Waddow View, Waddington Road, Clitheroe BB7 2HX

UPDATED ECOLOGICAL SURVEY AND ASSESSMENT

February 2019

[ERAP (Consultant Ecologists) Ltd ref: 2018-046]

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Document Control

Survey Type:	Surveyors[1]	Survey Date(s)
Phase 1 Habitat survey	Victoria Burrows B.Sc. (Hons) M.Sc. CEnv MCIEEM Christopher Wilkinson Fd.Sc.	22nd February 2018
Water vole and otter presence / absence surveys	Victoria Burrows B.Sc. (Hons) M.Sc. CEnv MCIEEM Christopher Wilkinson Fd.Sc.	22nd February 2018
	Christopher Wilkinson and Chris Swindells B.Sc. (Hons)	7th August 2019
Daylight licensed bat survey	Victoria Burrows B.Sc. (Hons) M.Sc. CEnv MCIEEM	22nd February 2018
Reporting	**Personnel**	**Date**
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[1] *Licence reference numbers*

Bats

Victoria Burrows, Natural England Class Survey Licence (bats, Level 2) Registration Number 2015-10390-CLS-CLS

Barn owl

Victoria Burrows, Natural England Class Licence WML – CL29 to survey for barn owl for the purpose of assessing the potential impacts of future development Registration Number CL29/00061

SUMMARY

Introduction and Scope

i. This updated ecological survey and assessment presents the ecological, biodiversity and nature conservation status of the site at Waddow View, Waddington Road, Clitheroe. The survey provides an update of the ecological status at the site and has informed the preparation of information to facilitate the discharge of relevant planning conditions of the outline planning approval.

ii. This report presents the results of a desktop study and an extended Phase 1 Habitat Survey carried out in February 2018. An updated licensed daylight bat survey and assessment of the barn and the results of a dawn re-entry survey for bat activity are provided as separate reports.

iii. The site comprises fields of improved and poor semi-improved grazed pasture with boundary hedgerows and trees, a ditch line at the north westerly site boundary and a central watercourse.

Results of Survey, Assessment and Recommendations

iv. Adverse direct and indirect impacts on statutory and non-statutory designated sites for nature conservation will be avoided, refer to **Section 4.2**.

v. The ecological value of the field boundary hedgerows as minor wildlife corridors and Priority Habitat is recognised. In addition, Hedgerows 5, 6 and 7 qualify as 'important' in accordance with *The Hedgerows Regulations 1997* wildlife and landscape criteria. It is recommended and entirely feasible to retain and protect these three hedgerows and associated ditches (and Hedgerows 1, 2 and 3). Removal of hedgerows 4, 8 and 9 is unavoidable and will be compensated for by the landscape proposals, refer to **Section 5.3**.

vi. Protection of the boundary ditch and central watercourse with an appropriate buffer and enhancement to maximise the corridors value to biodiversity will be achieved, refer to **Sections 5.2** and **5.3**.

vii. The presence of Indian Balsam, an invasive plant species listed under Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended), is a consideration. The proposals provide an opportunity to achieve the local eradication / control of this species to prevent further spread into the wild, refer to **Section 5.5**.

viii. A licensed daylight bat survey and assessment and, where feasible, detailed inspections of the trees have not detected any evidence of use by roosting bats. All trees with moderate or low suitability for use by roosting bats will be retained with the exception of Tree 2 (low suitability). Guidance in relation to the felling of Tree 2 is provided at **Section 5.6**.

ix. Appropriate survey effort and / or assessment has been carried out to discount the presence of, and adverse effects on, other relevant protected species. No further surveys are necessary.

x. The hedgerows and scattered shrubs within the site are suitable for use by nesting birds including Priority Species. Mandatory actions to protect nesting birds during site clearance and measures to provide compensatory opportunities for nesting birds are recommended at **Section 5.7**, and will be achieved by the proposals.

Conclusion

xi. The recommendations in **Section 5.0** address all the mandatory measures and ecological recommendations to be applied to ensure compliance with wildlife legislation, the National Planning Policy Framework (NPPF), the relevant planning conditions and best practice.

1.0 INTRODUCTION

1.1 Background and Rationale

1.1.1 ERAP (Consultant Ecologists) Ltd was commissioned by David Wilson Homes North West to carry out an updated ecological survey and assessment of land at Waddow View (hereafter referred to as the 'site'). The Ordnance Survey (OS) grid reference at the centre of the site is SD738422.

1.1.2 The survey is an update of a previous ecological survey and assessment prepared for the site in 2014 (Penny Anderson Associates Ltd, 2014). The survey was required to provide an update of the ecological status at the site and to inform the preparation of documents to facilitate the discharge of relevant planning conditions of the outline planning approval (Ribble Valley Borough Council reference: 3/2014/0597).

1.2 Scope of Works

1.2.1 The scope of ecological surveys undertaken in February 2018 comprised:

a. A desktop study for known ecological information at the site and the local area;

b. An Extended Phase 1 Habitat Survey and assessment;

c. Assessment of the ecological value of the habitats within the site with the use of the National Vegetation Classification (NVC) and the Ratcliffe criteria, as presented in *A Nature Conservation Review* (Ratcliffe, 1977);

d. Survey and assessment of all habitats for statutorily protected species and other wildlife including badger (*Meles meles*), barn owl (*Tyto alba*), great crested newt (*Triturus cristatus*), water vole (*Arvicola amphibius*), otter (*Lutra lutra*), bird species and reptiles;

e. A licensed bat survey and assessment of the barn (provided as a separate report (ERAP (Consultant Ecologists) Ltd, March 2018));

f. A licensed bat survey and assessment of relevant trees;

g. The identification of any potential ecological constraints on the proposals and the specification of the scope of mitigation and ecological enhancement required in accordance with wildlife legislation, planning policy guidance and other relevant guidance; and

h. The identification of any further surveys or precautionary actions that may be required prior to the commencement of any development activities.

2.0 METHOD OF SURVEY

2.1 Desktop Study

2.1.1 The following sources of information and ecological records were consulted:

a. MAGiC: A web-based interactive map which brings together geographic information on key environmental schemes and designations, including details of statutory nature conservation sites;

b. Lancashire Biodiversity Action Plan (BAP); and

c. The previous ecological study completed at the site, as reported in *Waddow View, Land off Waddington Road, Clitheroe: Ecological Assessment* (Penny Anderson Associates Ltd, 2014) hereafter the '2014 ecology report'.

2.2 Vegetation and Habitats

2.2.1 An Extended Phase 1 Habitat Survey of the site was carried out by Victoria Burrows and Christopher Wilkinson on 22nd February 2018. The weather was dry and overcast with light air (Beaufort Scale 1). Temperatures ranged from 3°C at 10am to 5°C at 12 noon.

2.2.2 A habitat and vegetation map was produced for the site and the immediate surrounding area at a scale of 1:2,000 (refer to **Figure 8.2**). The mapping is based on the Joint Nature Conservation Committee Phase 1 Habitat Survey methodology (JNCC, 2010) with minor adjustments to illustrate and examine the habitats with greater precision.

2.2.3 The plant species within the site boundary were determined with estimates of the distribution, ground cover, abundance and constancy of individual species. The estimation of abundance was based on the DAFOR system, where D = Dominant, A = Abundant, F = Frequent, O = Occasional and R = Rare, this being a widely used and accepted system employed by ecological surveyors. The terms L = Locally and V = Very were additionally used to describe the plant species distributions with greater precision.

2.2.4 Stands of vegetation and habitats were described and evaluated using the National Vegetation Classification (NVC). The NVC provides a systematic and comprehensive analysis of British vegetation and is a reliable framework for nature conservation and land-use planning.

2.2.5 Hedgerows were assessed in accordance with *The Hedgerows Regulations 1997* wildlife and landscape Criteria (H.M.S.O., 1997).

2.2.6 Searches were made for uncommon, rare and statutorily protected plant species, those species listed as protected in the *Wildlife and Countryside Act 1981* (as amended) and species which are indicators of important and uncommon plant communities. Plant nomenclature follows *New Flora of the British Isles 3rd Edition* (Stace, 2010).

2.2.7 Searches were carried out for the presence of invasive species, including those listed on Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended), including Japanese Knotweed (*Fallopia japonica*), Indian Balsam (*Impatiens glandulifera*) and Giant Hogweed (*Heracleum mantegazzianum*).

2.3 Animal Life

Badger

2.3.1 A thorough search for badger activity was carried out. The survey area covered the site (as annotated on **Figure 8.2**) and extended to accessible land within a radius of 50 metres from the site boundary. Private gardens were excluded from the survey.

2.3.2 Surveys were conducted in accordance with guidance presented within *Badgers and Development* (Natural England, 2007) and *Badgers: surveys and mitigation for development projects* (Natural England, 2015).

2.3.3 The following signs of badger activity were searched for:

a. Sett entrances, e.g. entrances that are normally 25 to 35cm in diameter and shaped like a 'D' on its side;
b. Large spoil heaps outside sett entrances;
c. Bedding outside sett entrances;
d. Badger footprints;
e. Badger paths;
f. Latrines;
g. Badger hairs on fences or bushes;
h. Scratching posts; and
i. Signs of digging for food.

2.3.4 Habitats within and surrounding the site were assessed in terms of their suitability for use by foraging and sheltering badger in accordance with their known habitat preferences as detailed in current guidance and *Badger* (Roper, 2010).

Bat Species

Survey Personnel

2.3.5 The updated licensed bat survey and assessment was carried out by Victoria Burrows. Victoria holds a Natural England Class Survey Licence WML CL18 (Bat Survey Level 2), Registration Number 2015-10390-CLS-CLS.

2.3.6 The surveyor's qualifications and experience meet the criteria as defined in the *Technical Guidance Series Competencies for Species Survey: Bats* (CIEEM, 2013).

Barn

2.3.7 Please refer to the separate *Updated Licensed Bat Survey and Assessment* report (ERAP (Consultant Ecologists) Ltd, March 2018)) and the *Results of Dawn Re-entry Bat Survey* report (ERAP (Consultant Ecologists) Ltd, October 2018).

Trees

2.3.8 An updated daylight inspection and assessment of the trees within the site was conducted to assess their suitability for use by roosting bats, and to inform whether further surveys or precautionary measures were required.

