

Land North of Goldring Close, Mengham, Hayling Island

Biodiversity Mitigation, Enhancement & Management Plan

Final Report

June 2014

P14/14-2A



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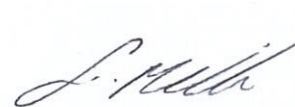
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Land North of Goldring Close, Mengham, Hayling Island

Biodiversity Mitigation, Enhancement & Management Plan

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Land North of Goldring Close, Mengham, Hayling Island Biodiversity Mitigation, Enhancement & Management Plan

EXECUTIVE SUMMARY

Ecological Planning & Research Ltd (EPR) was instructed by Bellway Homes in May 2014 to assist with ecological matters relating to their outline planning application (granted on appeal) for the construction of 131 residential properties. EPR Ltd. was commissioned primarily to produce the Ecological Mitigation, Enhancement & Management Plan, which relates to a specific condition (Condition 21). This Plan sets out the ecological context of the site and provides mitigation and compensation to offset significant negative effects from the proposed development.

This Plan also proposes additional ways to enhance the Site's value for wildlife, such as the installation of wildlife nest boxes.

A variety of new habitats will be incorporated within the landscape scheme. Therefore, this Plan also provides detail on the habitats that will be created on Site and presents information on how retained features will be managed. The management strategy of the retained and proposed new habitats for the Site will be sympathetic to the ecological value on the Site. It is intended that these measures will provide new breeding and foraging resources for wildlife, and in particular, make a small contribution to several local Biodiversity Habitat and Species Action Plans.

Prescriptions for management and monitoring have been included into the strategy to ensure the new plants establish successfully and the new habitats develop their full ecological value.

Land North of Goldring Close, Mengham, Hayling Island

Biodiversity Mitigation, Enhancement & Management Plan

1. INTRODUCTION

Background

- 1.1 Tolcarne Drive Development submitted an outline planning application in September 2012 for the residential development of 131 dwellings. PV Ecology were commissioned in April 2011 to carry out an Extended Phase 1 Ecological Assessment to support this application, which led to targeted Phase 2 survey being conducted.

Planning Application

- 1.2 Following the refusal for outline planning application on 21 December 2012, Tolcarne Drive Development appealed the decision in March 2013. The appeal was allowed on July 2013. Bellway Homes bought the site from Tolcarne Drive Development in April 2014 and as such have outline consent granted on appeal (Application number: APP/12/00966) for development of Land North of Goldring Close, Hayling Island (hereafter referred to as the "Site").
- 1.3 To fulfil planning conditions relating to ecology (as summarised below), Ecological Planning & Research Ltd (EPR) were commissioned by Bellway Homes in May 2014.
- 1.4 A planning condition relating to ecology has been imposed, which primarily relates to avoid, mitigate and compensate for impacts to biodiversity as a result of the development.

Condition 21:

"The development hereby permitted shall not commence until a detailed Biodiversity Mitigation, Enhancement and Management Plan has been submitted to and approved in writing by the Local Planning Authority. This shall detail the measures to be implemented to avoid, mitigate and compensate for impacts to biodiversity as a result of the development hereby permitted, with particular reference to bats, reptiles and foraging and nesting birds, as well as boundary planting along the eastern edge of the site. Development shall be carried out in accordance with the approved Biodiversity mitigation, Enhancement and Management Plan with all biodiversity compensation and enhancements measures being permanently retained."

- 1.5 A planning condition has also been imposed that specifically relates to birds, to limit noisy construction activities during the period in which the birds are likely to be present to ensure Brent Geese and other foraging birds that habitually feed in the adjacent field to the east of the site are not disturbed.

Condition 20:

“No construction activities that would result in noise levels in excess of 75dB(a) as measure at the eastern edge of the eastern site boundary hedge shall take place between the months of November to March inclusive.”

- 1.6 Condition 21 stipulates that a Biodiversity Mitigation, Enhancement & Management Plan (BMEMP) be produced. Therefore, EPR Ltd. Was commissioned principally to produce this report.
- 1.7 The primary purpose of this report is to provide detailed information for a variety of works relating to the delivery of ecological mitigation and habitat creation measures across the development, in addition to broad prescriptions for ongoing long-term management.

Outline of the Scheme

- 1.8 The proposed development is a residential led, urban extension within South Hayling. It entails 131 residential dwellings, comprised of 1 to 5 bed houses, along with public open space, car parking, new vehicular access and new pedestrian and cycle access. The proposed development is illustrated in **Appendix 1**. In order to achieve this, works will involve the demolition of 1 Hawthorn Grove and 23 St. Margaret's Road.
- 1.9 It is anticipated that construction works will commence in August 2014, subject to gaining planning permission, and be completed by 2017. The construction will include enabling works, site preparation, provision of infrastructure; construction of substructure; construction of superstructure; fit out of buildings; and landscaping.
- 1.10 Landscaping works will involve the establishment of green spaces within the Site. This will entail soil preparation, tree and vegetation planting, seeding, construction of footpaths/cycle routes and installation of green infrastructure.

Guidance Documents

- 1.11 This BMEMP has been prepared using information gathered from previous ecological reports from PV Ecology. A site visit by EPR Ltd in May 2014 was used to interpret these reports in the practical sense.

Aims of the Plan

- 1.12 The main aims of the plan are to:
- Ensure that species are not harmed during development of the site;
 - Increase the carrying capacity of species already present on site;
 - Encourage new wildlife onto the site;
 - Enhance the value of habitats for fauna;
 - Maintain the character of the land and planting that reflects local and native species;
 - Ensure the habitats are managed for biodiversity; and
 - Contribute to Biodiversity Action Plans (BAPs).

Objectives of the Plan

1.13 This scope of this plan can be interpreted into the following objectives:

- Implement mitigation relating to reptiles;
- Implement mitigation concerning Brent Geese and other birds that reside close to the Site;
- Create new habitats or enhance retained habitats on site;
- Plant native flora species and of local provenance;
- Include enhancement measures within the scheme;
- Provide management plans for newly created habitats; and
- Employ long-term management plans for retained areas.

Relevant Legislation & Policy

1.14 Relevant planning policy documents are described in **Appendix 2**. The key documents include The National Planning Policy Framework, and the Havant Borough Local Plan. The Havant Borough Core Strategy (March 2011) is the principal document in the Council's Local Plan, setting out the spatial planning strategy for the area up to 2026. Regional planning policies, including the South East Plan (SEP) (May 2009) and the related Regional Spatial Strategy (RSS) for the South East, were abolished by the secretary of state during 2013 in favour of the aforementioned local level plans.

1.15 The Havant Borough Council Core Strategy sets out number of core strategy and development management policies relevant to ecology. These are detailed in **Appendix 2**.

1.16 Legislation relating to wildlife and nature conservation is also detailed in **Appendix 2**. Key legislation include The Conservation of Habitats and Species Regulations 2012 (as amended); The Wildlife and Countryside Act 1981 (as amended), and The Natural Environment and Rural Communities (NERC) Act 2006.

Biodiversity Action Plans

1.17 The UK Biodiversity Action Plan 2007 (UK BAP) has been superseded by the UK Post-2010 Biodiversity Framework and individual national biodiversity strategies. The UK framework sets out the overarching vision, strategic goals and priority activities for the UK's work towards international biodiversity targets (known as the 'Aichi Targets'), as agreed by 192 parties at the UN Convention on Biological Diversity in 2010. The Framework's overall vision is that "by 2050, biodiversity is valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining a healthy planet and delivering benefits essential for all people."

1.18 The Site falls within the geographic area covered by the Local Biodiversity Action Plan (BAP) for Hampshire and Havant, which is detailed in **Appendix 3**. The Hampshire Biodiversity Action Plan prepared by Hampshire Biodiversity Partnership identifies those habitats and species of importance in the county and includes Action Plans for their conservation and management. The Hampshire BAP contains 14 Habitat Action Plan and 28 Species Action Plan.

- 1.19 Many key species in Hampshire are covered by Species Action Plans at national or regional level, or are covered within the Habitat Action Plan associated with that species. Those included in the Hampshire BAP of relevance to the site are detailed below in **Table 1.1**.

Table 1.1 *Hampshire BAP Species*

Mammals	Invertebrates
<i>Serotine bat</i>	<i>Butterflies and moths</i>
<i>Pipistrelle bat</i>	<i>Bumblebees</i>
	<i>Stag beetle</i>

- 1.20 The actions listed in the Havant BAP include habitat management, advice, monitoring and education. These have been developed on the basis of advice from partners with relevant or site-specific expertise and actions listed in relevant Habitat and Species Action Plans published as part of the Hampshire BAP. District-level BAPs like this have the dual purpose of translating priorities and objectives identified in County-level BAPs. More detail on the Havant BAP, including its objectives and integration with other strategies and plans are provided in **Appendix 3**.

2. ECOLOGICAL CONTEXT

Site Location

- 2.1 The Site (Grid Reference SZ 72557 99539) is situated to the north of Goldring Close, within Mengham area of Hayling Island. The Site is surrounded by residential housing to the north, south and south-west, a school to the north-west, and grassland to the east. (**Map 1**).

- 2.2 The Site covers approximately 4.3 ha and is comprised of two horse grazed fields. Two properties are also situated within the boundary of the Site, 1 Hawthorn Grove and 23 St. Margaret's Road. Both properties have been vacant since Autumn 2013, however, 23 St Margaret's Road has been recently let on a 6 month lease.

Designated Nature Conservation Sites

- 2.3 The Site itself is not subject to any statutory or non-statutory nature conservation designations.

Statutory Sites

- 2.4 The Site lies close to Chichester and Langstone Harbours Special Protection Area (SPA), at a distance of approximately 210m. The SPA is also a Ramsar site being an internationally recognised wetland habitat for birds. Areas are also designated as SSSI, the land and estuary to the east. These are of international importance, being a rich intertidal system supporting high densities of intertidal invertebrates and large populations of migrant and overwintering waders and wildfowl.

Non-Statutory Sites

- 2.5 There are several Sites of Importance to Nature Conservation (SINCs) within close proximity of the Site. The closest is Hayling Secondary School Playing Field SINC, located approximately 500m to the north of the Site. It is designated under SINC criteria 6B:

Criteria 6B - Sites which regularly support a significant population of a species which has a restricted distribution or has substantially declined in population or range. Such sites may be used seasonally or for only one part of a species life-cycle.

- 2.6 The presence of these sites within close proximity to the proposed development area required consideration as to the potential disturbance to birds that utilise the site as a result of construction activities or recreational pressure.

- 2.7 The Local Planning Authority (Havant Borough Council) have confirmed that the proposal is unlikely to have any significant effect on the Chichester and Langstone Harbour SPA/Ramsar site or adverse impacts on the associated Chichester Harbour SSSI.

Habitat

- 2.8 The Site consists of two fields, which up until recently have been utilised as horse

paddocks (**Map 2**). The presence of horses have meant that the grassland has been tightly and intensively grazed for a number of years resulting in a short sward. This grassland was classified by PV Ecology as semi-improved, containing predominately Perennial Rye Grass *Lolium perenne*, Annual Meadow Grass *Poa annua*, Creeping Buttercup *Ranunculus repens*, Lesser Trefoil *Trifolium dubium* and White Clover *Trifolium repens*.

- 2.9 The fields are bounded by hedgerows, containing primarily Blackthorn, Dog Rose, Bramble, Hawthorn and Dogwood, along with several trees species. Six out of the seven hedgerows on site were classified under the Hedgerow Regulations 1997 as being of ecological importance (PV Ecology, 2012) (**Map 2**).
- 2.10 Two buildings are present on Site, 1 Hawthorn Grove and 23 St. Margaret's Road. These brick-built residential buildings are located on the northern and the western boundaries of the site. These properties were vacated in Autumn 2013 (however 23 Margaret's Road has been let on a 6 month lease) and since that time the associated gardens have been left unmanaged.

Ecological Value

- 2.11 A suite of targeted surveys were recommended by PV Ecology following the Extended Phase 1 Ecological Assessment. Such surveys included a hedgerow assessment, bat activity, reptile survey, bird surveys and dormouse surveys, along with investigation as to the potential impact to the nearby Chichester and Langstone Harbours SPA.
- 2.12 The Phase 2 surveys were completed by PV Ecology in 2011. The surveys concluded that Hedgerows H1 to H6 inclusive have been assessed as ecologically important under the Hedgerows Regulations 1997 (**Map 3**). Hedgerows H1 to H3 inclusive and Hedgerows H5 and H6 qualify as UKBAP priority habitat (PV Ecology, 2012).
- 2.13 No bats were recorded emerging or entering any of the buildings on site, however bats were recorded foraging across the site. Species noted on site were Common Pipistrelle *Pipistrellus pipistrellus*, Soprano Pipistrelle *Pipistrellus pipistrellus* and Myotis spp. (suspected Daubenton's *Myotis daubentonii*). These species were all noted foraging the hedgerow, with particularly concentration along Hedgerow H5. (PV Ecology, 2012).
- 2.14 A total of 29 species of birds were observed during the bird surveys, representing species typical of sub-urban areas and farmland (PV Ecology, 2012). Three Red Listed Species were all noted using the pasture for foraging; Starlings *Sturnus vulgaris*, House Sparrows *Passer domesticus* and Song Thrush *Turdus philomelos*. The latter only recording a single individual.
- 2.15 The reptile survey results revealed that Slow-worms *Anguis fragilis* were present within the site. The highest number of adult Slow-worms found in a single visit was 1, which equates to a low population. These individuals inhabited a small area of the site, along the hedgerow and scrub habitat (**Map 3**). The heavily grazed grassland means that reptiles are confined to the edge of the site, meaning that the perimeter is important habitat.

- 2.16 No Dormice *Muscardinus avellanarius* were found during the Dormouse surveys, concluding that there are unlikely to be present within the site. However, records of their presence do exist within the area. (PV Ecology, 2012).

3. MITIGATION

- 3.1 Mitigation has been devised based on the Phase 2 survey work that was completed by PV Ecology in 2011. The mitigation is summarised on **Map 4**.

Habitat

Trees

- 3.2 Any trees that are retained on site must be protected during the construction works. This will be in accordance with British Standard recommendations, particularly BS 5837: Trees in relation to construction and BS 3998 Tree Works and the recommendations outlined in the Arboricultural Implications Assessment and Method statement (Ecourban Ltd, 2012). The Construction Exclusion Zone must be protected by any combination of fencing and ground preparation. The protection must be installed before the start of any site works that could affect trees. This must remain in place during the duration of the construction phase. The arboriculturalist must be notified if the protection needs to be temporarily dismantled. This protection must be monitored on a regular basis to ensure they are fit for purpose.
- 3.3 In order to mitigate any negative effects from street lighting, the lighting strategy for the proposed development will aim to reduce overall lighting levels and avoid direct and ambient lighting of important ecological features, including mature trees and their associated invertebrate fauna, by considering a range of options including: the type of light used; lighting levels, including dimming street lighting which would alter lighting levels based upon usage; light placement; column height; and luminaire design to minimise light spill and skyglow.

