



David Wilson Homes

**A087545 Land at Roundstone Lane,
Angmering, Roundstone Lane**

Ecological Mitigation Plan

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1.0 Introduction

1.1 Background

WYG was commissioned by Barratt David Wilson Homes in September 2014 to prepare an Ecological Mitigation Plan for Roundstone Lane, Angmering, West Sussex as per the recommendation made in the Ecological Appraisal (Aluco Ecology, 2012) and Condition 14 of the planning conditions application reference A/82/12/.

Condition 14 states:

No development or preparatory works to be undertaken until an ecological mitigation report, as outlined in section 7.0 of the supporting Ecological Assessment (July 2012), has been submitted to and approved by the Local Planning Authority; mitigation shall be implanted in accordance with the approved details and timing of works, unless otherwise approved in writing by the local planning authority.

A conversation was had with West Sussex County Council ecologist Don Baker to explain that the geotechnical and archaeological works had commenced on site but this was supervised by an Ecological Clerk of Works. The County ecologist advised that the Ecological Mitigation Plan should be prepared as soon as possible but to include all supervisory works within the report.

1.2 Location

The site, which is located to the west of Angmering, consists of three semi-improved grassland field compartments with boundary hedgerows utilised as paddocks for grazing horses. The proposed site is approximately 6.4ha and centred on OS grid square TQ075040. The entirety of the eastern boundary is bordered by the A280 while the western boundary is adjacent to Roundstone Lane, with residential housing beyond, and a single residential property with associated garden and a semi improved grassland field. Manor Nursery and Garden Centre together with a single large residential property and associated grounds is situated to the north while the entirety of the southern boundary is situated adjacent to Worthing Rugby Football Club.



1.3 Development Proposals

Barratt David Wilson Homes have been granted planning permission to erect 138 residential homes with access, landscaping, open space and associated works. The details of the proposals for this development are shown within the masterplan (Drawing No. ST-02-12B, Appendix A).



2.0 Ecological Baseline

Table 1 provides a summary of the baseline ecological work that was completed by WYG to support the planning application.

Table 1: Survey and Month Undertaken

Survey Type	Report Date	Summary of Results
Extended Phase 1 habitat survey	July 2012 – Series of visits December 2010 – July 2011 and July 2012	Aluco Ecology (2012) completed an ecological appraisal of the site in December 2010-July 2011, which was updated in July 2012. The site comprised a series of improved pasture fields which at the time of the surveys were used for horse grazing, bordered by hedges with one notable hedge with mature standard trees. The eastern boundary of the site runs along a strip of secondary woodland dominated by sycamores but with other species including lime, beech and pine. The ground flora is poor. The site boundary is marked by barbed wire. The southern boundary is marked by a fenceline to the east. To the immediate south of the fenceline is a line of planted conifers with planted poplars interspersed. The ground flora is dominated by bare ground and nettles. The western boundary is fenced and mostly open without a hedgerow but with occasional elder, elm, hawthorn and some planted young trees. The northern boundary comprises a mixture of planted hedges from non-native conifers in the west, to hawthorn and elder hedges around the small northern field, and a fenceline separating Manor Nursery from the site. There are also a number of internal boundary features on site. The boundary of the north west and north eastern field is a thick outgrown hedgerow dominated by elder and hawthorn with some blackthorn, with a couple of mature ash and oak trees as standard. The