2.3.9 Trees were assessed from the ground using binoculars and a high-powered torch. Each tree was searched for the presence of the following features:

Woodpecker holes, rot holes, hazard beams, other vertical or horizontal cracks or splits in stems and branches, partially decayed platey bark, knot holes, man-made holes, tear-outs, cankers in which cavities have developed, other hollows or cavities, including butt-rots, double-leaders forming compression forks with included bark, gaps between overlapping stems or branches, partially detached Ivy (Hedera helix) with stem diameters in excess of 50mm and bat, bird or dormouse (Muscardinus avellanarius) boxes.

2.3.10 Terms used to describe any features present follow (where possible) those outlined and described in *Bat Tree Habitat Key, 2nd Edition* (Andrews, H (ed), 2013).

2.3.11 Relevant features were then examined by Victoria Burrows at height using (where suitable) ladders and a video borescope. The following signs of roosting bats were searched for:

Bats, bat droppings (in, around or below the feature), odours emanating from the feature, audible squeaking at dusk, staining below the feature, and the presence of smoothed surfaces within the feature, indicative of regular passage by small mammals.

2.3.12 The requirement for further presence / absence surveys at each tree was then considered.

Habitat Assessment for Commuting / Foraging Bats

2.3.13 Habitats within and adjacent to the site were assessed for their value and suitability for commuting and foraging bats in accordance with Table 4.1 of *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn),* (Collins, J. (ed), 2016). Reference has been made using the following categories and descriptions / examples, presented at **Table 2.1**:, below.

Table 2.1: Consideration of Suitability of Foraging and Commuting Habitat for Bats

Suitability	Commuting Habitat	Foraging Habitat
Negligible	Negligible habitat features on site likely to be used by commuting or foraging bats.	Negligible habitat features on site likely to be used by commuting or foraging bats.
Low	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated i.e. not very well connected to the surrounding landscape by other habitat.	Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree or patch of scrub.
Moderate	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens.	Habitat that is linked to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	Continuous, high-quality habitat that is well connected to the wider landscape and is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. Habitats close to and connected to known roosts.	High-quality habitat that is well-connected to the wider landscape and is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Habitats close to and connected to known roosts.

Bird Species

2.3.14 Bird species observed and heard during the survey were recorded.

2.3.15 Habitats throughout the site and in the immediate surrounding area were assessed for their value to roosting, feeding and nesting birds, as indicated by the amount of shelter, feeding value, woody vegetation structure and species diversity of tree and shrub species in the site.

2.3.16 The barn was searched for pellets, faecal splashes and feathers which may indicate use by roosting or nesting barn owl in accordance with *The Barn Owl Conservation Handbook* (Barn Owl Trust, 2012) and *Barn Owl Tyto alba Survey Methodology and Techniques for use in Ecological Assessment. Developing Best Practice in Survey and Reporting* (Shawyer, 2011).

Great Crested Newt

Desktop Search for Ponds

2.3.17 In accordance with current Natural England guidance (Natural England, 2015) all ponds within an unobstructed 500 metres of a site should be considered for their suitability to support breeding great crested newts. The potential of the proposed development to impact upon any great crested newt population(s) whose breeding ponds are within 500 metres must be considered.

2.3.18 The search of habitats in the wider area up to a distance of 500 metres from the site boundary revealed the presence of two ponds (Ponds 1 and 2). Pond 1 is a garden pond located at grid reference SD 7363 4200, 116 metres to the south-west of the site boundary. Pond 2 is located at grid reference SD 7355 4176 in a field 360 metres south west from the site boundary, refer to **Figure 8.1**.

2.3.19 The Natural England Rapid Risk Assessment tool from GCN Method Statement WML-A14-2 (Version November 2017) (Natural England, 2017) has been completed, as presented at **Table 2.2**, below. The tool has been completed based on a ponds at this distance, and the size of the development site. The rapid risk assessment tool assumes that great crested newt are present.

Table 2.2: Rapid Risk Assessment Result

Component	Likely Effect	Notional Offence Probability Score
Great crested newt breeding pond(s)	No effect	0
Land within 100m of any breeding pond(s)	No effect	0
Land 100-250m from any breeding pond(s)	1-5 ha lost or damaged	0.4
Land >250m from any breeding pond(s)	1-5 ha lost or damaged	0.04
Individual great crested newts	No effect	0
	Maximum:	0.4
Rapid risk assessment result:	**AMBER: OFFENCE LIKELY**	

2.3.20 The results of the Natural England Rapid Risk Assessment indicates that the site is sufficiently distant from Pond 2 meaning any proposed development is highly unlikely to impact upon great crested newt populations (if present). It is not considered necessary to include Pond 2 in the assessment of potential impacts of the development on great crested newt.

2.3.21 Although Pond 1 within 250 metres of the site boundary contributes to the amber: offence likely assessment result, this pond is a garden pond within the grounds of a large and relatively new property and may support fish (fish predate on great crested newt eggs and larvae). Pond 1 was created sometime between 2002 and 2015 (as confirmed by Google Earth images). There are no ponds to the north or east of the site which would act to attract great crested newt from Pond 1 towards the site. In addition, examination of aerial images indicates that there are walls and other potential barriers to newt dispersal between Pond 1 and the site. In combination of all these factors it is reasonably concluded that there is a negligible risk of the presence of great crested newt within the site and no requirement for further survey[1].

[1]In accordance with *Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and Their Impact on the Planning System* (Ministry of Housing, Communities & Local Government, 2005) developers should not be required to undertake surveys for protected species unless there is reasonable likelihood of the species being present and affected by the development.

2.3.22 In addition, the presence of great crested newt and adverse effects on this species were reasonably scoped out during the assessment of the outline planning application.

Reptile Species

2.3.23 The site and its surroundings were assessed in terms of their suitability for use by reptile species using the important characteristics for reptiles outlined in the draft document '*Reptile Mitigation Guidelines*' (Natural England, 2011), and the *Reptile Habitat Management Handbook* (Edgar, et al., 2010). These habitat characteristics are outlined below.

Table 2.3: Important Habitat Characteristics for Reptiles

1. Location (in relation to species range)	7. Connectivity to nearby good quality habitat
2. Vegetation Structure	8. Prey abundance
3. Insolation	9. Refuge opportunity
4. Aspect	10. Hibernation habitat potential
5. Topography	11. Disturbance regime
6. Surface geology	12. Egg-laying site potential

Water Vole and Otter

Survey Area

2.3.24 A 330 metre long section of watercourse flows through the centre of the site which is connected to a 180 metre long section of ditch which runs along then north westerly site boundary, refer to **Figure 8.2**. The whole length of both these watercourses was examined for evidence of water vole and otter. Owing to the isolated nature of the channels (the watercourse enters the site from a culvert to the south and leaves the site via a culvert at the northern point) the survey area did not need to extend any further.

Survey Dates

2.3.25 Surveys were carried out on the following dates:

22nd February 2018 by Chris Wilkinson and Victoria Burrows: The weather was dry and overcast with light air (Beaufort Scale 1). Temperatures ranged from 3°C at 10am to 5°C at 12 noon; and

7th August 2018 by Chris Wilkinson and Chris Swindells: The weather conditions were dry and calm with a temperature of 14°C.

Survey Methods

2.3.26 The survey methodology detailed in *The Water Vole Mitigation Handbook (The Mammal Society Mitigation Guidance Series) Eds. Fiona Mathews and Paul Chanin* (Dean, et al., 2016), was applied and the watercourses and associated banks were searched for burrows, latrines, feeding remains, runs, feeding lawns, nests and footprints.

2.3.27 Both the ditch and watercourse were searched for dung (spraints), tracks (footprints), feeding remains, otter slides (into water), holts (underground dens) and couches (above ground sites where otters rest during the day).

2.3.28 An assessment of the suitability of the ditch and watercourse for use by otter (*Lutra lutra*) in accordance with the habitat requirements and preferences detailed in *Ecology of the European Otter. Conserving*

Natura 2000 Rivers, Ecology Series 10 (Chanin, 2003) and *Monitoring the Otter Lutra lutra. Conserving Natura 2000 Rivers Monitoring Series No 10* (Chanin, 2003) was carried out.

2.3.29 The site and neighbouring fields were also searched for possible overland routes used by otter.

2.4 Survey and Reporting Limitations

2.4.1 Although the survey was conducted in February 2018 at a time of year when many plants were in a state of senescence, both surveyors were experienced in identifying plant species using vegetative characteristics. Therefore, it was possible to reliably identify the habitats and principal plant species present.

2.4.2 The inability to access the interior the barn is a recognised survey limitation. The conclusions and recommendations made in Sections 4.1 and 5.1 of the separate *Updated Licensed Bat Survey and Assessment* report (ERAP (Consultant Ecologists) Ltd, March 2018)) take this limitation into consideration and also consider the ability to view the interior of the building from the window apertures and the results of the previous bat surveys carried out in 2012 and 2014.

2.4.3 All measurements within this report are approximate only, and have been either estimated whilst on site or calculated using mapping software (QGIS) or internet-based mapping services such as MAgiC and Google Earth.

2.5 Evaluation Methodology

2.5.1 The habitats, vegetation and animal life were evaluated with reference to standard nature conservation criteria as described in *A Nature Conservation Review* (Ratcliffe, 1977). These are size (extent), diversity, naturalness, rarity, fragility, typicality, recorded history, position in an ecological or geographical unit, potential value and intrinsic appeal.

2.5.2 Habitats have been assessed to determine whether they meet those described in *UK Biodiversity Action Plan: Priority Habitat Descriptions* (Maddock, A (ed), 2008); these lists are used to help draw up the statutory lists of Priority Habitats, as required under Section 41 of the *Natural Environment and Rural Communities* (NERC) *Act 2006*. Where suitable, the ecological value of the habitats present have been assessed using the terms outlined in *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2nd Edition* (CIEEM, 2016).

2.5.3 Government advice on wildlife, as set out in the *National Planning Policy Framework* (Great Britain Department for Communities and Local Government, 2012) and associated government circulars has been taken into consideration. Legislation relating to protected species, such as those listed under Schedules 1, 5, 6 and 8 of the *Wildlife and Countryside Act 1981* (as amended) and *The Conservation of Habitats and Species Regulations 2017*, is referenced where applicable, and any impacts to protected species are evaluated in accordance with current guidance.

