



Elite Ecology

Passionate about Ecology

**Land off Ivy Close,
Willington**



Preliminary Ecological Appraisal

November 2018



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0. Executive Summary

This report has been prepared at the request of Mr. Jaz Sahota (Partnership Homes Ltd.). Elite Ecology were commissioned to undertake a Preliminary Ecological Appraisal at the land located at the Land off Ivy Close, Willington, Derbyshire, DE65 6BS (Central OS Grid Reference: SK 29095 28328). This survey effort involved both a desktop study and field survey being undertaken.

Under the current proposals, the land will be re-developed into multiple residential dwellings with access roads and gardens. This will result in both the permanent and temporary loss and/or alteration of some of the habitats located on the proposed re-development site.

DBRC were commissioned to carry out an ecological data search of all protected species and designated sites recorded within a 2km radius of the site. No records lay on the proposed re-development site itself.

The preliminary ecological appraisal survey revealed numerous habitats on site. The phase 1 habitat map, habitat codes and target notes for the site are located within Appendix D. The following habitats were recorded on site (in habitat code order):

- A3.3 – Mixed Scattered Trees
- B5 – Marsh Grassland
- B6 – Poor Semi-improved Grassland
- J2.3 – Hedge and Trees
- J2.6 – Dry Ditch

No designated sites revealed from the Ecological Data Set provided by DBRC fall on the proposed development site. However, there are designated sites or potential designated sites that lie within close proximity to the site proposed for development. Therefore, it is highly possible that rare and protected species may be present on the site that require further assessment.

No habitats of conservation concern were located on the site itself. Therefore, the proposed scheme of works will not impact upon any rare or valuable habitats.

Amphibians: Due to the known population of great crested newt (*Triturus cristatus*) adjacent to the proposed development site, a full presence/absence survey of the waterbodies within 500m is necessary on the waterbodies on the northern side of the road. This comes in the form of 6 survey efforts between March and June, with at least two of the surveys being undertaken between mid-April and mid-May. Following this information, a full assessment of the impacts can be made.

[REDACTED]

Bats: Due to the potential impacts on the local bat populations, further assessment is required to ascertain the impacts of the works. This will come in the form of a pre-determined transect route to be walked on at least three occasions – one in Autumn, one in Spring and one in Summer. This will assess the site's year-round usage by the local bat populations.

Birds: Due to the local designation of a nearby site for birds, further effort is required. The relevant surveys and methodologies can be found below:

- Breeding Bird Survey - The survey methodology will broadly follow the 'Common Bird Census' (CBC) devised by the British Trust for Ornithology (BTO). This technique records the location and movements of individual birds present within a defined survey area. Three survey visits are undertaken during the breeding bird survey of March to August (with optimal timing being in May, June and July). These should avoid adverse weather conditions (heavy rain or strong winds) where possible. This will be done along a pre-determined transect route.
- Winter Bird Survey – It has been deemed that the site could be of importance to wintering birds. This survey method requires six survey visits between October and March (one per month). These surveys commence an hour after sunrise and can last for a few hours. These should avoid adverse weather conditions (heavy rain or strong winds) where possible. A pre-determined transect route will be walked by surveyors, with a vantage point survey also in place.

It is likely that compensation is required for the loss of the vegetation and it is recommended that bird boxes are installed post-development. For the anticipated compensation measures, please see section 5.4 of this report.

Hedgehogs: As a purely precautionary measure, it is recommended that provisions are incorporated during the construction phase. This will be to create provisions for hedgehogs to escape in the form of creating slopes or the inclusion of ramps at the end of each working day from all trenches dug into the ground. Additionally, any pipework left on site that is greater than 150mm in diameter will need to be planked off. Should this information be strictly adhered to, then the development works will not negatively impact on the local mammal populations. Post development, two [Eco Hedgehog Nest Boxes](#) should be included into the site within appropriate locations. It is also recommended that small gaps are left within any boundary fencing to enable the specimens to continue to commute through the area (an example can be found within figure 2). This will ensure that the local hedgehog populations do not become fragmented within the local landscape.

Otter: It is recommended that a more comprehensive assessment of the site's usage for the known nearby otter populations is undertaken to ensure that the proposed development of the site does not negatively affect these specimens.

Rabbits: To ensure no rabbits are harmed by the works, it is recommended that Reasonable Avoidance Measures are put in place.

Reptiles: Due to the potential for reptiles to be present within the habitats located on the survey site, it will be necessary to undertake a full presence/absence survey for reptiles to assess the impacts the proposed scheme of works will have on the local reptile populations. This involves seven survey visits between April to October, avoiding July and August, with the optimal survey seasons being April, May and September.

Site Enhancements

For the proposed site enhancements, please see section 5.4 of this report.

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1 Introduction

1.1 Report rationale

This report has been prepared at the request of Mr. Jaz Sahota (Partnership Homes Ltd.). Elite Ecology were commissioned to undertake a Preliminary Ecological Appraisal at the land located at the Land off Ivy Close, Willington, Derbyshire, DE65 6BS (Central OS Grid Reference: SK 29095 28328). This survey effort involved both a desktop study and field survey being undertaken.

The main purpose of this assessment was to identify the broad habitats (as stated in the JNCC Phase 1 Handbook) and the flora species present within the survey area, with any further evidence of protected species usage and/or features of potential ecological interest also included. The field survey was carried out on the 5th November 2018 by Mr. Richard Millington (BSc [Hons], ACIEEM) and Mr. Adam Harper (BSc).

1.2 Site description and works

The site is situated in the western part of the Derbyshire village of Willington. The centre of the village of Willington is located approximately 300m to the north-east of the survey site. In the 2011 Census, Willington had a population of approximately 2,864.

