PRELIMINARY ECOLOGICAL APPRAISAL

at

245 Heckmondwike Road
Dewsbury
West Yorkshire
WF13 3NF

Client:
Code L6 Architecture

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Quality Assurance

Version	**Desktop Survey Completed:**		**Site Surveyed:**		**Report Completed:**		**Reviewed:**	
	Date	Name	Date	Name	Date	Name	Date	Name
Planning	08/09/22	Helen Chambers	08/09/22	Helen Chambers Eve Goodwin	09/09/22	Helen Chambers	15/09/22	Audrey Bourdais Paull
							26/09/22	Adam West

This report has been prepared and provided in accordance with the *British Standard 42020: Biodiversity – Code of practice for planning and development 2018* and the *CIEEM's Code of Professional Conduct.*

Risk Assessment Completed	Redacted
Bio-security Procedure Completed	
Lone Worker Procedure Completed	

Summary

JCA Limited has been commissioned by **Code L6 Architecture** to undertake a Preliminary Ecological Appraisal (PEA) of a site located at **245 Heckmondwike Road**. The site is located at Ordnance Survey (OS) National Grid Reference SE 22527 22390 with nearby postcode WF13 3NF.

A desk study and field survey were undertaken in order to assess the potential of the site to support protected habitats and species and species of conservation concern. Recommendations for further survey, avoidance, mitigation and enhancement – where appropriate - have been made and are summarised in Table 1 on the following page and are detailed in full in Chapter 6 of this report.

Table 1: summary of ecological receptors at the site and recommended mitigation.

Receptor	Potential Risk to Project if No Action Taken	Cause of Impact Description of Effect	Further Survey Required	Mitigation Required
Designated sites				
Statutorily protected	Negligible	None	None	N/A
Non-statutorily protected	Negligible	None	None	N/A
Other habitats	High	Possible removal and fragmentation of priority habitats.	None	Consult Kirklees Council about the priority habitats onsite.
Protected species				
Flora (WCA Sch 8, CHSR Sch 5)	Negligible	None	None	N/A
Invertebrates	Moderate	Loss of food plant for cinnabar moth caterpillars leading to local decline in population numbers.	None	Mitigation may be stipulated by the Local Authority. Wildflower planting to mitigate loss.
White-clawed crayfish	Negligible	None	None	N/A
Fish	Negligible	None	None	N/A
Great crested newt	Negligible	None	None	N/A
Reptiles	Negligible	None	None	N/A
Birds	Moderate	The removal of any trees, grassland or scrub habitat onsite has the potential to cause disturbance of breeding birds, resulting in a breach of legislation.	If clearance occurs between (1st February until 31st August) a nesting bird survey is required.	Dependent on time of removal. If removal occurs outside of the breeding bird period and birds are found, the removal must cease immediately, and a suitably competent ecologist contacted.
Bats	Moderate	The trees have been assigned low bat roosting potential and the site provides moderate foraging and commuting	None	Trees must be felled in a sympathetic manner. This is to be achieved by felling the trees and leaving them in situ where

		habitat. The works have the potential to disrupt local bat populations.		they fall for a minimum of 24 hours before disposal. For artificial lighting within the development, guidance from Institute of Lighting Professionals (2018) should be followed.
Badgers	Moderate	Potential to disturb any foraging or commuting badgers utilising the site.	None	Exclusion fencing to be erected around the site perimeter. Any excavation of the site should be covered overnight, or if not possible, a safe exit route provided for badgers to leave the site, such as an artificial ramp to aid their exit.
Otters	Negligible	None	None	N/A
Water voles	Negligible	None	None	N/A
Other Species e.g. S41 species	Moderate	Hedgehogs could be injured or killed during the removal of the scrub habitat.	None	Any dense scrub to be removed should be hand searched immediately by a suitably qualified and experienced ecologist prior to removal, to ensure no hedgehogs are currently nesting in the vegetation. Hedgehog holes measuring 13cm by 13cm must be installed within any newly created walls or fences.

Invasive Species (WCA Sch 9) Injurious Weeds (Weeds Act, 1959)				
N/A	Negligible	None	None	N/A
Key: S41 habitat/species – habitats and species listed as priority for conservation importance under Section 41 (S41) of the Natural Environment and Rural Communities (NERC) Act 2006. WCA Sch – Wildlife and Countryside Act 1981 (as amended) Schedule CHSR Sch – Conservation of Habitats and Species Regulations 2017 Schedule				

Contents

1. Introduction

1.1 Background

1.1.1 In August 2022, JCA Limited was instructed by **Code L6 Architecture** to undertake a Preliminary Ecological Appraisal (PEA) of a site located at **245 Heckmondwike Road**, hereafter referred to as 'the site'. The purpose of the survey is to establish a baseline of ecological information and assess whether the proposed works, hereafter referred to as 'the scheme', have the potential to adversely affect any protected or notable habitats or species.

1.2 Scheme Description and Location

1.2.1 The site is located at Ordnance Survey (OS) National Grid Reference SE 22527 22390, with nearby postcode WF13 3NF. The site is bordered primarily by residential properties, with Heckmondwike Road running along the northeast boundary. To the south and west are agricultural fields, a small patch of woodland and playing fields. Further northwest is a large industrial development.

1.2.2 The scheme is the erection of five residential dwellings with associated access, parking and gardens.

1.3 Previous studies

1.3.1 An Arboricultural Survey and Report for Development Purposes was conducted in April 2018 (JCA, 2018). This outlined the trees to be retained within the development and highlighted one tree for removal due to proximity to the access track.

1.4 Aims and Objectives

1.4.1 The purpose of the survey is to establish a baseline of ecological information and assess whether the proposed development activities have the potential to adversely affect any protected or notable habitats or species. The following tasks have been undertaken:

- Desktop study – a review of environmental records for the surrounding area to obtain existing information on statutory and non-statutory designated sites of nature conservation interest, and the presence of

protected and notable habitats and species within the site and its environments.

