

Hopkins Ecology

Site: Land off Mill Lane, Pulham
Market

Work Ecology Assessment
Item:

Client: Mr and Mrs West

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SUMMARY

Hopkins Ecology Ltd was appointed by Brown & Co to prepare an ecology assessment for Land off Mill Lane, Pulham Market. A residential scheme is proposed.

The Site is roughly rectangular and ~3.6ha in area, on the northern fringes of Pulham Market with an existing small residential estate to the south-west west boundary. There are no designated sites within 2km (neither statutory nor County Wildlife Sites).

The application Site is an arable field with partial boundary hedgerows, of which two are from post-1980s planting. All the lengths are considered to qualify as Habitats of Principal Importance. A length along the south boundary may require breaching to provide access, and an assessment against the Hedgerow Regulations should be undertaken in late-spring / early summer.

The arable verges are narrow and weed-free and the field verges are improved or rank grass swards. There are lengths of boundary ditches, and these are almost certainly only seasonally wet.

Many species of conservation concern are scoped-out on the basis of the lack of habitat and cover on the Site (e.g. for reptiles).

At this stage great crested newts are not scoped-out, by virtue of a single pond within 250 (~225m east). The connectivity to this pond is poor and even if occupied then the likelihood of individual great crested newts, being present on-Site is probably very low. However, it is proposed that an impact assessment is made later in the spring or early summer once the status of local waterbodies is clearer following the cessation of winter rains. Direct surveys, if required, would need to commence within the mid-April to mid-May period. If great crested newts are present locally then it is thought likely that any mitigation of impacts will be feasible and achievable.

The other species scoped-in as potentially present are brown hares, breeding birds, hedgehogs, and widespread invertebrates. The Site does not contain rare or particularly specialist resources / habitats and individuals of these species are likely to be present as parts of larger local populations.

The footprint of a scheme on this Site would be largely on arable farmland and grass verges, but breaches are likely to be required in hedgerows, for vehicle and to provide access onto greenspace to the south.

The recommended follow-up work comprises: an assessment of the hedgerows to be breached against the Hedgerow Regulations, and an assessment of the possible presence of great crested newts with direct surveys if considered necessary.

The Site is not particularly close to a green infrastructure corridor nor an area proposed as a corridor for pollinating insects, but Site-level measures for biodiversity would be relevant for the Norfolk Wildlife Trust's Claylands Living Landscape project.

The scheme includes some open greenspace and boundary planting and it is recommended that structural soft landscaping uses species typical of hedgerows in South Norfolk, and also wildflower planting where possible. Other suitable and relevant measures include bird boxes for house sparrows and raised garden gates to allow hedgehogs to travel through the completed scheme.

1. INTRODUCTION

BACKGROUND

- 1.1 Hopkins Ecology Ltd was appointed by Brown & Co to prepare an ecology assessment of a parcel of Land off Mill Lane, Pulham Market. A residential scheme is proposed on the application Site, which is ~3.6ha in area.

SITE CONTEXT

- 1.2 The Site is on the northern fringes of Pulham Market with an existing small residential estate to the south-west west boundary. The Site is located within the South Norfolk and High Suffolk Claylands Natural Character Area, which is typified as an agricultural landscape “*incised by numerous small-scale wooded river valleys with complex slopes*”¹.

LEGISLATION AND PLANNING POLICY

- 1.3 The following key pieces of nature conservation legislation are relevant to legally protected species (with a more detailed description in Appendix 2):
- The Conservation of Habitats and Species Regulations 2017 (the Habitats Regulations); and
 - The Wildlife and Countryside Act, 1981 (as amended).
- 1.4 Also, the National Planning Policy Framework (DfCLG, 2012²) requires local authorities to avoid and minimise impacts on biodiversity and, where possible, to provide net gains in biodiversity when making planning decisions. A substantial number of species are of conservation concern in the UK. A small number of these species are fully protected under the legislation listed above, but others in England are recognised as Species of Principal Importance under the Natural Environment and Rural Communities Act 2006 and reinforced by the National Planning Policy Framework. For these species local planning authorities are required to promote the “*protection and recovery*” via planning and development control. Examples include the widespread reptiles, house sparrows and noctule bats.
- 1.5 Although the NPPF has an overarching aim of minimise impacts to biodiversity, the majority of species of conservation concern are not specifically recognised by legislation or planning policy. The level of protection afforded to these is undefined and should be considered within the overall aim of minimising impacts on biodiversity.