The site itself measures approximately 1ha and contains three habitat types, in the form of scattered trees, hedgerow and poor semi-improved grassland, which could be utilized by protected species. Photographs of the site are found within Appendix E.

Within the wider landscape, further habitats are present. These come in the form of residential structures (and their associated gardens/yards), scattered trees, arable land, pastureland, infrastructure (railway lines), woodland and waterbodies (canal, ponds and river). The habitats that surround the site also have the potential to be utilized by a variety of protected species.

Under the current proposals, the land will be re-developed into multiple residential dwellings with access roads and gardens. This will result in both the permanent and temporary loss and/or alteration of some of the habitats located on the proposed re-development site.

Figure 1: An aerial map showing the location of the land proposed for development at the Land off Ivy Close, Willington (yellow star) in relation to some of the local landscape.



2 Survey Methodology

2.1 Desktop Survey

A variety of resources were independently consulted to assess the known local records within the nearby area and the importance of the site within the local landscape from an ecological perspective. The resources used were the Local Records Centre, www.naturalengland.org.uk, www.ordnancesurvey.co.uk, Google Maps, Google Earth and Bing Maps. A search of other relevant nature conservation information was made through the use of the Multi-Agency Geographic Information for the Countryside (MAGIC) database.

The local records centre were contacted to provide data on all protected species and designated sites within 2km of the proposed development site. Derbyshire Biological Records Centre (DBRC) were the relevant local record centre for this project.

2.2 Field Survey

A Preliminary Ecological Appraisal (previously referred to as an Extended Phase 1 Habitat Survey) was carried out using the method outlined in the JNCC Handbook for *Phase 1 Habitat Survey: a technique for environmental audit (2010)*. This method aims to map and describe the broad habitat types and notable features present on the surveyed site.

As part of the field survey, the floral species will be identified and noted down. This will consider the dominant, abundant, frequent, occasional and rare (DAFOR) species within each habitat on the survey site. The impacts of the proposed development scheme will be assessed by this report.

Each habitat will be assessed for the presence and/or the potential presence of protected species. The impacts of the proposed scheme of works on all potential protected species on site will be assessed. From this, either remedial action or recommended phase 2 presence/absence surveys will be devised.

Some of the classification codes and colours listed within the JNCC handbook may have been slightly modified for this project.

Habitat Surveys can be carried out at any time of the year, with the optimal time period falling between the months of April through until September. This survey was carried out in November 2018, which is outside of the optimal time period for flora surveys. However, Elite Ecology feels confident that the majority of the floral species located on the site were competently identified during the survey effort. In addition to this, Elite Ecology feels confident that this report reflects an accurate representation of the site's suitability for protected species to be present.

All sites surveyed by Elite Ecology will be run against the relevant Local Wildlife Site Criteria to assess whether or not they meet the required standards.

3 Desktop Survey Results

3.1 Statutory Sites

The ecological data received from DBRC revealed one statutory protected sites (e.g. LNR, SSSI, SPA, SAC or Ramsar) within the 2km of the site. This site is a Derbyshire Wildlife Trust Nature Reserve and is as follows:

- Willington Gravel Pits

The site is situated approximately 105m to the south-east of the nearest survey site boundary.

3.2 Non-Statutory Sites

The ecological data received from DBRC confirmed the presence of 20 non-statutory protected sites within 1km of the site. These come in the form of Local Wildlife Sites (LWS), potential Local Wildlife Sites (PLWS) and Grade 3 Sites (GRADE3). These are as follows:

- Trent and Mersey Canal [Eggington – Willington] (PLWS)

The site is situated approximately 5m to the north of the nearest survey site boundary.

- Highbridge Wetland (LWS)

The site is situated approximately 141m to the south-west of the nearest survey site boundary.

- Willington Wetlands (LWS)

The site is situated approximately 177m to the south-west of the nearest survey site boundary.

- Repton Water Meadows (LWS)

The site is situated approximately 990m to the south-east of the nearest survey site boundary.

- Willington Railway Pond No.1 (LWS)

The site is situated approximately 1147m to the north-east of the nearest survey site boundary.

- Willington Railway Pond No. 2 (LWS)

The site is situated approximately 1265m to the north-east of the nearest survey site boundary.

➤ Willows Nr St Ann's Well (PLWS)

The site is situated approximately 1284m to the south-east of the nearest survey site boundary.

➤ Willington Grassland (LWS)

The site is situated approximately 1322m to the north-east of the nearest survey site boundary.

➤ Tanner's Lane Grassland (LWS)

The site is situated approximately 1349m to the south of the nearest survey site boundary.

➤ Willington Sports Ground Grassland (GRADE3)

The site is situated approximately 1377m to the east of the nearest survey site boundary.

➤ Solney Meadow (GRADE3)

The site is situated approximately 1412m to the south-west of the nearest survey site boundary.

➤ Sports Ground Marsh (LWS)

The site is situated approximately 1443m to the east of the nearest survey site boundary.

➤ Repton Oxbow (LWS)

The site is situated approximately 1539m to the south-east of the nearest survey site boundary.

➤ Trentside Slope Complex (LWS)

The site is situated approximately 1539m to the south-west of the nearest survey site boundary.

➤ Common Plantation (LWS)

The site is situated approximately 1615m to the north-east of the nearest survey site boundary.

➤ Ash Grove Lane (LWS)

The site is situated approximately 1691m to the north-west of the nearest survey site boundary.

➤ Brunt's Lane Wood (PLWS)

The site is situated approximately 1741m to the north-west of the nearest survey site boundary.

➤ Toyota Balancing Ponds (LWS)

The site is situated approximately 1760m to the north of the nearest survey site boundary.

➤ Findern Meadows (LWS)

The site is situated approximately 1862m to the north-east of the nearest survey site boundary.

