



Elite Ecology

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**121 Tunstall Road,
Knypersley**



**Bat Activity Survey
And
Bat and Bird Enhancement Plan
June 2020**



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Bat Activity Survey

Document Control			
Document Properties			
Organisation	Elite Ecology		
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Title	121 Tunstall Road, Knypersley Bat Activity Survey		
Version History			
Date	Version	Status	Description/Changes
02/06/2020	V1.1	Draft	First Draft
04/06/2020	V1.1	Final Draft	Proof Read

0. Executive Summary

- 0.1 This report has been prepared at the request of Mr. John Littleton (Proprietor). It relates to the presence or absence of bats and birds at the proposed re-development site located at 121 Tunstall Road, Knypersley, Staffordshire, ST8 7AA (Central OS Grid Reference: SJ 88107 56876). To fulfill this brief, Elite Ecology undertook a field survey.
- 0.2 The surveyed trees are proposed to be removed as part of the proposals to develop the land. This is to fulfil the condition as part of the planning approval under the application number SMD/2017/0510.
- 0.3 Due to the amount of potential ingress/egress points and suitable roosting features, B1 and B2 were deemed to be of '**low**' potential for bats to roost. Surveys were undertaken in 2017, with another survey in May 2020 to adhere to the planning conditions.

0.4 Summary

Bat presence/absence

From the survey visits undertaken on the site, it has been concluded that the structure contains no bat roosts. In addition to this, foraging and commuting common pipistrelle (*Pipistrellus pipistrellus*) specimens were identified.

Bird presence/absence

From the survey visit undertaken on the site, it can be concluded that the surveyed structure contains no evidence of nesting birds. However, the surrounding landscape provides all of the necessary habitat elements that birds require, and their presence can be assumed.

Ecological value of building units

The ecological value of the building has been deemed as '**negligible**' to bats due to the lack of bat roosts in the structure. The ecological value of the buildings to birds has been deemed '**negligible**' due to the absence of any nesting specimens.

0.5 Recommendations

Please see section five for the enhancement plan for the site. This includes roosting provisions, hedgerow planting and nest boxes. These are required to ensure that the conditions of the planning are fulfilled.

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1 Introduction

1.1 Report rationale

This report has been prepared at the request of Mr. John Littleton (Proprietor). It relates to the presence or absence of bats and birds at the proposed re-development site located at 121 Tunstall Road, Knypersley, Staffordshire, ST8 7AA (Central OS Grid Reference: SJ 88107 56876). To fulfill this brief, Elite Ecology undertook a field survey.

This survey effort is in relation to the planning approval for SMD/2017/0510. This document is in fulfilment of Condition 26, which is as follows:

“Prior to the commencement of development, details of nest sites for breeding birds comprising artificial breeding sites for swifts, house martin and house sparrow and details of hedgerow planting to provide additional feeding and nesting habitat for birds shall be submitted to and approved in writing by the Local Planning Authority. The scheme shall thereafter be implemented in accordance with the approved details prior to the development being first brought into use.

Reason:- *In the interests of nature conservation.”*

This report is also in partial fulfilment of Condition 27. Condition 27 is as follow:

“Prior to the commencement of development (including removal of any hedgerows, trees or shrubs or works to demolish structures), the following surveys shall be submitted to and approved in writing by the Local Planning Authority:

I. An emergence survey for bats shall be carried out according to the recommendations detailed in the report by TEP Reference: 5523.001 (December 2015). This must consist of a single emergence survey following the guidelines in Bat Conservation Trust, Bat Surveys, Good Practice Guidelines (2012).

II. Further surveys to ascertain the value of trees to be removed for bats following the guidelines in Bat Conservation Trust, Bat Surveys, Good Practice Guidelines (2012).

III. Further emergence surveys shall also be carried out if recommended by these preliminary bat surveys.

Demolition of structures shall be carried out carefully by hand.

In the unlikely event bats are found, an appropriate method statement must be submitted to and approved in writing the Local Planning Authority that may include an application for a European Protected Species (EPS) Licence if applicable.

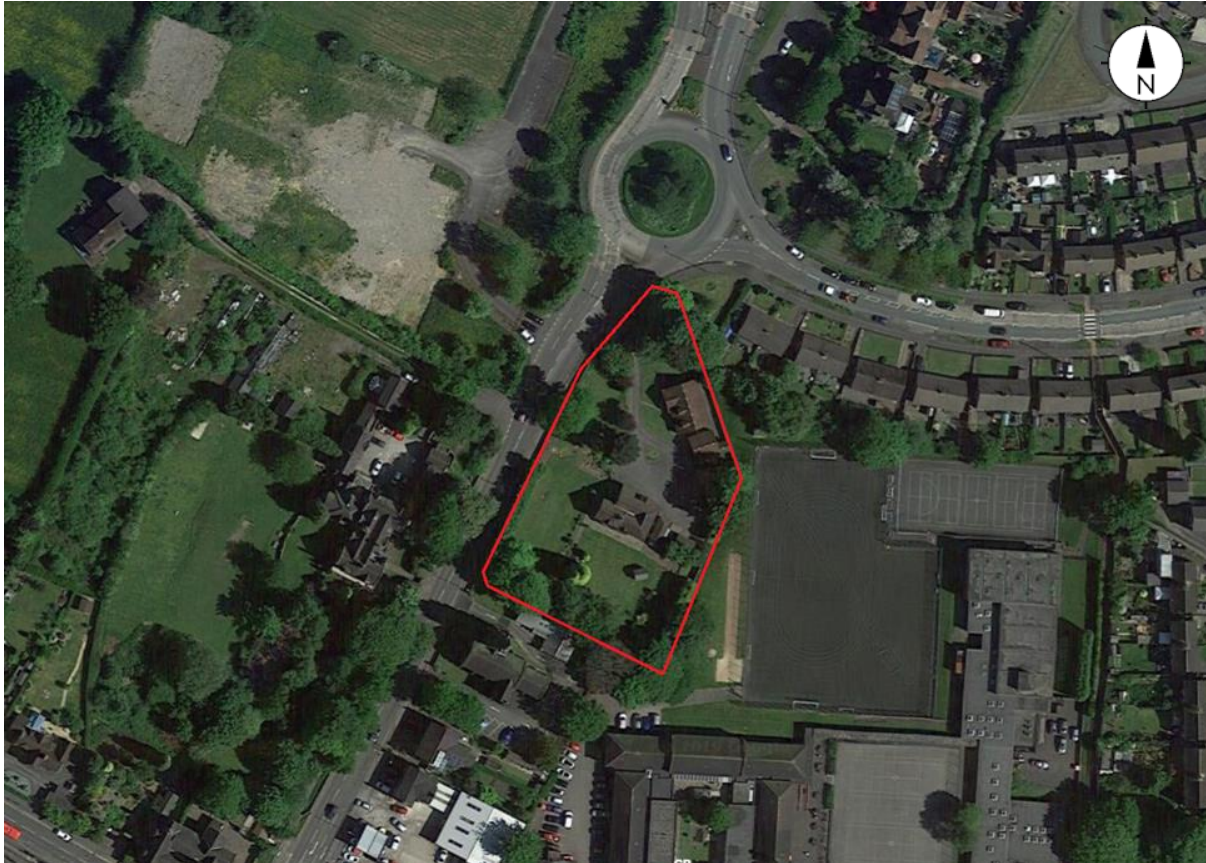
The scheme shall thereafter be implemented in accordance with the approved details prior to the development being first brought into use.