2.5.4 The presence of any Priority Species, as listed under Section 41 of the *NERC Act 2006* is noted, and habitats are assessed in terms of their suitability and value for these species. The presence of habitats and/or species listed by the Lancashire BAP Provisional Long List has been taken into account in the evaluation of the site.

3.0 SURVEY RESULTS

3.1 Desktop Study

Site Designations

3.1.1 The site and adjacent land has no statutory or non-statutory designation for nature conservation.

3.1.2 The site lies within 1.1 kilometres of two Sites of Special Scientific Interest (SSSI) namely Coplow Quarry SSSI and Salthill and Bellmanpark Quarries SSSI.

3.1.3 Coplow Quarry SSSI (SD 751 432) is located 1.1 km from the site. Coplow Quarry was designated a SSSI for its geological interest, notably exposures of Coplow Knoll or Chadian age and its associated exposures and echinoderm fauna.

3.1.4 Salthill and Bellmanpark Quarries SSSI (SD 758 427) are located 1 km from the site. These quarries are designated for their geological interest, notably Carboniferous limestone, fossiliferous Salthill Bank Beds (Chadian) and Salthill Cap Beds (Arundian).

3.1.5 The site lies within a SSSI Impact Risk Zone. The SSSI Impact Risk Zone requires the Local Planning Authority to consult with Natural England on likely risks from the following development categories (Ordnance Survey, 2019):

a. Livestock and poultry units with a floorspace greater than 500m^2 and slurry lagoons greater than 4000m^2; and

b. General combustion processes greater than 50 megawatts energy input, including energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis / gasification, anaerobic digestion, sewage treatment works and all other incineration / combustion.

3.1.6 This is considered further at **Section 4.2**, below.

3.1.7 Nine non-statutory designated sites located within a 1.5 km search area are listed in the 2014 ecology report; all these sites are classified as Biological Heritage Sites (BHS)[2]. The sites are Dog House Wood, Primrose Lodge, River Ribble, London Road to County Boundary, Salthill Quarry, Coplow Quarry and Pimlico Road Grasslands, Cross Hill Quarry, Sherburn Wood, Boy Bank and Clitheroe Castle Knoll.

3.1.8 As stated at paragraph 3.14 (page 9) of the 2014 ecology report, '*The nearest BHS to the site is Castle Knoll, at approximately 500m to the south-west. Due to the distance from the site it is not predicted that any of the BHS sites will be adversely affected by the development*.' It is considered that this conclusion remains an accurate assessment of the potential impacts of the proposed development to the BHSs in the wider area.

[2] These sites are designated by local authorities administered by local authorities for their importance that are important for wildlife and earth heritage at a local (county) level.

Protected and Notable Species Listed in the 2014 Ecology Report

2014 Data Search

3.1.9 The data search presented within the 2014 ecology report stated that Lancashire Environment Record Network (LERN) did not hold any records of protected or Priority Species within the site boundary. Records of Priority Species held within the 10 kilometre grid square SD74, as presented below.

a. *Bats:* Soprano pipistrelle (*Pipistrellus pygmaeus*), 4 records;

b. *Birds* Common grasshopper warbler (*Locustella naevia*), 3 records, Eurasian curlew (*Numenius arquata*) 78 records, Eurasian tree sparrow (*Passer montanus*), 9 records, house sparrow (*Passer domesticus*), over 100 records, grey partridge (*Perdix perdix*) 29 records, lesser redpoll (*Carduelis cabaret*) 14 records, northern lapwing (*Vanellus vanellus*) 74 records, reed bunting (*Emberiza schoeniclus*) 2 records, ring ouzel (*Turdus torquatus*), spotted flycatcher (*Muscicapa striata*) 47 records and tree pipit (*Anthus trivialis*) 16 records; and

c. *Moths and Butterflies:* Wall butterfly (*Lasiommata megera*), small heath butterfly (*Coenonympha pamphilus*), Duke of Burgundy (*Hamaeris lucina*), cinnabar moth (*Tyria jacobaeae*), latticed heath (*Chiasmia clathrata*) and shaded broad-bar (*Scotopteryx chenopodiata*).

2014 Survey Results

Vegetation and Habitats

3.1.10 The 2014 ecology report stated that the site supports grassland, hedgerows and a watercourse.

3.1.11 The most southerly grassland field was classified as semi-improved. The remainder of the fields were classified as improved or species poor semi improved grassland, and had recently been grazed.

3.1.12 Two hedgerows (named Hedgerow 1 and Hedgerow 5 in this report) were classified as species rich, and *'would possibly qualify as important'* under *The Hedgerows Regulations 1997.* These were located on part of the south-western boundary and part of the north-eastern boundaries of the site.

3.1.13 The watercourse located at the centre of the site had a sandy / gravelly substrate with emergent vegetation along its upstream section. Water depth was approximately 30cm with moderate flow. The ditch along the northern site boundary was holding low levels of water at the time of survey and had locally abundant vegetation cover.

Protected and Priority Species

3.1.14 Paragraph 3.24 page 12 of the 2014 ecology report states:

'No evidence of, or potential for other protected or notable species including otter, badger, amphibians, reptiles and terrestrial invertebrates was noted during the Extended Phase 1 Habitat survey. However, during the Local Inquiry a number of Third Parties had commented that otter had been seen in the vicinity of the PDA[3]. As a consequence a repeat assessment for water vole and otter was carried out.'

3.1.15 Although sections of bank contained vegetation suitable for water voles and banks were suitable for burrow creation, no evidence of water vole was found in 2014.

[3] PDA = Proposed development area

3.1.16 The watercourse and ditch on the site were reported to provide poor habitat for otter in 2014. No evidence of otter was found in 2014.

3.2 Vegetation and Habitats

General Description

3.2.1 The 9 hectare site is in a suburban location and comprises grazed pasture, boundary hedgerows with hedgerow trees, and a watercourse running through the centre of the site with a connected boundary ditch.

3.2.2 Hedgerows define the site boundaries. Existing residential housing and a new residential development lie to the east of the site. Agricultural land with improved grassland is present to the west with the River Ribble beyond. Back Commons Lane lies adjacent to the south western site boundary and improved grassland lie beyond. A cemetery is present to north.

3.2.3 A Phase 1 Habitat Survey map appended at **Figure 8.2**. Photographs are appended at **Table 8.6**.

Grasslands

3.2.4 Grazed improved grassland (**Photo 1**) occupies the majority of the site.

3.2.5 The improved grassland is characterised by constant and abundant Perennial Rye-grass (*Lolium perenne*), frequent Creeping Buttercup (*Ranunculus repens*), constant, frequent and locally abundant Yorkshire-fog (*Holcus lanatus*) and locally frequent Annual Meadow-grass (*Poa annua*).

3.2.6 All fields are characteristic of an *MG7 Perennial Rye-grass* ley grassland community of the NVC (Rodwell, 1992) with the exception of the most southerly field (**Photo 2**) which contains Crested Dog's-tail (*Cynosurus cristatus)* and therefore has affinities with the *MG6 Perennial Rye-grass-Crested Dog's-tail* grassland community of the NVC (Rodwell, 1992). A plant species list is appended at **Table 8.1**.

Hedgerows

3.2.7 Plant species lists for Hedgerows 1 to 4 are appended at **Table 8.2** and plant species lists for Hedgerows 5 to 9 are provided at **Table 8.3**.

3.2.8 Hedgerow 1 (**Photo 3**) is located at the north-eastern site boundary. It is unmanaged and is 150 metres long, 3 to 4 metres in height and 2 to 3 metres in width along its length. The hedgerow is characterised by abundant Hawthorn (*Crataegus monogyna*) and Blackthorn (*Prunus spinosa*) with locally abundant Holly (*Ilex aquifolium*), occasional Hazel (*Corylus avellana*) and Elder (*Sambucus nigra*). The ground flora is characterised by constant and abundant Ivy (*Hedera helix*) and Bramble (*Rubus fruticosus* agg.). Very locally frequent Bluebell (*Hyacinthoides non-scripta*) and rare Lords-and-Ladies (*Arum maculatum*), both species listed as 'woodland species' in *The Hedgerows Regulations 1997*, are present.

3.2.9 Hedgerow 2 (**Photo 4**), located at the eastern site boundary, is 90 metres long, 1 metre in width and height. The hedgerow is characterised by constant and abundant Hawthorn and Blackthorn with occasional Elder. The ground flora is characterised by abundant Common Nettle (*Urtica dioica*), Cleavers (*Galium aparine*) and Yorkshire-fog with frequent Bramble. Lords-and-Ladies which is listed as a 'woodland species' in *The Hedgerows Regulations 1997* is occasionally present.

3.2.10 Hedgerow 3 (**Photo 5**), located at the southern site boundary, is 173 metres long and 1.5 to 2 metres in width and height. The hedgerow is characterised by constant and abundant Hawthorn, locally constant

and abundant Blackthorn with frequent Elder and Ash (*Fraxinus excelsior*). The ground flora is characterised by constant and abundant Ivy with constant and frequent Cleavers. Woodland species comprising occasional Lords-and-Ladies and Male-fern (*Dryopteris filix-mas*) and very locally abundant Dog's Mercury (*Mercurialis perennis)* and rare Broad Buckler-fern *(Dryopteris dilatata*) were found.

3.2.11 Hedgerow 4 (**Photo 6**), along the northern boundary of the most southerly field, is unmanaged and is 288 metres in length, 4 metres in height and 2 to 3 metres in width. The hedgerow is characterised by constant and abundant Hawthorn with constant and abundant to frequent Blackthorn. The ground flora is characterised by constant and frequent to locally abundant Common Nettle. Very locally frequent Dog's Mercury and occasional Lords-and-Ladies are present.

3.2.12 Hedgerow 5 (**Photo 7**), located on the south western site boundary adjacent to Back Commons Lane, is unmanaged. The hedgerow is characterised by abundant Hawthorn and Blackthorn with occasional Bird Cherry (*Prunus padus*), Willow species (*Salix* sp.), Alder (*Alnus glutinosa*) and Holly. The ground flora is characterised by locally abundant Lords-and-Ladies and occasional Bramble and Male-fern.

