ecology solutions ltd

BELLWAY WEST MIDLANDS LTD

LAND AT TIDBURY GREEN
DICKENS HEATH
SOLIHULL

Ecological Creation Enhancement and Restoration Scheme

ecology solutions for planners and developers

June 2016
4100.ECERS.vf

CONTENTS

PLANS

APPENDICES

1. INTRODUCTION

1.1 This Ecological Creation, Enhancement and Restoration Scheme (ECERS) has been prepared by Ecology Solutions Ltd on behalf of Bellway West Midlands Ltd. The proposed development is located at Tidbury Green, Dickens Heath, Solihull and hereafter referred to as 'the site'. The location of the site is shown on Plan ECO1.

1.2 The site is in receipt of full planning permission for the proposed development of 190 new residential units, including associated access, infrastructure and greenspace.

1.3 Condition 21 of this planning consent sets out the requirement for details of the ECERS to be provided to and approved by the local planning authority. The exact requirements for Condition 21 are as follows:

"No development shall take place until full details of an ecological creation, enhancement and restoration scheme have been submitted to and approved in writing by the local planning authority, and these works shall be carried out as approved. The details shall include:

(i) The purpose, aims and objectives of the scheme.
(ii) A review of the site's ecological potential and any constraints.
(iii) A description of target habitats and range of species appropriate to the site.
(iv) Selection of appropriate strategies for creating and restoring target habitats or introducing and encouraging target species.
(v) Selection of specific techniques and practices for establishing vegetation.
(vi) Sources of habitat material (e.g. plant stock) or species.
(vii) Method statement for site preparation and establishment of target features.
(viii) Extent and location of proposed works.
(ix) Aftercare and long term management.
(x) Timings of works.
(xi) Monitoring.
(xii) Disposal of waste arising from the works. All habitat creation works shall be carried out in accordance with the approved details, unless otherwise approved in writing by the local planning authority. The works shall be carried out in accordance with the programme agreed with the local planning authority"

1.4 In line with the above requirements, the ultimate aim of this ECERS is to set out the mitigation and management measures required across the site to ensure the long-term preservation of protected species as well as the efficient operation of on-site works. Such measures will include the manipulation and creation of habitats across the site with the security of protected species a key consideration.

1.5 This ECERS also includes a timetable for both the completion of any initial habitat manipulation and/or creation works and subsequently any future management requirements for the habitats/species present on site.

1.6 This ECERS should be viewed as a ‘work in progress’, with iterative changes to be made, as required, in order to ensure no net losses in ecological value of the site. Formal reviews of the sites management will be undertaken at 5 yearly intervals, with input provided by a suitably qualified ecologist where required.

1.7 This ECERS has been written with reference to published guidance from the Chartered Institute of Ecology and Environmental Management (CIEEM) and in accordance with Natural England and relevant third party guidelines in relation to protected species.

2. SUMMARY ECOLOGICAL BASELINE

2.1 For the purpose of this document, mitigation and enhancement measures are detailed which will benefit those features of greatest ecological value, within the context of the site. The ecological baseline is assessed in detail within the Ecological Assessment produced by Ecology Solutions (ref: 7070.EcoAss.vf) and is summarised below where relevant.

2.2 A full suite of survey work has been completed in 2016 by Ecology Solutions to establish the ecological baseline of the site. In addition, consideration has been given to the suite of ecological survey work and assessments undertaken at the site by Waterman Energy, Environment and Design Limited (Waterman EED) in 2013, wherever necessary this information has been referenced.

2.3 Habitat surveys undertaken were based upon an extended Phase 1 survey technique. The habitats and dominant plant species were recorded, together with conspicuous faunal activity and evidence of the presence, or potential presence, of protected species. The habitats are presented graphically on Waterman EED habitat features plane (see Appendix 1).

2.4 In addition, specific surveys were undertaken for bats, Badgers *Meles meles*, Water Voles *Arvicola amphibius*, Great Crested Newts *Triturus cristatus*, reptiles and birds.

2.5 For details of the survey methodology used for the habitat and protected species surveys, please see the Ecological Assessment produced by Ecology Solutions.

Results

Habitats

2.6 The following main habitat / vegetation types were identified:

- Semi-Improved Grassland;
- Hedgerows / Treelines;
- Scrub;
- Ponds and Ditches; and
- Existing Buildings and Structures.

2.7 Each habitat present is described in detail within the Ecological Assessment produced by Ecology Solutions with an account of their representative plant species. A summary of each habitat is provided below.

Semi-Improved Grassland

2.8 The site primarily comprises a number of semi-improved grassland fields, which appear to be subject to a hay cut on an annual basis.

Hedgerows / Treelines

2.9 The site supports a number of hedgerows and treelines along field boundaries. The most mature treelines are along the western boundary of the site (adjacent to Fulford Hall Road) and along the eastern boundary of the westernmost field.

Scrub

2.10 Areas of scattered scrub are present within the site, which are typically dominated by Bramble *Rubus fruticosus* agg. and are present along the boundaries of the fields (adjacent to hedgerows and treelines).

Ponds and Ditches

2.11 The site supports a number of ponds and ditches. Most of these features are heavily over shaded by adjacent hedgerows and trees, and support very limited vegetation.

Existing Buildings and Structures

2.12 There are a small number of existing structures present within the site, in the form of barns and sheds.

Faunal Species

2.13 The surveys identified the presence of a small number of protected / notable species of principal importance in the local context. An assessment of impacts in relation to these species / groups has been provided within the Ecological Assessment and the need for specific mitigation strategies was identified for the following:

- Bats; and
- Breeding birds;

2.14 The majority of suitable habitat will be retained to those faunal groups listed above.

2.15 A brief description of the site usage of each of these species / groups and their current legislation is provided below.

Bats

2.16 **Legislation:** Bats are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and included on Schedule 2 of the Conservation of Habitats and Species Regulations 2010 ("the Habitats Regulations", as amended). These include provisions making it an offence:

- Deliberately to kill, injure or take (capture) bats;
- Deliberately to disturb bats in such a way as to:-
  - (i) be likely to impair their ability to survive, to breed or reproduce, or to rear or nurture their young, or to hibernate or migrate; or
  - (ii) affect significantly the local distribution or abundance of the species to which they belong;

- To damage or destroy any breeding or resting place used by bats;
- Intentionally or recklessly to obstruct access to any place used by bats for shelter or protection.