Hedgerows

- 3.4 As part of the mitigation for the proposed development all retained hedgerows within the area of open space will be buffered with a 1m strip of grassland either side of the hedges which will enable access for management as well as the creation of diverse habitats which will improve their functionality as wildlife corridors.
- 3.5 The retained hedgerows will be protected from damage during construction by use of fencing and other standard in accordance with British Standard recommendations.
- 3.6 The hedgerows will also be subject to a management plan which will seek to enhance these features through appropriate planting with native species and long-term management aimed at improving their quality. This is detailed in **Section 5**.

Ditch

- 3.7 The ditch that exists along the hedgerow network will be retained and be subjected to a 1m buffer. This will not only retain this feature but offer significant opportunities for enhancement.

Fauna

Birds

- 3.8 Any vegetation removal or destruction of breeding bird habitat will be timed to avoid the bird breeding season (which is considered to be from February to September inclusive). This will ensure that works will not potentially kill and injuring a wild bird or damaging or destroying its nest or intentionally or recklessly disturbing a species listed on Schedule 1 of the Wildlife & Countryside Act 1981. If vegetation clearance has to be carried out during the bird breeding season then this must be agreed and supervised by an ecologist.
- 3.9 A buffer zone will be erected towards the south-east corner of the site, to provide a safe area for Whitethroats *Sylvia communis* and to help increase the numbers on the site.
- 3.10 Vegetation deemed important for birds during the bird surveys will be retained, this includes the area of scrub in the north-west corner of the site that is dominated by Willow *Sallow spp.*
- 3.11 The retention and inclusion of supplementary planting to the eastern hedgerow (detailed in the following Section) will ensure Brent Geese and other foraging birds that habitually feed in the adjacent field to the east are sufficiently protected from recreational pressure and noise pollution. Specific timing of construction works that will be in excess of 75dB will also ensure high levels of noise pollution are not inflicted on to them during their most sensitive period (November to March inclusive).

Bats

- 3.12 Although no bats were recorded emerging or entering the two buildings on site they are still classed as having potential to support bats. Given that the proximity of the two buildings to wider vegetated areas it is still possible that they do use the buildings for roosting on an occasional basis. Therefore, as a precautionary measure the buildings will be demolished under a non-licensed Method Statement. This will ensure full compliance with planning policy and legislation. The Method Statement is detailed in **Appendix 4**.
- 3.13 In order to avoid indirect disturbance to bats through unintentional damage to retained features or through pollution (e.g. light and noise) during the construction phase and/or operational phase of the proposed development, a number of processes will be implemented. This will be set out in more detail in the Construction Environment Management Plan (CEMP) but in brief will involve protective fencing around retained hedgerows to ensure their commuting routes are maintained and sensitive lighting to avoid illuminating important features such as mature trees and hedgerows. Site-wide measures to minimise light pollution will be employed, including baffles and low level lighting. This will ensure that features considered important to bats are not subjected to high levels of light pollution and therefore bats are not adversely affected in the long-term.
- 3.14 A large proportion of the hedgerow network will be retained to serve as wildlife corridors and accommodate the needs of a wide range of terrestrial invertebrates, thus maintaining a good food source for bats.

Reptiles

- 3.15 The hedgerows will be retained (with the exception of three breaches to allow vehicular access), thus ensuring the vegetative perimeter of the site is retained for reptiles.
- 3.16 Although Slow-worms are present on site they are so in low numbers and are confined to the edge habitat, which is to be retained (with the exception of three breaches to allow vehicular access). Consequently, a reptile translocation is not deemed necessary.
- 3.17 To ensure reptiles do not encroach on to the main fields, the fields need to be kept grazed or mown until the works start to keep the sward height low helping to deter reptiles from entering the area. If this is not feasible a 3m strip will be cut to provide a barrier to restrict movement from the edge habitat to the main field.
- 3.18 To ensure their current habitat is preserved during the construction phase Heras fencing will be erected along all the hedgerows.
- 3.19 A 1m grassland corridor will be incorporated along each hedgerow within the areas of open space to maintain and enhance the connective corridor across the site. The retention of the majority of the hedgerow network and their enhancement will ensure that reptile habitat is protected and that they can traverse freely across the site and to wider areas. The Heras fencing mentioned above will need to set back from the hedgerow to include this grassland corridor.
- 3.20 Any works that are required within the edge habitat will require approval from the ecologist. This would then likely be carried out in accordance with a written Method Statement and under the supervision of an ecologist.
- 3.21 Any fencing that borders the vegetative perimeter of the site will contain a gap at the bottom of approximately 10cm to facilitate movement of reptiles. This will also allow other wildlife such as Hedgehogs to commute across the site.
- 3.22 Implementation of the above mitigation strategy will ensure that reptiles are not adversely affected as a result of the development proposals, and the conservation status of Slow-worm populations within the local area will be maintained.

4. ENHANCEMENT MEASURES

4.1 The National Planning Policy Framework (NPPF) sets out the Government's planning policies for England and how these should be applied. The NPPF has a clear "presumption in favour of sustainable development", with a requirement to consider its economic, social and environmental dimensions. With regard to protecting the natural environment, the NPPF requires that planning decisions should enhance the natural environment and where possible provide net gains for biodiversity.

4.2 With this in mind enhancements will be incorporated into the scheme to enhance the Site for wildlife. The measures described below have been proposed as they complement the scheme design, new habitats and focus on specific species present on Site. The enhancement measures are summarised on **Map 4**.

Soft Landscape Plan

4.3 The proposed landscape scheme will involve retention of existing habitats and the creation of new, local habitat types. The aim is to increase the numbers of species already present and to encourage new species into the area. This would lead to a high level of biodiversity, and thus a thriving environment.

4.4 The landscape scheme will include new planting across the Site. However, the crux of the planting will be focused along the hedgerows and their associated greenspace, to provide suitable vegetated connectivity. The planting specification and protocol is provided in **Appendix 5**.

Trees

4.5 The tree species must be varied to ensure diversity and be suitable for the local climatic conditions and geology. Native trees grown from seed of local provenance will have a pattern of flowering and fruiting more in tune with the lifecycles of our native birds and other wildlife and will therefore be of greater benefit.

4.6 Planting will be designed to suit the character of the landscape character area and provide suitable habitats/features for wildlife currently occupying the Site.

4.7 Individual trees will be planted across the site as landscape features. Native species such as Field Maple *Acer campestre*, Silver Birch *Betula pendula*, Common Hawthorn *Crataegus monogyna*, Wild Cherry *Prunus avium*, English Oak *Quercus robur* and Rowan *Sorbus aucuparia* will be planted, along with non-native species. Once established all of these will provide shelter and foraging habitat for a variety of wildlife, including bats, birds and invertebrates. **Appendix 6** provides the full list of plant species being included within the landscape plan, which also indicates what flora species are native and what fauna species they primarily benefit.

Hedgerows

- 4.8 Hedgerows are an extremely valuable habitat for wildlife, providing food and shelter for a wide range of species, as well as proving a natural boundary and 'corridor', on which wildlife can travel.
- 4.9 At present the hedgerows are of reasonable ecological value, however, minor improvements will greatly enhance them by encouraging the number of type of species that they support. The hedgerows will be enhanced through infill planting. Any breaches within the hedgerows will be planted with native species of local provenance. The most suitable hedges for wildlife are those with a good mix of different trees and shrubs. Hawthorn, Blackthorn *Prunus spinosa* and Hazel *Corylus avellana* are popular species and they readily establish a thick hedge, but a range of other species can also be planted to add variety to the hedge. Hedgerow species to be planted for this site will include Hazel, Common Dogwood *Cornus sanguinea*, Common Hawthorn, European Spindle *Euonymus europaeus*, Holly *Ilex aquifolium*, Blackthorn, Dog Rose *Rosa canina*, Goat Willow *Salix caprea* and Guelder Rose *Viburnum opulus*.
- 4.10 In addition, ornamental hedge species will also be planted across the site, mainly serving as garden landscaping. All 6 species are non-native, however, all are beneficial to British wildlife. *Cotoneaster franchetti* is quite an invasive shrub but if controlled is highly valuable for a range of fauna species, offering dense groundcover, producing berries that are a highly desirable food source for Blackcap *Sylvia atricapilla*, Fieldfare *Turdus pilaris*, Redwing *Turdus iliacus* and Waxwing *Bombycilla garrulus*; being the nectar plant for Brimstone *Gonepteryx rhamni* and Red Admiral *Vanessa atalanta* butterfly; and also the larval food plant for several moth species (for example Grey dagger *Acronicta psi* and Mottled umber *Erannis defoliaria*. They are also a good nectar source in the June gap for bees, when little food is available.
- 4.11 Careful planning is required in order to establish a healthy hedge. Consideration should be given to existing ground vegetation and the general condition of the ground along the proposed hedge line. It is deemed necessary to remove dense patches of bramble within the hedgerow and to allow more structural hedgerow species to be added.

Shrubs

- 4.12 In order to provide habitat connectivity between habitats, a mixture of native and non-native species will be planted in scattered areas. Species from various distinct categories of shrub will be selected in order to promote structural diversity within the resultant habitat. Native species will be concentrated along existing habitat and such species will include Hazel, Dog rose, Blackthorn, Common Hawthorn and Elder *Sambucus nigra*. This will complement the new native planting along the existing hedgerows.

Ditch

- 4.13 At present, the ditches are not of particularly high value for wildlife, and many are heavily shaded by their associated hedgerows. As an enhancement, it is suggested that wherever possible a 1-2m margin of rough grassland be retained along ditches by non-intervention management to provide connectivity for wildlife throughout the Site.

- 4.14 This margin will provide a 'wildlife corridor', which will offer shelter, foraging and connective routes for amphibians (frogs and toads) and small mammals (shrews and voles) which may in turn become prey for birds of prey.

Grassland

- 4.15 Areas of grassed open space are included within the soft landscape plan. The grassland will be sown with British Seed House Mix A19, which includes 30% Perennial Rye Grass, 40% Creeping Red Fescue, 25% Chewings Fescue and 5% Browntop Bent. This will be sown at rate of 20-25gm/m².
- 4.16 Areas of species rich grassland will also be added, using British Seed House Mix RE2 Lowland Meadow. This mix contains 31 flora species and is suitable for moist soils (see **Appendix 7** for full species list). This mix is extremely valuable for insects and birds, containing important species for bees, for example Red Clover and Meadow Vetchling. This mix will also be used for the proposed 1m grassland corridor that will be created along each hedgerow within areas of open space.

Fauna

Bats

- 4.17 It is considered that habitat creation within the open space areas and buffer zones around the hedgerows will have a positive impact on bats. The enhancement of the ditch, buffer strip, and infill hedgerow planting will increase the invertebrate diversity in the area and therefore the prey availability for a range of bat species. The enhancement and creation of native hedgerows in these areas will not only add to this increased prey abundance, but will also have the effect of improving the permeability of the landscape for bats by increasing the connectivity of commuting routes.
- 4.18 In compliance with the Government's Planning Policy on biodiversity, enhancement measures will be incorporated into this proposal to attract bat species to the area.
- 4.19 New roosting opportunities will be provided in the form of various wildlife boxes. A total of 9 bat boxes will be erected onto suitable matures on site. The preferred design and manufacture for bat boxes is Schwegler. These nest boxes are made from woodcrete, which is a mixture of wood, concrete and clay that allows natural respiration and holds a stable temperature. They are recognized for their durability (lasting up to 25 years) because they do not rot, leak, crack or warp. Schwegler boxes have the highest occupation rates of all nest boxes and are carefully designed to mimic natural nest Sites and provide a stable environment. The boxes will comprise of various models suitable for species recorded on site; 1FD, 1FF and 1FS. These are detailed in **Appendix 8**.
- 4.20 In addition, roost features will be incorporated within the new buildings that border open space or are next to vegetation. Such features will include bat tubes; 5 Schwegler 1FR bat tubes and 5 Schwegler 2FR. Schwegler 2FR bat tubes have integrated internal partitions to allow access into cavity walls. They are meant to be installed in groups, placed next to one another in modular form to create much larger spaces with transverse connecting holes.

The optimal location for these tubes is at the apex of gable ends. These are illustrated in **Appendix 8**.

- 4.21 Numerous bat access points using simple methods during construction will be provided within the roof (which are illustrated in **Appendix 8**). A total of 10 bat access slates (providing access into the cavity between the slates and roof lining) and three raised ridge tiles (providing a roosting area underneath) will be included within the roof (see **Map 4** for locations).

Birds

- 4.22 The provision of green open space and planting as part of the scheme will provide new foraging and nesting resources for a wide variety of birds. The landscape planting will be chosen for their benefits to birds, with the inclusion of native fruit bearing trees. With appropriate landscape planting and subsequent management for biodiversity, these areas will enhance the existing resources available in the currently intensively managed landscape by providing high quality habitats for breeding birds including Song Thrush and Starlings.
- 4.23 Strengthening the eastern hedgerow with planting will ensure that there is sufficient protection between the Site and the adjacent field for Brent Geese and other bird species.
- 4.24 Enhancement for bird species in the form of nest boxes will be incorporated on site, with emphasis on species that are present on site, for example House Martins *Delichon urbicum*, Swallows *Hirundo rustica* and Starlings.
- 4.25 A total of 5 bird boxes (a combination of 1B, 2GR & 3S) will be erected onto retained mature trees to provide nesting opportunity for Starlings, House Sparrow and Tit spp (all models are illustrated in **Appendix 8**). In addition, 9 specialised bird boxes will be incorporated onto garages and car ports. These will include a House Martin box (No.11), Swallow Box (No.10) and Sparrow Terrace (1SP) (see **Map 4** for locations).

Reptiles

- 4.26 Two artificial hibernacula will be constructed within the main receptor area to provide hibernation foci for reptiles over the winter. Reptiles hibernate from October to March within tree roots and in crevices of banks. The inclusion of artificial hibernacula will ensure that Slow-worms that are presently on site or are encouraged into the area have a suitable hibernation site.
- 4.27 The construction of an artificial hibernaculum will follow a standard design (see **Appendix 9**). A pile of rocks, rubble and logs should be constructed on exposed soil. Soil should be loosely placed on top of the pile with topsoil or turf being placed on top. The bund after filling would be a maximum height of 1 m and vegetation removed from site can be used as material for the hibernaculum. Consideration on the positioning is vital because the hibernaculum will need to be free draining to prevent flooding. With this in mind, x2 hibernacula will be positioned along the eastern and western boundary.

- 4.28 Log/brush piles will also be created to enhance the site for reptiles and for other wildlife species (see **Map 4**). This feature will attract more invertebrates into the area, increasing the amount of prey available for Slow Worms.
- 4.29 The 1m grassland corridor discussed under 'Grassland' in this section will provide a wide vegetated area for reptiles to bask and forage. The new planting will also offer more areas to shelter. The wildflower seed will produce a more diverse species mix within the grassland and will attract higher numbers of insects (e.g. beetles and butterflies) and soft-bodied invertebrates on which Slow-worms feed.
- 4.30 Future management of the grassland corridor is required to ensure that the habitat maintain its value for reptiles, thus guaranteeing that the Slow Worm populations are conserved post-development. This is described in the following Section.