➤ Willington Road (GRADE3)

The site is situated approximately 1969m to the north-west of the nearest survey site boundary.

3.3 Woodland Sites

The information provided by DBRC revealed no Ancient, Semi-natural Woodlands or Ancient Replanted Woodland sites have been identified within the 2km search radius.

3.4 Regionally Important Geological Sites (RIGS)

The information provided by DBRC revealed no RIGS within the 2km search radius.

3.5 Species Records

3.5.1 Amphibians

Within the Ecological Data Search provided by DBRC, one amphibian species has been recorded within the 2km search radius. The nearest sightings to the proposed development site were of great crested newt (*Triturus cristatus*) that was identified approximately 54m to the south of the nearest site boundary. A number of other sightings have also been revealed within close proximity to the site.

3.5.2 Birds

No bird species have been identified within the 2km search radius, although it is known that the Willington Wetlands have been designated a Local Wildlife Site due to their bird assemblage.

3.5.3 Crustacean

The Ecological Data Search provided by DBRC revealed records of one crustacean within 2km of the survey site. This comes in the form of a freshwater white-clawed crayfish (*Austropotamobius pallipes*) sighting in the River Derwent approximately 1850m to the north-east.

3.5.4 Fish

Within the Ecological Data Search provided by DBRC, no fish species have been revealed within 2km of the site.

3.5.5 Flora

Within the Ecological Data Search provided by DBRC, no floral species have been revealed in the search radius.

3.5.6 Invertebrates

Within the Ecological Data Search provided by DBRC, no invertebrate species have been detected within 2km of the site.

3.5.7 Mammals

Within the Ecological Data Search provided by DBRC, multiple mammal species were detected within the 2km search radius of the site. The nearest record to the survey site is of European otter (*Lutra lutra*) that has been sighted approximately 58m away from the survey site. A table with the collated mammal species recorded can be found within Appendix B.

3.5.8 Molluscs

Within the Ecological Data Search provided by DBRC, no mollusc species were detected within 2km of the site.

3.5.9 Reptiles

Within the Ecological Data Search provided by DBRC, one reptile species has been identified within the search radius. The nearest record to the site is of grass snake (*Natrix helvetica*) that has been identified approximately 733m to the south-west.

4 Field Survey

4.1 Habitats

The preliminary ecological appraisal survey revealed three habitats on site. The phase 1 habitat map, habitat codes and target notes for the site are located within Appendix D. The following habitats were recorded on site (in habitat code order):

4.1.1 A3.3 – Mixed scattered Trees

Along the southern border is a row of trees that comprise of ash (*Fraxinus excelsior*), hawthorn (*Crataegus monogyna*), oak (*Quercus robur*) and rowan (*Sorbus aucuparia*). Within this habitat, two gorse bushes are located in this section of the site. This habitat has been deemed to have the potential to support protected species (please see section 4.2 and 5.3).

4.1.2 B5 – Marshy Grassland

The western portion of the site has been classed as marshy grassland. This is due to the presence of over 25% of this habitat being covered by rush species (*Juncus* sp.) that would indicate that this site gets wet. This habitat has potential to support protected species (please refer to sections 4.2 and 5.3).

4.1.3 B6 – Poor Semi-improved Grassland

This habitat is located across the site. It consists of previously grazed grass, which has been allowed to grow. The floral species here are dominated by grasses, such as annual meadow grass (*Poa annua*), perennial ryegrass (*Lolium perenne*) and Yorkshire fog (*Holcus lanatus*). Additionally, some other species were found to occasionally occur were cleavers (*Galium aparine*), common chickweed (*Stellaria media*), dandelion (*Taraxacum officinale*), meadow buttercup (*Ranunculus acris*), nettle (*Urtica dioica*), red-dead nettle (*Lamium purpureum*), spear thistle (*Cirsium vulgare*) and white clover (*Trifolium repens*). This habitat is deemed to be of some value to local nature due to the proximity to superior nature habitats.

4.1.4 J2.3 – Hedge and Trees

The north-eastern and north-western boundaries of the site is comprised of this habitat, with an intact hedgerow interspersed with mature trees. The hedgerow consists of numerous woody species such as ash (*Fraxinus excelsior*), blackthorn (*Prunus spinose*), bramble (*Rubus fruticosus*), crack willow (*Salix fragilis*), hawthorn (*Crataegus monogyna*), holly (*Ilex aquifolium*), oak (*Quercus robur*) and rowan (*Sorbus aucuparia*). This habitat also has the potential to support protected species (please see sections 4.2 and 5.3).

4.1.5 J2.6 – Dry Ditch

The southern section of the site consists of a dry ditch, with the moisture content of the soil still able to support species associated with damp habitats such as the common reed (*Phragmites australis*). Due to the boggy nature of this area, protected species could be present within this section of the site (please see sections 4.2 and 5.3 for more information).

4.2 Species

The preliminary ecological appraisal survey revealed that the habitats that have been outlined for the proposed re-development area do not contain protected species potential. However, the adjacent habitats could support some protected species.

4.2.1 Amphibians (including great crested newts)

There are known populations of great crested newt (*Triturus cristatus*) in ponds located nearby to the proposed works site. Therefore, the site is highly likely to support terrestrial amphibians. Due to this, further survey effort is required (please see section 5.3).

[REDACTED]

4.2.3 Bats

The scattered trees located around the survey site are not deemed suitable to support roosting bats. However, further assessment of the site's usage by bats is required to ascertain the importance of the site to any local populations (please see section 5.3 for more information).

4.2.4 Birds

Some of the habitats could be used by nesting birds such as hedgerow and trees. If either of these features are to be removed, further precautions are required (please see section 5.3).

