

Fellows Gardens, Yapton

Ecological Management Plan In Respect of Conditions 15 and 17

Final Report

March 2014

P13/72-1A



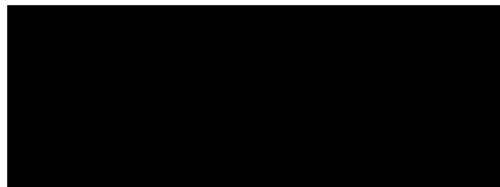
Fellows Gardens, Yapton Ecological Management Plan

Report Release Sheet

Draft/Final: Final Report
Issue Number: P13/72-1A
Date: March 2014
Client: Peter Whiting
Bellway Homes
Wessex Region

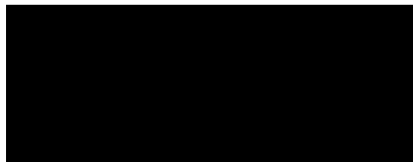
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Doc. No EPR 10 Issue 04



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Fellows Gardens, Yapton

Ecological Management Plan

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Fellows Gardens, Yapton

Ecological Management Plan

1 INTRODUCTION

Context and Objective

1.1 Ecological Planning & Research Ltd (EPR) was commissioned by Bellway Homes in January 2014 to assist in the discharge of planning conditions imposed upon a development at Fellows Gardens, Yapton - hereafter, 'the site'. The proposed development concerns the construction of 34 residential units within a 1ha site which currently comprises an unmanaged rough grassland field.

1.2 This document has been produced to provide the information required by **Condition 15** of the planning consent, which requires that:

Prior to the commencement of development, full details of ecological enhancement measures shall be submitted to, and approved in writing by the local planning authority. These details shall also include details of an ecological management plan for the construction phase of the development. The approved details shall thereafter be implemented prior to the first occupation.

1.3 In the interests of avoiding duplication, this Ecological Management Plan (EMP) provides **all of the information required by Condition 15** in a single, accessible, document. Consequently, this document includes:

- an ecological management plan for the construction phase of the development;
- full details of ecological enhancement measures provided within the scheme; and
- provisions for ongoing management in order to maintain the value of ecological enhancement measures within the operational phase of the project.

1.4 Where relevant, this document also addresses ecological input required for the discharge of **Conditions 16** and **17**, which relate to avoidance, mitigation and enhancement measures in respect of reptiles and bats.

1.5 In respect of **Condition 17**, this document describes how bat boxes will be incorporated into the development, and provides details of a bat sensitive lighting strategy (**Section 7**). **Condition 16** is addressed more fully in the separately issued *Fellows Gardens, Yapton: Reptile Mitigation Strategy* (EPR, 2014).

1.6 The measures provided in this document are intended to achieve compliance with wildlife related legislation and policy and fulfil the objectives of **Condition 15**, i.e.:

To ensure there is no net loss or damage to nature conservation and opportunities to enhance are taken in accordance with the National Planning Policy Framework (NPPF).

- 1.7 In the development of appropriate ecological enhancements, due consideration has been given to the principles of the NPPF and conservation priorities promoted in the Sussex Biodiversity Action Plan.

2 SITE DESCRIPTION

Location

- 2.1 The site is a neglected field approximately 1ha in area, which occurs immediately to the south of Fellows Gardens, Yapton, West Sussex (site centroid SU9836602904). Beyond the suburban context of Yapton, the broader landscape character is dominated by principally arable agricultural land and the relatively urbanised settlements of Bognor Regis to the south-west and Littlehampton to the south-east.
- 2.2 As appears on **Map 1**, two coastal Sites of Special Scientific Interest occur within a 5km radius of the site, at Felpham SSSI and Climping Beach SSSI.

