. The development should not result in significant adverse impacts on ancient woodland for the same reasons given for non-statutory sites. Therefore, further survey and avoidance/mitigation measures are not required in relation to the proposed development and ancient woodland.</p>

Valued Ecological Receptor	Potentially Present / Known to be Present on Site	Assessment and Justification for Impacts of Development on Value Ecological Receptor
Trees	None within the areas to be impacted upon by the development	Standalone trees were not recorded within the site boundary. Providing recommendations given for Priority Habitats in Section 7.1 are adhered to, the development should not result in significant adverse impacts on trees recorded within the hedgerows on site.
Plants of conservation concern	Negligible	<p>No protected or notable rare plant species were noted during the survey. The areas of the site, which will be affected by the proposed works have low potential to support plants of conservation concern (poor semi-improved grassland). Therefore, plants of conservation concern are considered to be absent from the site and further survey and avoidance/mitigation measures are not required in relation to the proposed development and plants of conservation concern.</p> <p>However, there are opportunities for biodiversity net gain on site, including the creation of habitats, which could support a high diversity of plant species (see Section 7.3).</p>
Invasive plant species such as rhododendron, Japanese knotweed (<i>Reynoutria japonica</i>) and giant hogweed (<i>Heracleum mantegazzianum</i>)	None present	Plant species listed under Schedule 9 of the Wildlife and Countryside Act, 1981 (as amended) were not recorded on site. Therefore, further survey and avoidance/mitigation measures are not required in relation to the proposed development and invasive plant species.
Invertebrates of conservation concern	None within the areas to be impacted upon by the development	No invertebrates of conservation concern were noted during the survey. The areas of the site, which will be affected by the proposed works have low potential to support invertebrates of conservation concern (poor semi-improved grassland). Invertebrates of conservation concern which were recorded in the data search (namely black and brown hairstreak butterflies) are more likely to be found within the canopies of dense blackthorn scrub/hedgerows on site which under current proposals are due to be protected and retained (see Section 7.1 for recommendations). Therefore, invertebrates of conservation concern are not considered be affected by the works and further survey and avoidance/mitigation

Valued Ecological Receptor	Potentially Present / Known to be Present on Site	Assessment and Justification for Impacts of Development on Value Ecological Receptor
		<p>measures are not required in relation to the proposed development and invertebrates of conservation concern.</p> <p>However, there are opportunities for biodiversity net gain on site, including the creation and enhancement of hedgerow and grassland habitats to benefit invertebrates of conservation concern (see Section 7.3).</p>
Great crested newts	Potentially present	<p>Ponds are absent from the site but four are located within 250 m of the site, the closest being approximately 2 m from the south-western corner of the site. The great crested newt was recorded in the data search and are known to be present in the locality. The site has potential to support great crested newts during their terrestrial phase. Therefore, in the absence of avoidance and mitigation measures, construction and development operation activities could result in loss of great crested newt habitat and harm/injury to great crested newts. Recommendations for further survey for great crested newts have, therefore, been provided (see Section 7.2).</p> <p>There are opportunities for biodiversity net gain on site, including the incorporation of features for great crested newts (see Section 7.3).</p>
Common toads	Very unlikely to be present on site	<p>For the same reasons given for great crested newts, it is considered possible that common toads are present on site. Recommendations for avoidance and mitigation measures relating to common toads have, therefore, been provided (see Section 7.2).</p> <p>There are opportunities for biodiversity net gain on site, including the incorporation of features for common toads (see Section 7.3).</p>

Valued Ecological Receptor	Potentially Present / Known to be Present on Site	Assessment and Justification for Impacts of Development on Value Ecological Receptor
Reptiles (such as slow worms- <i>Anguis fragilis</i> , common lizards - <i>Zootoca vivipara</i> , and grass snakes- <i>Natrix helvetica</i>)	High potential	<p>The site comprises grassland which could support common species of reptiles. As reptiles are protected against killing and injury, and could be impacted on by the development proposals, further survey for reptiles is required (see Section 7.2).</p> <p>There are opportunities for biodiversity net gain on site, including the incorporation of features for reptiles (see Section 7.3).</p>
Nesting birds	Potentially present	<p>The site comprises hedgerows, trees, and scrub, which could support common species of nesting birds. As nesting birds are protected, recommendations to avoid disturbing nesting birds are provided in Section 7.2.</p>
Birds of conservation concern (such as barn owl – <i>Tyto alba</i> , peregrine falcon – <i>Falco peregrinus</i> and black redstart – <i>Phoenicurus ochruros</i>)	Potentially present	<p>Birds of conservation concern recorded on site during the Phase 1 habitat survey and in the data search (ground nesting birds such as skylark and meadow pipit) could potentially breed on site. Avoidance measures for breeding birds are provided in Section 7.2, which also relate to birds of conservation concern. Measures to retain and protect the hedgerows and trees, as detailed in Section 7.1, will also ensure that nesting bird habitats are avoided and protected.</p> <p>There are opportunities for biodiversity net gain on site, including the incorporation of features for birds of conservation concern (see Section 7.3).</p>
Bats	Potential for foraging/commuting bats along hedgerows	<p>There are no buildings or trees on site with potential to support roosting bats. However, as the development proposals could impact upon suitable foraging/commuting habitats for bats, a sensitive lighting plan has been recommended in Section 7.2. Providing the recommendations relating to the retention and protection of hedgerows detailed in Section 7.1 are adhered to, surveys for foraging/commuting bats should be avoided.</p> <p>There are opportunities for biodiversity net gain on site, including the incorporation of features for bats (see Section 7.3).</p>

