



Land at 22 Vermont Drive, East Preston,
Littlehampton

Preliminary Ecological Appraisal

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LIABILITIES:

Whilst every effort has been made to guarantee the accuracy of this report, it should be noted that living animals and plants are capable of migration/establishing and whilst such species may not have been located during the survey duration, their presence may be found on a site at a later date.

This report provides a snap shot of the species that were present at the time of the survey only and does not consider seasonal variation. Furthermore, where access is limited or the site supports habitats which are densely vegetated only dominant species maybe recorded.

The recommendations contained within this document are based on a reasonable timeframe between the completion of the survey and the commencement of any works. If there is any delay between the commencement of works that may conflict with timeframes laid out within this document, or have the potential to allow the ingress of protected species, a suitably qualified ecologist should be consulted.

It is the duty of care of the landowner/developer to act responsibly and comply with current environmental legislation if protected species are suspected or found prior to or during works.

1.0 Introduction

Background

1.1 The Ecology Partnership Ltd was commissioned by Rodway Planning to undertake a Preliminary Ecological Appraisal (PEA) on land at 22 Vermont Drive, East Preston, Littlehampton, BN16 1LA.

1.2 The key objectives of a PEA (CIEEM 2017) are to:

- Identify the likely ecological constraints associated with a project;
- Identify any mitigation measures likely to be required, following the 'Mitigation Hierarchy' (CIEEM 2016; BSI 2013, Clause 5.2);
- Identify any additional surveys that may be required to inform an Ecological Impact Assessment (EcIA); and
- Identify the opportunities offered by a project to deliver ecological enhancement.

1.3 This report comprises:

- The legislative and planning context (Section 1);
- Assessment methodologies (Section 2);
- Results (Section 3);
- Implications for development, including an impact assessment (Sections 4 and 5);
- Conclusions (Section 6).

Site Context

1.4 The site is located within the village of East Preston (TQ0729 0203) and covers an area of approximately 0.1 hectares consisting of garden habitats including hardstanding, improved grassland, hedgerows, scattered trees, shrubs and ornamental planting. A swimming pool, several sheds and a small section of the residential dwelling are also located within the red-line boundary. The immediate surrounds comprise of moderate density residential development.

1.5 Figure 1 below shows the approximate red-line boundary of the site and its immediate surrounds and Figure 2 shows the wider surrounding area of the site.



*Figure 1: Approximate location of the red-line site boundary and its immediate surrounds
(Google Earth Pro, 2021)*



*Figure 2: Approximate red-line boundary of the proposed development site in the wider
landscape (Google Earth Pro, 2021)*

Description of Proposed Development

- 1.6 The proposals are understood to include for the development of a single detached residential dwelling with associated garage, access and parking within the red-line boundary. The proposals include for the removal of the hedgerow on the eastern boundary and several trees and shrubs, as well as removal of the swimming pool, small extension to the dwelling currently in use as a dining room and timber outbuildings (sheds). It is understood the existing access will be retained.

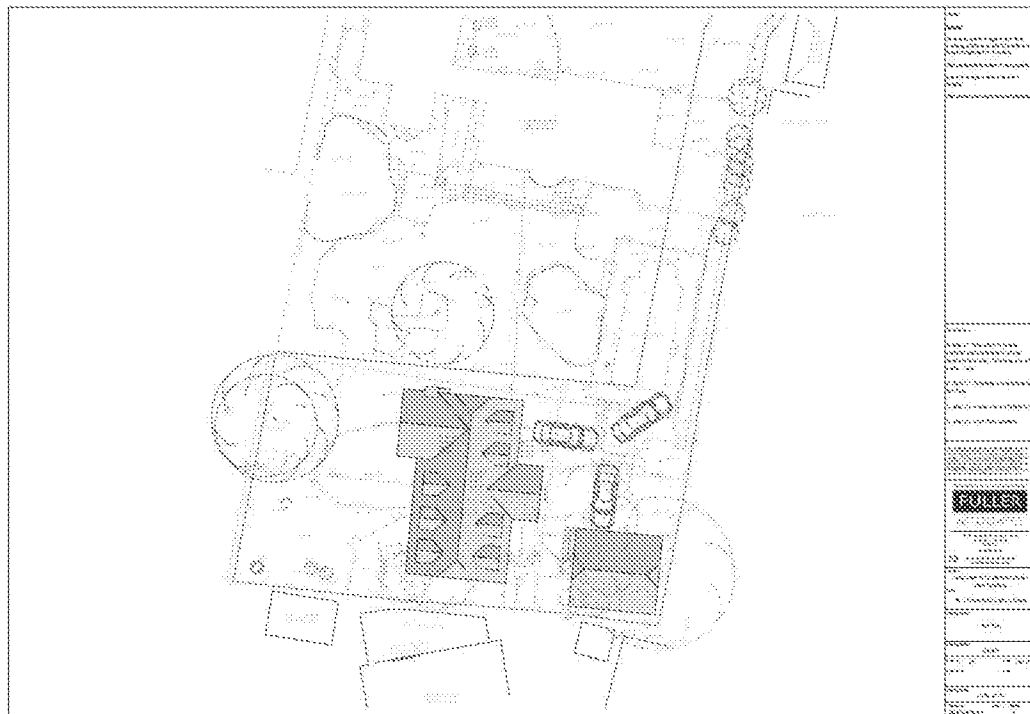


Figure 3: Proposed Site Plan (Fuller Associates 2021)

Relevant Planning Policies and Legislation

- 1.7 The site was surveyed to assess its ecological value and to ensure the proposals were compliant with relevant planning policy and legislation. Policy guidance is provided by the National Planning Policy Framework (NPPF 2019) as well as the Arun District Council Local Plan (2011-2031). Local policies relating to ecology include:
- Policy ENV SP1: Natural Environment
 - Policy ENV DM1: Designated Sites of biodiversity or geological importance

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- Policy ENV DM3: Biodiversity Opportunity Areas;
 - Policy ENV DM4: Trees and woodland; and
 - Policy ENV DM5: Development and biodiversity.

1.8 The new Environment Bill is currently under review but it is expected to be adopted in 2021, therefore, the proposals need to consider the new policies outlined within the proposed submission document. The current draft of the Environment Bill (26th February 2020) has outlined the requirement for granted developments to provide a biodiversity value post-development which exceeds the pre-development biodiversity value of the onsite habitat by at least 10%. Proposals also need to provide a net gain in biodiversity in accordance with the NPPF and local planning policies. The DEFRA biodiversity metric will also likely to be required to ensure a 10% net gain in biodiversity is met post-development. Whilst the proposals for the site are not yet finalised, it is recommended that the scheme be designed with a view to increasing the biodiversity of the site post construction.

1.9 The assessment also takes into consideration nature conservation and wildlife legislation including, but not limited to, the Wildlife and Countryside Act 1981 (as amended), the Natural Environment and Rural Communities (NERC) Act 2006 and the Conservation of Habitats and Species Regulations 2017.

1.10 The report has been produced with reference to current guidelines for preliminary ecological appraisal (CIEEM 2017) and in accordance with BS 42020:2013 Biodiversity – Code of Practice for Planning and Development.

2.0 Methodology

Desktop Study

2.1 A desktop study search was completed using an internet-based mapping service (www.magic.gov.uk) for statutory designated sites and an internet-based aerial mapping service (www.earth.google.co.uk) was used to understand the habitats present in and around the survey area and habitat linkages and features (ponds, woodlands etc) within the wider landscape.

