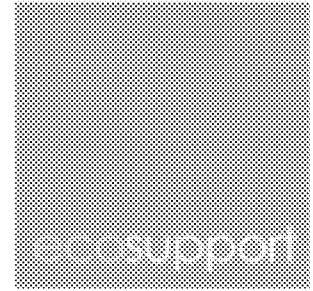


ecological support,
management and solutions



Land North of Nyton Road Westergate

Biodiversity Enhancements

Authors: Tristanna Boxall BSc (Hons) & Adam Jessop BSc (Hons) MSc

Client: Taylor Wimpey Southern Counties

Date: September 2017

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1.0 INTRODUCTION

This document outlines opportunities for enhancement in the hope that proposals will result in a net gain for biodiversity. This has been requested to satisfy Condition 17 of planning APP/C3810/A/14/2217385 which states the following:

‘Prior to the commencement of development, or any preparatory works, an Ecological Enhancement Scheme shall be submitted to the local planning authority. The scheme should be based on the recommendations at sections 5 and 6 of the Ecology report dated 29 July 2014. The development shall be implemented and maintained in accordance with the approved scheme and a programme of implementation’.

2.0 BATS

2.1 Lighting

The BCT document Landscape and Urban Design for Bats and Biodiversity (Gunnell et al., 2012) make the following recommendation to minimise impacts to bats from external lighting:

- Do not provide excessive lighting. Use only the minimum amount of light needed for safety.
- Minimise light spill. Eliminate any bare bulbs and any upward pointing light. ***The spread of light should be kept near to or below the horizontal.*** Flat cut-off lanterns are best.
- Use narrow spectrum bulbs to lower the range of species affected by lighting. Use light sources that emit minimal ultra-violet light and avoid the white and blue wavelengths of the light spectrum ***to avoid attracting lots of insects.*** Lighting regimes that attract lots of insects result in a reduction of insects in other areas like parks and gardens that bats may be using for foraging.
- ***Lights should peak higher than 550 nm***³⁵ or use glass lantern covers to filter UV light. White LED lights do not emit UV but have still been shown to disturb slow-flying bat species.³⁶
- Reduce the height of lighting columns. Light at a low level reduces impact. However, higher mounting heights allow lower main beam angles, which can assist in reducing glare.
- For pedestrian lighting, use low level lighting that is as directional as possible

and below 3 lux at ground level but preferably below 1 lux.

- Increase the spacing of lanterns.
- Use embedded road lights to illuminate the roadway and light only high-risk stretches of roads, such as crossings and junctions, allowing headlights to provide any necessary illumination at other times.
- Limit the times that lights are on to provide some dark periods.
- Use lighting design software and professional lighting designers to predict where light spill will occur.
- Avoid using reflective surfaces under lights.
- Use temporary close-boarded fencing until vegetation matures to shield sensitive areas from lighting.

The above recommendations should be taken into consideration for any lighting strategy on site, particularly adjacent to boundary features (such as retained trees lines and hedgerows which will be used by foraging and commuting bats).

2.2 Bat Boxes

As part of the bat mitigation (for the inactive roost identified within the bungalow) on site two Schwegler 2F bat boxes will be erected on site within retained trees. The front panel has a second inner wooden panel fitted to it to create a cavity wall. This provides ideal quarters for bats that inhabit crevices. It has been designed as a summer roosting space for bats. The bat box maintains a stable temperature inside the box and is painted black to absorb warmth.

To form the compensation of the mitigation strategy a Schwegler 2FN will also be introduced. This is larger and more suited to larger species of bat. It has two entrances - one at the front and one at the rear against the tree. It has a domed roof to allow the bats to form roosting clusters for warmth, and an increased internal height. This design has proved highly successful with Noctule and Bechstein's bats. To supplement the on site provision of bat roosting opportunities, a further 20 bat boxes (a mixture of 2F and 2FN)

The use of long-lasting Woodcrete which will not rot, leak, crack or warp, and will last for at least 20 - 25 years, makes these boxes a suitable form of long-term enhancement.

In general, bats seek warm spaces to help them with rearing young. For this reason, bat boxes should be located where they will receive at least partial sunlight (facing south, south-west or south-east). However, by installing bat boxes in more than one orientation will allow for a choice of roosting conditions.

To increase the chances of bats roosting in a bat box, the bat boxes will be placed adjacent to vegetation features such as hedges and tree lines (**Plan 1**). Bats will be more likely to discover the artificial roost if it is placed close to an existing flight path.

The bat box(es) will be positioned a minimum of 2m above ground, although 5-7 m is better to prevent disturbance from people and/or predators.