Valued Ecological Receptor	Potentially Present / Known to be Present on Site	Assessment and Justification for Impacts of Development on Value Ecological Receptor
[REDACTED]		
Hazel dormouse	Potential for hazel dormice in hedgerows	<p>The areas of the site, which will be directly affected by the proposed works have negligible potential to support hazel dormice (poor semi-improved grassland). Providing the recommendations relating to the retention and protection of hedgerows detailed in Section 7.1 are adhered to, surveys for hazel dormice should be avoided.</p> <p>There are opportunities for biodiversity net gain on site, including the incorporation of features for hazel dormice (see Section 7.3).</p>
Brown hare	Potentially present	<p>The site contains tall grassland habitats and is surrounded by agricultural fields to the south and east, which could support the brown hare. The brown hare was also recorded in the data search. However, it is considered unlikely that the brown hare, if present on site, will be impacted upon by the development proposals for the following reasons:</p> <ul style="list-style-type: none"> • No field signs of the brown hare were recorded during the Phase 1 survey. • A large portion of the poor semi-improved grassland on site will be retained under current development proposals. • The development is considered to be of low impact in that it is unlikely to reduce the ability of brown hares to move across the site. <p>Therefore, further survey and avoidance/mitigation measures are not required in relation to the proposed development and the brown hare.</p> <p>However, there are opportunities for biodiversity net gain on site, including the enhancement of habitats for the brown hare (see Section 7.3).</p>

Valued Ecological Receptor	Potentially Present / Known to be Present on Site	Assessment and Justification for Impacts of Development on Value Ecological Receptor
Water vole and European otter	Negligible potential	<p>The site does not contain any habitats, which could support the water vole and European otter, i.e. rivers and streams. Neither the water vole nor the European otter was recorded in the data search. Therefore, the water vole and European otter are considered to be absent from the site and further survey and avoidance/mitigation measures are not required in relation to the proposed development and water voles and European otters.</p>
European hedgehog	Negligible potential	<p>The areas of the site, which will be affected by the proposed works have negligible potential to support the European hedgehog. Therefore, the European hedgehog is considered to be absent from the area to be affected by the works and further survey and avoidance/mitigation measures are not required in relation to the proposed development and the European hedgehog.</p> <p>However, there are opportunities for biodiversity net gain on site, including the enhancement of habitats for the European hedgehog (see Section 7.3).</p>

7. Recommendations

7.1 Priority Habitats

Species-poor hedgerows and trees, which is a priority habitat, form the northern, southern, and western boundaries of the site. There are also ponds within the vicinity of the site. The following avoidance and mitigation measures relating to Priority Habitats are recommended:

- Hedgerows on site should be retained, protected, and enhanced. A small section of the hedgerow along the southern boundary is defunct, which should be replanted with native species already growing on site, such as hawthorn and blackthorn, in order to enhance connectivity for hazel dormice, foraging/commuting bats and other wildlife.
- The buffer should comprise areas of grassland, managed to increase its floristic diversity with a native species-rich hedgerow planted to separate the buffer from the site. The buffer zone will provide protection to the hedgerows and the wildlife they could support, including butterflies, great crested newts and other amphibians, reptiles, foraging/commuting bats, and the hazel dormouse.
- Any planting of shrubs and trees should include native species of local provenance, such as English oak, blackthorn, hawthorn, and field maple.
- There should be no direct access from the development into the buffer. The buffer should only be accessed for maintenance.
- Materials should not be stored in or near the buffer.
- Under current proposals, a section of hedgerow on the northern boundary would be lost to provide access to the site. Access should be from the pre-existing access in the adjacent field to the east to avoid loss of hedgerow habitats.
- A sensitive lighting plan should be adopted, to ensure that outside lighting does not adversely affect adjacent habitats and wildlife, particularly bats when foraging and commuting (see Section 7.2.5).

Providing the recommendations given above are adhered to, priority habitats should not be negatively impacted upon by the development proposals and further survey for foraging/commuting bats and the hazel dormouse should be avoided.

7.2 Protected Species and Species of Conservation Concern

7.2.1 Great Crested Newts

Further survey for great crested newts should be undertaken of ponds within 500 m of the site, where permission to access the land is granted by the landowner. Following a set protocol (Defra, 2014), 20 water samples should be collected from around each of the ponds, using a kit (one per pond) provided by a laboratory approved by Natural England (i.e. ADAS or fera). The samples should then be sent to the laboratory for analysis. The samples should be collected on one visit from 15th April to 30th June. Should great crested newt DNA be identified in any of the ponds, further survey to confirm population status will be required, in accordance with current best practice guidelines.

7.2.2 Common Toads

An Ecological Clerk of Works (ECoW) should be present on site during any site clearance activities, which are likely to involve the removal/disturbance of any vegetation, as well as the removal of the brash/rubble piles. Any common toads found, should be allowed to move away into adjacent habitats unharmed, of their own accord.

7.2.3 Reptiles

The tall grassland habitats on site as well as the rubble and brash piles recorded in the adjacent field at target notes 3 and 4 respectively (Figure 1), could support common species of reptile. Further survey for reptiles is recommended to determine whether the development will impact on reptiles. It is recommended that a reptile presence/absence survey is undertaken, in accordance with best practice guidelines (Froglife, 1999), using artificial refugia such as roofing felt or corrugated tin. The survey should comprise seven visits during optimal weather conditions, during April to June or September. It is recommended that, where removal of brash/rubble piles may be required to facilitate an access track from the adjacent field to the east, that they are carefully cleared to allow reptiles to be safely relocated away from the construction areas or move away into surrounding habitats of their own accord.

