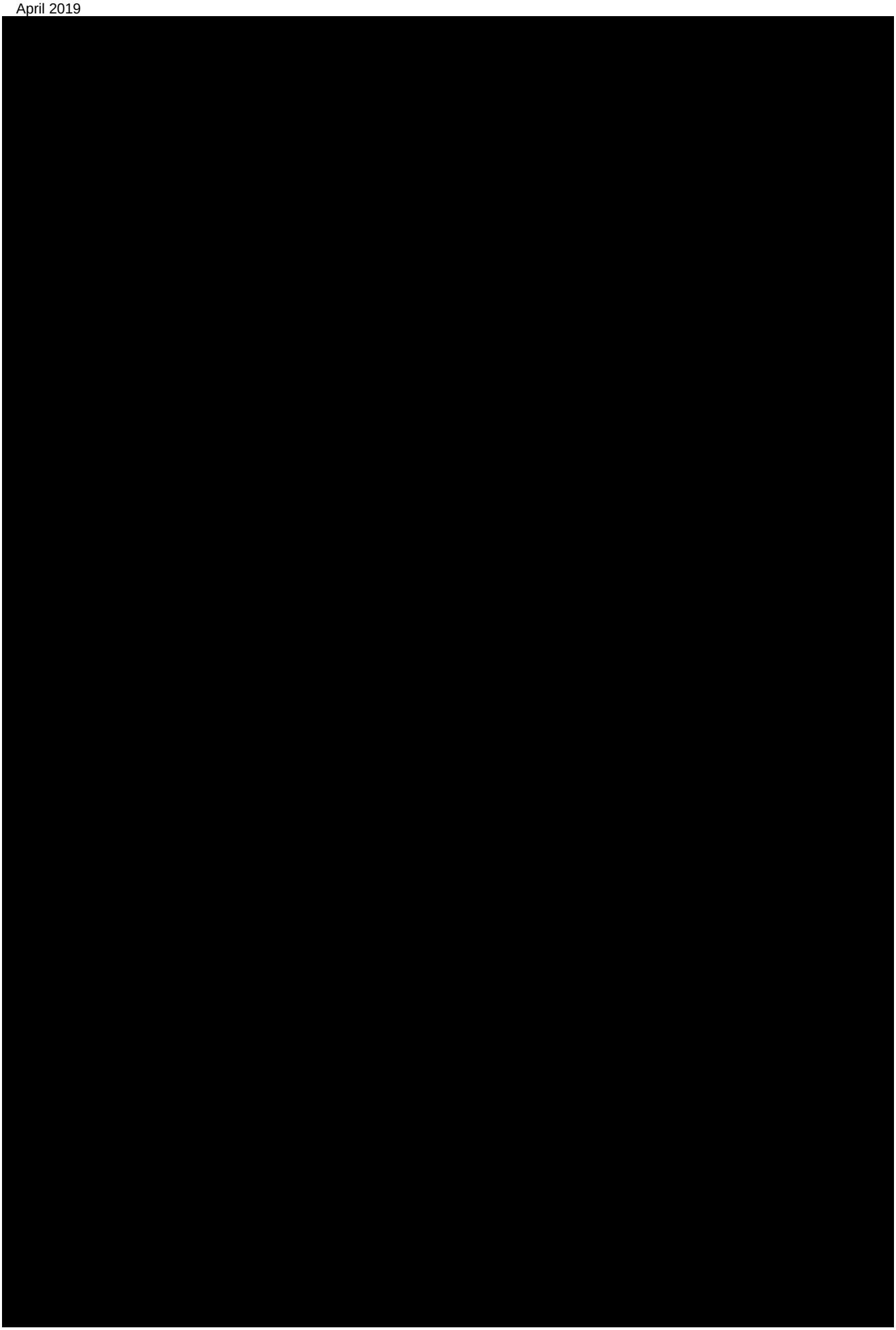

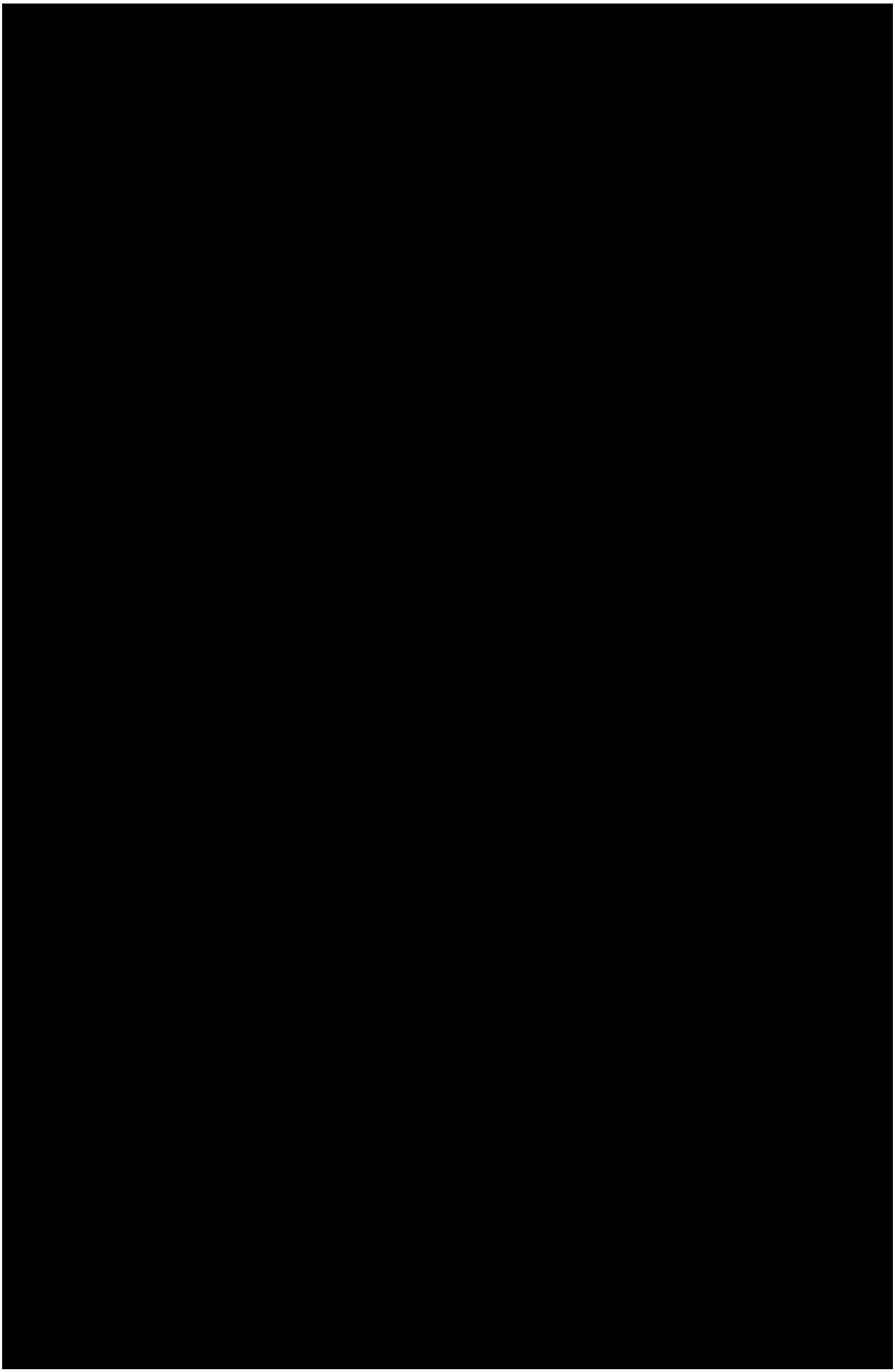

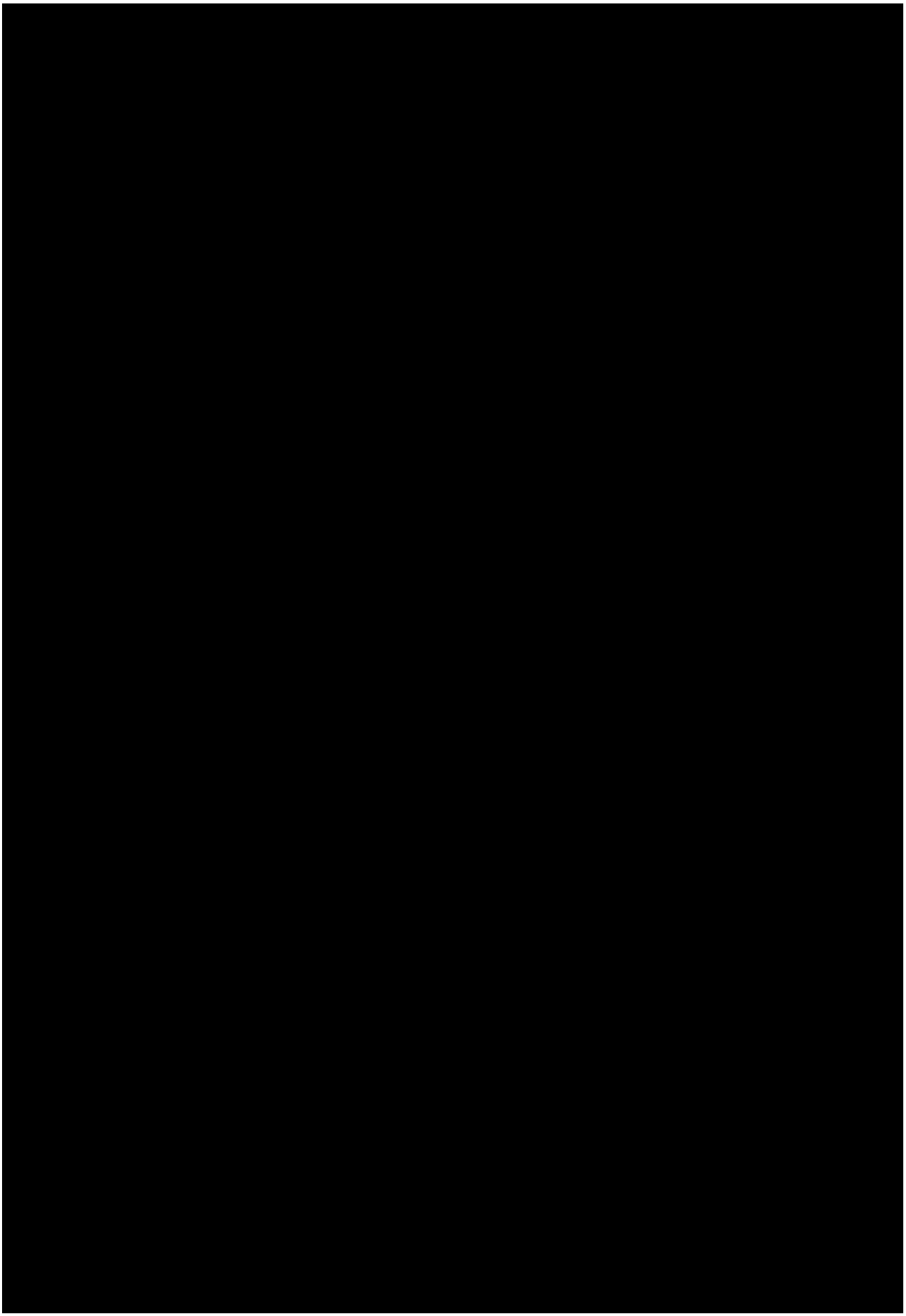

6. BATS

6.1 This section addresses points (a) and (d) to (k) of Condition 42 in respect of bats.

6.2 Existing ecological constraints are shown on Plan ECO3. The Ecological Implementation Strategy is illustrated on Plans ECO4a to ECO4d.

6.3 Baseline Information

6.3.1 Bat activity surveys completed in October 2018 across the Redrow site recorded a low level of activity. Areas shown to be of greater interest for bats are Great Field Plantation and Hedgerow H4 in the south of the site. Species recorded during the activity survey include Common Pipistrelle *Pipistrellus pipistrellus*, Soprano Pipistrelle *Pipistrellus pygmaeus*, Noctule Bat *Nyctalus noctula*, Brown Long-eared Bat *Plecotus auritus* and Barbastelle *Barbastella barbastellus*. The results of the activity surveys completed by FPCR in 2014 and 2015 across the wider site showed a similar assemblage of bats was recorded.

6.3.2 Several trees with potential roost features were identified by FPCR in 2014, three of which were found to contain roosts. A single Pipistrelle species hibernation roost was identified within tree T28. Trees T44 and T49 were identified as having bat roosts but the species were not identified from eDNA testing. Nocturnal surveys concluded that T49 was used as a roost by Soprano Pipistrelle.

6.4 Legislative Context

6.4.1 All bats are protected under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended) and included on Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (“the Habitats Regulations”). These include provisions making it an offence:

- Deliberately to kill, injure or take (capture) bats;
- Deliberately to disturb bats in such a way as to:-
  (i) be likely to impair their ability to survive, to breed or rear or nurture their young; or to hibernate or migrate; or
  (ii) affect significantly the local distribution or abundance of the species to which they belong;
- To damage or destroy any breeding or resting place used by bats;
- Intentionally or recklessly to obstruct access to any place used by bats for shelter or protection (even if bats are not in residence).

6.4.2 While the legislation is deemed to apply when bats are not in residence, Natural England guidance suggests that certain activities such as re-roofing can be completed outside sensitive periods when bats are not in residence provided these do not damage or destroy the roost.

6.4.3 The words deliberately and intentionally include actions where a court can infer that the defendant knew that the action taken would almost inevitably result in an offence, even if that was not the primary purpose of the act.

6.4.4 The offence of damaging (making worse for the bat) or destroying a breeding site or resting place is an absolute offence. Such actions do not have to be deliberate for an offence to be committed.