Invertebrates

- 4.31 Dead and decaying trees are vital components of a properly functioning ecosystem and play a key role in sustaining biodiversity, soil fertility and energy flows. A wide range of plant and animal species depend on deadwood for habitat or as a food source, particularly invertebrate species.
- 4.32 Where practical, cut logs and stems of trees will be left to decay within suitable locations on Site. This will increase habitats for fungi and food sources for birds and small mammals. Continuity of supply of dead wood in all conditions is vital to provide the specific conditions for the saproxylic invertebrates. Standing deadwood tends to be more valuable for invertebrates, largely because it rots from the inside rather than the outside creating quite different conditions and microhabitats. Therefore this should be encouraged where risk from collapse is low.
- 4.33 Stag Beetles *Lucanus cervus* have been recorded within close proximity to the Site (NBN, 2014). The Stag Beetle is Britain's largest terrestrial beetle and is a globally threatened species, for which the UK supports a significant number. They are a HBAP species and as such measures should be included to encourage this species onto the Site. Therefore, two Stag Beetle Loggeries will be built on site to the specification detailed in **Appendix 10** and located in the position shown on **Map 4**.

Hedgehogs

- 4.34 Hedgehogs *Erinaceus europaeus* are on the Biodiversity Lists for England and Wales (listed as a Species of Principal Importance under the NERC Act 2006). Therefore, for Sites with known hedgehog habitat (recorded during a bat activity survey conducted by PV Ecology, 2012), enhancement measures should also be included for this declining species.
- 4.35 Two Schwegler Hedgehog boxes (illustrated in **Appendix 8**) will be positioned on site. Given that these need to be sited along a covered linear feature in a secluded area of the site, they will be installed in two corner of the middle hedgerow (see **Map 4**).

5. MANAGEMENT STRATEGY

5.1 Future management of the retained valuable habitats and newly created habitats is required to ensure they develop and maintain ecological value, thus promoting biodiversity conservation post-development. The management tasks for each habitat type are outlined below.

5.2 Due to the nature and scale of the landscape design, management will not be too onerous. A few tasks undertaken annually will be sufficient. Ultimately, the Contractor shall decide the frequency of visits to promote healthy growth and development.

Trees

5.3 The management of retained trees will be sympathetic to the wildlife on Site. Fungi should be encouraged on mature trees because they provide an essential breeding medium for many species of beetles and flies and contribute to the decay of the dead heartwood in older trees.

5.4 Any natural cracks, fractures or rot holes should not be treated, as they will fill with detritus providing habitat for a variety of species, notably fungi and invertebrates. These invertebrates will in turn provide food for birds such as Tree Creepers and Redstart. These features may potentially provide suitable roosting conditions for tree-dwelling bats and nesting site for Woodpeckers.

Pruning

5.5 Formative pruning, the removal of crossing, rubbing or dead branches, is beneficial for the tree when it is young as the wounds formed are very small and quickly callus over. Mature trees should not be heavily pruned because this could expose them to possible infection from pathogens and cause a decline in their long-term health. Trees heavily pruned are likely to have a reduced vigour and unattractive crown structure. Tree pruning should normally be carried out sympathetically to leave naturally shaped trees in accordance with BS 3998 guidance.

Felling

5.6 Felling will only be carried out on trees that are considered a significant hazard or would be deemed beneficial to the ecology of the area.

5.7 Major maintenance work or felling of trees must be undertaken outside of the bird-nesting season, which is September-February inclusive, unless there is over-riding Health & Safety concerns. If there are features suitable roosting features for bats then a specific methodology for their removal will be finalised and agreed at the detailed design stage to avoid harm or death of individual animals and therefore ensure compliance with Wildlife & Countryside Act 1981 and The Conservation of Habitats and Species Regulations 2012 (as

amended).

Inspection

- 5.8 Local Council's need to examine its trees periodically to ensure that as far as is reasonably practical, they are not posing serious and foreseeable dangers. This duty of care means that the Council should always hold records of where its trees are, condition they are in, and record necessary works to control known hazards. Tree inspections will be a regular duty on the Site, recommended every 5 years and carried out by an arboriculturalist and the results sent to the LPA to update their database. A range of data will be gathered during each inspection, including DBH, general condition and work recommendations.

Newly Planted Trees

- 5.9 The newly planted trees will take several years to develop. Little management will be required within the first 5 years, but it is advised that some form of weed control is regularly conducted. If mulching or a mulch mat has not been used during planting it will be necessary to maintain a weed-free ring of 1metre diameter around young trees. This reduces the competition for light, nutrients and water and therefore enhances the tree's growth rate and chance of survival. A weed-free ring can be created in a number of ways including chemical application, mulching and physical weeding.
- 5.10 An annual assessment will be undertaken during the summer to check for any damaged or dead plants. Any diseased or dead plants will be replaced on a like-for-like basis. The survivorship of all plants will be monitored in their first growing season, and a second planting programme undertaken in the subsequent winter, in order to replace individuals that have failed to establish.
- 5.11 Stakes and ties should be checked during each maintenance visit for chafing and stability.

Dead Wood

- 5.12 If mature trees fall in extreme weather conditions they should if practicable be left to decay where they lie and not be removed. If it is necessary to move the deadwood, it is best to transfer the deadwood only a short distance away from the tree, positioned in dappled shade. The tree stumps should be retained and not ground up, as some species (e.g. Stag Beetle) require buried dead wood and roots in which to develop. Dead leaves and decaying vegetation should not be tidied away, but left undisturbed to provide potential breeding sites for fly species such as *Sapromyza obsoleta*.
- 5.13 The over-riding objective for deadwood management is to initiate low maintenance systems. The main aim is to have deadwood of varying types and stages to maximise biodiversity, this is achieved by the continuity of supply of deadwood, providing varying states of decaying wood.

- 5.14 As with any management of habitats, any activities must be recorded and monitored.

Hedgerow/Shrubs

- 5.15 Any existing hedgerows that are of good condition will need some form of management to keep them thick and bushy, however it is crucial to avoid an intensive trimming regime as this will reduce the value of the hedge for wildlife. Rotational trimming, 2 or 3 years, rather than annually will ensure a dense nesting cover is available for birds and the berry crop is boosted.
- 5.16 The new native hedge will be to 1800mm high and ornamental hedge to 1200mm high, both trimmed twice yearly once the hedge has reached 1000mm high.
- 5.17 Occasional restoration work will be necessary to prevent gaps developing or hedges turning into a line of trees. Hedgerow restoration can be performed in the winter by either Coppicing, Laying or Trimming. Mechanical flail trimming is considered the most efficient way to cut extensive networks of hedgerows. These methods will reduce nesting opportunities for birds for a few years after the implementation, so should therefore be carried out over many years rather than in one year.
- 5.18 When implementing the maintenance, the hedges are to be cut to a variety of shapes and sizes; "A" shaped hedges provide good stock proofing and shelter for wildlife. In addition, some trees will be allowed to develop as standards at about 5-10m intervals to provide a song perches for birds.
- 5.19 Extensive trimming should be carried out in the winter to avoid the bird-nesting season and also to avoid destroying the flowers and berries that are present until the first frosts.
- 5.20 Shrubs are to be pruned as necessary to control lateral growth and any dead or diseased plant material is to be removed. Hedge trimmers are not to be used to prune shrubs.
- 5.21 Extensive trimming of the Crimson Spire *Escallonia rubra* hedgerow should be carried out in winter to avoid the bird-nesting season and also to avoid destroying the flowers that are present until the first frosts.
- 5.22 Cotoneaster shoots should be trimmed back after flowering and shaped in February.
- 5.23 An annual assessment will be undertaken during the summer to check for any damaged or dead plants. Any diseased or dead plants will be replaced on a like-for-like basis.
- 5.24 Records will be kept of maintenance work carried out on any of the habitats.

Grassland

- 5.25 Any areas of open space grass will be cut as and when necessary to a height of 25mm with a maximum height of grass at any time of 75mm. All arisings will be removed from site. Any grass areas which fail are to be cultivated and reseeded/returfed.
- 4.36 The grassland corridor will also require periodic management to prevent eventual succession to scrub and to maintain habitat suitability for reptiles. This will be achieved by infrequent cutting, undertaken twice yearly, in July and again in late September. As the area is likely to contain reptiles, cutting should be undertaken by hand (the use of a strimmer would be suitable) to no less than 15 cm and the cuttings removed with a coarse rake. To encourage structural diversity, small areas could be left uncut, and the uncut areas rotated each time.
- 5.26 The sward height and structure in the grassland corridor must be varied and not exceed a height of 1m. If any ruderal species or invasive plants are identified (such as docks *Rumex* spp. and thistles *Cirsium* spp) within this area then these must be removed before they release seed in the summer. No fertilisers or pesticides (including weedkillers) are to be used.
- 5.27 Broadly, the 12 month maintenance for the newly established species rich grass will be:

Autumn Sown (First Year) Remove clippings

- March Cut to 40-70mm if there is sufficient material
- May Cut to 40-70mm in early May
- September Cut to 40-70mm after flowering.

Maintenance thereafter Remove clippings

- March/April Cut to 40-70mm to remove excess grass
- September/October Cut to 40-70mm after flowering.

Spring Sown (First Year) Remove clippings

- 6wks after sowing Cut to 40-70mm if there is sufficient material
- May Cut to 40-70mm in early May if sufficient material
- September Cut to 40-70mm after flowering.

Maintenance thereafter Remove clippings

- March/April Cut to 40-70mm to remove excess grass
- September/October Cut to 40-70mm after flowering.

Ditch

- 5.28 The margin of grass along either side of the ditches will be left un-managed. This area will be left to establish naturally to develop a high sward height and thatch of dead grass after 3-5 years that will provide shelter and connective corridor for small mammals and other

wildlife.

Delivery

- 5.29 The grounds maintenance contractor responsible for the upkeep of the landscaped areas will undertake the annual management tasks.

Contribution to BAPs

- 5.30 The landscape design within this BMEMP will make a small contribution to BAP targets. The species rich grassland will be a flora rich habitat for wildlife and will make a small, local contribution to the Hampshire and UK BAP priority habitat targets for hedgerows, and in turn for reptiles, butterflies and moths.
- 5.31 In addition, the enhancements measures outlined for bats and invertebrates in Section 4 will help contribute to the Species Action Plans listed in **Table 1.1**.

8. MONITORING & REVIEW

Monitoring

- 8.1 Monitoring is crucial in ensuring the successful mitigation of ecological impacts, development of diverse habitats and provides feedback for species management. The information gathered from monitoring would evaluate the success of the various management activities and determine whether new methods are required or whether timing needs to be altered.

Records

- 8.2 Records must be kept of any ecological survey work or practical management tasks carried out on any of the habitats. This is essential to establish the success of the plan and inform the review process.

Review

Annual

- 8.3 The main purpose of an annual review is to ensure that the site is being managed according to the approved management strategy and to assess both the condition and progress made and the desired objectives. The Management Plan will be reviewed at this time by the Management Company, in consultation with the relevant ecological or landscape design consultants, and adapted accordingly. Any additional survey work carried out will feed into the management strategy at this stage. During this review, new dates will be set for any further site meetings and the next annual review.

Five Yearly Review

- 8.4 After five years from completion of the landscape scheme, an ecologist will visit the site to assess the condition and progress of the habitats. The management plan will be reviewed at this time, including setting the date for any further reviews. The ecologist will liaise with the Council regarding any modifications to the Plan. After five years from completion of the landscape scheme, an ecologist will visit the site to assess the condition and progress of the habitats. The management plan will be reviewed at this time, including setting the date for any further reviews. The ecologist will liaise with the Council regarding any modifications to the Plan.

Long-term

- 8.5 This strategy will require a full review at certain intervals in order to determine the status of the habitats and species occurring on the Site. The prime function of this review will be to ensure that the stated management objectives are still pertinent and that the prescriptions have been, and will continue to be, effective in achieving the objectives. All information entered into the project records database should be collated for this review and used to update the Management Plan.

- 8.6 The review will establish which management techniques have been successful, which have not and may need refinement, and whether the habitats are achieving both their ecological and recreational functions.
- 8.7 Initially a full annual review of the Management Plan will be completed. After this initial review long-term plan reviews will be at 5, 10 and 15 years. Reviews will be initiated by the Management Company, in consultation with the ecological and landscape design consultants and the developers.

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Maps

Map 1 Site Location

Map 2 Phase 1 Habitat

Map 3 Existing Valued Ecological Features

Map 4 Ecological Mitigation, Habitat Creation & Enhancement Plan



MAP 1 Site Location

KEY

Site boundary

SCALE: 1:10,000 at A3

0 100 200 300 400 Metres

EPR

Ecological Planning & Research

CLIENT: Bellway Homes Ltd.

PROJECT: Goldring Close, Hayling Island

DATE: June 2014



MAP 2 Phase 1 Habitat Survey

KEY

-  Site boundary
-  Amenity grassland
-  Scrub
-  Semi-improved grassland
-  Buildings
-  Hardstanding
-  Species-rich hedgerow with trees
-  Species-poor hedgerow
-  Dry ditch
-  Ditch
-  Path
-  Scattered broadleaf trees

PHASE 1 SURVEY CARRIED OUT BY
PV ECOLOGY IN 2011

SCALE: 1:1,300 at A3

0 20 40 60 Metres



Ecological Planning & Research

CLIENT: Bellway Homes Ltd.