7.2.4 Nesting Birds

Nesting bird habitat within the hedgerows and scrub on site should be retained, as detailed in Section 7.1 It is recommended that any clearance of grassland on site, which could support ground nesting birds, should be undertaken outside of the breeding bird season (i.e. during September to February inclusive). However, if works which are likely to damage bird nests need to be carried out during the nesting period, there is potential that nesting birds could be harmed and disturbed. To ensure legal compliance, a check should be undertaken by an ecologist within 48 hours of works commencing, to confirm the presence/absence of nest sites. If nests sites are identified, works to that feature should be delayed until the nest site becomes inactive (species specific, but approximately 4-6 weeks maximum).

7.2.5 Bats

Recommendations to minimise the potential impacts of artificial external lighting on bat activity, are provided below (Institute of Ecology and Environmental Management, 2006: Institute of Lighting Engineers, 2007 and Bat Conservation Trust, 2018):

- Avoid prolonged use of outside lighting during the period dusk to dawn, particularly during the bat active season (April to September).
- Security lighting should be avoided on the southern and western boundaries of the site and be on a motion sensor and short duration timer (1 minute).
- Lighting that is required for security or safety reasons, should use a lamp of no greater than 2000 lumens (150 Watts) and should comprise sensor activated lamps.
- LED luminaires with a warm white spectrum (<2700 Kelvin) are the preferred option and should be used where possible. Luminaires should feature peak wavelengths higher than 550 nm to minimise disturbance to bats. All luminaires should lack UV elements, metal halide and fluorescent sources should not be used.
- Lighting should be directed to where it is needed with minimal light spillage. This can be achieved by limiting the height of the lighting columns and by using as steep a downward angle as possible and/or a specialist bollard that directs the light below the horizontal plane.

- Artificial lighting should not directly illuminate any potential bat roosting features or habitats of value to foraging bats, i.e. hedgerows.

7.3 Biodiversity Net Gain

Table 8 provides the baseline biodiversity units for the site, based on the Phase 1 habitat survey, calculated using the Biodiversity Metric 2.0 (Defra, 2019); see Appendix 4 for further details. Approximate areas have been calculated using QGIS 3.12 Bucuresti. Buildings and hard standing are not included in Table 8, as they do not contribute to the baseline biodiversity units. The standing water habitats are not included in the metric as they are not within the site boundary.

Table 8. Baseline Biodiversity Units

Baseline Habitat and Approximate Area (ha) / Length (km)	Habitat Condition	Distinctiveness	Strategic Significance	Connectivity	Baseline Biodiversity Units	Key Ecological Features
Heathland and shrub – mixed scrub (0.023 ha)	Moderate	Medium	Medium	Low	0.20	Could support hazel dormice, breeding birds, foraging / commuting bats and invertebrates of conservation concern
Grassland – other neutral grassland (0.90 ha)	Moderate	Medium	Medium	Low	7.92	Could support reptiles and amphibians
Sparsely vegetated land – ruderal / ephemeral (<0.01 ha)	Poor	Low	Medium	Low	0	Could support reptiles
Native hedgerow with trees (0.26 km)	Good	Low	Medium	Low	1.72	Could support hazel dormice, breeding birds, foraging/commuting bats and invertebrates of conservation concern
Total					9.84 (Baseline Units)	

Below are a set of measures, which should be implemented on site to achieve biodiversity net gain. These suggestions take into account current planning policy and guidance, as detailed in Section 3.1 of this report.

- The 10 m buffer zone along the northern, southern, and western boundaries of the site should be cut in late-Autumn, after the bird breeding season and once the flowering plants have seeded. The management of the buffer zone should aim to promote the plants that would be beneficial to the invertebrates of conservation concern recorded in the data search.
- The native species-rich hedgerow recommended to be planted along the northern, southern, and western boundaries should be planted with the native species recorded on site including, but not limited to, blackthorn, hawthorn, field maple and spindle. The hedgerow should be at least 2 m in height and depth and managed to form an 'A' profile.
- The enhancement of existing hedgerows, by planting native trees, shrubs, and climbers such as English oak, blackthorn, hawthorn, field maple, spindle, honeysuckle and bittersweet.
- The use of appropriate SUDS. For example, in addition to permeable surfaces, a rain garden could be included (see Rainwater Gardens, a Guide for Residents, Woking Borough Council, 2018).
- The open spaces associated with each caravan plot should include a wildflower mix suitable for the geology of the site, such as 'Meadow Mixture for Clay Soils' (EM4), which is available from www.wildseed.co.uk.
- The installation of log piles along site boundaries, to provide habitat for invertebrates and reptiles.
- The installation of Schwegler 2F Boxes (or similar) on trees and buildings, would be beneficial to common and widespread bat species that are likely to be present on site (www.arkwildlife.co.uk).
- The installation of RSPB Robin and Wren Diamond Nest boxes and Apex Open-Front Nest boxes on buildings and trees would be beneficial to garden bird species. These nest boxes can be purchased from www.rspb.co.uk.
- The installation of a Royal Hedgehog House, which can be purchased from www.arkwildlife.co.uk.
- The installation of a hibernacula for invertebrates, such as the Bug Box 2000, which can be purchased from www.arkwildlife.co.uk.

These recommendations, including measures to protect and enhance priority habitats, should be included in a Biodiversity Management and Maintenance Scheme, covering at least the first 30 years following completion of the development.