3.2.13 Hedgerow 6 (**Photo 8**), located on the western site boundary is 175 metres long and 1.5 to 2 metres in height and width. The hedgerow is characterised by abundant Hawthorn and Blackthorn with occasional Ash and Dog-rose (*Rosa canina*). The ground flora is characterised by constant and frequent Cleavers and Common Nettle with frequent Bramble. Lords and Ladies, Hart's tongue fern (*Asplenium scolopendrium*), Broad Buckler fern and Male-fern are occasional in the herb layer with rare Dog's Mercury.

3.2.14 Hedgerow 7 is also located on the western site boundary but is unmanaged. It is 230 metres long, 3 metres in height and 2 metres in width. The hedgerow is characterised by constant and abundant Hawthorn and Blackthorn. The ground flora is characterised by constant and frequent Common Nettle with frequent Cleavers and Yorkshire Fog.

3.2.15 Hedgerow 8, located at the centre of the site, is 60 metres long, 2 to 3 metres in height and 2 metres in width. The hedgerow is characterised by abundant Blackthorn. The ground flora is characterised by frequent Ivy and occasional Bramble with locally abundant Lords-and-Ladies.

3.2.16 Hedgerow 9 (**Photo 9**) is located between the watercourse and Hedgerow 7. The hedgerow is characterised by constant and abundant Hawthorn and Blackthorn with frequent Dog Rose. The ground flora is characterised by constant and abundant Cleavers and Ivy with frequent Common Nettle. Lords-and-Ladies is occasionally present.

3.2.17 Assessment of the hedgerows in accordance with *The Hedgerows Regulations 1997* is appended at **Tables 8.4** and **8.5**. All hedgerows are characteristic of the *W21 Hawthorn-Ivy* community of the NVC (Rodwell, 1991).

3.2.18 Hedgerows 5, 6 and 7 meet the criteria to be 'important' in accordance with *The Hedgerows Regulations 1997* as they support four woody species on average, are located adjacent to public footpaths and have at least two qualifying hedgerow features.

Ditches and Watercourses

3.2.19 Ditches 1 and 2 extend along the north-western site boundary, parallel to Hedgerows 6 and 7. The ditches have channel widths of 0.5 metres with low earth banks set at a 30°. At the time of survey, sections of the ditches supported shallow water at a depth of 0.05 metres with no detectable flow whilst other sections held no water. It is therefore considered likely that the ditches dry annually.

3.2.20 Aquatic and emergent vegetation in both ditches is characterised by very locally frequent Fool's Watercress (*Apium nodiflorum*), very locally abundant Reed Canary-grass (*Phalaris arundinacea*). Dense Bramble scrub was locally abundant on the southern bank of Ditch 2.

3.2.21 The watercourse (**Photos 10** and **11**) which crosses the centre of the site has a clay bed with occasional pebbles at the upstream end. The watercourse has a channel width of 0.5 to 1.5 metre with vegetated earth banks set at 90° and supports moderate water flow with a depth of 30cm on the survey dates. The watercourse is unshaded along most of its length due to absence of bankside trees and shrubs except at the point where Hedgerow 4 meets the watercourse owing to the presence of a mature Ash (Tree 3).

3.2.22 Aquatic and emergent vegetation associated with the watercourse is limited to Fool's Watercress. The watercourse margins have a similar plant species composition to surrounding fields.

Invasive Plant Species

3.2.23 No Japanese Knotweed is present at the site.

3.2.24 As illustrated on **Figure 8.2** very local stands of Indian Balsam (three plants) were detected. This species is listed on Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended) which states it is an offence to spread or cause the spread of these species in the wild. Further guidance is described in **Section 5.35**.

3.3 Animal Life

Badger

3.3.1 No evidence of badger was detected at the site or in the survey area. The presence of badger and any adverse effects as a result of the proposals are reasonably discounted

Bat Species

Barn

3.3.2 No evidence of use of the barn by roosting bats has been detected. Please refer to the separate *Updated Licensed Bat Survey and Assessment* report (ERAP (Consultant Ecologists) Ltd, March 2018) and the *Results of Dawn Re-entry Bat Survey* report (ERAP (Consultant Ecologists) Ltd, October 2018).

Trees

3.3.3 **Table 8.7**, appended provides the results of the daylight inspections and assessment of the trees at the site. Tree locations are annotated on **Figure 8.2**. In summary:

a. No confirmed roosts or evidence of a tree bat roost has been detected;

b. No trees are assessed to be of high suitability for use by roosting bats;

c. The two trees with moderate suitability (Tree 1 and Tree 7) will be retained by the proposals;

d. One tree (Tree 2: Ash) assessed to be of low suitability will be unavoidably removed by the proposals. Owing to the ability to examine the hollow stem at Tree 2 it is concluded that appropriate and proportionate survey effort has been possible. The guidance at **Section 5.6** of this report remains applicable;

e. Four other trees are assessed to be of low suitability on account of the presence of potential roost features (PRFs); none of these trees are scheduled to be removed by the proposals; and

f. All other assessed trees are of negligible suitability owing to the absence of PRFs.

Habitat Suitability for Foraging and Commuting Bats

3.3.4 The hedgerows, trees and scrub on site provide foraging and commuting corridors for bats.

3.3.5 The improved grassland within the site is unlikely to provide an abundance or diversity of invertebrate prey, and is therefore considered to be of low suitability for use by foraging bats.

3.3.6 The habitats present may be suitable for and contribute to the wider foraging area of low numbers of common species of edge-feeding foraging bats, such as common pipistrelle (*Pipistrellus pipistrellus*), and also low numbers of species known to forage over open habitats and over wide areas, such as noctule (*Nyctalus noctula*).

3.3.7 A diverse range of species and / or a large number of bats are considered unlikely at the site owing to the absence of habitats such as woodland or large waterbodies.

3.3.8 The trees, hedgerows and watercourse at the site are of moderate suitability in accordance with **Table 2.1** for foraging and commuting bats and are connected to continuous habitat in the wider area.

Bird Species

3.3.9 Birds detected in the site on 22nd February 2018 are listed below.

Table 3.1: Bird Species Detected on 22nd February 2018

Scientific Name	Common Name (habitats)	BOCC Status[1]	Priority Species?
Carduelis carduelis	Goldfinch (hedgerows)	Green	No
Columba palumbus	Wood pigeon (hedgerow trees)	Green	No
Corvus corone	Carrion crow (grasslands)	Green	No
Cyanistes caeruleus	Blue tit (hedgerows)	Green	No
Passer domesticus	House sparrow (hedgerows)	Red	Yes
Parus major	Great tit (hedgerows)	Green	No
Pica pica	Magpie (hedgerows)	Green	No
Troglodytes troglodytes	Wren (hedgerows)	Green	No
Turdus merula	Blackbird (hedgerows)	Green	No
Turdus philomelos	Song thrush (hedgerows)	Red	Yes
[1]BOCC: Birds of Conservation Concern (Eaton, et al., 2015)			

3.3.10 The boundary trees, hedgerows and dense scrub are suitable for use by foraging and nesting passerine (perching) species

3.3.11 It is considered that the site is unsuitable for use by ground nesting birds and over-wintering bird species due to the proximity of existing housing, the relatively small field size and the presence of boundary trees and hedgerows which obstruct an all-round field of view preferred by these species.

3.3.12 No evidence of barn owl was found at the barn, refer to the separate *Updated Licensed Bat Survey and Assessment* report (ERAP (Consultant Ecologists) Ltd, March 2018)).

Reptiles

3.3.13 The regularly disturbed and heavily managed habitats within the site provide poor quality habitat for sheltering, basking and hibernating reptiles. The site supports an even topography and the homogenous vegetation supports little variation in its physiognomy. There are no piles of garden waste or other suitable debris for use by sheltering or hibernating reptiles, and the site supports no favourable habitat for basking reptiles. The species-poor habitats within the site are reasonably unlikely to support a large populations or a variety of invertebrate prey.

3.3.14 The site is not adjacent or linked to any areas of favourable habitat for reptile species. The presence of reptiles within the site is reasonably discounted.

Water Vole and Otter

3.3.15 No water vole or signs of water vole in the form of droppings, footprints or feeding remains were detected along the boundary ditch or central watercourse.

3.3.16 No field signs of otter were found at the ditch or watercourse. Owing the grazed conditions, shallow banks and absence of tree cover, the isolated section of ditch and watercourse provide limited lying-up habitats and cover for use by otter, refer to **Photos 10** and **11**. No defined overland routes used by otter were found. Condition 23 of the outline planning consent requires that the potential presence of otter activity in the local area is taken into consideration, particularly during the construction period. Further guidance is provided at **Section 5.4**.

4.0 EVALUATION AND ASSESSMENT

4.1 Introduction and Description of Proposals

4.1.1 Outline planning permission has been granted for the development of the site for up to 275 dwellings and access.

4.1.2 The current planning layout prepared by David Wilson Homes is provided at Drawing DWH063 PL01 Rev P8 (David Wilson Homes, 2018).

4.2 Designated Sites

4.2.1 The site and adjacent land has no designation for nature conservation.

4.2.2 Owing to the distance between the site and the designated sites in the wider area and the absence of any complementary habitat it is considered that any direct or indirect adverse impact on statutory and non-statutory sites and their features of special interest as a result of the proposals can be reasonably discounted.

4.3 Vegetation and Habitats

4.3.1 None of the habitats within the site are of significant interest in terms of their plant species composition. The site contains only common and widespread plant species.

4.3.2 The field boundary hedgerows are Priority Habitat. Three hedgerows (5, 6 and 7) are meet the criteria to be classed as 'important' in accordance with *The Hedgerows Regulations 1997*. These hedgerows (and also hedgerows 1, 2 and 3) and associated trees will be retained by the proposals.

4.3.3 Removal of hedgerows 4, 8 and 9 is unavoidable and will be compensated for by the landscape proposals, refer to **Section 5.3**.

4.3.4 Protection of the boundary ditch and central watercourse with an appropriate buffer and enhancement to maximise the corridors value to biodiversity will be achieved, refer to **Section 5.2**.

4.3.5 The presence of Indian Balsam, an invasive plant species listed under Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended), is a consideration. The proposals provide an opportunity to achieve the local eradication / control of this species to prevent further spread into the wild, refer to **Section 5.5**.

