



BELLWAY HOMES LIMITED  
(SOUTH LONDON)

HASSOCKS GOLF COURSE,  
HASSOCKS,  
WEST SUSSEX

**Ecological Management  
and Mitigation Plan**

Pursuant to Condition 12  
Planning ref: DM/18/2616

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## 1. INTRODUCTION & BACKGROUND

- 1.1 This Ecological and Enhancement Management Plan (EMMP) has been prepared by Ecology Solutions on behalf of Bellway Homes (South London) in respect of the land at Hassocks Golf Course, Hassocks, West Sussex (see Plan ECO1). Planning permission for the redevelopment of the site comprising residential units and associated landscaping and infrastructure has been granted (planning ref: DM/18/2616) subject to conditions. Of these, Condition 12 relates to nature conservation and states:

**No development shall commence until the following details have been submitted to, and approved by, the local planning authority:**

**- a construction-phase wildlife and habitat protection and mitigation plan, which may be incorporated into a Construction Environment Management Plan (CEMP);  
- a habitat enhancement and long-term management plan including overarching aims, details of body responsible for implementation, funding arrangements and monitoring. It shall include provision for a five-year rolling action plan; and  
- a wildlife-sensitive lighting plan demonstrating how light pollution of habitats will be avoided, supported by modelled lux levels.**

**The approved details shall be prepared in accordance with BS42020: 2013 Biodiversity Code of Practice for Planning and Development and be implemented in full unless otherwise approved in writing by the local planning authority.**

**Reason: to ensure that the proposals avoid adverse impacts on protected and priority species and contribute to a net gain in biodiversity, in accordance with DP38 of the District Plan and paragraph 175 of the NPPF.**

- 1.2 This report sets out the protection and management of features of ecological interest due to be retained and created, and describes the wildlife enhancements and mitigation strategies to be implemented.
- 1.3 Ecology Solutions have consulted with the landscape architects Allen Pyke throughout the design of the scheme to ensure that the landscape scheme, maintenance and management realise the objectives of this EMMP from an ecology and nature conservation perspective and achieve net gains in biodiversity in the submission documents.
- 1.4 This EMMP has been written with reference to published guidance from the Chartered Institute of Ecology and Environmental Management (CIEEM)<sup>1</sup> and in accordance with Natural England guidelines for protected species and British Standard BS42020:2013 Biodiversity Code of Practice for Planning and Development.
- 1.5 The document is set out as follows:
- Ecological baseline and evaluation of important features within the site;
  - Objectives of the EMMP in order to maximise the ecological potential of features due to be retained within the site;
  - Management prescriptions in order to achieve objectives. These include any monitoring requirements; and

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<sup>1</sup>CIEEM (2018). *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal*. 2nd Edition. Chartered Institute of Ecology and Environmental Management, Winchester.

- The work program.

1.6 This EMMP builds upon the details that was submitted in Ecology Solutions' Ecological Assessment<sup>2</sup>, which set out the principal mitigation and enhancement measures that were to be secured by the redevelopment proposals. It is noted that Mike Bird of Calyx Environmental when consulted on the discharge of planning Condition 15 relating to planning application DM/16/1775 advised that the outline of mitigation and compensation measures appeared satisfactory. It should be noted that the wording of Condition 12 pursuant to this report, and the Condition 15 of the former planning consent at this site are similar and hence it is expected that building on the previous position that was confirmed as being satisfactory this EMMP will allow for Condition 12 to be discharged.

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<sup>2</sup> Ecology Solutions (2018) Hassocks Golf Course, West Sussex. *Ecological Assessment*. 7655.EcoAs.vf

## 2. ECOLOGICAL BASELINE AND EVALUATION

- 2.1 An extended Phase 1 habitat survey was undertaken by Stark Ecology Ltd in August 2014. The habitats and dominant plant species were recorded, together with conspicuous faunal activity and evidence of the presence, or potential presence, of protected species. A walkover of the site was undertaken by Ecology Solutions in January 2018 with subsequent targeted surveys with regards to protected species undertaken throughout 2018.
- 2.2 All of the species that occur in each habitat would not necessarily be detectable during survey work carried out at any given time of the year, since different species are apparent in different seasons. However, owing to the nature of the site, being largely managed amenity habitats, it is considered that the timing of the surveys allowed an accurate evaluation of the intrinsic interest to be made.
- 2.3 General faunal activity observed during the course of the initial surveys were recorded, whether visually or by call. Specific attention was paid to the potential presence of any protected, rare, notable or Biodiversity Action Plan species that could be present in the local area and have some reliance on habitats within the site.
- 2.4 Surveys undertaken in 2014 and 2015 by the previous ecological consultant included surveys for bats, Badger, Dormouse *Muscardinus avellanarius*, common reptiles and Great Crested Newt. Targeted Great Crested Newt *Triturus cristatus*, Badger *Meles meles* and bat emergence / re-entry surveys were completed in 2018 by Ecology Solutions in accordance with standard survey guidelines to update previous survey information, details of which are found within the Ecological Assessment<sup>2</sup>.

### Results

#### *Ecological Features*

- 2.5 The following main habitat / vegetation types were identified within the site or immediately adjacent and considered to be present in the zone of influence for the proposed development:
- Amenity Grassland;
  - Semi-improved Grassland;
  - Hedgerows with Trees;
  - Scrub;
  - Broadleaved Semi-Natural Woodland;
  - Waterbodies;
  - Buildings and
  - Hardstanding.
- 2.6 The location of these habitats is shown on Plan ECO2 'Ecological Features'. The main body of the site is a golf course that comprises regularly managed amenity grassland with limited floristic diversity. Further details of the habitats on site are set out in Stark Ecology's Extended Phase 1 Ecological Survey dated May 2015. The walkover by Ecology Solutions in 2018 did not record any significant changes to the habitats present on site.

## Wildlife Use of the Site

- 2.7 General observations were made, during the initial surveys in 2014 and subsequent surveys in 2018, of any faunal use of the site with specific attention paid to the potential presence of protected or notable species. Specific surveys have been completed by Ecology Solutions in respect of Badger and Great Crested Newt.

### *Badgers*

- 2.8 No evidence of Badger has been recorded within the site but on account of the habitats present, access to the wider countryside and the behaviour of this highly mobile species it is considered that some use of the site for dispersal and foraging purposes could occur.

### *Bats*

- 2.9 Targeted bat surveys were completed in 2014. The surveys included internal and external surveys of the club-house together with emergence and dawn re-entry surveys. There are some limitations with the emergence and re-entry surveys undertaken, with these being completed in September and across the same night. This is considered to be a departure from current survey guidelines, with the surveys completed across a short period and towards the end of the bat active season.
- 2.10 Given the age and limitations of the data on bats Ecology Solutions undertook updated surveys in May, June and August 2018.
- 2.11 A total of five semi-mature to mature trees were recorded as having suitable bat roosting features during the course of the surveys completed by Stark Ecology Ltd. These trees were re-assessed by Ecology Solutions in May 2018 with it concurred that low to medium suitability was present in a number of Oak trees within the site. The trees are to be retained as part of the proposed development but should this position change or the trees require arboriculture management then further investigations and mitigation measures may be required.
- 2.12 The specific emergence and dawn re-entry surveys, bolstered by automated bat detectors placed within the loft void of the club-house, did not record any evidence of a bat roost in 2018 and no emergences from the buildings on site were recorded during the emergence and dawn surveys.
- 2.13 The following bat species have been recorded within the site during the course of the surveys completed by Stark Ecology and Ecology Solutions; Common Pipistrelle *Pipistrellus pipistrellus*, Soprano Pipistrelle *Pipistrellus pygmaeus*, Nathusius Pipistrelle *Pipistrellus nathusii*, Noctule *Nyctalus noctula*, Brown Long-eared *Plecotus auritus*, and *Myotis* sp. Common Pipistrelle was the principal bat species recorded during the course of all surveys completed.
- 2.14 The habitats within the site present good potential commuting and foraging resources for bats, particularly around the ponds and site boundaries. The site is also in the vicinity of streams, woodland and open space which provide good foraging habitat in the wider context.

### *Birds*

- 2.15 Species recorded during the course of the surveys include Canada Geese *Branta canadensis*, Coot *Fulica atra*, Moorhen *Gallinula chloropus*, Mallard *Anas platyrhynchos*, Carrion Crow *Corvus corone*, Wood Pigeon *Columba palumbus*, Great Tit *Parus major*, Blue Tit *Cyanistes caeruleus*, Robin *Erithacus rubecula*, Goldfinch *Carduelis carduelis*, Wren *Troglodytes troglodytes*, Blackbird *Turdus merula*, Starling *Sturnus vulgaris* and House Sparrow *Passer domesticus*.
- 2.16 The site offers suitable habitats for nesting and foraging birds. The richer foraging habitats within the site, namely the wooded belts / hedgerows will be by and large retained and enhanced under the proposed development. The loss of poorer foraging areas including the areas of scrub, tall ruderal vegetation and amenity grassland will be offset by landscaping planting of high ecological value.

### *Reptiles*

- 2.17 The targeted common reptile surveys completed by Stark Ecology Ltd in 2015 recorded the presence of low populations of Grass Snake *Natrix Helvetica* and Slow-Worm *Anguis fragilis* to the south-west of the site.
- 2.18 A walkover of the site by Ecology Solutions confirmed the continued presence of suitable and limited opportunities within the site for this group. It is considered likely that a similar position in terms of reptile distribution and numbers would be present across the site, and hence no significant populations present within the site's boundary.
- 2.19 The majority of the site is considered to be largely unsuitable for common reptile species lacking the required vegetation cover / structure; although there are certain areas of the site that do offer opportunities for common reptiles, specifically the areas of more naturalised vegetation / grassland habitats near the ponds and areas of rough along the margins of the golf course's fairways and greens.

### *Great Crested Newts*

- 2.20 There are a number of waterbodies both and in the immediate vicinity of the site. Stark Ecology Ltd completed targeted aquatic surveys of the waterbodies in 2015 recording the presence of both low and medium Great Crested Newt populations in a number of the ponds.
- 2.21 Updated aquatic surveys have been completed by Ecology Solutions during 2018. These surveys have recorded a similar number of Great Crested Newts present within the site with an additional waterbody seen to support Great Crested Newts (ponds P4b, P5, P10 & P11). Overall, a peak count of 121 adult Great Crested Newts were recorded across the entire surveys area (both ponds within the site and those associated with the wider golf course) during any one visit. The findings show that on-site there is a medium population with a large meta-population across the entire survey area.
- 2.22 The proposed development shall directly affect two ponds recorded in 2018 as supporting Great Crested Newts (ponds P4b and P10); as well as areas of suitable terrestrial habitats that will be utilised by the local Great Crested Newt population.