¹ Natural England (2014) *NCA Profile 83: South Norfolk and high Suffolk Claylands*. Available from: <http://publications.naturalengland.org.uk/publication/6625542723862528>

² DCLG (2010) *A National Planning Policy Framework for England*. Department for Communities and Local Government, London.

2. METHODS

PERSONNEL

- 2.1 This ecological assessment was prepared by Dr Graham Hopkins CEnv MCIEEM FRES.

FIELD SURVEY

- 2.2 The Site visit for the ecological assessment was on 21 March 2018. The description of habitats was based on the methods of JNCC (2010)³ and trees were surveyed from ground level for their potential suitability for roosting bats, looking for gaps, cracks and other voids⁴; searches were also made for signs of badgers.
- 2.3 The local presence of ponds (to a radius of 250m) was determined from OS maps and Google Earth.

DATA SEARCH

- 2.4 The desk study comprises a formal data search from the local records centre and review of relevant data and information from other sources (Table 1).

Table 1. Overview of desk study data sources.

Source	Information
Norfolk Biodiversity Information Service	Designated sites, species of conservation concern; 2km search radius
MAGIC (www.magic.gov.uk)	Additional information on statutory sites, habitats of principal importance and wider countryside information
GNDP and South Norfolk DC policy documents	Information regarding local planning policies including a synthesis of related policies
Local planning applications, manual map-based searching of the South Norfolk DC website	Recent survey data for protected species locally, including negative data. In particular, as referred to above, extensive reference was made to the Land North of Hethersett scheme and the associated surveys in 2010
Various literature and web-based searches	Information on local projects and initiatives of potential relevance as well as some species-level data
Historic maps Norfolk (http://www.historic-maps.norfolk.gov.uk/)	Aerial photographs from 1988 and 1946; OS maps from 1880s and earlier

GUIDANCE

- 2.5 The ecological assessment has been prepared with reference to best practice guidance published by the Chartered Institute for Ecology and Environmental Management (CIEEM) and as detailed in British Standard 42020:2013 Biodiversity - Code of Practice for Biodiversity and Development.

³ JNCC (2010) *Handbook for Phase 1 Habitat Surveys*. Joint Nature Conservation Committee, Peterborough.