Habitats and Vegetation

- 2.3 The distribution of habitats present within the site is represented in **Map 2**.
- 2.4 The interior of the site currently comprises rough, tussocky grassland. The character of the habitats - and the presence of an animal shelter - indicates that the site was historically subject to grazing, although it is apparent that grazing has been only intermittently undertaken in recent years. Cock's Foot *Dactylis glomerata*, Couch Grass *Elytrigia repens*, Common Bent *Agrostis capillaris* and Red Fescue *Festuca rubra* are predominant within the sward, which also contains ruderals such as Nettle *Urtica dioica* and Creeping Thistle *Cirsium arvense*.
- 2.5 Dense Bramble *Rubus fruticosus* scrub has developed around the periphery of the site and currently occupies approximately a quarter of the total site footprint. Relatively localized blocks of self-seeded Hawthorn *Crataegus monogyna* and Goat Willow *Salix caprea* scrub are also present.
- 2.6 Relict Hawthorn hedgerows occur along the site's southern boundary and along part of the eastern and northern boundaries. It is evident that the management of these hedgerows has been neglected over a considerable period. The individual Hawthorn trees have attained a height of between 4 to 8m, and a sparse, leggy and somewhat discontinuous structure has consequently developed.
- 2.7 A tall, dense coniferous hedge, principally comprising non-native Cypress species, occurs along the northern part of the western boundary.

Fauna

- 2.8 A currently active Fox earth occurs within the interior of the site, towards the eastern boundary.

- 2.9 Abundant potential bird-nesting habitat is present throughout the site, within the relict Hawthorn hedgerows and dense Bramble scrub.
- 2.10 No evidence of bats has been found within the site. However, dense ivy cladding present on several of the outgrown hedgerow Hawthorns can be regarded as a feature with the potential to be occupied by roosting bats.
- 2.11 Survey work undertaken in 2011 determined that Slow Worm *Anguis fragilis* and Common Lizard *Zootoca vivipara* are present on site. It was concluded that populations of both species are likely to be small and predominantly localized within the northern half of the site (Ash Partnership, 2011). However, due to methodological constraints upon the 2011 survey work for reptiles, these projections are considered likely to represent an underestimate.

3 PRE-CONSTRUCTION PHASE ECOLOGICAL WORKS

Introduction

- 3.1 This section of the EMP describes ecological works which will need to be completed prior to the commencement of the construction phase, in order to achieve compliance with ecology related planning conditions and applicable legislation and policy.

Reptile Mitigation Works

- 3.2 Prior to the commencement of preparatory construction works, a reptile translocation exercise will be undertaken as a means of avoiding and mitigating harm to the populations of reptiles present within the site. This translocation is addressed in detail within the separately issued *Fellows Garden, Yapton: Reptile Mitigation Strategy* document (EPR, 2014). No vehicle or plant access should be permitted within the site before the completion of this exercise, unless with the informed consent of the consultant ecologist.
- 3.3 Temporary reptile fencing will be installed along parts of the perimeter of the site and maintained until the completion of the construction phase, to prevent reptiles entering the works footprint. The location and extent of this fencing are set out within the *Land at Fellows Garden, Yapton: Reptile Mitigation Strategy* (EPR, 2014). The condition and integrity of the reptile fencing will be monitored throughout the construction phase of the project and any damage will be expeditiously repaired.
- 3.4 Upon completion of the construction phase - or at such time as the consultant ecologist determines that the reptile fencing is no longer necessary - the fencing should be removed by hand in an appropriately sensitive fashion, so as to avoid harm to reptiles or other animals sheltering along the base of the fence-line.

Fox Exclusion

- 3.5 In order to avoid an offence under the Wild Mammals (Protection) Act (1996), the fox earth which occurs within the site will be monitored and ultimately closed prior to the commencement of the construction phase, using a variety of appropriate methods which may include “soft-blocking” and the use of infra-red cameras to determine current occupation. If it is determined that the fox earth is used as a natal den, it will be necessary to delay closure until such time as all juveniles are able to leave the den.

4 CONSTRUCTION PHASE ECOLOGICAL MANAGEMENT PLAN

Introduction

- 4.1 This section of the EMP prescribes working methods and practices that will apply where relevant during the construction phase of the project, to ensure that implementation works do not negatively impact upon the environment.

Tree and Hedgerow Works

- 4.2 Restoration work will be undertaken in order to improve the condition of the existing outgrown hedgerows. This will include pollarding individual Hawthorn trees to a maximum height of 1.8m in order to promote a lower, denser structure, thereby improving both the screening function and biodiversity value of the hedgerows.
- 4.3 The proposed tree works do not affect any bat roosts hitherto recorded. However, some bat species use a series of roosts throughout the active season, are nomadic, and may occupy previously unoccupied trees at any time. The dense ivy cladding which is present on several trees within the site represents a feature with the potential to be occupied by roosting bats.
- 4.4 In view of this, an Ecological Clerk of Works will be commissioned to undertake a final inspection for bats prior to the commencement of tree works, in partial fulfilment of **Condition 17**. Work affecting trees with an identified potential to support roosting bats will be undertaken in accordance with a Soft-Felling Protocol issued by the consultant ecologist (**Appendix 2**).
- 4.5 Retained trees and hedgerows will be protected during the course of construction and implementation works, in accordance with *BS 5837: Trees in relation to construction and BS 3998 Tree Works*.