6.4.5 European Protected Species licences are available from Natural England in certain circumstances, and permit activities that would otherwise be considered an offence.

6.4.6 In accordance with the Habitats Regulations Natural England must apply the three derogation tests as part of the process of considering a licence application. These tests are that:

1. the activity to be licensed must be for imperative reasons of overriding public interest or for public health and safety;
2. there must be no satisfactory alternative; and
3. the favourable conservation status of the species concerned must be maintained.

6.4.7 Licences can usually only be granted if the development is in receipt of full planning permission.

6.5 Objective

6.5.1 To provide new opportunities for bats in terms of potential roost sites and enhanced foraging resources, with particular focus on local conservation priorities.

6.6 Mitigation and Enhancements

Construction Phase Mitigation

6.6.1 During the construction period no lighting will be present at night.

6.6.2 Retained trees containing roost potential will be safeguarded and site personnel briefed on the presence of bats.

New Habitat Planting

6.6.3 To compensate for the partial loss of hedgerows, additional native species planting will be provided throughout the green infrastructure and open space area greater than that which is to be lost. The retained hedgerows will be included within the green linkages and will be ‘gapped up’ with native species; this will increase species diversity, strengthen the hedgerows and improve the corridor for foraging bats.

6.6.4 Preference will be given to planting species of local provenance within the hedgerows and woodland that will be nectar and fruit producing species to provide foraging for insects, birds and mammals. Species will include Alder *Alnus glutinosa*, Beech *Fagus sylvatica*, Silver Birch *Betula pendula*, Wych Elm *Ulmus glabra*, Cherry *Prunus avium*, Hornbeam *Carpinus betulus*, Oak *Quercus robur*, Rowan S*orbus aucuparia*, Goat Willow *Salix caprea*, Hawthorn *Crataegus monogyna*, Hazel *Corylus avellana*, Field Maple *Acer campestre*, Blackthorn *Prunus spinosa*, Dogwood *Cornus sanguinea*, Elder *Sambucus nigra*, Guelder Rose *Viburnum opulus*, Field Rose *Rosa arvensis* and Dog Rose *Rosa canina*.

6.6.5 Management of the hedgerows will be undertaken in an ecologically sensitive manner to enhance the nature conservation value. Such management will include allowing the hedgerow to reach at least a height of 3m. Once reached the hedgerow can be 'topped out' to maintain the height or to suit circumstances, with a width of at least 1-2m; a proportion of trees within the hedgerow such as Oak and Field Maple will be allowed to mature into standard trees to provide nesting and foraging opportunities for local wildlife and a varied habitat structure; and grassland along the hedgerow base will be allowed to grow to provide a graduated sward height and habitat.