Reason:- *In the interests of nature conservation.”*

1.2 Site description

The site is situated in a suburban location in the settlement of Knypersley. On site, there are two bungalows, with tarmac driveways, amenity grasslands, ornamental flowers/shrubs and scattered trees present. This survey relates to all trees located on site that are proposed to be lost under the re-development of the site. The habitats on site are considered to contain potential to support the local bat and bird populations by offering roosting/nesting, commuting and foraging opportunities.

Figure 1: An aerial photograph of the surveyed structure at 121 Tunstall Road, Knypersley (as shown by the red outline).



1.3 Proposed works

The surveyed trees are proposed to be removed as part of the proposals to develop the land. This is to fulfil the condition as part of the planning approval under the application number SMD/2017/0510.

1.4 **Aims of surveys**

The aims of the surveys were to undertake an assessment of the building(s), vegetation and surrounding area to establish whether any bats and birds may be present and, if so, in what way they are using the site. The actions of the surveyors on the site and during the production of this report were conducted in accordance with Bat Conservation Trust (BCT) guidelines (3rd edition).

1.4.1 This survey effort considered the potential for all **bat and bird species (including barn owls)** onsite:

- To establish the possibility of bat roosts and bird nests being present at the proposed development site.
- To assess any roost/nest status (i.e. what type and numbers of individuals).
- To assess suitable food, resources and habitat requirements on site and in the local landscape.

1.4.2 The information will subsequently be used in conjunction with the knowledge of the proposed works at the site to determine the potential need for further survey effort, the impacts of the proposed scheme of works, to establish whether a Natural England Development Licence is required along with species-specific mitigation and compensation. This is done in order to keep any protected species at a favourable conservation status on site.

2 Survey Methodology

2.1 Desktop Survey Methodology

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

2.1.2 The local records centre was not contacted to provide data on all bat species within 2km of the proposed development site as planning consent had already been granted.

2.2 Field Survey Methodology

2.2.1 Initial Site Survey

This is done by assessing the site by visually inspecting all building/s/structures and any trees/vegetation to be impacted by the proposed works. This is done to assess the resource availability for protected species on site and in the immediate area. Particular reference is made to:

- The presence or absence of bats and birds' onsite.
- Any evidence of potential bat roosts and birds' nests onsite.
- Whether any additional survey effort will be required.

During the initial survey, an internal and external inspection of the building(s) is undertaken to look for signs of bat activity. This is done in accordance with BCT guidelines for the assessment of building(s) and built structures.

2.2.2 External Inspection

This survey method is used to locate potential ingress and egress points around the structures that both bats and birds could use to gain access into the building. It also aims to identify any areas where cracks and crevices are present to be used as roosting/nesting features. This visual inspection is carried out in full daylight using binoculars, endoscope, torches and ladders.

This will allow for the determination of the following information:

- The type of building(s) surveyed.
- The approximate age of building(s) surveyed.
- The construction type and materials used.
- The presence of potential roost features (e.g. missing roof tiles, raised ridge tiles, air vents, cracks and crevices within the mortar).
- The presence of suitable ingress and egress points (e.g. missing windows and doors, missing mortar, lifted tiles).
- The location of any anecdotal evidence for the presence of protected species (e.g. nests, droppings or food remains).

2.2.3 Internal Inspection

This survey method aims to locate and examine areas which potentially provide suitable environmental conditions for bats. This visual inspection was undertaken by using binoculars, endoscope, torches, ladders and bat detectors to inspect internal features of the building(s).

This will allow for the determination of the following information:

- The presence of warm areas, dark areas, joints, crevices, beams and cavities that could be used for roosting and nesting purposes by bats and birds.
- To locate possible bat roost and bird nest sites.
- To listen for social calling bats.
- To locate any evidence of bat and bird presence through the identification of live or dead specimens, grease marks, droppings, food remnants, urine stains and/or the characteristic smell of bats.

2.2.4 Building/Vegetation Classification

A building/vegetation classification will be assigned to each surveyed feature that is proposed to be impacted by the scheme of works. This classification is based on the features potential to support roosting bats. The rating is also influenced by the location of the structure(s) in the local landscape, along with the number of suitable alternative roosting features, the type of features present in the landscape and the surveyor's experience. For example:

A structure that has a high level of anthropogenic disturbance with limited opportunities for access by bats, that is also situated within an urbanised area with few or no mature trees, parkland, woodland or wetland would generally equate to having negligible/low potential.

Conversely, an older structure (e.g. pre 20th century or early 20th century) with multiple features suitable for use by bats that is close to optimal foraging habitat would equate to having high potential.

The amount of additional survey effort required for each feature will depend on its rating:

- Negligible – No further survey effort is required
- Low – One further activity survey is required (structures only).
- Moderate – Two further activity surveys are required.
- High – Three further activity surveys are required.

2.2.5 Roost Categories

Any structures with evidence of bats will be further evaluated to assess which of the following roost categories may be present onsite:

➤ **Day Roost:**

A place where individual bats or small groups of males, rest or shelter during the daytime. These bats are rarely found at night at these sites.

➤ **Feeding Roost:**

A place where individual bats rest or feed during the night, but are rarely present in the day.

➤ **Hibernation Roost:**

A place where bats may be found either individually or together during the winter months. These roosts often have a constant cool temperature and high humidity.

➤ **Maternity Roost:**

A place where female bats give birth and raise their young to independence.

➤ **Mating Roost:**

A place where mating/copulation takes place between male and female bats. These can continue through the winter months.

