Star Ecology

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Wildlife Habitat Scheme and Management Plan: Land to the East of the Rambles, Shelwick, Hereford HR1 3AL.

9th November 2018

Ref: LC/2126/18.1

HEREFORDSHIRE COUNCIL
PLANNING SERVICES
DEVELOPMENT CONTROL
21 DEC 2018
To
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CONTENTS

1. Introduction

1.1 Pertinence

This Wildlife Habitat Scheme is relevant only to the development site 'Land to the East of the Rambles', Shelwick, Hereford HR1 3AL.
The development site is located at approximate National Grid Reference 352475, 243035.

This Wildlife Habitat Scheme should be read in conjunction with drawings/plans produced by Lucy Chuter Architecture.

1.2 Aims and objectives

There are currently no features of high ecological importance on or bounding the development site.
However, the north boundary is formed by an intact species rich hedge that provides bird nesting habitat.

The objective of the Wildlife Habitat Scheme is to provide:

a) bat roosting features;
b) bird nesting features;
c) Hedgehog nesting features
d) new native species rich hedges
e) new native species trees

1.3 Habitat Plan for achieving aims and objectives

The Wildlife Habitat Scheme and Management Plan includes mitigation measures for the protection of:

- nesting birds;
- Hedgehog; and,
- the existing north boundary hedge.

Mitigation measures for nesting birds, Hedgehog and the north boundary hedge are contained in Section 2.

The Wildlife Habitat Scheme includes the provision of:

- considerate external lighting design for bats;
- four bat roost boxes;
- six bird nest boxes;
- considerate design for Hedgehog;
- two Hedgehog nesting features;
- three native species rich hedges; and,
- 27 native trees.

Section 3 contains a prescription for considerate external lighting design for bats.
Section 4 contains a prescription for bat roost boxes.
Section 5 contains a prescription for bird nest boxes.
Section 6 contains a prescription for considerate design for Hedgehog and for Hedgehog nesting features.
Section 7 contains a prescription for native species rich hedge.
Section 8 contains a prescription for native tree planting.

A Work Schedule is contained in Section 8.

1.4 Constraints

The development site does not contain features of high ecological importance. However, the Wildlife Habitat Scheme and Management Plan is constrained by:

- the small size of the development site;
- the retention of (most of) the north boundary hedge;
- legislation protecting nesting birds; and,
- legislation and policy protecting Hedgehog.

Mitigation measures for protected fauna, that will be adopted, are contained in Section 2.

1.5 Responsibilities

The owner(s) of the development site and/or the (future) owner(s) of Plots 1 – 4 is/are responsible for:

- the implementation of the Habitat Scheme and Management Plan.
- funding all work required by the Habitat Scheme and Management Plan.

1.6 Funding

All work will be funded by the owner(s) of the development site and/or the (future) owner(s) of Plots 1 – 4 for the lifetime of the development.

1.7 Timing

Work on the Wildlife Habitat Scheme will commence on or after the commencement of building works and will be completed prior to the occupation of the new residential houses to be constructed.

2. Mitigation Measures

2.1 Nesting bird

2.1.1 Legislation

Nesting birds are protected by the Wildlife and Countryside Act 1981.
Under the Wildlife and Countryside Act 1981, all birds are protected while breeding.
It is an offence, with certain exceptions to:

- intentionally kill, injure or take any wild bird;
- intentionally take, damage or destroy the nest of any wild bird while it is in use or being built;
- intentionally take or destroy the egg of any wild bird

2.1.2 Mitigation

The removal, or partial removal, of potential bird nesting habitat (such as the central area of the north boundary hedge to permit the formation of a new site access) may only be carried out between 1st October and 1st March - unless removed immediately following inspection and confirmation by an ecologist that no nesting birds (and/or other protected species) are present.

2.2 Hedgehog

2.2.1 Legislation and policy

(European) Hedgehog (*Erinaceus europaeus*) are:

- listed on Appendix III of the Bern Convention;
- protected from harm under Schedule 6 of the Wildlife and Countryside Act 1981;
- Species of Principal Importance under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006;
- listed as a Priority Species for conservation action under the United Kingdom Biodiversity Action Plan.