2.17 **Site Usage:** None of the buildings and structures within the development site were identified to be roosting locations for bats.

2.18 All trees within the development site were appraised for their suitability to support roosting bats. Survey work undertaken by Waterman EED in 2013 identified several trees as having potential to support roosting bats. The updated survey work undertaken by Ecology Solutions in 2016 confirmed that trees previously identified to offer potential opportunities for roosting bats

2.19 Bat activity surveys were completed in May 2016 and set to continue in June 2016.

2.20 Activity surveys recorded Common Pipistrelle Pipistrellus pipistrellus, Soprano Pipistrelle Pipistrellus pygmaeus and Myotis Myotis sp.. The majority of bat activity was recorded along the western and southern boundary of the site.

Breeding Birds

2.21 **Legislation**: Section 1 of the Wildlife & Countryside Act is concerned with the protection of wild birds. With certain exceptions all wild birds and their eggs are protected from intentional killing, injuring and taking; and their nests, whilst being built or in use, cannot be taken, damaged or destroyed.

2.22 Schedule 1 of the Wildlife & Countryside Act 1981 is a list of the nationally rarer and uncommon breeding birds for which all offences carry special (i.e. greater) penalties. These species also enjoy additional protection whilst breeding, as it is also an offence to disturb adults or their dependant young when at the nest.

2.23 **Site Usage**: The hedgerows, trees and scrub habitats within the development site offer nesting opportunities for a range of common bird species. As detailed in the Ecological Assessment, a number of bird species were recorded to be breeding across the development site, including pairs of Starling *Sturnus vulgaris* and Song Thrush *Turdus philomelos* (both species of which are UK Priority species and listed on the Red List of conservation concern).

3. MANAGEMENT OBJECTIVES

3.1 The aims and objectives of the ECERS are to fully safeguard the most valuable ecological assets present within the development site during the construction process and to ensure that long term ecological enhancements are realised through the retention of existing habitats and proposed landscaping.

3.2 The management prescriptions as outlined in this ECERS will also ensure that there will be no significant adverse impacts to protected and notable species which utilise the site. Indeed, following the prescriptions, as set out in this document, it is considered that opportunities for protected and notable species will be enhanced in the long-term.

3.3 The following objectives have been identified:

- Objective 1: Maintain and enhance retained and newly created habitats within the site;
- Objective 2: Maintain populations of protected species identified within the site at a favourable conservation status; and
- Objective 3: Increase biodiversity by maximising opportunities for flora and fauna.

3.4 Appropriate management options for achieving these objectives are set out below.

3.5 An illustrative landscape masterplan for the site and areas of open space is detailed schematically at Appendix 2.

Objective 1: Maintain and enhance retained and newly created habitats within the development site and the receptor area

3.6 The development proposals will retain the variety of habitats of ecological value currently present on site.

3.7 The development proposals will include the provision a large area of public open space to the south east that incorporates a leisure route running through the centre of the site.

3.8 Maintenance and enhancement measures for these habitats are detailed individually below.

<u>Habitats within areas of public open space</u>

3.9 The following habitats are to be created within the areas of open space associated with the site in its completed form. These habitats will be designed to benefit a wide range of faunal groups and will be retain connectivity to the wider area. The principles by which these areas will be managed are outlined below.

Grassland

3.10 New areas of wildflower grassland are to be created as part of the proposed development. These will be sown with an appropriate species-rich wildflower grassland mix consisting of native species of local provenance. Areas of grassland alongside hedgerows and mature tree cover are to be seeded with an appropriate mix (e.g. Emorsgate EH1), grassland in the vicinity of ponds will be planted with a wetlands mix such as Emorsgate EG8 and all other areas will be sown with a general purpose mix (e.g. Emorsgate EM1).

3.11 The wildflower grasslands will be managed so as to benefit biodiversity of flora and fauna. Cutting should be undertaken in appropriate weather conditions in late summer (August - September) under an approved methodology (i.e. strimming or mowing).

3.12 The cut will be made to approximately 150mm with arisings left in-situ for 3-5 days to allow seeds to set prior to being collected and take off site or retained within the open space as habitat piles.

3.13 Selective removal of invasive, noxious or pernicious grassland and ruderal species will be conducted, as required, in order to retain and enhance the ecological and structural diversity of the habitats present.

3.14 The above management will be informed by annual monitoring of the open space with iterations to the strategy made where required to ensure the diversity of this habitat is retained and enhanced in the long term.

Shrub Planting

3.15 New shrub planting will be provided in the areas of open space. This will comprise a wide range of native and wildlife beneficial species, including a number of seed and berry-bearing species such as Hawthorn *Crataegus monogyna*, Blackthorn *Prunus spinosa*, and Holly *Ilex aquafolium*. Regular maintenance will ensure that these areas are kept weed-free during the establishment period and will ensure that all shrubs are healthy.

3.16 Regular health checks of these newly planted shrub species will also be made during periods of dry weather to ensure that they are not affected by drought and in order to conduct pruning as required. It should be noted that pruning will be undertaken outside of the main bird nesting season wherever possible, or otherwise preceded by a check for nesting birds.

3.17 From Year 3 (post completion of new shrub planting), areas of shrub will be subject to rotational management to remove overly dominant species and to prevent encroachment of this habitat type into the retained grassland areas.

3.18 Shrub management will be via mechanical means and will be undertaken with due regard to the presence of protected species such as reptiles and nesting birds (with appropriate methodologies adopted as required).

Hedgerow

3.19 New planting of native hedgerow specimens within the existing retained hedgerows will be undertaken in order to bolster thinner or sparsely vegetated sections. It is recommended that the hedgerows are planted with native species of local provenance such as Hawthorn, Blackthorn, Holly and Dog Rose *Rosa canina*.

3.20 Again, regular health checks will be made during periods of dry weather to ensure that they are not affected by drought and in order to conduct pruning of dead / damaged branches as required. Any dead or dying specimens will be replaced as soon as possible and the structural integrity of any boundary hedgerows maintain throughout to prevent unplanned pathways being established into ecologically sensitive locations in the wider area.