➤ **Night Roost:**

A place where bats rest and/or shelter during the night, but will rarely be found here during the day. These can be used colonially or individually by the bats.

➤ **Satellite Roost:**

These are alternative roosting sites that are found within close proximity to the main nursery colony within the maternity roost. These are used throughout the breeding season by individual or small groups of female bats.

➤ **Swarming Site:**

A place where large numbers of bats come together during the latter summer months through until Autumn. These sites are classed as being important mating areas.

➤ **Transitional/Occasional Roost:**

A place that is used by individuals or small groups of bats for a small period of time. These are used by the bats prior to hibernation and/or shortly after hibernation.

2.2.6 Bat Detector Survey (presence/absence survey)

If required, the object for this survey method is to detect any bats leaving or returning to their roost sites within the surveyed features. This is achieved by undertaking dusk and dawn activity surveys under the following protocol:

- Commencing the survey 15 minutes before sunset (dusk survey) and 2 hours before sunrise (dawn survey).
- Listening for any social calls at potential roost sites using bat detectors.
- Standing at different survey points around the building(s) and/or vegetation using bat detectors to hear the bat echolocation.
- The survey will attempt to witness the first bats emerging (dusk) and the bats returning (dawn) to their roosts.
- Standing at different transect points at foraging/commuting areas around the site.
- Carrying out this survey methodology for up to two hours after sunset (dusk) and up to 15 minutes after sunrise (dawn). This will cover the emergence and re-entry of the bats at the potential roost site, for some bat species.

- 2.2.7 In order to comply with the required legislation, the results from the surveys will be collated to establish whether a European Protected Species (EPS) development licence will be required. If required, project appropriate species-specific compensation and mitigation measures will be devised to ensure the species remains at a favourable conservation status at the impacted site.

2.3 Surveyors Information

- 2.3.1 The survey was undertaken by licensed bat ecologist/s and members of the Chartered Institute of Ecology & Environmental Management (CIEEM) and Elite Ecology staff members:

Mr. Matthew Hodgson, Ecologist, Natural England Bat Survey Licence Number: 2019-41695-CLS-CLS Bat Survey Level 2.

Mr. Adam Levesley, MRes, Ecologist.

Miss. Elizabeth Ritchie, BSc (Hons), Assistant Ecologist.

Mr. Matthew Priddey, Assistant Ecologist.

2.4 Field surveys

2.4.1 Site Surveys

Elite Ecology were made aware of previous site surveys that have been used as a point of reference during this report.

2.4.2 Roost Surveys

The buildings at 121 Tunstall Road, Knypersley were externally inspected for the presence of bats and birds with the use of various types of equipment (including binoculars, torches, endoscope and ladders) in full daylight. Subsequent activity surveys use a variety of bat detectors that include Bat Box Duet, SSF Bat2 and the EcoObs Batcorder. The following table outlines the environmental variables from the survey visits:

Environmental variables	Bat Activity Survey – 14 th May 2020. Dusk
Temp Start:	11.0°C
Temp Finish:	10.0°C
Humidity Start:	71%
Humidity Finish:	76%
Cloud Cover Start:	0%
Cloud Cover Finish:	0%
Wind Speed Average:	5 M/PS
Precipitation:	None

3 Results

3.1 Desktop Survey Results

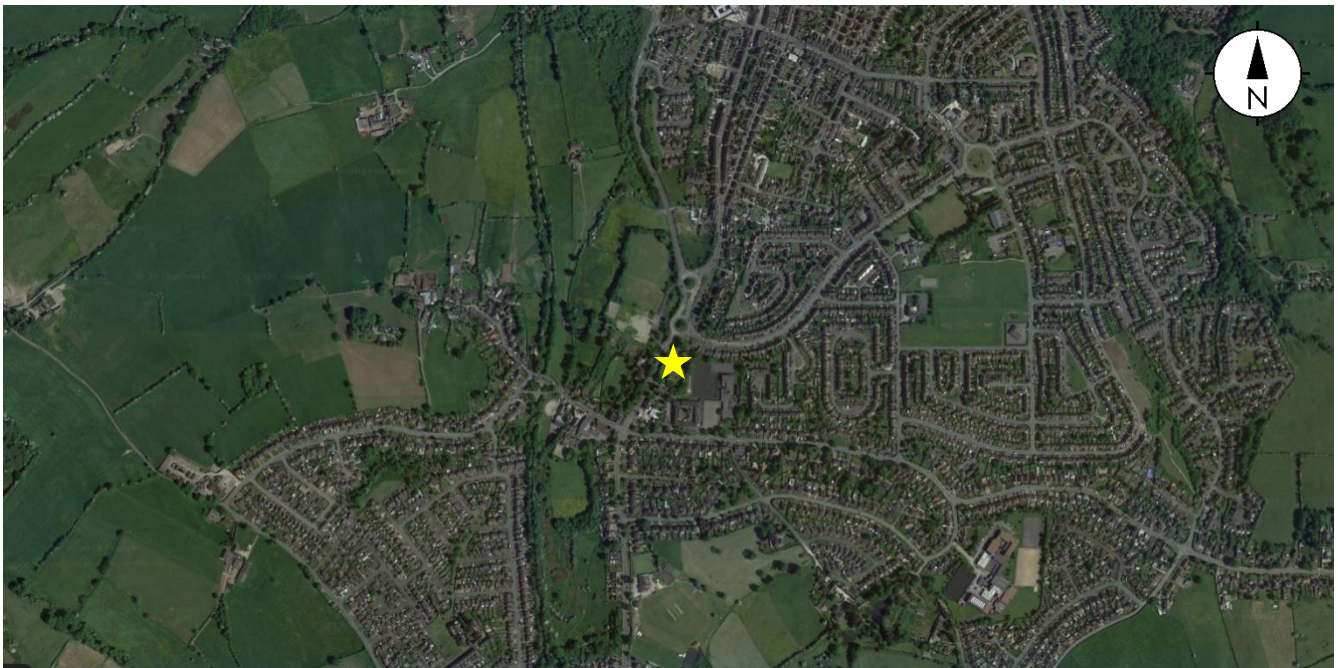
Elite Ecology did not undertake another desktop study. TEP undertook a desktop study of the site. The results from this can be found within their report on the planning portal.