- Field surveys – an Extended Phase 1 Habitat survey involving a site visit to record habitat types and dominant vegetation, including any invasive species. During this survey evidence of protected or notable fauna and habitats or habitat capable of supporting protected or notable fauna was recorded.
- Ecological report – an assessment of the potential ecological constraints to the proposed works at the site and recommendations for further survey, avoidance, mitigation, and enhancement where appropriate. Locations of any features constituting ecological constraints or of other ecological interest and vegetation recorded on and around the development are included in an accompanying Phase 1 Habitat Map (Appendix 1). This report and the maps are supported by photographs (Appendix 4) and information regarding current legislation (Appendix 7).
- Biodiversity Metric Baseline Assessment – condition scoring the habitats onsite and assigning each habitat a numerical value. This calculation is done in an excel worksheet (Appendix 3).

2. Methodology

2.1 Desktop Study

2.1.1 The desktop study involved conducting database searches for statutory and non-statutory designated sites and European Protected Species (EPS) licensing applications within a 2km radius of the site. The baseline conditions are based on a review of existing available information including:

- MAGIC (Multi-Agency Geographical Information for the Countryside) website (to identify statutory designated sites and EPS licences).
- Ordnance Survey mapping (to identify potentially notable habitats including ponds).
- Aerial photography (to identify potentially notable habitats).
- Data search for records of protected/notable species on and within 2km of the site within the last ten years (exempting bat roosts, of which all records are included) obtained from West Yorkshire Ecology Service (WYES), the local environmental records centre for Wakefield, along with information for non-statutory wildlife sites.

2.1.2 The records were checked against species listed as priority species under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 and the Kirklees Biodiversity Action Plans (KBAP) to assess national and regional habitat and species status.

2.2 Field Survey

2.2.1 A Phase 1 survey of the site was conducted on 08/09/22. All areas of the site were investigated and areas around the site where access permitted.

2.2.2 The vegetation and habitat types within the site were noted during the survey in accordance with the categories specified for a Phase 1 Vegetation and Habitat Survey (The UK Habitat Classification, Habitat Definitions Version 1.1, UKHab, 2020). Dominant and abundant plant species were recorded for each habitat present.

2.2.3 The site was inspected for evidence of, and its potential to support, protected or notable species, especially those listed under the Conservation of Habitats and Species (Amendment) (EU Exit)

Regulations 2019, the Wildlife & Countryside Act (WCA) 1981 (as amended), including those given a higher level of legal protection under the NERC Act 2006 and Countryside & Rights of Way (CRoW) Act 2000, and those listed on the LBAP. The following species were considered:

- Invertebrates (including white-clawed crayfish *Austropotamobius pallipes*).
- Great crested newt *Triturus cristatus* freshwater habitat potential within 500m of the site.
- Reptile habitat within the site.
- Nesting and foraging habitat for birds within the site.
- Bat roost potential and foraging habitat within the site.
- Badger *Meles meles* setts within 30m of the site, where accessible.
- Otters *Lutra lutra* and suitable habitat within 30m of the site, where accessible.
- Water vole *Arvicola amphibius* habitat within 20m of the site, where accessible.
- Other notable species.
- Invasive species.

2.3 Survey Constraints

2.3.1 To determine presence or likely absence of protected species usually requires multiple visits at suitable times of the year. As a result, the survey undertaken focused on assessing the potential of the site to support species of note, which are considered to be of principal importance for the conservation of biodiversity with reference to the National Planning Policy Framework (Ministry of Housing, Communities and Local Government, 2018), especially those given protection under UK wildlife legislation.

2.3.2 The optimum time of year for completing the survey is between April and September, as many plant species have a seasonal expression in spring and summer only. The survey was undertaken on 08/09/22.

2.3.3 The weather conditions during and in the days preceding the field survey were wet. In certain scenarios, this would be considered a limitation, as

the rain could remove field signs, such as scat or footprints. However, in other cases, this can in fact prove useful in terms of highlighting species tracks such as otter, badger and deer.

2.3.4 A small section of the site towards the north was inaccessible due to dense scrub which was impenetrable. The most northern section of woodland therefore had to be assessed from a distance.

2.3.5 These factors are not considered to pose a significant constraint on the findings from the survey, as assessments could still be made on the potential of the site to support protected, notable and invasive species, and the precautionary principal was applied in terms of the trees present.

2.3.6 The details of this report will remain valid for a period of 18 months. If works have not commenced within this period or land use on site changes, it is recommended that a new review of the ecological conditions is undertaken.

2.4 Baseline Biodiversity Metric

2.4.1 A baseline biodiversity metric was carried out as part of the field survey on 08/09/22.

2.4.2 As of the recently passed Environment Act 2021, developments are now required to ensure a biodiversity net gain of at least 10%, which will be determined from the baseline biodiversity units. Should the development fall short of the required 10% biodiversity net gain, further enhancement and mitigative measures will be necessary.

2.4.3 The Biodiversity Metric 3.1 provides a way of measuring and accounting for biodiversity losses and gains resulting from development or land management change. The first calculation of the metric (included in this report) assigns a baseline numeric value for biodiversity units present onsite pre-development, assessed whilst onsite. A full metric would then determine whether the proposed development meets the target increase in biodiversity units.

2.4.4 The metric uses habitat features as a proxy measure for capturing the value and importance of nature, which are recorded during the survey. It uses a calculation that takes into account the importance of these features for nature: their size, ecological condition, location and proximity to nearby ‘connecting’ features. The metric enables assessments to be

made of the present and forecast future biodiversity value of a site (Natural England, 2022).

3. Desk Study Results

3.1 Statutory Designated Sites

3.1.1 The MAGIC website revealed no internationally designated sites within 2km of the site.

3.1.2 The MAGIC website revealed one nationally designated site within 2km of the site. This is the Lower Spen Wildlife Area designated as a Local Nature Reserve. This is approximately 1500m south of the site.

3.2Non-statutory Designated Sites

3.2.1 Records received from WYES revealed one non-statutory designated site within 2km of the site. This is the Lower Spen Wildlife Area designated as a Local Wildlife Site due to it also being designated as a Local Nature Reserve (Vanl2). This is approximately 1500m south of the site.

3.3 Section 41 of the NERC Act 2006 Priority Habitat Inventory

3.3.1 The MAGIC website revealed the following habitats within 2km of the site:

- Deciduous woodland – 114 parcels, with the nearest being onsite and directly adjacent to the site.
- National Forest Inventory – 47 parcels, with the nearest being onsite and directly adjacent to the site.
- Woodpasture and Parkland BAP Priority Habitat – one parcel, approximately 1km southeast.
- Open Mosaic Habitat – seven parcels, with the closest being 500m northwest.