3.21 From Year 10 (post planting), and on a 10 year cycle from thereon, new areas of hedgerow planting will be subject to small scale thinning, where required, to remove unhealthy specimens and encourage new growth.

3.22 It should be noted that hedgerow management will be undertaken for sound ecological reasons only (with the exception of where health and safety concerns are present) and the ambition will be to encourage a structurally diverse habitat.

3.23 Within the areas of hedgerow, log and brash piles will be established using timber taken from on-going management. All dead wood produced in the future will either be removed from site or be retained as refuges for fauna utilising the site.

Tree planting

3.24 Tree belts across the development site are to be retained with additional new tree planting proposed. This habitat will be subject to appropriate management going forward, management principles for these habitats are detailed below.

3.25 Protective fencing shall surround all areas of retained woodland prior to the commencement of construction and will be retained for the duration of works. Fencing shall be undertaken in accordance with the current British Standard (BS 5837:2012) to protect roots from compaction. This shall ensure that direct impacts and severance / asphyxiation of roots are avoided.

3.26 During the construction phase, all areas of woodland will be subject to works to remove non-native, diseased and overly dominant or aggressive species as well as those that present any health and safety issues. Initial clearance works will again be overseen by a suitably qualified ecologist, where required, in order to ensure that the biodiversity value of these habitats can be maximised.

3.27 Subsequent to this initial clearance, annual monitoring surveys of the woodland will be conducted, with works undertaken to remove invasive and aggressive flora where required.

3.28 Retained trees are to be subject to appropriate arboriculture works in the construction phase where required (prior to first occupation of the development). These works, to include pruning and crown lifting, will seek to help prolong tree life and make them safe. Where any works are considered to have the potential to impact roosting bats, appropriate precautionary measures (as set out by a suitably qualified ecologist) will be taken to ensure no significant adverse impacts are realised (see faunal section below).

3.29 Regular health checks of these newly planted tree species will also be made during periods of dry weather to ensure that they are not affected by drought and in order to conduct pruning as required. It should be noted that pruning will be undertaken outside of the main bird nesting season wherever possible (or otherwise preceded by a check for nesting birds) and for sound ecological reasons only.

3.30 Tree belt and standard tree management will be via mechanical means and will be undertaken with due regard to the presence of protected species such as bats and nesting birds (with appropriate methodologies adopted as required).

3.31 New native planting of tree specimens within the woodland belt will be undertaken in the initial construction phase in order to bolster thinner or sparsely vegetated sections of the woodland belt and therefore provide a more contiguous area of woodland.

3.32 Again, regular health checks will be made during periods of dry weather to ensure that they are not affected by drought and in order to conduct pruning of dead / damaged branches as required.

3.33 From Year 10 (post planting), and on a 10 year cycle from thereon, new areas of tree planting will be subject to small scale thinning, where required, to remove unhealthy specimens and encourage the growth of retained trees. Management of the more mature existing woodland will also take place at these times, as required, to enhance structural diversity and retain opportunities for a range of floral and faunal groups.

3.34 It should be noted that tree management will be undertaken for sound ecological reasons only (with the exception of where health and safety concerns are present) and the ambition will be to encourage a structurally diverse habitat. Where possible, standing deadwood should be retained on site as this habitat provides important opportunities for a range of saproxylic invertebrate species as well as potential roosting habitat for bats.

SuDS features

3.35 The development proposals include for the provision of a pond within the areas of open space to the southeast. The proposed locations of these SuDS features are detailed at Appendix 2.

3.36 The ponds will be planted with a mix of native emergent and aquatic species that are appropriate for the size of the pond. The pond will be

subject to appropriate management to ensure that no one species comes to dominate.

3.37 The SuDS pond will be plug planted with a unique range of aquatic species such that each may support a different floral community once established.

3.38 If possible materials from local water sources such as nearby ponds will be used to inoculate the new pond to expedite the establishment of the pond.

3.39 Ponds will be monitored regularly during the establishment period (6 months) with dead or diseased specimens replaced where required. Following this establishment period, ponds will be monitored on an annual basis to ensure that a desirable range of aquatic species are retained.

3.40 Dredging/desilting, vegetation clearance and mowing works will be undertaken on a rotational basis as required to ensure that these features continue to function efficiently (both as drainage and biodiversity features).

3.41 Where swales are proposed, these areas will be seeded with a mix such as Emorsgate Seeds' Meadow Mixture for Wetlands (EM8), a native, species-rich seed mixture well suited to wet soil types.

3.42 Prior to sowing within areas of swale, a weed free seed bed will be prepared with a medium to fine tilth. Seed will be sown in rows or patches on the surface of these weed free areas, with the surface being subsequently firmed to allow for sufficient seed to soil contact.

3.43 Management of these swards in the first year will involve regular maintenance in order to ensure that seedling development is successful and that the growth of competitive weed species is controlled. Where required, weeding will be undertaken by hand.

3.44 Subsequent to management in Year 1, the cutting of this grassland will be incorporated into the management regime for the wider areas of retained grassland. This will encourage existing floral species to become established within the new grassland type. It is recommended that cutting is avoided in spring and early summer if the seeds are autumn sown. The grassland should be allowed to flower with a late summer cut and removal of the vegetation. Management in subsequent years will follow traditional meadow management with a main summer hay cut in combination with an autumn and possibly spring mowing or grazing.

3.45 Management of these wetland habitats once established will include quarterly inspections for the presence of litter and general debris and any other sources which may introduce pollutants into the water. Litter and debris would be removed by hand and taken off-site.

3.46 Should dredging works require the use of a plant or vehicle, careful consideration will be given as to how these will access the SuDS features whilst avoiding potential impacts on ecological features. A

detailed avoidance strategy would be developed in consultation with a suitably qualified and experienced ecologist prior to such any works.

Objective 2: Maintain Population of Protected Species at a Favourable Conservation Status

3.47 The creation and retention of habitats of ecological value, in addition to the introduction of a management regime for these areas, will provide for a net enhancement in the quality of habitats present on site compared to the existing situation. This will be of benefit to key species / groups including bats and birds.

3.48 The creation of public open space, such as the open play areas and a village green, both of which will be planted with native species and wildlife beneficial species, will provide additional habitat which will further support and enhance the opportunities available to these protected species groups.

Bats

3.49 Inspections of the structures and all of the trees identified with bat potential within the site did not identify any evidence of roosting bats.