4.4 Protected Species and Other Wildlife

4.4.1 Appropriate survey effort and assessment has been carried out to reasonably discount the presence of badger, great crested newt, reptile species, water vole and otter. No further survey is necessary to inform the commencement of works.

4.4.2 No evidence of roosting bats has been detected at the barn.

4.4.3 A licensed daylight bat survey and assessment and, where feasible, detailed inspections of the trees with the site and on the site boundaries have not detected any evidence of use by roosting bats. All trees with suitability for use by roosting bats will be retained with the exception of Tree 2 (low suitability). Guidance in relation to the felling of Tree 2 and the provision of compensatory opportunities for roosting bats is provided at **Section 5.6**.

4.4.4 The hedgerows and watercourse and ditch corridors are suitable for the attraction of foraging bats. The retention of these habitats with an appropriate buffer and the sensitive use of lighting at the developed site will avoid any adverse effect on opportunities for foraging bats. In addition the built development will secure the creation for roosting bats as part of good design, refer to **Section 5.6**.

4.4.5 The hedgerows and scattered shrubs within the site are suitable use by nesting birds including Priority Species. Mandatory actions to protect nesting birds during site clearance and measures to provide compensatory opportunities for nesting birds are recommended at **Section 5.7** and can be achieved by the proposals.

4.4.6 Measures to ensure the protection of fauna including otter during the construction period (and in the long-term) are described at **Section 5.4**.

5.0 RECOMMENDATIONS AND ECOLOGICAL ENHANCEMENT

5.1 Introduction

5.1.1 These recommendations aim to ensure that the development is implemented in accordance with all wildlife legislation, Natural England guidance, the principles of the National Planning Policy Framework (NPPF), local planning policy and best practice.

5.1.2 **Sections 5.3** and **5.4** provide information required by Conditions 21 and 23 of the outline planning consent.

5.1.3 The recommendations are appropriate and proportionate to the proposals, the geographical area, the habitats in the wider area, the wildlife present in the local area (and likely to use the site post-construction) and take into consideration the end use of the site as a residential development.

5.1.4 Where possible, opportunities to enhance the ecological interest and habitat connectivity and seek biodiversity gain through appropriate landscape planting and habitat creation have been identified, as required by the NPPF and other relevant planning documents.

5.2 Protection of Existing Habitats and Recommendations in Relation to Site Layout / Design

Hedgerow and Tree Protection: Condition 19

5.2.1 Hedgerows 1, 2, 3, 5, 6, and 7 and associated trees will be retained by the proposals.

5.2.2 In accordance with the requirements of Condition 19, during the construction phase, temporary protective demarcation fencing will be used to protect the trees and hedgerows to be retained.

5.2.3 The fencing will be in accordance with BS5837:2012 *Trees in Relation to Design, Demolition and Construction: Recommendations* (BSI, 2012) and must remain in position until all areas have been developed to ensure protection is provided throughout the construction phase.

Protective Buffer at the Watercourse / Ditches: Condition 11

5.2.4 Condition 11 of the outline planning consent requires the accommodation of at least an 8 metre wide undeveloped buffer on both sides of the watercourse / ditches, excluding the road crossings which are required as part of the development.

5.2.5 This buffer has been accommodated at the site layout (David Wilson Homes, 2018). During the construction period the 8 metre buffer will be demarcated with temporary fencing, this may also be fitted with silt netting as needed for the protection of water quality and to avoid sedimentation of the watercourse.

Protection of Water Quality

5.2.6 The watercourse running through the centre of the site and Ditches 1 and 2 should be protected and retained during the construction and operational phase through implementation of best practice. The following Pollution Prevention Guidelines (PPG) will be adhered to:

a. PPG1: Basic good environmental practices (Environment Agency, 2013);

b. PPG5: Works in, near or over watercourses (Environment Agency, 2014);

c. PPG6: Construction and demolition sites (Environment Agency, 2012); and

d. PPG7: Operating refuelling sites (Environment Agency, 2011).

Lighting Strategy: Condition 14

5.2.7 To satisfy the requirements of Condition 14 of the outline planning consent the lighting strategy will be prepared in accordance with the following guidance:

5.2.8 Paragraph 180, bullet point 'c' in Chapter 15 (conserving and enhancing the natural environment) of the NPPF states that development should:

'limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.'

Construction Phase

5.2.9 Any lighting to be used at the site during construction should be directional and screened where possible, this specification should be included within the Construction Method Statement, or similar.

Development Lighting Design

5.2.10 The lighting scheme to be implemented at the developed site must involve the use of appropriate products and screening, where necessary, to ensure no excessive artificial lighting shines over the watercourses and associated corridors, retained hedgerows and trees, areas of ecological enhancement and any landscape planting, as lighting overspill may deter use by wildlife such as foraging bats.

5.2.11 The lighting scheme will be designed with reference to current guidance, namely:

a. *Guidance Note 8: Bats and Artificial Lighting in the UK* (Institution of Lighting Professionals & Bat Conservation Trust, 2018); and

b. *Bats and lighting: Overview of current evidence and mitigation guidance* (Stone E. , 2014).

Construction Method Statement: Condition 7

5.2.12 The relevant specifications above will be incorporated into the Construction Method Statement as required by Condition 7 of the outline planning consent.

5.3 Condition 21: Enhancement of Watercourse and Hedgerows / Landscape Proposals

Planning Condition

5.3.1 Condition 21 of the outline consent states: "*No development shall take place until a scheme for the enhancement of the watercourse and retained hedgerows has been submitted to and approved by the local planning authority. The scheme for habitat enhancement shall include details of physical modifications to the watercourse, proposed habitat planting within the channel and details of proposals for hedgerow management. All new habitat planting to comprise locally occurring native plant species.*"

5.3.2 It is confirmed that the Landscape Proposals prepared by Covey Design (Covey Design, 2018), hereafter referred to as the Landscape Proposals, have been prepared in accordance with ecological guidance to achieve the following:

Enhancement of the Watercourse

5.3.3 The watercourse and ditch channels will be enhanced by:

a. Planting of native trees and shrubs along the watercourse corridor to maximise the habitat connectivity function of this habitat;

b. Minor excavations / lowering of the banks of the watercourse, particularly at the south-eastern corner of the site to create lower-lying land that will be seeded with the EG8 *meadow grass mix for wetlands*;

c. Seeding of the EG8 *meadow grass mix for wetlands* elsewhere along the watercourse; and

d. Seeding of complementary wildflower (EM1 *basic general purpose meadow mix*) in large areas along the watercourse and through the site.

Protection of the Watercourse / Ditches and Hedgerows

5.3.4 In addition to the physical protection of the watercourse / ditches and hedgerows during the construction period, the specifications in relation to lighting (refer to **Section 5.2**) and conservation of habitat connectivity (refer to **Section 5.4**) is also of relevance to ensure the corridor remains suitable for the attraction of fauna.

Enhancement of Hedgerows

Existing Hedgerows

5.3.5 The buffer between the existing hedgerows to be retained namely Hedgerows 3, 5, 6 and 7 will be supplemented with tree planting composed of native tree species such as Field Maple, Alder, Silver Birch, Hornbeam, Beech, Aspen, Bird Cherry, Pedunculate Oak, Rowan and Lime species. This will act to strengthen the habitat connectivity around the site and also provide opportunities for feeding birds and invertebrates and other fauna.

New Hedgerows

5.3.6 In accordance with ecological guidance, to compensate for the loss of Hedgerows 4, 8 and 9 additional native hedgerows composed of Hawthorn, Hazel Blackthorn, Elder, Wild Privet and Field Maple have been accommodated into the Landscape Proposals in the following locations:

a. At the northern site boundary;

b. Around the sub-station and other infrastructure; and

c. At the site margins in at least five positions.

Long-term Management of Hedgerows

5.3.7 The retained and new hedgerows will be managed to maximise their value for biodiversity.

Existing Hedgerows

5.3.8 The hedgerows will be maintained at 1.5 to 2 metres high (excluding trees).

5.3.9 Cutting of the hedgerows will take place only every 2-3 years for the benefit of wildlife.

5.3.10 Hedgerows to be cut in early spring (before March) to avoid the bird nesting season and main berry producing period. Hedgerows to be pruned to a slight angle with the base of the hedgerow being wider than the top to encourage a dense area at the base for use by birds and other wildlife.

5.3.11 Remove litter and debris that has collected in the hedgerows as part of the general management of the area.

New Trees and Hedgerows

5.3.12 New trees, shrubs and hedgerows will be inspected annually when they are in full leaf to ensure that they are thriving defects and condition will be recorded to identify the need for remedial works.

5.3.13 Newly planted trees take some time to establish, and until this occurs they are subject to competition from weeds. Weeds will be removed by hand from the base of each tree and 75mm deep mulch in a circle of 1sq.m will be maintained around the base of each trunk.

5.3.14 If the trees/shrubs show signs of poor growth or reduced vigour an application of the appropriate fertiliser will be carried out. If the trees/shrubs do not respond to a treatment of fertiliser, further investigations will be carried out, including the ground conditions for signs of compaction, contamination and poor quality topsoil. Remediate any problems uncovered with the soil. Should the remediation works not resolve the problem a replacement tree may need to be planted.

5.3.15 During establishment trees will require regular watering particularly during prolonged dry period; mulch will also assist in retaining moisture within the soil.

5.3.16 Tree shelters and stakes will be inspected twice annually as part of the general maintenance visits and adjusted accordingly. Damaged ties or stakes will be replaced. When the trees are established and can support themselves the ties will be carefully removed and the stakes cut down to ground level. This operation is likely to be required after three to five years dependant on establishment rates, stability and growing conditions.

5.3.17 Pruning of young trees, and hedgerows should not generally be required during the first five years unless they have dead or diseased branches or are impeding paths or fences. In such cases the branch will be pruned back (using a sharp clean knife) to an outward facing bud whilst maintaining the natural shape of the specimen.

5.3.18 After five years the hedgerows will be cut and managed in accordance with the specification for existing hedgerows outlined above.