2.2.2 Mitigation

Excavations and ground-works

Wherever possible excavated footings, post-holes, pipe trenches etc. will be filled on the same day as they are opened.
Should the time between excavation and filling of foundations or trenches need to be extended, due to unforeseen circumstances, it will be necessary to prevent any chance of Hedgehog becoming trapped in excavations.
This may be achieved by covering the excavations with ply-board sheeting or similar, ensuring a good seal between the bottom edge of the board and firm ground substrate.
Should it not be possible to cover all excavations, wooden boards will be placed extending from the bottom of excavations to the surrounding surface.
Should Hedgehog become trapped in excavations, these 'ramps' will allow Hedgehog a method of escaping on their own accord.
Each morning; excavations will be inspected for the presence of Hedgehog. Should Hedgehog be present, they will be removed from the excavation(s) and, if they are healthy, released within suitable habitat within the vicinity of The Site.

Should injured Hedgehog be found professional guidance will be immediately sought from a suitable animal rescue centre/hospital.

2.3 North boundary hedge

Most of the north boundary hedge is to remain post-development.

In order to protect the existing north boundary hedgerow (that is to be retained):

- no (soil) arisings will be stored within 2m of the canopy of the hedge
- no building materials will be stored within 2m of the canopy of the hedge
- no waste materials, or waste storage facilities (such as 'skips') will be stored within 2m of the canopy of the hedge.

3. External Lighting Design

In order to avoid any unnecessary disturbance to (commuting and/or foraging) bats in the future, external lighting to be installed on the development site will:

- use Light emitting diodes (LED) luminaries
- have a warm white spectrum <2700° Kelvin (degrees colour temperature)
- have peak wavelengths higher than 500nm
- be set on motion-sensors
- use short duration (e.g. one minute) timers
- not be in the vicinity of, or shine towards, bat roost openings
- not shine towards (the) roof structure(s)
- not be in the vicinity of, or shine towards, boundary vegetation

4. Bat Roost Boxes

Four Schwegler Bat roost boxes/features will be installed beneath the gable apexes, just below roof structures, of newly constructed Garages; as follows:

- one Schwegler 1FF bat roost box on the south elevation of the Plot 1 Garage
- one Schwegler Wall-mounted Bat Shelter/box on the north elevation of the Plot 2 Garage
- one Schwegler 1FF bat roost box on the north elevation of the Plot 3 Garage
- one Schwegler Wall-mounted Bat Shelter/box on the south elevation of the Plot 4 Garage

Bat roost boxes will be installed:

- a minimum of 4m from ground level;
- in locations subject to low future disturbance;
- under the approval/supervision of the Ecological Clerk of Works; and,
- at (a) suitable juncture(s) during the development (and before the first occupation of any of the new dwellings).

4.1 Monitoring and remedial measures

For the lifetime of the development:

- annually, during October and/or November, the structural condition of the Bat roost boxes will be inspected.
- annually, Bat roost box(es) that have (naturally) deteriorated, are damaged or are missing will be replaced on a like-for-like basis.

5. Bird Nest Boxes

Six purpose-made bird nest boxes will be installed beneath the gable apexes, just below roof structures, of newly constructed Garages; as follows:

- one Schwegler 1SP Sparrow Terrace on the south elevation of the Plot 1 Garage
- two Schwegler 9A House Martin boxes on the north elevation of the Plot 2 Garage
- one Schwegler 2M woodcrete bird box on the north elevation of the Plot 3 Garage
- two Schwegler No.16 Swift boxes on the south elevation Plot 4 Garage

Bird Boxes will be installed:

- a minimum of 3.5m from ground level;
- in locations subject to low future disturbance;
- under the approval/supervision of the Ecological Clerk of Works; and,
- at (a) suitable juncture(s) during the development (and before the first occupation of any of the new dwellings).

5.1 Monitoring and remedial measures

For the lifetime of the development:

- annually, during October and/or November, the structural condition of the bird nest boxes will be inspected.
- annually, bird nest box(es) that have (naturally) deteriorated, are damaged or are missing will be replaced on a like-for-like basis.

6. Hedgehog

6.1 Considerate design for Hedgehog

Garden/yard gates (or similar) to be installed within the development will have a minimum ground clearance of 100mm.

Every 4-6m, ground level holes, a minimum of 100mm high (vertical) and 100mm wide (horizontal), will be created within boundary/garden fencing.