3.50 Should any trees be subject to works (either within the construction phase or at later stages of the operational phase) that are identified as having potential to support roosting bats, further survey effort will first be completed in the form of tree climbing or bat emergence surveys to confirm the presence or absence of roosting bats.

3.51 Should a bat roost be identified in a building or tree, works to the feature will be postponed and a European Protected Species Licence be sought from Natural England.

3.52 Specific activity surveys for bats identified the hedgerows along the southern and western boundary to provide an important navigational and foraging resource for bats, within the context of the site.

3.53 As detailed previously, the hedgerows (and tree belts) at boundary are to be retained and enhanced, to provide a more robust linear feature which in turn will provide an improved navigational resource for commuting bats.

3.54 The provision of wildflower grassland, new shrub planting and waterbodies, the onset of a suitable management regime to enhance retained and newly habitats will provide enhancements in terms of foraging opportunities for this faunal group.

3.55 The vast majority of the areas of open space will not be subject to any direct artificial lighting as a result of the development proposals. Light spill will be minimised to areas of the development where illumination is required only, using appropriate means such as hoods and cowls where necessary. This will enable lighting within the development to accord with highways requirements whilst retaining dark areas for use by foraging and commuting bats within and at the boundaries of the proposed development.

3.56 In addition a total of 10 Schwegler 1FF type bat boxes will be installed onto retained mature trees within the site in order to provide new roosting opportunities for bats. It is considered that the provision of these roosting features in suitable locations (in close proximity to vegetated corridors and where artificial lighting will be kept to a minimum) will provide a significant net enhancement in roosting opportunities within the site. Specifications of Schwegler 1FF type bat boxes are appended at Appendix 3

Birds

3.57 Birds will benefit from the provision and enhancement of habitats within the proposed receptor area in addition to the shrub planting within the areas of open space associated with the development.

3.58 As detailed in previous sections of this document, management of all habitats will be undertaken with due consideration for potential use by nesting birds. Clearance of nesting habitat during the construction phase will be undertaken outside of the nesting season (March – July inclusive) wherever possible. Where this is not possible, the development site will be surveyed by an experienced ecologist prior to works taking place and any nests recorded will remain untouched until the young have fledged. A protection zone with a 10m radius will be demarcated around the nest and fenced off using Heras fencing where a nest is discovered in a hedgerow or tree or left simply as a 10m buffer in the case of a nest discovered within grassland. No development activity will encroach upon the protection zone and contractors will be made aware of their responsibilities in this regard.

3.59 A total of 6 Schwegler 1B and 6 Schwegler 2M type bird nest boxes are to be installed on retained mature trees in suitable locations around the site. These boxes will mitigate the minor losses to hedgerow and scrub lost to development and furthermore provides an enhancement above the existing situation. Specifications of Schwegler bird boxes are appended at Appendix 4

3.60 The above nest boxes will be cleaned once a year (outside of the bird nesting season) by the appointed management company and any damaged boxes will be repaired or replaced as and when necessary.

3.61 The provision of these boxes will result in a net enhancement in the number of nesting opportunities present within the site for birds post development.

Objective 3: Increase Biodiversity by Maximising Opportunities for Flora and Fauna

3.62 The instigation of the various management regimes presented within this report will ensure the long-term enhancement and preservation of key habitats shown to be of value within the site. Whilst the retention of these habitats in the long term will ensure continued and enhanced opportunities for all faunal groups identified within the site, the proposed management will be of particular importance to maintaining the favourable conservation of bat and breeding birds. The long-term

conservation status of these protected species groups being reliant on the continued presence of the key habitats.

3.63 The long term management of the hedgerows and tree belts along boundaries and throughout the site include bolster planting and management that will provide enhanced opportunities for the development of native ground flora. Whilst also providing enhanced opportunities for bats (commuting and foraging), birds (nesting and foraging) and invertebrates (foraging and breeding).

3.64 The swale and wet pond habitats associated with the SuDS will be managed where possible to increase the biodiversity of the habitat in the long term.

3.65 A wide range of bat boxes and bird nesting boxes will be provided on suitable retained trees and new buildings both within the retained ecology areas and within the public open space associated with the main development footprint.

Management Constraints

3.66 Management cannot be undertaken which compromises the survival or success of the species listed above. This will ensure conformance with relevant legislation relating to protected species.

3.67 All birds are legally protected from disturbance whilst actively nesting (generally March to July inclusive). Management of long grass/ruderal, scrub and trees should therefore be undertaken outside of the bird breeding season wherever possible (or otherwise be preceded by a check for nesting birds).

4. MONITORING AND MANAGEMENT RESPONSIBILITIES

Personnel Responsible for Implementation of the Plan

4.1 Responsibility for implementation of this ECERS, as well as for its continuation in perpetuity, will be placed with a dedicated management company (to be appointed by the local council who are adopting the public open space) who will ensure that management undertaken at the site complies with the prescriptions as set out in this document.

4.2 This management company will be responsible for the completion of duties set out within the ECERS.

4.3 Where required, Ecology Solutions or another suitably qualified ecologist, will be appointed to advise on any specific questions or queries in regards to any issues regarding ecology or nature conservation which may arise. Suitably qualified ecologists will also be appointed to oversee any required works (as detailed for *Objectives 1* and *2* of this document) as well as undertake post construction monitoring surveys as required.

Five Yearly Project Register

4.4 Whilst minor iterations to the management regime will be instigated as required following annual monitoring of the site, it is proposed that a more formal review will be commenced every fifth year post-completion of the Phase 1 development.

4.5 This review will include consideration of continuing management activities, allowing areas of concern or of significant ecological change to be identified and addressed, in order to maximise the biodiversity value of the new and retained habitats within the site.

4.6 Any required amendments set out in forthcoming reviews of the ECERS will be discussed and agreed with the local planning authority.

Monitoring and Remedial / Contingency Measures triggered by Monitoring

4.7 It is considered that the mitigation and enhancement measures as set out in this document will allow for long term ecological enhancements to be realised to the retained habitats within the site and the receptor area.

4.8 Moreover, it is proposed that a suite of ecological surveys, repeating those undertaken for the purpose of the Environmental Statement, will be undertaken (by a suitably qualified ecologist) in years 3 (prior to completion of overall site) and 7 (following completion of wider development), following the construction of the ecology area.