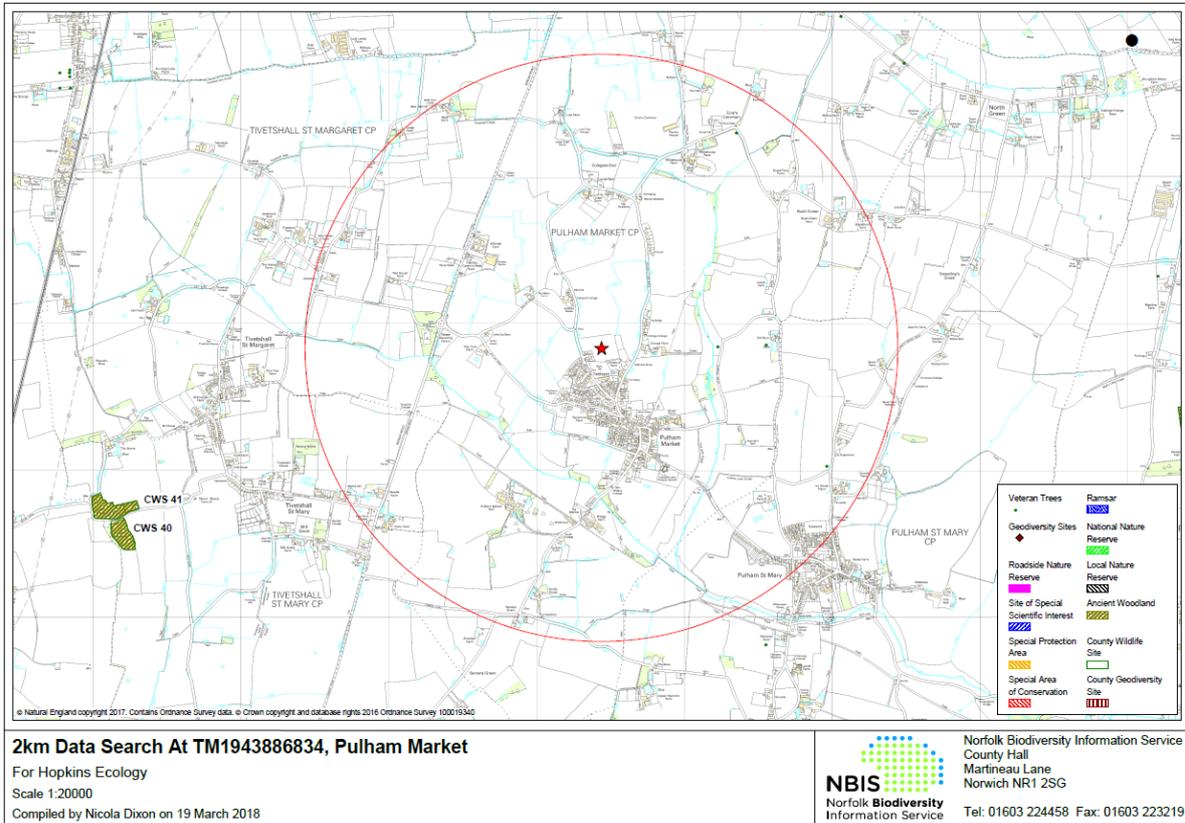
⁴ Collins, J. (2016) *Bat Surveys for Professional Ecologists*. Bat Conservation Trust, London.

3. DESIGNATED SITES

STATUTORY SITES

3.1 There are no statutory sites within 2km (Figure 1).

Figure 1. Designated sites locally.



NON-STATUTORY SITES

3.2 There are no non-statutory County Wildlife Sites within 2km.

GREEN INFRASTRUCTURE

3.3 Green infrastructure is considered to be a key requirement for development in the Greater Norwich Area, with the policy requirements originating in the Joint Core Strategy⁵. The spatial vision for these corridors is informed by a Green Infrastructure Strategy (CBA, 2007⁶ ⁷) and associated studies (e.g. Green Networks, Norfolk Wildlife Trust, 2007⁸). Such policies are broadly in-line with other countryside restoration schemes, such as the Norfolk Wildlife Trust's 'Claylands Living Landscape' project⁹ within the South Norfolk area:

⁵ Greater Norwich Development Partnership (2014) *Joint Core Strategy for Broadland, Norwich and South Norfolk*. Available from: <http://www.greaternorwichgrowth.org.uk/planning/joint-core-strategy/>

⁶ CBA (2007) *Greater Norwich Development Partnership. Green Infrastructure Strategy. A Proposed Vision for Connecting People, Places and Nature*. Available from: <http://www.greaternorwichgrowth.org.uk/dmsdocument/201>

⁷ <http://www.greaternorwichgrowth.org.uk/dmsdocument/1590>

⁸ Norfolk Wildlife Trust (2006) *Report of the Ecological Network Mapping Project for Norfolk*. Available from: http://www.norfolkdiversity.org/pdf/news/Final_report_of_indicative_map_July%202006.pdf

⁹ <https://www.norfolkwildlifetrust.org.uk/a-living-landscape/claylands>

“The Claylands Living Landscape project aims to enhance the management of the area’s wildlife habitats and expand its area of grassland and woodland – thereby creating a more joined-up ecological network – as well as to encourage the more sensitive management of farmland. To achieve this aim, (Norfolk Wildlife Trust) will be working closely with community groups and landowners in South Norfolk to raise wildlife awareness, as well as encouraging their active participation in conserving and enjoying the area’s historic natural environment.”