6.2 Hedgehog habitat

Two Schwegler Hedgehog Domes will be installed as follows:

- one within the west area of the north boundary hedge (of Plot 1).
- one within the southwest corner of Plot 3, adjacent to the Pumping Station.

6.2.1 Monitoring and remedial measures

For the lifetime of the development:

- annually, during October and/or November, the structural condition of the Hedgehog nest boxes will be inspected.
- annually, Hedgehog nesting features that have (naturally) deteriorated, are damaged or are missing will be replaced on a like-for-like basis.

7. Native Species Rich Hedge

7.1 Objective

New hedges will be planted along the east, south and west boundaries of the development site.
Please refer to drawings/plans produced by Lucy Chuter Architecture.
The (mature) hedges will be maintained at a minimum of 1.2m in height.

Hedge plants will be double staggered, at 0.40 metre centres, with rows 0.50 – 0.60 metres apart. This will provide wide species rich hedges.
Native species of local provenance will be used.
Potted stock will be in a non-peat-based compost.

The plant mixture of the hedges will consist of:

%	Common name	Scientific name	Height (cm)
1	Holly	*Ilex aquifolium*	40-60
3	Spindleberry	*Euonymus europaeus*	40-60
5	Blackthorn	*Prunus spinosa*	40-60
5	Guelder rose	*Viburnum opulus*	40-60
10	Field maple	*Acer campestre*	40-60
10	Hawthorn	*Crataegus monogyna*	40-60
20	Hazel	*Corylus avellana*	20-30
46	Hornbeam	*Carpinus betulus*	20-30

7.2 Hedge specification

Hedge plants will be in double staggered rows at 0.45m centres, rows 0.50 – 0.60m apart. This will provide a wide species rich hedge.
Where applicable; male and female plants of species to be used. Plants of local provenance will be used. Potted stock will be in a non-peat compost.

Species mix of hedge plants:

%	Common name	Scientific name	Height (cm)
1	Holly	*Ilex aquifolium*	40-60
3	Spindleberry	*Euonymus europaeus*	40-60
5	Blackthorn	*Prunus spinosa*	40-60
5	Guelder rose	*Viburnum opulus*	40-60
10	Field maple	*Acer campestre*	40-60
10	Hawthorn	*Crataegus monogyna*	40-60
20	Hazel	*Corylus avellana*	20-30
46	Hornbeam	*Carpinus betulus*	20-30

One of the following species is to be planted every 10m of hedge:

Common name	Scientific name	Height (cm)
Dog Rose	*Rosa Canina*	20-30
Guelder Rose	*Viburnum opulus*	40-60
Honeysuckle	*Lonicera* sp.	20-30

7.3 Planting

7.3.1 Mulching

A 75mm lightly compacted layer of medium grade pulverised bark, with a particle size of no more than 100mm and containing no more than 10% fines, shall be spread to form a continuous layer covering the whole of the planting bed.

7.3.2 Planting regime

Hedges will be planted in the first suitable planting season following commencement of the development.

The nature of the material to be planted is variable and the planter/s shall allow for planting to be properly carried out in all cases as described in British Standard 4428: 1989 5.8 Woodland, 5.9 Shrubs.
All plants shall be planted at the same depth, or very slightly deeper, at which they were grown.

Roots shall not be bent, broken, forced into inadequate pits or notches. Plants shall be upright, firmed-in and wind resistant, with no air pockets around the roots.
All pots and root wrappings shall be carefully removed prior to planting and removed from site.

7.3.3 Weeding

Hedges will be kept weed free by hand removal, use of hand-weeding-tools and, if necessary, by spot treatment with approved herbicide.

When the hedge(s) is/are established; herbaceous hedge wildflowers will be encouraged to grow at the base of the hedge(s). The herbaceous hedge wildflowers will not be treated with herbicide or weeded, and will be maintained for the lifetime of the development.

If required; spot treatment of weeds with herbicide will be carried out during June, July, August and September.
The use of herbicide will be in accordance with the manufacturer's guidance and in accordance with the following legislation:

- Poisonous Substances in Agriculture Regulations 1984
- The Food and Environmental Protection Act 1985
- The Control of Pesticides Regulations 1986
- The Control of Pollution Act 1974

All reasonable precautions will be taken to protect the health of human beings, creatures and plants, to safeguard the environment and to prevent spray drift.