- 2.23 On account of the loss of two breeding ponds, and areas of suitable foraging, refuge and dispersal habitat a European Protected Species (EPS) licence shall be secured from Natural England to facilitate the proposed development.

*Invertebrates*

- 2.24 The site is expected to support a range of common invertebrate species although there is no reason to expect any scarce or protected species to be present. The main entomological interest, within the context of the site, is likely to rest on the areas of more naturalised vegetation / grassland habitats near the ponds and areas of rough grassland along the margins of the golf course's fairways and greens, as well as the trees and scrub.

### **3. MANAGEMENT AIMS & OBJECTIVES**

- 3.1 The aims and objectives of the EMMP are to maintain and enhance features of ecological interest retained within the development, and specifically the adjacent area of open public space, whilst providing biodiversity enhancements.
- 3.2 Management represents an important component in these areas.
- 3.3 The following objectives have been identified:
- Objective 1: Protect, maintain and enhance retained and newly created habitats within the site;
  - Objective 2: Protect and maintain populations of protected species identified within the site area at a favourable conservation status; and
  - Objective 3: Increase biodiversity by maximising opportunities for flora and fauna.

#### **4. MANAGEMENT MEASURES**

- 4.1 The following protective safeguards and mitigation measures to be implemented during the course of the construction and operational phase to ensure all sensitive receptors (habitats and fauna) can be protected.
- 4.2 It shall be necessary for the principal contractor to ensure the various elements detailed within this section are taken forward in any further detailed CEMP.

##### **Ecologically Sensitive Areas**

- 4.3 A 'traffic light' system is to be used to classify the potential ecological risks and identified the habitats of heightened ecological sensitivity within and adjacent to the site.
- 4.4 The current status of the site with respect to the 'traffic light' system is detailed on Plan ECO4.
- 4.5 Red Zones - these will define the most ecologically sensitive areas, or the most vulnerable to damage, with regards to Great Crested Newts, common reptiles, bats, and nesting birds.
- 4.6 Red zones are the areas where the most stringent ecological mitigation and control measures are to be undertaken and works constantly monitored by the ecological clerk of the works. No works can be undertaken within the red zones/features without prior agreement. The area of red zones shall significantly reduce once the Great Crested Newt and common reptile translocation exercises have been completed.
- 4.7 Amber Zones - these areas are of moderate ecological value / concern and may be directly or indirectly affected by the development works both within and adjacent to the site boundaries. In this zone works will proceed with precaution with regular monitoring by the ecological clerk of the works. Some of the amber zones are to be subject to trapping for Great Crested Newts but given their habitats (existing managed golf course) are expected to be only used for dispersal and hence are of lower ecological interest / concern.
- 4.8 Green Zones - these are zones of low ecological value that are anticipated to be directly or indirectly affected by development works.
- 4.9 The vast majority of the total site area is covered by the amber zone, extending to all areas regularly managed grassland.
- 4.10 It is anticipated that the status of the site with respect to the 'traffic light' system will change as works progress e.g. following completion of trapping for Great Crested Newts and common reptiles and the removal of suitable bird nesting habitat the habitat may be downgraded to 'green' from 'red' or 'amber'.
- 4.11 Table 4.1 below summarises the control works in relation to the 'traffic light' system.

<b>Status</b>	<b>Activity / Area</b>	<b>Control / Mitigation</b>
<b>Red</b>	<p>Ancient woodland and its 15m buffer</p> <p>Ponds supporting GCN and high-quality terrestrial habitats (hedgerows, rough grassland)</p> <p>Hedgerows removal and encroachment of retained areas.</p> <p>Mature trees removal, encroachment / compaction.</p> <p>Any works likely to affect nesting birds and their habitat.</p>	<p>No works to occur within a red zone without the prior authorisation from the Ecology Manager.</p> <p>EPS licence required prior to removal / disturbance. Licensed ecologist to complete translocation exercise as agreed with Natural England.</p> <p>ECoW to ensure no ecological issues remain prior to work commencing.</p> <p>ECoW to give toolbox talk on proposed work and its impact on the ecology.</p> <p>ECoW to ensure all ecological protection measures are in place prior to work commencing.</p> <p>ECoW to supervise works as appropriate (this will be full-time unless agreed otherwise).</p>
<b>Amber</b>	<p>Vegetation clearance and tree felling outside the bird nesting season (not including any trees with bat potential).</p> <p>Implementation of ecological mitigation features.</p> <p>Landscape works / habitat creation.</p> <p>Drainage works.</p>	<p>ECoW to approve method statement prior to work commencing.</p> <p>ECoW to give toolbox talk on proposed work and its impact on the ecology.</p> <p>ECoW to ensure all ecological protection measures are in place prior to work commencing.</p> <p>ECoW to certify the works have been carried out to ecological best practice.</p>
<b>Green</b>	<p>Construction and earthworks outside designated ecologically sensitive areas or post ecological mitigation works.</p>	<p>Works to be carried out to ecological best practice.</p>

**Table 4.1 Ecological Sensitive Area**

4.12 Management prescriptions and monitoring requirements have been described below, in relation to each of the three objectives. Measures for mitigation, management and enhancement are detailed on Plan ECO3, with constraints tied to the construction phase of development detailed in Plan ECO4.

## **Objective 1: Maintain and Enhance Retained and Created Habitats within the Site**

### *Hedgerows, Buffer Planting, Trees & Off-site Ancient Woodland*

- 4.13 All of the trees and hedgerows to be retained as part of the scheme shall be protected from development in accordance with BS 5837 2012. Whilst the vast majority of the trees and hedgerows associated with the boundaries of the site are to be protected and retained, some small gaps for access are required in accordance with the consented scheme. Any wood from these sections shall be made into discrete log-piles at the base of hedgerows.
- 4.14 In accordance with guidance from Natural England and Mid-Sussex County Council's Tree Officer, a buffer zone of a minimum of 15m will be established between the ancient woodland and any development to avoid any potential adverse impacts. Native tree and shrub planting will be established along the site's interface with the ancient woodland, providing a gradual ecotone from the ancient woodland to areas of wildflower grassland. This will establish a green buffer area along much of the ancient woodland's length reducing any potential edge effects and enhancing the existing woodland edge providing net biodiversity gains.
- 4.15 Arboricultural management and hedgerow trimming will be carried out outside of the bird nesting season (March – July inclusive) to avoid any potential offence, or after a suitably qualified ecologist has undertaken checks to ensure no nesting birds are present. All dead wood produced from required works will be retained as an ecological feature, offering new habitat for saproxylic invertebrates as well as potential hibernacula for reptiles or amphibians.
- 4.16 New native hedgerow, native buffer and tree planting to be undertaken will increase the floristic diversity of the site, and provide additional foraging opportunities for birds and bats, as well as increasing future nesting and roosting opportunities.
- 4.17 Planting of new trees, buffer planting and hedgerows will be undertaken during the autumn, winter or spring, with subsequent monitoring required in order to identify any potential gaps where plants have not survived. Where any failings are recorded new specimen shall be planted in the next available planting season.
- 4.18 New planting shall be checked annually to ensure they are straight and upright, have no damage to their crowns or stems or any pests or diseases. Any basal or epicormic growth shall be removed. They shall only be watered in drought conditions within the first five years following planting and then only when necessary to avoid leaf loss or death. Any newly planted trees / hedgerows which die should be replaced in the following season with the same species to the same specification and quality. All stakes shall be removed in May when this initial support is no longer required, typically after 3 to 5 years following planting.
- 4.19 A weed-free ring (500 mm) will be maintained around each tree planted for the first five years to reduce competition from weed-species for light and nutrients. This can be achieved with appropriate weed-killers or, preferably, by maintaining a layer of mulch around the base of each tree. Regular health checks of the trees will also be undertaken during periods of dry weather, to ensure that the trees are not affected by drought.

- 4.20 Crown thinning of trees within the development site shall be undertaken as required to remove inward growing, crossing, rubbing, dead or damaged branches or thinning to remove secondary and small live branch growth evenly throughout the crown.
- 4.21 Hedgerows to be cut mechanically to a minimum height of 2m to ensure that the structure is not significantly altered to compromise their value for associated wildlife. The aim is to produce species-rich, dense hedgerows of height approximately 2 to 2.2m and basal width 2m, which are semi-natural in appearance. Leading stems and other top growth and laterals to be trimmed back annually to an A-shaped structure, to encourage dense bushy growth, whilst maintaining the overall hedgerow structure. Pruning is to be undertaken outside of the bird breeding season.
- 4.22 Only those hedgerows backing on to development or footpaths to be cut annually whilst all other hedgerows shall be cut on a bi-annual basis (once every two years) on a rotational basis to ensure sufficient habitat for birds and availability of winter foraging.
- 4.23 Hedgerow trees in hedgerows shall be retained and allowed to develop. Where hedges are cut bi-annually all hedgerow trees shall be retained.
- 4.24 The field layer at the base of hedgerows and a margin of one metre either side is to be left unmaintained to provide habitat for small mammals. No cutting or herbicide applications are to take place within these margins, except if required to control noxious weeds.
- 4.25 Prior to any pruning or felling works of larger trees (typically with a diameter at chest height in excess of 300mm), the tree should be assessed for its potential to support roosting bats. Any features such as rot holes, split limbs or loose bark, which could support roosting bats, should be undertaken by an arboriculturist, in the first instance, with subsequent assessment and survey by a suitably experienced ecologist if required, with appropriate licenses obtained should this be necessary.
- 4.26 When a tree has been felled (because it has died, is diseased or has become unsafe) it should be replaced with the same species, or an appropriate alternative species, where relevant. Normally the tree should be planted in the immediate vicinity of the felled tree. If the tree was felled because it was dangerous by virtue of its location, a replacement should be planted at an acceptable nearby location. Dead wood should be retained on site to provide opportunities for saproxylic species.
- 4.27 Prior to any pruning or felling works on larger trees (typically with a diameter at chest height in excess of 300 mm), the tree should be assessed for its potential to support roosting bats. An assessment of any features such as rot holes, split limbs or loose bark that could support roosting bats should be undertaken by an arboriculturist in the first instance, with subsequent assessment and survey by a suitably experienced ecologist if required, with appropriate licenses obtained should this be necessary.