General Prescriptions

Prevention of Pollution

- 4.6 Construction work will be carried out in accordance with the current Environment Agency (EA) Pollution Prevention Guidelines.
- 4.7 Chemicals/substances should be stored in appropriate containers in a specified area or works compound to prevent contamination of adjacent land and nearby waterways and ditches. Any spillages must be immediately cleared and reported.
- 4.8 The following EA Guidelines are likely to be particularly relevant and should be adhered to where applicable:

- PPG1 Understanding your environmental responsibilities;
- PPG 2 Above ground oil storage tanks;
- PPG 6 Pollution prevention guidance for working at construction and demolition sites;
- PPG7: The safe operation of refuelling facilities;
- PPG8: Safe storage and disposal of used oils;
- PPG13: Vehicle washing and cleaning;
- PPG18: Managing fire water and major spillages;
- PPG21: Pollution incident response planning; and
- PPG22: Dealing with spills.

4.9 The further following prescriptions will be observed during the construction phase:

- All construction material waste and personal rubbish will be removed from site; and
- Burning will not take place on site.

4.10 A suite of appropriate techniques should be employed as necessary to obviate dust pollution arising from construction works; these may include:

- use of mobile or fixed clean water sprays to dampen spoil heaps in dry conditions;
- coverage of loose aggregates during transport; and
- ensuring that completed earthworks are vegetated as soon as possible.

4.11 All contractors and works personnel are to be provided with the contact details for an “on-call” ecologist in the event that unforeseen wildlife related circumstances arise on-site (**Appendix 1**).

5 ECOLOGICAL ENHANCEMENT MEASURES

Introduction

- 5.1 This section of the EMP describes ecological enhancement measures that will be undertaken prior to the commencement of the operational phase, and should be read in conjunction with the *Fellows Gardens, Yapton: Landscape Management Plan* (Bellway, 2014).

Principal Aims

- 5.2 The principal aims of the ecological enhancement and management measures to be undertaken at Fellows Gardens are to:
- Provide a convenient and accessible area of naturalistic Open Space or 'Green Infrastructure' for new and existing residents in the area; and
 - Protect and enhance the naturalness, biodiversity, and local character of the area, in accordance with the spirit of the National Planning Policy Framework and local BAP targets.

Provision of Bat Boxes

Objective

- 5.3 **Condition 17** requires the provision of “a detailed plan of how additional roosting features will be provided on existing mature trees”.
- 5.4 Bat boxes will be provided to mitigate the pollarding of ivy-clad hedgerow Hawthorns, which are regarded as having very low potential to support roosting bats, and to enhance the existing habitat value of the site for bats.

Habitat Establishment Approach

- 5.5 The only mature trees present on-site are outgrown Hawthorn hedgerow trees - which are not considered suitable as mounts for bat boxes on account of their low height, form and growth habit.
- 5.6 Consequently, a treated softwood pole will be securely installed within the Open Space, with two Schwegler 2FN bat boxes mounted at a height of 5m on the south-eastern and south-western aspects.
- 5.7 The pole-mounted bat boxes will be sheltered by the new landscape planting and existing Cypress hedge. The location of the bat boxes, represented in **Map 3**, provides direct access to potential commuting habitat along the western boundary of the development.

- 5.8 Light spill onto the area surrounding the location of the bat boxes will be minimised in accordance with the bat sensitive lighting strategy provided in **Section 7** below.

Hedgerow Restoration

Objective

- 5.9 The relict Hawthorn hedgerow which occurs along the southern boundary of the site and in places along the northern and eastern boundaries has attained a sparse, leggy and somewhat discontinuous structure due to a lack of management intervention in recent years.
- 5.10 The relict hedge-line will be restored to a functioning hedgerow with a low-growing and denser, more integrated structure. This will enhance both the ecological value of the hedgerow - as a refuge and foraging resource for birds and other fauna - and its amenity function, as a secure barrier, windbreak and 'green screen'.