7.3.4 Watering

From the date of planting for the following six months; the hedge will be sufficiently watered to maintain healthy and vigorous growth.

Water will be applied using a fine sprinkler until the full depth of soil is saturated.

Additional watering - during prolonged dry weather - for an additional 36 months shall comprise drip-feeding of at least 40 litres of water per hedge plant, twice a month between April and September.

7.3.5 Monitoring and remedial measures

For the lifetime of the development; any hedge plants which die, are removed, become seriously damaged or diseased shall be replaced annually with others of similar size and species.

8. Tree Planting

8.1 Specification

A total of 27 trees will be planted within gardens of the newly created properties; as follows:

Plot	Total # of trees	Tree #	Common name	Scientific name
1	6	1	Rowan	*Sorbus aucuparia*
		1	Wild Cherry	*Prunus avium*
		2	Apple	*Malus* sp.
		2	Pear	*Pyrus* sp.
2	5	1	Crab-apple	*Malus sylvestris*
		1	Silver Birch	*Betula pendula*
		1	Wild Cherry	*Prunus avium*
		2	Rowan	*Sorbus aucuparia*
3	6	1	English Oak	*Quercus robur*
		1	Mulberry	*Morus nigra*
		1	Plum	*Prunus* var.)
		1	Silver Birch	*Betula pendula*
		2	Apple	*Malus* sp.
4	7	1	Crab-apple	*Malus sylvestris*
		1	Mulberry	*Morus nigra*
		1	Plum	*Prunus* var.)
		1	Silver Birch	*Betula pendula*
		1	Wild Cherry	*Prunus avium*
		2	English Oak	*Quercus robur*

In addition, three English Oak trees will be planted on the east side of the east boundary, along the existing access track to the Pumping Station.

Trees will be 'Selected Standard' size, 10-12 cm girth, 2.75-3.0 metres tall, bare-rooted or root-balled and healthy and vigorous.
Trees will be sourced from local tree/garden nurseries.

8.2 Ground Preparation

Existing vegetation to be cleared and removed by hand raking, only.

8.3 Planting regime

Trees will be planted in planting holes 1.2m x 1.2m x 900mm deep, with the topsoil mixed with a minimum of 20 litres of suitable tree planting compost and replaced carefully around the roots and lightly compacted every 150mm layer.

All tree planting shall be carried out in the first suitable planting season following commencement of the development.
The nature of the material to be planted is variable and the planter/s shall allow for planting to be properly carried out in all cases as described in British Standard 4428: 1989 5.8 Woodland, 5.9 Shrubs.
All trees shall be planted at the same depth, or very slightly deeper, at which they were grown.

Roots shall not be bent, broken, forced into inadequate pits or notches. Trees shall be upright, firmed-in and wind resistant, with no air pockets around the roots.
All pots and root wrappings shall be carefully removed prior to planting and removed from site.

8.3.1 Tree support

Trees will be supported with a treated timber stake and rubber ties, and protected from both rabbit (and small mammal) damage.

8.3.2 Mulching

In order to supress weeds whilst trees establish (only): a 75mm lightly compacted layer of medium grade pulverised bark, with a particle size of no more than 100mm and containing no more than 10% fines, shall be spread to form a continuous layer covering the whole of the planting bed.

8.3.3 Weeding

When trees are established; (a) natural vegetation herb layer(s) will be allowed to develop.

Areas immediately around newly planted trees will be kept weed free by weeding by hand and, where necessary, spot treatment with approved herbicide.

If required; spot treatment with herbicide will be carried out during June, July, August and September.
The use of herbicide will be in accordance with the manufacturer's guidance and in accordance with the following legislation:

- Poisonous Substances in Agriculture Regulations 1984
- The Food and Environmental Protection Act 1985
- The Control of Pesticides Regulations 1986
- The Control of Pollution Act 1974

All reasonable precautions will be taken to protect the health of human beings, creatures and plants, to safeguard the environment and to prevent spray drift.

8.3.4 Pruning

During November and/or December; trees will be pruned to remove dead, dying, or diseased wood and suckers to promote healthy growth and natural shape.

Trees will be allowed to grow to their natural heights.

8.3.5 Watering

From the date of planting for the following six months; trees will be sufficiently watered to maintain healthy and vigorous growth.

Water will be applied using a fine sprinkler until the full depth of soil is saturated.