### *Ornamental Shrub*

- 4.28 New ornamental shrub planting is proposed throughout the development. The new planting will benefit bird and invertebrate species. Planting of ornamental shrubs will be undertaken during the autumn, winter or spring, with subsequent monitoring required in order to identify any potential gaps where plants have not survived. General pruning will be carried out throughout the year depending on the requirements of the species present. Thinning out of the shrubs or removal of dead specimens is to be completed outside of the bird nesting season (March to July inclusive) to avoid any potential offence.

### *New Waterbodies*

- 4.29 As part of the mitigation provided with regard to Great Crested Newts, three ponds will be created to offer new opportunities for this species. The ponds to be created will meet with the specification of wildlife ponds as detailed by Natural England and be a minimum of 35 m<sup>2</sup> in size (but in reality shall be circa 200m<sup>2</sup> to ensure of the required gradients and profile) with a varied profile to provide opportunities for a variety of native margins, emergent and aquatic species (see Appendix 1).
- 4.30 The ponds shall have some hydrological capacity and function but have been specifically created as part of the required mitigation with regards to the presence of Great Crested Newts. The ponds will provide significant biodiversity gains and diversify the existing habitat surrounding the ponds to produce a rich terrestrial habitat for this species.
- 4.31 The ponds have been designed to provide wet conditions and shall be planted with a diverse range of native marginal, emergent and aquatic species that will provide new egg laying opportunities for Great Crested Newts. In addition, features such as dead-wood piles shall be provided in the immediate area to enhance the biodiversity value of the area and seek to offer suitable opportunities for amphibians and reptiles, together with saproxylic species.

### *Existing Waterbodies*

- 4.32 To ensure that there are no indirect effects from the construction phase of the development specific measures shall be adopted and adhered to during site works such that potential deleterious effects such as surface contaminated run-off is avoided. Specific safeguards that will be employed in keeping with best practice methodologies to limit any likely pollution event. The retained pond supporting Great Crested Newts shall be circumference with newt fencing in line with the EPS licence with this fencing being maintained until the completing of development and landscape proposal. The pond shall remain connected to habitats outside of the development site and hence its fragmentation shall be avoided. The fencing shall provide a fixed buffer to the pond and prevent any deleterious effect arising during the construction phase. Regular checks of all protective fencing across the site shall be completed by an ecologist, with the site manager tasked with ensuring regular checks and repairs (as required) are completed.
- 4.33 Areas surrounding the retained pond will be buffered through the establishment of a mosaic of habitats including wildflower grassland and tree planting. Areas of planting will be focused from the pond across the development to allow continued

connectivity and dispersal opportunities for Great Crested Newts, whilst also providing new valuable terrestrial habitat for this species.

- 4.34 The new planting shall consist of a gradual transition from trees and shrubs, wildflower grasses, emergent and aquatic plant species that are known to provide foraging resources for a variety of faunal species and shall provide valuable habitats for biodiversity in general. Specific aquatic oxygenator species have been included within the proposed planting lists to assist with providing habitats of high value and promoting biodiversity.
- 4.35 The existing pond will remain fairly open in structure to ensure conditions remain as they are. Checks shall be made annually, and management of the pond and should occur in late summer (mid-July to mid-September) to avoid the sensitive period for Great Crested Newt with any dense over-shading scrub to be removed which could otherwise affect floristic diversity. Clearance of the pond is to be undertaken by hand owing to the known populations of Great Crested Newts.

#### *Sustainable Drainage Systems (SuDS)*

- 4.36 New SuDS will have a primary hydrological function yet have been designed with biodiversity in mind and aim to provide new opportunities for bats, birds, reptiles, amphibians and invertebrates.
- 4.37 The SuDS will be planted with a diverse mix of native marginal and emergent vegetation where considered appropriate. Once established, areas of emergent and marginal aquatic planting will need little maintenance. Water plants are naturally invasive but if areas become too dense then plants will be lifted and divided, or rhizomes dug out by hand to reduce density of planting. Such thinning is to be undertaken rotationally within five-year cycles or as required. To prevent marginal species colonising in adjacent areas seed heads may be removed as required at the appropriate time. Pernicious weeds, such as docks and thistles, can be carefully spot treated with broad spectrum herbicides suitable for use close to waterbodies only as a last resort.
- 4.38 To provide a more gradual interface between the SuDS planting and adjacent grassland, grassland margins around SuDS will be subject to a more relaxed management to allow for a greater sward height.
- 4.39 Owing to the presence of Great Crested Newts on site, any required removal of aquatic vegetation should be undertaken by hand with consideration to the presence of Great Crested Newts and any vegetation that may be used for egg laying. Any removal of vegetation within the pond should be undertaken outside of the peak breeding season for this species.

#### *Wet Grassland / Marginal Planting*

- 4.40 New areas of wet grassland will be created around the new ponds to the north-west of the site, and the attenuation basins. The margins of the newly created water features are to be sown with a species-rich seed mix that is tolerant of wet / damp conditions. Emorsgate EM8 will be seeded in these areas.
- 4.41 The areas of wet grassland will be subject to a sensitive management regime such that the floristic diversity is maximised. The grassland will be allowed to grow freely until flowering and seeding in July / August. There should be variation over the timing of the cuts to ensure that late flowering species have a chance to



set seed. A second cut in late September / October will be undertaken dependent on the vigour of growth. All arisings should be removed from the grassland within a week of cutting. It is proposed to retain the arisings on the margins of the wetland areas, providing suitable egg-laying habitat / opportunities for any locally present Grass Snake.

- 4.42 The creation of wet grassland shall further the aims of the local BAP for these priority habitat types.

#### *Amenity Grassland*

- 4.43 The amenity grassland areas to be created throughout the proposed development shall be sown / turves laid in autumn or spring but could be completed outside the timeframe if moisture conditions are considered adequate for successful establishment.

- 4.44 Amenity grassland is located in areas where it will be subjected to greater recreational activity and so by necessity consists of harder wearing grasses. The more formal areas of amenity grassland will be cut on a regular basis. Checks will be made monthly and grass will be cut when it reaches 100 mm long back to a length of 35 mm. The grass cuttings will be collected and removed, in order to reduce nutrient enrichment and encourage low-growing plants to flourish. Although it shall be feasible to leave grass cutting on site in a designated pile to offer an additional habitats type, which could provide favourable to common reptile.

- 4.45 Where feasible, where use is lower, such as at margins, then a sinuous margin (2 to 4 m) may be appropriate which is managed specifically for its ecological value, over-sowing with a native species-rich wildflower seed mix and subject to the wildflower area management regime (see below), so that flowers will be able to set seed and species diversity improved within these margins.

#### *Wildflower Grassland*

- 4.46 To provide a biodiversity gain, the scheme will include the provision of new areas of native wildflower meadow grassland both in areas surrounding the newly created ponds and throughout the newly established green infrastructure running through and along the boundaries of the site. These will be subject to a relaxed management regime aiming to maintain species richness, whilst being allowed to develop into rough grassland to provide new suitable terrestrial habitat for herptiles.

- 4.47 The proposed wildflower grassland is to be planted throughout the green infrastructure across the site by over-sowing with Emorsgate EG1 and EM1 seed mixtures.

- 4.48 Any retained grassland highlighted as providing suitable habitat for Great Crested Newts, adjacent hedgerows and scrub habitats are to be managed as a grassland dominated mosaic, with the wildflower grassland habitats being subject to a relaxed management regime, and initially scarified and over-seeded with Emorsgate EM1. Management will however be undertaken to prevent further encroachment of the scrub into the enhanced grassland habitats to allow for a greater expanse of grassland to be provided and secured.

- 4.49 On-going management to grassland purposefully created for Great Crested Newts will be centred on the sward cut to a minimum height of 150 mm, with only half of this area of grassland cut at a time to retain continued opportunities for this species, with cutting to be completed during the active season for herptiles (and preferably during the late summer August / September).
- 4.50 In the first year following the enhancement works the sward will be cut once the height exceeds 100 mm.
- 4.51 Second cut to be applied again when the height reaches around 200 mm and height reduced to 100 to 140 mm. The number of cuts will depend on soil fertility, so a third early cut may be required.
- 4.52 Following any grassland maintenance all arisings will be left *in situ* for five days to allow seed release and ensure the continued renewal of the floristic diversity of the site. The arisings will then be turned and removed to prevent nutrient enrichment at the detriment to floristic diversity. The arisings shall be deposited in the identified grass pile areas (to offer an egg-laying resource / habitat for Reptiles) (see Plan ECO3).
- 4.53 After the first year, the other wildflower meadow / species-rich grassland areas will be managed as the wet grassland (see above).

#### *Retained Rough Grassland*

- 4.54 Areas of retained rough grassland will be subject to a relaxed management regime aiming to maintain species richness, whilst being allowed to develop into rough grassland to provide new suitable terrestrial habitat for herptiles.
- 4.55 In the first year following the enhancement works the sward will be cut once the height exceeds 100mm. A second cut will be applied again when the height reaches around 200mm and height reduced to 100 to140mm. The number of cuts will depend on soil fertility, so a third early cut may be required.
- 4.56 Following any grassland maintenance all arisings will be left *in situ* for five days to allow seed release and ensure the continued renewal of the floristic diversity of the site. The arisings will then be turned and removed to prevent nutrient enrichment at the detriment to floristic diversity. The arisings shall be deposited in discrete grass pile areas on the margins of the site (to offer an egg-laying resource / habitat for reptiles) (see Plan ECO3).

#### **Objective 2: Maintain Populations of Protected Species at a Favourable Conservation Status**

- 4.57 Habitat creation and retention, and the introduction of a management regime, will provide for a net enhancement in the quality of habitats present on site. This will be of benefit to key species, such as bats, common reptiles, Great Crested Newts, and birds.

#### *Badgers*

- 4.58 No Badger setts are present within or immediately adjacent to the site and no signs of foraging were recorded on site. Nonetheless, the site provides suitable foraging and dispersal opportunities for any locally present social group.