3.4 Protected and Notable Species

3.4.1 <u>European Protected Species (EPS) Licence Applications</u>

- The MAGIC website revealed two EPS licence applications within 2km of the site;

- a licence granted in 28/09/2011 and ending in 01/12/2012 to allow for the destruction of a resting place used by common pipistrelles. Licence reference: EPSM2011-3454.
- a licence granted in 04/02/2019 and ending in 31/03/2024 to allow for the destruction of a resting place used by common pipistrelles. Licence reference: 2019-38940-EPS-MIT.

3.4.2 Records of Protected and Notable Species

3.4.3 Flora

No records of protected or notable flora within 2km of the site were returned by WYES.

3.4.4 Invertebrates (including white-clawed crayfish)

One record of small heath *Coenonympha pamphilus*, a UKBAP species, was returned by WYES. This was made in 2019, approximately 752m away from the site.

One record of cinnabar Tyria jacobaeae, a UKBAP and WYBAP species, was returned. This was made in 2019, approximately 752m away from the site.

3.4.5 Fish

No records of protected or notable fish within 2km of the site were returned by WYES.

3.4.6 Amphibians

Three records of common frog *Rana temporaria*, a Schedule 5 (WCA, as amended) and WYBAP species, were returned. These were made in 2019, and 1754m away from the site.

Two records of great crested newt *Triturus cristatus*, a Schedule 5 (WCA, as amended), UKBAP, WYBAP and Kirklees BAP species. The most recent record was in 2016, and the closest record 919m away.

One record of a smooth newt *Triturus vulgaris*, a Schedule 5 (WCA, as amended) and WYBAP species was returned by WYES. This was made in 2019, 1754m away from the site.

3.4.7 Reptiles

No records of protected or notable reptiles within 2km of the site were returned by WYES.

3.4.8 Birds

The following records were received from WYES:

Table 2: Bird Records Received from WYES.

Scientific name	Common name	Designation	Latest Date	Number of records	Distance from site
Alauda arvensis	Skylark	UKBAP, WYBAP	2019	1	752m
Carduelis carduelis	Goldfinch	KBAP	2019	1	752m
Delichon urbica	House martin	WYBAP	2019	1	752m
Emberiza citrinella	Yellowhammer	UKBAP, WYBAP	2019	1	752m
Falco tinnunculus	Kestrel	WYBAP, KBAP	2016	1	752m
Hirundo rustica	Swallow	WYBAP, KBAP	2019	1	752m
Numenius arquata	Curlew	UKBAP, WYBAP	2019	1	752m
Prunella modularis	Dunnock	UKBPA, WYBAP, KBAP	2019	1	752m
Pyrrhula pyrrhula	Bullfinch	UKBPA, WYBAP, KBAP	2019	1	752m

Key:
UKBAP: UK Biodiversity Action Plan
WYBAP: West Yorkshire Biodiversity Action Plan
KBAP: Kirklees Biodiversity Action Plan

3.4.9 Bats

The site was found to fall within the West Yorkshire Bat Alert Zone.

The following records were received from WYES:

Table 3: Bat Records Received from WYES.

Scientific Name	Common Name	Designation	Latest Date	Number of records	Distance from Site
Myotis	Unidentified *Myotis* sp.	WCA Sch 5	2017	1	1382m
Nyctalus noctula	Noctule bat	WCA Sch 5	2013	3	550m

		S41 UKBAP WYBAP KBAP			
Pipistrellus	Pipistrelle bat	WCA Sch 5	2013	1	550m
Pipistrellus pipistrellus	Common pipistrelle	WCA Sch 5 WYBAP KBAP	2020	19	757m
Pipistrellus pygmaeus	Soprano pipistrelle	WCA Sch 5 S41 UKBAP WYBAP KBAP	2020	3	1244m
Plecotus auritus	Brown long-eared bat	WCA Sch 5 S41 UKBAP WYBAP KBAP	2017	1	1382m

Key:
WCA: Wildlife & Countryside Act 1981 (as amended)
S41: Section 41 of the NERC Act 2006
UKBAP: UK Biodiversity Action Plan
WYBAP: West Yorkshire Biodiversity Action Plan
KBAP: Kirklees Biodiversity Action Plan

3.4.10 Bat Roosts

The following records were received from WYES:

Table 4: Bat Records Received from WYES.

Scientific Name	Common Name	Roost type	Date	Distance from Site
Pipistrellus pipistrellus	Common pipistrelle	Transitional	2011	562m
Pipistrellus pipistrellus	Common pipistrelle	Not recorded	2003	858m
Pipistrellus pipistrellus	Common pipistrelle	Not recorded	2012	1053m
Pipistrellus pipistrellus	Common pipistrelle	Not recorded	2011	1106m

Pipistrellus pipistrellus	Common pipistrelle	Not recorded	2018	1432m
Pipistrellus pipistrellus	Common pipistrelle	Not recorded	2018	1435m
Pipistrellus	Pipistrelle bat	Not recorded	2005	1313m
Pipistrellus	Pipistrelle bat	Maternity	2007	1807m
Pipistrellus	Pipistrelle bat	Maternity	2007	1807m
Vespertilionidae	Unidentified bat	Not recorded	2003	1515m
Vespertilionidae	Unidentified bat	Not recorded	2004	697m
Vespertilionidae	Unidentified bat	Possible	2002	609m
Vespertilionidae	Unidentified bat	Not recorded	1997	676m
Vespertilionidae	Unidentified bat	Maternity	2002	1005m
Vespertilionidae	Unidentified bat	Maternity	2002	1005m
Vespertilionidae	Unidentified bat	Not recorded	2007	994m
Vespertilionidae	Unidentified bat	Not recorded	2008	994m
Vespertilionidae	Unidentified bat	Maternity	1994	1666m
Vespertilionidae	Unidentified bat	Not recorded	2004	1343m

3.4.11 Badgers

The data search revealed no records of badgers within 200m of the site, the nearest sett to be over 2km from the site, and the site fails to fall within the area of increased probability for badger activity.

3.4.12 Otters

No records of otters within 2km of the site were returned by WYES.

3.4.13 Water Voles

No records of water voles within 2km of the site were returned by WYES.