6.6.6 To compensate for woodland losses additional native species woodland planting (that of which will be greater than to be lost) will be incorporated into the scheme.

6.6.7 The introduction of a series of ponds across the site within the area of green infrastructure will increase the foraging opportunities for the local bat population. Adjacent to the ponds an area will be seeded with a mix with a high proportion of flower species to compensate for the loss of the field margin habitats. The inclusion of night scented species such as Evening Primrose *Oenothera biennis* and Fleabane *Pulicaria* sp. will attract night flying insects and in turn bats. The new ponds will be established within dark corridors. Establishment of these habitats will increase the diversity of insects which will use the area and therefore increase the value of these features for bats.

6.6.8 The green infrastructure area will be established in the early phases of the development. This will include planting of the buffer zones along woodland edges and additional planting along the boundaries / green infrastructure areas.

Dark Corridors

6.6.9 Across the site, dark corridors have been designed to ensure and incorporate habitats of value to bats for foraging, potential roosting and commuting into the wider area.

6.6.10 Development will be buffered from features of value to bats, such as hedgerows and woodland edges, that will be incorporated within the dark corridor, the buffer zones have been designed to be of sufficient size (a minimum of 10 or 15m) that will ensure that the features utilised by bats will maintain a light level of below 1 lux.

6.6.11 Habitat corridors to be created extending out of the site to the north have been designed with native species planting (2m in height) which will ensure that a dark corridor (below 1 lux) is maintained on the outer edge of the new habitats to increase linkages to the wider environment and provide additional foraging habitat for bats following completion of the development.

Bat Hop-overs

6.6.12 In order to maintain the linkages and an area of darkness (below 1 lux) across the gaps created by the road access through the hedgerows, young plantation woodland and tributary corridor a 'hop-over' will be created. This comprises trees that are already semi-mature (6m in height) planted at either side of the road so that the canopies of these trees will be allowed to interlink over this

section of road. To minimise the potential effects to bats (particularly Barbastelle) during the development these standard trees will be planted immediately following the removal of hedgerows / trees to facilitate road access.

Lighting During Operational Phase

6.6.13 Other lighting considerations will also be implemented during construction and incorporated into the development in order to ensure minimal light spill from the site. Lighting will be directed to where it is needed, to avoid light spillage, particularly along the hedgerow and woodland edges; buffer zones will not be illuminated; lighting that is incorporated into the development design will be of a type that has a low attraction to insects; any upward lighting will be avoided; and security lighting on properties backing on to sensitive hedgerows and woodland will be low wattage LED which will provided on the properties at construction to forestall a future homeowner installing unsuitable lighting which could impact on bats.

Bat Boxes

6.6.14 The inclusion of a variety of bat boxes around the site on suitable trees, and particularly along the woodland edges will provide new potential roosting sites for bats within the local area. Boxes will be located in sheltered spots and placed at a height of at least three metres from the ground. Boxes will also be arranged around the site so that a number of different aspects are covered.

6.7 Type and Source of Materials

6.7.1 Twenty Schwegler 2F Universal Bat Boxes, 20 Schwegler 1FF Flat Bat Box, and 5 Schwegler 1FW Hibernation Boxes (see Appendix 2) will be installed on retained trees throughout the site.

6.7.2 Details of the type and source of materials for new and enhanced habitats is addressed in the habitats section above.

6.8 Timetable of Works

Receptor	Action	Timing
Bats	Bat box installation	On retained trees as part of habitat enhancement works, summer 2019
	Establishment of hop-overs	To be established in first phase of landscaping works associated with Infrastructure RMA

Table 6.1. Timetable for implementation of mitigation and enhancements for bats.

6.9 Implementation Responsibilities

6.9.1 Peter Hadfield, Director of Ecology Solutions, has ultimate responsibility for the implementation of this strategy.

6.9.2 Richard Franks, Senior Engineering Manager at Redrow Homes, is leading for Redrow Homes.

6.9.3 Clear channels between these parties and their associates on the ground will be in operation at all times, by email and telephone as appropriate.

6.9.4 A copy of this strategy will be kept in the site office and form part of any site induction.

6.10 Initial Aftercare and Long-term Management and Maintenance

6.10.1 Bat boxes will be checked periodically (once per year in March) for the first five years following installation, by a suitably experienced and licensed ecologist to ensure that they are still in situ and are not damaged. Boxes will be replaced if found to be damaged.

6.10.2 The initial aftercare and long-term management and maintenance of new and enhanced habitats is described in the habitats section above.

6.11 Monitoring and Remedial Measures

6.11.1 Site visits by a suitably qualified ecologist will be undertaken throughout the programme of works to establish the infrastructure of the site. Effects on ecological receptors will be monitored, and conclusions drawn as to the significance of any effects, and any measures that may need to be implemented to mitigate for any effects identified. Following completion of the work, the effects will be analysed and any significant changes will be reported.

6.11.2 A separate Biodiversity Monitoring Strategy for the infrastructure application has been prepared to address the requirements of Condition 45.

6.12 Disposal of Waste

6.12.1 No waste will be produced as a direct result of works relating to the mitigation and enhancement measures proposed for bats. Any damaged bat boxes to be replaced will be disposed of at an approved facility.

6.12.2 Details of the disposal of waste for the habitats is addressed in the habitats section above.

7. OTTERS

7.1 This section addresses points (a) and (d) to (k) of Condition 42 in respect of Otters *Lutra lutra*.

7.2 Existing ecological constraints are shown on Plan ECO3. The Ecological Implementation Strategy is illustrated on Plans ECO4a to ECO4d.

7.3 Baseline Information

7.3.1 No evidence of Otter has been recorded in the existing waterbodies across the Redrow site and the wider site, but this species is known to be present in the River Stour, and the Stour Brook south of the site.

7.4 Legislative Context

7.4.1 Otters are subject to the same level of legislative protection as bats (see above).

7.5 Objective

7.5.1 To avoid potential impacts during construction, and establish and enhance suitable habitat for Otters within the site, to encourage natural colonisation in future.

7.6 Mitigation and Enhancements

Construction Phase Mitigation

7.6.1 Prior to any works on the existing habitats within the site, a check survey for Otters will be undertaken by an ecologist. In the event that evidence of the species is recorded, consideration will be given for the need for a Natural England licence, dependent on the nature of the works proposed.

7.6.2 Other measures as proposed for Badgers above would avoid potential conflicts with Otters during construction.

Enhancements

7.6.3 Though there is no evidence of their presence within the site at the time of writing, Otters are known to be present within the locality and the development represents an opportunity to provide greater opportunities for the species.

7.6.4 Measures to enhance existing waterbodies and to establish new areas as part of the drainage strategy may encourage greater use of the site by this species.

7.6.5 The provision of wet grassland associated with the drainage strategy will provide suitable overland habitat for Otter dispersal. The creation of this new habitat, based around native species, will also enhance the site for Otters.

7.7 Type and Source of Materials

7.7.1 No materials will be required for the mitigation and enhancement measures proposed for Otters.

7.7.2 Details of the type and source of materials for new and enhanced habitats is addressed in the habitats section above.

7.8 Timetable of Works

Receptor	Action	Timing
Otters	Pre-construction checks of suitable habitat	Prior to commencement of works

Table 7.1. Timetable for implementation of mitigation and enhancements for Otters.

7.9 Implementation Responsibilities

7.9.1 Peter Hadfield, Director of Ecology Solutions, has ultimate responsibility for the implementation of this strategy.

7.9.2 Richard Franks, Senior Engineering Manager at Redrow Homes, is leading for Redrow Homes.

7.9.3 Clear channels between these parties and their associates on the ground will be in operation at all times, by email and telephone as appropriate.

7.9.4 A copy of this strategy will be kept in the site office and form part of any site induction.

7.10 Initial Aftercare and Long-term Management and Maintenance

7.10.1 No initial aftercare or long-term maintenance is required for the mitigation and enhancement measures proposed for Otters.

7.10.2 The initial aftercare and long-term management and maintenance of new and enhanced habitats is described in the habitats section above.