3.2 Field surveys

3.2.1 Habitat description

The site is located in the Staffordshire village of Knypersley. On site, there is hard standing ground, buildings, amenity grassland, hedgerows and scattered trees. Within the wider landscape, further habitats are present. These come in the form of additional structures (with their associated gardens and yards), hard standing ground, hedgerows, pastureland, arable land, woodland and scattered trees. Therefore, the habitats that are present in and around the site contains all of the elements that are considered to be critical in both bat and bird life cycles.

Figure 2: An aerial photograph of the surveyed site (yellow star) and some of the nearby habitats to the land at 121 Tunstall Road, Knypersley.



3.2.2 Building survey

A full in-depth description of the buildings on site can be found within the TEP report located on the planning portal. There are five buildings located on the survey site. Please refer to the TEP report for the building references which were mirrored for this survey effort.

3.2.3 Summary of the building inspection

Due to the amount of potential ingress/egress points and suitable roosting features the structures were assessed by TEP to be of:

- B1 = Low bat roosting potential
- B2 = Low bat roosting potential
- B3, B4 and B5 = Negligible bat roosting potential

Therefore, a minimum of one further activity survey is required during the bat survey season (May to September, inclusive) on B1 and B2.

Table 1: Low/Moderate/High potential building(s) survey recommendations. The full guidance can be found in the Bat Conservation Trust Good Practice Survey Guidelines. These guidelines are what all local authorities abide by.

Bat Conservation Trust

Table 7.3 Recommended minimum number of survey visits for presence/absence surveys to give confidence in a negative result for structures (also recommended for trees but unlikely to give confidence in a negative result).

Low roost suitability	Moderate roost suitability	High roost suitability
One survey visit. One dusk emergence or dawn re-entry survey ^a (structures). No further surveys required (trees).	Two separate survey visits. One dusk emergence and a separate dawn re-entry survey. ^b	Three separate survey visits. At least one dusk emergence and a separate dawn re-entry survey. The third visit could be either dusk or dawn. ^b

^a Structures that have been categorised as low potential can be problematic and the number of surveys required should be judged on a case-by-case basis (see Section 5.2.9). If there is a possibility that quiet calling, late-emerging species are present then a dawn survey may be more appropriate, providing weather conditions are suitable. In some cases, more than one survey may be needed, particularly where there are several buildings in this category.

^b Multiple survey visits should be spread out to sample as much of the recommended survey period (see Table 7.1) as possible; it is recommended that surveys are spaced at least two weeks apart, preferably more. A dawn survey immediately after a dusk one is considered only one visit.

3.2.4 DNA Results

No DNA Analysis was undertaken for this project as no bat droppings were identified by surveyors on site.

3.2.5 Activity surveys

One activity survey was undertaken on the building on the 14th May 2020.

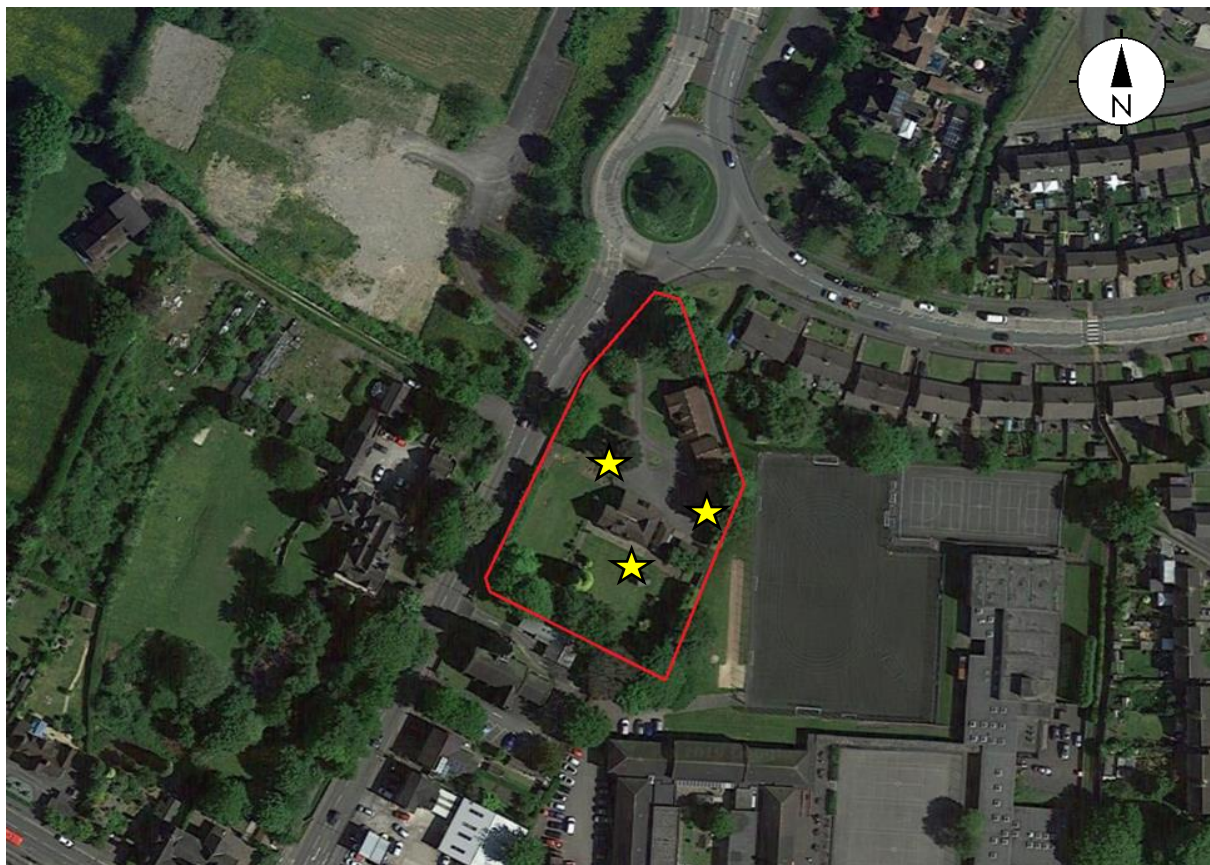
Activity Survey 1 (14th May 2020):

This survey was undertaken at dusk, with sunset being recorded at 20:55. During this survey, no bats were seen to emerge from either building. However, Common Pipistrelle (*Pipistrellus pipistrellus*) bats were identified foraging and commuting around the site.

Summary:

As no bats were observed emerging from the structures, it was deemed that the site at 121 Tunstall Road, Knypersley does not support any bat roosts. However, foraging and commuting bats are present on the survey site, with common pipistrelle specimens identified.