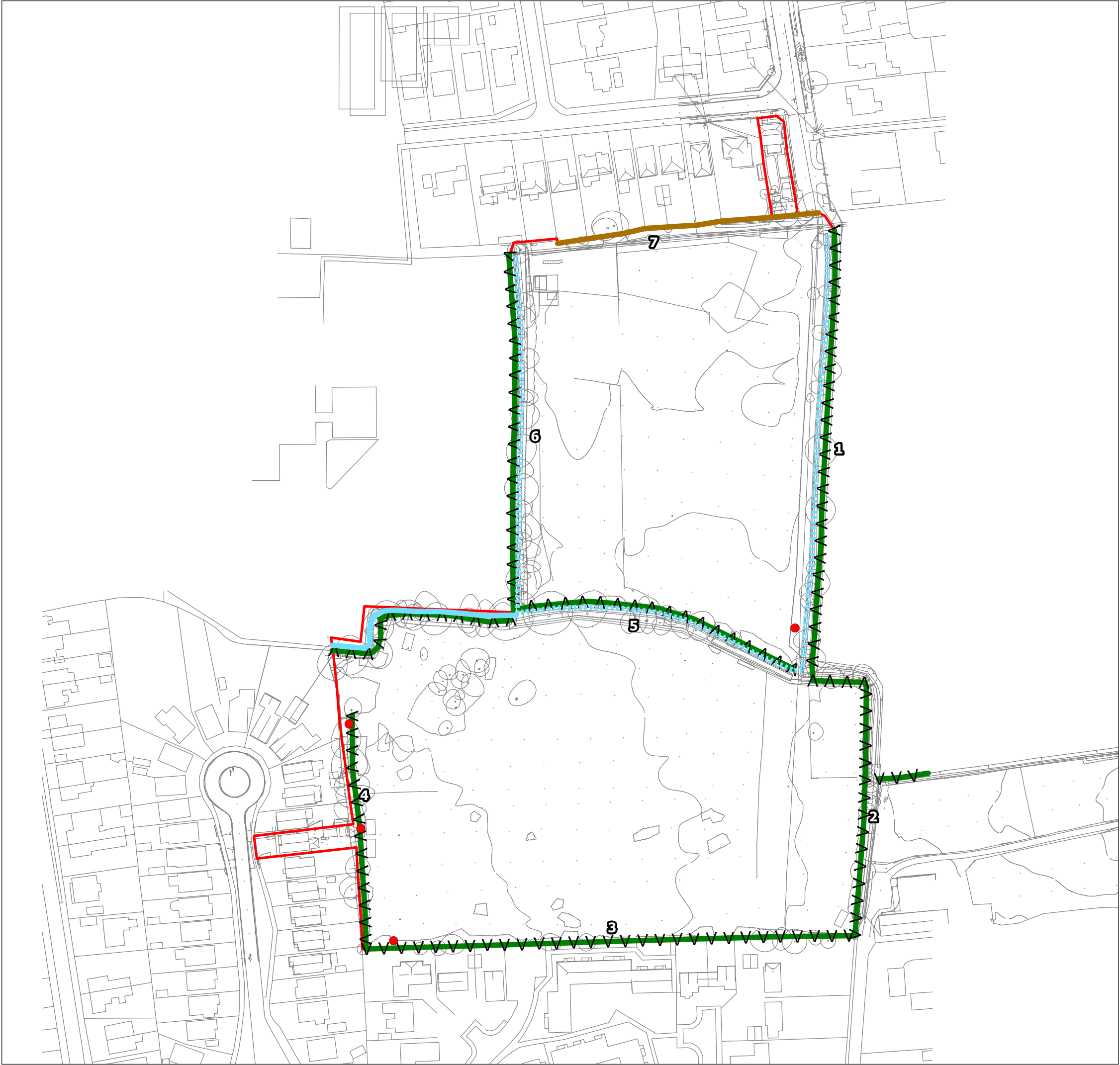
PROJECT: Goldring Close, Hayling Island

DATE: June 2014

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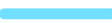
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MAP 3 Existing Valued Ecological Features

KEY

-  Site boundary
-  Species-rich hedgerow with trees
-  Species-poor hedgerow
-  Hedgerow ID
-  Dry ditch
-  Ditch
-  Reptile records

BASED ON PV ECOLOGICAL SURVEY
UNDERTAKEN IN 2011

SCALE: 1:1,500 at A3

0 20 40 60 Metres



Ecological Planning & Research

CLIENT: Bellway Homes Ltd.

PROJECT: Goldring Close, Hayling Island

DATE: June 2014

MAP 4 Ecological Mitigation & Enhancement Plan

KEY

-  Site boundary
-  Proposed location of bat & bird boxes for tree ins
-  Preferred location of House Martin bird box
-  Preferred location of House Sparrow bird box
-  Preferred location of Swallow bird box
-  Brash piles
-  Artificial reptile hibernaculum
-  Hedgehog box
-  Stag Beetle loggery

SCALE: 1:1,500 at A3

0 20 40 60 Metres



Ecological Planning & Research

CLIENT: Bellway Homes Ltd.

PROJECT: Goldring Close, Hayling Island

DATE: June 2014

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Appendix 1

Proposed Development Plan



REV	DATE	AMENDMENTS	DRAWN	CHECKED
1	22.06.14	Final to 45.07.14 for planning		
2	24.06.14	Final to 45.07.14 for planning		
3	25.06.14	General amendments to site plan on meeting notes		
4	25.06.14	Final to 45.07.14 for planning		

General amendments to site plan on meeting notes
Final to 45.07.14 for planning

Key dimensions to boundaries

Existing trees

New trees

Existing hedgerow

New planting: hedgerow/groundcover

Enhanced buffer planting

Cycle/Cycle Storage

Garage

Brown Tiles

Slate Grey Tiles

1 bed units

2 bed units

3 bed units

4 bed units

5 bed units

Schedule

Affordable

1 bed house	10
2 bed house	16
3 bed house	13
Total	39

Open Market

2 bed house	9
3 bed detached	29
4 bed detached	40
5 bed detached	4
Total	92

Total **131**



CLIENT:

PROJECT:

DRAWING:

SCALE: DWG NO:

DATE: REV:



Appendix 2

Legislation & Planning Policy Relating to Wildlife & Development in England

This Appendix is intended to provide an overview of the main features of legislation and policy relating to nature conservation in England and the implications for development.

KEY WILDLIFE LEGISLATION

Conservation of Habitats and Species Regulations 2010 (as amended)

The Conservation of Habitats and Species Regulations 2010¹ (known as the “Habitats Regulations”) transpose Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (the European “Habitats Directive”) into UK legislation. These regulations consolidate all the various amendments made to the preceding “Conservation Regulations” 1994 for England and Wales.

The Habitats Regulations were amended by the Conservation of Habitats and Species (Amendment) Regulations 2012.²

The Habitats Regulations provide for the designation of both Special Protection Areas (SPAs) and Special Areas of Conservation (SACs) in the UK, which form part of the Natura 2000 network of protected areas across Europe. The Regulations also prohibit the deliberate capture, killing or disturbance of European Protected Species (EPS), which include *inter alia* Dormouse *Muscardinus avellanarius*, Great Crested Newt *Triturus cristatus*, Otter *Lutra lutra* and all native species of bat, and make it an offence to destroy or damage either the nesting or breeding sites of these species. The above actions can be made lawful through the granting of licenses after Natural England (the licensing authority in England) is satisfied that there are no satisfactory alternatives and that such actions will have no detrimental effect on wild population of the EPS.

Further information on SPAs, SACs and European Protected Species (Licensing and Protected Species) is provided in the relevant sub-sections of this Appendix.

Wildlife & Countryside Act 1981 (as amended)

The Wildlife and Countryside Act 1981³ is the principal mechanism for the legislative protection of wildlife in Great Britain. Various amendments have occurred since the original enactment. Certain species of bird, animal and plant (including all of the European Protected Species listed above) are afforded protection under Schedules 1, 5 and 8 of the Act. Reference is made to the various Schedules and Parts of this Act (**Table A1.1**) in the section of this Appendix dealing with Legally Protected Species. The Act also contains measures for the protection of the

¹ The Conservation of Habitats and Species Regulations 2010. Available from: <http://www.legislation.gov.uk/ukSI/2010/490/contents/made>

² The Conservation of Habitats and Species (Amendment) Regulations 2012. Available from: <http://www.legislation.gov.uk/ukSI/2012/1927/contents/made>

³ The Wildlife and Countryside Act 1981. Available from: <http://www.legislation.gov.uk/ukpga/1981/69/contents>

countryside, National Parks, Sites of Special Scientific Interest (SSSIs) and public rights of way as well as preventing the establishment of invasive non-native species that may be detrimental to native wildlife.

Table A1.1: Key Schedules of the Wildlife & Countryside Act 1981 (as amended)

Schedule	Protected Species
Schedule 1 Part 1	Protects listed birds through special penalties at all times
Schedule 1 Part 2	Protects listed birds through special penalties during the close season
Schedule 5 Section 9.1 (killing/injuring)	Protects listed animals from intentional killing or injuring
Schedule 5 Section 9.1 (taking)	Protects listed animals from taking
Schedule 5 Section 9.2	Protects listed animals from being possessed or controlled (live or dead)
Schedule 5 Section 9.4a	Protects listed animals from intentional damage or destruction to any structure or place used for shelter or protection
Schedule 5 Section 9.4b	Protects listed animals from intentional disturbance while occupying a structure or place used for shelter or protection
Schedule 5 Section 9.5a	Protects listed animals from being sold, offered for sale or being held or transported for sale either live or dead, whole or part
Schedule 5 Section 9.5b	Protects listed animals from being published or advertised as being for sale
Schedule 8	Protects listed plants from: intentional picking, uprooting or destruction (Section 13 1a); selling, offering for sale, possessing or transporting for the purpose of sale (live or dead, part or derivative) (Section 13 2a); advertising (any of these) for buying or selling (Section 13 2b).
Schedule 9	Prohibits the release of species listed in the Schedule into the wild.

Further information on legally protected species, designated wildlife sites and invasive non-native species is provided in the relevant sub-sections of this Appendix.

The Natural Environment and Rural Communities Act 2006

The Natural Environment and Rural Communities (NERC) Act 2006⁴ was intended to raise the profile of biodiversity amongst all public authorities (including local authorities, and statutory undertakers) and to make biodiversity an integral part of policy and decision-making processes. The NERC Act also improved wildlife protection by amending the Wildlife and Countryside Act 1981.

Section 40 (S40) of the Act places a 'Biodiversity Duty' on all public bodies to have regard to the conservation of biodiversity when carrying out their normal functions. This includes giving consideration to the restoration and enhancement of species and habitats.

⁴ The Natural Environment and Rural Communities Act 2006. Available from: www.legislation.gov.uk/ukpga/2006/16/contents

Section 41 (S41) of the Act requires the Secretary of State to publish a list of habitats and species which are of Principal Importance for the conservation of biodiversity in England⁵. Public authorities have a responsibility to give specific consideration to the S41 list when exercising their normal functions. For planning authorities, consideration for Species and Habitats of Principal Importance will be exercised through the planning and development control processes. Further information on species and habitats of Principal Importance is provided in the relevant sub-section of this Appendix.

PLANNING POLICY & GUIDANCE

Listed below is the main planning policy and government guidance that relates to the conservation of nature and development at all levels of government.

National Level

National Planning Policy Framework (NPPF)

The National Planning Policy Framework⁶ sets out the Government's planning policies for England and how these should be applied in local-level policy and decision making. The NPPF has a clear "presumption in favour of sustainable development" (paragraph 14), with a requirement to consider its economic, social and environmental dimensions. This does not apply where development requiring Appropriate Assessment under the Habitats Directive is being considered, planned or determined (paragraph 119).

Section 11 of the NPPF provides guidance on conserving and enhancing the natural environment through the planning system and replaces the preceding *Planning Policy Statement 9 (PPS9): Biodiversity and Geological Conservation*. It specifies that when determining planning applications, local planning authorities should aim to **conserve and enhance** biodiversity by applying the following principles:

- if significant harm resulting from a development cannot be avoided, adequately mitigated or (as a last resort) compensated for, then planning permission should be refused;
- proposed development that is likely to have an adverse effect on a Site of Special Scientific Interest (either individually or in combination with other developments) should normally be refused;
- planning permission should normally be refused for development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland and the loss of aged or veteran trees found outside ancient woodland;
- development proposals where the primary objective is to conserve and enhance biodiversity should be permitted;

⁵ The S40 list replaces the previously prepared list of habitats and species of Principal Importance for the conservation of biological diversity in England that was published under Section 74 (2) of the Countryside and Rights of Way Act 2000.

⁶ DCLG (2012). *National Planning Policy Framework*. Available from: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6077/2116950.pdf

- opportunities to incorporate biodiversity in and around developments should be encouraged.

In the case of SSSIs and irreplaceable habitats, exceptions *may* be made if it can be clearly demonstrated that the benefits of the development, at this particular site, outweigh the costs in terms of loss or adverse impacts.

Section 11 also specifies that listed or proposed Ramsar sites, potential European sites, and sites identified or required as compensatory measures for adverse effects on designated/listed or potential/proposed European and Ramsar sites should be given the same protection as designated European sites.

Government Circular 06/05: Biodiversity and Geological Conservation

The Government produced Circular 06/05⁷ to provide guidance on the application of the law to the conservation of nature. Although the document is in the process of being updated, Paragraphs 98 and 99 remain relevant as they set out the following principles and obligations:

- The presence of protected species is a material consideration when determining a development proposal;
- Local authorities should consult with Natural England before granting permission, and consider imposing planning conditions or obligations to secure the long-term protection of the species;
- The presence or otherwise of protected species, and the extent to which they may be affected by the proposed development, must be established before permission is granted;
- Given the delay and cost that may be involved, developers should not be required to undertake surveys for protected species unless there is a reasonable likelihood of the species being present and affected by the development.

Good Practice & Standards

DCLG Planning Practice Guidance

Revised and updated Planning Practice Guidance (PPG)⁸ was launched by the Department for Communities and Local Government (DCLG) as a web-based tool in March 2014 to accompany the National Planning Policy Framework. The webpages are set out in an accessible Q&A format. The PPG consolidates and supersedes existing guidance on a range of planning-related topics, clarifies some of the statements made in the NPPF, and provides links to relevant legislation and other sources of advice.

⁷ ODPM (2005). *Circular 06/05: Biodiversity and Geological Conservation - Statutory Obligations and Their Impact Within the Planning System*. Available from:

<http://www.communities.gov.uk/publications/planningandbuilding/circularbiodiversity>

⁸ DCLG (2014). Planning Practice Guidance. Available from: <http://planningguidance.planningportal.gov.uk/>

The Guidance outlines a number of important principles in relation to nature conservation and biodiversity, including the need to integrate biodiversity into all stages of the planning process and to consider opportunities to enhance biodiversity and contribute to the Government's commitments and targets set out in *Biodiversity 2020: A strategy for England's wildlife and ecosystem services* (see [below](#)). It also lists a number of issues that should be considered in relation to biodiversity, including local biodiversity plans and strategies, Section 41 species and habitats, the need for ecological surveys, local ecological networks, and statutory obligations with regard to internationally and nationally designated sites – all of which are discussed throughout this Appendix.

The guidance also requires that “an ecological survey will be necessary in advance of a planning application if the type and location of development are such that the impact on biodiversity may be significant and existing information is lacking or inadequate” and recommends that “local planning authorities should only require ecological surveys where clearly justified, for example if they consider there is a reasonable likelihood of a protected species being present and affected by development.”

Other guidance

In addition to the Planning Practice Guidance, various other forms of guidance and standards are available to help manage biodiversity through the development process. Of particular note is *British Standard BS42020:2013 Biodiversity – Code of practice for planning and development*,⁹ published in August 2013, which replaces *Planning to Halt the Loss of Biodiversity (PAS 2010): Biodiversity conservation standards for planning in the United Kingdom*.

This document is designed to complement the National Planning Policy Framework and is aimed at organisations concerned with ecological issues throughout the planning process, including local authorities, developers, planners and ecological consultants. It sets out clear, step-by-step recommendations on how to incorporate biodiversity considerations at all stages of the planning process, with a focus on the provision of consistent, high quality and appropriate ecological information, effective decision making, and high standards of professional conduct and competence.

Regional Level

The South East Plan Regional Spatial Strategy (RSS) no longer provides Regional level planning policy applicable to the proposals, as the planning provisions of the Localism Act 2011 came into force in March 2013, revoking the South East Plan.

Local Level

Policy CS11, “Protecting and Enhancing the Special Environment and Heritage of Havant Borough”,

Policy CS11 includes points outlining an approach to development in relation to the region's statutory and non-statutory designated sites. These cite several requirements relating to protection and enhancement of “designated landscapes” and “features of...biological interest”.