7.11 Monitoring and Remedial Measures

7.11.1 Site visits by a suitably qualified ecologist will be undertaken throughout the programme of works to establish the infrastructure of the site. Effects on ecological receptors will be monitored, and conclusions drawn as to the significance of any effects, and any measures that may need to be implemented to mitigate for any effects identified. Following completion of the work, the effects will be analysed and any significant changes will be reported.

7.11.2 A separate Biodiversity Monitoring Strategy for the infrastructure application has been prepared to address the requirements of Condition 45.

7.12 Disposal of Waste

7.12.1 No waste will be produced as a direct result of works relating to the mitigation and enhancement measures proposed for Otters.

7.12.2 Details of the disposal of waste for the habitats is addressed in the habitats section above.

8. WATER VOLES

8.1 This section addresses points (a) and (d) to (k) of Condition 42 in respect of Water Voles *Arvicola amphibius*.

8.2 Existing ecological constraints are shown on Plan ECO3. The Ecological Implementation Strategy is illustrated on Plans ECO4a to ECO4d.

8.3 Baseline Information

8.3.1 No evidence of Water Voles was recorded in the existing waterbodies across the Redrow site and the wider site, but this species is known to be present in the River Stour, and the Stour Brook south of the site.

8.4 Legislative Context

8.4.1 Water Voles are fully protected under the Wildlife & Countryside Act 1981. It is an offence to:

- Intentionally kill, injure or take (capture) a Water Vole;
- Possess or control a live or dead Water Vole, or any part of a Water Vole;
- To sell, offer for sale or advertise for live or dead Water Voles;
- Intentionally or recklessly damage, destroy, or obstruct access to any structure or place which Water Voles use for shelter or protection or disturb Water Voles while they are using such a place.

8.4.2 The words deliberately and intentionally include actions where a court can infer that the defendant knew that the action taken would almost inevitably result in an offence, even if that were not the primary purpose of the act.

8.4.3 Operations where Water Voles are to be trapped or displaced require a conservation licence from Natural England. This may be in the form of a class licence or a site-specific licence dependent on whether the proposals meet particular criteria. To obtain either licence the project must deliver a net benefit for Water Voles.

8.5 Objective

8.5.1 To establish and enhance suitable habitat for Water Voles within the site, to encourage natural colonisation in future.

8.6 Mitigation and Enhancements

Construction Phase Mitigation

8.6.1 Prior to any works on the existing habitats within the site, a check survey for Water Voles will be undertaken by an ecologist. In the event that evidence of the species is recorded, consideration will be given for the need for a Natural England licence, dependent on the nature of the works proposed.

Enhancements

8.6.2 Though there is no evidence of their presence within the site at the time of writing, Water Voles are known to be present in the locality and the development represents an opportunity to provide greater opportunities for the species.

8.6.3 The network of attenuation features to be established as part of the Linear Park and drainage strategy, as well as the retained and enhanced ditches across the site, will be a valuable new area of potential habitat for Water Voles, should they colonise the site.

8.6.4 The provision of wet grassland associated with the drainage strategy will provide suitable overland habitat for Water Vole dispersal. New native species marginal planting and dry riparian grassland will also offer new foraging interest for Water Voles.

8.6.5 Waterbodies would be checked on an annual basis and managed periodically to ensure that no one species comes to dominate.

8.7 Type and Source of Materials

8.7.1 No materials will be required for the mitigation and enhancement measures proposed for Water Voles.

8.7.2 Details of the type and source of materials for new and enhanced habitats is addressed in the habitats section above.

8.8 Timetable of Works

Receptor	Action	Timing
Water Voles	Pre-construction checks of suitable habitat	Prior to commencement of works

Table 8.1. Timetable for implementation of mitigation and enhancements for Water Voles.

8.9 Implementation Responsibilities

8.9.1 Peter Hadfield, Director of Ecology Solutions, has ultimate responsibility for the implementation of this strategy.

8.9.2 Richard Franks, Senior Engineering Manager at Redrow Homes, is leading for Redrow Homes.

8.9.3 Clear channels between these parties and their associates on the ground will be in operation at all times, by email and telephone as appropriate.

8.9.4 A copy of this strategy will be kept in the site office and form part of any site induction.

8.10 Initial Aftercare and Long-term Management and Maintenance

8.10.1 No initial aftercare or long-term maintenance is required for the mitigation and enhancement measures proposed for Water Voles.

8.10.2 The initial aftercare and long-term management and maintenance of new and enhanced habitats is described in the habitats section above.

8.11 Monitoring and Remedial Measures

8.11.1 Site visits by a suitably qualified ecologist will be undertaken throughout the programme of works to establish the infrastructure of the site. Effects on ecological receptors will be monitored, and conclusions drawn as to the significance of any effects, and any measures that may need to be implemented to mitigate for any effects identified. Following completion of the work, the effects will be analysed and any significant changes will be reported.

8.11.2 A separate Biodiversity Monitoring Strategy for the infrastructure application has been prepared to address the requirements of Condition 45.

8.12 Disposal of Waste

8.12.1 No waste will be produced as a direct result of works relating to the mitigation and enhancement measures proposed for Water Voles.

8.12.2 Details of the disposal of waste for the habitats is addressed in the habitats section above.

9. DORMICE

9.1 This section addresses points (a) and (d) to (k) of Condition 42 in respect of Dormice *Muscardinus avellanarius*.

9.2 Existing ecological constraints are shown on Plan ECO3. The Ecological Implementation Strategy is illustrated on Plans ECO4a to ECO4d.

9.3 Baseline Information

9.3.1 No evidence of Dormice was recorded by Ecology Solutions across the Redrow site in 2018. A partial Dormouse nest was recorded in a survey tube in the south-east of the wider site in 2015; no evidence was recorded in the Redrow site.

9.4 Legislative Context

9.4.1 Dormice are subject to the same level of legislative protection as bats (see above).

9.5 Objective

9.5.1 To establish and enhance suitable habitat for Dormice within the site.

9.6 Mitigation and Enhancements

Construction Phase Mitigation

9.6.1 During the construction period all contractors will be briefed about the importance of the habitats within the site for the range of species that have been identified, and that care should be taken when conducting any works near existing natural features. All vegetation removal will have been predetermined at the full planning stages, and no additional losses would occur until the project ecologists have confirmed so.

9.6.2 Where site offices, material and vehicle storage are proposed, and where the phased development commences all natural habitats will be fenced off with an appropriate buffer using high visibility fencing or similar. This will ensure that habitats are not degraded through soil compaction and interference by contractors and machinery.

9.6.3 The approach identified as part of the outline planning application, based on the survey evidence, is that work is to be undertaken on a non-licensed method statement basis. This is on account of the very limited indications of presence and the apparently limited distribution within the wider site. Information obtained to date as part of Ecology Solutions' updated surveys has not changed this understanding; further work to be completed in spring 2019 will help to determine whether this remains the most suitable approach or whether a licence would be required.

Timed Vegetation Removal – Hedgerows

9.6.4 Where sections of hedgerow are to be removed these will generally be limited to a length of 12m. The methods below cover the methods for habitat removal during the winter and summer.

Winter

9.6.5 Vegetation checks and removal will be undertaken during the winter between November and March inclusive under the supervision of a licensed ecologist. This period will avoid the bird breeding season and the active period for Dormice, as they are more likely to be in hibernation underground. Searches of the vegetation will be undertaken prior to any vegetation removal whereby nests and any cavities within trees etc will be inspected for Dormice. The clearance of vegetation will be undertaken by hand with no heavily machinery to be used in close proximity to the areas of removed, so avoiding any possible disturbance through noise and vibrations. All tree felling will also be undertaken during this period, provided there are no bat roosting constraints.

9.6.6 The vegetation will be cut down to approximately 10-15cm, to avoid disturbance to the ground and retain the roots and stumps, in order not to adversely affect any Dormice that may be hibernating at or below the surface. The hedgerow canopy will be removed from the stem, a small proportion of the hedge will be kept as a 'dead hedge', which will provide a feature within which Dormice could continue to move when they wake from hibernation, this also means that individuals will be able to move along such breaks into surrounding retained habitats.