Figure 3: An aerial photograph of the surveyed site (red outline) and the surveyor locations (yellow stars).



4 Impact Assessment

4.1 Constraints

Constraints on:	Survey Information	Equipment Used
Constraint (Yes or No):	No	No
Explanation of Constraints:	N/A	N/A
Action Taken:	N/A	N/A

4.2 Potential Impacts of the re-development

The current planning proposal is for the structures at Tunstall Road, Knypersley to be demolished and replaced with new residential dwellings. The potential impacts of these works have been identified as follows:

4.2.1 Designated sites

As the proposed works are due to remain within the site boundary, the presence of any designated sites nearby is not applicable to this project. This, therefore, means that any building works would be of no detriment to the surrounding habitats and landscape.

4.2.2 Bat Roosts

Impact	Short-term Impacts: Disturbance	Long-term Impacts: Roost Modification	Long-term Impacts: Roost Loss
Classification:	Negligible	Negligible	Negligible
Justification:	The structure was found to contain no roosting bats during the site surveys. Therefore, it can be assumed that no bat roosts are present within the surveyed property.	The structure was found to contain no roosting bats during the site surveys. Therefore, it can be assumed that no bat roosts are present within the surveyed property.	The structure was found to contain no roosting bats during the site surveys. Therefore, it can be assumed that no bat roosts are present within the surveyed property.
Any further action:	No further action is required.	No further action is required.	No further action is required.

4.2.3 Bird Nests

Due to the absence of previous bird nests on or within the residential dwelling, the proposed scheme of works will be of a '**negligible**' effect to the local bird populations.

4.2.4 Foraging and commuting habitat

It is considered that the re-development of the site would have a '**negligible**' effect on potential foraging and commuting habitat. The site itself offers little foraging habitat, with the adjacent land containing better opportunities for bats and birds to use. Post development, all foraging and commuting habitats will be maintained, thus not negatively affecting the local landscape.

5 Recommendations

5.1 Bats

The surveyed structures at Tunstall Road, Knypersley have been deemed to be absent of roosting bats. Therefore, the proposed scheme of works will not impact upon any bats or their roosts. Due to this, no further surveys are necessary.

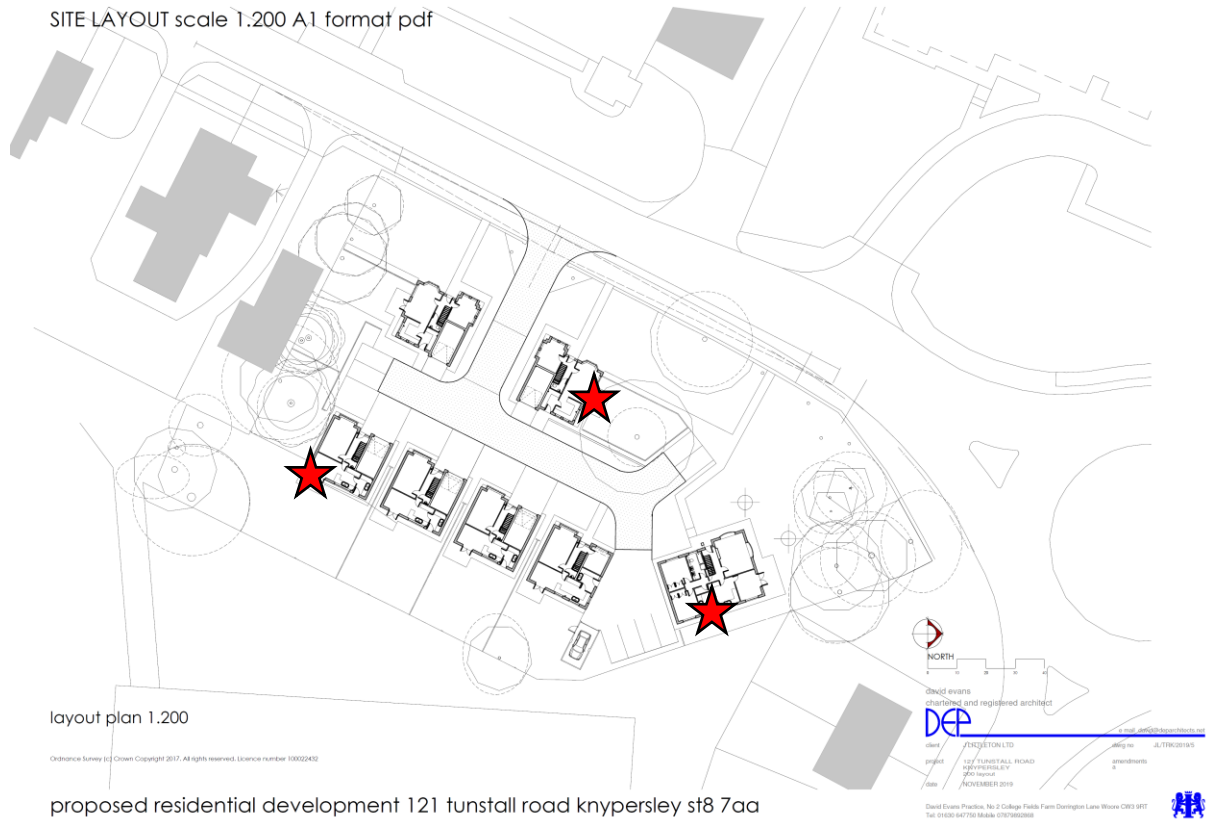
For the proposed scheme of works, three [Eco Bat Boxes](#) or [Integrated Eco Bat Boxes](#) will be installed on the new structures. The locations of these can be found in figure 4. These boxes should be placed high up on these elevations, either at the gable end or just below the fascia. These features should avoid any artificial lighting.

It is recommended that artificial lighting at the site is kept to a minimum. If this is required, it will be necessary to have this pointing downwards and/or sensorised to large bodies only.