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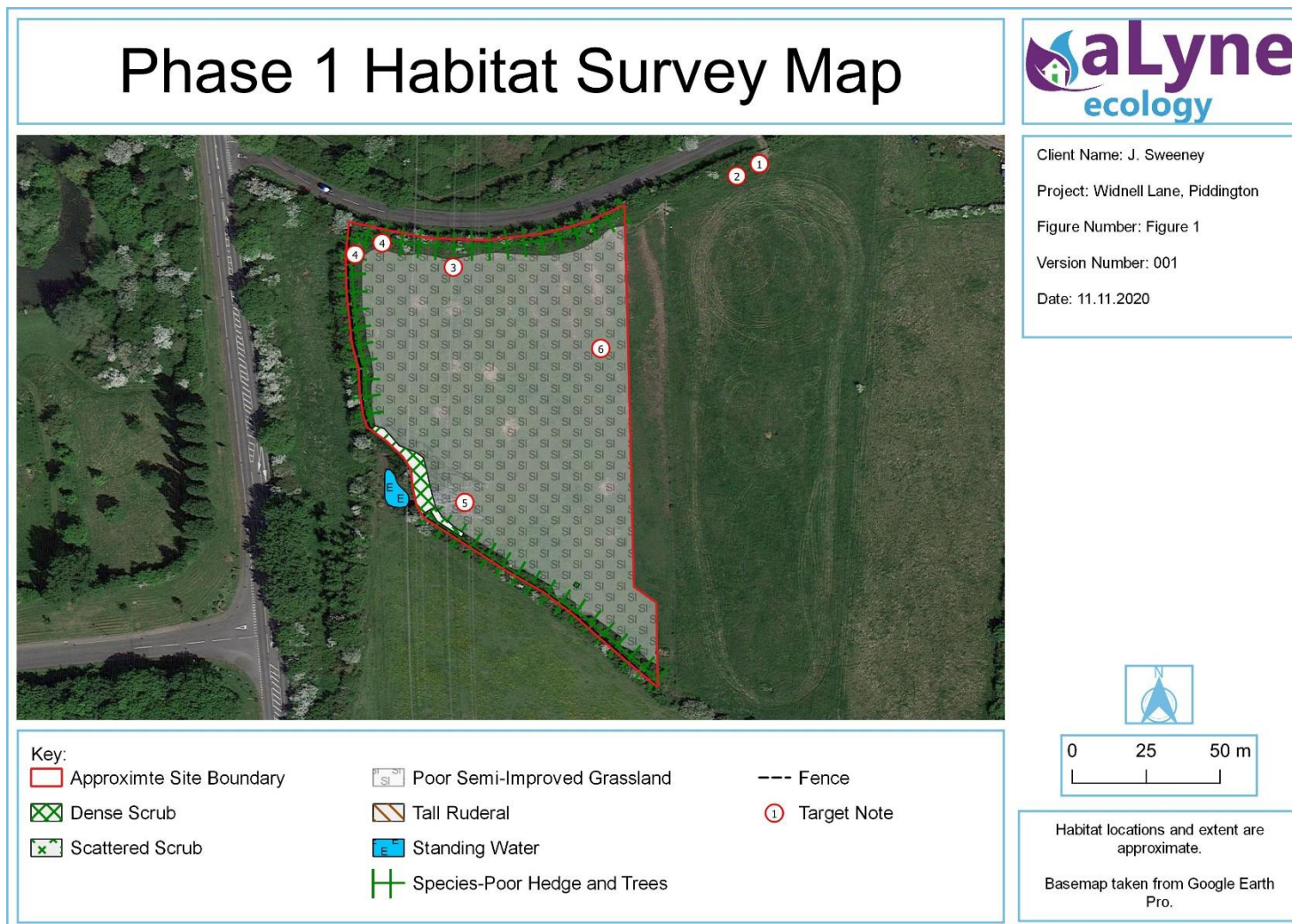
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9. Figure 1 – Results of Phase 1 Habitat Survey



10. Appendix 1 – Site Photographs



Photograph 1 — Species-poor hedgerow with trees that forms the northern site boundary



Photograph 2 — Main area to be affected by the development works, comprising poor semi-improved grassland.



Photograph 3 — Badger latrine recorded adjacent to northern site boundary (see target note 3 on Figure 1)



Photograph 4 — Area of dense scrub situated in the south-western corner of the site adjacent to the neighbouring pond.



Photograph 5 — Pond located approximately 2m from south-western corner of the site.



Photograph 6 — Species-poor hedgerow with trees that forms the southern site boundary. Contains small defunct section.



Photograph 7 — Post and wire fence that forms the eastern site boundary. Patch of tall ruderal vegetation recorded in south-eastern corner of the grassland.



Photograph 8 — Electricity pylon situated adjacent to the southern site boundary.



Photograph 9 — Brash pile recorded at target note 2 on Figure 1 in the adjacent field.