3.4.14 Other Notable Species

Three records of European hedgehog *Erinaceus europaeus*, a UKBAP, WYBAP and Kirklees BAP species, were returned by WYES. These were made in 2015, with the closest record by 1693m away from the site.

3.4.15 Invasive Species

The following records were received from WYES:

Table 5: Invasive Species Records Received from WYES.

Scientific name	Common name	Designation	Latest Date	Number of records	Distance from site
Crocosmia x crocosmiiflora	Montbretia	WCA Sch 9	2020	1	1571m
Fallopia japonica	Japanese knotweed	WCA Sch 9	2015	3	1491m
Heracleum mantegazzianum	Giant hogweed	WCA Sch 9	2019	12	752m
Impatiens glandulifera	Indian balsam	WCA Sch 9	2016	13	706m
Psittacula krameri	Ring-necked parakeet	WCA Sch 9	2019	1	752m

Key:
WCA: Schedule 9 of the Wildlife & Countryside Act 1981 (as amended)

4. Field Survey Results

4.1 Habitats

4.1.1 g3c Other neutral grassland

Towards the centre and west of the site is other neutral grassland (see **Appendix 3, Photo 1 & 6**). The species identified included perennial rye grass *Lolium perenne*, Yorkshire fog Holcus lanatus, ribwort plantain *Plantago lanceolata*, creeping buttercup *Ranunculus repens*, coltsfoot *Tussilago farfara*, cocksfoot *Dactylis glomerata*, ragwort *Jacobaea vulgaris*, nettle *Urtica dioica*, creeping thistle *Cirsium arvense*, rosebay willowherb *Chamaenerion angustifolium*, hedge bindweed *Calystegia sepium*, white clover *Trifolium repens*, wild radish *Raphanus raphanistrum*, blackberry *Rubus fruticosus*, mugwort *Artemisia vulgaris*, herb Robert *Geranium robertianum*, cow parsley *Anthriscus sylvestris*, dandelion *Taraxacum officinale* and common vetch *Vicia sativa*. Within this habitat was a pile of branches and logs from previously cleared trees (see **Appendix 1, Target Note 1**).

4.1.2 17 Ruderal / ephemeral

Within the grassland habitat, to the northwest of the site, is a patch of tall ruderals (see **Appendix 3, Photo 2**). Identified here were rosebay willowherb, nettle, bleeding heart fuchsia *Lamprocapnos spectabilis*, bitter doc *Rumex obtusifolius*, blackberry and common sorrel *Rumex acetosa*.

4.1.3 11 Scattered trees

Within the grassland habitat was a scattered tree. This was a mature lime *Tilia x europaea*.

4.1.4 w1h Other woodland; mixed

Along the east boundary of the site is a strip of mixed woodland (see **Appendix 3, Photo 3 & 4**). The dominant species are horse chestnut *Aesculus hippocastanum*, sycamore *Platanus occidentalis*, lime, ash, elm *Ulmus procera*, beech *Fagus sylvatica*, Norway maple *Acer platanoides* and elder *Sambucus nigra*. The understory comprises nettle, ivy *Hedera helix*, herb robert, blackberry, common holly *Ilex aquifolium*, annual honesty *Lunaria annua*, bramble, wild privet *Ligustrum vulgare*, hawthorn *Crataegus monogyna* and cow parsley. The southern patch of woodland has a dense coverage of ivy on the ground. Within this habitat was a pile of stone bricks towards the south (see

Appendix 1, Target Note 2) and a waste pile present towards the north (see **Appendix 1, Target Note 3**).

4.1.5 73 Bare ground

Towards the south of the woodland habitat is an area of bare ground (see **Appendix 3, Photo 5**).

4.1.6 h3 Dense scrub

Towards the centre of the site is dense scrub (see **Appendix 3, Photo 6**). Species included blackberry, ivy, purple toadflax *Linaria purpurea*, creeping thistle, European dewberry *Rubus caesius* and rosebay willowherb.

4.1.7 u1b Developed land; sealed surface

Along the west boundary of the site is an access road (see **Appendix 3, Photo 7**).

4.1.8 s Sparsely vegetated land

At the north of the site is a patch of sparsely vegetated land (see **Appendix 3, Photo 2**). Species identified here were dandelion, white clover, nettles and perennial rye grass. Rubble was present within this habitat.

4.2 Protected and Notable Species

4.2.1 Flora

Generalist flora species were identified onsite, however no protected or notable flora were noted onsite. Flora will therefore not be mentioned further in this report.

4.2.2 Invertebrates (including white-clawed crayfish)

Numerous generalist insects were identified onsite, including multiple butterfly species. No notable or protected invertebrate species were noted. However, ragwort was identified onsite, which is a food source for cinnabar moth caterpillars. Cinnabar moth is a species of principle importance for the conservation and biodiversity in England. In addition, the pile of stone bricks towards the south of the site offers suitable habitat for numerous invertebrate species.

4.2.3 Fish

No suitable habitat that could support fish was present onsite. Therefore, fish will not be mentioned further in this report.

4.2.4 Amphibians

No suitable habitat that could support amphibians was present onsite. Amphibians, therefore, will not be mentioned further in this report.

4.2.5 Reptiles

The site holds negligible potential to support reptile species, therefore reptiles will not be mentioned further in this report.

4.2.6 Birds

The site holds moderate nesting potential for birds in the form of the woodland, scattered trees, dense scrub and grassland habitat on site. No protected or notable species were identified on site.

4.2.7 Bats

Most of the trees onsite were covered by dense ivy which could be obscuring any potential roosting features underneath. Several trees had cracks and crevices which could afford bat shelter (see **Appendix 3, Photo 8 & 9**). In addition, some trees were inaccessible due to the impenetrable nature of the dense scrub adjacent to the woodland. For this reason, the trees are given low bat roosting potential.

Furthermore, the site offers moderate foraging and commuting habitat and there is ecological connectivity to the west in terms of the neighbouring grassland fields and pockets of woodland further afield.

4.2.8 Badgers

No signs of badger activity or setts were noted during the survey. The site is surrounded to the north, east and south by residential dwellings and urban developments, which limits badger migration onsite. However, to the west the site has good ecological connectivity to the surrounding grassland fields and pockets of woodland further afield.

4.2.9 Otters

No evidence of otters, or habitat to support them, was identified onsite. Otters, therefore, will not be mentioned further in this report.