9.6.7 The removal of the root systems of the cut vegetation will be undertaken when Dormice are active between April to October, although care will be taken to avoid periods of cold wet weather, when Dormice can go into torpor. All root removals will need to be supervised by a licensed ecologist. During this period the 'dead hedge' will also be removed from the site; care will be taken to ensure that there are no nesting birds present; if they are present then work will stop until young have fledged and a buffer created to ensure that the nest is not disturbed. These areas will also be searched for Dormouse nests prior to removal.

Summer

9.6.8 Vegetation will be cleared by hand during the summer when Dormice are active; this will be between May to late September, but clearance should ideally be undertaken in May to avoid separating young that would be dependent on their mothers. All vegetation that is scheduled for removal will be checked for bird and Dormouse nests before any removal is undertaken. All removal will take place under a watching brief by a licensed ecologist, whereby removal of small lengths (approximately 10m) will be undertaken over consecutive days, thus allowing time for any possible Dormice to move from the area. The removal of the canopy of vegetation will be undertaken by hand; this will ensure that sightings of Dormice are more likely. The root system of the vegetation should also be removed during this period so to avoid potential refuge and hibernation opportunities in the future.

Timed Vegetation Removal – Woodland

9.6.9 Small sections of woodland are to be removed to facilitate access roads in the south of the Redrow site, these are also well removed from the Dormouse nest recorded. Approaches for winter and summer vegetation removal were included in the outline application.

Winter

9.6.10 During the winter months (November to March) ground level vegetation will be removed from the woodland areas; this will persuade any Dormice that could potentially be present to move when they come out of hibernation. As with the above a 'dead hedge' will be provided to allow safe passage to surrounding retained habitats / woodland. The remaining tree stumps and any ground removal will take place in the summer months when any Dormice present would be expected to have left the area (May to September).

Summer

9.6.11 Summer removal will take place between May and September. Small sections of the woodland compartments will be removed over a number of consecutive days. This will allow time and opportunities for any Dormice that might be present to move into adjacent retained habitats. Care will be taken to ensure that no habitats contain nesting birds.

Habitat Enhancements and Management

9.6.12 All existing and retained habitats will be enhanced with additional planting to ensure that poor structure and gaps are filled with native species that will benefit foraging, commuting and nest building. These will have a positive effect on Dormice but also other species.

9.6.13 Woodland compartments will be thinned to allow understorey shrub development, which are of more value to Dormice than the current tree canopy. Understorey species will be planted, including Oak, Honeysuckle *Lonicera periclymenum*, Hawthorn, Wayfaring-tree *Viburnum lantana*, Bramble *Rubus fruticosus*, Crab Apple *Malus sylvestris*, Cherry and Hazel.

9.6.14 Management will include coppicing, rotational cutting of sections of hedgerows at three to five year intervals and / or hedgerow laying; such measures will ensure increased fruiting bodies and understorey renewal of growth which will benefit invertebrates.

9.6.15 There will be a number of new habitats created within the site that will increase opportunities for Dormice to spread from their current isolation into the wider site and off site.

9.6.16 Generally, gaps established in existing hedgerows will be limited to 12m, to facilitate movement of Dormice at ground level should they move into the area. To limit the requirement for individuals to go to ground taller shrubs / trees will be planted either side of any gaps, whereby management will ensure that the canopy is lifted to create a natural bridge over time. These measures are effectively the same as the bat hop-overs, and are in the same location. Similar measures will be adopted across the stream that runs through the site, whereby tree canopies will be encouraged to bridge the gap and potentially provide links to habitats where Dormice are currently absent.

Nest Boxes

9.6.17 Prior to any habitat losses a number of Dormice nesting boxes will be installed within woodland habitats.

9.6.18 Wooden nest boxes will be installed within habitat adjacent to any vegetation losses, these will increase the nesting opportunities within the site and thus increase the carrying capacity in the long term. These will be monitored to ensure they remain viable as nesting features, and will also be used for future assessment of the population.

9.7 Type and Source of Materials

9.7.1 All Dormouse boxes erected to inform surveys shall be re-positioned and an additional 20 boxes will be installed within suitable and retained habitat.

9.7.2 Details of the type and source of materials for new and enhanced habitats is addressed in the habitats section above.

9.8 Timetable of Works

Receptor	Action	Timing
Dormice	Seasonal vegetation clearance	Winter clearance to be completed November to March inclusive. Stumps to be removed April to October under full supervision of an EcoW. Summer clearance May to late September under full supervision of an EcoW.
	Dormouse nest box installation	On retained trees summer 2019

Table 9.1. Timetable for implementation of mitigation and enhancements for Dormice.

9.9 Implementation Responsibilities

9.9.1 Peter Hadfield, Director of Ecology Solutions, has ultimate responsibility for the implementation of this strategy.

9.9.2 Richard Franks, Senior Engineering Manager at Redrow Homes, is leading for Redrow Homes.

9.9.3 Clear channels between these parties and their associates on the ground will be in operation at all times, by email and telephone as appropriate.

9.9.4 A copy of this strategy will be kept in the site office and form part of any site induction.

9.10 Initial Aftercare and Long-term Management and Maintenance

9.10.1 Nesting boxes will be checked periodically (at least once a year in March) for the first five years following installation, by a suitably experienced ecologist to ensure that they are still in situ and are not damaged. Boxes will be replaced if found to be damaged.

9.10.2 The initial aftercare and long-term management and maintenance of new and enhanced habitats is described in the habitats section above.

9.11 **Monitoring and Remedial Measures**

9.11.1 Site visits by a suitably qualified ecologist will be undertaken throughout the programme of works to establish the infrastructure of the site. Effects on ecological receptors will be monitored, and conclusions drawn as to the significance of any effects, and any measures that may need to be implemented to mitigate for any effects identified. Following completion of the work, the effects will be analysed and any significant changes will be reported.

9.11.2 A separate Biodiversity Monitoring Strategy for the infrastructure application has been prepared to address the requirements of Condition 45.

9.12 **Disposal of Waste**

9.12.1 No waste will be produced as a direct result of works relating to the mitigation and enhancement measures proposed for Dormice.

9.12.2 Details of the disposal of waste for the habitats is addressed in the habitats section above.

10. HEDGEHOGS

10.1 This section addresses points (a) and (d) to (k) of Condition 42 in respect of Hedgehogs *Erinaceus europaeus*.

10.2 Existing ecological constraints are shown on Plan ECO3. The Ecological Implementation Strategy is illustrated on Plans ECO4a to ECO4d.

10.3 Baseline Information

10.3.1 The site contains suitable habitats for Hedgehog foraging and dispersal, including woodland and hedgerows.

10.4 Legislative Context

10.4.1 Hedgehog is a species of principal importance for the conservation of biodiversity under Section 41 (England) of the NERC Act 2006.

10.4.2 The NERC Act 2006 requires the Secretary of State to:

> **… take such steps as appear… to be reasonably practicable to further the conservation of the living organisms and types of habitat included in any list published under this section, or… promote the taking by others of such steps.**

10.5 Objective

10.5.1 To avoid potential impacts during construction, and establish and enhance suitable habitat for Hedgehogs within the site.

10.6 Mitigation and Enhancements

Construction Phase Mitigation and Vegetation Clearance

10.6.1 Ground cover will be cleared outside of the winter hibernation period wherever possible. Where this is not possible, a check for hibernation nests will be completed by a suitably qualified ecologist prior to clearance.

10.6.2 Scrub and tree removal will be carried out in a sensitive manner, using hand tools to clear the base of trees to be removed prior to any large machinery pulling out roots.

10.6.3 Any clearance of log piles or other Hedgehog shelter features will be subject to inspection to ensure that Hedgehogs are absent. In the event that an individual is encountered, it will be carefully placed in an appropriate lidded box and immediately removed to an area of suitable habitat at the margins of the site away from working areas.

10.6.4 Any trenches or deep pits associated with construction that are to be left open overnight will be provided with a means of escape in case a Hedgehog enters. This is particularly important if the trench fills with water, and will take the form of a roughened plank of wood placed in the trench as a ramp to the surface.

New Habitat Planting

10.6.5 The retention of hedgerows along with additional buffer planting and grassland will provide continued opportunities for commuting and foraging Hedgehogs. New planting including native species and species of known wildlife value will offer new foraging resources for Hedgehogs.