- 4.59 Prior to commencement of work within the site a further check survey will be undertaken to ensure no Badger setts have been excavated in the interim period. This will be completed by the Ecological Clerk of Works (ECoW) supervising the site clearance operations.
- 4.60 Foraging and dispersal opportunities shall be retained on site in the form of the native buffer planting and areas of wildflower grassland. New green infrastructure to be established will also retain dispersal routes through the site post-development.

#### *Bats*

- 4.61 The proposed landscape strategy incorporating a mosaic of species-rich habitats through the principal green infrastructure within the site shall provide attractive dispersal and foraging grounds for locally present bat species.
- 4.62 The off-site ancient woodland to the south of the site shall be fully safeguarded throughout the stages of the proposed development, with the woodland edge enhanced through the provision of native buffer planting and shade tolerant native wildflower grassland. The enhancement of this woodland edge area, diversifying the ecotone of this area, will enhance the foraging opportunities for local bat populations by increasing the corresponding invertebrate assemblage.
- 4.63 Lighting has been sensitively designed to avoid any increased levels of illumination in the main landscape scheme, and specifically the areas of potentially greater interest for bats will be subject to lighting levels of no greater than 1 lux (see Appendix 2).
- 4.64 To provide a net gain in roosting opportunities within the site a total of 10 Schwegler 1FF bat boxes (see Appendix 3) shall be provided, installed at appropriate heights and aspects on retained mature trees. Furthermore 5% of new builds will include bat tiles / bat bricks to offer a further roosting provision. A variety of bat access tiles are available to match the roofing tiles to be used in the construction of the buildings.
- 4.65 Where bat boxes are to be placed in public places consideration to these specific locations shall be mindful of potential vandalism and potential cat access.
- 4.66 Plan ECO3 illustrates the potential locations of the bat boxes, with the precise locations to be agreed on the ground by the supervising ecological clerk of works.
- 4.67 Due to the types of bat boxes being proposed it is not considered that these shall require any on-going maintenance / cleaning. Although checks over a five-year period should ensure that the above principles remain consistent and that the bat boxes remain present. It is important to note that should any bat boxes require re-setting or repair, as this work could affect a potential roost site this must be undertaken by a licensed bat worker.

#### *Great Crested Newts*

- 4.68 Owing to the presence of Great Crested Newts in and immediately adjacent to the site a translocation and exclusion exercise will be undertaken prior to development. This will involve an exclusion and trapping regime across the suitable habitats within the site during the current newt active season (March to October). An EPS licence application for the Great Crested Newt licence shall

be submitted to Natural England with the translocation exercise to be implemented directly on its receipt.

- 4.69 The trapping shall utilise temporary upright amphibian fencing fitted with pit-fall traps (see Appendix 4). The trapping shall be completed over a minimum of 60 suitable days, with trapping only considered successful following a five-day period of no captures. Trapping effort shall be bolstered through the use of artificial refugia placed within suitable terrestrial habitats, whilst during damp / wet evenings / nights transects shall be walked across the fairways and greens to seek to locate and remove any dispersing Great Crested Newts.
- 4.70 All newts trapped during the course of the translocation exercise shall be placed in an agreed receptor site to the north-west of the site that is free from proposed development and shall allow newts to access the wider countryside. The trapping site shall be isolated from the receptor site through exclusion fencing.
- 4.71 To offset the loss of the two identified breeding waterbodies, three wildlife ponds shall be created in the mitigation area on the western site boundary and in close proximity of the off-site ponds (including those known to support breeding newts) in the wider golf course (see Plan ECO3). The ponds to be created will meet with the specification of wildlife ponds as detailed by Natural England and be a minimum of 35m<sup>2</sup> in size with a varied profile to provide opportunities for a variety of native margins, emergent and aquatic species (See Appendix 1). As mentioned above in reality the ponds shall be circa 200m<sup>2</sup> to ensure these can provide the required depth and gradients.
- 4.72 The ponds will be located within a mosaic of suitable terrestrial habitat. This will comprise native buffer planting, trees, and wet and wildflower grassland. Once established, fencing will be removed along the western portion of this area allowing the dispersal of Great Crested Newts into the newly created habitat. New fencing will be then established on the eastern edge preventing dispersal into the development area during the construction phase.
- 4.73 To ensure connectivity through the site appropriate green infrastructure has been incorporated into the design of the proposed development. The principal green infrastructure is to be present across the southern and western site boundaries, however, a green corridor will be created through the site to maintain connectivity between the newly created Great Crested Newt habitat on the western boundary and the retained pond known to support Great Crested Newts to the immediate south of Friar's Oak House. The proposed and necessary access road through this corridor shall have a newt dispersal tunnel provided beneath the road such that continued dispersal shall be feasible and ensure connectivity is maintained. The road design at this section shall also include fencing (or similar) to funnel newts to the provided dispersal tunnel. Drop kerbs and recessed points against culverts will also be provided to ensure that no entrapment of dispersing newts occurs within the proposed road infrastructure at this point.
- 4.74 The proposed mosaic of habitats comprising species-rich native wildflower and wet grassland, tree planting and native shrub planting, surrounding the newly created ponds will provide new suitable opportunities for Great Crested Newts ensuring that the favourable conservation status of the local Great Crested Newt population is maintained.

### *Reptiles*

- 4.75 The presence of both low numbers of Grass Snake and Slow Worm within habitats to the southwest of the development will mean that some precautionary measures in term of the proposed development will need to be secured, and adopted, to avoid a potential offence being committed during clearance and the construction phase. Whilst reptiles were only recorded off-site, any reptiles found during the Great Crested Newt translocation will also be translocated to the receptor site.
- 4.76 The majority of the site is subject to a continuous state of management to ensure that the fairways of the golf course are maintained, while also ensuring areas of semi-improved grassland are present to represent the rough surrounding the fairways. Therefore, limited areas of suitable habitats in terms of grassland cover, save for at the margins of the fairways, are suitable for reptiles. This level of management shall continue until the commencement of any development works to avoid the site offering any extensive areas of suitability for common reptiles.
- 4.77 The proposed mosaic of habitats to be created in the north-west of the site in the form of the species-rich native wildflower grassland, tree planting and native shrub planting together with the provision of a new native hedgerow shall provide suitable opportunities for micro-climates to development benefiting Grass Snake and other common reptile species.
- 4.78 Dead wood from the scrub on site could be used to provide additional hibernacula, increasing the receptor site's suitability and carrying capacity further. Three hibernacula will be created within the receptor site (see Plan ECO3) to offer suitable refuge and hibernation opportunities and increase the carrying capacity of the receptor site.
- 4.79 The creation of the SuDS would further the biodiversity value of the development and offer a potential foraging resource for the locally present reptile populations.
- 4.80 Although the grass arisings shall be removed from the grassland area to prevent nutrient enrichment at the detriment of floristic diversity grass arisings shall be left on site in discrete piles to provide additional egg-laying opportunities for reptiles (see Plan ECO3). These will be south-facing, and in a partially sunny location and removed from likely disturbance.

#### *Birds*

- 4.81 Management of habitats will be undertaken with due consideration for potential use by birds. Any necessary management of vegetation, such as of trees, hedgerows and scrub, which will provide important nesting habitats, will be undertaken outside of the bird breeding season (March – July inclusive), or after a suitably qualified ecologist has undertaken checks to ensure no nesting birds are present. Should any active nests be recorded as being present these shall be buffered (likely to be around 5m but shall depend on the species and location of the nest) with the area only removed once confirmation that all fledglings have left the nest has been provided.
- 4.82 Hedgerow management will be undertaken on a rotational basis in order to retain continuous nesting resources on site. This management will take place towards the end of winter to ensure fruit remains within the hedgerows to offer an important over wintering foraging resource.

- 4.83 The creation of the new areas of wildflower grassland, native tree and buffer planting, shrub and hedgerow planting (including berry-bearing species) will provide suitable foraging opportunities for birds, while the new trees and hedgerows will provide new nesting opportunities for birds over the existing situation. New aquatic habitats will also offer new opportunities for bird species that prefer riparian and aquatic environments.
- 4.84 In the areas of built form, the new amenity hedgerows and ornamental shrub planting will offer suitable refuge, nesting and foraging habitat for locally present bird species. The provision of gardens, and the promotion of wildlife friendly gardening techniques in any show home will further opportunities within the site.
- 4.85 To provide further enhancements in suitable nesting habitat within the site five Schwegler 2GR and five Schwegler 1N bird boxes (see Appendix 3) shall be installed at suitable positions on the retained boundary trees providing opportunities for bird species including Tree Sparrow *Passer montanus*, a Sussex BAP species. With a further five Schwegler 1SP Sparrow terraces installed on new buildings to provide opportunities for House Sparrow *Passer domesticus*. This style of bird box has also been known to attract Spotted Flycatcher *Muscicapa striata*, a Sussex BAP species. Plan ECO3 illustrates the potential locations of the bird boxes, with the precise locations to be agreed on the ground by the supervision ecological clerk of works.

#### *Invertebrates*

- 4.86 The creation of species-rich grassland within the development, will provide floristic diversity that will retain existing opportunities and create new opportunities for a range of invertebrate species. Furthermore, the relaxed management regime in these areas will ensure a suitable sward is developed to support a wide invertebrate assemblage.
- 4.87 New pond and SuDS creation will provide a range of aquatic environs providing further opportunities for various aquatic invertebrates. Whilst the wide range of native species to be incorporated into the landscape planting shall provide suitable larvae and food plants for a range of invertebrate species.
- 4.88 Dead wood resources shall be provided on site through the provision of wood piles following any necessary. As such suitable opportunities will be created for saproxylic invertebrate species.

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

- 4.89 The creation of new areas of floristically varied grassland (wet and wildflower grassland), buffer planting, native hedgerows (enhanced and new) and the planting of new trees, centred on native species of local provenance, will diversify existing and retained habitats at the site and encourage a greater range of wildlife use over the existing situation.
- 4.90 The proposed development provides areas of strategic green infrastructure that shall be enhanced to provide both landscape and ecological gains and mitigate against the loss of aquatic and terrestrial habitat for Great Crested Newts. The main ecology area to be provided and used to mitigate the loss of suitable aquatic and terrestrial habitats within the development site shall be associated with the western site boundary. At this location a diverse mosaic of species-rich habitats

shall be created to increase the site's floristic diversity above the current situation and offer biodiversity gains. Specifically, the mosaic of rich habitats shall include areas of new native wet grassland, native wildflower grassland, native tree and shrub planting, and new wildlife ponds which, while primarily focused towards Great Crested Newts, will benefit a wide range of other taxa.