Survey Type	Report Date	Summary of Results
		ground flora is generally absent. This hedgerow is considered 'Important' under the Hedgerow Regulations 1997 due to the hedgerows historical presence, mature standards, connections to other hedgerows and the diversity of plant species coupled with the low percentage of gaps. The east-west hedge running from the centre of the site to the eastern boundary is dominated by elder and hawthorn with frequent blackthorn and elm. The ground flora is dominated by ivy and ground ivy. A single large specimen of deadly nightshade was located within the central hedgerow, which is not uncommon within West Sussex.
Reptile presence/likely absence survey	July 2012 – Nine surveys visits completed between May – July 2011	No reptiles were recorded on-site between 12 th May and the 20 th July 2011 over nine visits to the site
Bat activity survey	July 2012 – Four bat activity survey visits and four emergence surveys (including one emergence / return) between June and July 2011. In addition an automatic bat detector was left on site overnight from 27th – 28th June 2011.	The open fronted horse shelters had no evidence of roosting bats and were poorly suited for roosting. A few mature trees including mature oaks and ash are present in the central hedgerow which runs from north to south. Bat emergence/return surveys were completed at the same time as the activity survey on 12th June 2011 and 13th June 2011 with a follow up dusk emergence survey on 27th June. No bats were recorded emerging or returning to the trees. The bat activity surveys were completed on 12th / 13th June and dusk surveys were carried out on the 27th and 30th June 2011 and the 19th July 2011. Up to seven species of bat were recorded using the habitats across the site. Species recorded include common pipistrelle, soprano pipistrelle, noctule, serotine, brown long-eared bat and Myotis sp. (likely to be whiskered)



Survey Type	Report Date	Summary of Results
Breeding bird survey	July 2012 – Eight surveys were completed on-site between May – June 2011.	A total of twelve species of Birds of Conservation Concern (BoCC) were recorded using the site of which four are red listed and eight are amber listed; of these species the red listed species of House Sparrow, Starling, and Song Thrush as well as the amber listed species of Dunnock are also of BAP priority. Dunnock was the only species confirmed as breeding on-site, however song thrush was deemed likely to be breeding on site although in low numbers.
Invertebrate survey	July 2012 – Series of visits between December 2011- July 2012 *	A total of nine species were noted on-site situated predominantly within the south-west corner of the site and along hedgerows. The stag beetle was the only species identified on-site as a UK BAP species as well as listed under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended).

*No dedicated invertebrate surveys were undertaken on-site, all information concerning invertebrates noted on-site was recorded during survey work for other species groups.



Relevant Wildlife Protection Legislation

2.1 Wildlife Legislation Relevant to the Site

2.1.1 Bats

All 18 British bat species are listed in Schedule 5 of the *Wildlife and Countryside Act 1981* (as amended) and under Schedule 2 of the *Conservation of Habitats and Species (Amended) Regulations 2012* as European protected species. Furthermore, the *Countryside and Rights of Way Act 2000* (Schedule 12, Paragraph 5) has amended Section 9 of the 1981 Act. They are, therefore, fully protected under Section 9 of the 1981 Act and under Regulation 41 of the *Conservation of Habitats and Species (Amended) Regulations 2012* which transposes the Habitats Directive into UK law.

This makes it an offence to:

- » Deliberately capture, injure or kill any bat;
- » Deliberately disturb bats, in particular where it is likely to:
 - Impair their ability to breed or reproduce, or to rear or nurture their young;
 - Impair their ability to hibernate or migrate; or
 - Affect significantly the local distribution or abundance of bats.
- » Intentionally or recklessly damage, destroy or obstruct the access to the place of shelter or protection; and
- » Damage or destroy a bats breeding site or resting place.

Unmitigated removal of linear corridors such as sections of hedgerows and increases in habitat disturbance (through lighting, noise and vibration impacts) during construction and operational phases of a proposed development could indirectly impact bats that use the site to forage and commute.

Furthermore direct impacts to bats may occur through road traffic mortalities in the operational phase of a proposed development. Such indirect and direct impacts could result in an offence being committed.



2.1.2 Breeding Birds

All birds, their nests and eggs are protected by the *Wildlife and Countryside Act 1981 (as amended)*, Part 1. It is therefore an offence to intentionally:

- ✧ Kill, injure or take any wild bird;
- ✧ Take, damage or destroy the nest of any wild bird while it is in use or being built;
- ✧ Take or destroy the egg of any wild bird:
- ✧ (Intentionally or recklessly) disturb any wild bird listed on Schedule 1 while it is nest building, or at a nest containing eggs or young, or disturb the dependent young of such a bird.