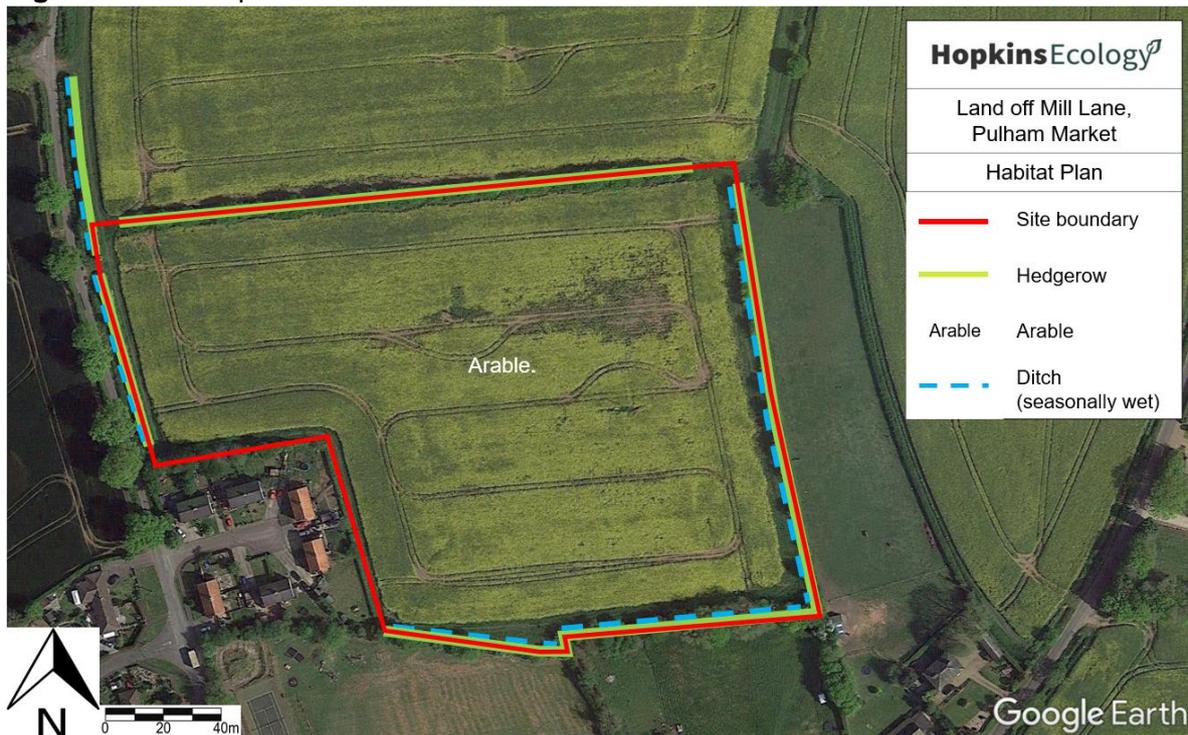
- 3.4 The nearest green infrastructure corridor is the South Norwich - East Diss Corridor, >4km to the west. This is also the route of the nearest B-Line.

4. SITE DESCRIPTION

OVERVIEW

- 4.1 The Site (Figure 2) comprises a single arable field with a small residential estate to the south-west, dating from the late-1980s / early-1990s. The soil is classed as a ‘slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soil’.

Figure 2. Habitat plan.



HABITATS

Arable

- 4.2 The main part of the Site was under winter cereals at the time of survey. The crop was weed-free with only narrow verges to the grass sward verges.