4.2.10 Water Voles

No evidence of water voles, or habitat to support them, was identified onsite. Water voles, therefore, will not be mentioned further in this report.

4.2.11 Other Notable Species

The site holds potential to support hedgehogs due to the presence of favourable scrub habitat.

4.2.12 Invasive Species

No evidence of invasive species under WCA Schedule 9 was identified onsite. It is therefore considered unlikely that invasive species are present onsite, and so invasive species will not be mentioned further in this report.

4.3 Biodiversity Baseline Metric

4.3.1 Due to the size of the site, a Small Sites Metric (SMM) exercise has been undertaken as to fully inform this assessment. The calculations have been processed in a Microsoft Excel workbook, which accompanies this report (see Appendix 3). The SMM calculation tool was selected as the areas of habitats are too small to be adequately captured by the full Metric 3.1, as this only allows figures to two decimal places. A summary of the main findings is provided below.

4.3.2 The total habitat area of the site is 3201 m^2, consisting predominantly of other woodland; mixed, mixed scrub, sparsely vegetated land, other neutral grassland, tall ruderal and developed land; sealed surface. The resulting ecological baseline is returned at **2.1983 total habitat units** (see Appendix 3).

5. Assessment

5.1 Designated Sites

5.1.1 Statutory designated sites

The Lower Spen Wildlife Area, designated as a Local Nature Reserve is over 1km from the site. Given the distance from the site and the small-scale nature of the development, this site is not deemed vulnerable to adverse impacts from the proposed development.

5.1.2 Non-statutory designated sites

As above, The Lower Spen Wildlife Area, also designated as a Local Wildlife Site, is over 1km from the site and so is not deemed vulnerable to adverse impacts from the proposed development.

5.1.3 Section 41 of the NERC Act 2006 Priority Habitat Inventory

The MAGIC website revealed both deciduous woodland and national forest inventory parcels to be present onsite. The proposed development involves removal of a selection of trees within the woodland onsite, therefore, there is potential to cause habitat fragmentation to these priority habitats.

5.2 Habitats

5.2.1 The most valuable habitats for biodiversity within the development site boundary are the mixed woodland, scattered trees, grassland habitat, tall ruderal and dense scrub. The proposed works will impact see the removal of these habitats.

5.2.2 The other habitats described in Chapter 4, Section 4.1 have lower biodiversity and provide less opportunity to support protected or notable species. The flora recorded in these habitats is considered to be locally common and widespread and they do not fall into any of the NERC S41 or Local BAP Priority Habitat descriptions.

5.3 Protected and Notable Species

5.1.1 Invertebrates (including white-clawed crayfish)

Ragwort is the food species for the cinnabar moth, which is a priority species. This has been identified on site within the grassland habitat, and the planned

development will see the removal of this species from the site. Further recommendations are provided in Section 6.2.1.

5.1.2 Birds

The mixed woodland, scattered trees, grassland and dense scrub were deemed to hold moderate nesting bird potential. Further recommendations are therefore provided for the safe removal of these habitats regarding nesting birds (see Section 6.2.2).

5.1.3 Bats

The data search revealed both field and roost records within 1km of the site, with the closest roost being 562m away. The trees are afforded low roosting potential, and the site offers moderate value foraging and commuting habitat. The woodland habitat onsite provides a good commuting zone to the good quality foraging habitats to the west. As such, further recommendations are provided in Section 6.2.3.

5.1.4 Badgers

The data search revealed no records of badgers in the area, the nearest sett to be over 2km away and the site to not fail within the area of increased probability of badger activity. However, the site has good ecological connectivity to the west, connecting the site to the wider landscape, including agricultural fields and patches of woodland. In addition, the site holds habitats which are favourable to badgers. As such, further recommendations are provided in Section 6.2.4.

5.1.5 Other Notable Species

The potential for hedgehogs to be onsite was determined due to the presence of dense scrub habitat, as this provides suitable habitat for nesting and hibernating hedgehogs. As these habitats are to be removed to facilitate the development, recommendations on vegetation clearance are provided in Sections 6.2.5.

6 Recommendations

6.1 Habitats

6.1.1 Consult with Kirklees Council about the priority habitat woodland parcels onsite.

6.1.2 The trees onsite, especially the mature trees, should be retained. However, if this is not feasible, the number of felled trees must be replaced with native species of local provenance on a three-for one-basis.

6.1.3 Biodiversity Enhancement Plan: A Biodiversity Enhancement Plan must be designed pre-construction to be implemented post construction during the landscaping phase of development. This would be performed alongside the Biometric 3.1 calculation that is required by all developments to demonstrate a biodiversity net gain of at least 10% post development. The biodiversity enhancement plan will provide opportunities for local wildlife and aim to retain or enhance LBAP priority habitats, to ensure the development does not have a significant detrimental impact on local or national wildlife populations.

6.1.4 A landscaping plan should be devised which incorporates, as far as practicable, native species with known benefits to wildlife common in the area.

6.2 Protected and Notable Species

6.2.1 Invertebrates

Native scrub and wildflower planting is recommended to mitigate for the loss of habitat and floral variety, which will affect any invertebrate species noted to be abundant onsite, as well as any species which may forage on invertebrates such as bats and birds. Insect boxes should be included within the landscaping plans for the development.

6.2.2 Birds

The trees on site, especially the mature trees, provide nesting opportunities for breeding bird species. Furthermore, the other neutral grassland and scrub habitats on site offer suitable vegetation for ground nesting birds. In the UK the key breeding period for birds is from 1st February until 31st August (depending on species and behaviour). If tree

removal occurs within this period, a preconstruction site walkover is required no more than 24 hours prior to any vegetation removal commencing. Outside of this period, if birds are found to be nesting during tree removal, then the removal must cease immediately, and a suitably competent ecologist contacted. In regard to ground nesting birds, a preconstruction site walkover is required prior to construction vehicles driving on site.

6.2.3 Bats

The woodland trees were identified as having low bat roost potential and must be felled in a sympathetic manner. This is to be achieved by felling the trees and leaving them *in situ* where they fall for a minimum of 24 hours before disposal. This is to allow any bats which may be present within the features to escape.