The presence of breeding birds should be considered a constraint to development if vegetation clearance is carried out during the bird breeding season, March – September. It is considered likely that if the site is successfully granted planning permission, site clearance will fall within the summer and hence within the breeding bird season. Therefore it is recommended that where scrub is to be removed, the area is to be inspected by a suitably qualified ecologist no more than 48 hours prior to work commencing. Should any active nests be found, they must be left in situ and not disturbed until all the young have fledged and cease to return to the nest. A buffer of approximately 5 metres (although the ecologist will confirm with regards to various species) should be enacted around each active nest and every effort must be made not to enter or disturb this area. If, once started, construction works cease for more than five days, it is recommended that an update check is undertaken before any clearance activities are resumed to confirm whether any nesting birds have taken up residence in the intervening period.

2.1.3 Reptiles

All British reptiles receive protection under the *Wildlife and Countryside Act 1981 (as amended)*. The four more common species of reptile; the common lizard, the grass snake, the slow worm and the adder receive protection from Section 9(1) and all of Section 9(5) of the *Wildlife and Countryside Act, 1981 (as amended)*, which makes it an offence to intentionally kill or injure an animal, sold or traded in any way.

It is therefore a criminal offence to carry out works on site that may result in the death or injury of a native reptile species where these species are known to be present.



2.1.4 Invertebrates

A number of invertebrate species are protected by European and UK legislation, such as those listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and in the Conservation of Species and Habitats (Amended) Regulations 2012. As a result, some species are protected from some or all of the following (amongst others): (i) killing, injuring or taking; (ii) possession or control; (iii) damage to, destruction of or obstruction of access to any places used for shelter or protection; and (iv) disturbance while using such a structure. Following a review in 2007 of species listed on the UK Biodiversity Action Plan (BAP), there has been a significant increase in the number of invertebrates included. The current UK BAP now lists 411 invertebrate species.

Section 11 of the National Planning Policy Framework (2012) states that the planning system should 'minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures'. Therefore, where developments requiring planning permission may affect protected or notable species, such as those invertebrate species listed on the UK BAP, it is preferable that an appropriate mitigation strategy is produced to ensure they are protected from the adverse effects of development and options to negate the impact should be considered, together with opportunities for enhancement.

Stag beetles are listed in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended); this legislation affords them protection from:

- damage to, destruction of, obstruction of access to any structure or place used by a scheduled animal for shelter or protection, and;
- disturbance of animal occupying such a structure or place.

In addition they are a UK BAP Priority Species; are also listed under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 and are regarded as a material consideration in planning permission applications.



3.0 Roles and Responsibilities

3.1 Construction

The Ecological Mitigation Plan will be distributed to all relevant personnel involved with the construction phase of the development including Barratt David Wilson Homes and any contractors who may be working on the site. It will be the responsibility of the main contractor to distribute this document (where relevant) to all other (sub) contractors and visitors to the site as appropriate, who will in turn be bound by the terms therein.

It will be the responsibility of the Ecological Clerk of Works (to be appointed by Barratt David Wilson Homes) to provide advice to the construction teams during all phases of the scheme on all pertinent ecological issues and to check that the ecological protection and mitigation measures, as specified in this document, are implemented. Recommendations will be passed to Barratt David Wilson Homes who will be responsible for ensuring implementation.

The Ecological Clerk of Works will have specific responsibilities which will include:

- ✦ Provision of advice on the location of protected species e.g. stag beetles, breeding birds, and the type and location of protection or mitigation required;
- ✦ To supervise and monitor the implementation and maintenance of protective or mitigation measures in accordance with legal requirements or the terms set out in this document; and
- ✦ Liaison with the main contractor's site manager and others relevant stakeholders as appropriate.