4.9 These proposed surveys will seek to update the ecological baseline for the site, with results used to guide future management iterations within the ECERS.

4.10 Annual monitoring checks shall be undertaken to highlight any site specific problems (such as disease or damage to flora or the presence

of invasive species) or to identify problems associated with past management regimes. Upon identification of such issues, suitable remedial works will be implemented.

4.11 It is considered that these checks need not be undertaken by a qualified ecologist and could instead be undertaken by the Management Body employed to undertake the duties prescribed elsewhere in the ECERS.

4.12 It is noted that there may be occasions when felling or remedial measures (e.g. from a health and safety perspective) will be required in respect of hedgerows. Where any features which could be used by nesting birds are to be subject to works within the main bird breeding season (March to July inclusive), pre-commencement checks should be made by an appropriately qualified ecologist.

5. SCHEDULE OF WORKS

Objective	Receptor	Management Prescription	Timing of Works	Commencement, Frequency and Duration of Works
1. MAINTAIN AND ENHANCE RETAINED AND CREATED HABITATS	Grassland	Sowing of seeds mixes	Seed is best sown between Autumn and Spring.	Year 1
		Cutting	Undertaken in appropriate weather conditions annually in August to September. Cut to a height of approximately 150mm.	Annually
		Selective removal of aggressive and non-native specimens	Annually as required.	As required.
	Scrub/Shrub Planting	Planting to be provided within open space.	At an appropriate time during the construction phase once open space has been created.	When appropriate
		Health checks on newly planted specimens.	On a monthly basis for the first year.	Monitor on an annual basis thereafter.
		Pruning	Conduct outside of breeding bird season (March-August) where possible.	As required.
		Rotational management of shrub species to remove overly dominant species.	On year three following completion.	Every third year.
	Hedgerows	Bolster planting of hedgerows	To be undertaken when hedgerow is dormant (i.e. autumn, winter or spring).	Construction Phase
		Health Checks	To be undertaken during periods of dry weather	As required.
		Small scale thinning.	From year 5 (post planting).	On a 5 year cycle from thereon.
	SuDS	Planting of marginal vegetation within the SuDS	To be undertaken during spring and autumn.	As required thereafter (i.e. if specimens are lost)

		features		
		Monitoring of the ponds during the establishment period	During the first 6 months following the planting of the SuDS.	On an annual basis thereafter.
		Dredging of the SuDS on a rotational basis.	To be undertaken as required, however preferably in winter.	As required.
		Sowing of seed mix in swales in close proximity to the SuDS.	Sowing on ground prone to winter flooding is best either in the early autumn or in spring once the land has drained.	Management of newly seeded areas will require regular maintenance in the first year to ensure successful seedling development.
		Cutting of wet grassland	Avoid initial cutting in spring and early summer if the seeds are autumn sown.	Hay cuts made annually in August thereafter to a height of 50mm with additional cuts in late autumn and spring if needed.
		Inspections for the presence of litter	Inspections on a quarterly basis.	Inspections on a quarterly basis, however, if litter becomes prevalent inspections will be increased to a monthly basis.
2. MAINTAIN POPULATIONS OF PROTECTED SPECIES AT A FAVOURABLE CONSERVATION STATUS	Bats	Removal of bat potential tree	Prior to removal	Prior to removal
		Provision of Schewegler bat boxes	post construction	post construction
	Birds	Provision and maintenance of suitable nesting habitat in the form hedgerow, scrub and tree	Annual management (see relevant habitats above)	Annually.

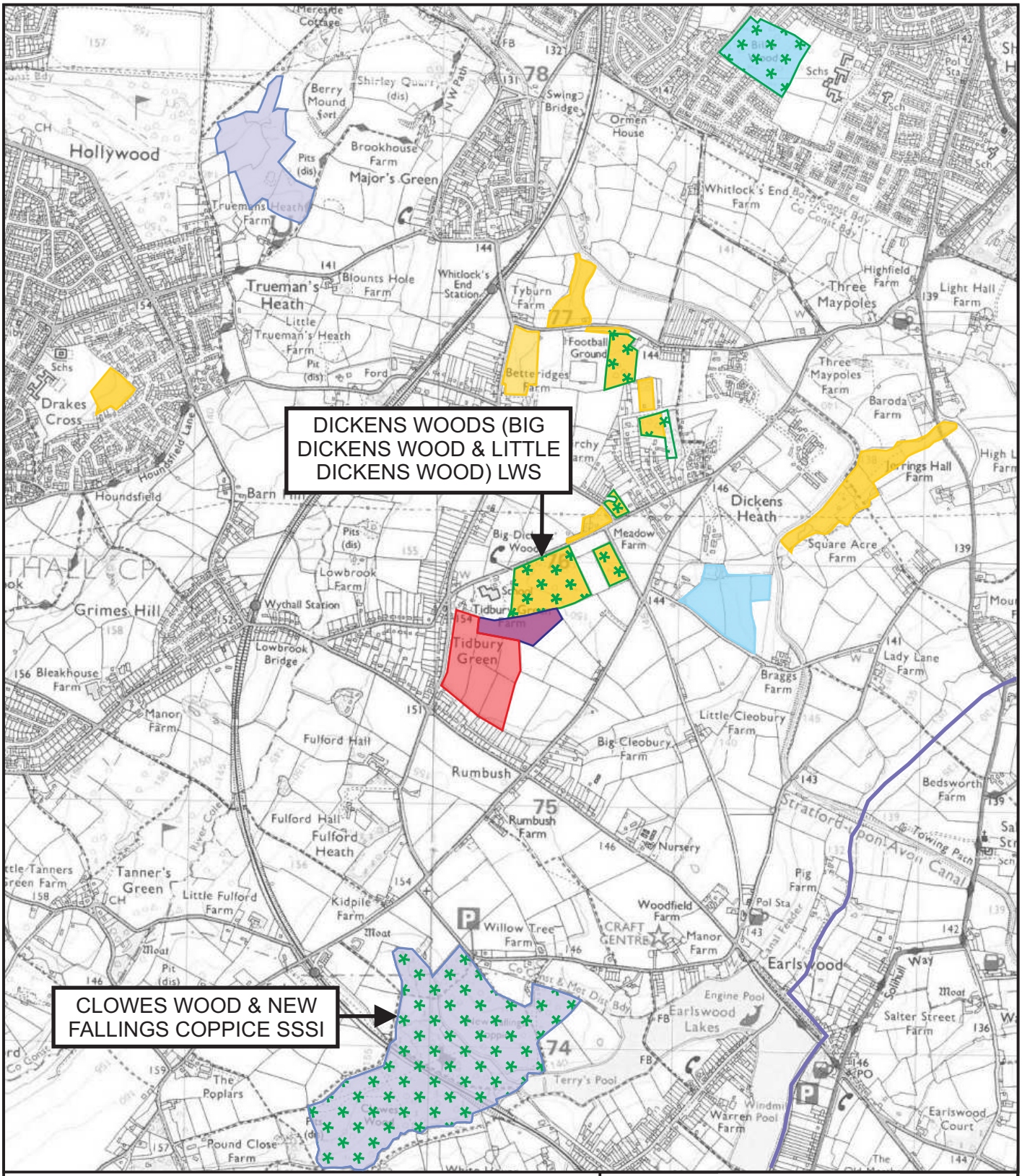
		Installation of a protected 10m buffer zone in the event a nest is discovered.	To be set in place until the young have fledged.	Until the young have fledged.
		Provision of Schwegler bird nest boxes.	Post construction	Following construction. Boxes to be cleaned on an annual basis outside of the bird nesting season.
3. INCREASE BIODIVERSITY BY MAXIMISING OPPORTUNITIES FOR FLORA AND FAUNA		Ongoing management of the areas of open space to ensure enhanced opportunities for range of faunal groups.	25% cut annually on a 4 year rotation.	25% cut once annually.
		Ongoing management of grasslands within open space area	As specified above	As specified above
		Maintenance of bat bird boxes upon retained trees	Annual checks	Annually
		Further annual habitat management as detailed above which will increase the biodiversity value of the new development over time.	As applicable (see above)	Annually