Hedgerows and Verges

- 4.3 Along the west part of the south boundary are garden curtilages of post-1988 origin. The boundaries are mainly hawthorn *Crataegus monogyna* hedging, with some blackthorn *Prunus spinosa*, bramble *Rubus fruticosus* agg, holly *Ilex aquifolium*, and ivy *Hedera helix*, and short lengths of fencing without any shrubs. The hedge base is grass sward with a few herbs such as hogweed *Heracleum sphondylium*, cow parsley *Anthriscus sylvestris*, nettle *Urtica dioica*, prostrate ivy, mugwort *Artemisia vulgaris* and occasional singletons of celandine *Ficaria verna*.
- 4.4 The grass verges are mostly narrow, but along the west boundary and some of the south boundary there is a grass sward of ~5m used by farm vehicles. The sward of this 'track' is mainly rye grass *Lolium* species with sterile brome *Anisantha sterilis*, cock's foot *Dactylus glomerata* and bent *Agrostis* species. It has little bare, exposed substrate and other than occasional tall ruderals such as nettle it appeared weed-free.
- 4.5 The other verges are similar in character: ~2-3m wide, rank and dominated with false oat grass *Arrhenatherum elatius*, with lesser amounts of cock's foot, sterile brome, fescue *Festuca* species. Ruderal herbs are the other main component with occasional individuals of broad-leaved dock *Rumex obtusifolius*, nettle and mugwort. The bryophyte component appeared to be occasional patches of *Calliergonella cuspidata*.
- 4.6 There are four lengths of hedgerow:
- South hedgerow. A hedgerow runs along an area of open grass sward, used for amenity. A hedgerow is shown in this location in the 1946 location and through to the present. A dry ditch runs along the side to the Site. This hedgerow is tall and straggly (>5m tall) and is mainly hawthorn with some blackthorn and occasional individuals of field maple *Acer campestre*, oak *Quercus robur*, field elm *Ulmus minor*, with ivy on some stems and also bramble. The hedgerow base includes ground ivy *Glechoma hederacea*, white dead nettle *Lamium album* and lords and ladies *Arum maculatum*.
 - The east hedgerow is shown on the 1946 photograph through to the present. It has a wet ditch on the side to the Site. It is tall and straggly and comprises hawthorn with field maple, field elm, blackthorn, oak, hazel *Corylus avellana* and also a singleton of a narrow-leaved willow *Salix* species.
 - The north hedgerow is shown as absent in 1988 and is evidently re-planted. The success of the planting is somewhat 'patchy' such that there are numerous gaps but with the remaining vegetation tall and well-established. The woody species are hawthorn with field maple, hazel and self-sown bramble. The ground flora of the hedgerow is sparse, possibly due to shading and only hedge bedstraw *Galium mollugo* was noted as a non-ruderal species.
 - The west hedgerow has a wet ditch along the road side. The hedgerow is evidently re-planted post-1988, with good success such that it is moderately dense. It has been historically trimmed to ~2m but with recent growth now extending to ~3m. It is mainly hawthorn with field maple, hazel and also occasional hornbeams *Carpinus betulus* at its south end. The hedge base flora comprises ivy, hedge bedstraw and grass verge species.

Trees

- 4.7 There are no trees on-Site and hedgerow standards are absent.

Ditches

- 4.8 The boundary ditches are almost certainly seasonal and appear to lack aquatic or wetland vegetation.

OFF-SITE FEATURES

- 4.9 There is a single pond with 250, located ~225m to the east, separated by arable fields and a small country lane.

5. PROTECTED SPECIES SCOPING

SCOPING-OUT

- 5.1 The majority of species of conservation concern are scoped-out on the basis of desk study records and on-Site habitats (Table 2).

Table 2. Protected species scoped-out.