⁹ The British Standards Institution (2013). BS42020:2013 Biodiversity – Code of practice for planning and development. Available from: <http://shop.bsigroup.com/ProductDetail/?pid=000000000030258704>

Policy CS12, "Chichester Harbour Area of Outstanding Natural Beauty (AONB)",

Policy CS12 covers a number of points referring to assessment and avoidance of impacts on the character and wellbeing of the Chichester Harbour ANOB. Ecological considerations are implicated within the obligation under point 4 for proposals to meet the policy requirements of the Chichester Harbour Management Plan (2014-2019). The relevant section of this document for ecology is Chapter 3, "Nature Conservation".

Chichester Harbour Management Plan

Nature Conservation policies NC1 to NC5 of the Chichester Harbour Management Plan set out a requirement to conserve and enhance species and habitats to achieve "favourable conservation status". In addition, obligations to find opportunities for public education, create new habitats, minimise recreational disturbance and carry out monitoring and research are outlined.

Policy CS13, "Green Infrastructure" Policy CS13, although not directly related to ecology and biodiversity, outlines provisions for protection, enhancement and creation of green infrastructure resources, including some with particular potential relevance to ecology such as natural and semi-natural greenspaces, green corridors and river and canal corridors.. A requirement for "superior alternative provision" is cited, where green infrastructure is to be impacted by proposals.

DM8 Conservation, "Protection and Enhancement of Existing Natural Features"

Under policy DM8 "Development will only be permitted where it protects and enhances local habitats and landscape distinctiveness". Especially relevant to ecology, proposals must meet criteria whereby they "protect features of nature conservation...importance...from... damage destruction and deterioration.", "sympathetically incorporate existing features into the overall design" and "integrate successfully with the local environment and existing natural features".

DM9, "Development in the Coastal Zone"

Policy DM9 states that permission for developments will only be granted where there are "no harmful effects on nature conservation within the Chichester and Langstone Harbour SSSIs and SPA, Solent Maritime SAC and Ramsar site, or any SINC's and Local Nature Reserves".

BIODIVERSITY PLANS AND STRATEGIES

The NERC Act 2006 places a duty on local authorities to have due regard to biodiversity when exercising their normal functions, and the NPPF requires planning policies to "promote the preservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species populations, linked to national and local targets" (paragraph 117). These targets are set out in a range of biodiversity plans and strategies from the international through to the district level. An overview of the key biodiversity plans and strategies in the UK, and their implications for development, are set out below.

National level

The UK Biodiversity Action Plan 2007 (UK BAP) has been superseded by the *UK Post-2010 Biodiversity Framework*¹⁰ and individual national biodiversity strategies. The UK framework sets out the overarching vision, strategic goals and priority activities for the UK's work towards international biodiversity targets (known as the 'Aichi Targets'), as agreed by 192 parties at the UN Convention on Biological Diversity in 2010. The Framework's overall vision is that "by 2050, biodiversity is valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining a healthy planet and delivering benefits essential for all people."

In England, *Biodiversity 2020: A strategy for England's wildlife and ecosystem services*¹¹ is the national biodiversity strategy, which has the stated mission "(...)to halt overall biodiversity loss, support healthy well-functioning ecosystems and establish coherent ecological networks, with more and better places for nature for the benefit of wildlife and people." In order to focus activity and assess performance in achieving this mission, Biodiversity 2020 sets objectives relating to terrestrial and marine habitats and ecosystems, species and people. These include:

- Establishing coherent and resilient ecological networks, described as "a network of high quality sites, protected by buffer zones, and connected by wildlife corridors and smaller, but still wildlife-rich, 'stepping-stone' sites";
- Taking targeted action for the recovery of priority species whose conservation is not delivered through wider habitat-based and ecosystem measures ;
- Establishing Nature Improvement Areas and Marine Protected Areas;
- Bringing more SSSIs into favourable condition;
- Reducing environmental pressures by working with sectors such as agriculture, forestry, planning and development.

A network of 48 Local Nature Partnerships have been set up across England to help deliver these objectives.

Note that as these changes are still relatively new, some local plans and government guidance documents/circulars still refer to the UK BAP and 'UK BAP priority habitats and species'. These habitats and species are listed under Section 41 of the NERC Act, and **remain a material consideration in the planning process**. They are now described as 'Species/Habitats of Principal Importance', though they are also commonly referred to as 'Section 41 Species/Habitats' or simply 'Priority Species/Habitats'. Further guidance is given in the relevant sections below.

Delivering Biodiversity Opportunities

Where practicable, opportunities should also be sought to achieve a **net gain** (i.e. enhancement) of biodiversity. Support for biodiversity enhancement is provided in the Public

¹⁰ JNCC and Defra (on behalf of the Four Countries' Biodiversity Group) (2012). *The UK Post-2010 Biodiversity Framework*. Available from: http://jncc.defra.gov.uk/pdf/UK_Post2010_Bio-Fwork.pdf

¹¹ DEFRA (2011). *Biodiversity 2020: A strategy for England's wildlife and ecosystem services*. Available from: <https://www.gov.uk/government/publications/biodiversity-2020-a-strategy-for-england-s-wildlife-and-ecosystem-services>

Authority 'Biodiversity Duty' under the NERC Act 2006 and in the key principles of the NPPF, as described above.

Enhancement projects may not just benefit biodiversity. There are many functional benefits to be won from strategically planned green infrastructure projects such as semi-natural urban green spaces, sustainable urban drainage schemes (SUDS) and green roofs. Planning conditions and obligations are increasingly being used to mandate biodiversity enhancement on or off a development site, either through design or through financial support.

Many ideas for incorporating ecological enhancement into planning and development can be found in the biodiversity action plans and/or strategies relevant to the policy or development area, or through initiatives led by the Local Nature Partnership. At the national level, twelve Nature Improvement Areas were set up in 2012 in order to deliver landscape-scale conservation objectives, and many regions and counties have also identified and mapped 'Biodiversity Opportunity Areas', 'Nature Maps' or 'Strategic Nature Areas' where conservation action such as habitat creation and restoration will deliver the greatest benefits for biodiversity.

Other sources of ideas and opportunities include schemes led by conservation NGOs, such as the Wildlife Trusts' 'Living Landscapes' and the RSPB's 'Futurescapes', which are working in partnership with landowners and local communities across the country to restore ecosystems and ecological networks.

Living Landscapes, Basingstoke and Deane Borough Council Natural Environment Strategy 2010

Sites KI02 and KI03 are not within a Biodiversity Opportunity Area (BOA). Both sites are within the Enborne Living Landscape Area, wherein the focus is to improve the borough's hedgerow network, given its importance in providing landscape-scale habitat links.

SITES DESIGNATED FOR THE CONSERVATION OF NATURE

There is a hierarchy of nature conservation sites which is based on the level of statutory protection and the administrative level of importance. Other features of nature conservation interest outside designated sites may also be a material consideration in the determination of planning applications.

Statutory Sites

Internationally Important Sites

Ramsar Sites, Special Areas of Conservation (SAC) and Special Protection Areas (SPA)

The Conservation of Habitats and Species Regulations 2010 (as amended) provide the primary legal basis for the protection of Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) in Great Britain. Ramsar sites are, as a matter of national planning policy, subject to the same strict protection. Any plan or project considered likely to affect a SAC, SPA or Ramsar site must be subject to an assessment, as set out under Regulation 61, and Regulation 102 in respect of Land Use Plans.

Ramsar sites are wetlands of international importance. The majority of terrestrial Ramsar sites in England are also notified as SPAs and/or Sites of Special Scientific Interest (SSSIs).

SACs are sites which support internationally important habitats and/or species listed as being of Community Importance in the Annexes of the EU Habitats Directive 1992. SPAs are sites which support internationally important numbers of bird species listed as being of Community Importance in the Annexes of the EU Birds Directive 1979. Together, SACs and SPAs make up the Natura 2000 network of Sites of Community Importance throughout Europe.

Development Control

Development proposals or damaging activities which may affect a European or international site will be subject to rigorous examination by local planning authorities (or other 'competent authority'), through a process commonly referred to as 'Habitats Regulations Assessment'. The onus is on the developer to provide the necessary information to inform this process.

Under the Conservation of Habitats and Species Regulations 2010 (as amended), the competent authority must determine in the first instance whether a proposed development is likely to have a significant effect on the European or Ramsar site, either alone or in combination with other plans and projects.

If a likely significant effect cannot be precluded on the basis of objective information, the competent authority must undertake an 'Appropriate Assessment' to fully assess these implications against the site's conservation objectives. A precautionary approach must be taken with respect to determining whether or not there would be an impact, and the appropriate nature conservation body (in most cases Natural England) should be consulted. Except in certain exceptional circumstances prescribed by the Regulations where there are imperative reasons of overriding public interest for allowing a development to proceed, the competent authority may not undertake or authorise the plan or project until they have established (based on the conclusions of the Appropriate Assessment) that the activity will not adversely affect the integrity of the European or Ramsar site. This should be the case where no reasonable scientific doubt remains as to the absence of such effects.

Nationally Important Sites

Sites of Special Scientific Interest (SSSI)

The Wildlife and Countryside Act 1981 (as amended) and the CROW Act 2000 provide the primary legal basis for the protection of Sites of Special Scientific Interest (SSSI). These sites have been designated to capture the best examples of England's flora, fauna, geological or physiographical diversity.

National Nature Reserve (NNR)

NNRs are declared under the National Parks and Access to the Countryside Act 1949 and the Wildlife and Countryside Act 1981, as amended by Environmental Protection Act 1990. They are managed to conserve their habitats or to provide special opportunities for scientific study of the habitats communities and species represented within them. NNRs represent the very best parts of England's SSSIs. The majority of NNRs also have European nature conservation designations.

Development Control

A development proposal that is likely to affect nationally important sites will be subject to special scrutiny by the local authority and Natural England. Certain operations may be permitted. Any potentially damaging operations that could have an adverse effect directly or indirectly on the special interest of the site will not be permitted unless the reasons for the development clearly outweigh the nature conservation and/or geological value of the site itself and the national policy to safeguard such sites.

Regionally & Locally Important Sites

Local Nature Reserves

Local Nature Reserves are declared by local authorities under the National Parks and Access to the Countryside Act 1949 as living green spaces in towns, cities, villages and countryside. They provide opportunities for research and education, or for simply enjoying and having contact with nature. LNRs are usually protected from development through local planning documents which may be supplemented by local by-laws.

Non-Statutory Sites

Local Wildlife Sites

Local authorities may designate non-statutory sites for their nature conservation value based on important, distinctive and threatened habitats and species within a national, regional and local context. These sites are not legally protected but are given some protection through the planning system. These sites may be declared as 'County Wildlife Sites', 'Sites of Importance for Nature Conservation' (SINCs), or 'Sites of Nature Conservation Importance' (SNCIs) in local and structure plans. Non-statutory sites are a material consideration when planning applications are being determined. The precise amount of weight to be attached, however, will take into account the position of the site in the hierarchy of sites as set out above. Further information is typically provided in local level planning policy.

Nature Conservation in Areas Outside Designated Sites

Various other features exist outside designated sites that are important for the conservation of nature and which are a material consideration in the planning system.

Habitats of Principal Importance in England

Fifty-six habitat types have been identified as Habitats of Principal Importance in England for the conservation of biodiversity under Section 41 of the NERC Act 2006¹². The NPPF, Government Circular 06/05, good practice guidance and the NERC Act place a clear responsibility on planning authorities to further the conservation of these habitats. They can be a material consideration in planning decisions, and so developers are advised to take reasonable

¹² The S41 List of Species & Habitats of Principal Importance in England is available from:
<http://www.naturalengland.org.uk/ourwork/conservation/biodiversity/protectandmanage/habsandspeciesimportance.aspx>

measures to avoid or mitigate impacts to prevent their net loss and to enhance them where possible. Additional guidance to developers is typically provided in local level planning policy.

Networks of Natural Habitats

Networks of natural habitats link sites of biodiversity importance and provide routes or stepping stones for the migration, dispersal and genetic exchange of species in the wider environment. Examples include rivers with their banks, traditional field boundary systems (such as hedgerows), ponds and small woods. Local planning authorities are encouraged through the NPPF to maintain networks by avoiding or repairing the fragmentation and isolation of natural habitats through planning, policies and development control.

Hedgerows

Hedgerows can act as wildlife corridors that are essential for migration, dispersal and genetic exchange of wild species. Hedgerows that qualify as a Habitat of Principal importance under S41 of the NERC Act 2006 are a material consideration in the planning system.

Under the Hedgerow Regulations 1997, it is an offence to remove a hedgerow without submitting a notice to the Local Planning Authority and waiting for their decision. The Regulations are aimed at countryside hedges and do not apply to hedges around private dwellings or where planning permission has been granted for a project that includes hedge removal. Hedgerows that satisfy wildlife, archaeological, historical or landscape criteria qualify as 'important' under the Regulations. If a hedgerow is not important, the Local Planning Authority may not prevent its removal; however, Local Planning Authorities are required under the Regulations to protect and retain Important hedgerows unless satisfied that the circumstances justify its removal.

Trees & Woodlands

Tree Preservation Orders

Tree Preservation Orders (TPOs) may be declared under the Town and Country Planning Act 1990 and the Town and Country Planning (Trees) Regulations 1999 to protect individual trees and woodlands from development and cutting. TPOs are designed to preserve amenity or landscape conservation. The importance of trees as wildlife habitat may be taken into account, but alone is not sufficient to warrant a TPO. For this reason, TPOs do not fit comfortably under the remit of nature conservation. Further guidance on TPOs in relation to development is available from the Department for Communities and Local Government¹³.

Ancient Woodland & Veteran Trees

Ancient woods are areas continuously wooded for at least 400 years. Even an ancient wood which has been replanted may still have remnants of ancient woodland wildlife and historical features and has potential to be restored. Ancient woodland is not a statutory designation and does not provide legal protection, but local authorities are advised under the NPPF and NPPG not to grant planning permission for any development that would result in the loss or

¹³ Office of the Deputy Prime Minister (2000). Tree Preservation Orders: A Guide to the Law and Good Practice. Available from: <http://www.communities.gov.uk/publications/planningandbuilding/tposguide>

deterioration of ancient woodland or veteran trees unless the need for, and benefits of, the development outweigh the loss. Local Planning Authorities must take into account Natural England and the Forestry Commission's *Standing Advice for Ancient Woodland and Veteran Trees*.¹⁴

Surface & Ground Waters

Surface waters (including flowing and standing water) and ground water can directly and indirectly impact upon the conservation of nature. Careful planning and the application of the Environment Agency's *Pollution Prevention Guidelines*¹⁵ can help reduce the risk of construction and maintenance work causing pollution to surface and ground waters. Some activities with the potential to impact watercourses or groundwater may require consent under the Water Resources Act 1991.