Artificial light is known to deter bats from entering lit areas. Therefore, the development must incorporate a wildlife sensitive lighting scheme. In particular, obtrusive light is to be prevented from reaching potential foraging and commuting routes, both from new exterior and interior lights. Guidance published by the Institution of Lighting Professionals (2018) is to be followed when designing the lighting scheme for the development.

It is important to avoid:

- Uniform levels of luminance across the site.
- Metal halide and florescent lighting.
- Upward tilting lighting that increases skyline luminance.

Instead, the following should be installed:

- Dark buffer zones.
- Screening in the form of vegetation, fences and structures.
- Appropriately designated darkened areas.
- Luminaries absent of UV elements.
- LED luminaries with a sharp cut-off, low intensity and good rendition.
- A warm white spectrum (<2700 kelvin) to reduce blue light.

- Peak luminaire wavelength at a minimum of 550nm.
- Downward directional luminaires with upward light ratios of 0%.
- Lower light columns to limit light spill.
- Recessed internal light fixtures.
- Window glazing treatments or automated blind systems.

6.2.4 Badgers

It is recommended that prior to works commencing, exclusion fencing be erected around the perimeter of the site. This is to reduce the risk of badgers commuting on site and potentially getting injured during the construction phase of the development. In the unlikely case that badger makes it on site, and gets trapped, the works must cease, and a suitably competent ecologist contacted.

Any excavations created during the development stage must be covered at night or appropriate escape routes implemented. Planks to be placed at a 45-degree angle for badgers to escape safely.

6.2.5 Other Notable Species

The scrub habitat onsite provides ideal nesting habitat for hedgehogs, which are legally protected during hibernation and while raising their young. Therefore, it is advice that a precautionary approach is adopted to include an Ecological Clerk of Works (ECoW) being present prior to works commencing. The ECoW would give a toolbox talk to onsite contractors in order to relate applicable legislation, what signs to look for, and what to do should hedgehogs be encountered on site. Should a hedgehog be found during site clearance, the ecologist would move it to a place of safety.

In addition, the construction of any walls or fences included within the proposed development will reduce the movements of hedgehogs locally. Hedgehog holes measuring 13cm by 13cm must be installed within any newly created walls or fences. Hedgerows permitting hedgehog commuting can be used alternatively to artificial barriers along the site boundary.

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Surveys and mitigation plans: protected species - Detailed guidance (2015) *Gov.uk*. Available at: https://www.gov.uk/guidance/surveys-and-mitigation-plans-protected-species

Within this detailed guidance on surveys and mitigation information is available on the following protected species:

- Bats
- Natterjack toads
- Otters
- Reptiles
- Water voles
- White-clawed crayfish
- Wild birds
- Hazel dormice
- Great crested newts
- Badgers

Wildlife licences: when you need to apply - Detailed guidance (2014) *Gov.uk*. Available at: https://www.gov.uk/guidance/wildlife-licences

Within this detailed guidance on licensing information is available on licences for the following protected species:

- Bats
- Natterjack toads
- Otters
- Reptiles
- Water voles
- White-clawed crayfish
- Wild birds
- Hazel dormice
- Great crested newts
- Badgers

As well as:

- Non-native Bumblebee species
- Deer
- Freshwater fish
- Invertebrates
- Mink, coypu, muskrat and grey squirrel
- Plants

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White-clawed Crayfish:

Peay, S. (2002) Guidance on Habitat for White-clawed Crayfish and its Restoration. Kendal: English Nature

Relevant Legislation:

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Countryside and Rights of Way Act 2000 (c.37). Available at: http://www.legislation.gov.uk/ukpga/2000/37/contents

The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. Available at: https://www.legislation.gov.uk/ukdsi/2019/9780111176573

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Appendices

Appendix 1: Phase 1 Habitat Map

Habitat Map - 245 Heckmondwike Road

Appendix 2: Proposed Development Plan

Site Plan As Proposed
Scale 1:200

0m 5m 10m

NOTES:

Any errors or omissions to be reported to Code L6 immediately.

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Site Plan as Proposed

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01/08/22	1:200	A1

Drawing Number:
21-030-05

Appendix 3: 3.1 Biodiversity Metric Excel Worksheet

1a. Baseline habitats

Ref	Habitat		C. Strategic significance	Areas (M^2)			Baseli
	A. Broad Habitat	B. Habitat type		D. Total Area	E. Area retained	F. Area enhanced	Total habitat units onsite
1	Woodland and forest	Other woodland; mixed	Formally identified in local strategy	1001			0.9209
2	Heathland and shrub	Mixed scrub	Area not in local strategy	557			0.4456
3	Sparsely vegetated land	Ruderal/Ephemeral	Area not in local strategy	118			0.0472
4	Grassland	Other neutral grassland	Area not in local strategy	908			0.7264
5	Sparsely vegetated land	Ruderal/Ephemeral	Area not in local strategy	64			0.0256
6	Urban	Developed land; sealed surface	Area not in local strategy	553			0.0000
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
Trees	Urban	Urban Tree	Area not in local strategy	41	41	0	0.0326
			Totals (areas excl Trees)	3201	0	0	2.1983

Appendix 4: Photographic Evidence

Photo 1: Other neutral grassland at the centre of the site with the branch pile present. Dense scrub and the woodland habitat are also present beyond the grassland present.

Photo 2: Sparsely vegetated ground (left) and tall ruderals at the north of the site (right).

Photo 3: Mixed woodland habitat onsite.

Photo 4: Ivy coverage within the south section of the woodland.

Photo 5: Bare ground present in the woodland habitat.

Photo 6: Dense scrub and grassland habitat at the centre of the site.

Photo 7: Developed land; sealed surface access road onsite.

Photo 8: Crevice present on tree in the woodland

Photo 9: Crevice present on tree in the woodland.

Photo 10: Stone pile present in the woodland habitat.

Photo 11: Waste pile in the woodland habitat.

Appendix 5: Bat Survey Calendar

Figure 1: Survey timings calendar (taken from BCT: Bat surveys for professional Ecologists, Good Practice Guidelines; 3rd Edition).