4.2.5 Dormouse

The hedgerows and habitats at the survey site were not deemed suitable to support any local hazel dormouse (*Muscardinus avellanarius*) populations. This, in combination with no records within 2km of the site, means that no further action is required regarding this species.

4.2.6 Invertebrates

The habitats located on the site proposed for development are likely to support common species only. Therefore, no further action is required.

4.2.7 Otter

The site was inspected for any evidence of otter (*Lutra lutra*) due to its proximity to the adjacent Trent and Mersey Canal. No evidence of otters was identified on the site, although numerous sightings have been identified in close proximity. Therefore, further survey effort is required (please see section 5.3).

4.2.8 Reptiles

The site could be in use by the local reptile populations for commuting purposes. Due to this, further survey effort is required to establish their presence/absence (please see section 5.3).

4.2.9 Water Vole

The site is located far enough away from the canal so as to not affect any burrowing water voles. In addition to this, no evidence of water vole burrows was identified along the canal bank located 5m from the survey site to the north-west. Therefore, no further action is required for this species.

4.2.10 Other Species

The habitats on site has low potential to support the local hedgehog (*Erinaceus europaeus*) populations. This, in combination with the nearby records of this species means that further precautionary measures are necessary for this project (please refer to section 5.3).

Evidence of rabbit (*Oryctolagus cuniculus*) burrows were identified along the southern section of the site.

4.3 **Potential impacts of the works**

Based upon the results from the desktop survey, field survey and using a degree of academic supposition, the uncompensated re-development impacts have been summarised as follows:

- Amphibians – High
- [REDACTED]
- Bats – Low-to-Moderate
- Birds – High
- Flora – Negligible
- Hazel Dormouse – Negligible
- Hedgehogs – Moderate
- Invertebrates – Negligible
- Otter – Low
- Rabbit – High
- Reptiles – High
- Water Vole – Negligible

5.3.4 Birds

Due to the local designation of a nearby site for birds, further effort is required. The relevant surveys and methodologies can be found below:

- Breeding Bird Survey - The survey methodology will broadly follow the 'Common Bird Census' (CBC) devised by the British Trust for Ornithology (BTO). This technique records the location and movements of individual birds present within a defined survey area. Three survey visits are undertaken during the breeding bird survey of March to August (with optimal timing being in May, June and July). These should avoid adverse weather conditions (heavy rain or strong winds) where possible. This will be done along a pre-determined transect route.
- Winter Bird Survey – It has been deemed that the site could be of importance to wintering birds. This survey method requires six survey visits between October and March (one per month). These surveys commence an hour after sunrise and can last for a few hours. These should avoid adverse weather conditions (heavy rain or strong winds) where possible. A pre-determined transect route will be walked by surveyors, with a vantage point survey also in place.

It is likely that compensation is required for the loss of the vegetation and it is recommended that bird boxes are installed post-development. These should be suitable for a variety of bird species and should include:

- Two Apex [Robin Boxes](#)
- Two 28mm entrance on the [Apex Bird Box](#)
- Two 32mm entrance on the [Apex Bird Box](#)
- Three [Large Bird Nest Boxes](#)
- One [Eco Barn Owl Nest Box](#)

5.3.5 Hedgehogs

As a purely precautionary measure, it is recommended that provisions are incorporated during the construction phase. This will be to create provisions for hedgehogs to escape in the form of creating slopes or the inclusion of ramps at the end of each working day from all trenches dug into the ground. Additionally, any pipework left on site that is greater than 150mm in diameter will need to be planked off. Should this information be strictly adhered to, then the development works will not negatively impact on the local mammal populations.

Post development, two [Eco Hedgehog Nest Boxes](#) should be included into the site within appropriate locations. It is also recommended that small gaps are left within any boundary fencing to enable the specimens to continue to commute through the area (an example can be found within figure 2). This will ensure that the local hedgehog populations do not become fragmented within the local landscape.

Figure 2: An image illustrating a gap within a hedgerow to enable hedgehogs to continue to commute through an area and not fragment the populations (Image courtesy of the RSPB).



5.3.6 Otter

It is recommended that a more comprehensive assessment of the site's usage for the known nearby otter populations is undertaken to ensure that the proposed development of the site does not negatively affect these specimens.

5.3.7 Rabbit

To ensure no rabbits are harmed by the works, it is recommended that Reasonable Avoidance Measures are put in place.

5.3.8 Reptiles

Due to the potential for reptiles to be present within the habitats located on the survey site, it will be necessary to undertake a full presence/absence survey for reptiles to assess the impacts the proposed scheme of works will have on the local reptile populations. This involves seven survey visits between April to October, avoiding July and August, with the optimal survey seasons being April, May and September.

5.4 **Site Enhancements**

For the proposed development works, the following site enhancement measures could be incorporated into the site post-development. Further enhancements will be made once the presence/absence of species is determined. These measures are optional.

For the proposed development works, the following site enhancement measures could be incorporated into the site post-development. These measures are optional.

5.4.1 Flora

At present, the site is not considered to have a diverse range of flora. Therefore, it is recommended that a small section of the site is converted into a 'wild meadow' that uses native wildflower seed mixes. A variety of these can be found on the [Meadowmania](#) or [Wildflower Turf](#) webpages.

5.4.2 Invertebrates

At present, the site is not considered to be of any importance to local invertebrate populations. In conjunction with the wildflower planting, it is recommended that two [Bumblebee Boxes](#) are incorporated into the scheme, along with two [Bug Hotels](#). This will enhance the site for the local invertebrate populations, which will thus attract species further up in the trophic level.