¹⁴ Natural England and the Forestry Commission (2014). *Standing Advice for Ancient Woodland and Veteran Trees*. Available from: http://www.naturalengland.org.uk/Images/ancient-woodland-standing-advice_tcm6-37627.pdf

¹⁵ Environment Agency (2007). *Pollution Prevention Guidelines Works and Maintenance In or Near Water: PPG5*. Available from: <http://www.environment-agency.gov.uk/netregs/links/107968.aspx>

Appendix 3

Biodiversity Action Plans

Havant BAP

Despite the changes to national level biodiversity policy described above, county and district level BAPs still apply. The following BAPs are relevant to this development:

Integration with other Strategies and Plans

There are a number of strategies and plans with which the LBAP can be directly linked. The key strategies (although some are still in the draft stages) are the Havant Borough Core Strategy, Solent European Marine Sites (SEMS) Draft Management Scheme, North Solent Shoreline Management Plan, Green Infrastructure strategy for PUSH area, and the Solent Waders and Brent Goose Strategy 2010. There are also other plans which need to be considered as they influence the planning and decision making process for the borough, or the council are actively involved, for example Chichester Harbour AONB Management Plan and the Coastal Biodiversity Action Plan. The borough should also work closely with neighbouring council's, particularly those with their own BAP such as East Hampshire District Council, to ensure a coherent approach.

Objectives for Biodiversity in Havant

Havant Borough faces some difficult challenges in protecting and enhancing biodiversity. Havant lies within the South Hampshire Sub-region, a priority area for housing and economic development. Havant's existing conurbations are home to 116,000 residents (just under 10% of the County-wide population). Havant is also home to several significant sites within and around the authority boundary, several of international importance. These sites are important resources that offer a wide variety of plant, animal and conservation interest to both residents and visitors.

The objectives of the Havant Biodiversity Action Plan are:

- to present an accurate and up-to-date description of the habitat and wildlife resources in the area
- to identify local priorities for action based on larger landscape-scale processes
- to ensure that national and county objectives are translated into effective local action
- to stimulate effective local partnerships for biodiversity
- to raise awareness of the importance of biodiversity
- to support a range of biodiversity conservation measures: protection, restoration and habitat creation
- to identify the resources required for action and those already available

- to provide a systematic basis for monitoring and reviewing progress
- to feed progress to the Hampshire Biodiversity Partnership and work towards
- best practice

Appendix 4

Non-licenced Method Statement for Bat – Building Demolition

The building will be demolished outside of the bat hibernation period (November-March). However, if birds' nests are present within the buildings the timing of demolition works will also need to take the bird nesting season into account (which is March-September inclusive). Therefore, with bats and birds in mind demolition should take place in October or March/April (if weather is suitable and a bird nesting check is conducted prior to emergence).

If demolition works take place further into the bird nesting season, i.e. May onwards, then there will be more chance of birds nest being present and therefore greater likelihood that development may become delayed. If works are carried out within the bird nesting season, a bird nesting survey will need to be carried out on the building by an ecologist no longer than 24 hours before the start of development works. If any nesting birds are found, a buffer zone (minimum of 3 m) would be set up around the active nest, within which no works can occur until all birds have fledged; this can take up to 6 weeks.

Two bat boxes must be placed on site a month prior to the start of the demolition of the building. The boxes must be positioned onto a sheltered, quiet area that will not be subjected to a level of light pollution.

Before construction works commence an ecologist will provide a tool-box-talk for all site personnel involved with the demolition of the buildings. This talk will provide an overview of the potential for the building to support bats and legislative implications, and include how to identify bats and their droppings and the procedure to follow if any bats or evidence of bats are discovered.

A bat licensed ecologist will then guide and supervise destructive works in sensitive areas of the building.

In the unlikely event that bats or their evidence are found during the destructive search or otherwise, all works must stop and advice sought from Natural England regarding the need for a European Protected Species Licence (EPSL). It is likely that an EPSL will need to be applied for from Natural England before works can recommence.

Appendix 5

Planting Specification/Protocol

SPECIMENS

All planting and landscape operations are to comply with 'Recommendations for General Landscape Operations' BS4428 (1989). Plant material will comply with the National Plant Specification. All plants must be in good condition, with good shape, well branched head and free of diseases and pests.

PREPARATION WITHIN THE CROWN SPREAD OF EXISTING TREES

Remove weeds and existing vegetation by hand digging. Retain existing topsoil and cultivate by hand with no greater change of level than 100mm. Proposed planting to be spaced to avoid damage to tree roots. Planting pits to be backfilled with fresh topsoil 75% and compost 25 % mix.

GENERAL PREPARATION

Break out any existing hard surfaces to the full depth of construction and excavate to allow full depth of topsoil and compost indicated below. Finished levels of topsoil with mulch dressing to be 50mm above adjacent pavings and 150mm below D.P.C.

PREPARATION FOR REPLACEMENT PLANTING

Where existing planting is to be removed and replaced with new planting. Grub out existing roots to full depth and extent. Particularly where conifers have been removed, replace existing topsoil with fresh site or imported topsoil which meets the specification below.

TOPSOIL

Imported topsoil to be Multipurpose quality topsoil as stated in BS3882:2007. If site topsoil is to be reused it must be equivalent to the Multipurpose quality in the BS. Devoid of stones and debris over 50mm dia and free from weeds, vegetation and other deleterious material. Do not use topsoil contaminated with oil or other materials poisonous to plants. Topsoil depths: Shrub beds 450mm. Grass areas 150mm.

FERTILISER

All shrub beds to be top dressed with a slow release fertiliser such as Ficote 140 or similar. Applied to manufacturer's recommended rate.

COMPOST

Compost shall be well rotted manure, spent mushroom compost or matured peat free compost made from botanical residues. Graded particles of no larger than 12mm with substantial amount of organic fines and pH around 6.5. The product is to be free of physical contaminants, viable weed seeds and pathogens and shall be untreated by additives. Shrub beds shall have a 50mm depth cultivated into the soil.

PLANTING SHRUBS

Shrub pits to be 150 mm wider than the container size or large enough to allow the full spread of bare root shrubs. Back fill with excavated material.

TREE ROOT MANAGEMENT

Trees planted adjacent to public footpaths/highways or on site shallow services and utilities should have a linear root barrier fitted such as Greenleaf "Reroot" 600 or 1000 depending on the depth of the adjacent services. Install to manufacturer's recommendations. Tel 01424 717797.

WATERING

Immediately after planting, water all trees and shrubs thoroughly. Allow for watering to promote healthy growth throughout the maintenance period.

MULCH

Spread 75mm depth of good quality bark mulch 8-65mm in any dimension. Free from pests, disease, fungus, weeds, sticks, leaves and rubbish and rested for 90 days.

REPLACEMENTS

The landscape contractor carries a defects liability for 12 months following completion of the planting. He shall be required to replace any plants in the first growing season following planting, which are dead or dying.

TURF

Areas proposed for new grass to be treated with suitable herbicide and cultivated, leveled and stones etc removed. Turf to be laid in spring or autumn and a suitable irrigation system made available throughout the establishment period. Turf to be Rowlawn "Medallion" or similar general purpose, cultivated turf big roll. The Contractor is to maintain the grass until the end of the defects liability period.

Areas proposed for new grass to be treated with suitable herbicide and cultivated, levelled and stones etc removed. Ground to be cultivated to a fine tilth and treated with an application of pre-seeding fertiliser N:P:K 6:9:6. Areas to be seeded in spring or autumn and a suitable irrigation system made available throughout the establishment period. Seed mix to be British Seedhouses A19 or similar mix of 30% Perennial Ryegrass, 40% Creeping Red Fescue, 25% Chewings Fescue, 5% Browntop Bent, @ 20-25gm/m². The contractor is to maintain the grass until the end of the Defects Liability Period.

Areas proposed for new grass to be treated with suitable herbicide and cultivated, levelled and stones etc removed. Ground to be cultivated to a reasonably fine tilth. Areas to be seeded in spring or autumn and a suitable irrigation system made available throughout the establishment period. Seed mix to be British Seedhouses RE2 Lowland Meadow, suitable for moist soils, maintain the grass until the end of the Defects Liability Period.

IMPLEMENTATION TIMETABLE

It is advisable to plant the bare-rooted trees in the winter when they are dormant. During this period moderate and relatively stable air temperatures prevail, and soil temperatures and moisture levels are usually in a range that promotes rapid root development. Planting in the spring and summer

should be avoided because the spring may bring excessive precipitation and the summer may bring extreme heat that may damage the trees.

Planting must not be carried out during a frost or in waterlogged conditions.

Soft landscape works to be implemented in the first suitable growing season following completion of the construction works.

- BARE ROOT AND ROOT BALLED PLANTS - November to March
- CONTAINER GROWN PLANTS - as above, or at any time if ground and weather conditions are favourable, and a water supply is available for watering in prolonged periods of warm, dry weather.
- GRASS SEEDING - April to October, if ground and weather conditions are favourable, or a water supply is available for watering, if required.
- TURFING - at any time, but preferably Autumn. A water supply must be available in Spring and Summer.

PLANTING SPACING AND LAYOUT

Planting in species groups mimics natural grouping and spacing. Not only does it encourage self-pruning, the individuals tend to grow straight and tall and establish more effectively.

When planting it is important to ensure appropriate spacing between trees. Widely spaced trees grow outwards and not upwards and take many years to create a canopy. They also suffer poor form and additional weed burden. By contrast trees planted at close spacing form a canopy within a few years and in creating a woodland environment grow more quickly and with better form.

Typically, tree spacing is between 2 and 3 metres and shrub spacing is around 1m spacing. If establishing a long hedge, trees can be planted at 5-10m intervals.

Whips will be planted by notch planting, making sure the roots are evenly spread and firmed in.

Scrub planting will not take a formal grid pattern, but will be random giving a more naturalistic feel.

Specification for each is type is a follows:

Trees - Double full length minimum 75mm dia/sq. Position stakes close to the rootball and drive stakes at least 300mm into the bottom of the pit before planting. Cut off stake just below the lowest branch. Fit with crossbar and rubber webbing with cushion.

Ornamental Hedge - Plant hedge in a single row at 3 plants per linear metre. Planting pits to be 150 mm wider than the container size or large enough to allow the full spread of bare root shrubs. Back fill with excavated material.

Native Hedge - Plant in double staggered rows 300mm apart, spacing 5/6 plants per linear metre. Planting trench to be 500 mm wide and 300mm deep. Back fill with excavated material and dress with slow release fertiliser. Cut back the height of the newly planted hedge immediately by 20% to encourage bushy growth from the base.

PROTECTION OF SPECIMENS

Where plants may be subject to damage by animals (whether cattle, rabbits or deer), they will require some form of protection. For semi-mature trees, understorey woodland and hedgerow

planting spiral guards will be used. For certain scrub and understorey woodland planting shrubshelters or mesh guards will be used to accommodate their wider bushier and allow them to develop, such species are Holly and Gorse.

The height of the protection is dependent on the wildlife present. In general for this site the specification will be:

Shrubs and hedge - Supply 600mm high plastic shrub guards such as Acorn "Shelterguard Plus"

Shrubs - 150-180mm diameter, and fix with single internal stake

Appendix 6

Landscape Planting List (Hilary Martin, 2014)

Trees.

Species name	Common name	Native?	Animals associated with this plant
<i>Acer campestre</i>	Field Maple	Yes	Maple Pug (Moth), Prominent Moth
<i>Amelanchier grandiflora</i>	Serviceberry	No	
<i>Betula pendula</i>	Silver Birch	Yes	Buff-Tip Moth, Lesser Redpoll
<i>Crataegus laevigata</i>	Midland Hawthorn	Yes	Fieldfare
<i>Crataegus monogyna</i>	Common Hawthorn	Yes	Fieldfare, Hazel Dormouse
<i>Crataegus x prunifolia</i>	Broad-Leaved Cockspur Thorn	No	
<i>Prunus avium</i>	Wild Cherry	Yes	Hawfinch, Cherry Bark Moth
<i>Prunus</i> var.	'Kanzan'	No	
<i>Prunus</i> var.	'Sunset Boulevard'	No	
<i>Pyrus calleryana</i>	Callery Pear	No	
<i>Quercus robur</i>	English Oak	Yes	Eurasian Jay, Purple Emperor (butterfly)
<i>Sorbus aria</i>	Whitebeam	Yes	Short-Cloaked Moth
<i>Sorbus aucuparia</i>	Rowan	Yes	Redwing, Welsh Wave Moth
<i>Sorbus</i> var.	'Golden Wonder'	No	
<i>Tilia cordata</i>	Small-Leaved Lime	Yes	Lime Hawkmoth, Greenfinch

Shrubs.

Species name	Common name	Native?	Animals associated with this plant
<i>Aucuba japonica</i>	Japanese Laurel	No	
<i>Berberis x fricartii</i>	'Amstelveen' Barberry	No	Mottled Pug, Scarce Tissue Moth
<i>Ceanothus thyrsiflorus repens</i>	Blue Blossom Ceanothus	No	
<i>Choisya ternata</i>	Mexican Orange Blossom	No	Peacock Butterfly
<i>Cornus sanguinea</i>	Common Dogwood	Yes	Yellow-Barred Brindle Moth
<i>Corylus avellana</i>	Hazel	Yes	Hazel Dormouse, Little Emerald Moth
<i>Crataegus monogyna</i>	Common Hawthorn	Yes	Fieldfare, Hazel Dormouse
<i>Elaeagnus pungens</i>	Thorny Olive	No	
<i>Euonymus europaeus</i>	European Spindle	Yes	Robin, Spindle Ermine Moth
<i>Euonymus fortunei</i>	Fortune's Spindle	No	
<i>Hebe x franciscana</i>	'Blue Gem'	No	Honeybee
<i>Hebe</i> var.	'Midsummer Beauty'	No	Honeybee
<i>Hebe</i> var.	'Mrs Winder'	No	
<i>Hebe</i> var.	'Red Edge'	No	

<i>Hypericum calycinum</i>	Great St John's Wort, var. 'Hidcote'	No	Treble-Bar Moth
<i>Hypericum x moserianum</i>	'Tricolor'	No	Treble-Bar Moth
<i>Ilex aquifolium</i>	Holly	Yes	Holly Blue Butterfly, Mistle Thrush
<i>Lavandula angustifolia</i>	Common Lavender	No	Honeybee, Hummingbird Hawkmoth
<i>Lonicera nitida</i>	Boxleaf Honeysuckle	No	
<i>Photinia x fraseri</i>	'Red Robin'	No	
<i>Prunus laurocerasus</i>	Cherry Laurel	No	
<i>Prunus spinosa</i>	Blackthorn	Yes	Brimstone Moth, Brown Hairstreak
<i>Pyracantha coccinea</i>	Firethorn	No	Greenfinch
<i>Pyracantha</i> var.	'Orange Glow'	No	
<i>Rosa canina</i>	Dog Rose	Yes	Greenfinch, Barred Yellow Moth
<i>Rosa</i> var.	'Fru Dagmar Hastrup'	No	
<i>Rosa rugosa</i>	Japanese Rose	No	
<i>Salix caprea</i>	Goat Willow	Yes	Purple Emperor (butterfly), Eyed Hawkmoth
<i>Skimmia x confusa</i>	'Kew Green'	No	
<i>Skimmia japonica</i>	'Fragrans'	No	
<i>Spiraea japonica</i>	Japanese Spiraea	No	
<i>Symphoricarpos x chenaultii</i>	Chenault coralberry	No	
<i>Viburnum opulus</i>	Guelder Rose	Yes	Bullfinch, Mistle Thrush
<i>Weigela florida</i>	'Pink Princess'	No	

Hedge.