Preliminary Ecological Appraisal

- 2.2 A Preliminary Ecological Appraisal was undertaken by The Ecology Partnership ecologists Vicky Hale BSc (Hons) CEnv MCIEEM and Lucy Jacobs BSc (Hons) QCIEEM on 30th June 2021. The surveyors identified the habitats present, following the standard 'Phase 1 habitat survey' auditing method developed by the Joint Nature Conservancy Council (JNCC). The site was surveyed on foot and the existing habitats and land uses were recorded on an appropriately scaled map (JNCC 2010). In addition, the dominant plant species in each habitat were recorded. The potential for the site to support protected species was also assessed.

Protected Species Assessments

- 2.3 Any evidence of protected species was recorded. Standard methods of search and measures of presence, or likely presence based on habitat suitability were used for bats in trees and buildings (Collins 2016), breeding birds (BTO 2020), dormouse (Bright *et al.* 2006), great crested newt (ARG 2010), reptiles (Froglife 2015), badgers (Creswell *et al.* 1990) and water voles (Strachan *et al.* 2011).

Limitations

- 2.4 It should be noted that whilst every effort has been made to provide a comprehensive description of the site, no single investigation could ensure the complete characterisation and prediction of the natural environment. . The site was visited over the period of one site visit, as such seasonal variations cannot be observed and potentially only a selection of all species that potentially occur within the site have been recorded. Therefore, the survey provides a general assessment of potential nature conservation value of the site and does not include a definitive plant species list.
- 2.5 The protected species assessment provides a preliminary view of the likelihood of protected species occurring on site, based on the suitability of the habitat and any direct evidence on site. It should not be taken as providing a full and definitive survey of any protected species group. The assessment is only valid for the time when the survey was

carried out. Additional surveys may be recommended if, on the basis of this assessment it is considered reasonably likely that protected species may be present.

3.0 Results

Desktop Study

3.1 There are no internationally designated sites within 10km of the site. In addition, the site does not fall within or adjacent to any national or international designations and there are no nationally designated sites within 2km of the site.

3.2 The site is surrounded by a number of priority habitats within 2km (Figure 4), including:

- Coastal vegetated shingle, approximately 550m south east.
- Deciduous woodland, approximately 650m east;
- Traditional orchard, approximately 1.2km north;
- Lowland fens, approximately 1.6km east; and
- Coastal and floodplain grazing marsh, approximately 1.6km east.

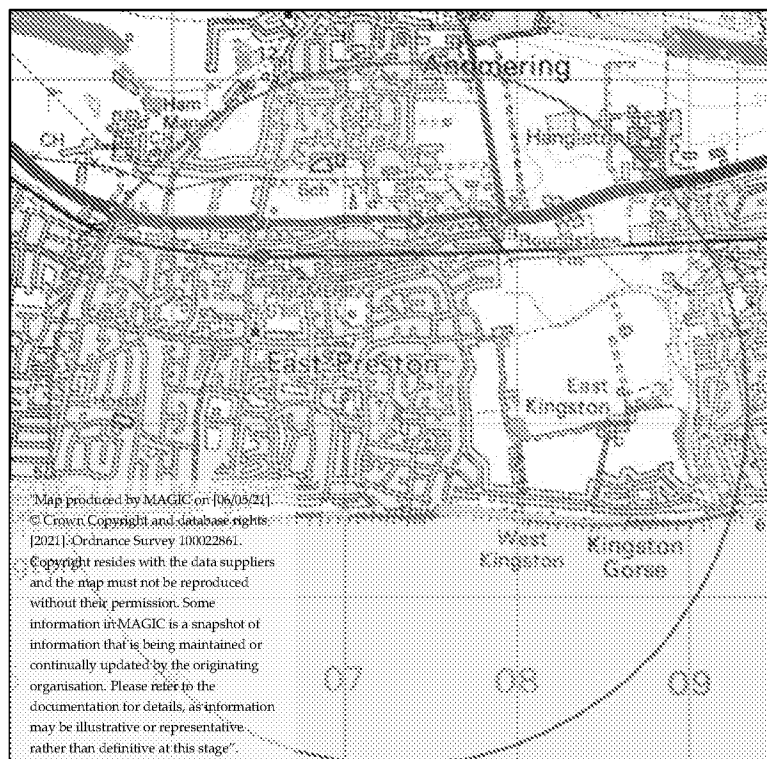


Figure 4: Deciduous woodland (forest green), coastal vegetated shingle (pastel green), coastal and floodplain grazing marsh (blue), lowland fens (pink) and traditional orchard (mid-green) within 2km of the site

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- 3.3 The search revealed that no European Protected Species (EPS) licences have been granted within a 2km radius around the red-line boundary.
- 3.4 There are no ponds present within the red-line boundary of the site, or within a 500m radius of the site.

Preliminary Ecological Appraisal

- 3.5 The site comprised of a section of a residential garden including areas of hardstanding, four timber sheds, improved grassland, scattered trees, hedgerows, shrubs and ornamental planting bounded by fencing. A swimming pool and a small section of the residential dwelling are located within the red-line boundary. Broad habitat types identified within the site are detailed below.
- 3.6 Only species of note have been listed within this section, the full species list can be found within **Appendix 1: Species List**. The habitat map is presented in **Appendix 2**.

Improved grassland

- 3.7 A large area of short mown lawn was present in the centre of the site. Species comprised frequent perennial ryegrass (*Lolium perenne*), Yorkshire fog (*Holcus lanatus*), white clover (*Trifolium repens*) and creeping bent (*Agrostis stolonifera*). Occasional species included meadow-grass (*Poa* sp), dandelion (*Taraxacum officinale*), lesser trefoil (*Trifolium dubium*) and ribwort plantain (*Plantago lanceolata*).

Scattered trees and hedgerows

- 3.8 Scattered trees, predominantly located on the margins of the site comprised of horse chestnut (*Aesculus hippocastanum*), cherry (*Prunus* sp), common lime (*Tilia x europaea*), apple (*Malus domestica*), ash (*Fraxinus excelsior*) and cypress (*Cupressus* sp). Shrubs including elder (*Sambucus nigra*), lilac (*Syringa* sp) and cherry laurel (*Prunus laurocerasus*) were found throughout.
- 3.9 A small length of hedgerow extended partially along the eastern site boundary. This measured approximately 3.5 metres tall by 1.5 metres wide and was well-maintained with

few gaps and was dominated by Lawson cypress (*Chamaecyparis lawsoniana*). Towards the northern end of the hedgerow the hedgerow had been cut leaving a line of felled stumps.

- 3.10 An additional well-maintained hedgerow surrounded the pool and hardstanding on the western and southern edges. This ornamental hedgerow consisted of frequent Wilson's honeysuckle (*Lonicera nitida*) and privet (*Ligustrum* sp), in addition to elder, jasmine (*Jasminum* sp) and clematis (*Clematis* sp).
- 3.11 These hedgerows have been excluded from further assessment under The Hedgerow Regulations, as they are present within the curtilage of a residential property and as such, do not conform with the criteria detailed within The Hedgerow Regulations, 1997.

Ornamental planting/scrub

- 3.12 Towards the southern portion of the site was a large area of overgrown ornamental planting and scrub comprising of frequent elder, laurel (*Laurus* sp), dogwood (*Cornus sanguinea*), bramble (*Rubus fruticosus* agg) and scattered trees which surrounded a strip of tall ruderal vegetation.