Survey type	Month											
	J	F	M	A	M	J	J	A	S	O	N	D
Preliminary ecological appraisal - fieldwork												
Preliminary roost assessment – structures[a]												
Emergence/re-entry survey for maternity or summer roosts[b]												
Emergence/re-entry[c] survey for transitional roosts[b]												
Emergence survey for mating roosts[b]												
Hibernation survey – structures[a]												
Preliminary ground level roost assessment - trees[d]												
Potential roost feature (PRF) inspection survey - trees												
Ground level bat activity survey – transects and automated/static												
Pre-, during and post-hibernation – automated/static bat activity survey												
Swarming survey												
Back-tracking survey												
Trapping survey[e]												
Radio tagging and tracking survey[e]												

= optimal period = sub-optimal period

= weather or location dependent (i.e. may not be suitable due to spring and autumn conditions in any one year or in more northerly latitudes). Note that October surveys are not acceptable in Scotland.

[a] Not including trees

Appendix 6: Glossary

Activity surveys - are used to assess the level of bat activity at a site. This can be done either by using equipment such as an AnaBat device, or manually walking around a site with a heterodyne detector, documenting the number of bat passes and interceptions.

Dawn surveys - begin around 2 hours before and up to sunrise when bats are returning to their roosts from foraging, and swarming behaviour can be seen close to roost entrances.

Dusk surveys - begin around 30 minutes before sunset and up to 2 hours afterwards. These are done in order to see bats emerging from their roost sites at night.

Echolocation – is a system similar to sonar that allows bats to travel and forage even in total darkness. Bats make a call and then listen to the returning echoes in order to build up a map of their surrounding area. This allows bats to gauge the identity and distance of an object by how long the echo takes to return to them.

Habitat - the ecological or environmental area that is inhabited by a particular species of animal, plant or other type of organism.

Hibernation - is a state of inactivity and metabolic depression characterized by lower body temperature, slower breathing, and lower metabolic rate. Hibernating animals conserve energy, especially during winter when food is short, tapping energy reserves, i.e. body fat, at a slow rate.

Hibernacula - typically consist of underground sites, such as caves and cellars, which remain relatively cold and humid. Bats will hibernate to conserve energy over the winter months when falling temperatures cause a drop in the abundance of insects. These will typically be colonised around November to around March.

Insectivorous – is when an organism feeds exclusively on insects.

Nocturnal - a behaviour characterized by being active during the night and sleeping during the day.

Maternity roosts – colonised around late May early June and consist of mature females and their young. These roosts need to be warm and quiet, and are used up until around August, with females typically leaving first and then the young.

Mating roosts – mating begins around late October to November. Males of most species use special mating calls to attract females. These can include purrs, clicks and buzzing.

Roost – a site where bats live during the day, rear young and hibernate. These can be in man made structures, such as buildings, bridges, tunnels, cellars and mines, or natural features such as mature trees and caves.

Roosts in buildings – many types of buildings will be used by bats. The most likely sites are agricultural buildings (e.g. farmhouses and barns), buildings with exposed wooden beams (greater than 20cm thick), buildings with weather boarding and/or hanging tiles, and buildings close to woodland and/or water.

Roosts in trees – these are typically in mature trees with deep sheltered cracks, under loose sections of bark, or in woodpecker holes.

Species – a group of organisms in which all members can interbreed and produce viable offspring.

Summer roosts (non-breeding) - these are generally occupied by groups of males and immature females during the summer, and are usually only occupied for a short period before the group moves to another location.

Swarming – a behaviour exhibited by bats returning to their roost sites at dawn. Bats can be seen repeatedly flying to and from the roost entrance, making it much easier for consultants to identify where roosts are on a building or structure.

Temporary/Transitory roosts – These are used after hibernation (March – April) before mature females disperse to maternity roosts and male/immature females colonise summer (non-breeding) roosts. Similarly, temporary roosts form before hibernation (August -October).

Underground Roosts – these are typically used during the winter and can be mines, caves, tunnels or cellars.

Appendix 7: Protected Species Information

The following species are fully protected in UK law, under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019:

- All UK bat species
- Dormouse
- Great Crested Newt and Natterjack Toad
- Large Blue Butterfly
- Otter
- Pine Marten
- Polecat
- Scottish Wild Cat
- Smooth Snake and Sand Lizard
- Various aquatic and plant species

These species are afforded the highest protection in the UK. Under this protection it is an offence to; deliberately capture, injure or kill any wild animal of a European protected species; deliberately disturb wild animal of any such species; deliberately take or destroy the eggs of such an animal, or damage or destroy a breeding site or resting place of such an animal.

In addition to this it is an offence to be in possession of, or to control, transport, sell or exchange, or to offer for sale or exchange, a European Protected species.

The following species are protected under UK law, such as the Wildlife and Countryside Act 1981 (as amended):

- Badger
- Nesting birds
- Red Squirrel
- Reptiles (Adder, Common lizard, Grass snake, Slow worm)
- Water Vole
- White Clawed Crayfish
- Various bird species i.e. Barn Owl
- Various plant species

Therefore under this protection it is an offence to; kill, injure or take any of the above species.

Nesting birds are only protected during the breeding season whilst on their nest. In addition to the adults being protected, the eggs, young and nest itself whilst in use are protected.

The Wildlife and Countryside Act 1981 also contains measures to prevent the establishment of non-native species which may be detrimental to native wildlife, prohibiting the release of animals and planting of plants listed in Schedule 9 in England and Wales (e.g. Japanese Knotweed and Himalayan Balsam).