- 4.91 Further areas of ecological value will be created on the margins of the ancient woodland with sensitive native buffer planting and shade tolerant wildflower grassland to be provided to complement the off-site ancient woodland. Both areas will maintain connectivity and aid in dispersal for Great Crested Newts and other wildlife.
- 4.92 Grassland margins / verges throughout the site shall support wildflower grassland and native tree / shrub planting. Further attenuation basins within the site shall offer temporary aquatic habitats and areas of grassland subject to a more relaxed management regime.
- 4.93 The provision of bat boxes and bird boxes will provide further roosting and nesting opportunities within the site.
- 4.94 Log-piles will be created during any tree / scrub management within the site, with these located as discrete piles within retained scrub and at the base of native buffer planting at the edges of the site to provide opportunities for reptiles and amphibians together with a resource for invertebrates.

## 5. GENERAL CONSTRUCTION SAFEGUARDS

### *Dust and Air Pollution*

- 5.1 The principal contractor will ensure that all reasonable measures are taken during the course of the construction works to minimise dust and air pollution. Where dust is produced during construction activities appropriate measures are to be taken to prevent air pollution. It is envisaged that the highest risk of producing dust during the works will be site clearance and construction traffic movement, therefore the principal contractor will ensure that damping down measures are employed during these works, particularly during dry periods, to prevent air pollution. Dust will be suppressed by means of water spraying prior to, during and post crushing activities.
- 5.2 No burning of waste will be permitted on site.
- 5.3 All activities are to be closely monitored by the principal contractor, and a proactive approach will be taken to ensure all potential dust hazards and risks of air pollution are monitored and mitigated.
- 5.4 To prevent the transit of dirt and mud from the site onto adjacent roads and highways that could subsequently enter areas of environmental sensitivity (e.g. ancient woodland). The principal contractor is to ensure that roads are kept clean by way of a mechanical road sweeper, or vehicles are washed down onsite prior to entering the public highway. Any wash facility shall be isolated from any sensitive receptors. Interceptor fencing or similar safeguards to be used to prevent any likely surface run-off entering areas of sensitivity, e.g. hedgerows, wooded, and ponds.
- 5.5 All materials are to be stored to industry best practise with any fine material less than -3mm in particle size adequately protected from the wind. Should accidental spillages of materials occur, these are to be dealt with immediately by the principal contractor to prevent pollution / contamination.

### *Noise and Vibration*

- 5.6 The principal contractor is to produce an outline noise management plan which addresses the mitigation of noise during the course of the construction works.
- 5.7 Construction noise will be controlled according to normal procedures. In all cases the best practicable measures of minimising noise shall be employed.
- 5.8 In addition to the mitigation measures set out in the principal contractor's noise management plan, the principal contractor will ensure that a competent person carries out an assessment of potential sources of noise. Throughout the project, best practice will be implemented to minimise any noise and vibration to the surrounding area. The project manager will produce a copy of the programme giving working hours and plant to be used. Particularly efforts and measures shall be taken to reduce noise and vibrations in the immediate vicinity of bird nesting habitats (woodland, trees and hedgerows) during the bird nesting season (March to July inclusive).
- 5.9 In addition to the above, the project manager will ensure local residents affected by the works are kept informed about construction activities / operations well in



advance of the works. Throughout the project, there will be zero tolerance towards antisocial noise from construction workers. Any persons found acting in an antisocial way will be removed from site.

#### *Management of Surface Water Runoff*

- 5.10 The principal contractor will ensure that best practice principals are maintained throughout the duration of the construction works. To prevent surface water runoff into ponds or woodland, any required washing down will be undertaken away from this area where possible. Should any washing down or wet trade need to be undertaken in the vicinity of these features, appropriate measures will be taken to avoid any runoff into the watercourse or beyond the site boundary.
- 5.11 The Environment Agency (EA) are to be contacted if there is a major spill of the following category:
- Petrol spillage greater than 100 litres;
  - Hydrocarbons spillages greater than 20 litres (including hydraulic oils and diesel)
  - Spillages of hazardous chemicals;
  - Major incident in combined drainage areas under construction;
  - Spillages of low hazard products with polluting potential.
- 5.12 The EA's Pollution Prevention Guidelines should be adhered to at all times.

#### *Construction Site Lighting*

- 5.13 Construction site lighting installation is to comply with current regulations, and guidance given in HSG Lighting at Work and lighting levels as indicated in BS EN 12464-2 Light and Lighting of Work Places – Part 2 Outdoor Workplaces, or new guidelines applicable at the time of construction.
- 5.14 Lighting to be restricted adjacent to areas of known nature conservation value. No excessive lighting to be placed on the adjacent wooded, the retained hedgerows and ponds during the course of the construction works. Attention will be paid to light spillage to any installed lighting to ensure this is directed away from aforementioned sensitive receptors. Lighting outside the construction timeframes will be reduced to solely core areas (if at all) to limit the duration of lighting magnitude across the site. No overnight lighting to be placed in the vicinity of the retained ponds, woodland corridor, mature trees or hedgerows to reduce effects on foraging bats.

#### *Quality Management*

- 5.15 Quality management systems are to be implemented by the principal contractor in accordance with all best practice guidance.
- 5.16 The principal contractor is to ensure subcontract packages are only let to suitably skilled and experienced contractors who have a proven track record of delivering projects of this nature and according with best practice environmental safeguards and mitigation.
- 5.17 Onsite quality is to be monitored by the principal contractor's project manager on a daily basis, with any low quality or defective works rectified as required.

- 5.18 The developer's professional team are to undertake regular site visits to monitor the quality of the safeguards (e.g. interceptor fencing, protective fencing), with monthly quality reports being produced and issued to the principal contractor. Any remedial action required to be completed directly. Any failing of safeguards to be review with appropriate amendments made to strategy to ensure the necessary level of protection.
- 5.19 Site personnel will be briefed on local ecological issues and informed that they must stop work immediately and report to their supervisor, should they discover a protected species in the working area. Similarly, any invasive species identified will be reported back to the ecological clerk of work and principal contractor and protected from works to prevent spread.

#### *Site Waste Management Plan*

- 5.20 The principal contractor will look to reduce the amount of waste material on site as far as reasonably practical through waste minimisation, re-use and recycling.
- 5.21 Whilst everyone on site will be called upon to do everything they can to minimise waste, it is the appointed manager's responsibility to ensure that the following actions are addressed:
- Minimise waste and ensure its correct storage and removal; where possible, segregate individual waste types so that materials can be re-processed for use on site or sold on. Wherever practical the preferred option is for recyclable material to be reused on site or on another suitable project;
  - Ensure that special or hazardous wastes are not mixed with general site waste and kept in a secure location away from sensitive environmental receptor.
  - Take care that stored liquid waste does not permeate into the ground.
  - Under no circumstances allow waste to be burned on site.
  - Store liquid waste in a suitable manner for eventual removal to a specialist disposal site.
  - Prevent unsupervised or unauthorised discharge of liquid waste to a drainage or sewer system. Where discharge is allowable, obtain discharge consent from the appropriate authority, and monitor at all times.

#### **Ecological Management Team / Responsibilities**

- 5.22 The ecological management team will ensure that all site personnel are appropriately briefed on the ecological issues within the site. This will be undertaken through inclusion of ecological briefings within the 'toolbox' talks given to all staff as part of the site induction process. The roles are detailed below.

#### *Ecological Manager*

- Develop method statements and site protocols as required;
- Provide guidance for the site team, particularly the principal contractor, including legal and statutory requirements affecting the works;
- Liaise with Natural England and other statutory or third party with an

- ecological interest in the scheme if necessary;
- Ensure any ecological related licences required for the works are applied for and complied with if required.

#### *Duties of the Ecological Clerk of Works (ECoW)*

- Undertake toolbox talks / site induction briefings;
- Ensure the site team and sub-contractors comply with the site protocols. Report any findings to the principal contractor and site manager immediately. If insufficient action is taken, stop works and report the situation to the principal contractor and project manager;
- Raise a Quality Alert for any non-compliance with the ecological protocols;
- Carry out necessary inspections of the protective fencing, known habitats and protected areas;
- To be familiar with ecological licences and associated constraints;
- Approve all method statements and ensure that any relevant site environmental protocols are appended and that these controls are adhered to.

#### *Habitat Management and Monitoring*

- 5.23 The planting, long-term management and monitoring of the landscaping, will be the responsibility of the appointed management company for the site.
- 5.24 Where specific protected species surveys are required as part of a granted monitoring within a Natural England European Protect Species licence will be undertaken by an appointed suitably qualified ecologist.

#### *Funding*

- 5.25 The management and monitoring of the landscaping will be subject to a service charge built into the lease of development and agreed with the occupant. The specifics of funding will be agreed prior to occupation and details provided as an addendum.
- 5.26 The provision of the required wildlife boxes and tiles will be supplied by Bellway Homes.

## 6. SCHEDULE OF ECOLOGICAL MITIGATION AND MANAGEMENT

Objective	Receptor	Management Prescription	Timing of Works
1. MAINTAIN AND ENHANCE RETAINED AND CREATED HABITATS WITHIN THE SITE	Wildflower Meadow / Wet / Rough / Species-rich Grassland	New areas of native wildflower meadow and wet and species-rich grassland shall be created to increase the floristic diversity at the site and benefit common reptiles, amphibians, birds and invertebrates.	Prior to the completion of the development.
		The areas of wildflower meadow and / wet grassland will be managed as necessary to ensure they remain as rough grassland and suitable for reptiles, amphibians and other wildlife.	In the first year cut in early spring and then approximately every two months with the final cut taking place in Autumn. Majority of arisings to be removed to prevent any nutrient encroachment after a period of drying to allow the seeds to disperse. Some arisings to be retained and left in discrete piles along the boundary of the site.
			Future years to undergo a single cut in Autumn. Remove all arisings to prevent any nutrient encroachment after a period of drying to allow the seeds to disperse.