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7 Appendices

Appendix A: Site Plans

Appendix B: Desktop Study Table

Appendix C: Desktop Study Map

Appendix D: Phase 1 Habitat Map

Appendix E: Site Photographs

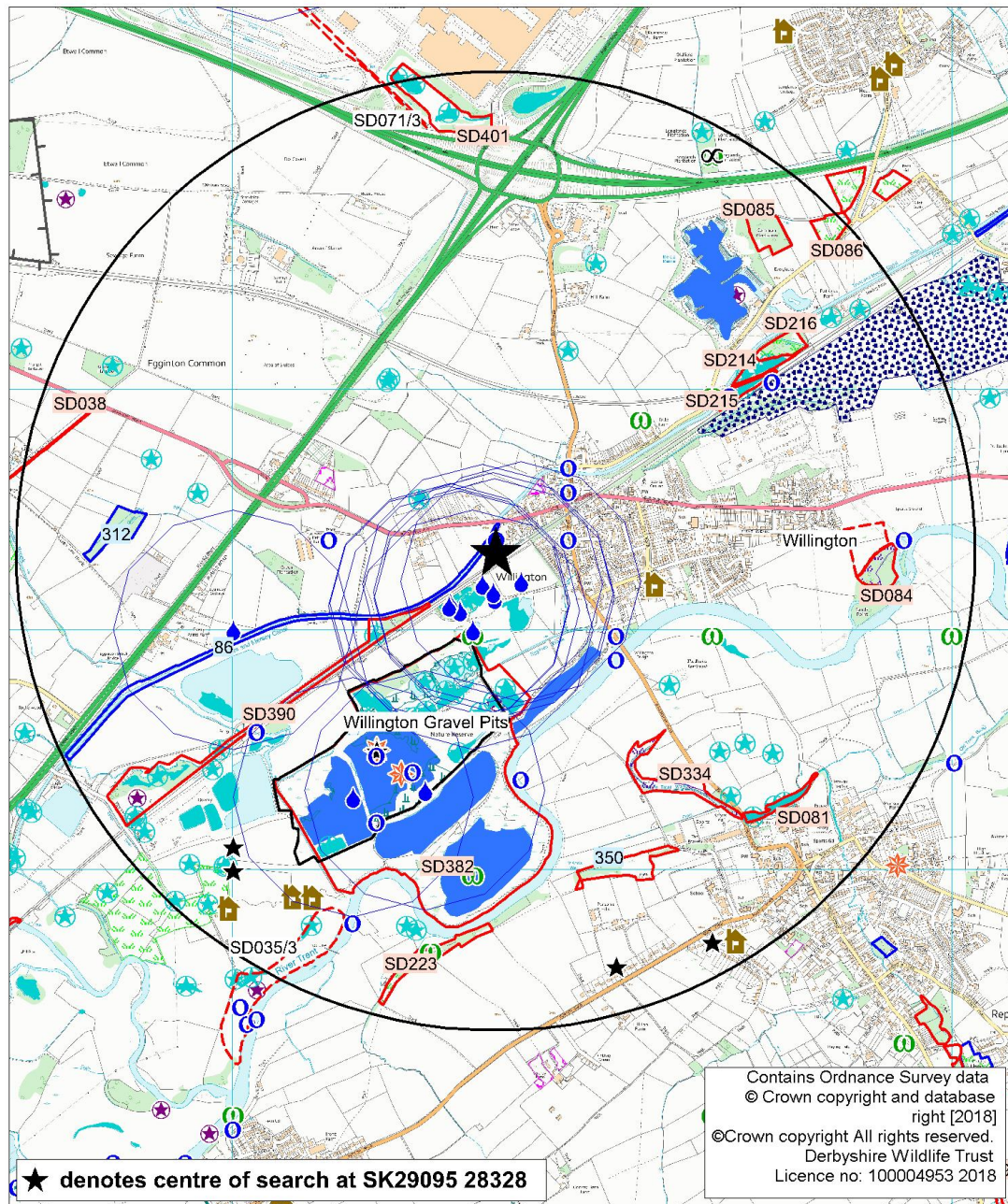
Appendix F: Biodiversity Legislation and Policy

Appendix A: Site Plans.

No site plans have been made available to Elite Ecology. For a copy of the plans, please contact Mr. Jaz Sahota (Partnership Homes Ltd.) on jaz.ukph@gmail.com

Appendix B: The Ecological Data Tables

Amphibians	
Common Name	Latin Name
Great Crested Newt	<i>Triturus cristatus</i>
Crustacean	
Common Name	Latin Name
Freshwater White-Clawed Crayfish	<i>Austropotamobius pallipes</i>
Mammals	
Common Name	Latin Name
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
Bat	<i>Chiroptera</i>
Brandt's/Whiskered Bat	<i>Myotis brandtii/mystacinus</i>
Brown Long-eared Bat	<i>Plecotus auritus</i>
Common Pipistrelle	<i>Pipistrellus pipistrellus</i>
Daubenton's Bat	<i>Myotis daubentonii</i>
European Otter	<i>Lutra lutra</i>
Myotis Bat species	<i>Myotis</i>
Nathusius's Pipistrelle	<i>Pipistrellus nathusii</i>
Natterer's Bat	<i>Myotis nattereri</i>
Noctule Bat	<i>Nyctalus noctula</i>
Pipistrelle Bat species	<i>Pipistrellus</i>
Soprano Pipistrelle	<i>Pipistrellus pygmaeus</i>
Water Vole	<i>Arvicola amphibious</i>
Whiskered Bat	<i>Myotis mystacinus</i>
Reptiles	
Common Name	Latin Name
Grass Snake	<i>Natrix Helvetica</i>

Appendix C: The Ecological Data Search Maps

**Produced for Elite Ecology
by Derbyshire Wildlife Trust
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**Derbyshire
Wildlife Trust**

Appendix D: Phase 1 Habitat Map

KEY	
	Site Boundary
	A3.3 – Mixed Scattered Trees
	B5 – Marsh Grassland
	B6 – Poor Semi-improved Grassland
	J2.3 – Hedge and Trees
	J2.6 – Dry Ditch

Appendix E: Site Photographs

Plate 1: A photograph of the proposed development site.