10.6.6 Specific enhancements for invertebrates (see below) will provide additional foraging opportunities for Hedgehogs.

Hibernation Boxes

10.6.7 Hedgehog hibernation boxes and log piles will be installed in discrete locations throughout the development.

Hedgehog Gateways and Highways

10.6.8 New residential gardens will offer new potential habitat for Hedgehogs and other small mammals. Garden fences will be provided with a 'Hedgehog Gateway', a 13cm x13cm section of fence cut out at the base, to facilitate dispersal for Hedgehogs and other small animals (see Appendix 3). This will enhance the permeability of the new development for wildlife. In this way, where the residential areas intersect with the green infrastructure, Hedgehog Highways will become established.

10.7 Type and Source of Materials

10.7.1 Ten Schwegler Hedgehog Domes or Ecoplate Hedgehog houses (see Appendix 4) will be positioned in discreet locations within the site.

10.7.2 Details of the type and source of materials for new and enhanced habitats is addressed in the habitats section above.

10.8 Timetable of Works

Receptor	Action	Timing
Hedgehogs	Clearance of log piles and other hibernation features	Under full supervision by ECoW between October and April; certified by ECoW between May and September
	Hedgehog hibernation box installation	In suitable habitat, from summer 2019 onwards

Table 10.1. Timetable for implementation of mitigation and enhancements for Hedgehogs.

10.9 Implementation Responsibilities

10.9.1 Peter Hadfield, Director of Ecology Solutions, has ultimate responsibility for the implementation of this strategy.

10.9.2 Richard Franks, Senior Engineering Manager at Redrow Homes, is leading for Redrow Homes.

10.9.3 Clear channels between these parties and their associates on the ground will be in operation at all times, by email and telephone as appropriate.

10.9.4 A copy of this strategy will be kept in the site office and form part of any site induction.

10.10 Initial Aftercare and Long-term Management and Maintenance

10.10.1 Hibernation boxes will be checked periodically (at least once a year) for the first five years following installation, by a suitably experienced ecologist to ensure that they are still in situ and are not damaged. Boxes will be replaced if found to be damaged.

10.10.2 The initial aftercare and long-term management and maintenance of new and enhanced habitats is described in the habitats section above.

10.11 Monitoring and Remedial Measures

10.11.1 Site visits by a suitably qualified ecologist will be undertaken throughout the programme of works to establish the infrastructure of the site. Effects on ecological receptors will be monitored, and conclusions drawn as to the significance of any effects, and any measures that may need to be implemented to mitigate for any effects identified. Following completion of the work, the effects will be analysed and any significant changes will be reported.

10.11.2 A separate Biodiversity Monitoring Strategy for the infrastructure application has been prepared to address the requirements of Condition 45.

10.12 Disposal of Waste

10.12.1 No waste will be produced as a direct result of works relating to the mitigation and enhancement measures proposed for Hedgehogs.

10.12.2 Details of the disposal of waste for the habitats is addressed in the habitats section above.

11. BIRDS

11.1 This section addresses points (a) and (d) to (k) of Condition 42 in respect of birds.

11.2 Existing ecological constraints are shown on Plan ECO3. The Ecological Implementation Strategy is illustrated on Plans ECO4a to ECO4d.

11.3 Baseline Information

1.1.1. Four wintering bird surveys have been completed, in November and December 2018, and in January and February 2019 by Ecology Solutions. A total of 47 species were recorded, including 17 species that are listed as NERC species of principal importance, Suffolk LBAP and/or on the UK Birds of Conservation Concern Red and Amber list. Species recorded include Song Thrush *Turdus philomelos*, Skylark *Alauda arvensis*, Yellowhammer *Emberiza citrinella*, Kestrel *Falco tinnunculus*, Linnet *Carduelis cannabina*, Redwing *Turdus iliacus*, Fieldfare *Turdus pilaris*, Stock Dove *Columba oenas*, Bullfinch *Pyrrhula pyrrhula*, Dunnock *Prunella modularis*, Mistle Thrush *Turdus viscivorus*, Starling *Sturnus vulgaris*, House Sparrow *Passer domesticus*, Reed Bunting *Emberiza schoeniclus*, Black-headed Gull *Chroicocephalus ridibundus*, Lesser Black-backed Gull *Larus fuscus* and Mallard *Anas platyrhynchos*.

1.1.2. A single Tawny Owl *Strix aluco* was recorded during bat surveys undertaken in October 2018.

1.1.3. Four wintering bird surveys were previously undertaken by FPCR between November 2014 and February 2015. A similar complement of species was recorded during the earlier work.

1.1.4. A breeding bird survey was undertaken by Ecology Solutions in April 2019. A total of 36 species were recorded, including 12 species that are listed as NERC species of principal importance, Suffolk LBAP and / or on the UK Birds of Conservation Concern Red and Amber list. Species recorded include Dunnock, Fieldfare, Herring Gull *Larus argentatus*, House Sparrow, Starling, Yellowhammer, Skylark, Black-headed Gull, Lesser Black-backed Gull and Song Thrush. Of these species, Dunnock, Linnet, Yellowhammer and Skylark were all recorded singing.

1.1.5. Breeding bird surveys were previously undertaken in 2015 by FPCR. In summary the results of this work were as follows: Surveys were completed in April, May and June across the wider site. A total of 49 species were recorded, including 22 species that are listed as NERC species of principal importance, Suffolk LBAP and / or on the UK Birds of Conservation Concern Red and Amber list. Of these species Dunnock, House Sparrow, Starling, Yellowhammer, Skylark, Swallow *Hirundo rustica*, Black-headed Gull, Song Thrush, Green Woodpecker *Picus viridis*, Meadow Pipit *Anthus pratensis*, Linnet, Stock Dove, Kestrel, Whitethroat *Sylvia communis*, House Martin *Delichon urbicum*, Bullfinch, Willow Warbler *Phylloscopus trochilus*, Mallard and Swift *Apus apus* were recorded within the Redrow site. None of these notable species were found to be breeding on site.

11.4 Legislative Context

11.4.1 Section 1 of the Wildlife and Countryside Act 1981 (as amended) is concerned with the protection of wild birds, whilst Schedule 1 lists species that are protected by special penalties. All species of birds receive general protection whilst nesting.

11.5 Objective

11.5.1 To avoid potential impacts during construction, and establish and enhance suitable habitat for birds within the site, in order to retain and enhance existing ornithological interest.

11.6 Mitigation and Enhancements

Nesting Bird Checks

11.6.1 In order avoid impacts on nesting birds, and to avoid a potential offence under the Wildlife & Countryside Act 1981, all necessary clearance of vegetation would be undertaken outside of the bird breeding season (March to July inclusive) wherever possible. Where this is not possible, a check survey of vegetation by an experienced ecologist would be undertaken immediately prior to clearance. In the event that a nest was found to be present, the vegetation would be left uncleared with a 5m exclusion zone around it until the young had fledged.

New Habitat Planting

11.6.2 The scheme will include habitat enhancements through the planting of native and ornamental trees and shrubs, with preference given to species of value to local bird populations, e.g. berry- and fruit-bearing species such as Crab Apple, Hawthorn, Rowan, Holly *Ilex aquifolium* and Guelder Rose. The scheme will provide habitat buffers adjacent to retained hedgerows to minimise potential impacts to local bird populations in the long-term. New areas of woody species planting throughout the site will in time mature into habitats suitable for use by foraging and nesting birds.

11.6.3 Areas of new tussocky wildflower grassland will provide further nesting and foraging opportunities for farmland birds such as Skylark.

Bird Boxes

11.6.4 A series of bird boxes and Swift poles will be provided to enhance nesting opportunities for birds in the local area. A selection of hole- and open-fronted designs will be used in order to encourage a variety of species.

11.7 Type and Source of Materials

11.7.1 Twenty Schwegler 2H Open Front Bird Boxes, 20 Schwegler 1N General Purpose Deep Bird Boxes and 20 Schwegler 1B Bird Boxes will be installed on retained trees throughout the site. An additional two Swift poles will be erected within suitable areas within the site (see Appendix 5).

11.7.2 Details of the type and source of materials for new and enhanced habitats is addressed in the habitats section above.

11.8 Timetable of Works

Receptor	Action	Timing
Birds	Nesting bird checks of vegetation to be removed	March to July inclusive, as required
	Bird box installation	On retained trees from summer 2019 onwards
	Swift pole installation	On completion of initial landscaping works in each area

Table 11.1. Timetable for implementation of mitigation and enhancements for birds.