Tall ruderal/bare ground

- 3.13 The strip of tall ruderal consisted of abundant cleavers (*Galium aparine*), ivy (*Hedera helix*) and willowherb (*Epilobium* sp), frequent green alkanet (*Pentaglottis sempervirens*), hedge woundwort (*Stachys sylvatica*) and occasional cock's-foot (*Dactylis glomerata*), wood avens (*Geum urbanum*), Yorkshire fog, spear thistle (*Cirsium vulgare*), purple iris (*Iris versicolor*), stinking iris (*Iris foetidissima*), mahonia (*Mahonia* sp) and borage (*Borago officinalis*). Several patches of bare ground and ivy were also present surrounding the bases of scattered trees, and several log piles, compost heaps and brash piles were present in this area. Two mammal holes were present in the south-western corner of the site, and these are considered to be in use by foxes or rabbits.

Hardstanding

- 3.14 A concrete driveway is present towards the northern section of site and hardstanding surrounds the perimeter of the swimming pool.

Protected Species

Bats

Buildings

- 3.15 Four timber sheds were present within the red-line boundary of the site. Three timber sheds were present south of the swimming pool, with an additional shed located on the western site boundary. The sheds were constructed from timber with felt roofing and all were in use for storage. A disused bird's nest was noted in the western shed. These buildings were internally inspected for bats and/or evidence of bats, such as droppings or staining on the day of survey. No evidence of roosting bats was found internally or externally. Owing to a lack of any external features suitable for roosting bats, such as lifted tiles or roof voids, the sheds were considered to have 'negligible' potential for roosting bats.
- 3.16 A small section of the residential dwelling was present within the red-line boundary. This comprised of a brick extension with a flat roof and clay tiles on the edges of the extension. This extension lacked a roof void and therefore was not internally assessed on the day of survey. Externally, several lifted/missing tiles were noted, in addition to small gaps under corner tiles.

Trees

- 3.17 Several scattered trees and tree stumps are present on site, particularly towards the southern portion of the site. Several of these trees were noted to have a dense covering of ivy on their stems and/or minor cavities/broken limbs and therefore are considered to have 'low' potential for roosting bats.

Bat Foraging and Commuting Potential

- 3.18 The habitats on site offered some limited foraging and commuting opportunities, due to the presence of short lengths of hedgerow and scattered trees; however, this is not considered significant in terms of habitat, owing to the site being surrounded by hardstanding and residential properties.

Great Crested Newts

- 3.19 No ponds are present within the red-line boundary of the site; and the desk study revealed no ponds are present within a 500m radius of the site.
- 3.20 The habitats on site were considered largely unsuitable for great crested newts (GCNs) in their terrestrial phase and access onto the site is restricted by surrounding hardstanding and residential development. As such, it is considered highly unlikely that GCNs would be present on site and GCNs are not considered further within this report.

Badgers

- 3.21 Whilst two mammal holes were noted in the south-west corner of the site, no evidence of badger activity, such as setts, latrines or snuffle holes was identified within the site on the day of survey. Access into the garden is restricted by perimeter fencing with hardstanding and buildings surrounding the site. It is considered likely that the identified mammal holes are in use by foxes or rabbits. As such, it is considered unlikely that badgers would use the site for foraging and/or commuting purposes and therefore badgers are not considered further within this report.

Reptiles

- 3.22 The majority of the site comprised of short mown improved grassland and ornamental planting which is considered to be sub-optimal habitat for reptiles and lacks the habitat structure required by common reptiles for foraging and shelter. Notwithstanding this, the southern portion of the garden with several compost heaps, log/brash piles and overgrown scrub and tall ruderal was considered to provide some limited suitable habitat for reptiles.

Nesting Birds

- 3.23 Trees, hedgerows, accessible buildings and shrubs on site are considered to provide potential for nesting birds during the breeding season.

Other Species

- 3.24 Due to lack of suitable habitat and connectivity, the site was not considered to have potential for additional protected species such as dormice, water voles and otters.

4.0 Discussion

- 4.1 The following paragraphs consider the effects of the development on designated sites, priority habitats and protected and priority species. Where the desk study and Phase 1 survey provide sufficient evidence for an assessment of effects on any of these groups to be taken through planning, these are detailed below, the need for additional surveys and when and how these should be completed are summarised, if required.

Effects on Designated Sites

- 4.2 In terms of international designations, there are none of these sites located within 10km of the red-line boundary. In addition, there are no nationally designated sites within 2km of the red-line boundary and therefore no impacts are predicted on designated sites.
- 4.3 Whilst there are no nationally designated sites present within a 2km radius of the red-line boundary, the site falls within the SSSI impact zone of Climping Beach SSSI. Notwithstanding this, as the proposals for the site do not fall within the listed categories of proposals that are likely to cause harm to these designated areas, and due to the limited nature and extent of the proposals (construction of a single detached residential property), no significant impacts are predicted on this designated site.

Effects on Priority Habitats

- 4.4 The site itself does not contain ancient woodland or other priority habitats. Government guidance requires the protection of ancient woodland, with at least a minimum 15m buffer between the woodland and development. There is no ancient woodland within 2km of the site and as such, no impacts to areas of ancient woodland are anticipated.
- 4.5 Whilst no priority habitats are present within the red-line boundary, a number of priority habitats are present surrounding the site, which are listed as habitats of principle importance for the conservation of biodiversity under Section 41 of the NERC Act 2006.

This means that development needs to consider impacts on these habitats to prevent their degradation. The closest off-site priority habitats to the site are coastal vegetated shingle, approximately 550m south east and deciduous woodland, approximately 650m east of the site. The current proposals are for the development of a single residential dwelling within the red-line boundary with no additional land take proposed outside of the site. As such, impacts on surrounding priority habitats are considered unlikely to be significant.

Effect on on-site habitat

- 4.6 The habitats within the red-line boundary consisted primarily of improved grassland, shrubs, ornamental planting, tall ruderal vegetation and ornamental, intensively managed hedgerows. These habitats are considered to be common and widespread and considered to be of site value only. Notwithstanding this, scattered trees to the south of the site and on the site margins are considered to be of greater ecological value.
- 4.7 Whilst the loss or removal of habitats, such as improved lawn, ornamental planting and tall ruderal vegetation would not be considered beyond impacts at site level and would not warrant consideration within an EcIA assessment, the loss of habitats of greater ecological value, primarily scattered mature trees, should be avoided.
- 4.8 It is further recommended that works within the Root Protection Areas of retained trees and hedgerows are avoided or undertaken in accordance with an arboriculturist's recommendations and advice.

Planning policies

- 4.9 Under Policy ENV DM5 in Arun District Council's Local Plan, development schemes shall *"...seek to achieve a net gain in biodiversity and protect existing habitats on site. They shall also however incorporate elements of biodiversity including green walls, roofs, bat and bird boxes as well as landscape features minimising adverse impacts on existing habitats (whether designed or not). Development schemes shall also be appropriately designed to facilitate the emergence of new habitats through creation of links between habitat areas and open spaces. Together, these provide a network of green spaces which serve to reconnect isolated sites and facilitate species movement"*.

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- 4.10 The new Environment Bill is currently under review but it is expected to be adopted in 2021, therefore, the proposals need to consider the new policies outlined within the proposed submission document. The current draft of the Environment Bill (26th February 2020) has outlined the requirement for granted developments to provide a biodiversity value post-development which exceeds the pre-development biodiversity value of the onsite habitat. As the site is considered to be a small site (less than 0.5ha and development of 9 units or less), and therefore the small site metric can be used.
- 4.11 It is considered that there will likely be a net loss in biodiversity, based on the current proposals for the construction of a single residential dwelling, garage and associated hardstanding within the red-line boundary. Whilst the nature and extent of the site and the current proposals limit opportunities for ecological enhancement within the scheme, in order to reduce net loss in line with the proposed Environment Bill, NPPF and local planning policies, it is recommended that consideration be given to the retention and enhancement of as much existing habitat as possible, particularly scattered trees, along with the inclusion of additional feasible and appropriate enhancements, such as green roofs, green walls, native planting/seeding and bat and bird boxes. Further details can be seen within the Enhancements section of this report.