Species / species group	Desk study records	On-Site habitat	Scoping conclusion
Reptiles	Single record of slow worm, from Pulham Market ~500m south	Site lacking cover or shelter	Very unlikely to be present
Badgers	No records	No evidence found	Almost certainly absent
Bats	Foraging records for 10 species: barbastelle, serotine, Daubenton's, Natterer's, Leisler's, noctule, common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle and brown long-eared.	No potential roost locations on-Site or along boundaries Low quality foraging habitat, with main sward unlikely to produce many insects and foraging most likely limited to hedgerows	Roosts absent Foraging by low numbers likely
Water vole and otters	No records	Ditches not suitable as only seasonally wet and without vegetation. No sufficiently close for water voles and otters to be present	Almost certainly absent

SCOPING-IN

- 5.2 At this stage great crested newts are not scoped-out, by virtue of a single pond within 250 (~225m east). The connectivity to this pond is poor, and even if present then the likelihood of individual great crested newts being present on-Site is probably very low. However, it is proposed that an impact assessment is made later in the spring or summer once the condition of local waterbodies is clearer following the cessation of winter rains. Even if present locally it is thought that any mitigation for impacts on great crested newts will be feasible and achievable, possibly in conjunction with European Protected Species Mitigation Licensing.
- 5.3 The species groups likely or potentially present are considered to be:
- Brown hares. These are known locally from farmland and the Site is suitable, albeit with disturbance from local properties since it is in a village-edge location. Possibly present but in low numbers only.

- Breeding birds. A sparse assemblage of farmland birds is known locally, including rarer species such as turtle doves (>1.km distant). The on-Site habitat is of low quality however, with relatively sparse hedgerows and the margins and verges being narrow and not likely to be rich in seeds. The hedgerows are probably not dense enough for turtle doves. A range of common species will likely nest in the boundary scrub, including widespread but declining species.
- Hedgehogs. There are several records of hedgehogs from within 500m, and they are almost certainly present locally, and the use of the Site is likely to be used by transitory or foraging individuals.
- Invertebrates. Both the British and European races of the swallowtail have been recorded locally as vagrants, and the other records are of two widespread but declining moths. The boundary hedgerows lack specialist microhabitats of value to many species of conservation concern, but they are potentially used by a number of widespread moths that have declined nationally and are afforded the status of Species of Principal Importance as a result¹⁰. These species will comprise habitat generalists.

6. DISCUSSION

EVALUATION

Habitats

6.1 The only Habitat of Principal Importance present is:

- Hedgerows. The hedgerows are considered to qualify as Habitat of Principal Importance (cf Maddock, 2011¹¹), including the recently planted lengths. It is not thought the hedgerows would qualify as Important Hedgerows, but this would require a late -spring assessment to be sure.

Species

6.2 Many species are scoped-out as being potentially present. The species scoped in are:

- Breeding birds;
- Hedgehogs; and
- Widespread invertebrates.

6.3 In all three cases the species or members of the species-groups will include widespread but declining species with the status of Species of Principal Importance. However, it is thought likely that the Site is of lower value, lacking any particularly limiting or scare / specialist resources, and that any individuals present will be parts of larger local populations.

¹⁰ Butterfly Conservation (2007) *The UK Biodiversity Action Plan – Moths*. Available from: <https://butterfly-conservation.org/files/the-uk-biodiversity-action-plan.pdf>

¹¹ Maddock, A. (2011) *UK BAP Priority Habitat Descriptions*. Available from: http://jncc.defra.gov.uk/PDF/UKBAP_PriorityHabitatDesc-Rev2010.pdf

IMPACTS

Designated Sites

- 6.4 The scheme itself would be relatively small and the nearest designated sites are all >2km distant. It is not thought that the scheme will impact any designated sites either directly or indirectly.

On-Site Features

- 6.5 The project masterplan is shown as Figure 3, the key features being:
- The use of the arable area for development, with boundary landscaping around the periphery; and
 - A breach in the south hedgerow and also the west hedgerow for access.
- 6.6 The adverse impacts of the scheme are therefore largely restricted to the loss of arable and also hedgerow breaches.