11.9 Implementation Responsibilities

11.9.1 Peter Hadfield, Director of Ecology Solutions, has ultimate responsibility for the implementation of this strategy.

11.9.2 Richard Franks, Senior Engineering Manager at Redrow Homes, is leading for Redrow Homes.

11.9.3 Clear channels between these parties and their associates on the ground will be in operation at all times, by email and telephone as appropriate.

11.9.4 A copy of this strategy will be kept in the site office and form part of any site induction.

11.10 Initial Aftercare and Long-term Management and Maintenance

11.10.1 Bird boxes will be checked periodically (at least once a year in March) for the first five years following installation, by a suitably experienced ecologist to ensure that they are still in situ and are not damaged. Boxes will be replaced if found to be damaged.

11.10.2 The initial aftercare and long-term management and maintenance of new and enhanced habitats is described in the habitats section above.

11.11 Monitoring and Remedial Measures

11.11.1 Site visits by a suitably qualified ecologist will be undertaken throughout the programme of works to establish the infrastructure of the site. Effects on ecological receptors will be monitored, and conclusions drawn as to the significance of any effects, and any measures that may need to be implemented to mitigate for any effects identified. Following completion of the work, the effects will be analysed and any significant changes will be reported.

11.11.2 A separate Biodiversity Monitoring Strategy for the infrastructure application has been prepared to address the requirements of Condition 45.

11.12 Disposal of Waste

11.12.1 No waste will be produced as a direct result of works relating to the mitigation and enhancement measures proposed for birds.

11.12.2 Details of the disposal of waste for the habitats is addressed in the habitats section above.

12. REPTILES

12.1 This section addresses points (a) and (d) to (k) of Condition 42 in respect of reptiles.

12.2 Existing ecological constraints are shown on Plan ECO3. The Ecological Implementation Strategy is illustrated on Plans ECO4a to ECO4d.

12.3 Baseline Information

12.3.1 Populations of Grass Snake *Natrix helvetica* and Common Lizard *Zootoca vivipara* are known from the Redrow site, but at the margins and generally within areas proposed for green infrastructure under the outline scheme. An adult Grass Snake was recorded along Hedgerow H11 on 24 June 2014 and Hedgerow H14 on 4 September 2014. Adult Common Lizards were recorded along Hedgerow H11 on 24 June and 23 September 2014 and along Hedgerow H4 and south-eastern boundary of the site on 14 August 2014. Juvenile Common Lizard were also recorded on the south-eastern boundary on 14 August 2014. Slow Worm *Anguis fragilis* have been recorded in the wider site.

12.4 Legislative Context

12.4.1 All reptile species receive protection under legislation in the UK. Smooth Snake *Coronella austriaca* and Sand Lizard *Lacerta agilis* receive full legal protection in England due to their status as scarce, rather local, species. These species are highly unlikely to be present within the site on account of their habitat requirements and geographical distribution.

12.4.2 The other reptile species, namely Slow Worm, Common Lizard, Grass Snake and Adder *Vipera berus*, are common and widespread across the country. As such, these species receive only partial protection under the Wildlife and Countryside Act 1981 (as amended), being protected from deliberate killing or injury, their habitat receiving no statutory protection.

12.5 Objective

12.5.1 To provide greater opportunities for reptiles within the site.

12.6 Mitigation and Enhancements

Passive Displacement

12.6.1 Where habitats used by reptiles exist mitigation measures will be put into place to ensure that no offence is caused under the Wildlife & Countryside Act. This will include passive displacement and fencing of sensitive areas.

12.6.2 Passive displacement will involve the intensive management of the existing habitats favourable to reptiles, through a cutting regime which will encourage reptiles to move away from such areas. Cuts will be undertaken using a hand strimmer with an initial cut of 200mm followed by a cut of 100mm 24 hours later and then cut as short as possible. Displacement will occur ahead of development, when reptiles are active (between mid-March and October) and during favourable weather conditions. All cuttings and other debris will be removed to avoid creating places of refuge. Following the passive

displacement exercise, topsoil will be stripped to remove any suitability for reptiles. All works will be undertaken under the supervision of a suitably qualified ecologist.

New Habitat Planting and Hibernation Features

12.6.3 Areas where reptiles have been recorded are to be included within the green infrastructure network. These will undergo enhancements with hibernacula created to offer refuge, shelter and hibernation opportunities away from residential areas. The green corridors will link to larger areas, which will have multiple uses, including amenity, access and conservation. Habitats will be established with a tussocky grassland structure with wildflower mixes; this will provide the nectar sources for invertebrate / prey items, basking areas and safe passages through undergrowth. Where tree removal is required the trunks will be kept and cut up and arranged within retained habitats; these will create basking opportunities, refuge and as they rot provide a foraging resource.

12.6.4 Management of grassland will be important for the longevity of suitable habitats. Cutting regimes will be rotated whereby only small parcels of a compartment are cut in one year. Grassland mixes will include Crested Dogstail *Cynosurus cristatus,* Cocksfoot *Dactylis glomerata*, Red Fescue *Festuca rubra* with wildflower mixes to include Common Knapweed *Centaurea nigra*, Greater Knapweed *Centaurea scabiosa*, Oxeye Daisy *Leucanthemum vulgare*, Wild Carrot *Dipsacus fullonum* and Tufted Vetch *Vicia cracca*.

12.7 **Type and Source of Materials**

12.7.1 Hibernacula will be created from materials sourced on site from tree management activities (see Appendix 6).

12.7.2 Details of the type and source of materials for new and enhanced habitats is addressed in the habitats section above.

12.8 **Timetable of Works**

Receptor	Action	Timing
Reptiles	Clearance of log piles and other hibernation features	Under full supervision by ECoW between November and March; certified by ECoW between April and October
	Passive displacement	Under full supervision by EcoW when reptiles are active (between mid-March and October) and during favourable weather conditions
	Hibernacula installation	From summer 2019 onwards, in line with landscaping works

Table 12.1. Timetable for implementation of mitigation and enhancements for reptiles.

12.9 **Implementation Responsibilities**

12.9.1 Peter Hadfield, Director of Ecology Solutions, has ultimate responsibility for the implementation of this strategy.

12.9.2 Richard Franks, Senior Engineering Manager at Redrow Homes, is leading for Redrow Homes.

12.9.3 Clear channels between these parties and their associates on the ground will be in operation at all times, by email and telephone as appropriate.

12.9.4 A copy of this strategy will be kept in the site office and form part of any site induction.

12.10 Initial Aftercare and Long-term Management and Maintenance

12.10.1 Hibernacula will be checked annually for the first five years following installation, by a suitably experienced ecologist to ensure that they are still in situ and are not damaged. Hibernacula will be replaced if found to be damaged.

12.10.2 The initial aftercare and long-term management and maintenance of new and enhanced habitats is described in the habitats section above.

12.11 Monitoring and Remedial Measures

12.11.1 Site visits by a suitably qualified ecologist will be undertaken throughout the programme of works to establish the infrastructure of the site. Effects on ecological receptors will be monitored, and conclusions drawn as to the significance of any effects, and any measures that may need to be implemented to mitigate for any effects identified. Following completion of the work, the effects will be analysed and any significant changes will be reported.

12.11.2 A separate Biodiversity Monitoring Strategy for the infrastructure application has been prepared to address the requirements of Condition 45.

12.12 Disposal of Waste

12.12.1 No waste will be produced as a direct result of works relating to the mitigation and enhancement measures proposed for reptiles.

12.12.2 Details of the disposal of waste for the habitats is addressed in the habitats section above.

13. AMPHIBIANS

13.1 This section addresses points (a) and (d) to (k) of Condition 42 in respect of amphibians.

13.2 Existing ecological constraints are shown on Plan ECO3. The Ecological Implementation Strategy is illustrated on Plans ECO4a to ECO4d.

13.3 Baseline Information

13.3.1 No Great Crested Newts *Triturus cristatus* were recorded during earlier survey work in 2015. Additionally, there are no records for Great Crested Newts in the local area. Common Toads *Bufo bufo* and Smooth Newts *Lissotriton vulgaris* were recorded during Great Crested Newt surveys completed in 2014 and 2015.