Specific responsibilities of the client, Barratt David Wilson Homes, in relation to this Ecological Mitigation Plan will include:

- ✦ adhering to the relevant provisions made within this document;
- ✦ complying with the advice of the Ecological Clerk of Works as appropriate;
- ✦ ensuring that this Ecological Mitigation Plan is distributed to all relevant parties; and,

- ### 3.2 Post Construction

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4.0 Update Ecological Walkover

WYG were appointed in August 2014 to complete an updated ecological constraints survey of the site. WYG Ecologist, Emily Hare, completed the update survey and the findings are summarised below. The majority of the site at Roundstone Lane comprised improved grassland. Species present include; Yorkshire fog (*Holcus lanatus*), cock's foot (*Dactylis glomerata*), bird's foot trefoil (*Lotus corniculatus*), thistle sp. (*Cirsium* sp.), dock sp. (*Rumex* sp.), white clover (*Trifolium repens*), red clover (*Trifolium pratense*), buttercup (*Ranunculus repens*), false oat grass (*Arrhenatherum elatius*) and ribwort plantain (*Plantago lanceolata*). At the time of the update survey the grass appeared to have been cut fairly recently in most of the fields, however the field at the north western corner of the site supported uncut grassland.

4.1.1 Bats

The stable building within the north western field was assessed for its potential to support roosting bats. This is an open fronted wooden stable which was very draughty and heavily cobwebbed at the time of the update survey. This building was assessed internally and there was no evidence of roosting bats. This building is considered to offer **Negligible** potential for roosting bats, as such no further surveys are recommended for this building.

The trees which were highlighted in the Arboricultural Impact Assessment (ACD Landscape Architects, 2013) as scheduled for removal were assessed for their potential to support roosting bats. The majority of the trees surveyed did not exhibit features suitable to support bats; however one tree (T20, ACD Landscape Architects, 2013), which is a mature ash tree present within the central tree line, had a number of woodpecker holes and a cavity present which could offer potential roosting opportunities for bats. This tree was surveyed by Aluco Ecology in 2011 however no bats were recorded emerging or returning during these surveys. As three years have elapsed since the survey was completed **it is recommended that pre-commencement update emergence / return surveys are completed for this tree**. Emergence / return surveys can be completed between May and September.

4.1.2 Reptiles

As it has been three years since the completion of reptile survey by Aluco Ecology (2012) an updated walkover survey was completed by WYG during 2014 to assess the suitability of the on-site habitat and vegetation to support reptiles. The updated assessment identified the habitat and vegetation on-site as relatively unaltered compared to the initial descriptions of the site consisting of intensively managed grazed



grassland with boundaries, particularly those that are southern facing as having some limited potential habitat for reptiles. As such a precautionary approach is recommended see section 6 below.

4.1.3 Invertebrates

The habitat did not appear optimal for stag beetles given that there is little dead wood. However, Aluco Ecology (2012) recorded stag beetles and hence a precautionary approach is recommended. See section 6.



5.0 Pre-Construction Mitigation

5.1 Fauna

5.1.1 Reptiles

Although there were no records of reptiles during the course of the surveys completed on-site a precautionary approach will be undertaken as there are areas of habitat with limited reptile potential. This will involve a variety of methods including the modification and removal of suitable habitat through the careful strimming of these areas with the height of grass being no less than 10cm. This will be carried out in phased bands throughout the site with a thorough hand-search to be completed in these areas before any works commence. These methods have already been undertaken for the site during geological and archaeological pre-commencement works completed on-site. WYG Ecologists Ben Cooke and Emmanuelle Amirial supervised this works and no reptiles were present during the strimming, hand search and excavation works. All trial pits were back-filled following the exaction works.

5.1.2 Breeding Birds

Removal of any trees and scrub on site will take place outside of the bird-breeding season (i.e. during October to February). In the event that removal takes place within the breeding season, an Ecological Clerk of Works will check the trees in advance. If any active nests are found these will be left *in situ* and an appropriate buffer around the nest established for that species until all the young have fledged. The Ecological Clerk of Works will advise on buffer size and the likely timescale of fledging.