	Amenity Grassland	To maintain a short sward height containing native flowers and grass species for public recreational use.	Cut six times per year from spring to autumn but leave uncut for one entire month in early summer (e.g. June) to allow for lower flowering plants to establish.
	Tree, Hedgerow and Shrub Planting	Regular checks will be undertaken to ensure that the trees and shrubs are free of pests and disease and that they are straight and upright. Trees and shrubs that have died should be replaced. Watering should be undertaken during drought conditions. .	Planting should take place in Autumn, Winter and / or Spring. Health checks to be completed annually, with any dead trees or shrubs to be replaced. Watering should take place in the first five years during drought conditions. Any arboricultural management should take place outside of the breeding bird season (March – July inclusive).

	<p>New and existing Waterbodies and SuDS</p>	<p>Waterbodies and SuDS features shall be created and maintained to provide opportunities for amphibians, reptiles and other wildlife. SuDS will be subject to seeding of appropriate seed mix, such as Emorsgate EM8. Management of any waterbodies known to contain Great Crested Newts should be done by hand. Reeds will be cut back to promote new growth.</p>	<p>Management of waterbodies to be completed outside of the peak breeding season for Great Crested Newts (March – June inclusive). Any reed species to be cut back on rotation between September and January.</p>
		<p>Management of grassland to promote floristic diversity with all arisings removed five days after cutting.</p>	<p>In the first year cut in early spring and then approximately every two months with the final cut taking place in Autumn. Remove all arisings to prevent any nutrient encroachment after a period of drying to allow the seeds to disperse. Future years to undergo a single cut in Autumn. Remove all arisings to prevent any nutrient encroachment after a period of drying to allow the seeds to disperse.</p>
<p>2. MAINTAIN POPULATIONS OF PROTECTED SPECIES AT A FAVOURABLE CONSERVATION STATUS</p>	<p>Bats</p>	<p>New hedgerows, tree and native buffer planting together with species-rich grasslands will provide additional foraging, as well as creating roosting opportunities in the future once trees reach maturity.</p>	<p>Prior to completion of development.</p>

		<p>Provision of 10 bat boxes on retained trees and bat bricks / bat tiles on new buildings to increase roosting opportunities.</p>	<p>Annual checks to ensure these remain present and suitable.</p> <p>Year 1:</p> <p>Install bat boxes.                  Install bat bricks / tiles during each development phase.</p> <p>Years 2 to 5:</p> <p>Check suitability and presence of bat boxes.</p>
	<p>Badger</p>	<p>Complete a single check survey immediately prior to commencement of any development to ensure no badger setts have been excavated in the interim period.</p>	<p>Prior to commencement of development.</p>

		Planting of native species of local provenance to encourage food sources and provide new foraging opportunities.	See habitats above.
	Hedgehogs	Clearance of existing hibernation features will be dismantled outside of hibernation period	May to September inclusive



	Birds	New native shrub, hedgerow and tree planting will provide additional nesting/foraging opportunities.	Avoid undertaking management work on suitable bird nesting habitat from 1 <sup>st</sup> March to 31 <sup>st</sup> July annually.
		Provision of a variety of 15 new bird boxes to provide additional nesting opportunities for birds over the existing situation.	Prior to completion of development.
	Amphibians	New enhance opportunities will be created for amphibians, and in particular Great Crested Newts.	Prior to commencement of development ground works within suitable amphibian habitat.
		Checks to ensure suitable opportunities remain present	Annually

	Reptiles	New enhanced opportunities for common reptiles, and particularly Grass Snake, shall be created through the establishment of new suitable habitat.	Prior to commencement of development ground works within suitable reptile habitat.
	Invertebrates	New planting to include appropriate species targeted to areas containing suitable conditions. Management of habitats to maintain suitable conditions, meeting habitat requirements of species of interest.	Planting and over-sowing prior to commencement of clearance works. Habitat management as above.

<p>3. INCREASE BIODIVERSITY BY MAXIMISING OPPORTUNITIES FOR FLORA AND FAUNA</p>	<p>Wildflower Meadow / Wet / Rough / Species-rich Grassland</p>	<p>The native grassland creation within the site will be over-sown with a diverse mix of native species, which will increase the floristic diversity of the site over the existing situation.</p>	<p>Prior to completion of the development.</p>
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	Hedgerows	New sections of hedgerow will increase the floristic diversity of the site over the existing situation.	Prior to completion of the development.
		New sections of hedgerows will provide additional opportunities for nesting and foraging birds and foraging bats.	Prior to completion of the development.

	Trees and Structure Planting	New native trees to be planted to increase the floristic diversity of the site.	Prior to completion of the development during suitable planting season.
		New tree planting (including berry-bearing / nut-bearing species) will provide additional opportunities for nesting and foraging birds and foraging bats.	Prior to completion of the development during suitable planting season.

	Wildlife Boxes	Bat and bird boxes erected on retained mature trees.	Prior to completion of the development.
		Bat bricks / tiles and bird boxes erected on new buildings.	At each phase of development
	Great Crested Newts	Provision of enhanced areas of grassland and waterbodies to be managed specifically for amphibians and reptiles.	Prior to commencement of development ground works within suitable amphibian habitat.

## PLANS

**PLAN ECO1**

Site Location





KEY:

 SITE LOCATION



ecology solutions

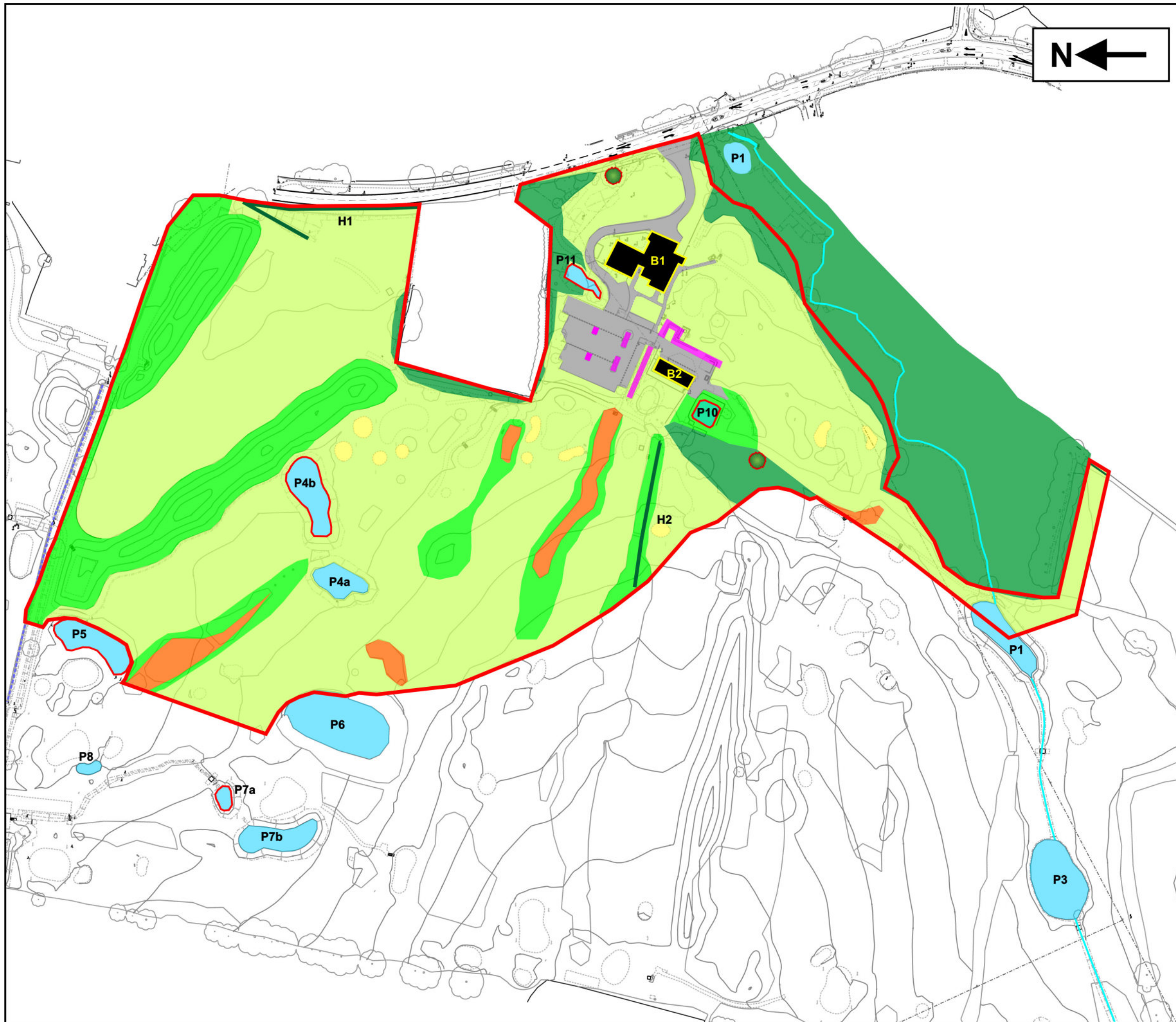
7655: HASSOCKS  
GOLF CLUB, HASSOCKS,  
WEST SUSSEX

PLAN ECO1: SITE LOCATION



## **PLAN ECO2**

Ecological Features



- KEY:**
- SITE BOUNDARY
  - BUILDING
  - NATIVE TREE /PLANTING
  - AMENITY / SEMI-IMPROVED GRASSLAND
  - SAND BUNKER
  - WOODLAND / TREE BELT
  - ROUGH GRASSLAND
  - HARDSTANDING
  - HEDGEROW
  - STREAM
  - WET DITCH
  - AMENITY PLANTING
  - POND WITHIN WHICH GREAT CRESTED NEWTS WERE FOUND DURING THE SURVEYS IN 2015 / 2018
  - POND WITHIN WHICH NO GREAT CRESTED NEWTS WERE FOUND DURING THE SURVEYS IN 2015 / 2018
  - TREE WITH POTENTIAL TO SUPPORT ROOSTING BATS