Habitat Establishment Approach

- 5.11 The hedgerow will be pollarded to a maximum height of 1.8m to encourage vigorous regrowth. A proportion of individual hedgerow trees may also be laid in order to infill particularly discontinuous sections. Arisings will be chipped and removed from site.
- 5.12 Any remaining gaps in the hedgerow will be infilled with bare-root Hawthorn transplants.
- 5.13 Pollarding of ivy-clad Hawthorns will be undertaken following an inspection by a suitably experienced ecologist and in accordance with EPR's *Soft-Felling Protocol for Trees with Bat Potential* (**Appendix 2**).

Landscape Planting

Objective

- 5.14 New hedgerows, standard trees and blocks of scrub will be planted in order to enhance the structural diversity of the Open Space and create a habitat resource for birds and other fauna. Planting will also have a screening function and will serve to promote the enclosed, naturalistic and tranquil character of the Open Space.
- 5.15 The introduction of a large number of native species will significantly enhance the floral diversity of the tree and shrub assemblage present within the site.
- 5.16 Although native species will predominate within the Open Space, ornamental planting will be undertaken within house frontages and to screen both the pumping station in the south-eastern corner of the site, and the north-eastern corner of the site boundary.

Habitat Establishment Approach

- 5.17 Hedgerows, blocks of scrub and standard trees will be planted at the locations represented in **Map 3**. To maximise the structural and compositional diversity of newly planted habitats, distinct native shrub species mixes will be used for the new hedgerows and for the interior and exterior of scrub blocks. The composition of these species mixes is provided in **Table 5.1** below.
- 5.18 Native species hedgerows will be planted in double staggered rows 300mm apart, at approximately 250mm centres. Scrub blocks will be planted in an informal grid with scalloped, undulating faces, in order to promote the naturalistic character of the Open Space and maximise the extent and complexity of edge habitat. Standard trees will be pit-planted, double-staked and mulched to 75mm depth.
- 5.19 A temporary rabbit-proof fence will be installed to protect newly planted areas from damage by herbivores and dogs.

Grassland Creation

Objective

- 5.20 Grassland habitat within the Open Space is primarily intended to provide a naturalistic amenity space.

Habitat Establishment Approach

- 5.21 Prior to establishment, grassland areas will be cultivated to relieve compaction and raked into smoothly flowing contours. A broadband glyphosate-based herbicide will be applied, if considered necessary to reduce the weed load.
- 5.22 Grassland habitats will be created by either laying turves or sowing a proprietary amenity grass seed mix.

Table 5.1: *Composition of native species elements of landscape planting*

Common Name	Scientific Name	Native Woodland Mix (%)	Native Shrub Edge Mix (%)	Native Hedgerow Mix (%)	Standard trees (no.)
Blackthorn	<i>Prunus spinosa</i>	5%	15%		
Crab Apple	<i>Malus sylvestris</i>	5%		15%	4
Dog Rose	<i>Rosa canina</i>		5%	2.5%	
Dogwood	<i>Cornus sanguinea</i>		5%	5%	
Elder	<i>Sambucus nigra</i>		2%		
Field Maple	<i>Acer campestre</i>	20%		10%	7
Goat Willow	<i>Salix caprea</i>		3%		
Guelder Rose	<i>Viburnum opulus</i>		5%	2.5%	
Hawthorn	<i>Crataegus monogyna</i>	10%	40%	50%	
Hazel	<i>Corylus avellana</i>	10%	20%	5%	
Holly	<i>Ilex aquifolium</i>		5%	10%	
Pedunculate Oak	<i>Quercus robur</i>	25%			3
Rowan	<i>Sorbus aucuparia</i>	5%			6
Silver Birch	<i>Betula pendula</i>				3
Wayfarer's Tree	<i>Viburnum lantana</i>	5%			
Whitebeam	<i>Sorbus aria</i>	5%			2
Wild Cherry	<i>Prunus avium</i>	5%			2
Wild Privet	<i>Ligustrum vulgare</i>	5%			

6 ONGOING MANAGEMENT

Introduction

- 6.1 Indefinite ongoing management will be required in order to maintain the amenity and biodiversity value of the habitats created on-site. This section sets out the requirements for future management and should be read in conjunction with the *Fellows Gardens, Yapton: Landscape Management Plan* (Bellway, 2014).