Effects on Protected Species

Bats

- 4.12 No evidence of roosting bats was identified within the timber sheds on the day of survey and these structures were considered unsuitable for roosting bats owing to a lack of suitable features, such as roof voids, lifted/missing roof tiles and hanging tiles. As such, further surveys are not recommended on these structures.
- 4.13 The extension of the existing residential dwelling is located within the red-line boundary and will require removal as part of the proposed development in order to facilitate access to the new dwelling. The extension is considered to have 'low' potential for roosting bats owing to several lifted/missing tiles and small gaps under corner tiles and therefore a single dusk emergence survey is recommended for this building. If, after the emergence

surveys, bats are found to be using any of the external features then further surveys will be required.

- 4.14 Dusk emergence surveys are to be undertaken when bats are most active, which is between May and the end of September, although May to August is the optimum time for surveys. Dusk emergence surveys commence at least 15 minutes before sunset until 2 hours after sunset, during which time, bats are identified and recorded using a bat detector, such as the EchoMeter Touch 2. In addition to the above, bat surveys are required to be undertaken during suitable weather conditions, when conditions are relatively dry and mild with little/no wind.
- 4.15 Under the Bat Mitigation Guidelines, the level of mitigation required will depend upon the nature of the roost identified during further recommended surveys.
- 4.16 Several trees are present on site including several tree stumps. A number of these trees were noted to have a dense covering of ivy and/or minor cavities and as such, were considered to have 'low' potential for roosting bats.
- 4.17 It is understood that several trees and shrubs will require removal to facilitate the works. Should any trees with 'low' potential need to be removed, then no further surveys are necessary prior to removal but they should be felled in accordance with specific advice provided by the bat-worker ensuring that reasonable avoidance measures are followed. Recommended measures include:
- Re-checking the tree and any features for evidence of bats
 - Areas of ivy and loose bark should be re checked and carefully removed to reveal the tree trunk below and if any features or bats present
 - If evidence of bats is present then works should stop and the advice of an ecologist sought immediately
 - Cavities in the trees should not be sawn through but cut above and below cavities
 - Sections which support cavities should be soft felled and roped carefully down to the ground
 - If a bat is found and is injured the advice of an ecologist should be sought
 - If a roost is discovered and no bats are harmed, no further works should be undertaken and the advice of an ecologist sought.

4.18 The Bat Conservation Trust survey guidelines (Collins 2016) state that in table 4.1, *“guidelines for assessing the potential suitability of proposed development sites for bats, based on the presence of habitat features within the landscape, to be applied using professional judgement”*.

It is important that proportionality is employed when recommending further survey work for bat species on a proposed development site. As stated within section 8.2.7 of these guidelines (Collins 2016), the following points need to be considered with regard to planning activity surveys:

- Likelihood of bats being present;
- Likely species concerned;
- Number of individuals;
- Type of habitat affected;
- Predicted impacts of the proposed development on bats;
- Type and scale of proposed development.

4.19 Considering the above and the small scale of the proposals, it is considered that transect surveys for bats would not be required. Owing to the sub-optimal nature of habitats on site and within the wider the wider landscape, it is considered unlikely that large numbers of bats are using the small site. Furthermore, it is considered that the development of the site would not impact upon the ecological functionality of the local landscape and will not significantly sever or fragment landscape links or green corridors.

4.20 Any proposed lighting scheme as part of the proposals will have to consider bats in the surrounding area as well as the site. All bat species are nocturnal, resting in dark conditions in the day and emerging at night to feed. Bats are known to be affected by light levels, which can affect both their roosting and foraging behaviour. This needs to be considered with a sympathetic lighting scheme. Recommendations include:

- Installing lighting only if there is a significant need;
- Using LED luminaries due to their lower intensity, sharp cut-off and good colour rendition – any lights with UV elements or metal halide lights should not be used;
- Lights with peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats (Stone 2012);
- Lights with an upward light ratio of 0% and good optical control;
- Careful consideration of column height to avoid light spill;

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- Any external security lights should use motion-sensors and short (1-minute) timers.

4.21 The use of a sensitive lighting scheme will also help ensure that the foraging and commuting potential within the site, albeit limited, is not adversely affected by the proposals.

Nesting Birds

4.22 Trees, shrubs, hedgerows and accessible buildings on site have the potential to be used by birds for nesting during the breeding season. All birds, their nests and eggs are protected under the Wildlife and Countryside Act 1981 (as amended). The removal of any suitable nesting habitat or accessible building should be undertaken outside of the breeding bird season (March-September inclusive) or immediately after a nesting bird check by a suitably qualified ecologist. If active nests are identified, works in the vicinity of the nest must cease until the birds have fledged the nest. If this method is followed, no significant residual impacts are predicted on nesting birds within the local area.

Reptiles

4.23 The majority of the site was considered to provide limited opportunities to reptiles in terms of foraging and shelter. Notwithstanding this, tall ruderal vegetation, in addition to log piles, brash piles and compost heaps in the southern portion of the site may provide some suitable habitat for reptiles.

4.24 Whilst owing to the nature and extent of suitable habitat on site and their isolation from any additional off-site areas of suitable habitat presence/likely absence surveys for reptiles are not recommended, based on the proposals it is considered likely that some areas of suitable habitat will be lost. It is therefore recommended that areas of more suitable habitat to the south of the site are sensitively cleared whilst reptiles are active (April – September).

4.25 In order to prevent grassland habitats from establishing and becoming optimal for reptiles, it is recommended that areas of grassland habitat are maintained short.

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- 4.26 The site did not support habitats which are considered suitable to support other protected species including great crested newts, dormice, badgers, otters or water voles.

Ecological Enhancements

- 4.27 A number of enhancements can be made to the final development to help reduce potential ecological impacts. It is important to utilise native species of local provenance in landscaping schemes to enhance the ecological value of a development.
- 4.28 The use of wildflower mixes to increase the biodiversity of existing species poor improved grassland and any proposed lawn or amenity areas will enhance the ecological value of the site for a range of important invertebrates. This will provide suitable habitats for terrestrial invertebrates and in turn would be a benefit to birds that forage on seeds and invertebrates. Piles of logs and rubble may be placed in suitable areas on site to provide hibernacula for species such as common amphibian and reptile species, as well as refugia for small mammals and invertebrates.
- 4.29 New tree and shrub planting may be incorporated into the scheme. These should be native species of value to wildlife and can include hawthorn (*Crataegus monogyna*), hazel (*Corylus avellana*), beech (*Fagus sylvatica*), elder (*Sambucus nigra*), cherry (*Prunus* sp), holly (*Ilex aquifolium*), hornbeam (*Carpinus betulus*), rowan (*Sorbus* sp), spindle (*Eunonymus europaea*), privet (*Ligustrum vulgare*), box (*Buxus sempervirens*), wayfaring tree (*Viburnum lantana*), bilberry (*Vaccinium myrtillus*) and dogwood (*Cornus* sp).
- 4.30 Planting of species-rich hedgerows within suitable areas of the site, such as along the eastern and southern site boundaries will provide important food resources for native wildlife. Species that may be planted include hazel (*Corylus avellana*), holly (*Ilex aquifolium*), elder (*Sambucus nigra*), alder buckthorn (*Frangula alnus*), guelder rose (*Viburnum opulus*), dog rose (*Rosa canina*) and dogwood (*Cornus* sp). Planting the base and edges of hedgerows with herbaceous plants and bulbs attract bees, butterflies and other insects as well as providing ground cover for smaller animals.
- 4.31 A green roof could also be incorporated into the new structure. These can be specifically designed for wildlife; however, they can also have benefits relating to aspects such as air

quality, thermal performance and sound insulation. Green and brown roofs may be seeded with a wildflower seed mix or plug planted with sedums. Placement of log/rubble piles and insect boxes on the green / brown roof can also increase the potential for such roofs to act as a resource for local wildlife.