2.3 Integrated Bat Boxes

Bat tubes will also be built into 30 of the new buildings on site. These tubes lie flush within the walls of the new build and can be finished with render to ensure they blend with the building. The Ibstock bat tubes can be used here, as they are available in a variety of different colors to match different construction types¹, are self contained (maintenance free) and are designed specially for the *Pipistrellus* spp (the most likely species to use the site for foraging and commuting).

Finally inline with the original Ramboll report (2014) three Schwegler 1FQ Bat Roost will be fitted to the gable end of three new buildings on site, post development. These will be fitted in a southerly direction. These boxes provide good opportunities for bats which typically roost in buildings.

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The features will be introduced a minimum of 2m above ground, although 5-7m is better to prevent disturbance from people and/or predators (see Plan 1 for recommended locations).

2.4 Planting

The following information is taken from the guidance produced by the Bat Conservation Trust (Gunnel et al. 2012). The publication is a useful resource for landscape architects when designing habitats for bats and the insects they feed off.

¹ <http://www.ibstock.com/wp-content/uploads/2015/01/AA6606-Portfolio-Eco-products.pdf>

2.4.1 Landscape Connectivity

Many bat species are reluctant to leave the cover of features such as tree lines and hedges as they move between their roost and foraging grounds. Fragmentation of the landscape can therefore be a serious issue for bats. Therefore boundary vegetation will be retained.

2.4.2 Attracting Nocturnal Flying Insects

Planting a mixture of flowering plants, trees (including fruit trees) and shrubs encourages a diversity of insects to sustain bats. It is beneficial that the flowers vary in colour (although pale flowers that are more easily seen in poor light and so attract insects at dusk), fragrance, shape, amount of nectar and time of flowering. (It is important to provide native flowering plants, shrubs and trees throughout spring, summer and autumn). Flowers with 'landing platforms' for insects (i.e. flowers from the Daisy and Carrot families) increase opportunities for insects and in turn foraging bats.

2.4.3 Trees

Native trees are important to foraging bats. Key species are Willow, Birch and Oak as they can support high numbers of insects. In addition once matured they can eventually provide roosting opportunities (see **Table 1** below).

Table 1. Tree species for foraging and roosting potential (Gunnel et al. 2012).

Native Tree species	Roosting potential	Supporting foraging
Oak	Very good	Very good
Willow	Minimal	Very good
Beech	Very good	Good
Ash	Good	Good
Elm	Good	Good
Birch	Minimal	Very good

2.4.4 Landscape Plan

The Landscape plan supporting the development contains a number of species which have been highlighted within the guidelines produced by the Bat Conservation Trust. The ornamental planting list has been composed taking into consideration the species outlined (see **Appendix I** for comparable lists).

3.0 BIRDS

3.1 Boxes

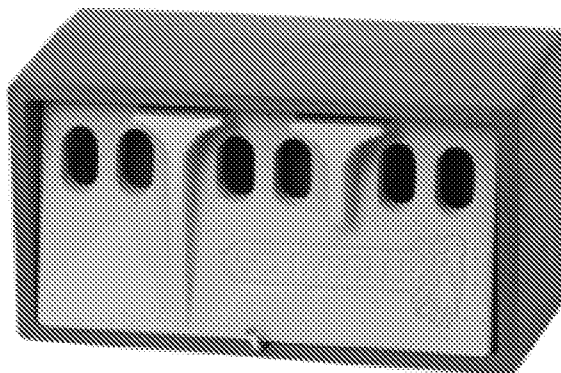
A variety of bird boxes (six in total) will be erected on site within the retained vegetation. Ensuring there is a mixture of open and circle fronted will attract an array of species. Also those constructed of woodcrete are favourable as they will last longer as opposed to wooden boxes.

In addition a variety of entrance holes sizes will be installed to suit a variety of species i.e:

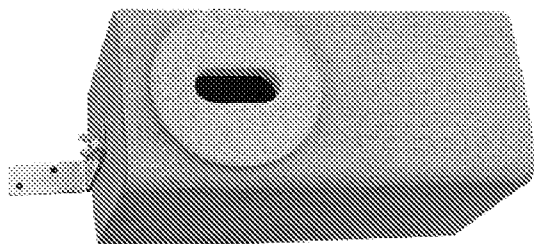
- **32mm entrance hole** will attract Great, Blue, Marsh, Coal and Crested Tit, Redstart, Nuthatch, Collared and Pied Flycatcher, Wryneck, Tree and House Sparrow and bats.
- **26mm entrance hole** suits Blue, Marsh, Coal and Crested Tit and possibly Wren. All other species are prevented from using the nest box due to the smaller entrance hole.