A soft landscaping plan should incorporate some wildlife attracting species. The table below outlines species recommended by the Bat Conservation Trust, all of which could be incorporated into the site post development:

Flowers for borders	Trees, shrubs & climbers
Aubretia	Bramble
Candytuft	Buddleia
Cherry pie	Common alder
Corncockle	Dogrose
Corn marigold	Elder
Corn poppy	English oak
Echniacea	Gorse
English bluebell	Guelder rose
Evening primrose	Hawthorn
Field poppies	Hazel
Honesty	Honeysuckle (native)
Ice plant 'pink lady'	Hornbeam
Knapweed	Ivy
Mallow	Jasmine
Mexican aster	Pussy willow
Michaelmas daisy	Rowan
Night-scented stock	Silver birch
Ox-eye daisy	Herbs
Phacelia	Angelica
Poached egg plant	Bergamot
Primrose	Borage
Red campion	Coriander
Red valerian	English marigolds
Scabious	Fennel
St. John's Wort	Feverfew
Sweet William	Hyssop
Tobacco plant	Lavenders
Verbena	Lemon balm
Wallflowers	Marjoram
Wood forget-me-not	Rosemary
Yarrow	Sweet Cicely
	Thyme

Figure 4: Site Location Plan showing the locations of the bat boxes on site (as shown by the red stars). Please note: this image is not to scale.



5.2 Birds

From the site survey, it has been established that there are no bird nests present within the surveyed structure currently, nor is there any evidence of historic nesting. The following measures have been recommended for the site.

Hedgerows should be planted around the border of the site, or as the border between properties. Some guidance for hedgerows can be found in section 5.2.1, the best locations for which are illustrated by the green lines in figure 5.

Further nesting habitat needs to be provided. Therefore, two [sparrow terrace nest boxes](#) should be installed. Additionally, swift and house martin features need to be installed. These are outlined in section 5.2.2 and illustrated on figure 5.

A variety of other [bird boxes](#) could be installed around the site at the clients prerogative to enhance the nesting opportunities within the local landscape.

5.2.1 Hedge Planting

Hedges are more than just lines of shrubs. It is important that the following different components are thought about when deciding how to manage a hedge:

- mature trees
- shrub layer
- base/bank
- ditch
- margin

Complete hedge management considers all components together and benefits birds much more than treating each separately.

To breed successfully, and survive through the winter months, farmland birds need access to a range of different resources that offer the following three things:

- secure nesting places
- summer food (especially invertebrates)
- and winter food (especially berries and seeds)

No one hedge can provide optimal requirements for all birds, thus it is important to think about all the hedges on or in the nearby landscape.

Shrub Layer

Just about all farmland birds that use hedges require dense cover for successful breeding, as well as for roosting, shelter and escape from predators. For example, finches often choose the intricate knotty growth in the flail line of the shrub layer or, along with warblers such as blackcaps (*Sylvia atricapilla*), thick bramble (*Rubus fruticosus*) or rose (*Rosa* sp.) outgrowths. Blackthorn (*Prunus spinosa*), hawthorn (*Crataegus monogyna*), elder (*Sambucus nigra*) and European gorse (*Ulex europaeus*) make particularly good nesting places. Turtle doves (*Streptopelia turtur*) like high (4m+) thorn hedges with plenty of creepers like Traveller's-joy (*Clematis vitalba*). Other creepers that provide good nesting sites for bird species are honeysuckle (*Lonicera periclymenum*), bryonies (*Bryonia* sp.) and roses (*Rosa* sp.).

In the autumn and winter, blackberries, haws, sloes and other berries are an important food source for many farmland birds, including fattening summer migrants such as warblers for the long flight south, and wintering thrushes like redwings (*Turdus iliacus*) and fieldfares (*Turdus pilaris*).

Hedges that are cut every three years produce more than three times as many berries as those that are trimmed every year, as well as around 40% more berries than those cut every two years.

Many birds nest in the outer layers of hedges so are very vulnerable to cutting.

Late season broods often survive best, so cutting in August and early September can be particularly harmful to populations. By the New Year most berries have been taken by birds, so January and February are the best times to cut, if ground conditions allow. Nests in hedges cut every year often fail, being easily found by predators.

Mature Trees

Scattered mature hedgerow trees are of great importance to wildlife. Not only do they attract huge numbers of invertebrates for birds (and bats) to feed on, but rot holes provide nesting sites for barn owls (*Tyto alba*), kestrels (*Falco tinnunculus*), starlings (*Sturnus vulgaris*) and tree sparrows (*Passer montanus*).

The ivy (*Hedera helix*) on these trees provides berries in the late winter when other food supplies are scarce and provides good cover for roosting and nesting spotted flycatchers (*Muscicapa striata*). Ivy stems should not be cut unless there are specific reasons to do so, like a risk of smothering important lichens.

Lines of trees are good feeding grounds for birds that are more typical in woodlands, like redstarts (*Phoenicurus* sp.), tits (*Paridae* sp.) and woodpeckers (*Picidae* sp.), and provide shelter for feeding Swallows (*Hirundo rustica*).

Hedge Base and Ditch

Dense tussock grasses and other perennial herbaceous growth at the base of hedges and along ditch sides provide essential cover for birds like the grey partridge (*Perdix perdix*) that nest on or close to the ground. Yellowhammers (*Emberiza citrinella*) and warblers particularly favour tussock grasses growing up into the base of bushes.

Although many farmland birds rely on seeds and berries as adults, their young nearly all rely on invertebrates. Dense plant growth in and close to hedge bottoms is critical to allow these invertebrates, like large spiders, fly larvae and caterpillars, to increase in numbers. Spiders, beetles and other predators of crop pests nest overwinter in this habitat, moving out into the field in the summer, benefiting yields.

Margins

Late in the summer, tussock grass strips at the bottom of hedges are often so dense that it is difficult for birds like finches (*Fringillidae* sp.), partridges (*Phasianidae* sp.), sparrows (*Passeridae* sp.) and yellowhammers (*Emberiza citrinella*) to find the seeds and invertebrates they need. At this time of the year they prefer more open ground. In arable fields, margins or headlands beyond the grassy hedge base should ideally support a thin cover of grasses and herbs, with patchy bare ground. Corn buntings (*Emberiza calandra*), a threatened farmland bird that otherwise shuns hedges, will benefit from these margins.

5.2.2 **Nesting Provisions**

Swift

Nests of swifts are often located high up in the eaves of old houses and churches, where the birds are able to drop into the air. All of the swift enhancement features are required to be installed prior to the commencement of the bird breeding season the following year, which can commence as early as March.

It is recommended that five Swift nest boxes are installed on the northern elevation post-development in the locations recommended within figure 5. These nest boxes should include three [Vivara Pro Burgos WoodStone Nest Boxes](#) and two [WoodStone Swift Nest Boxes](#). These should be placed at least 4.5m above ground level and cannot be placed any lower as this will reduce their potential for success.