- 4.32 Additional habitat may be provided for species including birds and insects in the form of green walls. Green walls can be created by planting climbing plants in the ground and training these either directly onto the external walls of the buildings or onto trellis. Alternatively, it is possible to create an instant green wall using established climbing plants rooted in containers and grown onto frames. Native climbing plants used to create green walls may include: ivy, Traveller's Joy (*Clematis vitalba*), honeysuckle (*Lonicera periclymenum*) and wild rose (*Rosa* sp).
- 4.33 To enhance the local bat population and provide roosting opportunities within the site, bat boxes can be hung on some of the retained mature trees around the site. Woodcrete boxes are recommended as they are breathable and long-lasting. These can include Schwegler boxes, such as the 2F, 2FN and 1FD models, as well as suitable alternatives such as the CJ Wildlife Multi Chamber and the Vivaro Pro Low Profile Woodstone Bat Box range (Figure 5).

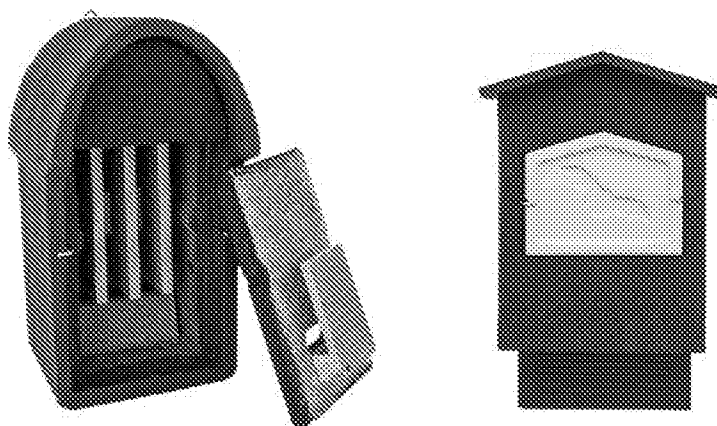


Figure 5: CJ Wildlife Multi Chamber left, Vivara Pro Low Profile right

- 4.34 Nest boxes can be installed in order to provide new nesting opportunities for birds. These can be hung on surrounding retained mature trees. Bird boxes made from woodcrete or similar are recommended due to their longevity and examples of recommended boxes

include the Vivara Pro Seville 28mm/32mm WoodStone Nest Box and the 1B Schwegler Nest Box.

- 4.35 It is recommended that log piles are created for use as refugia by amphibians as well as reptiles, small mammals and invertebrates (Figure 6). These can be located in a variety of locations, such as damp places with some situated in sunnier locations. These should be stacked and perhaps some leaf litter added. Planting around log piles with species such as honeysuckle or clematis can also add value.

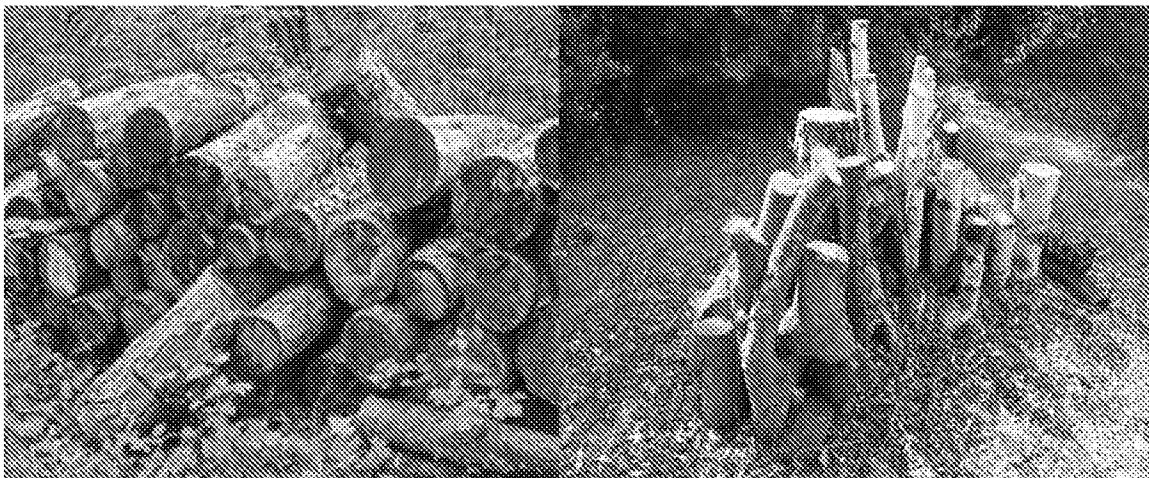


Figure 6: Examples of log piles that can be made on site

- 4.36 It is recommended that all adjoining garden fences on site have a 13cm x 13cm hole at the bottom to provide a passageway for hedgehogs to travel between gardens and other habitats on site. Fences and walls are one of the main reasons why hedgehog numbers are declining as the amount of land available to them is reduced. To ensure that new residents do not block these 'highways', small signs can be erected above the hole, such as those produced by the People's Trust for Endangered Species (PTES), informing them of their purpose (Figure 7).

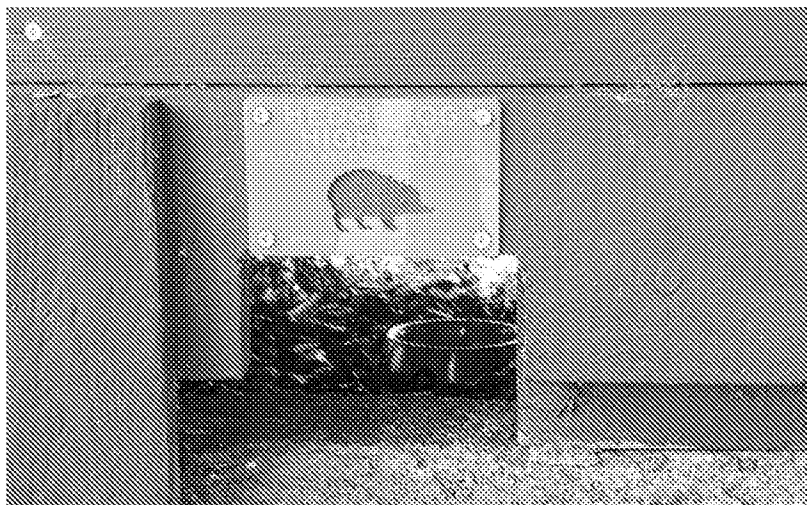


Figure 7: Hedgehog highway sign for fences (hedgehogstreet.org)

- 4.37 Hedgehog (*Erinaceinae europaeus*) boxes could also be placed within the site (Figure 8). These provide areas of shelter for hedgehogs within the site, helping support the local population.