5.4 Condition 23: Otter

Baseline and Rationale

5.4.1 No evidence of use of the site by otter has been recorded during the surveys in 2014 or 2018 and the watercourses and ditches at the site have no direct channel connectivity to other watercourses in the wider area. The watercourse and ditches currently provide limited lying-up habitat and cover for otter. However, owing to the proximity of the site to the River Ribble (330 metres across the fields of improved grassland to the north-west) the use of the site by visiting otter cannot be discounted. The protection of any otter in the locality from any potential adverse effects of the development was considered mandatory during the consideration of the outline planning application.

5.4.2 Condition 23 of the outline consent states: "*No development shall take place until a survey has been undertaken to identify any overland routes used by otters within any areas likely to be affected by construction activities. A scheme for the protection of such routes during construction and in the future shall be submitted to and approved in writing by the Local Planning Authority prior to the commencement of development and the approved scheme shall be implemented in accordance with the timescales set out therein*."

5.4.3 No defined overland routes used by otter (or other large mammals) were found during the surveys. However, the protection of otter and the avoidance of harm to otter and other wildlife is necessary in accordance with good practice.

5.4.4 To maintain habitat connectivity through the site (both during the construction period and in the long - term) the route of the water course and the ditches will be demarcated with temporary fencing.

5.4.5 The specification at the two road crossings comprises a 900mm diameter pipe to carry the watercourse beneath the road. This specification is oversized to facilitate the passage of fauna such as otter beneath the road (including during times of high flow) and to maximise the view through the tunnel which will encourage use.

5.4.6 In addition it is recommended that the following specifications are accommodated in the Construction Method Statement required by Condition 7 of the outline planning consent:

a. Trenches must not be left open overnight. Trenches or holes that would cause a hazard to otter must be covered with a board or fitted with a means of escape (such as a sloping plank of wood). This will ensure that any otter do not become trapped;

b. Pipes must be stored with caps on (to prevent otter entry);

c. No fires must be lit at the site;

d. Food waste must not be permitted to accumulate on site. Litter bins with lids must be provided at the construction compounds and the bins must be emptied regularly; and

e. Any chemicals or harmful materials must be stored so that they cannot be accessed by inquisitive otter and wildlife.

5.4.7 The guidance in relation to lighting to be used at the site during construction and in the long-term, as detailed at **Section 5.2**, is of relevance for the protection of otter.

5.4.8 In addition, owing to the management regime to be applied to conserve the wildflower grasslands at certain times of the year the grassland at the site will provide cover and lying up opportunity for any otter that visit the site.

5.5 Invasive Species

5.5.1 It is an offence under the *Wildlife and Countryside Act 1981* (as amended) to cause the spread of Indian Balsam in the wild.

5.5.2 As the detected Indian Balsam is confined to an area of the site that will not be developed (buffer along Ditch 1) it is recommended that the control of the Indian Balsam plants is carried out as part of the landscape works.

5.5.3 Hand pulling of the plants before they set seed (i.e. in May) for a period of three years is likely to be sufficient to control the spread of this species (although the import of additional seed from off-site via the watercourse is impossible to prevent).

5.6 Bats

Barn

5.6.1 The guidance at paragraphs 5.1.3 to 5.1.5 of the *Updated Daylight Lciensed Bat Survey* report (ERAP (Consultant Ecologists) Ltd, March 2018) remain applicable and are presented below:

"5.1.3 Subject to the absence of roosting bats [confirmed by the survey carried out in August 2018] and nesting birds, refer to ***Section 5.2,*** *there is no timing constraint on the commencement of works in relation to bats.*

5.1.4 As a precaution, during demolition works, it is recommended that the roof tiles, ridge copings and timber window frames are removed carefully by hand. All contractors must wear gloves, tiles should be lifted (rather than slid) and care must be taken to check the underside of each tile for bats prior to stacking / discarding.

5.1.5 If at any time during the works a bat is discovered, or suspected, all contractors must withdraw from the area and ERAP (Consultant Ecologists) Ltd or Natural England must be contacted for further advice."

Trees

Reasonable Avoidance Measures to be Applied During Tree Felling

5.6.2 The felling of Tree 1 and any crown lifting works at Trees 1 and Trees 3 to Tree 7, or any mature trees, must be carried out in accordance with the following measures:

a. Careful section-felling of the tree(s). The sectioning must avoid cutting through or close to any cavities, this is likely to involve climbing the tree; Immediately prior to works, the tree will be inspected by a licensed bat surveyor and subsequent section/soft felling will be completed under the supervision of a licensed bat surveyor.

b. The sectioning must avoid cutting through or close to any cavities, this is likely to involve climbing the tree;

c. Cut sections will be lowered to the ground with the use of ropes;

d. Once on the ground the cavity will be inspected by the licensed bat surveyor and guidance issued; and

e. Allow all felled sections to lie on the ground for 24 hours before removing Ivy and snedding (removing side branches).

Timing

5.6.3 The optimal time for tree removal is between September and late February inclusive, refer to **Sections 5.6** and **5.7.**

Discovery of a Bat

5.6.4 If at any time during the works a bat is discovered or suspected all contractors must withdraw from the area and ERAP Ltd (01772 750502) or Natural England must be contacted for further guidance.

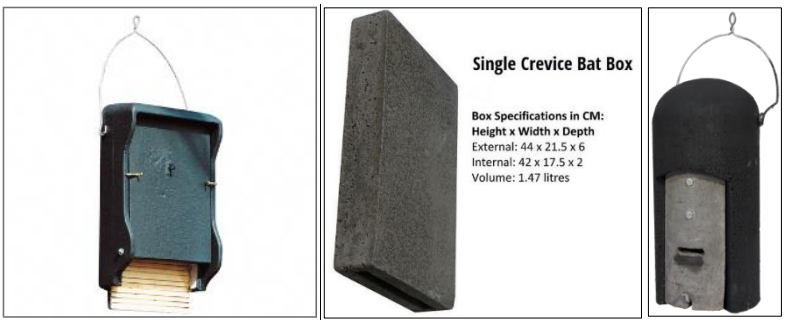
Other Trees

5.6.5 All other trees scheduled for removal can be felled in accordance with general arboricultural practice and taking into consideration the protection afforded to nesting birds, refer to **Section 5.7.**

Provisions for Roosting Bats

Loss of Tree 2

5.6.6 To compensate for the loss of the potential roost features at Tree 2 it is recommended that a bat box (refer to **Insert 1**) is installed at a suitable retained tree within the site.



Insert 1: *Schwegler 1FF, Greenwood's Ecohabitat single cavity and Schwegler 1FD bat boxes*

Provisions on the Residential Properties

5.6.7 As habitats suitable for the attraction of foraging bats will be retained and enhanced at the site it is recommended that the development incorporates the installation of at least 10[4] commercially available bat access panels at the new buildings.

5.6.8 The bat access panels should be sited at least four metres above ground level, ideally facing or close to areas of landscape planting or existing linear features (i.e. the drain). The access panels should not be positioned over windows or doorways where bat droppings may become a nuisance. An ecologist will advise on appropriate positions for the bat access panels. Suitable bat access panels are available from NHBS Ecology (www.nhbs.com) or Wild Care (www.wildcare.co.uk) and are presented at **Insert 2**, below:

Insert 2: *Example of commercially available bat access panels*
(Left and centre left: IBStock products and Right and centre right: Habibat products)

[4] The number of bat access panels recommended is based on the proposed site layout, the house type specification and the alignment of properties to habitats suitable for use by bats. The specified number also takes into account the fact that a number of bats (and more than one species) will use the same roosting feature. This recommendation is concluded to be appropriate and proportionate to the proposals.

5.7 Birds

Protection

5.7.1 All wild birds are protected under the *Wildlife and Countryside Act 1981* (as amended) while they are breeding. It is advised that any works such as vegetation clearance that will affect habitats suitable for use by nesting birds are scheduled to commence outside the bird nesting season. Commencement of works in the nesting season must be informed by a pre-works nesting bird survey, carried out by a suitably experienced ecologist. The bird breeding season typically extends between March to August inclusive.

5.7.2 If breeding birds are detected the Ecologist will issue guidance in relation to the protection of the nesting birds in conjunction with the scheduled works. This may involve cordoning off an area of the site until the young birds have fledged.

Enhancing Habitats for Nesting Birds

House Sparrow

5.7.3 House sparrows are associated with suburban areas. Monitoring suggests a severe decline in the UK house sparrow population, estimated as dropping by 71 per cent between 1977 and 2008 with substantial declines in both rural and urban populations (RSPB).

5.7.4 The boxes should be not be positioned directly over windows or doorways where droppings may become a nuisance. RSPB advice states that boxes should ideally be sited facing north to east, to avoid exposure to direct sunlight, which may cause overheating of chicks in the nest. An example of a suitable house sparrow bird box and a general bird box is given below.

Insert 1: *House Sparrow Nesting Terrace and 1MR Schwegler Avianex*

5.7.5 Such bird boxes are available from the NHBS (www.nhbs.com) or Wild Care (www.wildcare.co.uk). ERAP (Consultant Ecologists) Ltd will advise on the siting of bird boxes.

5.8 Landscape Planting within the Residential Plots

5.8.1 The Landscape Proposals prepared by Covey Design (Covey Design, 2018) provide the landscape strategy for the site buffers and watercourse corridor. It is recommended that the landscape scheme to be prepared for the residential plots maximises the opportunities for biodiversity.

5.8.2 This can be achieved by maximising the use of native species and species known to be of value for the attraction of wildlife such as trees and shrubs which support blossom and fruit which will attract insects. Suitable species are presented at **Table 5.1**, below.

Table 5.1: Suitable Native Species for Tree and Shrub Planting

Scientific Name	Common Name	Scientific Name	Common Name
Acer campestre	Field Maple	*Prunus spinosa*	Blackthorn
Corylus avellana	Hazel	*Rosa arvensis*	Field Rose
Crataegus monogyna	Hawthorn	*Rosa canina*	Dog-rose
Ilex aquifolium	Holly	*Sambucus nigra*	Elder
Malus sylvestris	Crab Apple	*Sorbus aucuparia*	Rowan
Prunus avium	Wild Cherry	*Ulmus glabra*	Wych Elm
Prunus padus	Bird Cherry	*Viburnum opulus*	Guelder Rose

5.8.3 The understorey and ground cover planting design should be prepared to optimise the attraction of invertebrates such as feeding bumblebees and butterflies. Where possible the use of native species should be maximised but where necessary non-native species such as *Viburnum, Ceanothus, Hebe*, *Lavandula*, *Lonicera, Potentilla, Rosmarinus* and *Vinca* known to be attractive to invertebrates should be used.