Birds should be attracted to the site through the playback of swift calls from a CD. These need to be loud enough to be heard by the colonies in the local area. These calls are required to be played from the eaves and within the nesting spaces when the species returns in the first week of May and last until the end of July. It is recommended that a mid-May start is incorporated to attract swifts to a new nesting site. Calls should be played just after dawn all the way through until just before dawn (an empathetic approach will be needed due to the urban area – calls should aim to create the least aggravation and disturbance to humans). It is recommended that time switches are incorporated into the system to ensure regular calls occur. Details on the equipment necessary can be found on the [Action for Swifts](#) website.

Once the first pair has arrived, the playback should continue to attract more specimens (the calls will not frighten the birds away). If fights between swifts occur or that all nesting boxes are occupied, playback should cease.

Sparrow

For the site, two [Sparrow Terrace Nest Boxes](#) are required to be installed on the properties shown within figure 5. As colonial nesters, it is recommended that a terrace of three boxes is pivotal to the success of implementation of these features.

House Martin

For any local house martins, five [Woodstone House Martin Nest Boxes](#) are installed at the site, within the locations in figure 5.

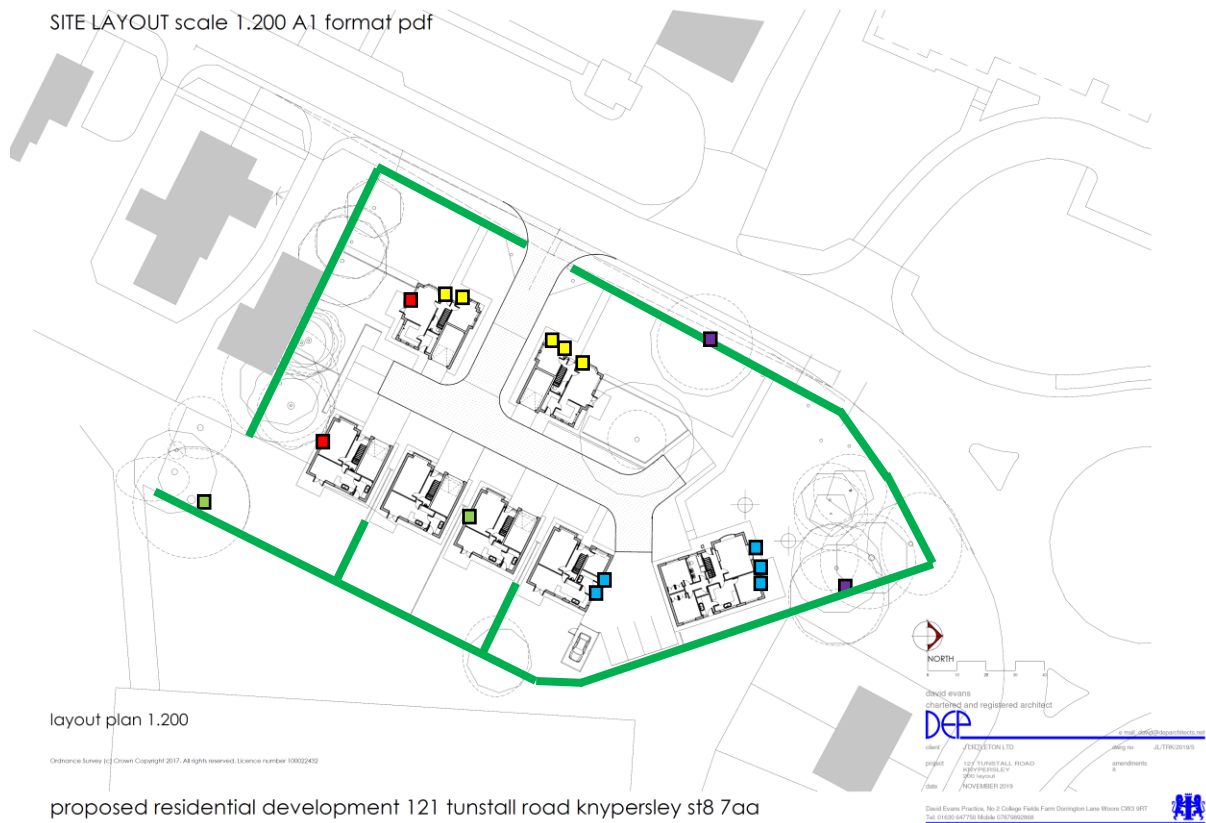
Other Birds

For the other local bird species, it is recommended that two [Apex Bird Boxes](#) and two [Large Bird Nest Boxes](#) are installed around the site. Once again, these are shown in figure 5.

Advice for putting up nest boxes:

- Not too close to another nest box - nest boxes of the same type should not be sited too close together as this may promote aggressive behaviour between neighbours.
- Shelter the box from weather - the front of the nest box should be angled vertically or slightly downwards to prevent rain from entering the nest box. Make sure it is sheltered from prevailing wind, rain and strong sunlight.
- Height from the ground should be three metres - small-hole boxes are best placed one to three metres above ground on tree trunks, but avoid sites where foliage obscures the entrance hole. If there are no trees, the next best option is to place the box on the side of a shed or wall.
- Open-fronted nest boxes should be hidden from view - attach it to a wall or fence that has shrubs and creepers growing against it.
- Make sure cats cannot get into the box - ensure that it is not easily accessible to predators (cats and squirrels).
- Consider a metal plate around the hole - this preventive measure that can be used to deter squirrels from gaining access. These plates are available commercially and can be purchased from any good garden centre or bird care company at very little cost.
- Keep nest box away from bird feeders - as high levels of activity of visiting birds could disturb nesting pairs.
- Use galvanized or stainless steel screws or nails that will not rust. If fixing boxes to trees, galvanised wire can be used to tie the box to the trunk or hang it from a branch. Make sure to regularly inspect these fittings to ensure the box remains securely attached.
- Traditionally, nest boxes for small birds are put up in the spring - pairs begin to prospect in the latter half of February, so a box put up at the end of the winter stands a good chance of attracting nesting birds. However, it is never too early or late to put up a nest box, as some birds will use them to roost in during the winter months.

Figure 5: Site Location Plan showing the locations of the bird boxes on site. **Please note:** this image is not to scale. The swift nesting areas are shown by the yellow boxes, the house martin nests are shown by the blue boxes, the sparrow terrace nest boxes are shown by the red boxes, the apex bird boxes shown by the green boxes and the large bird boxes shown by the purple boxes. The green lines illustrate the optimal locations for hedgerows at the site.