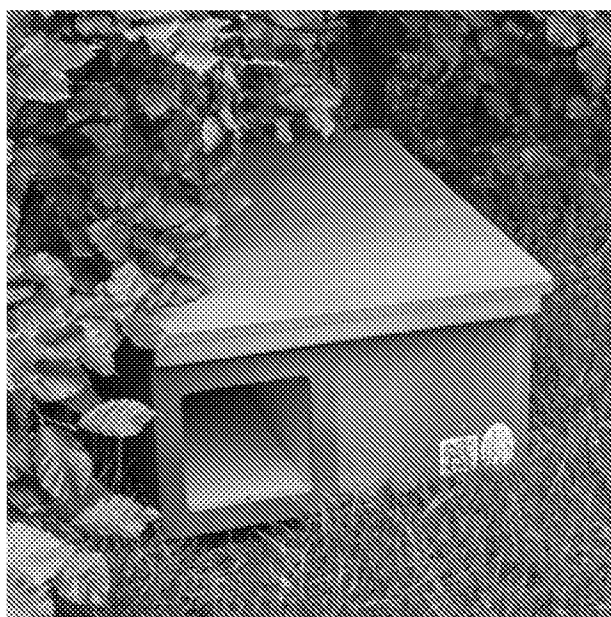


Figure 8: Example of a hedgehog box that can be utilised on site

5.0 Ecological Impact Assessment

5.1 This section of the report forms an EcIA (Ecological Impact Assessment) and is designed to quantify and evaluate the potential impacts of the development on habitats and species present on site or within the local area.

Methodology

5.2 The approach to this assessment accords with guidance presented within the CIEEM Guidelines for Ecological Impact Assessment in the UK and Ireland (CIEEM 2018). In essence, an EcIA assesses the activities associated with a proposed scheme that are likely to generate changes within identified zone of influence, on identified ecological features and receptors. The proposals are subsequently reviewed and mitigation and compensation measures are outlined which help to reduce negative impacts.

5.3 The zone of influence of the development is defined as:

- The project red line, for effects on habitats and species;
- Adjacent habitat, considered by species, for mobile species with territories or foraging ranges that may overlap the site

5.4 Types of features considered in the assessment of effects, to meet legislative and policy requirements, are:

- Designated sites (European, national and local);
- Protected species;
- Habitats and species of principal importance (Section 41 list);
- Hedgerows and woodland, where not of principal importance; and
- Habitats, where not of principal importance, that may function as wildlife corridors or stepping stones

5.5 The site was considered to have **potential** to support the following protected species:

- Roosting bats – potential within external features on extension. ‘Low’ potential within trees to the south of the site;
- Foraging and commuting bats – limited potential;
- Reptiles – within tall ruderal vegetation and log/brush piles;
- Nesting birds – trees, shrubs, accessible buildings and hedgerows.

Impact Assessment and Mitigation

Table 1: Assessment of effects from the proposal after mitigation and compensation

Feature	Scale of Importance	Mitigation/Compensation Required	Residual Effect
Roosting bats	Local	'Low' potential of extension – single emergence survey recommended. 'Low' potential within mature trees to the south of the site – retention of trees, where possible and precautionary approach to works when felling trees. Compensation through the installation of bat boxes.	Undetermined Not Significant
Commuting and foraging bats	Local	Sensitive lighting scheme recommended.	Not Significant
Reptiles		Restricting construction activities to areas of sub-optimal habitat with sensitive clearance of small areas of suitable habitat, where necessary. Management of grassland habitats to maintain a short sward. Enhancement in the form of log piles.	Not Significant
Nesting Birds	Local	Mitigating direct harm to nests by removal of any trees, accessible buildings, hedgerows or shrubs outside of nesting bird season or after a check by a suitably qualified ecologist. Compensation in the form of the installation of bird boxes.	Not Significant

Cumulative impacts

- 5.6 Given the small scale of the proposed development, the works are not considered likely to have any cumulative impact on the surrounding area or affect the ecology of adjacent habitats. There are no known large-scale developments in the surrounding areas, only other similar small-scale projects.

6.0 Conclusions

- 6.1 The site does not lie within or adjacent to any designated sites; and there are no nationally designated sites within 2km or internationally designated sites within 10km of the site.
- 6.2 The site is located within the impact risk zone of Climping Beach SSSI however, it does not fall within the listed proposals that are likely to cause harm.
- 6.3 The site comprises of a swimming pool, an extension of the residential dwelling, four timber sheds, hardstanding, improved grassland, scattered trees, ornamental planting, ornamental hedgerows, tall ruderal vegetation and scrub. Whilst the majority of these habitats are considered to be common and widespread throughout the UK and of limited ecological interest, trees to the south of the site and on the site margins are considered to be of greater ecological value. It is therefore recommended that, where possible, trees be retained and protected throughout works.
- 6.4 The timber sheds on site are considered unsuitable for roosting bats owing to their construction and lack of suitable features for roosting bats and no bats or evidence of bats was found within the sheds internally inspected on the day of survey. As such, no further surveys are recommended.
- 6.5 The extension, which is to be lost as part of the proposed works, was considered to have 'low' potential for roosting bats owing to suitable external features including lifted/slipped tiles and small gaps under corner tiles. It is therefore recommended that a single dusk emergence survey is undertaken between May and August.
- 6.6 Several 'low' potential trees in terms of bat roosting potential are present on site owing to a dense covering of ivy and/or minor cavities. Precautionary measures have been outlined if any 'low' potential trees are to be removed. A sensitive lighting scheme should be used to minimise disturbance to bats using the hedgerow on the site for foraging and/or commuting.
- 6.7 Whilst the majority of the site was considered to be sub-optimal to reptiles, the area of tall ruderal vegetation and log/brush piles within the southern portion of the site were considered to provide some suitable habitat for common reptiles. Whilst further surveys

are not recommended, it is however recommended that this area be sensitively cleared whilst reptiles are active (April – September).

- 6.8 Birds may use the trees, shrubs, hedgerows and accessible buildings on site for nesting during the breeding season. Any works should therefore avoid the bird nesting season (March – September inclusive) or a nesting bird check by a qualified ecologist will be required.
- 6.9 Owing to a lack of suitable habitat and/or connectivity, the site is not considered to be constrained by other protected/notable species such as dormice, badgers, great crested newts, otters or water voles.
- 6.10 Recommendations for enhancements have been made within this report, aimed at improving the ecological value of the site post-development.

7.0 References

Bat Conservation Trust (2018). *Bats and artificial lighting in the UK – Bats and the built environment series, (Guidance Note 08/18)*. Bat Conservation Trust, London.

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Magic Interactive Map: www.magic.gov.uk