Plate 2: An image of the western corner of the site.



Plate 3: A photograph of the hedgerow located on site.



Plate 4: A photograph of the dry ditch.



Appendix F: Biodiversity Legislation and Policy

General Legislation and Policy:

The framework of legislation and policy which underpins nature conservation in England. This is a material consideration in the planning process in England.

Conservation of Habitats and Species Regulations 2010 (Habitats Regulations 2010 as amended)

The Habitats Regulations 2010 consolidate and update the Conservation Regulations 1994 and all its various amendments. The Habitats Regulations 2010 are the principal means by which the EEC Council Directive 92/43 (The Habitats Directive) as amended is transposed into English and Welsh law.

The Habitats Regulations 2010 place duty upon the relevant authority of government to identify sites which are of importance to the habitats and species listed in Annexes I and II of the Habitats Directive. Those sites which meet the criteria are, in conjunction with the European Commission, designated as Sites of Community Importance, which are subsequently identified as Special Areas of Conservation (SAC) by the European Union member states. The regulations also place a duty upon the government to maintain a register of European protected sites designated as a result of EC Directive 79/409/EEC on the Conservation of Wild Birds (The Birds Directive). These sites are termed Special Protection Areas (SPA) and, in conjunction with SACs, form a network of sites known as Natura 2000. The Habitats Directive introduces for the first time for protected areas, the precautionary principle; that is that projects can only be permitted having ascertained no adverse effect on the integrity of the site. Projects may still be permitted if there are no alternatives, and there are imperative reasons of overriding public interest.

The Habitats Regulations 2010 also provide for the protection of individual species of fauna and flora of European conservation concern listed in Schedules 2 and 5 respectively. Schedule 2 includes species such as otter and great crested newt for which the UK population represents a significant proportion of the total European population. It is an offence to deliberately kill, injure, disturb or trade these species. Schedule 5 plant species are protected from unlawful destruction, uprooting or trade under the regulations.

The Wildlife and Countryside Act (WCA) 1981 (As amended)

The WCA, as amended, consolidates and amends pre-existing national wildlife legislation in order to implement the Bern Convention and the Birds Directive. It complements the Conservation (Natural Habitats. & c.) Regulations 1994 (as amended), offering protection to a wider range of species. The Act also provides for the designation and protection of national conservation sites of value for their floral, faunal or geological features, termed Sites of Special Scientific Interest (SSSIs).

Schedules of the act provide lists of protected species, both flora and fauna, and detail the possible offences that apply to these species.

The Countryside and Rights of Way (CROW) Act 2000

The CROW Act, introduced in England and Wales in 2000, amends and strengthens existing wildlife legislation detailed in the WCA. It places a duty on government departments and the National Assembly for Wales to have regard for biodiversity, and provides increased powers for the protection and maintenance of SSSIs.

The Act also contains lists of habitats and species (Section 74) for which conservation measures should be promoted, in accordance with the recommendations of the Convention on Biological Diversity (Rio Earth Summit) 1992.

The Natural Environment and Rural Communities (NERC) Act 2006

Section 40 of the NERC Act places a duty upon all local authorities and public bodies in England and Wales to promote and enhance biodiversity in all of their functions. Sections 41 (England) and 42 (Wales) list habitats and species of principal importance to the conservation of biodiversity. These lists supersede Section 74 of the CRoW Act 2000. These species and habitats are a material consideration in the planning process.

The Hedgerow Regulations 1997

The Hedgerow Regulations make provision for the identification of important hedgerows which may not be removed without permission from the Local Planning Authority.

UK Biodiversity Action Plan

The United Kingdom Biodiversity Action Plan (UKBAP), first published in 1994 and updated in 2007, is a government initiative designed to implement the requirements of the Convention of Biological Diversity to conserve and enhance species and habitats. The UKBAP contains a list of priority habitats and species of conservation concern in the UK, and outlines biodiversity initiatives designed to enhance their conservation status. Lists of Broad and Local habitats are also included. The priority habitats and species correlate with those listed on Section 41 and 42 of the NERC Act.

The UKBAP requires that conservation of biodiversity is addressed at a County level through the production of Local BAPs. These are complementary to the UKBAP, however are targeted towards species of conservation concern characteristic of each area. In addition, a number of local authorities and large organisations have produced their own BAPs. UKBAP and Local BAP targets with regard to species and habitats are a material consideration in the planning process.

Planning Policy (England) and National Planning Policy Framework

In early 2012, the National Planning Policy Framework (NPPF) replaced much previous planning policy guidance, including Planning Policy Statement 9: Biological and Geological Conservation. The government circular 06/05: Biodiversity and Geological Conservation - Statutory Obligations and Their Impact within the Planning System, which accompanied PPS9, still remains valid. A presumption towards sustainable development is at the heart of the NPPF. This presumption does not apply however where developments require appropriate assessment under the Birds or Habitats Directives.

Chapter 11, on conserving and enhancing the natural environment, sets out how the planning system should contribute to and enhance the natural and local environment by minimising impacts on biodiversity and, where possible, provide net gains in biodiversity. Opportunities to incorporate biodiversity gains into a development should be encouraged.

If a proposed development would result in significant harm to the natural environment which cannot be avoided (through the use of an alternative site with less harmful impacts), mitigated or compensated for (as a last resort) then planning permission should be refused.