7655: HASSOCKS GOLF CLUB, HASSOCKS, WEST SUSSEX






PLAN ECO2: ECOLOGICAL FEATURES

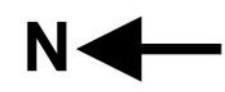
## **PLAN ECO3**

Ecological Mitigation, Management and  
Enhancements

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- KEY:**
-  SITE BOUNDARY
  -  SCHWEGLER 1FF BAT BOX (INDICATIVE LOCATION)
  -  SCHWEGLER 1SP SPARROW TERRACE (INDICATIVE LOCATION)
  -  SCHWEGLER 1R / 2GR BIRD BOX (INDICATIVE LOCATION)
  -  HIBERNACULA (INDICATIVE LOCATION)



7655: HASSOCKS GOLF CLUB, HASSOCKS, WEST SUSSEX

PLAN ECO3: ECOLOGICAL MITIGATION, MANAGEMENT AND ENHANCEMENT

Areas of new native wildflower grassland and retained rough grassland to be subject to relaxed management

Hedgerows to be managed on a rotational basis to ensure sufficient habitat for birds and winter foraging

Newt tunnel to be installed beneath the road to maintain dispersal opportunities

Retained Great Crested Newt breeding pond to be protected and managed sensitively

New SuDS to be planted with aquatic and emergent planting to offer new opportunities for wildlife

Creation of log piles will be established using wood cuttings from management of trees

Native buffer planting to provide gradual ecotone along ancient woodland

Native buffer planting and new trees to be subject to a sensitive management outside of nesting bird season

Ornamental shrubs to be managed outside of bird nesting season

Retained and newly established grassland to provide key green infrastructure through the proposed development facilitating dispersal of a variety of species

Bat boxes installed on retained trees to enhance roosting opportunities

Bird boxes installed on retained trees and new buildings to enhance nesting opportunities

Mitigation area retaining connectivity to wider countryside

Creation of new wildlife ponds to offer suitable breeding opportunities for Great Crested Newts

Diverse habitat mosaic supporting a variety of native species to be subject to a sensitive management regime

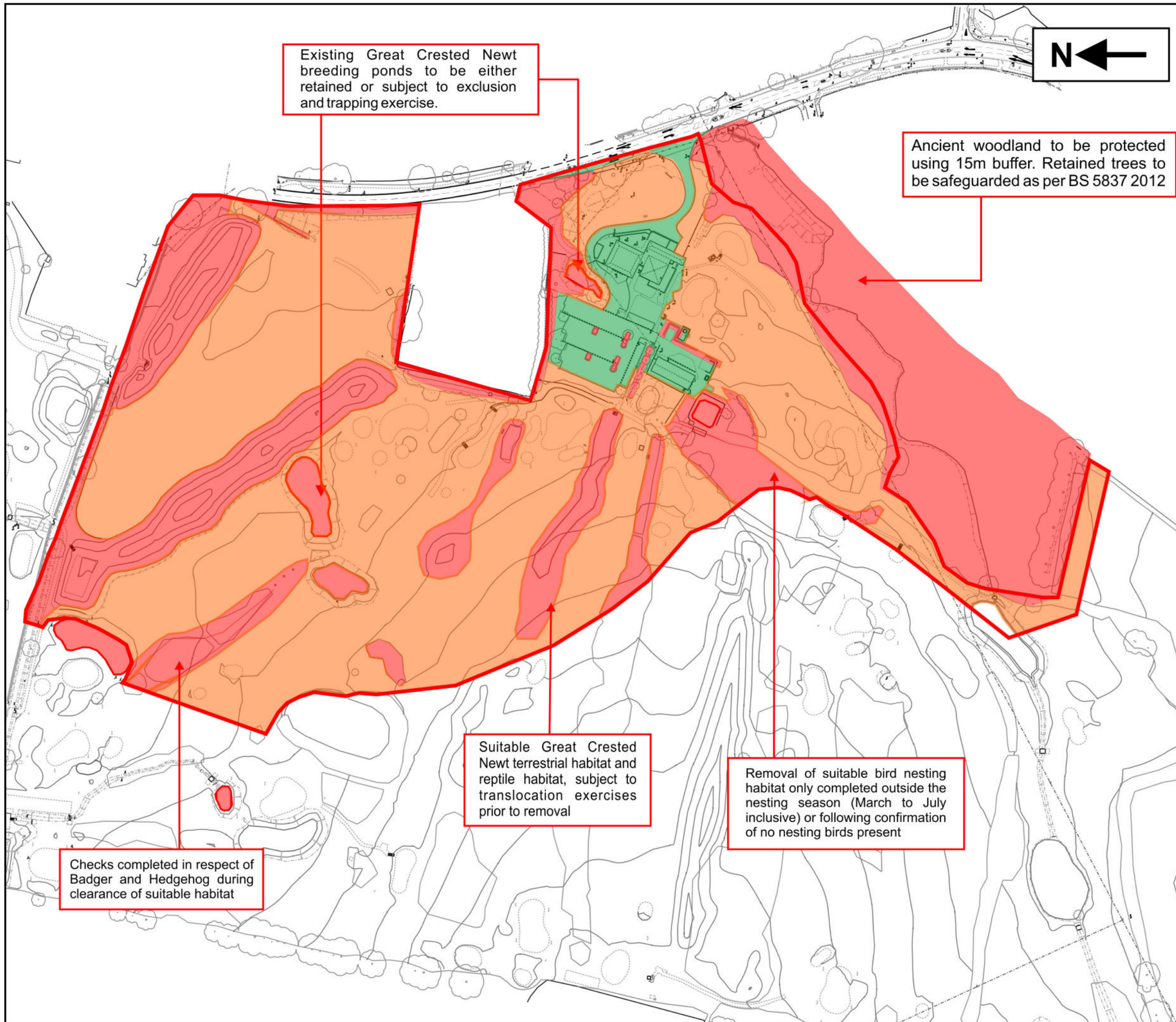
Monitoring of provided landscaping to be undertaken on a regular basis to ensure successful establishment

Reptile and amphibian hibernacula to be created within the mitigation area

Some arisings from grassland management to be left in situ to provide egg laying opportunities for reptiles

## **PLAN ECO4**

Ecological Construction Constraints



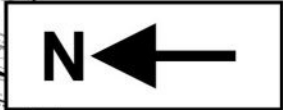
Existing Great Crested Newt breeding ponds to be either retained or subject to exclusion and trapping exercise.

Ancient woodland to be protected using 15m buffer. Retained trees to be safeguarded as per BS 5837 2012

Suitable Great Crested Newt terrestrial habitat and reptile habitat, subject to translocation exercises prior to removal

Removal of suitable bird nesting habitat only completed outside the nesting season (March to July inclusive) or following confirmation of no nesting birds present

Checks completed in respect of Badger and Hedgehog during clearance of suitable habitat



- KEY:**
- SITE BOUNDARY
  - AREAS OF HIGH ECOLOGICAL VALUE
  - AREAS OF MODERATE ECOLOGICAL VALUE
  - AREAS OF LOW ECOLOGICAL VALUE



7655: HASSOCKS GOLF CLUB, WEST SUSSEX

PLAN ECO4: ECOLOGICAL CONSTRUCTION CONSTRAINTS

## **APPENDICES**



## **APPENDIX 1**

### Wildlife Pond Design Example



**Surrounding Damp Grassland**

The damp grassland surrounding the pond will be seeded with a species rich wildflower mixture. This will include a diverse range of species including the following:

- |                    |                             |
|--------------------|-----------------------------|
| Creeping Bent      | <i>Agrostis stolonifera</i> |
| Cuckoo Flower      | <i>Cardamine pratensis</i>  |
| Knapweed           | <i>Centaurea nigra</i>      |
| Red Fescue         | <i>Festuca rubra</i>        |
| Meadow Sweet       | <i>Filipendula ulmaria</i>  |
| Wood Avens         | <i>Geum rivale</i>          |
| Yorkshire Fog      | <i>Holcus lanatus</i>       |
| Autumn Hawkbit     | <i>Leontodon hispidus</i>   |
| Birdsfoot Trefoil  | <i>Lotus corniculatus</i>   |
| Ragged Robin       | <i>Lychnis flos-cuculi</i>  |
| Rough Meadow-grass | <i>Poa trivialis</i>        |
| Selfheal           | <i>Prunella vulgaris</i>    |
| Meadow Buttercup   | <i>Ranunculus acris</i>     |
| Yellow Rattle      | <i>Rhinanthus minor</i>     |

**Marshland/Drawdown Zone**

This area will support a range of tall emergent species that will quickly form tall stands of dense vegetation.

- |                    |                             |
|--------------------|-----------------------------|
| Greater Pond Sedge | <i>Carex riparia</i>        |
| Reed Sweet-grass   | <i>Glyceria maxima</i>      |
| Yellow Iris        | <i>Iris pseudacorus</i>     |
| Purple Loosestrife | <i>Lythrum salicaria</i>    |
| Reed Canary Grass  | <i>Phalaris arundinacea</i> |
| Common Reed        | <i>Phragmites communis</i>  |
| Greater Spearwort  | <i>Ranunculus lingua</i>    |
| Great Reedmace     | <i>Typha latifolia</i>      |
| Lesser Reedmace    | <i>Typha angustifolia</i>   |

**Shallow Water**

Dense patches of waterweed and emergent plants will become established in areas of shallow water. Such areas often only become shallow in the spring and summer months and spend the winter under deeper water that protects the flora and fauna associated with this habitat from freezing winter temperatures.

- |                       |                                 |
|-----------------------|---------------------------------|
| Water Plantain        | <i>Alisma plantago-aquatica</i> |
| Starwort              | <i>Callitriche stagnalis</i>    |
| Marsh Marigold        | <i>Caltha palustris</i>         |
| Hornwort              | <i>Ceratophyllum demersum</i>   |
| Frogbit               | <i>Hydrocharis morsus-ranae</i> |
| Bogbean               | <i>Menyanthes trifoliata</i>    |
| Spiked Water Milfoil  | <i>Myriophyllum spicatum</i>    |
| Amphibious Bistort    | <i>Persicaria amphibia</i>      |
| Curled Pondweed       | <i>Potamogeton crispus</i>      |
| Broad-leaved Pondweed | <i>Potamogeton natans</i>       |
| Marsh Cinquefoil      | <i>Potentilla palustris</i>     |
| Arrowhead             | <i>Sagittaria sagittifolia</i>  |

**Permanent water**

The permanent water will provide a habitat for flora and fauna that are not adapted to seasonal fluctuations in water levels. These species will often include those that are also associated with the shallower pond margins but are the sole habitat for species such as Waterlily.