PLANS AND APPENDICES

PLANS

PLAN ECO1

Site Location Plan



KEY:

- APPLICATION SITE
- SITE OF SPECIAL SCIENTIFIC INTEREST (SSSI)
- LOCAL NATURE RESERVE (LNR)
- LOCAL WILDLIFE SITE (LWS)
- ANCIENT AND SEMI-NATURAL WOODLAND
- REJECTED LWS

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ecology solutions ltd

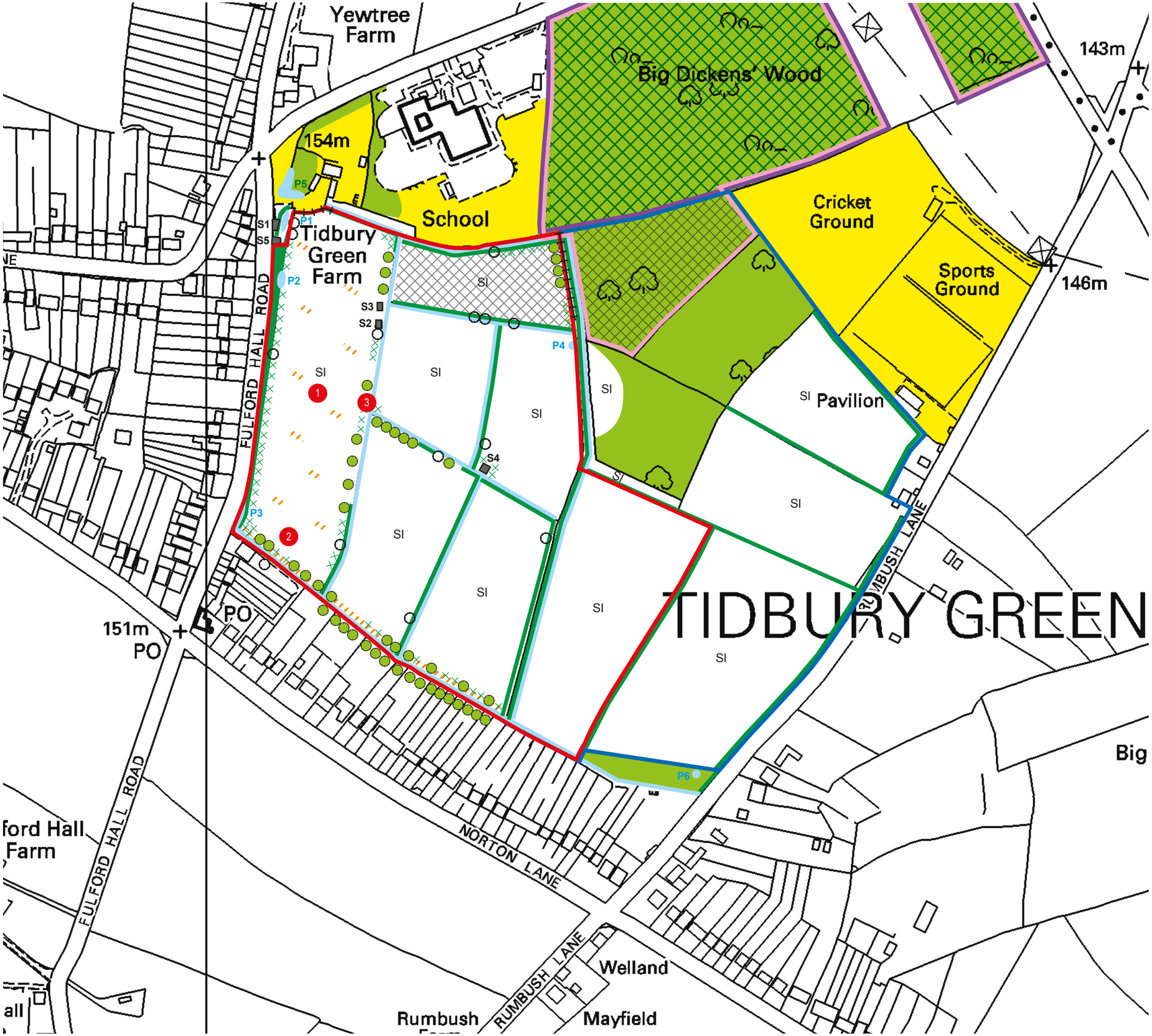
7070: TIDBURY GREEN, SOLIHULL

PLAN ECO1:
APPEAL SITE LOCATION & ECOLOGICAL DESIGNATIONS

APPENDICES

APPENDIX 1

Waterman EED Habitat Features Plan



Waterman
Energy, Environment & Design

- Redline Boundary
- Land also within Clients Ownership (not subject to detailed survey)
- S1 Built Structure and Number
- SI Semi-improved Grassland
- Ruderal Vegetation
- Scrub
- TPO Trees
- Hedgerows with Scattered Trees
- Scattered Trees
- Trees with Bat Roosting Potential
- P1 Pond and Number
- Ditch
- Fence
- Amenity Grassland
- Woodland
- Ancient Woodland
- Ecosite
- LWS
- Rejected LWS
- 1 Target Note