Hedgerow Management

- 6.2 The restored southern boundary hedgerow will be trimmed on an annual basis in order to promote dense regrowth and maintain a compact structure. Hedge-cutting will be undertaken in autumn or winter, outside the bird-nesting season.

Landscape Planting Management

Aftercare Phase

- 6.3 The following aftercare tasks will be undertaken in the course of monthly planting maintenance visits conducted in the first two years after planting:
- mechanical or chemical weed control to minimize competition to establishing trees;
 - maintenance of weed-free mulched standard tree surrounds;
 - watering of standard trees during droughted conditions;
 - assessment and adjustment of tree ties, guards and staking systems;
 - re-firming trees and tree stakes after frosts and high winds;
 - formative pruning and removal of dead wood from standard trees;
 - restoration of mulch levels to 75mm depth; and
 - inspection of rabbit-proof fencing.

- 6.4 Tree stakes and ties will be removed 3 - 5 years after planting, once trees become established. Rabbit-proof fencing will be removed after 3 years.

- 6.5 Plant survivorship will be monitored during the aftercare phase and any plants that fail to establish will be replaced with equivalent specimens.

Mature Phase

- 6.6 Beyond the initial establishment and aftercare phase, planted shrubs will be subject to annual pruning to promote vigorous regrowth and a dense, compact structure. Selective thinning will be undertaken within the scrub blocks in order to promote growth and avoid

overcrowding. New hedgerows will be trimmed biannually and maintained at a maximum height of 2m. Standard trees will be pruned to promote good form and to remove dead and dying branches. Watering will be undertaken during droughted periods.

Grassland Management

- 6.7 A graded, variable mowing regime will be used in order to promote the naturalistic character of the Open Space and create a measure of structural diversity within the grassland habitat. As represented in **Map 3**, the core of the Open Space grassland will be managed as short amenity grassland and mown at a frequency appropriate to the maintenance of sward height at a maximum of 100mm. The remainder of the Open Space grassland will be managed as relatively rough grassland and mown biannually to a minimum height of 100mm.

7 BAT SENSITIVE LIGHTING STRATEGY

Introduction

- 7.1 This section addresses the requirement for a bat sensitive lighting strategy in respect of **Condition 17**. Commitment to an appropriately sensitive lighting strategy will serve to avoid and mitigate lighting related impacts upon bats and other nocturnal wildlife.
- 7.2 This strategy has been developed with reference to a number of relevant sources including guidance produced by the Bat Conservation Trust (BCT, 2008 & 2011) and the Institute of Lighting Professionals (ILP, 2011).

Background

- 7.3 Bats are nocturnal, light-avoidant species, and their behaviour can be influenced by even relatively slight increases in light levels. Bats are consequently vulnerable to a range of negative impacts associated with artificial lighting including:
- abandonment of roosts;
 - abandonment of foraging habitat and commuting routes;
 - increased susceptibility to injury through collision with lit obstructions;
 - increased susceptibility to predation; and
 - reduction in availability of prey due to the attractiveness of artificial light to nocturnal invertebrates.

Lighting Strategy Design

Minimising Use of Artificial Lighting

- 7.4 A key principle of the Fellows Gardens lighting strategy is that lighting solutions will be proportionate to need, and will not exceed the level required for amenity and health and safety. Adherence to this principle will also ensure that the lighting strategy is efficient and does not exert an undue financial and environmental cost.
- 7.5 Provision of external artificial lighting will predominantly be restricted to the installation of street lights along the road pattern.

Maintaining Dark Areas and Corridors

- 7.6 Lighting will be positioned and directed so as to avoid light spill onto particularly sensitive areas. In particular, the location of the bat boxes and the broader Open Space will be maintained as a dark area, in order to avoid disturbance to roosting bats or deterring bats from foraging within the areas of native species rich landscape planting.

- 7.7 The eastern, western and southern boundaries of the site will be maintained as dark corridors, providing a commuting route for bats around the site perimeter. There will be no requirement for lighting adjacent to these boundaries, as they abut the Open Space and the rear gardens of proposed housing. The dark corridors will also be effectively screened by boundary features such as hedgerows and closeboard fencing.