11. Appendix 2 – Full Species List and Target Notes

Habitats	Common Name	Species Name
Dense scrub	Blackthorn Bramble Common nettle Spear thistle Dog rose	<i>Prunus spinosa</i> <i>Rubus fruticosus</i> agg. <i>Urtica dioica</i> <i>Cirsium vulgare</i> <i>Rosa canina</i>
Scattered Scrub	Blackthorn Dog rose Hawthorn	<i>Prunus spinosa</i> <i>Rosa canina</i> <i>Crataegus monogyna</i>
Poor Semi-Improved Grassland	Agrimony Black knapweed Bristly oxtongue Broad-leaved dock Cleavers Cock's-foot Common nettle Cow parsley Creeping cinquefoil Creeping buttercup Creeping thistle Crested dog's-tail Dove's-foot crane's-bill False oat-grass Greater plantain Ground-ivy Meadow foxtail Oxford ragwort Perennial rye-grass Red clover Ribwort plantain Selfheal Silverweed Smooth meadow-grass Spear thistle Sweet vernal-grass Timothy White clover	<i>Agrimonia eupatoria</i> <i>Centaurea nigra</i> <i>Helminthotheca echioides</i> <i>Rumex obtusifolius</i> <i>Galium aparine</i> <i>Dactylis glomerata</i> <i>Urtica dioica</i> <i>Anthriscus sylvestris</i> <i>Potentilla reptans</i> <i>Ranunculus repens</i> <i>Cirsium arvense</i> <i>Cynosurus cristatus</i> <i>Geranium mole</i> <i>Arrhenatherum elatius</i> <i>Plantago major</i> <i>Glechoma hederacea</i> <i>Alopecurus pratensis</i> <i>Senecio squalidus</i> <i>Lolium perenne</i> <i>Trifolium pratense</i> <i>Plantago lanceolata</i> <i>Prunella vulgaris</i> <i>Argentina anserina</i> <i>Poa pratensis</i> <i>Cirsium vulgare</i> <i>Anthoxanthum odoratum</i> <i>Phleum pratense</i> <i>Trifolium repens</i>
Tall Ruderal	Broad-leaved dock Common nettle Creeping thistle Hogweed Spear thistle	<i>Rumex obtusifolius</i> <i>Urtica dioica</i> <i>Cirsium arvense</i> <i>Heracleum sphondylium</i> <i>Cirsium vulgare</i>
Species-poor Hedge and Trees	Blackthorn Bramble Cleavers Common nettle Dog rose English elm Ground-ivy Hawthorn	<i>Prunus spinosa</i> <i>Rubus fruticosus</i> agg. <i>Galium aparine</i> <i>Urtica dioica</i> <i>Rosa canina</i> <i>Ulmus procera</i> <i>Glechoma hederacea</i> <i>Crataegus monogyna</i>
Birds	Blackbird Blue tit Fieldfare Goldfinch Jackdaw Long-tailed tit Magpie Meadow pipit Raven Red kite Robin Wood pigeon Wren	<i>Turdus merula</i> <i>Cyanistes caeruleus</i> <i>Turdus pilaris</i> <i>Carduelis carduelis</i> <i>Corvus monedula</i> <i>Aegithalos caudatus</i> <i>Pica pica</i> <i>Anthus pratensis</i> <i>Corvus corax</i> <i>Milvus milvus</i> <i>Erithacus rubecula</i> <i>Columba palumbus</i> <i>Troglodytes troglodytes</i>
Insects	Mossy rose gall wasp	<i>Diplolepis rosae</i>

Target Note	Notes
1	Rubble pile
2	Brash pile
3	Badger latrine
4	Badger access point
5	Electricity pylon
6	Waterlogged soil

12. Appendix 3 – Legislation and Planning Policy

12.1 Habitats Directive, EC Council Directive 92/43/EEC

The following information has been taken from ec.europa.eu.

Natura 2000 is a network of sites selected to ensure the long-term survival of Europe's most valuable and threatened species and habitats. How a site is chosen depends on what it aims to protect.

Under the Habitats Directive (Art. 3 and 4), Member States designate Special Areas of Conservation (SACs) to ensure the favourable conservation status of each habitat type and species throughout their range in the EU. Under the Birds Directive (Art. 4), the network must include Special Protection Areas (SPAs) designated for 194 particularly threatened species and all migratory bird species.

Member States designate Special Protection Areas (SPAs) according to scientific criteria such as '1% of the population of listed vulnerable species' or 'wetlands of international importance for migratory waterfowl'.

The choice of sites is based on scientific criteria specified in the directive, to ensure that the natural habitat types listed in the directive's Annex I and the habitats of the species listed in its Annex II are maintained or, where appropriate, restored to a favourable conservation status in their natural range.

12.2 The Birds Directive 2009/147/EC

The following information has been taken from ec.europa.eu.

The Birds Directive aims to protect all of the 500 wild bird species naturally occurring in the European Union. The 500 wild bird species naturally occurring in the European Union are protected in various ways:

- **Annex 1:** 194 species and sub-species are particularly threatened. Member States must designate Special Protection Areas (SPAs) for their survival and all migratory bird species.
- **Annex 2:** 82 bird species can be hunted. However, the hunting periods are limited, and hunting is forbidden when birds are at their most vulnerable: during their return migration to nesting areas, reproduction, and the raising of their chicks.
- **Annex 3:** overall, activities that directly threaten birds, such as their deliberate killing, capture or trade, or the destruction of their nests, are banned. With certain restrictions, Member States can allow some of these activities for 26 species listed here.
- **Annex 4:** the directive provides for the sustainable management of hunting, but Member States must outlaw all forms of non-selective and large scale killing of birds, especially the methods listed in this annex.
- **Annex 5:** the directive promotes research to underpin the protection, management and use of all species of birds covered by the Directive, which are listed in this annex.

12.3 Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019

Under these Regulations, the UK Government and Devolved Administrations are required to establish a network of important high-quality conservation sites that will make a significant contribution to conserving the habitats and species identified in Annexes I and II, respectively, of European Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora, known as the Habitats Directive. The listed habitat types and species are those considered to be most in need of

conservation at a European level (excluding birds). Of the Annex I habitat types, 78 are believed to occur in the UK. Of the Annex II species, 43 are native to, and normally resident in, the UK (www.JNCC.gov.uk). Special Areas of Conservation (SACs), together with Special Protection Areas (SPAs), are the UK's contribution to the Bern Convention's Emerald Network of protected areas, known as Areas of Special Conservation Interest (ASCIs).