6.0 CONCLUSION

6.1 This ecological appraisal has demonstrated that a residential development at the site is feasible and acceptable in accordance with ecological considerations and the National Planning Policy Framework.

6.2 The recommendations in Section 5.0 address all the mandatory measures and ecological recommendations to be applied to ensure compliance with wildlife legislation, the National Planning Policy Framework (NPPF), the relevant planning conditions and best practice.

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8.0 APPENDIX: TABLES AND FIGURES

Table 8.1: Plant Species List for Improved and Poor Semi Improved Grassland

Scientific Name	Common Name	DAFOR[1]	Cover
Cerastium fontanum	Common Mouse-ear	O	<1%
Cirsium vulgare	Spear Thistle	R	<1%
Cynosurus cristatus	Crested Dog's-tail	LF	5%
Glyceria fluitans	Floating Sweet-grass	VLA	<1%
Holcus lanatus	Yorkshire-fog	F/LA*	5%
Juncus effusus	Soft-rush	VLA	<1%
Lolium perenne	Perennial Rye-grass	A*	90%
Poa annua	Annual Meadow-grass	LF	1%
Ranunculus repens	Creeping Buttercup	F	5%
Rumex obtusifolius	Broad-leaved Dock	O	<1%
Taraxacum officinale agg.	Dandelion	O	<1%

[1]Key to DAFOR: D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and *denotes a constant species

Table 8.2: Plant Species List for Hedgerows 1 to 4

Scientific Name	Common Name	Hedgerow 1		Hedgerow 2		Hedgerow 3		Hedgerow 4	
		DAFOR[1]	% Cover	DAFOR[1]	% Cover	DAFOR[1]	% Cover	DAFOR[1]	% Cover
Woody Species									
Acer pseudoplatanus	Sycamore	VLF	2%	-	-	-	-	-	-
Corylus avellana	Hazel	O	1%	-	-	-	-	LF	5%
Crataegus monogyna	Hawthorn	A	60%	A*	40%	A*	70%	A*	70%
Fraxinus excelsior	Ash	O	1%	R	2%	F	5%	LF	5%
Ilex aquifolium	Holly	LA	5%	R	1%	R	<1%	VLA	1%
Prunus spinosa	Blackthorn	A	20%	A*	40%	LA*	20%	A/F*	10%
Rosa canina	Dog-rose	-	-	-	-	-	-	LF	5%
Sambucus nigra	Elder	O	1%	O	5%	F	5%	LF	5%
Ground Flora									
Alliaria petiolata	Garlic Mustard	-	-	-	-	-	-	VLA	<1%
Anthriscus sylvestris	Cow Parsley	F*	10%	O	5%	LA	5%	F	5%
Arum maculatum	Lords-and-Ladies	R	<1%	O	2%	O	<1%	O	<1%
Bellis perennis	Daisy	-	-	-	-	R	1%	-	-
Carex pendula	Pendulous Sedge	-	-	-	-	VLA	1%	R	<1%
Cirsium arvense	Creeping Thistle	R	<1%	-	-	-	-	-	-
Dactylis glomerata	Cock's-foot	F*	5%	-	-	LF	5%	F	5%
Dryopteris dilatata	Broad Buckler-fern	-	-	-	-	R	<1%	-	-
Dryopteris filix-mas	Male-fern	-	-	-	-	O	<1%	-	-
Epilobium hirsutum	Great Willowherb	-	-	-	-	-	-	VLF	<1%
Epilobium montanum	Broad-leaved Willowherb	R	<1%	-	-	-	-	-	-
Festuca rubra	Red Fescue	VLA	1%	-	-	VLA	<1%	VA	<1%
Ficaria verna	Lesser Celandine	VLA	1%	-	-	VLA	<1%	VLA	<1%
Filipendula ulmaria	Meadowsweet	-	-	-	-	-	-	R	<1%
Galanthus nivalis	Snowdrop	-	-	-	-	VLA	<1%	-	-
Galium aparine	Cleavers	LF	1%	A	10%	F*	20%	F*	5%
Geranium sp.	Non-native Geranium species	-	-	-	-	VLA	<1%	-	-
Geum urbanum	Wood Avens	VLA	<1%	VLF	2%	VL	<1%	O	<1%
Hedera helix	Ivy	A*	40%	O	5%	A*	20%	LF	5%
Holcus lanatus	Yorkshire-fog	LF	5%	A	10%	LF	5%	F	5%
Hyacinthoides non-scripta	Bluebell	VLF	1%	-	-	-	-	-	-

Scientific Name	Common Name	Hedgerow 1		Hedgerow 2		Hedgerow 3		Hedgerow 4	
		DAFOR[1]	% Cover	DAFOR[1]	% Cover	DAFOR[1]	% Cover	DAFOR[1]	% Cover
Hyacinthoides sp.	Non-native Bluebell species	VLF	1%	-	-	VLA	<1%	-	-
Mercurialis perennis	Dog's Mercury	-	-	-	-	VLA	<1%	VLF	<1%
Potentilla reptans	Creeping Cinquefoil	-	-	-	-	VL	<1%	-	-
Ranunculus repens	Creeping Buttercup	LF	5%	LF	10%	LA	5%	LF	1%
Rubus fruticosus agg.	Bramble	A/LF*	20%	F	10%	VA	1%	VLA	<1%
Taraxacum officinale agg.	Dandelion	-	-	-	-	R	<1%	O	<1%
Urtica dioica	Common Nettle	LF	5%	A	10%	LF	5%	F/LA*	10%
Veronica beccabunga	Brooklime	-	-	-	-	-	-	VLA	<1%
Vinca minor	Lesser Periwinkle	VLF	-	-	-	-	-	-	-

[1]**Key to DAFOR:** D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and *denotes a constant species.
Species highlighted in grey are classed as either 'woody' or 'woodland' species contributing to *The Hedgerows Regulations 1997* wildlife and landscape criteria assessment.

Table 8.3: Plant Species List for Hedgerows 5 to 9

Scientific Name	Common Name	Hedgerow 5		Hedgerow 6		Hedgerow 7		Hedgerow 8		Hedgerow 9	
		DAFOR[1]	% Cover	DAFOR[1]	% Cover	DAFOR[1]	% Cover	DAFOR[1]	% Cover	DAFOR[1]	% Cover
Woody Species											
Alnus glutinosa	Alder	O	5%	-	-	VL	<1%	-	-	O	2%
Corylus avellana	Hazel	-	-	R	1%	LF/VLA	5%	-	-	-	-
Crataegus monogyna	Hawthorn	A	40%	A	40%	A*	30%	O	5%	A*	50%
Fraxinus excelsior	Ash	-	-	O	5%	LF	5%	O	5%	F	2%
Ilex aquifolium	Holly	O	5%	-	-	-	-	-	-	O	1%
Lonicera periclymenum	Honeysuckle	-	-	-	-	VL	<1%	-	-	-	-
Prunus padus	Bird Cherry	O	5%	-	-	VL	<1%	F	5%	O	<1%
Prunus spinosa	Blackthorn	A	40%	A	40%	A*	50%	A	50%	A*	50%
Rosa canina	Dog-rose	-	-	O	5%	VLF	1%	F	5%	F	10%
Salix sp.	Willow species	O	5%	-	-	-	-	R	2%	-	-
Sambucus nigra	Elder	O	2%	-	-	O	<1%	O	5%	O	3%
Viburnum opulus	Guelder-rose	-	-	-	-	VL	<1%	-	-	-	-
Herb Species											
Alliaria petiolata	Garlic Mustard	-	-	-	-	-	-	R	1%	-	-
Anthriscus sylvestris	Cow Parsley	F*	2%	-	-		<1%	F	2%	F	5%
Apium nodiflorum	Fool's-water-cress	-	-	O	1%	VLA	<1%	-	-	-	-
Arum maculatum	Lords-and-Ladies	LA	4%	O	1%	O	<1%	LA	2%	O	<1%
Asplenium scolopendrium	Hart's-tongue fern	-	-	O	2%	-	-	-	-	-	-
Carex pendula	Pendulous Sedge	-	-	-	-	R	<1%	-	-	-	-
Deschampsia cespitosa	Tufted Hair-grass	-	-	-	-	R	<1%	-	-	-	-
Dryopteris dilatata	Broad Buckler-fern	-	-	O	2%	R	-	-	-	-	-
Dryopteris filix-mas	Male-fern	O	2%	O	3%	O	<1%	-	-	-	-
Epilobium hirsutum	Great Willowherb	-	-	LF	3%	VLA	<1%	-	-	-	-
Ficaria verna	Lesser Celandine	LA	2%	VLA	2%	VLA	1%	LA	2%	LF	2%
Filipendula ulmaria	Meadowsweet	-	-	R	1%	-	-	-	-	-	-
Galium aparine	Cleavers	F*	2%	F*	10%	F	5%	F	2%	A*	50%
Hedera helix	Ivy	F	3%	F*	3%	LF	5%	F	5%	A*	20%
Holcus lanatus	Yorkshire-fog	-	-	-	-	F	5%	-	-	F	5%
Impatiens glandulifera	Indian Balsam	-	-	-	-	VLF	<1%	-	-	-	-
Juncus effusus	Soft-rush	-	-	O	1%	VLF	<1%	-	-	-	-
Mentha aquatica	Water Mint	-	-	R	1%	-	-	-	-	-	-

Scientific Name	Common Name	Hedgerow 5		Hedgerow 6		Hedgerow 7		Hedgerow 8		Hedgerow 9	
		DAFOR[1]	% Cover	DAFOR[1]	% Cover	DAFOR[1]	% Cover	DAFOR[1]	% Cover	DAFOR[1]	% Cover
Mercurialis perennis	Dog's Mercury	-	-	R	1%	VLF	<1%	-	-	-	-
Ranunculus repens	Creeping Buttercup	O	2%	O	2%	LF	1%	-	-	-	-
Rubus fruticosus agg.	Bramble	O	4%	F	5%	VLA/LF	5%	O	5%	-	-
Rumex obtusifolius	Broad-leaved Dock	-	-	-	-	-	-	O	1%	-	-
Scrophularia nodosa	Common Figwort	-	-	-	-	VLA	<1%	-	-	-	-
Silene dioica	Red Campion	-	-	O	2%	VLA	<1%	R	1%	-	-
Taraxacum officinale agg.	Dandelion	-	-	-	-	-	-	R	1%	-	-
Urtica dioica	Common Nettle	O	2%	F*	5%	F*	30%	O	2%	F	10%

[1]**Key to DAFOR:** D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and *denotes a constant species.
Species highlighted in grey are classed as either 'woody' or 'woodland' species contributing to *The Hedgerows Regulations 1997* wildlife and landscape criteria assessment.