13.4 Legislative Context

13.4.1 All British amphibian species receive a degree of protection under the Wildlife and Countryside Act 1981 (as amended). The level of protection varies from protection from sale or trade only, as is the case with species such as Smooth Newt and Common Toad, to the more rigorous protection afforded to species such as the Great Crested Newt, which is also protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended); included on Schedule 2 of the Conservation of Habitats and Species Regulations 2017.

13.4.2 Common Toads are also species of principal importance for the conservation of biodiversity under Section 41 (England) of the NERC Act 2006.

13.4.3 The NERC Act 2006 requires the Secretary of State to:

> **… take such steps as appear… to be reasonably practicable to further the conservation of the living organisms and types of habitat included in any list published under this section, or… promote the taking by others of such steps.**

13.5 Objective

13.5.1 To provide greater opportunities for amphibians within the site.

13.6 Mitigation and Enhancements

Precautionary Working Methods

13.6.1 Construction works and pollution of surface water run-off could result in pollution of the ponds, field ditches and water course. To ensure there are no potential negative effects to the quality of the water all operations will be undertaken in accordance with standard guidance provided in the Environmental Agency Guidelines PPG5 Pollution Prevention Guidelines. In addition, the drainage strategy will be designed to ensure that surface water run-off is suitably treated prior to discharge.

13.6.2 Works to enhance ponds and ditches will be undertaken outside of the amphibian breeding period from March to June inclusive.

13.6.3 No Great Crested Newts have been recorded within the site and a Natural England licence is not necessary to undertake the work.

Retained and New Habitats

13.6.4 Work to enhance and manage on site ditches, and to establish new wildlife-friendly attenuation features, will provide new aquatic habitats for amphibian species. New grassland habitats to be established within the site will offer new opportunities during the terrestrial phase.

13.6.5 The proposed development will include strong green linkages across the site. Within the green infrastructure additional ponds, species rich grassland and woodlands will be created. This will increase the habitats available and increase the potential range by increasing connectivity for amphibians and other species across the site. To increase the biodiversity potential of the ponds they will be designed where possible to incorporate a shallow sloping gradient, marginal shelves, aquatic planting, and seeding of the banks with species rich grassland. The implementation of these habitat enhancements will increase potential diversity of insects using the site and in turn will provide a significant foraging resource for amphibians and many other species such as reptile and mammal species.

13.6.6 Additional habitats suitable for use by invertebrate and amphibian species will be provided by creating log piles within the green linkages at the base of hedgerows, and in areas of woodland and grassland. The piles would be established using wood generated through maintenance of trees / woodlands within the site. These structures would benefit amphibians by providing places of shelter and or rest and potential hibernation opportunities along with increasing habitat for invertebrates.

Road Crossings

13.6.7 Where gaps in existing hedgerows are created as part of the development, dropped kerbs will be installed on either side of the road in that location to aid the movement of wildlife through the site.

13.7 **Type and Source of Materials**

13.7.1 Log piles will be created from materials sourced on site from tree management activities.

13.7.2 Details of the type and source of materials for new and enhanced habitats is addressed in the habitats section above.

13.8 **Timetable of Works**

Receptor	**Action**	**Timing**
Amphibians	Road crossings	In concert with construction
	Hibernacula installation	From summer 2019 onwards, in line with landscaping works

Table 13.1. Timetable for implementation of mitigation and enhancements for amphibians.

13.9 Implementation Responsibilities

13.9.1 Peter Hadfield, Director of Ecology Solutions, has ultimate responsibility for the implementation of this strategy.

13.9.2 Richard Franks, Senior Engineering Manager at Redrow Homes, is leading for Redrow Homes.

13.9.3 Clear channels between these parties and their associates on the ground will be in operation at all times, by email and telephone as appropriate.

13.9.4 A copy of this strategy will be kept in the site office and form part of any site induction.

13.10 Initial Aftercare and Long-term Management and Maintenance

13.10.1 Log piles will be checked periodically for the first five years following installation, by a suitably experienced ecologist to ensure that they are still in situ. Log piles will be replaced if found to be missing.

13.10.2 The initial aftercare and long-term management and maintenance of new and enhanced habitats is described in the habitats section above.

13.11 Monitoring and Remedial Measures

13.11.1 Site visits by a suitably qualified ecologist will be undertaken throughout the programme of works to establish the infrastructure of the site. Effects on ecological receptors will be monitored, and conclusions drawn as to the significance of any effects, and any measures that may need to be implemented to mitigate for any effects identified. Following completion of the work, the effects will be analysed and any significant changes will be reported.

13.11.2 A separate Biodiversity Monitoring Strategy for the infrastructure application has been prepared to address the requirements of Condition 45.

13.12 Disposal of Waste

13.12.1 No waste will be produced as a direct result of works relating to the mitigation and enhancement measures proposed for amphibians.

13.12.2 Details of the disposal of waste for the habitats is addressed in the habitats section above.

14. INVERTEBRATES

14.1 This section addresses points (a) and (d) to (k) of Condition 42 in respect of invertebrates.

14.2 Existing ecological constraints are shown on Plan ECO3. The Ecological Implementation Strategy is illustrated on Plans ECO4a to ECO4d.

14.3 Baseline Information

14.3.1 Given the habitats present, it is likely a varied assemblage of common invertebrate species utilises the site. There is no evidence to suggest that any rare or notable species would currently be present.

14.4 Objective

14.4.1 To provide greater opportunities for invertebrates within the site.

14.5 Mitigation and Enhancements

14.5.1 No mitigation measures in respect of invertebrates are required during the construction phase.

New Habitat Planting

14.5.2 The provision of new habitats of ecological interest including trees, wildflower grassland and wetland habitats, will offer new and enhanced resources for invertebrates.

Nesting Aids

14.5.3 As a further enhancement, invertebrate nesting aids and log piles, along with bee banks and a bug hotel feature will be established within the green infrastructure of the site. These will provide new opportunities for invertebrates.

14.6 Type and Source of Materials

14.6.1 Log piles and 'loggeries' will be created from materials sourced on site from tree management activities (see Appendix 7). A series of bee banks, 10 Schwegler clay and reed insect nesting aids and a bug hotel feature will be installed throughout the site (see Appendix 8).

14.6.2 Details of the type and source of materials for new and enhanced habitats is addressed in the habitats section above.

14.7 Timetable of Works

Receptor	Action	Timing
Invertebrates	Nesting aid installation	In suitable habitat from summer 2019 onwards
	Bee bank construction	As part of landscaping works, from summer 2019 onwards

Table 14.1. Timetable for implementation of enhancements for invertebrates.

14.8 Implementation Responsibilities

14.8.1 Peter Hadfield, Director of Ecology Solutions, has ultimate responsibility for the implementation of this strategy.

14.8.2 Richard Franks, Senior Engineering Manager at Redrow Homes, is leading for Redrow Homes.

14.8.3 Clear channels between these parties and their associates on the ground will be in operation at all times, by email and telephone as appropriate.

14.8.4 A copy of this strategy will be kept in the site office and form part of any site induction.

14.9 Initial Aftercare and Long-term Management and Maintenance

14.9.1 Nesting aids will be checked annually for the first five years following installation, by a suitably experienced ecologist to ensure that they are still in situ and are not damaged. Nesting aids will be replaced if found to be damaged. Bee banks will be checked annually as part of landscaping works, and re-established if they are deteriorating.

14.9.2 The initial aftercare and long-term management and maintenance of new and enhanced habitats is described in the habitats section above.

14.10 Monitoring and Remedial Measures

14.10.1 Site visits by a suitably qualified ecologist will be undertaken throughout the programme of works to establish the infrastructure of the site. Effects on ecological receptors will be monitored, and conclusions drawn as to the significance of any effects, and any measures that may need to be implemented to mitigate for any effects identified. Following completion of the work, the effects will be analysed and any significant changes will be reported.

14.10.2 A separate Biodiversity Monitoring Strategy for the infrastructure application has been prepared to address the requirements of Condition 45.

14.11 Disposal of Waste

14.11.1 No waste will be produced as a direct result of works relating to the mitigation and enhancement measures proposed for invertebrates.

14.11.2 Details of the disposal of waste for the habitats is addressed in the habitats section above.