Species Specific Legislation

This section contains a summary of legislation with relation to the species present or potentially present in the survey area. The reader should refer to the original legislation for definitive interpretation.

Nesting and Nest Building Birds

Nesting and nest building birds are protected under the Wildlife and Countryside Act WCA 1981 (as amended). Some species (listed in Schedule 1 of the WCA) are protected by special penalties.

Subject to the provisions of the act, if any person intentionally:

- kills, injures or takes any wild bird;
- takes, damages or destroys the nest of any wild bird while that nest is in use or being built; or
- takes or destroys an egg of any wild bird, he shall be guilty of an offence.

'Reckless' offences with regard to the disturbance of nesting wild birds included in Schedule 1 of the Wildlife and Countryside Act were added by the Countryside and Rights of Way Act 2000.

The Natural Environment and Rural Communities (NERC) Act 2006 places a duty on Government Departments to have regard for the conservation of biodiversity and maintains lists of species and habitats which are of principal importance for the purposes of conserving biodiversity in England and Wales. These lists include a number of bird species.

The reader is referred to the original legislation for the definitive interpretation.

[REDACTED]

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Bats

All species of bat are fully protected under a variety of domestic, European and international legislation and conventions. These include:

- Bern Convention (Appendix II)
- Bonn Convention (Appendix II)
- Conservation Regulations (Northern Ireland) 1995
- Conservation of Habitats and Species Regulations 2010
- Countryside Rights of Way Act 2000
- Eurobats Agreement
- Habitats Directive (Annexes IV and II)
- Habitats Regulations 1994 (as amended) Scotland
- NERC Act 2006
- Wildlife and Countryside Act 1981 (as amended)
- Wild Mammals Protection Act

In addition to this, some species have additional protection by being listed on the UK Biodiversity Action Plan (UKBAP).

The legislation afforded to bats makes it illegal to possess or control any live or dead specimens, to damage, destroy or obstruct access to any structure or place used for shelter, protection or breeding, and to intentionally disturb a bat while it is occupying a structure or place which it uses for that purpose.

All nesting birds are protected under the Wildlife and Countryside Act 1981 (as amended), which protects birds, nests, eggs and nestlings from harm. In addition to this, some rarer species, such as barn owls are afforded extra protection.

National Planning Policy Framework, Section 11:

The published framework in 2012 replaces the previous Planning Policy Statement 9.

Section 11: Conserving and enhancing the natural environment reaffirms the government's commitment to maintaining green belt protections and preventing urban sprawl, retains the protection of designated sites and preserves wildlife. It also aims to improve the quality of the natural environment and halt declines in species and habitats, protects and enhances biodiversity and promotes wildlife corridors.

Biodiversity 2020:

This sets out to halt overall biodiversity loss and support healthy well-functioning ecosystems by establishing coherent ecological networks, with more and better places for nature, to the benefit of wildlife and people. The government's policy is aimed at individuals, communities, local authorities, charities, business and government, which all have a role to play in delivering Biodiversity 2020.

Freshwater White-clawed Crayfish

The white-clawed crayfish is partially protected under Wildlife and Countryside Act 1981 (as amended). It is listed on schedule 5 and therefore afforded protection under Section 9 (1 and 5). Therefore, it is an offence to take white-clawed crayfish and to sell, or attempt to sell, any part of the species, alive or dead, or intend to buy or sell.

Great Crested Newt

The great crested newt (*Triturus cristatus*) is fully protected under a variety of legislation and conventions. These include:

- Bern Convention (Appendix II)
- Conservation (Natural Habitats, &c.) Regulations 1994 (as amended)
- Conservation of Habitats and Species Regulations 2010
- EU Habitats Directive (Annex II and IV)
- Nature Conservation (Scotland) Act 2004
- NERC Act 2006 (Section 41 England; Section 42 Wales)
- Wildlife and Countryside Act 1981 (as amended)

In addition to this, the great crested newt has been listed as a priority species on the UK Biodiversity Action Plan (UKBAP).

This legislation covers all aspects of newt life stages (eggs, efts and adult newts) and makes it illegal to damage, destroy or obstruct access to any structure or place used for shelter, protection or breeding, and to intentionally disturb a great crested newt while it is occupying a structure or place which it uses for that purpose.

Licenses can be obtained from Natural England (DEFRA) under the Conservation (Natural Habitats etc.) Regulations 1994, to permit activities for the purposes of:

- Regulation 44(2)(e): Preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment, or
- Regulation 44(2)(f): Preventing the spread of disease
- Regulation 44(2)(g): Preventing serious damage to any form of property or fisheries

Or

- If there is no satisfactory alternative.

The above regulations allow people to carry out activities which would otherwise be illegal.

Hazel Dormouse

Hazel Dormouse and their habitats are protected by:

- Wildlife and Countryside Act 1981 (as amended)
- Countryside Rights of Way (CROW) 2000
- The Natural Environment and Rural Communities Act 2006
- Conservation of Habitat and Species Regulations 2010

These make it an offence to:

- Capture, injure or kill a Hazel Dormouse
- Disturb a Hazel Dormouse
- Damage or destroy breeding or nesting sites in use by Hazel Dormice
- Disturb a Dormouse whilst it is occupying a structure or place that they use for shelter or protection
- Obstruct access to any structure or place that the Dormouse uses for shelter and protection.
- To possess or control any live or dead specimens.

Otter

Otters are fully protected by the European Habitats Directive (92/43/EEC) by being incorporated in annex II of the legislation. In addition to this, otters are listed on schedule 5 of the Wildlife and Countryside Act 1981 (as amended). This makes it an offence to:

- To intentionally kill, injure or take an otter.
- To possess or control any live or dead specimens.
- To intentionally or recklessly damage, destroy or obstruct access to any structure, feature or place of shelter in use by otters.
- To intentionally or recklessly disturb an otter whilst it is in occupation of a feature or structure.
- To sell, possess or transport for the purpose of sale or publicly declare the desire to buy or sell otters.