12.4 The 1949 National Parks and Access to the Countryside Act

Section 21 of the National Parks and Access to the Countryside Act, 1949 provides discretionary powers to enable local authorities to establish and manage Local Nature Reserves (LNRs). Under the Conservation of Habitats and Species (Amendment) (EU Exit) 2019 Regulations, these powers have been extended from preserving flora and fauna to include enabling or facilitating its recovery or increase.

12.5 The Wildlife and Countryside Act, 1981 (As Amended)

The following information was taken from www.jncc.gov.uk and www.ukwildlife.com.

The Wildlife and Countryside Act, 1981 (as amended) is the primary national legislation, which protected animals, plants, and habitats in the UK. The act contains four parts and 17 schedules, which cover:

- Part 1: Wildlife (includes protection of birds, animals, and plants; and measures to prevent the establishment of non-native species which may be detrimental to native wildlife).
- Part 2: Nature conservation, the countryside, and National Parks (including the designation of protected areas).
- Part 3: Public rights of way.
- Part 4: Miscellaneous provisions of the act.

All naturally occurring wild birds in Great Britain are protected from persecution. It is illegal to kill, injure or 'take' any wild bird, take, or damage the nest of any wild bird whilst in use or being built. The eggs of all wild birds are also protected. If you have in your possession any live wild birds, egg(s) or any part of a wild bird you are committing an offence. The birds listed in Schedule 1 of the Wildlife and Countryside Act 1981 are further protected by Special Penalties all year round for those in Part 1 and during a specified closed season for those listed in Part 2.

Schedule 5 lists Animals Species that are protected under Section 9. Section 9 prohibits the intentional killing, injuring, or taking of the species listed in Schedule 5 and also prohibits their possession and the trade in the wild animals listed. The species listed are also further protected from disturbance by prohibiting actions that affect places they use for shelter.

Animals listed in Schedule 6 are protected from being killed or taken by certain methods under Section 11(1) of the Wildlife and Countryside Act 1981. The methods listed are: self-locking snares, bows, crossbows, explosives (other than ammunition for a firearm), or live decoys. The species listed are also protected from the following activities: trap, snare or net, electrical device for killing or stunning, poisonous, poisoned or stupefying substances or any other gas or smoke, automatic or semi-automatic weapon, device for illuminating a target or sighting device for night shooting, artificial light, mirror or other dazzling device, sound recording, and mechanically propelled vehicle in immediate pursuit.

Under the Wildlife and Countryside Act 1981 (as amended), the country nature conservation bodies have a duty to notify any area of land which in their opinion is 'of special interest by reason of any of its flora, fauna, or geological or physiographical features' – these areas are known as Sites of Special Scientific Interest (SSSIs).

12.6 Countryside & Rights of Way Act, 2000

The CRoW Act gives a public right of access to land mapped as 'open country' (mountain, moor, heath and down) or registered common land. The protection of Sites of Special Scientific Interest (SSSIs) is strengthened in this legislation. The CRoW Act also allows for the prosecution of third parties that damage or destroy a SSSI.

12.7 Hedgerow Regulations 1997

These regulations fall under the local authority and are intended to protect important hedgerows from removal. Owners and managers must request permission from their local authority before removing a hedgerow, and permission may not be granted if it supports a diverse range or protected species.

12.8 The Protection of Badgers Act, 1992

Badgers are fully protected in the UK by the Protection of Badgers Act, 1992 and by Schedule 6 of the Wildlife and Countryside Act, 1981 (as amended). This makes it an offence (amongst other things) to:

- Wilfully kill, injure, take, possess, or cruelly treat a badger.
- Intentionally or recklessly damage, destroy or obstruct access to a badger sett.
- Disturb a badger while it is occupying a sett.

12.9 Natural Environment and Rural Communities (NERC) Act, 2006

The site comprises deciduous woodland, which is a Priority Habitat. Priority Habitats are listed under Section 41 of the Natural Environment and Rural Communities (NERC) Act, 2006. Section 40 (1) of the NERC Act, 2006 imposes a duty to conserve biodiversity:

- *“Every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity.”*

Section 40(3) of the Act explains that:

- *“Conserving biodiversity includes, in relation to a living organism or type of habitat, restoring or enhancing a population or habitat”.*

The duty applies to all local authorities and extends beyond just conserving what is already there to carrying out, supporting and requiring actions that may also restore or enhance biodiversity.

12.10 National Planning Policy Framework (NPPF) 2019

The National Planning Policy Framework sets out the Government's planning policies for England and how these should be applied¹. It provides a framework within which locally-prepared plans for housing and other development can be produced. So that sustainable development is pursued in a positive way, at the heart of the Framework is a presumption in favour of sustainable development.

Chapter 15 of the NPPF relates to conserving and enhancing the natural environment. Paragraphs 174 to 177 relate to habitats and biodiversity and states:

174 To protect and enhance biodiversity and geodiversity, plans should:

- a) Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity; wildlife corridors and stepping stones that connect them; and areas

identified by national and local partnerships for habitat management, enhancement, restoration or creation; and

b) 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.

175 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 reasons and a suitable compensation strategy exists; and

d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.

176 The following should be given the same protection as habitats sites:

a) potential Special Protection Areas and possible Special Areas of Conservation; b) listed or proposed Ramsar sites; and

c) sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.