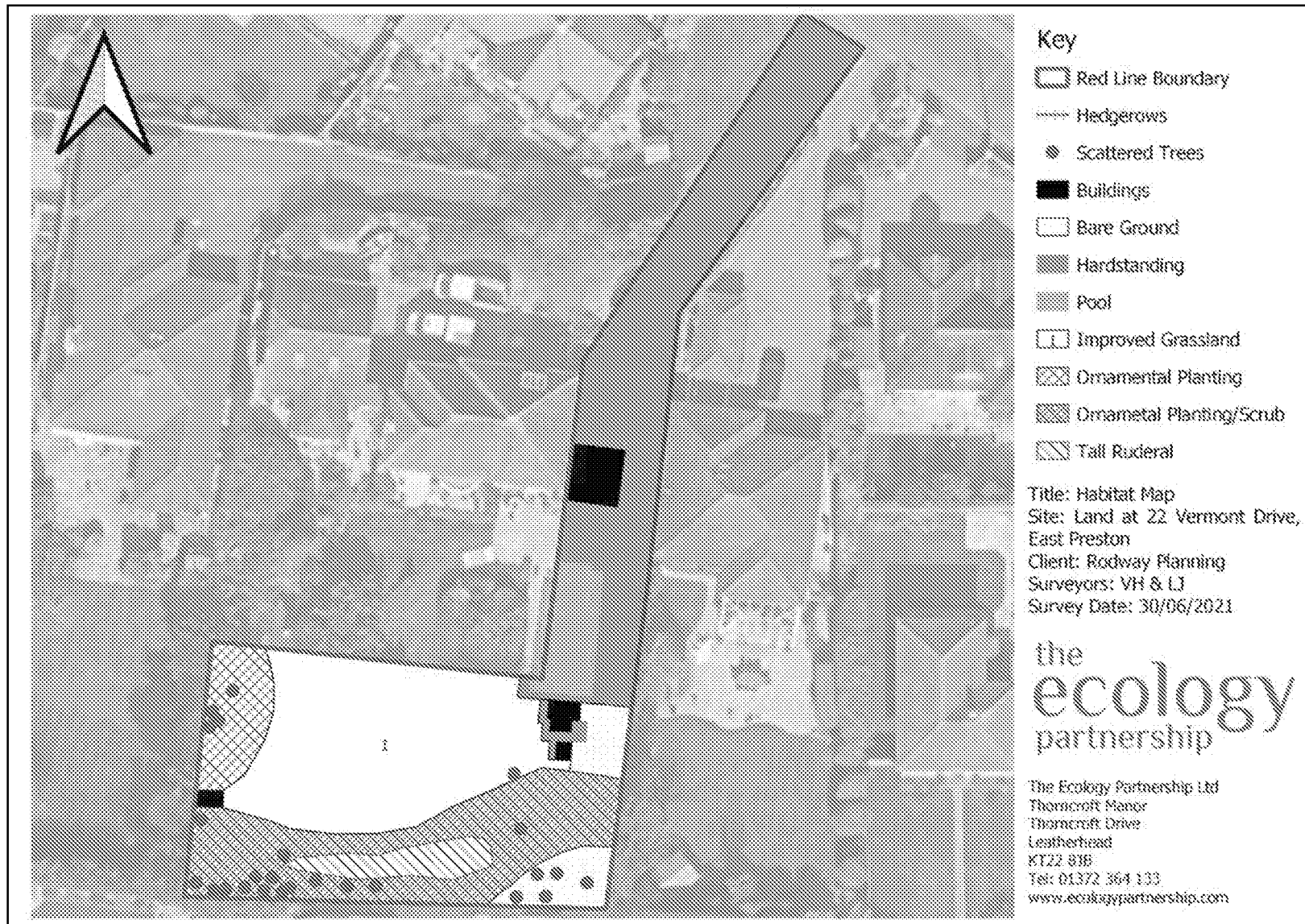
Google Earth: www.earth.google.co.uk

Appendix 1: Species List

Common name	Latin name	DAFOR score
Scattered trees		
Horse chestnut	<i>Aesculus hippocastanum</i>	O
Elder	<i>Sambucus nigra</i>	O
Cherry	<i>Prunus</i> sp	O
Common lime	<i>Tilia × europaea</i>	O
Apple	<i>Malus domestica</i>	O
Lilac	<i>Syringa</i> sp	O
Cherry laurel	<i>Prunus laurocerasus</i>	O
Ash	<i>Fraxinus excelsior</i>	O
Conifer	<i>Cupressus</i> sp	O
Improved grassland		
Perennial rye-grass	<i>Lolium perenne</i>	F
Yorkshire-fog	<i>Holcus lanatus</i>	F
White clover	<i>Trifolium repens</i>	F
Creeping bent	<i>Agrostis stolonifera</i>	F
Meadow grass	<i>Poa</i> sp	O
Ribwort plantain	<i>Plantago lanceolata</i>	O
Dandelion	<i>Taraxacum officinale</i> agg	O
Lesser trefoil	<i>Trifolium dubium</i>	O
Hedgerow		
Tree/ shrub species		
Lawson cypress	<i>Chamaecyparis lawsoniana</i>	D
Wilson's honeysuckle	<i>Lonicera nitida</i>	F
Jasmine	<i>Jasminum</i> sp	O
Privet	<i>Ligustrum</i> sp	F
Clematis	<i>Clematis</i> sp	O
Elder	<i>Sambucus nigra</i>	O
Ornamental planting/scrub		
Elder	<i>Sambucus nigra</i>	O
Laurel	<i>Laurus</i> sp	O
Dogwood	<i>Cornus sanguinea</i>	O
Bramble	<i>Rubus fruticosus</i> agg	O
Tall ruderal		
Cleavers	<i>Galium aparine</i>	A
Ivy	<i>Hedera helix</i>	A

Willowherb	<i>Epilobium sp</i>	A
Green alkanet	<i>Pentaglottis sempervirens</i>	F
Hedge woundwort	<i>Stachys sylvatica</i>	F
Cock's-foot	<i>Dactylis glomerata</i>	O
Wood avens	<i>Geum urbanum</i>	O
Yorkshire Fog	<i>Holcus lanatus</i>	O
Spear thistle	<i>Cirsium vulgare</i>	O
Purple iris	<i>Iris versicolor</i>	O
Stinking iris	<i>Iris foetidissima</i>	O
Mahonia	<i>Mahonia sp</i>	O
Borage	<i>Borago officinalis</i>	O

Appendix 2: Habitat Map



Appendix 3: Site Photographs

Photograph 1: Residential dwelling adjacent to site



Photograph 2: Extension of residential dwelling located within the red-line boundary of the site



Photograph 3: Entrance to site via hardstanding driveway



Photograph 4: Missing tiles on extension



Photograph 5: Hanging tiles of residential dwelling adjacent to the extension



Photograph 6: Lifted corner tiles on extension



Photograph 7: Lifted corner tiles on extension



Photograph 8: Overview of the short mown improved grassland



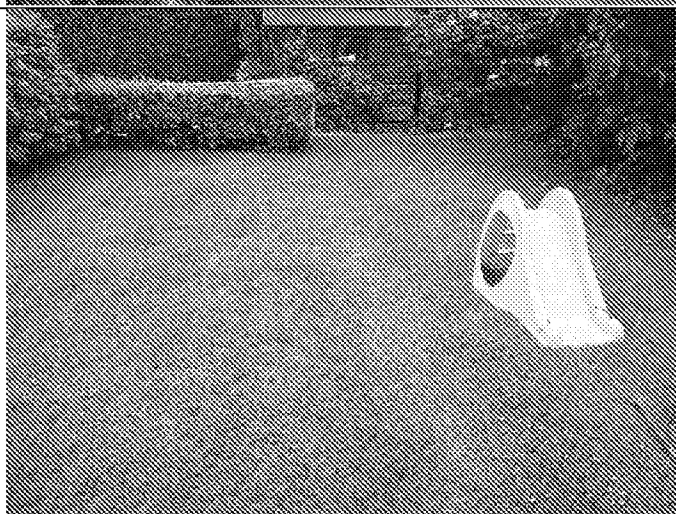
Photograph 9: Overview of the short mown improved grassland



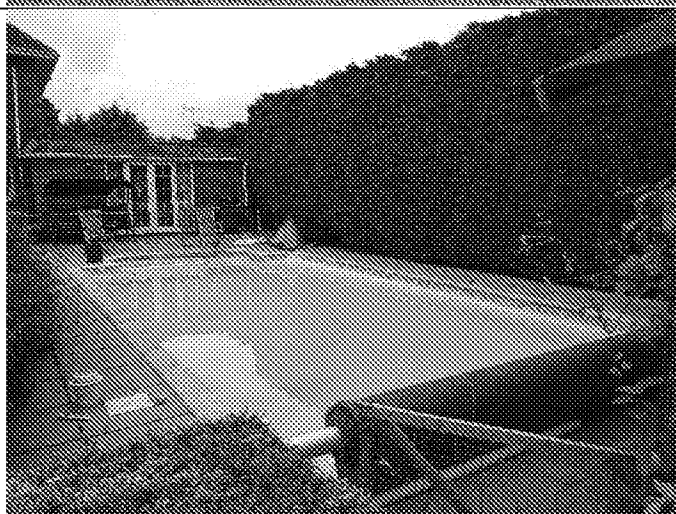
Photograph 10: Ornamental planting on the boundary of the lawn