RECOMMENDATIONS FOR FURTHER SURVEY

- 6.7 The following recommendations are made:
- An assessment of the possible presence of great crested newts locally should be made later in the spring. There is one pond within 250m (~225m east) and also Site boundary ditches that almost certainly only seasonally wet. It may be concluded that direct surveys are not required, or alternatively that a full assessment of impacts would indeed require direct surveys. If direct surveys are considered necessary then they would need to start within the mid-April to mid-May period at the latest.
 - A length of the south boundary hedgerow is likely to require breaching for access. This should be surveyed in late spring / early-summer to provide a robust assessment against the Hedgerow Regulations. Any other breaches are in hedgerows that will almost certainly not qualify as Important Hedgerows.
- 6.8 It is not thought that surveys for other species-groups are required to inform the assessment of the scheme.

MITIGATION

- 6.9 Depending on the conclusion of the impact assessment for great crested newts and any follow-up surveys, there may be a need for mitigation for great crested newts. It is, however, noted that there is very little suitable habitat on-Site, and this is restricted to boundary hedgerow areas. If considered to be potentially present then an European Protected Species Mitigation Licence might be a requirement. If mitigation is required it is thought that it would be feasible and achievable.
- 6.10 The following generic measures recommended to avoid harm during construction works:
- Nesting birds. The nests of all birds are protected from destruction. Clearance of any boundary scrub and long herbage should be outside of the nesting bird season (March to August inclusive). If this is not possible then a watching brief should be employed to confirm absence from areas of habitat prior to clearance.

ENHANCEMENTS

- 6.11 Although the Site is not located particularly close to an identified green infrastructure corridor or B-Line (bee-line), it lies within the Claylands Living Landscape, where Site-level enhancements are relevant at a landscape scale.
- 6.12 Soft landscaping is the most appropriate key enhancement for the Site, using appropriate native species and species of known wildlife value. Key points for many species groups is the need for insect prey, for bats and also for the chicks and fledgling birds of many species, such as house sparrows. A range of plant types should be planted to provide a range of resources across the seasons from spring to autumn for insect prey, and also fruit and berry producing species in autumn. Options within the Site include boundary planting for individual plots, boundary planting around the Site and also planting within a central area of greenspace, as shown in an indicative masterplan (Figure 3).
- 6.13 For woody species those typical of local hedgerows (Norfolk County Council, undated¹²) and also appropriate for structural planting are:
- Hawthorn, blackthorn, ash, maple, dogwood *Cornus sanguinea*, elm and hazel, with lesser amounts of crab apple *Malus sylvestris*, hornbeam and holly *Ilex aquifolium*, and scattered examples of privet *Ligustrum vulgare*, oak, spindle *Euonymus europaeus*, wild cherry *Prunus avium* and guelder rose *Viburnum opulus*.
- 6.14 Small trees suitable for a small site include silver birch *Betula pendula*, rowan *Sorbus aucuparia*, whitebeams *Sorbus* species, and fastigate forms of hornbeam. Within areas of grassland a number of wildflower seed mixes are available from commercial suppliers, including wetland and pond planting (e.g. Emorsgate EM8 meadow mixture for wetlands), wildflower swards on heavy soils (e.g. EM4 meadow mixture for clay soils and EM10 tussock mixture) and flowering lawns for areas with more intensive use and management (e.g. EL1 flowering lawn mixture).
- 6.15 Additional possible measures include:
- Bat boxes to be erected on buildings, either as integral 'bat tubes' embedded within walls or as external boxes. A wide range of types are available¹³ and it is recommended that at least 5 are erected across the scheme, positioned in areas overlooking greenspace at least 5m above ground with boxes facing different aspects. Locations should be away from artificial lights.
 - Bird boxes to be erected for locally relevant species, e.g. house sparrows and swifts. Both species have specific box requirements, available from a range of suppliers: Swift boxes should be high on gables or other walls, away from direct mid-day sun; and house sparrow boxes can be on outbuildings at least 3m above ground.
 - To allow for the continued movements of hedgehogs, with garden gates raised to allow them to pass under and holes within gravel boards to allow them to pass through¹⁴.