Reducing Light Spill

- 7.8 Lighting will be directed downward where possible, and shielded or hooded to ensure that light only reaches areas which require illumination, and to prevent light spill into the dark areas and corridors identified above.

8 REFERENCES

Bellway (2014) *Fellows Gardens, Yapton: Landscape Management Plan*.

BCT (2008) *Bats and Lighting in the UK*.

BCT (2011) *Statement on the Impact and Design of Artificial Light on Bats*.

EPR (2014) *Fellows Gardens, Yapton: Reptile Mitigation Strategy*. Ecological Planning & Research Ltd.

ILP (2011) *Guidance Notes for the Reduction of Obtrusive Light*.

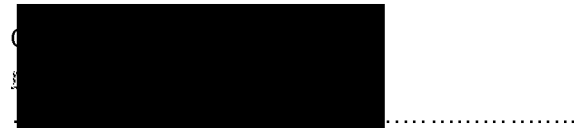
The Ash Partnership (2011) *Land off Burndell Road, Yapton, Ecological Assessment Report*.

Appendix 1

Ecologist Contact Information

The following individuals should be contacted in the event of any ecological queries or wildlife related emergencies:

Rebecca Brookbank
Ecological Planning and Research Ltd.
The Barn
Micheldever Station
Winchester
SO21 3AR



Suzanne Melhuish
Ecological Planning and Research Ltd.
The Barn
Micheldever Station
Winchester
SO21 3AR



Appendix 2

Soft-Felling Protocol for Trees with Bat Potential

Timing

Where a bat roost has been located the licence required to fell that tree will dictate the timing and method. These guidelines are therefore to assist in preparing such mitigation strategies and for trees where surveys have failed to identify any bats roost but where caution is still recommended.

- To reduce the chance of disturbing bats it is important to avoid the summer (breeding season) and winter (hibernation) months.
- March to April is also a suitable time, **though consideration should also be given for nesting birds as these are also protected by law**.
- Crown pruning and minor tree works can also be completed over the winter months. The removal of potential roost sites during this time should be avoided, as some bat species hibernate in trees.

Pre-works inspections

A precautionary inspection of the tree(s) by the tree surgeon/bat ecologist looking for signs of bats should be carried out before starting work if this is feasible and if the potential merits it. This may include an inspection of all holes and niches using a torch, endoscope or fibrescope. Equally it may be that an evening (or in midsummer a dawn) surveys are undertaken before felling. A visual inspection of low and medium potential trees should be undertaken prior to felling using a good pair of binoculars from ground level.

Best practice methods

- Keep tree work to a minimum retaining all potential roosts where possible.
- Where possible avoid cross cutting in proximity to cavities or hollows.
- Limbs with internal fissures should be pruned carefully to maintain integrity of features as potential roost sites.
- Any sections felled containing cavities should be lowered carefully and left on the ground (preferably for 24 hours) with the openings clear, allowing anything inside an opportunity to escape.
- Split limbs that are under tension may need to be wedged open to prevent their closure when pressure is released, potentially trapping bats.
- If ivy covers areas of a tree's trunk or branches there is roosting potential behind it; potential roosts in the tree may also be hidden behind it. Dealing with ivy covered trees depends on the amount of ivy. If there is a thick mass of ivy growth it may be practical to consider felling the tree on the basis that the thickness of the foliage will soften the fall and reduce the shock. This tree can then be inspected on the ground and if possible left for 24hours, before section cutting. If the tree is only partially covered, pruning or sectioning may be more appropriate. If the works are not urgent cutting the ivy at its base and completing the work when the ivy is dead, thus reducing the bat roosting potential should be considered. However where stems of ivy create a dense mass against the trunk there will always be roosting potential.
- **If bats or evidence of bats are found at any time, all works must stop immediately and Natural England contacted for further advice. In such circumstances a European Protected Species Licence may be required to enable works to proceed lawfully.**



MAP 1 Site Location in the Context of Designated Sites

- KEY
- Site boundary
 - 2km linear buffer around site
 - 5km linear buffer around site
 - Site of Special Scientific Interest (SSSI)
 - Local Nature Reserve (LNR)
 - Ancient Woodland