Species name	Common name	Native?	Animals associated with this plant
<i>Abelia</i> var.	'Edward Goucher'	No	
<i>Cotoneaster franchetii</i>	Franchet's Cotoneaster	No	Blackbird
<i>Elaeagnus ebbingei</i>	Ebbinge's Silverberry	No	
<i>Escallonia rubra</i>	'Crimson Spire'	No	Honeybee, House Sparrow
<i>Griselinia littoralis</i>	New Zealand Broadleaf	No	
<i>Viburnum tinus</i>	Laurestinus Viburnum	No	Mistle Thrush

Native Planting.

Species name	Common name	Animals associated with this plant
<i>Cornus sanguinea</i>	Common Dogwood	Yellow-Barred Brindle Moth
<i>Corylus avellana</i>	Hazel	Hazel Dormouse, Little Emerald Moth
<i>Crataegus monogyna</i>	Common Hawthorn	Fieldfare, Hazel Dormouse
<i>Euonymus europaeus</i>	European Spindle	Robin, Spindle Ermine Moth
<i>Ilex aquifolium</i>	Holly	Holly Blue Butterfly, Mistle Thrush
<i>Prunus spinosa</i>	Blackthorn	Brimstone Moth, Brown Hairstreak

<i>Rosa canina</i>	Dog Rose	Greenfinch, Barred Yellow Moth
<i>Salix caprea</i>	Goat Willow	Purple Emperor (butterfly), Eyed Hawkmoth
<i>Sambucus nigra</i>	Elder	Blackcap
<i>Viburnum opulus</i>	Guelder Rose	Bullfinch, Mistle Thrush

Appendix 7

RE 2 Lowland Meadow Mix Species List – MG9 Grassland (British Seed House, 2014)

%	Latin Name	Common Name
25%	<i>Festuca rubra litoralis</i>	Slender Creeping Red F
10%	<i>Cynosurus cristatus</i>	Crested Dogstail
10%	<i>Festuca pratensis</i>	Meadow Fescue
5%	<i>Arrhenatherum elatius</i>	Tall Oat-Grass
5%	<i>Deschampsia caespitose</i>	Tufted Hair-Grass
5%	<i>Holcus lanatus</i>	Yorkshire Fog
5%	<i>Phleum bertolonii</i>	Small Leaved Timothy
5%	<i>Poa trivialis</i>	Rough Stalked Meadow Grass
3%	<i>Alopecurus pratensis</i>	Meadow Foxtail
3%	<i>Trisetum flavescens</i>	Golden Oat-Grass
2%	<i>Anthoxanthum odoratum</i>	Sweet Vernal
2%	<i>Centurea nigra</i>	Common Knapweed
2%	<i>Galium verum</i>	Lady's Bedstraw
2%	<i>Leucanthemum vulgare</i>	Oxeye Daisy
2%	<i>Plantago lanceolata</i>	Ribwort Plantain
2%	<i>Ranunculus acris</i>	Meadow Buttercup
2%	<i>Ranunculus repens</i>	Creeping Buttercup
1.5%	<i>Rumex acetosa</i>	Common Sorrel
1%	<i>Achillea millefolium</i>	Yarrow
1%	<i>Agrimonia eupatorium</i>	Agrimony
1%	<i>Agrostis stolonifera</i>	Creeping Bent
1%	<i>Briza media</i>	Quaking Grass
1%	<i>Filipendula ulmaria</i>	Meadow Sweet
1%	<i>Trifolium pratense</i>	Red Clover
0.8%	<i>Trifolium repens</i>	White Clover
0.5%	<i>Conopodium majus</i>	Pignut
0.5%	<i>Prunella vulgaris</i>	Self Heal
0.2%	<i>Lathyris pratensis</i>	Meadow Vetchling
0.2%	<i>Leonodon autumnale</i>	Autumn Hawkbit
0.2%	<i>Taraxacum officinale</i>	Dandelion
0.1%	<i>Pulcaria dysenteria</i>	Common Fleabane

Appendix 8

Wildlife Box Specifications (Schwegler, 2014)

Bat Box

Schwegler Boxes are made from woodcrete, which is a mixture of wood, concrete and clay. They are famous for their durability (lasting up to 25 years) because they do not rot, leak, crack or warp. Schwegler boxes have the highest occupation rates of all nest boxes and are carefully designed to mimic natural nest Sites and provide a stable environment.

These boxes should be installed at least 4 metres from the ground and on a variety of compass directions to provide a mixture of temperature and humidity conditions.

Schwegler 1FD Bat Box



The interior and the type and size of the entrance hole match the requirements of smaller species. It features a special layout inside the domed roof, an increased interior height, and two grooved internal wooden front panels with precise spacing between them. This model has proved highly effective as a nursing area.

Suitable for: Small bats such as the Common Pipistrelle (*Pipistrellus pipistrellus*), Nathusius Pipistrelle (*Pipistrellus nathusii*), Daubenton's Bat (*Myotis daubentonii*) and Long-eared bat (*Plecotus* sp.).

Schwegler 1FF Bat Box



Since the 1FF is open at the bottom, allowing droppings to fall out, it does not need cleaning and is therefore especially suitable for hanging in inaccessible places such as steep slopes and house walls.

To compensate for fluctuations in temperature in spring and autumn, the 1FF is provided with a roughened rear panel made of hard-wearing wood. Depending on their individual temperature requirements, the animals can choose between the cooler wood-concrete or the warmer wooden panel.

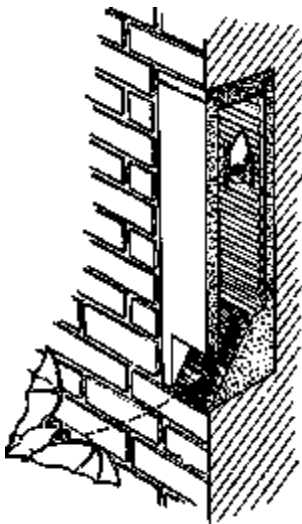
Schwegler 1FS Bat Box



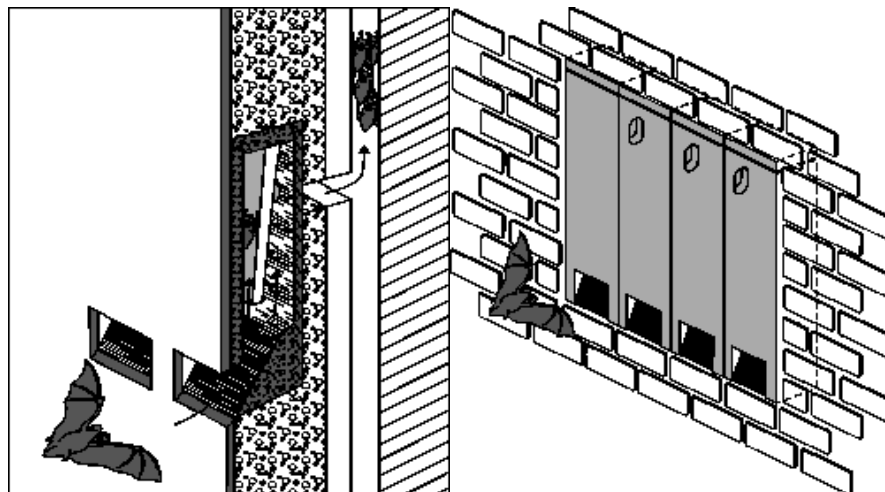
This model is very popular for accommodating large colonies in summer, especially of Noctule (*Nyctalus noctula*), Nathusius' Pipistrelle (*Pipistrellus nathusii*) and Common Long-eared Bat (*Plecotus auritus*). It provides plenty of space for a large number of individuals to congregate. Bats are highly sociable creatures, so this box provides many places from which they can hang and which they can also use as a nursing area to rear their young.

Bat Tube 1FR

Suitable for: Bat species that inhabit buildings



Bat Tube 2FR



Bird Box

Birds Boxes should be installed at a safe height from predators (minimum of 2 metres) and be sheltered from prevailing winds and rain.

General Purpose Nest Box 1B



Occupants:

Entrance hole 32 mm:

Great-, Blue-, Marsh-, Coal- and Crested Tit, Redstart, Nuthatch, Collared and Pied Flycatcher, Wryneck, Tree and House Sparrows, bats

Entrance hole 26 mm:

Blue-, Marsh-, Coal- and Crested Tit, possibly Wren. All other species are prevented from using the nest box due to this smaller entrance hole.

Entrance hole oval:

Redstart; also used by species that nest in the diameter 32 mm boxes. However, because more light enters the brood chamber, it is preferred by Redstarts.

General Purpose Nest Box 2GR



Occupants:

Oval entrance hole: (30 x 45 mm)

Coal, Blue, Marsh, Great and Crested Tit, Redstart, Nuthatch, Collard and Pied Flycatcher, Wryneck, Tree and House Sparrow, bats

Three-hole entrance: Ø 27 mm each

Blue, Marsh, Great and Crested Tits. Due to the small size of the entrance hole no other species is able to occupy this nest box.

Starling Box 3S



Starlings are often seen as a problem at certain times of the year and in particular regions. They are highly adaptable, feed in flocks and can soon use up readily available sources of food. However, we should not forget the ecological benefits that they provide as an important form of pest control. For example, they limit the numbers of crane flies, green oak leaf rollers and gypsy moths. We supply two well-proven types of nest box, both of which are just as likely to provide overnight shelter for Great Spotted, Middle Spotted and Lesser Spotted Woodpeckers. When there are fewer Starlings, other species such as Pied Flycatchers and Nuthatches may breed in these boxes. Because of the relatively large entrance hole, the interior is well lit which encourages occupation.

Sparrow Terrace 1SP



While nesting and raising their young both types of sparrow feed exclusively on insects, especially arthropods (insects with segmented legs). Therefore, their traditional role in keeping down pests and maintaining the balance of nature is a very important one, though not always recognised. Recently the numbers of both species have declined substantially and in some areas they are now rarely seen. Long term studies have confirmed this drastic reduction in their numbers across Europe.

Other Occupants:

House and tree sparrows, and in some instances other birds which use nest boxes such as tits, redstart and spotted flycatcher.

House Martin No.11



This nest has been developed to enable House Martins to breed successfully on external facades without overhanging eaves and has proved highly successful. The unique, modern design certainly forms an attractive addition to our towns and villages.

Siting: On an unobstructed external facade without overhanging roof, or alternatively, directly under overhanging

eaves. House Martins always nest on the outside and never on the inside of buildings. Install on the sheltered side of the building.

Swallows No.10



These nesting aids are installed singly. Although Barn Swallows are sociable birds, the nests should not be placed directly adjacent to one another but at intervals of approximately 1 m.

Height above ground: Distance between top of nest and ceiling at least 6 cm.

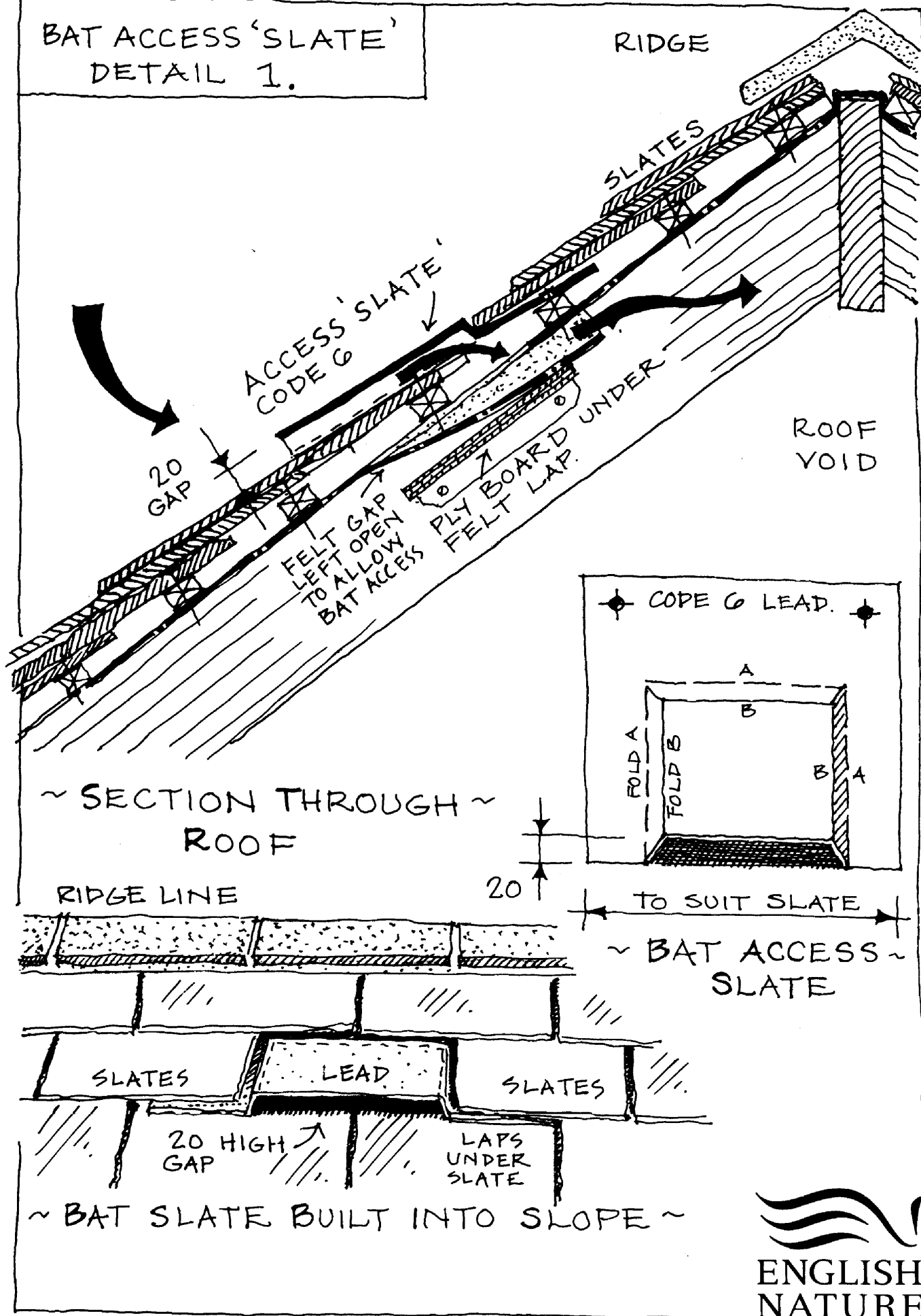
Site: Inside buildings of all kinds, porches, livestock sheds, barns, sewage works, etc. Always ensure unobstructed access through open windows and skylights

Hedgehog Box

Schwegler Hedgehog Dome



BAT ACCESS 'SLATE' DETAIL 1.