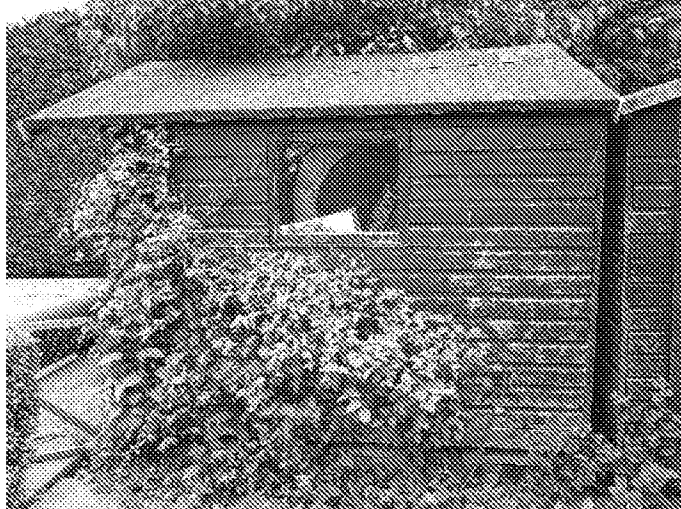
Photograph 11: Closer view of the improved grassland



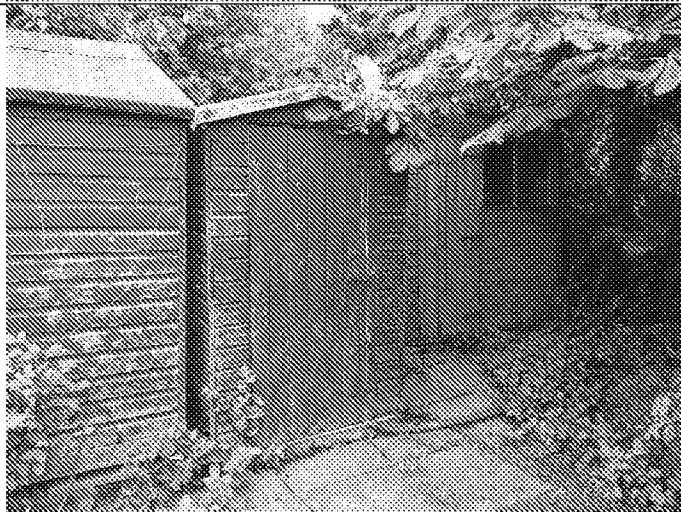
Photograph 12: Overview of the swimming pool and surrounding hardstanding and extension



Photograph 13: Overview of shed #1 adjacent to the pool



Photograph 14: Overview of timber sheds #2 (left) and #3 (right)



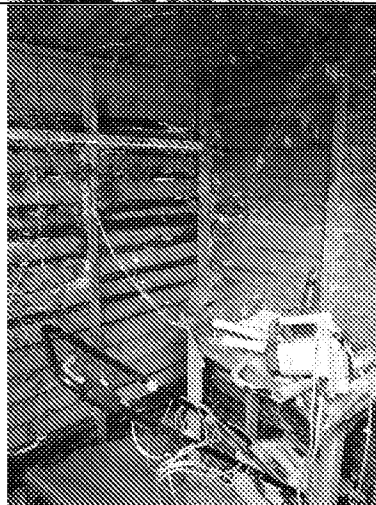
Photograph 15: Interior of shed #1



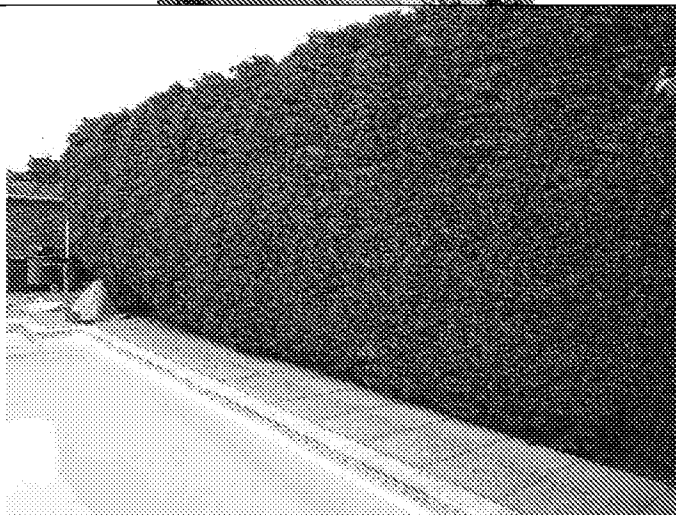
Photograph 16: Interior of shed
#2



Photograph 17: Interior of shed
#3



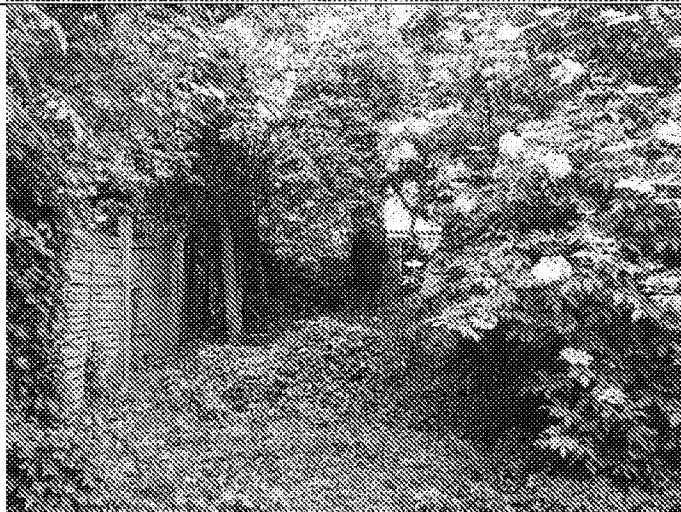
Photograph 18: Lawson cypress
hedgerow adjacent to the pool



Photograph 19: Bare ground to the rear of the timber sheds



Photograph 20: Bare ground and ivy in the south-eastern corner of the site



Photograph 21: Overgrown ornamental planting/scrub and tall ruderal



Photograph 22: Tree stumps covered in ivy



Photograph 23: Overgrown ornamental planting/scrub and tall ruderal



Photograph 24: Scrub and tall ruderal and timber shed #4



Photograph 25: Interior of
timber shed #4



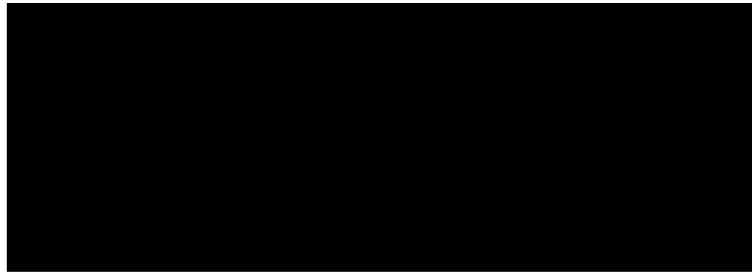
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