SCALE: 1:40,000 at A3

0 500 1,000 1,500 2,000 Metres



Ecological Planning & Research

CLIENT: Bellway Homes

PROJECT: Fellows Gardens, Yapton

DATE: March 2014

KEY



Site boundary



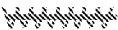
Dense scrub



Rough grassland



Coniferous hedgerow



Relic hawthorn hedge



Fox earth



Ivy clad hawthorn



SCALE: 1:833 at A3

0 10 20 30 Metres



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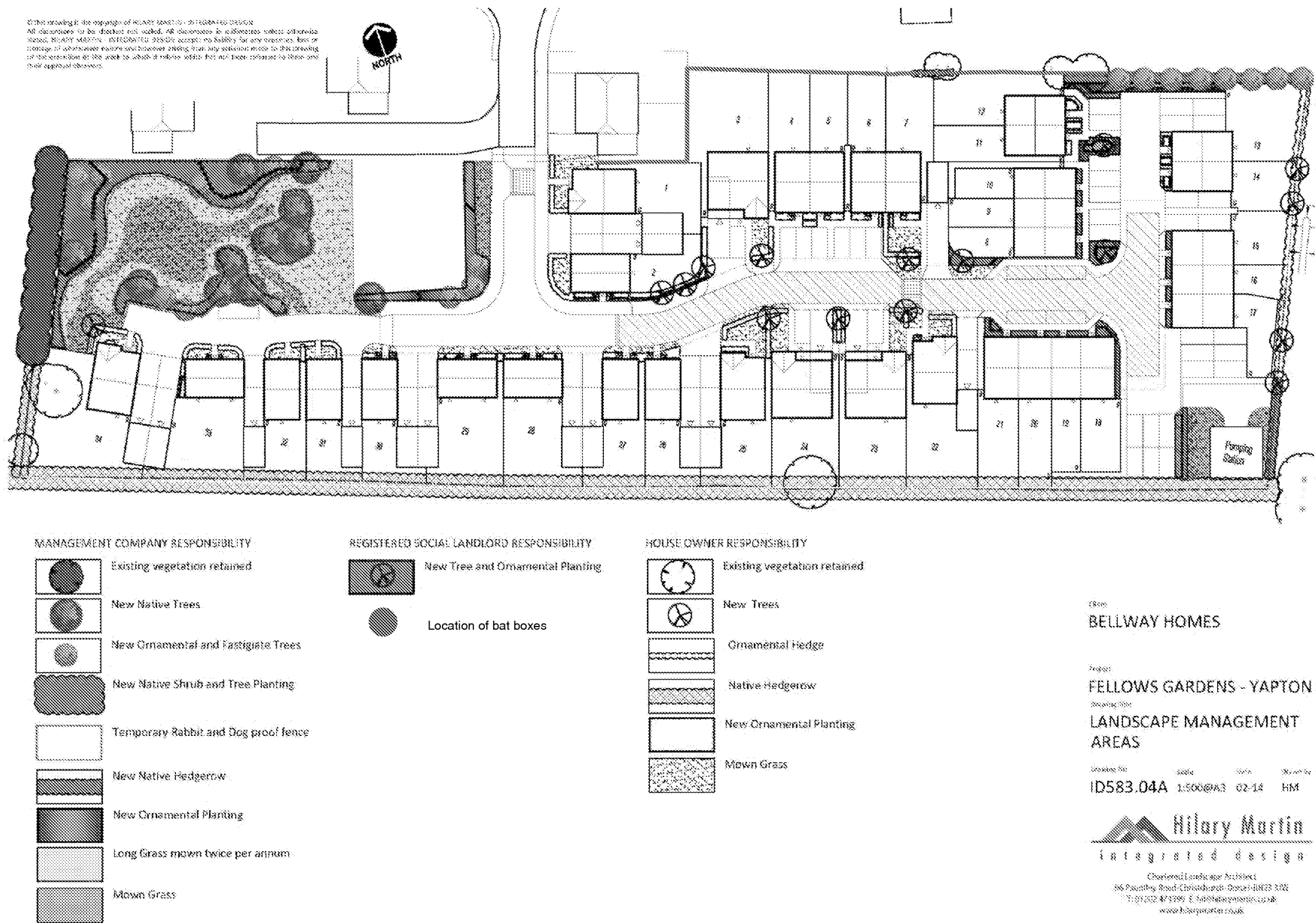
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