5.1.3 Bats

An update emergence / return survey was completed on the 17th / 18th September 2014 on the ash tree located within the central hedgerow running north to south identified for removal, as three years have elapsed since the completion of the previous suite of surveys. The tree was identified during the update walkover survey by WYG Ecologist, Emily Hare, as Category 2a under the BCT (2012) guidelines due to the features present which provide potential for bats to roost. However no evidence of bat presence was recorded during the course of the surveys completed on-site to suggest that the tree was being utilised as a roost.



No bats were seen to emerge/return to the tree despite weather conditions being optimal. As such a precautionary measure will be adopted the limbs with bat roosting potential will be 'soft felled', which is a generic term used to describe more cautious felling approaches. Where possible, cross cutting in proximity to cavities or hollows will be avoided, and any sections felled containing structure or features with the potential to support roosting bats will be lowered carefully using rope and cushioning techniques to reduce the impact of felling limbs which may still have bats within cavities. The felled sections will be left on the ground (preferably for up to 48 hours) with the openings clear, allowing any remaining bats to escape. Split limbs that are under tension may need to be wedged open to prevent their closure when pressure is released, to avoid trapping bats.



6.0 Construction Phase Mitigation and Management

6.1 Tool Box Talks

A general talk relating to all the biodiversity issues on the site including nesting birds, reptiles and bats will be delivered to contractors working on site. This will include a plan showing all of the ecological features to be retained and created on the site.

6.2 Habitats and Vegetation

The Site Manager will be responsible for ensuring that the contractors are aware of the areas of grassland and hedgerows to be retained and not impacted by construction activities, including storing of materials. It will be the responsibility of Barratt David Wilson to install tree protection fencing in line with BS5837:2012.

Fauna

6.2.1 Reptiles

All strimming works has been supervised by an ecologist with a subsequent finger tip search. No reptiles were recorded and no further works are required in relation to reptiles. No suitable reptile habitat now exists on the site.

6.2.2 Bats

During the construction phase, security lighting will be at a low level and positioned so as not to directly illuminate boundary habitats and areas of retained semi-improved grassland/scrub habitat on- site. In addition, works on site will cease prior to sunset. This will help to avoid disturbing foraging and commuting bats that use these habitats.

6.2.3 Breeding Birds

If any further vegetation clearance is required during the construction phase within the breeding bird season (March to September inclusive) then suitable nesting habitat will be checked for nests by the appointed Ecological Clerk of Works, immediately prior to its removal. If nests are found, removal of the structure will be delayed until young have fledged and left the nest. A buffer zone will be established to



prevent disturbance of the nest until the young have fledged. The size of buffer required will be species dependant.

6.2.4 Stag beetles

No dead wood was present on site. However, during the Ecological Clerk of Works areas were checked for stag beetles but none were identified. If any stag beetles are found during the construction works, these will be relocated alongside the retained south western boundary.



7.0 Post Construction Mitigation

This section provides details of the ongoing mitigation and management post construction. It will be implemented by the management company appointed by Barratt David Wilson Homes. The management of the site will be undertaken in perpetuity.

7.1 Habitats and Vegetation

Following completion of development, ongoing habitat management will aim to promote structural and species diversity, in particular within the semi-natural retained habitats (as shown within Figure 1, Appendix A).

These processes will include:

- Infilling via additional planting of native tree and hedgerow species to increase the density and diversity of the north to south central hedgerow and the hedgerow running east to west within the south east section and boundary habitat;
- The central retained hedgerow running north to south within the site will be trimmed to a width of 4m and maintained as a native hedgerow;
- Wildflower seeding and management within the areas surrounding the retained hedgerows, trees and areas of semi-improved grassland; enhancing the biodiversity interest within these sections of the site. This will utilise the wildflower grassland seed mixes WFG18 Butterfly and Honeybee and WFG7 Free Draining Soil mixes within the central corridor of semi-improved grassland and the WFG8 seed mix in the areas shaded by retained trees and hedgerows;
- Creation of infiltration swales within the central corridor, allowing for different seed mixes to be used within damp and drier swale banks increasing the biodiversity and therefore foraging opportunities for fauna located in and around the site;
- Bulb planting along the south western boundary to include bluebells and snowdrops