N

Project Details	EED13122-100: Tidbury Green
Figure Title	Figure 1: Habitat Features Plan (Indicative)
Figure Ref	EED13122-100_GR_EC_1C
Date	September 2013
File Location	\\nt-lncs\weedl\projects\eed13122\100\graphics\ec\issued figures

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APPENDIX 2

Illustrative Landscape Masterplan

Planing Proposals

Primary Avenue Tree Planting

	Stock	Height (cm)	Girth (cm)
Acer platanoides 'Emerald Queen'	SM	600 +	20/25
Acer platanoides 'Autumn Blaze'	SM	600 +	20/25
Pyrus calleryana 'Chanticleer'	EHStd	425/650	14/16-18/20

Secondary Avenue Tree Planting

Carpinus betulus 'Frans Fontaine'	EHStd	425/650	14/16-18/20
Corylus colurna	EHStd	425/650	14/16-18/20

Feature Tree Planting

Quercus rubra	SM	600 +	20/25
Liquidambar styraciflua	SM	600 +	20/25
Prunus avium 'Plena'	SM	600 +	20/25
Acer campestre 'Elsrijk'	SM	600 +	20/25
Liriodendron tulipifera	SM	600 +	20/25

Street Tree Planting

Carpinus betulus 'Frans Fontaine'	EHStd	425/450	14/16
Malus tschonoskii	EHStd	425/450	14/16
Pyrus calleryana 'Chanticleer'	EHStd	425/450	14/16

Garden Tree Planting

Betula pendula	HStd-EHStd	350/600	12/14-14/16
Malus 'Golden Hornet'	HStd-EHStd	350/600	12/14-14/16
Sorbus aucuparia	HStd-EHStd	350/600	12/14-14/16
Sorbus aria	HStd-EHStd	350/600	12/14-14/16

Structural Tree Planting

	Stock	Height (cm)	Girth (cm)
Acer campestre	Std-HStd	250/425	12/14-14/16
Betula pendula	Std-HStd	250/425	12/14-14/16
Fagus sylvatica	Std-HStd	250/425	12/14-14/16
Malus sylvestris	Std-HStd	250/425	12/14-14/16
Quercus robur	Std-HStd	250/425	12/14-14/16
Sorbus aucuparia	Std-HStd	250/425	12/14-14/16

All trees to be planted in accordance with the implementation and maintenance guidelines. The tree planting schedule and landscape proposals must be referred to by the Structural Engineer during foundation design. No tree species, size or location should be altered without prior approval from the Landscape Architect.

Ornamental Hedge Planting

	Stock	Height (cm)	Ctrs (m)
Elaeagnus x ebbingei	5L-10L	60/80	0.50
Hebe 'Marjorie	5L	40/60	0.40
Prunus lusitanica	10L	80/100	0.50
Rosmarinus officinalis	5L	40/60	0.40
Viburnum tinus 'Eve Price'	5L-10L	40/60	0.50

All hedging to be planted in accordance with the implementation and maintenance guidelines. No shrub species, size or location should be altered without prior approval from the Landscape Architect.

Specimen Shrub Planting

	Stock	Height (cm)	Habit
Mahonia x media 'Winter Sun'	15L	125/150	Leaders
Phormium tenax 'Jester'	25L	80/100	Triple crn
Phormium tenax 'Sundowner'	25L	80/100	Triple crn
Photinia fraseri 'Red Robin'	70L	200/225	1/2 Std

Ornamental Shrub Planting

	Stock	Height (cm)	Ctrs (m)
Bergenia cordifolia	3L	-	0.50
Aucuba japonica	10L	40/60	0.75
Buddleia davidii	3L	40/60	0.75
Choisya 'Aztec Pearl'	10L	40/60	0.70
Choisya ternata	10L	40/60	0.75
Cornus alba	3L	60/80	0.75
Cornus sanguinea	3L	60/80	0.75
Euonymus 'Emerald Gaiety'	10L	30/40	0.60
Hebe 'Mrs Winder'	10L	40/60	0.70
Hebe pinguifolia 'Sutherlandii'	10L	40/60	0.70
Heuchera 'Palace Purple'	3L	-	0.50
Hypericum 'Hidcote'	10L	40/60	0.75
Lavandula angustifolia 'Munstead'	10L	40/60	0.60
Lonicera 'Baggesen's Gold'	10L	40/60	0.70
Prunus laurocerasus 'Otto Luyken'	10L	60/80	0.70
Ribes sanguineum	5L	40/60	0.75
Rosmarinus officinalis	10L	40/60	0.70
Symphoricarpos 'Hancock'	5L	40/60	0.70
Viburnum tinus 'Eve Price'	10L	40/60	0.75

All shrubs to be planted in accordance with the implementation and maintenance guidelines. More ornamental shrub species will be utilised within the POS at interfaces with play areas. Detail design drawing will provide information. No shrub species, size or location should be altered without prior approval from the Landscape Architect.

POS Shrub Species

	Stock	Height (cm)	Ctrs (m)
Acer campestre	1+1	60/80	1.00
Cornus alba	1+1	60/80	1.00
Cornus sanguinea	1+1	60/80	1.00
Corylus avellana	1+1	60/80	1.00
Crataegus monogyna	1+1	60/80	1.00
Ilex aquifolium	2L	60/80	1.00
Prunus spinosa	1+1	60/80	1.00
Rosa canina	1+1	60/80	1.00

Native Boundary Hedge Species

	Stock	Height (cm)	Mix (%)
Corylus avellana	1+1	60/80	10
Crataegus monogyna	1+1	60/80	40
Ilex aquifolium	2L	60/80	15
Prunus spinosa	1+1	60/80	25
Rosa canina	1+1	60/80	10

All hedging to be planted 30cm apart on a double staggered row with no less than 6 per linear metre and in accordance with the implementation and maintenance guidelines. No shrub species, size or location should be altered without prior approval from the Landscape Architect.