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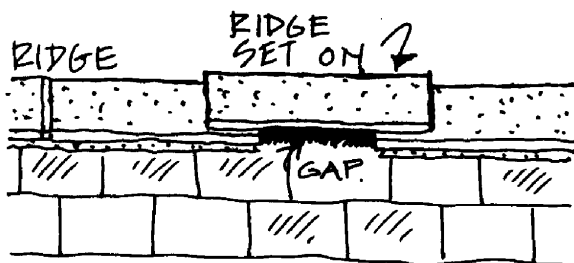
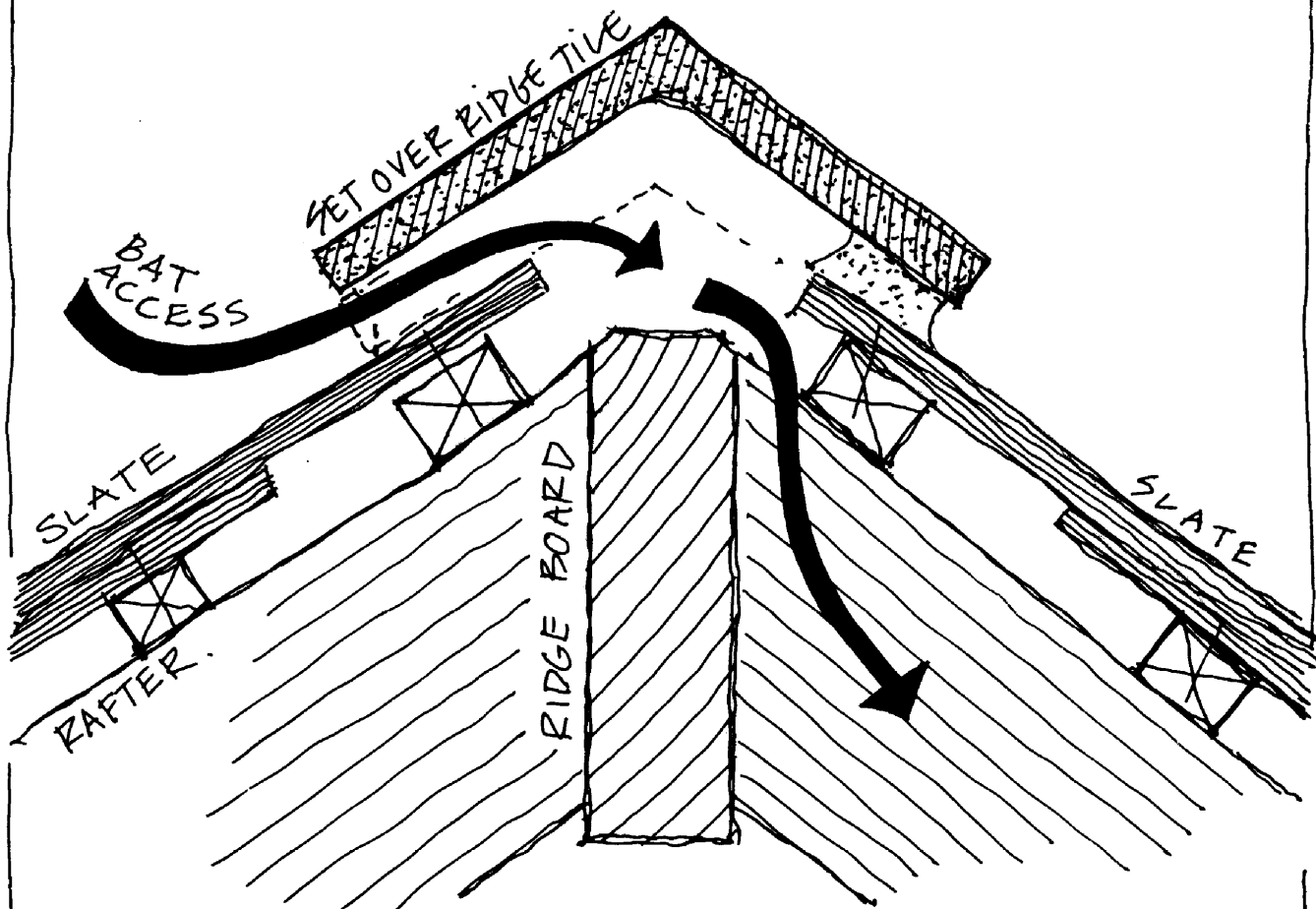
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The above information is for guidance only and may not be appropriate in all circumstances, if in doubt seek professional advice.

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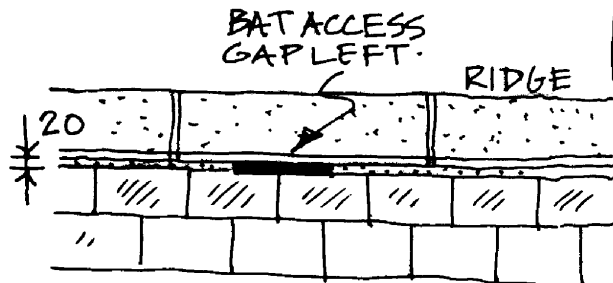
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RIDGE TILE ACCESS DETAIL 4



~ OPTION A ~

ROOF RIDGE SET ON TOP
OF GENERAL RIDGE TILES
TO FORM BAT ACCESS GAP.



~ OPTION B ~

MAINTAIN 20MM MORTAR
GAP. & LEAVE A SECTION
OUT.

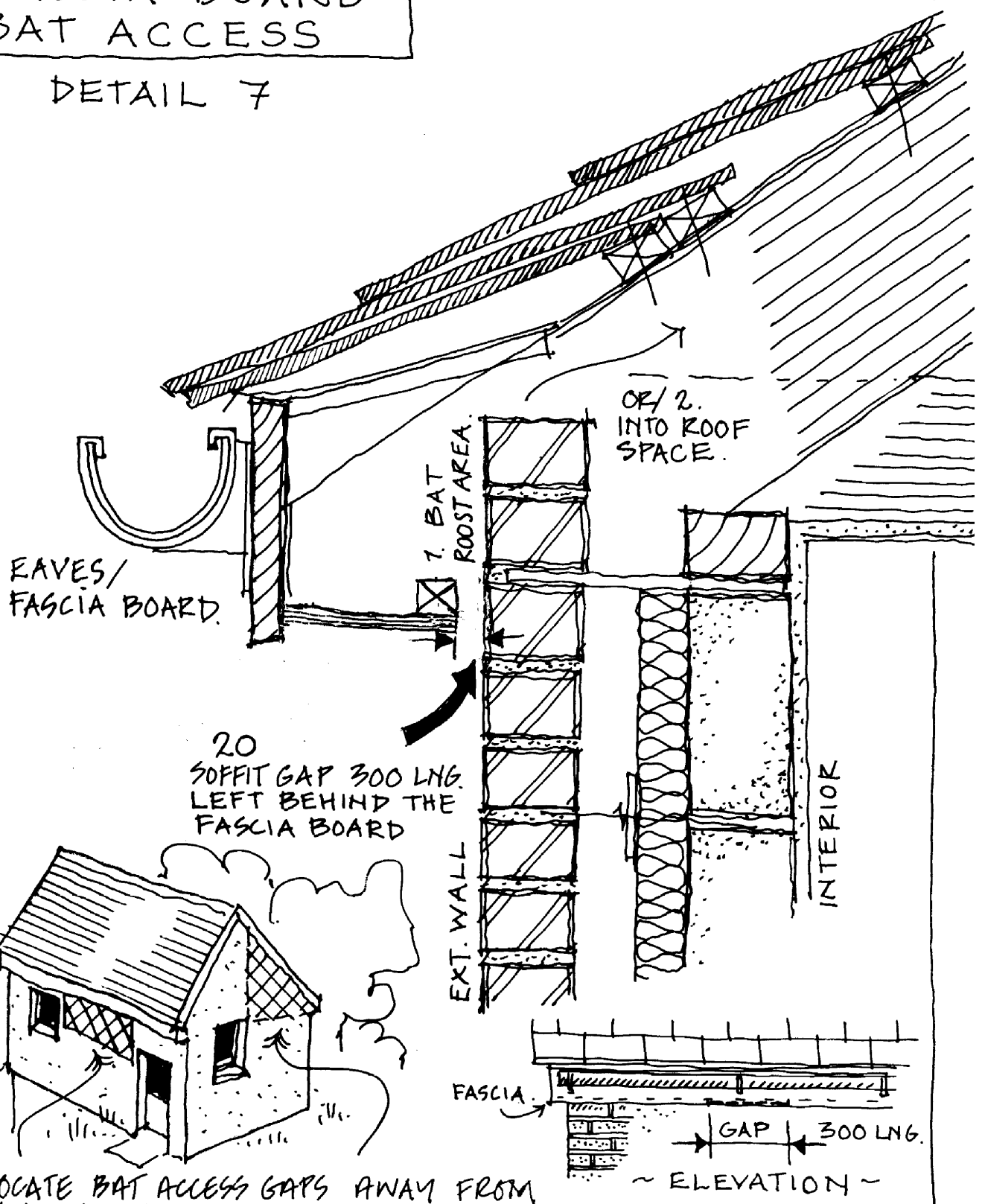

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FASCIA BOARD BAT ACCESS

DETAIL 7



LOCATE BAT ACCESS GAPS AWAY FROM
WINDOWS + DOOR - AREAS SHOWN HATCHED.

Appendix 9

Artificial Reptile Hibernacula Design

Key Issues in Hibernaculum Design

There is no 'perfect' hibernaculum design. However, the following features should be considered when constructing a hibernaculum.

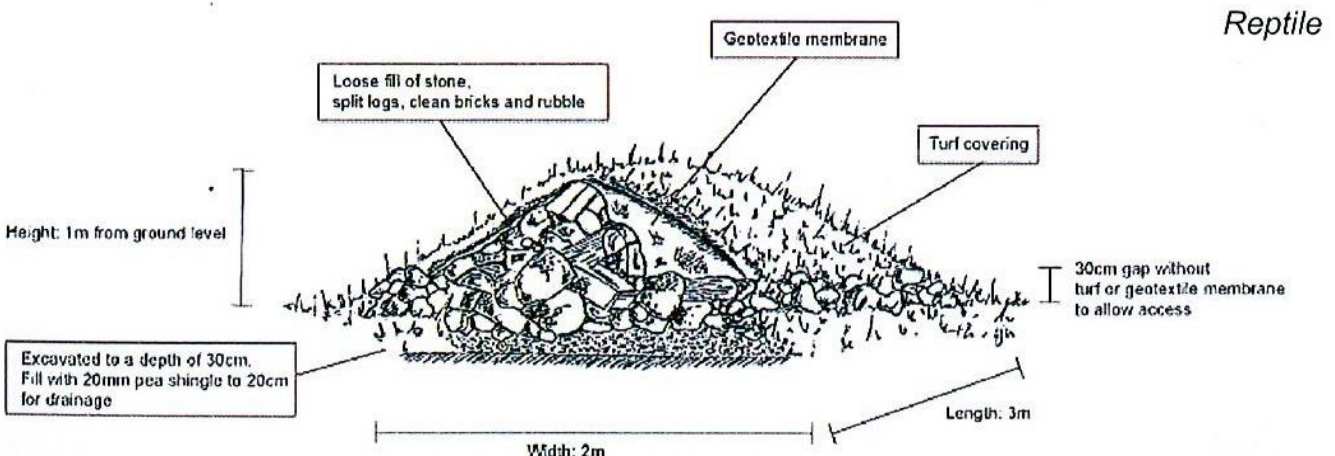
- Species assemblage and size of the populations
- Drainage of the soil
- Quality of the immediate surrounding habitat for reptiles
- Incorporation of other habitat features that may be absent on the site (e.g. basking banks)

Snakes often require larger, more complex and sheltered hibernacula than common lizards or slow worms. If the site lacks a south facing aspect an extensive basking bank could also be incorporated into hibernacula design. Drainage is also an important aspect to consider as winter flooding of hibernacula can be detrimental to reptiles. Placement of hibernacula in areas of suitable reptile habitat is also essential to enable dispersal to feeding/mating areas.

Step by step guide - General Hibernaculum Construction

Prior to any works, carefully strim the works area to discourage any reptiles from entering and carry out a visual assessment prior to starting works in the proposed hibernaculum area.

1. Strip turf in a sinusoidal or crescent shape along an east-west axis at least 4 m in length and 2 m in width.
2. Within this area, dig a pit approximately 50 cm deep (avoid if on impermeable soils).
3. Add gravel or sand to the bottom of the pit.
4. Starting with larger non-biodegradable materials first (to prevent rotting and hibernacula collapse) fill in the pit (e.g. add larger logs first, followed by thinner brush).
5. Place the stripped turf on top.
6. Ensure there are access points.
7. On north facing slope add brush piles to create some shelter and to allow scrub colonisation.
8. Ensure that the mound is at least 1 m high.



Appendix 10

Stag Beetle Loggery

The loggery is to comprise of large cut logs, with a diameter of 10-15cm. The bark is to remain on these logs and they are to be positioned into the ground, ideally with each log set at different heights. Only around one third of the logs should be above ground level. To finish, soil should be deposited between the logs to provide stability.

The loggery should be positioned in a free draining and sheltered area of a site.

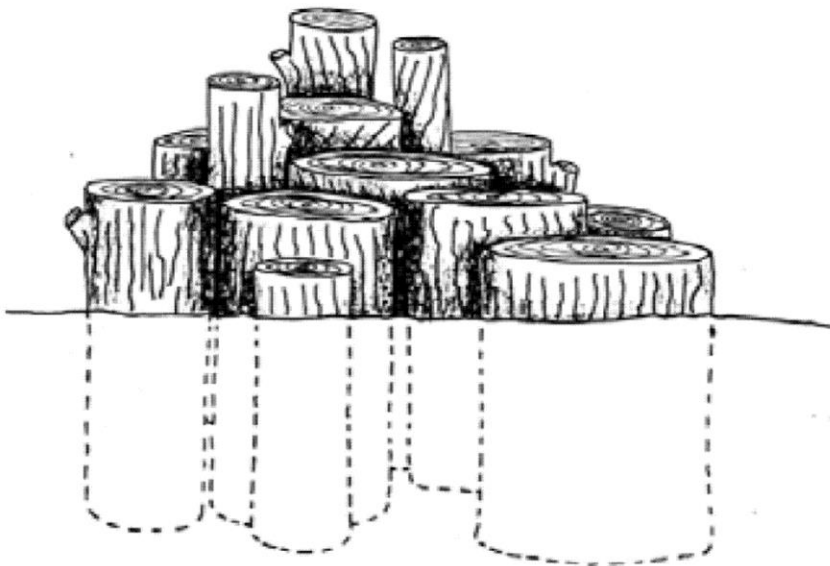


Image taken from the London Wildlife Trust publication: Stag Beetle: an advice note for its conservation in London, 2000.