7.2 Fauna

7.2.1 Bats

Following the construction of the buildings, twelve Schwegler Bat Box 2F (or Similar) will be installed throughout the development to enhance the site for roosting bats. All twelve boxes will be erected on suitable trees identified throughout the site. These boxes will enhance the site for roosting bats, particularly those species which inhabit buildings such as the common and soprano pipistrelle both of which were recorded on-site. The locations of these proposals for this development are shown on the associated plan. (Refer to Figure 2, Appendix A).

On-going management of the habitats on-site including the retention of hedgerows and trees, creation of infiltration swales and wildflower seeding within the centre of the site will help to create structurally diverse habitats benefiting the bat species located on-site.

The lighting strategy created by SSE, 2014 (as detailed in Swanbourne Park Street Lighting Design Layout, Drawing No. SSE-912905-SL-001, Appendix A) indicates that there will be no lighting columns positioned along the retained boundary habitat; some lighting columns will be positioned within close proximity to the boundaries of the site along roads and footways however these will be directional and facing into the development.

7.2.2 Breeding Birds

A similar post-construction mitigation strategy to the one outlined for bats will also be utilised for the bird species located within and in close proximity to the site. Ten bird boxes (five bird boxes with 28ml entrance hole and five with 32ml entrance hole) will be installed throughout the site fitted to suitable trees once construction is completed. (Refer to Figure 2, Appendix A).

As mentioned previously within the above section the on-going management of the habitats on-site will help to create structurally diverse habitats which will benefit the species located on-site.

7.2.3 Invertebrates

Deadwood log piles will be created by utilising sections of the tree located within the central hedgerow (T20) identified for soft felling. These log piles will then be placed within this retained belt of trees and hedgerow, enhancing the biodiversity interest of the site for invertebrates.



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Appendix A

Figures



Legend

-  Infiltration Swale
-  Site Boundary

Infilling of retained tree belt with native species.

Wildflower seeded areas to be seeded and cut during August/ September while retaining an area (c2m) of long grass adjacent to tree & hedgerow

Placement of deadwood log piles & hedgerow trimmed to 4m width

Infiltration swale creation to increase diversity

Wildflower seed areas & tree planting

Boundary trees & hedgerow to be retained and TPO's to be established

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creative minds safe hands

WYG Planning & Environment

Roundstone Lane, Angmering

Habitat Enhancements

Drawn by: Date:		Checked By: Date:		Approved By: Date:	
BC 18/09/14		CM 18/09/14		BC 18/09/14	
Project No:	Office	Type	Drawing No.	Revision	
A087545	45	94	Figure 1		

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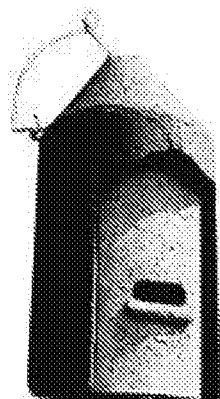
Appendix B

Bat Boxes



Appendix B – Bat Boxes

BAT BOXES FOR TREES



Woodcrete boxes have the highest rates of occupation of all box types. The 75% wood sawdust, concrete and clay mixture allows natural respiration, stable temperature, and durability. They are long lasting (approx. 25 years) and are rot- and predator-proof. Hang from a tree branch near the trunk, or fix to a trunk with the supplied 'tree-friendly' aluminium nail. This box is attractive to the smaller British bats.

Material: Woodcrete (75% wood sawdust, concrete and clay mixture)

Diameter: 16cm

Height: 33cm

Weight: 4kg

BIRD BOXES FOR TREES

Boxes with Entrance Holes

This box is attractive to smaller birds such as tits, wrens and tree sparrows.