177 The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.

12.11 Water Framework Directive

The Water Framework Directive (Directive 2000/60/EC) became law in England and Wales in 2003 via the Water Environment (WFD) (England and Wales) Regulations. The Water Framework Directive has four main goals: (1) to prevent deterioration in water status, (2) all water bodies achieve good ecological status, good chemical status and good groundwater status (or potential), (3) reduce and eliminate sources of pollution and (4) contribute to achieving objectives of sites protected by other EU legislation.

12.12 Bern Convention

The Convention on the Conservation of European Wildlife and Natural Habitats (the Bern Convention) was ratified by the UK Government in 1982. The principal aims of the Convention are to ensure conservation and protection of wild plant and animal species and their natural habitats (listed in Appendices I and II of the Convention), to increase cooperation between contracting parties, and to regulate the exploitation of those species (including migratory species) listed in Appendix III. To this end, the Convention imposes legal obligations on contracting parties, protecting over 500 wild plant species and more than 1,000 wild animal species.

13. Appendix 4 – Biodiversity Net Gain

13.1 Introduction

13.1.1 What is Biodiversity Net Gain?

Biodiversity Net Gain is defined as: “*Development that leaves biodiversity in a better state than before, and an approach where developers works with local governments, wildlife groups, landowners and other stakeholders in order to support their priorities for nature conservation*” (Baker, 2019). The UK’s Good Practice Principles for Biodiversity Net Gain provides a framework for development projects to show that they are following good practice (see Baker, 2019).

Biodiversity Net Gain has been described as a measurable target for development projects, where impacts on biodiversity are outweighed by a clear mitigation hierarchy approach to first avoid and then minimise impacts, including through restoration and/or compensation. Adhering to these Biodiversity Net Gain principles will help in underpinning good practice for achieving and sustaining Biodiversity Net Gain. Biodiversity compensation should be planned for a sustained net gain over at least the lifetime of the development (often 25-30 years), with the objective of Biodiversity Net Gain management continuing in the future.

Biodiversity Net Gain should be proportionate to the scale of the development and scale of biodiversity impact, fit in with the project’s lifespan and have the appropriate level of detail for the complexity of the Biodiversity Net Gain targets.

13.1.2 Legislation and Policy Drivers

For some time, the requirement to include ecological enhancements in development projects has been supported by the National Planning Policy Framework (NPPF, 2018) and the Natural Environment and Rural Communities (NERC) Act, 2006. Both place a requirement on Local Planning Authorities to thread ecological enhancement requirements through regional and local planning policy.

The forthcoming Environment Bill will make the implementation of Biodiversity Net Gain mandatory for development projects. Part 3(1) of Schedule 15 of the Environment Bill makes it clear that planning authorities will only approve a Biodiversity Net Gain plan if they are satisfied with the following:

1. The existing pre-development biodiversity value of the site is identified.
2. The proposed post-development biodiversity value of the site is as specified in the Biodiversity Net Gain plan.
3. That any required off-site Biodiversity Net Gain is formally registered and allocated and delivers sufficient gain.
4. That any biodiversity credits specified in the plan have been purchased.
5. Overall, the Biodiversity Net Gain objective has been met.

Local Planning Authorities will be required to prepare Local Nature Recovery Strategies (LNRS), which will provide the local framework for the delivery of Biodiversity Net Gain and inform the development planning process. In the meantime, Biodiversity Net Gain plans should be aligned to existing local plan biodiversity targets and Supplementary Planning documents.

13.2 Biodiversity Net Gain Principles

The following principles are taken from Biodiversity Net Gain. Good Practice Principles for Development (CIRIA, 2016).

13.2.1 Principle 1 – Applying the Mitigation Hierarchy

Do everything possible to first avoid and then minimise impacts on biodiversity. Only as a last resort, and in agreement with external decision-makers where possible, compensate for losses that cannot be avoided. If compensating for losses within the development footprint is not possible or does not generate the most benefits for nature conservation, then offset biodiversity losses by gains elsewhere.

13.2.2 Principle 2 – Avoid Losing Biodiversity that cannot be Offset by Gains Elsewhere

Avoid impacts on irreplaceable biodiversity - these impacts cannot be offset to achieve No Net Loss or Net Gain.

13.2.3 Principle 3 – Be Inclusive and Equitable

Engage stakeholders early, and involve them in designing, implementing, monitoring and evaluating the approach to Net Gain. Achieve Net Gain in partnership with stakeholders where possible and share the benefits fairly among stakeholders.

13.2.4 Principle 4 – Address Risks

Mitigate difficulty, uncertainty, and other risks to achieving Net Gain. Apply well-accepted ways to add contingency when calculating biodiversity losses and gains in order to account for any remaining risks, as well as to compensate for the time between the losses occurring and the gains being fully realised.

13.2.5 Principle 5 – Make a Measurable Net Gain Contribution

Achieve a measurable, overall gain for biodiversity and the services ecosystems provide while directly contributing towards nature conservation priorities.

13.2.6 Principle 6 – Achieve the Best Outcomes for Biodiversity

Achieve the best outcomes for biodiversity by using robust, credible evidence and local knowledge to make clearly justified choices when:

- Delivering compensation that is ecologically equivalent in type, amount and condition, and that accounts for the location and timing of biodiversity losses.
- Compensating for losses of one type of biodiversity by providing a different type that delivers greater benefits for nature conservation.
- Achieving Net Gain locally to the development while also contributing towards nature conservation priorities at local, regional and national levels.
- Enhancing existing or creating new habitat.
- Enhancing ecological connectivity by creating more, bigger, better and joined areas for biodiversity.