Additional watering - during prolonged dry weather - for an additional 36 months shall comprise drip-feeding of at least 40 liters of water per trees, twice a month between April and September.

8.3.6 Monitoring and remedial measures

For the lifetime of the development; any trees which die, are removed, become seriously damaged or diseased shall be replaced annually with others of similar size and species.

9. Schedule of Work

9.1 Five-year project register

Year #		Year	Month(s)	Action	Responsibility	Funding	Monitoring	Remedial work
1		To be decided	March	Install bat roost boxes	Owner(s) of the development site and/or Plots 1 – 4	Owner(s) of the development site and/or Plots 1 – 4	-	-
1			March	Install bird nest boxes			-	-
1			March	Install Hedgehog nesting features			-	-
1			October November	Bat roost box, bird nesting box & Hedgehog nesting feature inspections			Presence & condition assessment	Replace like-for-like as necessary
1			November December	Plant native species rich hedge			-	-
1			November December	Plant trees			-	-
2		To be decided	October November	Bat roost box, bird nesting box & Hedgehog nesting feature inspections	Owner(s) of the development site and/or Plots 1 – 4	Owner(s) of the development site and/or Plots 1 – 4	Presence & condition assessment	Replace like-for-like as necessary
2			July August	Tree inspections			Presence & condition assessment	Replace like-for-like later in same year
2			July August	Hedge inspections			Presence & condition assessment	Replace like-for-like later in same year
2			October November	Tree &/or hedge planting			-	Replace like-for-like as necessary
3		To be decided	October November	Bat roost box, bird nesting box & Hedgehog nesting feature inspections	Owner(s) of the development site and/or Plots 1 – 4	Owner(s) of the development site and/or Plots 1 – 4	Presence & condition assessment	Replace like-for-like as necessary
3			July August	Tree inspections			Presence & condition assessment	Replace like-for-like later in same year

Year #		Year	Month(s)	Action	Responsibility	Funding	Monitoring	Remedial work
3			July August	Hedge inspections			Presence & condition assessment	Replace like-for-like later in same year
3			October November	Tree &/or hedge planting			-	Replace like-for-like as necessary
4		To be decided	October November	Bat roost box, bird nesting box & Hedgehog nesting feature inspections	Owner(s) of the development site and/or Plots 1 – 4	Owner(s) of the development site and/or Plots 1 – 4	Presence & condition assessment	Replace like-for-like as necessary
4			July August	Tree inspections			Presence & condition assessment	Replace like-for-like later in same year
4			July August	Hedge inspections			Presence & condition assessment	Replace like-for-like later in same year
4			October November	Tree &/or hedge planting			-	Replace like-for-like as necessary
5		To be decided	October November	Bat roost box, bird nesting box & Hedgehog nesting feature inspections	Owner(s) of the development site and/or Plots 1 – 4	Owner(s) of the development site and/or Plots 1 – 4	Presence & condition assessment	Replace like-for-like as necessary
5			July August	Tree inspections			Presence & condition assessment	Replace like-for-like later in same year
5			July August	Hedge inspections			Presence & condition assessment	Replace like-for-like later in same year
5			October November	Tree &/or hedge planting			-	Replace like-for-like as necessary

9.2 Annual work plan

Following the installation/creation and maturation of habitat features – work to be carried out annually is detailed in the table below:

Habitat	Task	Month(s)
Trees	Prune	November December
Native species rich hedge	Trim – on two- or three-year rotation as necessary	November December
Trees & hedges	Weed by hand	Whenever necessary
	Watering (as-&-when necessary)	Whenever necessary
Bird nesting boxes	Presence & condition inspection	October November
Bat roost boxes	Presence & condition inspection	October November
Hedgehog nesting features	Presence & condition inspection	October November
All	Replacement habitat features on a like-to-like basis as necessary	Whenever necessary

9.3 Annual implementation of the annual work plan

In January of the first two years following completion of development work and then every five years thereafter and for the lifetime of the development; the owner(s) of the development site and/or Plots 1 – 4 will assess the suitability of the existing Management Plan and its success in achieving the aims and objectives as specified in Section 1.

It is possible that management actions may need to be adjusted and/or new management tasks implemented.

If necessary, the owner(s) of the development site and/or Plots 1 -4 will seek professional ecological advice.