1 Existing hedgerows and ditch courses to be retained and brought under effective management

2 New areas of permanent water are to be design to create a valuable species rich habitat

3 New areas of meadow grassland are to be managed to secure increased biodiversity alongside an attractive leisure resource

4 Fruit tree are to be incorporated within the open space for increased nectar and foraging value

north

0m 10m 20m 30m 40m 50m

Planing Proposals (cont)

Aquatic/Marginal Species

Water Plantain	*Alisma plantago-aquatica*
Frogbit	*Hydrocharis morsus-ranae*
Bogbean	*Menyanthes trifoliata*
Amphibious Bistort	*Polygonum amphibium*
Arrowhead	*Sagittaria sagitifolia*
Yellow Iris	*Iris pseudacorus*
Flowering Rush	*Butomus umbellatus*
Common Reed	*Phragmites arundinacea*
Branched Bur-reed	*Sparganium erectum*
Common Reedmace	*Typha latifolia*
Water-crowfoot	*Ranunculus aquatilis*
Lesser Spearwort	*Ranunculus flammula*
Water Forget-me-not	*Myosotis scorpioides*
Water Mint	*Mentha aquatica*
Nodding Bur-marigold	*Bidens cernua*
Trifid Bur-marigold	*Bidens tripartita*
Marsh Pennywort	*Hydrocotyle vulgaris*
Toad Rush	*Juncus bufonius*
Water Purslane	*Peplis portula*
Celery-leaved Buttercup	*Ranunculus scleratus*
Golden Dock	*Rumex maritimus*
Marsh Dock	*Rumex palustris*
Brooklime	*Veronica beccabunga*
Wild Angelica	*Angelica sylvestris*
Marsh Marigold	*Caltha palustris*
Marsh Cinquefoil	*Potentilla palustris*
Hemp Agrimony	*Eupatorium cannabinum*
Meadowsweet	*Filipendula ulmaria*
europaeus	*Gypsywort Lycopus*
Purple Loosestrife	*Lythrum salicaria*
Water Figwort	*Scrophularia auriculata*
Ragged Robin	*Lychnis flos-cuculi*
Devil's-bit Scabious	*Succisa pratensis*

All aquatic and marginal stock to be specified as suitable plug/cell/root trainer stock per specie. If achievable local pond material can be sourced to innoculate pond banks from a nearby water body with appropriate species through the Local Authority or Local Wildlife Trust.

Mixed Species Grassland

With the development site retained areas of grassland alongside hedgerows and mature tree cover are to be managed as a transitional grass sward and seeded with an appropriate mix such as, Emorsgate EH1 - Hedgerow Mixture.

Areas of seasonally flooding grassland within the proposed attenuation ponds are to be sown with an appropriate mixture such as, Emorsgate EG8 - Meadow Grassland for Wetlands.

Grassland with the proposed open space is the be seeded with a general purpose wildflower seed mix such as, Emorsgate EM1 - General Purpose Meadow Mix

5 The new play facility will provide a more natural recreation and fitness experience for toddlers and juniors

Key

- Existing tree cover to be retained and reinforced through new planting measures
- Existing hedgerows to be retained and brought under effective management alongside associated ditch cources
- Proposed housing
- Proposed highways
- Proposed areas of feature paving to highlight junctions. private driveways, parking areas and lanes
- Proposed pumping station
- Proposed primary avenue tree planting
- Proposed secondary avenue/feature street tree planting
- Proposed street tree planting
- Proposed rear garden tree planting
- Open space feature tree planting
- Proposed structural native tree planting
- Proposed fruit tree planting
- Proposed leisure routes specified as bound gravel surface
- Proposed natural play facilities
- Proposed sustainable drainage features

Project
Fulford Hall Road
Tidbury Green

Drawing title
Landscape Masterplan

Client
Bellway Homes West Midlands

Scale: 1:1000 @ A0
Checked: SG
Date: 14/06/2016
Number/Figure: GL0620 01

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APPENDIX 3

Bat Box Specifications

Bat Boxes

Schwegler bat boxes are made from ‘woodcrete’ and have the highest rates of occupation of all types of box.
The 75% wood sawdust, clay and concrete mixture is ideal, being durable whilst allowing natural respiration and temperature stability. These boxes are rot and predator proof and extremely long lasting.
Boxes can be hung from a branch near the tree trunk or fixed using ‘tree-friendly’ aluminum nails.

1FF Bat Box

The rectangular shape makes the 1FF suitable for attaching to the sides of buildings or in sites such as bridges, though it may also be used on trees. It has a narrow crevice-like internal space to attract Pipistrelle and Noctule bats.

Woodcrete (75% wood sawdust, concrete and clay mixture)
Width: 27cm
Height: 43cm
Weight: 8.3kg

APPENDIX 4

Bird Box Specifications

Bird Boxes

Schwegler bird boxes have the highest rates of occupation of all types of box.
They are designed to mimic natural nest sites and provide a stable environment with the right thermal properties for chick rearing and winter roosting.
Boxes are made from 'Woodcrete'. This 75% wood sawdust, clay and concrete mixture is breathable and very durable making these bird boxes extremely long lasting.

1B Bird Box

This is the most popular box for garden birds and appeals to a wide range of species. The box can be hung from a branch or nailed to the trunk of a tree with a 'tree-friendly' aluminium nail.

Available in four colours and three entrance hole sizes. 26mm for small tits, 32mm standard size and oval, for redstarts.

2M Bird Box

A free-hanging box offering greater protection from predators.

Supplied complete with hanger which loops and fastens around a branch.

With standard general-purpose 32mm diameter entrance hole.

Schwegler boxes have the highest occupation rates of all box types. They are carefully designed to mimic natural nest sites and provide a stable environment for chick rearing and winter roosting. They can be expected to last 25 years or more without maintenance.

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