Table 8.4: Hedgerow Description and Assessment in Accordance with *The Hedgerows Regulations 1997*

	Hedgerow Name	Hedgerow 1			Hedgerow 2			Hedgerow 3			Hedgerow 4		
Descrip-tion	Height x width x length (metres)	3-4 x 2-3 x 150			1 x 1 x 90			1.5-2 x 1.5-2 x 173			4 x 2-3 x 288		
	Continuity	90%			70%			90%			90%		
	Management	Unmanaged			Routinely cut by flail			Routinely cut by flail			Unmanaged		
Woody Species	Section number[1]	1	2	3	1	2	3	1	2	3	1	2	3
	Qualifying woody species	3	3	-	4	-	-	2	2	-	3	3	4
	Average number	***3***			***4***			***2***			***3***		
Number of Features Present	(a) Bank or wall along at least ½ length	No			No			No			No		
	(b) Gaps which in agg. do not exceed 10%	Yes			No			Yes			Yes		
	(c)-(e) 1 standard tree per 50m	Yes			No			No			No		
	(f) At least 3 woodland species within 1m	Yes			No			Yes			No		
	(g) Ditch along at least ½ its length	No			No			No			No		
	(h) Connections scoring 4 points or more	No			No			No			No		
	(i) Parallel hedge within 15m	No			No			Yes					
	Total Features	***3***			***0***			***3***			***1***		
Hedgerow Importance	***Criteria for Hedgerow Importance 1***	**No**			**No**			**No**			**No**		
	Criteria for Hedgerow Importance 2:	**No**			**No**			**No**			**No**		
	Criteria for Hedgerow Importance 3:	**No**			**No**			**No**			**No**		
Hedgerow Important Criteria	***Criteria for Hedgerow Importance 1:*** Hedgerow contains species listed as: (1) Part 1 of Schedule 1, Schedule 5 or Schedule 8 of *Wildlife and Countryside Act 1981* (as amended); (2) Declining breeders in 'Red Data Birds of Britain'; and / or (3) Categorised as 'endangered', 'extinct' or 'vulnerable'												
	Criteria for Hedgerow Importance 2: Hedgerow includes (Number of woody species required reduced by one in Lancashire): (i) At least 7 woody species (on average); (ii) At least 6 woody species (on average) and at least 3 features; (iii) At least 6 woody species (on average), including one of: Black Poplar, Large-leaved Lime, Small-leaved Lime or Wild Service Tree; and / or; (iv) (iv)At least 5 woody species (on average), and has 4 features												
	Criteria for Hedgerow Importance 3: Is adjacent to is adjacent to a bridleway, footpath or byway and includes at least 4 woody species on average and 2 features from (a) to (g).												

[1]Up to and including 100 metres length = 1 section required. 100 to 200 metres length = 2 sections required. Greater than 200 metres length = 3 sections required.

Table 8.5: Hedgerow Description and Assessment in Accordance with *The Hedgerows Regulations 1997*

	Hedgerow Name	Hedgerow 5			Hedgerow 6			Hedgerow 7			Hedgerow 8			Hedgerow 9		
Descrip-tion	Height x width x length (metres)	5-6 x 2 x 85			1.5-2 x 1.5 x 175			3 x 2 x 230			2-3 x 2 x 60			2 x 2 x 130		
	Continuity	100%			90%			100%			100%			100%		
	Management	Unmanaged			Cut by flail			Unmanaged			Cut by flail			Cut by flail		
Woody Species	Section number[1]	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
	Qualifying woody species	4	-	-	4	4	-	4	3	4	5	-	-	5	7	-
	Average number	***4***			***4***			***4***			***5***			***6***		
Number of Features Present	(a) Bank or wall along at least ½ length	No			No			No			No			No		
	(b) Gaps which in agg. do not exceed 10%	Yes			Yes			Yes			Yes			Yes		
	(c)-(e) 1 standard tree per 50m	Yes			No			Yes			Yes			No		
	(f) At least 3 woodland species within 1m	No			Yes			Yes			No			No		
	(g) Ditch along at least ½ its length	No			Yes			Yes			No			No		
	(h) Connections scoring 4 points or more	No			No			No			No			No		
	(i) Parallel hedge within 15m	No			No			No			No			No		
	Total Features	***2***			***3***			***4***			***2***			***1***		
Hedgerow Importance	***Criteria for Hedgerow Importance 1***	***No***			***No***			***No***			***No***			***No***		
	Criteria for Hedgerow Importance 2:	***No***			***No***			***No***			***No***			***No***		
	Criteria for Hedgerow Importance 3:	***Yes***			***Yes***			***Yes***			***No***			***No***		
Hedgerow Important Criteria	***Criteria for Hedgerow Importance 1:*** Hedgerow contains species listed as: (1) Part 1 of Schedule 1, Schedule 5 or Schedule 8 of *Wildlife and Countryside Act 1981* (as amended); (2) Declining breeders in 'Red Data Birds of Britain'; and / or (3) Categorised as 'endangered', 'extinct' or 'vulnerable'															
	Criteria for Hedgerow Importance 2: Hedgerow includes (Number of woody species required reduced by one in Lancashire): (v) At least 7 woody species (on average); (vi) At least 6 woody species (on average) and at least 3 features; (vii) At least 6 woody species (on average), including one of: Black Poplar, Large-leaved Lime, Small-leaved Lime or Wild Service Tree; and / or; (iv)At least 5 woody species (on average), and has 4 features															
	Criteria for Hedgerow Importance 3: Is adjacent to is adjacent to a bridleway, footpath or byway and includes at least 4 woody species on average and 2 features from (a) to (g).															

[1]Up to and including 100 metres length = 1 section required. 100 to 200 metres length = 2 sections required. Greater than 200 metres length = 3 sections required.

Table 8.6: Photographs

Photo 1: Improved grassland

Photo 2: Poor semi-improved grassland

Photo 3: Hedgerow 1

Photo 4: Hedgerow 2

Photo 5: Hedgerow 3

Photo 6: Hedgerow 4

Photo 7: Hedgerow 5

Photo 8: Hedgerow 6

Photo 9: Hedgerow 9

Photo 10: Watercourse

Photo 11: Watercourse

Photo 12: Tree 1

Photo 13: Tree 2

Photo 14: Tree 3

Photo 15: Tree 3

Photo 16: Tree 4

Photo 17: Tree 5

Photo 18: Tree 7

Table 8.7: Results of Licensed Bat Survey and Assessment

Tree Number (refer to **Figure 8.2**) Tree number in brackets is the tree number referred to in the Arboricultural Impact Assessment (Bowland Tree Consultancy, 2014)	**Species**	**Description**	**Works Proposed** (as confirmed by the Arboricultural Impact Assessment (Bowland Tree Consultancy, 2014)	**Presence of Potential Roost Features (PRF) and Results of Further Assessment (if applicable)**	**Assessment** (based on Table 4.1 of the *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn)* (Collins, J. (ed), 2016)) and scope of works proposed
Tree 1 (T18)	Ash	Mature tree (**Photo 12**)	To be retained	Sparse Ivy cover present on main stem (only to crown). Knot hole present at 8 metres above ground on the west side. Downward facing knot hole on east facing lateral branch. Snagged branch and woodpecker feeding holes present	Moderate
Tree 2 (T19)	Alder	Mature tree (**Photo 13**)	Scheduled for removal to facilitate development	Hollow stem present. Inspection with an endoscope did not detect any bats or evidence or use by bats. No signs such as a smooth interior were found. Evidence of water ingress present which has contributed to the low suitability assessment.	Low Considered that sufficient survey effort was possible to determine the presence of a roost on the survey date (and the likely previous absence of a roost). Measures at **Section 5.6** are appropriate.
Tree 3 (T3)	Ash	Mature (**Photos 14** and **15**)	To be retained	Large knot hole approximately 4 metres from ground level on the north eastern side of the main stem. Closer examination confirmed that the knot hole leads to a hollow cavity that is exposed and open higher up the tree. Inspection with an endoscope did not detect any bats or evidence or use by bats. No signs such as a smooth interior were found.	Low

Tree Number (refer to **Figure 8.2**) Tree number in brackets is the tree number referred to in the Arboricultural Impact Assessment (Bowland Tree Consultancy, 2014)	**Species**	**Description**	**Works Proposed** (as confirmed by the Arboricultural Impact Assessment (Bowland Tree Consultancy, 2014)	**Presence of Potential Roost Features (PRF) and Results of Further Assessment (if applicable)**	**Assessment** (based on Table 4.1 of the *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn)* (Collins, J. (ed), 2016)) and scope of works proposed
Tree 4 (T1)	Ash	Mature (**Photo 16**)	Retain	Hazard beam present on southern lateral branch.	Low
Tree 5 (within H1)	Species unknown	Dead shrub (**Photo 17**)	Retain	Holes on south side of main trunk approximately 1 metre from ground level. Inspection with an endoscope did not detect any bats or evidence or use by bats. No signs such as a smooth interior were found.	Low
Tree 6 (T15 off site)	Ash	Semi-mature	Retain	Small minor knot holes in upper lateral branches.	Low
Tree 7 (T12)	Ash	Semi-mature (**Photo 18**)	Retain	Upward facing knot hole on the north-eastern side of the main stem. Dead limb with woodpecker feeding holes.	Moderate

Figure 8.1: Aerial Image of Site and Location Plan

Figure 8.2: **Phase 1 Habitat and Vegetation Map**