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8 Appendices

Appendix A: Site Plans

Appendix B: Eco Data Map

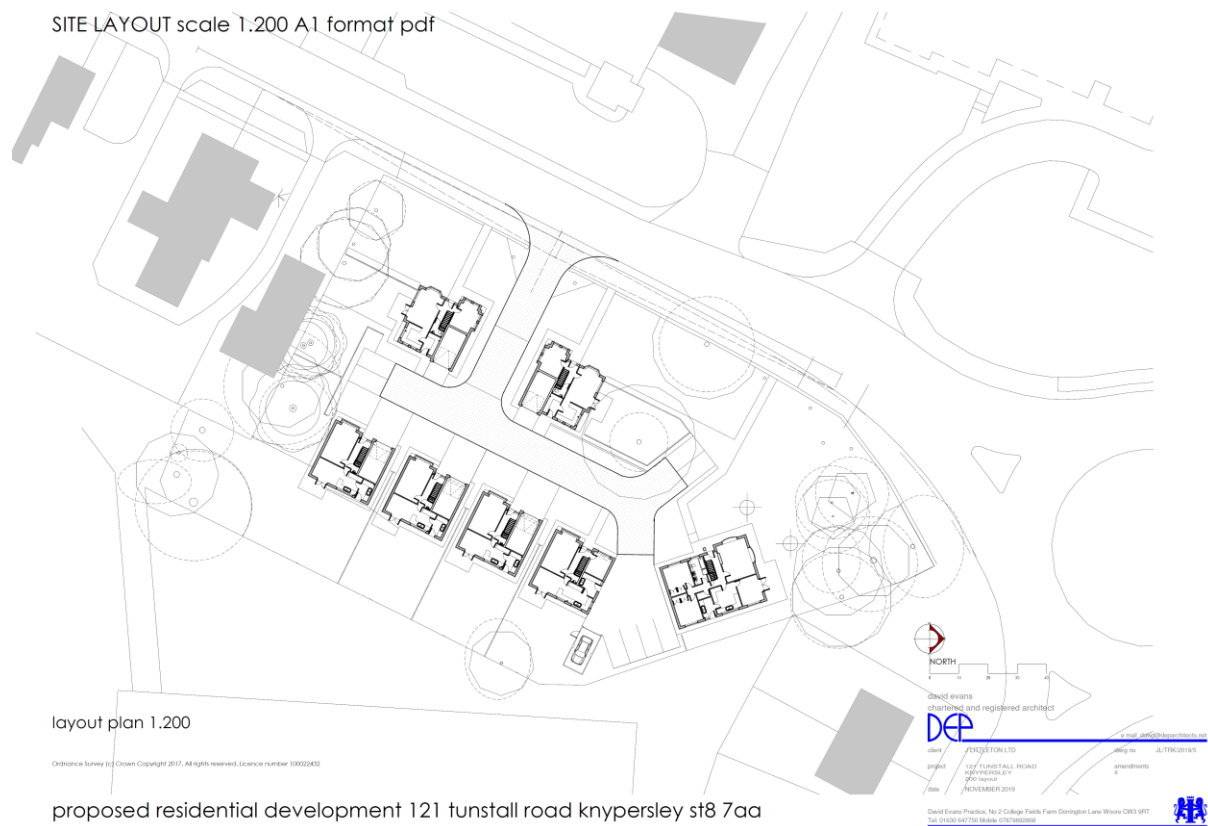
Appendix C: Artificial Light and Bats

Appendix D: Photographic Records

Appendix E: The Annual Bat Year (BCT)

Appendix F: Legislation

Appendix A: Site Plans



Appendix B: The Ecological Data Search Maps

No ecological data search was ordered by Elite Ecology.

Appendix C: Artificial Lighting and Bats

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Appendix D: Photographic Records

Please refer to the TEP for photographic records of the site

Appendix E: The Annual Bat Year (BCT)

A Year in the Life of a Bat			
January		February	
	Hibernating; using up fat reserves.		Still hibernating; few fat reserves left.
March		April	
	Some activity; occasional bat seen feeding.		Awake and feeding at night.
May		June	
	Females looking for nursery sites.		Young born, usually only one.
July		August	
	Young still suckling.		Young start catching insects; females leave nursery to find males.
September		October	
	Mating season begins; start building fat reserves for hibernation.		Search for suitable hibernation site.
November		December	
	Hibernation begins although still some activity in warm weather.		Hibernating.

Appendix F: Legislation and Policy

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

- Bern Convention (Appendix II)
- Bonn Convention (Appendix II)
- Conservation Regulations (Northern Ireland) 1995
- Conservation of Habitats and Species Regulations 2017
- Countryside Rights of Way Act 2000
- Eurobats Agreement
- Habitats Directive (Annexes IV and II)
- Habitats Regulations 1994 (as amended) Scotland
- NERC Act 2006
- Wildlife and Countryside Act 1981 (as amended)
- Wild Mammals Protection Act

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

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

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

National Planning Policy Framework, Section 15:

In early 2012, the National Planning Policy Framework (NPPF) replaced much previous planning policy guidance, including Planning Policy Statement 9: Biological and Geological Conservation. The government circular 06/05: Biodiversity and Geological Conservation - Statutory Obligations and Their Impact within the Planning System, which accompanied PPS9, still remains valid. A presumption towards sustainable development is at the heart of the NPPF. This presumption does not apply however where developments require appropriate assessment under the Birds or Habitats Directives. The latest National Planning Policy Framework was updated in February 2019, with the section in relation to conserving the natural environment being located within section 15.

Section 15, on conserving and enhancing the natural environment, sets out how the planning system should contribute to and enhance the natural and local environment by minimising impacts on biodiversity and, where possible, provide net gains in biodiversity. Opportunities to incorporate biodiversity gains into a development should be encouraged.

Biodiversity 2020:

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

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Elite Ecology agrees to supply ecological consulting services and advice of a preliminary or thorough nature as advised or commissioned. Upon commissioning Elite Ecology to undertake the work, the client(s) grant access to the site upon the agreed date. If no site access is available upon this date, Elite Ecology holds the right to charge the client(s) for lost staffing time and additional travel costs.

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

Elite Ecology has been provided with full payment for this report and thus the product has been released to the client(s) for the purpose of their planning application. If any part of the report is lost or altered without the written permission of Elite Ecology, then the entire report becomes invalid. Due to the potential for continual change within the natural world, this report is valid for **2 years only** from the date of the last survey visit. If this report is submitted after the 2 year deadline, then a further updated inspection will be required to ascertain whether the site remains in the same condition as it was when initially inspected.

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