¹² Norfolk County Council (undated) *Planting Hedges in Norfolk – Maintaining Regional Character*. Available from:

<http://www.norfolkbiodiversity.org/pdf/reportsandpublications/HedgeBookletPROOF4.pdf>

¹³ <http://www.wildlifeservices.co.uk/batboxes.html>

¹⁴ <https://www.jacksons-fencing.co.uk/News/outdoor-living/new-hedgehog-friendly-gravel-boards-winter-news-topical-treats-and-more-6511.aspx>

Figure 3. Indicative masterplan.



<p>Mr and Mrs West</p>
<p>Call for sites Mill Lane Pulham Market</p>
<p>Site plan</p>
<p>June 27 1:25000 A3</p>

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7. APPENDIX 1: PHOTOGRAPHS



Figure 4.
View from south-west.



Figure 5.
Boundary to garden curtilages.



Figure 6.
East hedgerow.



Figure 7.
North hedgerow.



Figure 8.
West boundary, with hedgerow
and ditch.

8. APPENDIX 2: LEGISLATION SUMMARY

Non-technical account of relevant legislation and policies.

Species	Legislation	Offence	Licensing
Bats: European protected species	Conservation of Habitats and Species Regulations 2010 (as amended) Reg 41	Deliberately capture, injure or kill a bat; deliberate disturbance of bats; or damage or destroy a breeding site or resting place used by a bat. [The protection of bat roosts is considered to apply regardless of whether bats are present.]	A Natural England (NE) licence in respect of development is required.
Bats: National protection	Wildlife and Countryside Act 1981 (as amended) S.9	Intentionally or recklessly obstruct access to any structure or place used for shelter or protection or disturb a bat in such a place.	Licence from NE is required for surveys (scientific purposes) that would involve disturbance of bats or entering a known or suspected roost site.
Birds	Wildlife and Countryside Act 1981 (as amended) S.1	Intentionally kill, injure or take any wild bird; intentionally take, damage or destroy the nest of any wild bird while that nest is in use or being built. Intentionally or recklessly disturb a Schedule 1 species while it is building a nest or is in, on or near a nest containing eggs or young; intentionally or recklessly disturb dependent young of such a species [e.g. kingfisher].	No licences are available to disturb any birds in regard to development.
Great crested newt: European protected species	Conservation of Habitats and Species Regulations 2010 (as amended) Reg 41	Deliberately capture, injure or kill a great crested newt; deliberate disturbance of a great crested newt; deliberately take or destroy its eggs; or damage or destroy a breeding site or resting place used by a great crested newt.	Licences issued for development by Natural England.
Great crested newt: National protection	Wildlife and Countryside Act 1981 (as amended) S.9	Intentionally or recklessly obstruct access to any structure or place used for shelter or protection or disturb it in such a place.	A licence is required from Natural England for surveying and handling.
Adder, common lizard, grass snake slow worm	Wildlife and Countryside Act 1981 S.9(1) and S.9(5)	Intentionally kill or injure any common reptile species.	No licence is required. However an assessment for the potential of a site to support reptiles should be undertaken.
Scientific Interest (SSSI) It is an offence	Wildlife and Countryside Act 1981 (as amended)	To carry out or permit to be carried out any potentially damaging operation. SSSIs are given protection through policies in the Local Development Plan.	Owners, occupiers, public bodies and statutory undertakers must give notice and obtain the appropriate consent under S.28 before undertaking operations likely to damage a SSSI. All public bodies to further the conservation and enhancement of SSSIs.

Species	Legislation	Offence	Licensing
County Wildlife Sites	There is no statutory designation for local sites.	Local sites are given protection through policies in the Local Development Plan.	Development proposals that would potentially affect a local site would need to provide a detailed justification for the work, an assessment of likely impacts, together with proposals for mitigation and restoration of habitats lost or damaged.