Reptiles

All six native reptiles within Great Britain are legally protected, with the extent of protection varying dependent upon their rarity and conservation importance.

Those that receive full protection under the Wildlife and Countryside Act 1981 (as amended) are the rare sand lizard and smooth snake. These species also receive protection under the Conservation (Natural Habitats &c.) Regulations 1994 (also referred to as the Habitats Directive). This means that they are protected from deliberate disturbance, killing, injury or capture and the habitat in which they live is also fully protected against damage or destruction. Any activity involving disturbance or damage to habitats utilised by sand lizards or smooth snakes would require a licence issued by the Department of the Environment, Food and Rural Affairs (DEFRA) following consultation with the statutory nature conservation organisation (Natural England).

The remaining four reptile species are 'partially protected' under the Wildlife and Countryside Act 1981 (as amended), with these species being slow-worm, common lizard, grass snake and adder. This means that these species are protected against intentional killing, injuring and against sale, but their habitat is not protected. In planning terms this means that the presence of these species is a material consideration and there is a requirement to ensure that any reptile interest is safeguarded. If a proposed development is likely to have an impact on these reptiles, then the statutory nature conservation organisation must be notified, particularly if capture and translocation is being proposed. In some parts of the UK, sites that support common reptile species such as common lizards and slow-worms can qualify as County Wildlife Sites. Sites of this designation may receive protection in planning policy.

Water Voles

Water Voles are fully protected under the Wildlife and Countryside Act 1981 (as amended). This makes it an offence to:

- To intentionally kill, injure or take a water vole.
- To possess or control any live or dead specimens.
- To intentionally or recklessly damage, destroy or obstruct access to any structure, feature or place of shelter in use by water voles.
- To intentionally or recklessly disturb a water vole whilst it is in occupation of a feature or structure.
- To sell, possess or transport for the purpose of sale or publicly declare the desire to buy or sell water voles.

Non-Native Floral Species

It is an offence under schedule 9 of the Wildlife and Countryside Act 1981 (as amended) to plant or otherwise cause non-native flora to grow in the wild. This includes the transportation of earth that has previously had non-native species growing and includes the spread of the species.

All stands of non-native floral species need to be disposed of safely at a licenced landfill site according to the Environmental Protection Act (Duty of Care) Regulations 1991.

Appendix G: Bats and Artificial Light

Artificial lighting is known to affect bat's roosting and foraging behaviour, with lighting resulting in a range of impacts that includes roost desertion (BCT, 2009), delayed emergence of roosting bats (Downs et al., 2003), increased activity of some bat species and decreased activity by others (Stone et al., 2012).

An experimental approach using LED units, demonstrated that relatively fast-flying bat species, including the common pipistrelle, showed no significant impacts as a result of new artificial lighting, even when lighting was set at relatively high levels close to 50 lux.

In contrast, slow flying bats such as the myotis bats (*Myotis* spp.) showed sharp reductions in presence, even at low light levels of 3.6 lux (Stone et al., 2012).

Current recommendations for all bat species specifies that no bat roost should be directly illuminated.

Due to the impacts of lighting, mitigation and sensitive lighting design schemes are required for projects where bats are present. These should include bat friendly lighting plans that should aim to avoid lighting wherever possible. If this is not possible, then the minimisation of any lighting impacts is required by adopting the following measures:

➤ **To introduce lighting curfews or use of PIR sensors.**

Lighting curfews can be an effective way of avoiding impacts on bats. These curfews may involve either turning off lighting or dimming light units at specific times of the night, dimming units at key times of the year, providing the luminaire allows for this option via a control unit. Lighting to be triggered by PIR sensors can be expected to be illuminated only when required and for a low proportion of time.

➤ **To consider no lighting solutions where possible.**

Options such as white lining, good signage and LED cat's eyes should be considered as preferable. Reflective fittings may help make use of headlights to provide any necessary illumination in some areas.

➤ **To use only high pressure sodium or warm white LED lamps where possible.**

High pressure sodium and warm white LED lamps emit lower proportions of insect attracting UV light than mercury, metal halide lamps and white LED lighting. Generally, lamps should have a lower proportion of white or blue wavelengths, with a colour temperature <4200 kelvin recommended (BCT, 2014).

➤ **To minimise the spread of light.**

The light spread should be kept at or near horizontal to ensure that only the task area is lit. Flat cut-off lanterns or accessories should be used to shield or direct light to where it is required. Baffles, hoods, louvres and shields should be used where necessary to reduce light spill.

➤ **To consider the height of the lighting column.**

While downward facing bollard lighting is often preferable, it should be noted that a lower mounting height does not automatically reduce impacts to bats as bollard lighting can often be designed to provide up-lighting. Where bollard lighting is considered to be the most appropriate system, bollard spacing or unit density should be kept to a minimum and units should be fitted with the appropriate hoods/deflectors to reduce any up-lighting.

➤ **To avoid reflective surfaces below lights.**

The polarisation of light by shiny surfaces attracts insects increasing bat activity (BCT, 2012). Consequently, surface materials around lighting require consideration.

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The survey results purport the current status of the site and its potential for protected species utilisation at the time of surveying. It should not be viewed as a complete list of the possible flora and fauna species that could be using the site at different times of the year.

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No reliance should be made on any such comments in relation to the structural integrity of the features located on the surveyed site. All information within the report is based solely on evidence that has been found on site during the service provided. No individual opinion or inference will be made other than that of the suitably qualified ecologist appointed to the project.