13.2.7 Principle 7 – Be Additional

Achieve nature conservation outcomes that demonstrably exceed existing obligations (i.e. do not deliver something that would occur anyway).

13.2.8 Principle 8 – Create a Net Gain Legacy

Ensure Net Gain generates long-term benefits by:

- Engaging stakeholders and jointly agreeing practical solutions that secure Net Gain in perpetuity.
- Planning for adaptive management and securing dedicated funding for long-term management.
- Designing Net Gain for biodiversity to be resilient to external factors, especially climate change
- Mitigating risks from other land uses.
- Avoiding displacing harmful activities from one location to another.
- Supporting local-level management of Net Gain activities.

13.2.9 Principle 9 – Optimise Sustainability

Prioritise Biodiversity Net Gain and, where possible, optimise the wider environmental benefits for a sustainable society and economy.

13.2.10 Principle 10 – Be Transparent

Communicate all Net Gain activities in a transparent and timely manner, sharing the learning with all stakeholders.

13.3 Exclusions

Biodiversity Net Gain does not apply to statutory designated sites (i.e. Sites of Special Scientific Interest – SSSIs) or irreplaceable habitats (i.e. ancient woodlands).

13.4 Biodiversity Net Gain Processes and Pathways

The following is a summary of the process of designing a Biodiversity Net Gain plan, once the feasibility of the plan has been tested, the mitigation hierarchy has been applied to the project and the pre and post development baseline biodiversity of a sites' individual features have been measured.

- Consider and justify choices for delivering Biodiversity Net Gain, including whether to deliver the same or different type of habitat, locating either within or outside of the site, enhancing existing habitats, or creating new habitats, creating more, bigger and better linked habitats, improving the quality of local wildlife sites, optimising social and economic benefits and being additional.
- Deliver like-for-like or better (trading in kind, trading between low distinctiveness habitats, trading carefully between moderate distinctiveness habitats, trading up where possible and appropriate and not trading between high distinctiveness habitats).
- Designing enhancement measures to deliver local biodiversity objectives and achieve net gains in features affected by the development in ways which contribute towards strategic policies.
- Avoid or minimise time-lags between losses and delivery.
- Avoid or minimise risks to delivering Biodiversity Net Gain.
- Measure the predicted net gain for individual habitats using the same metrics throughout.
- Specify timescales for the long-term.
- Develop a Biodiversity Net Gain management and monitoring plan.

13.5 Measuring Biodiversity Net Gain

Defra have produced a biodiversity metric 2.0 (Defra, 2012) to measure Biodiversity Net Gain. The metric is based on the following parameters. Full details can be found in Natural England Joint Publication JP029 – The Biodiversity Metric 2.0 Technical Supplement. Further updates of the metric are expected.

- Habitat condition.
- Distinctiveness.
- Connectivity.

A brief summary of these parameters is provided in the following sections:

13.5.1 Habitat Condition

The 'condition' component of quality measures the biological 'working-order' of a habitat type judged against the perceived ecological optimum state for that particular habitat. It is – therefore – a means of measuring variation in quality of patches of the same habitat type (i.e. an 'intra-habitat' quality measure) rather than a measure of quality between habitat types (i.e. an 'inter-habitat' quality measure) – which is assessed through the 'distinctiveness' of habitats. Full details of how habitat condition is assessed is provided in Natural England Joint Publication JP029.

13.5.2 Distinctiveness

In biodiversity metric 2.0 habitats have been assigned to distinctiveness bands based on the following criteria of distinguishing features:

- Total amount of remaining habitat in England (its rarity).
- Percentage of habitat protected in SSSI: where less is protected in SSSI's, it is considered of higher distinctiveness.
- UK Priority Habitat Status: Priority Habitats area classed as High or Very High.
- European Red List Categories for the habitat.

Distinctiveness categories are as follows:

Distinctiveness Band	Criterion Threshold
Very High Distinctiveness	Small amount of remaining habitat with a lot of it unprotected by designation. Endangered or Critical European red List habitats.
High Distinctiveness	Remaining Priority Habitats not in very high distinctiveness band & other red list of habitats.
Medium Distinctiveness	Non-Priority Habitats with significant wildlife benefit and 1 replaceable Priority Habitat (Arable field Margins).
Low Distinctiveness	Agricultural and Urban land use of lower biodiversity value.
Very Low Distinctiveness	Urban – with artificial structure which are un-vegetated, unsealed surface or built linear features of very low biodiversity value.

13.5.3 Connectivity

The focus of connectivity in metric is the relationship of a particular habitat patch to other surrounding **similar** or **related** semi-natural habitats facilitating flows of species and ecosystem services.

All High and Very High distinctiveness habitats should be assigned a Medium connectivity multiplier, other habitats a Low connectivity multiplier.

13.5.4 Strategic Significance

The following options are available in the Biodiversity Metric 2.0 for Strategic Significance:

- Within area formally identified in local strategy (high strategic significance).
- Local ecologically desirable, but not in local strategy (medium strategic significance).
- Area/compensation not in local strategy/no local strategy (low strategic significance).

13.6 Management and Monitoring

Costed management and monitoring plans are essential to the success of Biodiversity Net Gain. Plans should keep track of timing, extent, quality and condition.

The purpose of monitoring is to determine success or failure, gives an early warning system when aspects of management aren't working and provides an opportunity to plan for remedial measures

(adaptive management). Monitoring needs to take into consideration frequency, duration, timing and costs. The results of monitoring need to be clearly documented.

Management and monitoring plans should set out activities over at least 5 years, with objectives for the longer-term.

The responsibility for management can fall to the main contractor, a broker, a local stakeholder or a third-party company.