3.2 Integrated Features

Two Sparrow Terrace features can be introduced within new builds. These can be fixed onto the surface of a suitable wall or incorporated into the brickwork. Although designed specifically for Sparrows it may also occasionally attract Tits, Redstarts and Spotted Flycatchers.



Four Swift Nest Box can be attached to the external walls at least six to seven meters above the ground, ensuring that there is unobstructed access for birds entering and leaving. Boxes should be sited under the shelter of eaves or overhanging roofs.



3.3 Planting

In public open space, planting will include fruit and nut bearing species wherever possible to provide food for birds and also small mammals during autumn and winter and nest sites during the spring and summer. Species will include:

- Rowan (*Sorbus aucuparia*)
- White Beam (*Sorbus aria*)
- Hawthorn (*Crataegus monogyna*)
- Spindle (*Euonymus europaeus*)
- Wild Cherry (*Prunus avium*)
- Wild Plum (*Prunus domestica*)
- Aspen (*Populus tremula*)
- Field Maple (*Acer campestre*)
- Apple (*Malus domestica*)

Shrubs to be considered within the landscape planting include:

- Dogwood (*Cornus sanguinea*)
- Broom (*Cytisus scoparius*)
- Holly (*Ilex aquifolium*)
- Dog Rose (*Rosa canina*)
- Guelder Rose (*Viburnum opulus*)
- Wayfaring Tree (*Viburnum lantana*)

4.0 WILDFLOWERS

4.1 Specie Rich Mixture

It is recommended that new areas of public open space (particularly the margins) and the 5meter buffer along the hedgerows be sown with EM2 General Purpose Meadow Mixture. This will be sown at the recommended rate and the area will be rolled. It contains 13 species of wildflower and coincides with *Section 2.4.2*.

4.2 Management

Public open space will be managed for wildlife i.e. relaxed mowing regime on the margins.

Management is the key factor in the success of a wildflower area. This will differ from the first year. During the first year the sward will be kept short until the end of June. The sward will be maintained at a height of 100–150 mm. In July and August management will be relaxed to allow any wildflowers to seed.

Persistent weeds will be spot treated with herbicide. Such species include Common Nettle (*Urtica dioica*), Spear Thistle (*Cirsium vulgare*), Creeping Thistle (*Cirsium arvense*), Broad-leaved Dock (*Rumex obtusifolius*), Curled Dock (*Rumex crispus*) and Common Ragwort (*Senecio jacobaea*). Although in low numbers these species can benefit invertebrates, initially these will be maintained at a low level to allow the mixture to establish.

During the second year the area will be left to flower and cut in mid summer. However grassland which is consistently cut late in the season year on year reduces species diversity therefore, to maintain maximum floral diversity, the area will be managed in sections at different times from late June to the end of August from year three and onwards.

5.0 RETAINED HEDGEROWS

Hedgerows should be maintained on site with a rough grassland buffer of 5 metres either side of the hedgerow (**Section 4.2**), which should be maintained as tussocky grassland. A 10m-planted buffer strip will be planted on the western boundary.

Over-management, or trimming a hedge too severely, can have a detrimental effect on conservation. In general, taller, bushier hedgerows provide more wildlife potential than smaller, thinner hedges. Annual cutting is not always needed. It is recommended that a hedge is cut every two years. The hedge can not be cut back to the same height repeatedly, varying the cutting height each time will avoid placing the hedge under stress and allow it to regenerate more vigorously.

The trimming of hedgerows should not take place between March and July (as required by the guidelines) to avoid the nesting season for birds. Therefore the ideal time for hedges to be trimmed, laid and coppiced is from September to February ideal as late in the winter as possible so wildlife can take advantage of the nuts and berries produced in the autumn.

6.0 FURTHER ENHANCEMENTS

Log Piles

It is recommended that two log piles are constructed on site. These provide valuable resources for invertebrates and in turn notable and/or protected species such as hedgehogs and reptiles.

7.0 REFERENCES

Bat Conservation Trust BCT (2009) 'BATS AND LIGHTING IN THE UK'

Gunnell, K., Grant, G. and Williams, C. (BCT) (2012) 'Landscape and Urban Design for Bats and Biodiveristy'

Ramboll (2013) 'Land at Nyton Road and Northfield Lane, Westergate & Land off Fontwell Avenue, Eastergate' Ecological Report

Ramboll (2014) 'Land at Nyton Road and Northfield Lane, Westergate & Land off Fontwell Avenue, Eastergate' Ecological Report