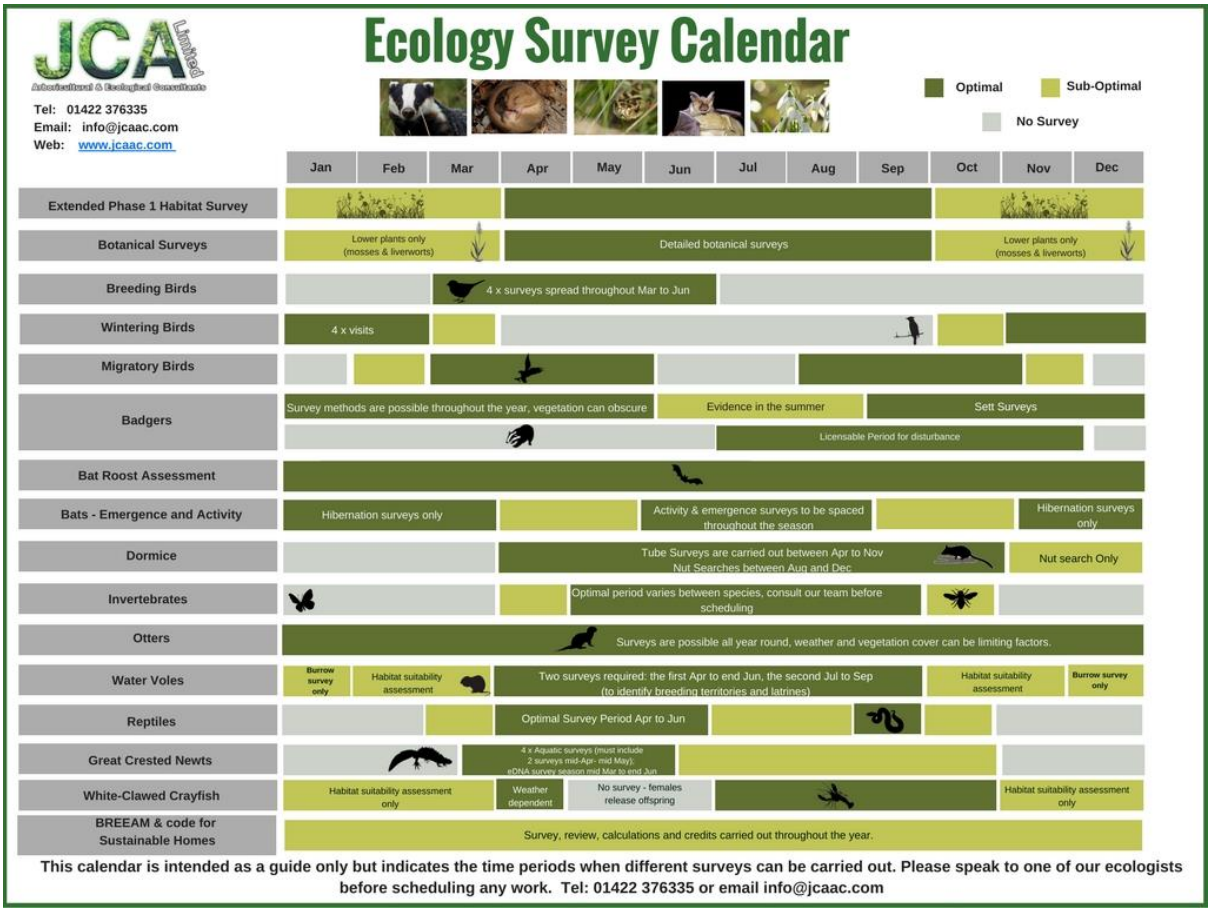
Badgers are protected under The Protection of Badgers Act 1992. Under this legislation it is an offence to; take, injure, kill, or cruelly ill-treat a badger; interfere with a badger sett; sell or possess a live badger; or mark or ring a badger.

The following habitat types are protected under UK Law:

- Habitats that are used by protected species
- Habitats that fall within designated sites
- Hedgerows
- Individual trees/woods can be protected under Tree Preservation Orders

Appendix 8: Survey Calendar

Figure 2: Survey calendar for protected species and habitat surveys.



Appendix 9: Author Qualifications

Adam West, Principal Ecologist

BSc (Hons) Animal and Wildlife Management.

Adam joined JCA to lead the expanding ecology department. Having returned to education as a mature student, Adam studied Countryside Management for two years before undertaking a Batchelor's degree, for which he was awarded First Class Honours. Adam has many years' experience in ecological consultancy, working on projects ranging from individual planning applications to national infrastructure projects. Adam holds a Natural England Level 1 great crested newt survey class licence, a Natural England Level 2 bat survey class licence (and the Scottish and Welsh equivalents) and a CSCS card.

Audrey Bourdais Paull, Graduate Ecologist

BSc (Hons) Zoology.

Audrey graduated in 2020 in Zoology at the University of Leeds and joined JCA in 2022. Audrey volunteered for many years with various wildlife conservation and rescue organisations, as well as working on various projects to develop a variety of field survey techniques, report writing and data analysis skills. Audrey is looking forward to developing her ecology consultancy experience with JCA, as well as combining her previous dog training and detection work with ecology to expand into ecology detection dogs.

Helen Chambers, Graduate Ecologist

MSc by Research in Environmental Studies, BSc (Hons) Wildlife Conservation with Zoo Biology.

Helen joined JCA in 2022 after completing her master's by research degree at the University of Salford. In 2019 Helen graduated with First Class Honours BSc Wildlife Conservation with Zoo Biology, where she gained theoretical knowledge of, and practical experience with, wildlife monitoring and wildlife legislation. She is hoping to further develop her ecological surveying and report writing skills at JCA.

The Information and advice which we have prepared and provided is true and has been prepared and provided in accordance with the CIEEM's Code of Professional Conduct. We confirm that the opinions expressed are our true and bona fide opinions.

Signed

Redacted

.....

Helen Chambers

09/09/22

Reviewed by

Redacted

.....

Audrey Bourdais Paull

15/09/22

Reviewed and authorised by

Redacted

.....

Adam West *ACIEEM*

26/09/22

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ECOLOGICAL SERVICES

Ecological Pre-Planning Services

- Phase 1 Habitat Surveys
- Great Crested Newt eDNA Sampling
- Protected species: Bat, Wintering and Nesting Bird, Badger, Amphibian, Otter, Water Vole, White-Clawed Crayfish, Dormice and Reptile Surveys.
- Preparation for Environmental Impact Assessment (EIA)
- Invasive Species Surveys
- Code for Sustainable Homes
- Butterfly & Insect Surveys

Ecological Post-Planning Services

- Biodiversity Enhancement Plans
- Protected Species Mitigation
- Ecological Management (Bat and Bird box installation and inspection)
- Planting Schemes
- Monitoring of bird or bat boxes.

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- Arboricultural Method Statements (AMS)

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- Heave Assessment
- Tree Root Identification

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- Tree Safety Surveys
- Specialist Decay Detection
- Landscape and Orchard Design

Tree Advice for the Legal Profession

- Subsidence Litigation
- Personal Injury and Accident Investigation
- Expert Witness, Planning Inquiries and Appeals

Veteran Tree Management

- Ancient Woodland Management
- Veteran Tree Management

Tree Health and Pest and Disease Management

- Pest and Disease Surveys
- Tree Health Checks
- Disease Mitigation and Control

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