- |                   |                           |
|-------------------|---------------------------|
| White Waterlily   | <i>Nymphaea alba</i>      |
| Yellow Waterlily  | <i>Nuphar lutea</i>       |
| Fringed Waterlily | <i>Nymphoides peltata</i> |



WILDLIFE POND DESIGN  
EXAMPLE

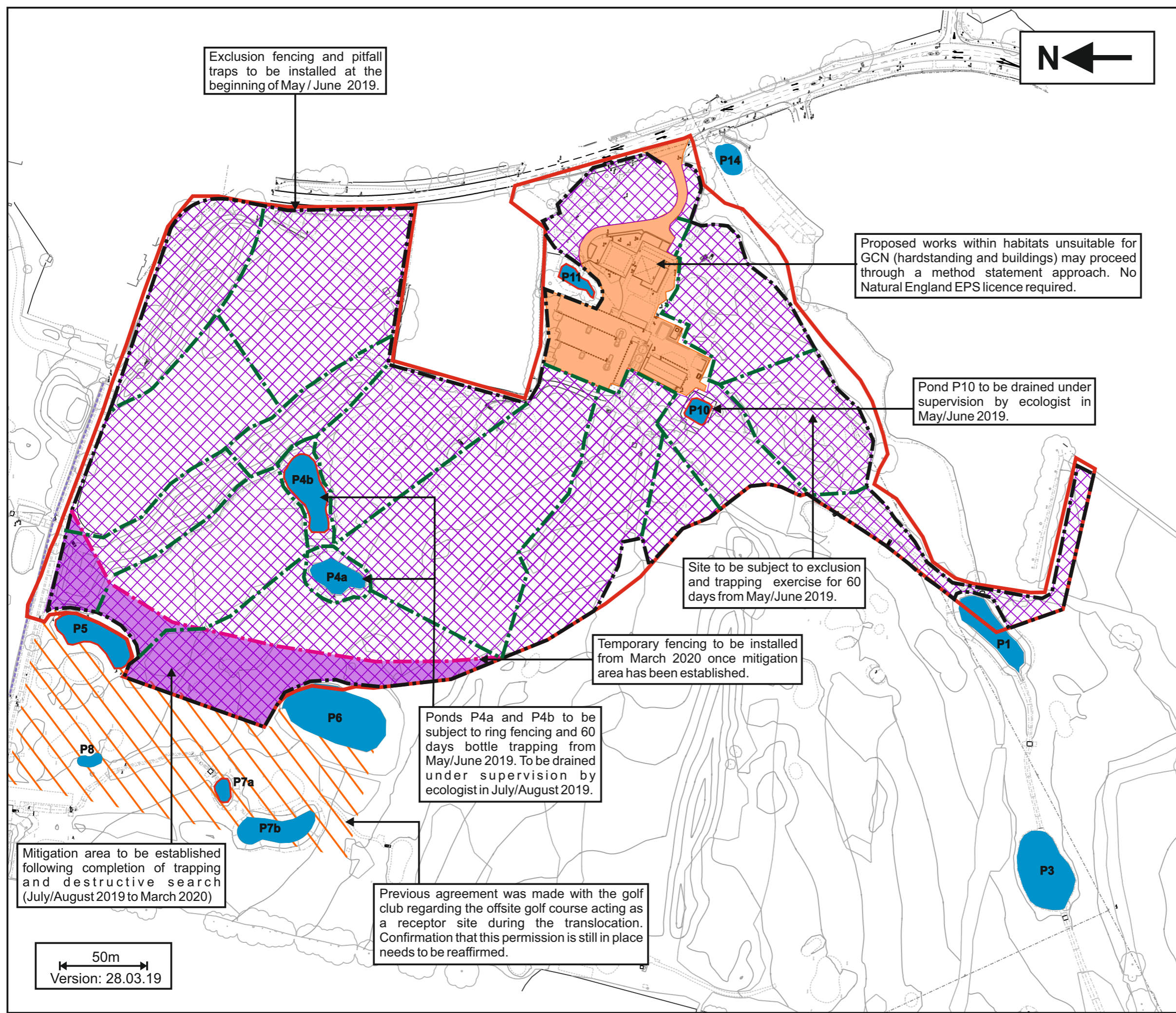
## **APPENDIX 2**

### Lighting Proposals

## **APPENDIX 3**

Figure E4a Great Crested Newt Capture and  
Exclusion Exercise

Based upon the Ordnance Survey map with permission of the Controller of Her Majesty's Stationery Office. © Crown Copyright. Ecology Solutions Ltd, Cokemach Estate, Barkway, Royston, Hertfordshire, SG8 8DL. CEM20130000228



- KEY:**
- SITE BOUNDARY
  - HABITAT SUBJECT TO EXCLUSION AND TRAPPING EXERCISE
  - OFF-SITE RECEPTOR SITE
  - MITIGATION AREA
  - UNSUITABLE TERRESTRIAL HABITAT
  - TEMPORARY DRIFT FENCING WITH PITFALL TRAPS ON BOTH SIDES
  - SEMI-PERMANENT FENCING WITH PITFALL TRAPS ON ONE SIDE
  - TEMPORARY DRIFT FENCING TO BE INSTALLED ALONG MITIGATION AREA ONCE IT HAS BECOME ESTABLISHED (NO PITFALL TRAPS REQUIRED)
  - POND WITHIN WHICH GREAT CRESTED NEWTS WERE FOUND DURING THE SURVEYS IN 2015 / 2018
  - POND WITHIN WHICH NO GREAT CRESTED NEWTS WERE FOUND DURING THE SURVEYS IN 2015 / 2018



7655: HASSOCKS GOLF COURSE,  
LONDON ROAD, HASSOCKS,  
WEST SUSSEX

**FIGURE E4a:**  
CAPTURE AND EXCLUSION  
STRATEGY

## **APPENDIX 4**

Bird and Bat Box Examples

# 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.



## 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*

# Bat Access Tiles

Bat access tiles are available in colours and materials to match the roofing tiles used on the rest of the building.



*Habat Slate Bat Access Tile*



*NHBS Clay Bat Access Tile*



*Dreadnought Clay Bat Access Tile*

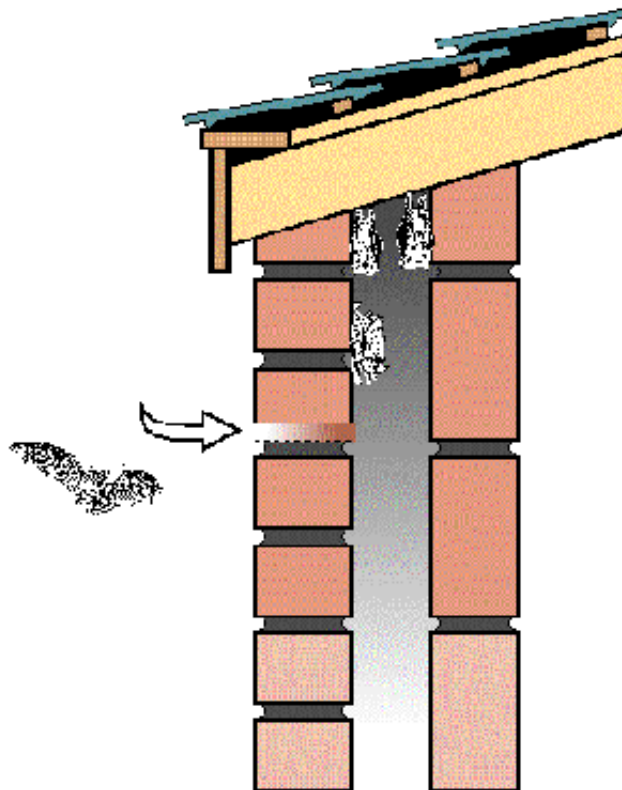


# Bat Bricks

Bat Access Bricks are produced by Marshalls Clay Products, and are specially designed to help provide access to wall cavities or roof spaces of buildings.



*Marshalls Bat Access Brick*



*A Bat Brick should ideally be placed as high as possible, at the gable apex or close to the soffit.*

Bat Access Bricks produced by Marshalls Clay Products  
Quarry Lane, Howley Park, Woodkirk, Dewsbury, West  
Yorkshire WF12 7JJ  
Tel (01132) 203535 Fax (01132) 203555



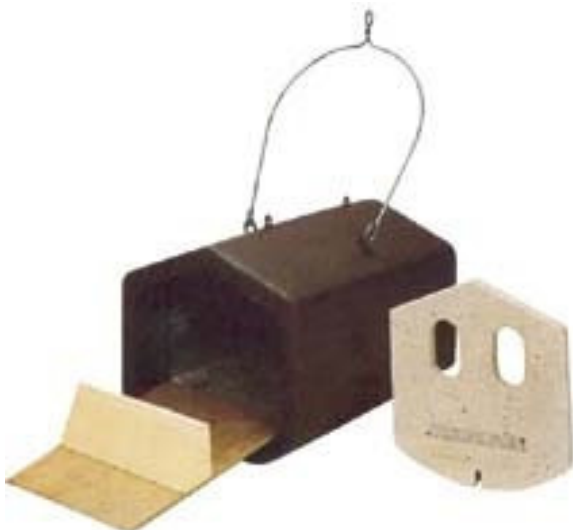
# Bird Boxes

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.

## 2GR Nest Box

Owing to the special design of the large nesting area and front panel, this box is especially well protected against predators.

*Available with a single oval entrance hole or as shown with three 27mm holes for small Tits. Nesting area: 14cm x 19cm.*



## 1N Deep Nest Box

A deeper than standard nest box which is ideal for Robins, Spotted Flycatchers, Pied Wagtails, Tits and Sparrows. Its depth offers protection from cats, Magpies, Jays and Martens.

*Two entrance holes, 30mm x 50mm.  
Nesting area: 15cm x 21cm.*

# Bird Boxes

## 1SP Sparrow Terrace



House sparrows are gregarious and prefer to nest close to each other, so this woodcrete box provides room for three families under one roof. Made from long-lasting, breathable woodcrete. No maintenance required.

*Colour: stone or brown.*

*Dimensions: 245mm x 430mm x 200 mm.*

*Weight: 15 kg.*

*Designed for fixing to walls (not suitable for fences or sheds due to the weight of the box).*



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