A303 Sparkford to Ilchester Dualling Scheme TR010036

6.3 Environmental Statement

Appendix 8.8 Dormouse Technical Report

APFP Regulation 5(2)(a)
Planning Act 2008
Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009
July 2018

Volume 6.0

Infrastructure Planning

Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

A303 Sparkford to Ilchester Dualling Scheme

Development Consent Order 201[X]

6.3 Environmental Statement
Appendix 8.8 Dormouse Technical Report

Regulation Number:	Regulation 5(2)(a)
Planning Inspectorate Scheme Reference:	TR010036
Application Document Reference:	6.3
Author:	A303 Sparkford to Ilchester Dualling Scheme Project Team, Highways England

Version	Date	Status of Version
Rev 0	July 2018	Application Issue

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Executive summary

The proposed A303 Sparkford to Ilchester Dualling scheme (hereafter referred to as 'the scheme') is to provide a continuous dual-carriageway on the A303 linking the Podimore Bypass and the Sparkford Bypass. Hazel dormice *Muscardinus avellanarius* are afforded full protection under the *Conservation of Habitats and Species Regulations 2017* and the *Wildlife and Countryside Act 1981* (as amended).

Suitable dormice habitat was identified whilst undertaking an extended Phase 1 habitat survey in 2016, it was therefore recommended that further surveys for dormice should be undertaken. A further habitat suitability assessment was undertaken in March 2017 which identified 8 areas of dormouse habitat within 250 metres of the scheme, as suitable for a dormouse nest tube survey. These 8 sites were assigned as survey areas C, D, E, G, H, I and L, J and K.

Dormouse surveys at sites C, G, H, I and L, J and K were carried out between April 2017 and November 2017. Surveys at sites D and E were stopped in August 2017 due to health and safety reasons however, when the nest tubes were removed in March 2018, they were checked for evidence of dormice.

Surveys concluded the likely absence of dormice within 250 metres of the scheme. The scheme is not anticipated to result in significant effects to dormouse species directly or indirectly, either during construction or operation.

Sites C, D, E, H and J would not be directly impacted by the scheme therefore, no mitigation would be required.

Sites G, I and L and K would be directly affected by the scheme through temporary or permanent loss of woodland, scrub and hedgerows. Therefore, prior to construction works, personnel would receive a toolbox talk by a suitably qualified ecologist, covering the identification, ecology, conservation status and legislative protection of dormice, as well as general good environmental practice on-site. All retained woodland and hedgerow habitat on all sites would be fenced off so it is protected from physical disturbance during the construction phase. Temporary and permanent lighting would be directed away from retained and replanted habitat with the use of directional LED lanterns.

Replanting of native and local provenance species would be undertaken to ensure there is no net loss of dormouse habitat, and to improve overall dormouse habitat and connectivity to the wider landscape.

Following the implementation of the above measures it is expected that any adverse long-term impacts on potential dormouse habitat would be reduced. Furthermore, with the improvement of habitat connections and following maturing of replanting species, dormouse habitat would be considered to be improved in the long-term and there would be an overall net gain in potential dormouse habitat.

1 Introduction

1.1 Background

Existing corridor

1.1.1 The A303 forms part of Highways England's Strategic Road Network (SRN) and a strategic link between the south west and the rest of the south, south-east and London. The route comprises multiple road standards, including dual carriageway, single carriageway and single carriageway sections with overtaking lanes. Speed limits also vary between 40 miles per hour and 70 miles per hour, depending on the character of the road and its surroundings.

Existing road

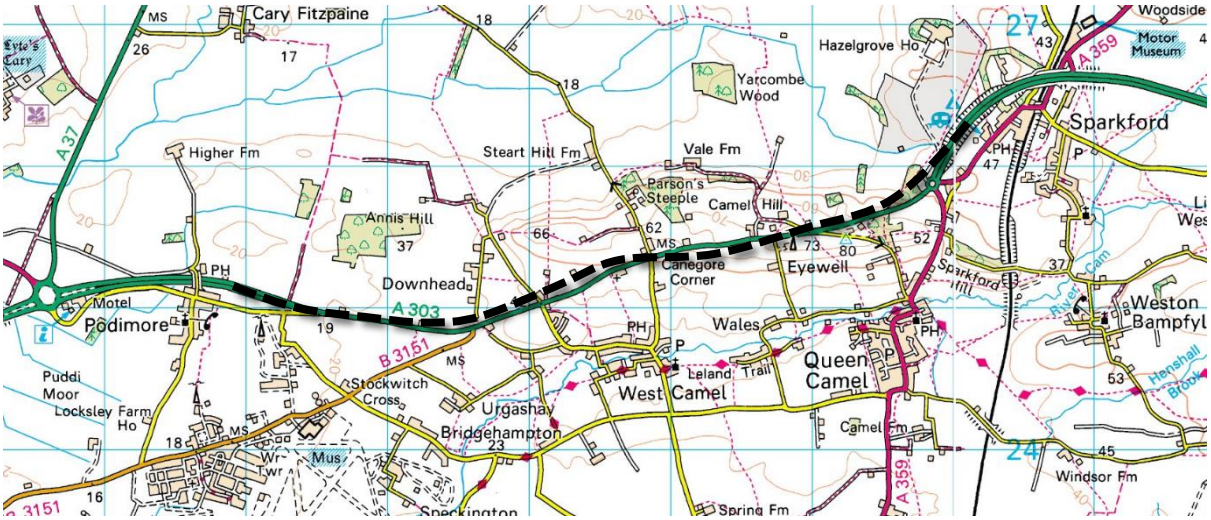
1.1.2 The section of the A303 that is being upgraded as part of this scheme commences at the eastern limits of the existing dual carriageway, the Podimore Bypass. Travelling east, the corridor reaches the junction with the B3151 before bearing north east and rising upwards through Canegore Corner to reach the crest of Camel Hill at Eyewell. This section of the corridor is characterised by a single lane road, with double white lines negating overtaking and subject to a 50 miles per hour speed limit. There are several priority junctions along the route giving access to the settlements of Queen Camel and West Camel to the south and Downhead to the north, as well as several farm accesses and parking laybys.

1.1.3 From the crest of Camel Hill, the corridor descends to meet the roundabout at the western limit of the dual carriageway Sparkford Bypass (Hazlegrove Roundabout). This section comprises 2 lanes in the westbound direction, 1 lane in the eastbound direction and is also subject to a 50 miles per hour speed limit. Hazlegrove Roundabout forms a junction between the A303 and the A359 which runs south through Queen Camel and north-east through Sparkford. The roundabout also provides access to a service station, and to a school at Hazlegrove House.

1.1.4 The section of the A303 that is to be upgraded is almost 3.5 miles, or approximately 5.6 kilometres long.

1.1.5 The extents of the scheme are illustrated in Figure 1.1 below. Figure 2.1 of Volume 6.2 shows the proposed red line boundary for the scheme.

Figure 1.1: Scheme extents



Source: Mott MacDonald Sweco Joint Venture (MMSJV)

Scheme proposals

1.1.6 The proposed scheme is to provide a continuous dual-carriageway linking the Podimore Bypass and the Sparkford Bypass. The scheme would involve the removal of at-grade junctions and direct accesses. The Hazlegrove Junction would be constructed to grade-separated standards and Downhead Junction and Camel Cross Junction would be constructed to compact grade-separated standards, as illustrated on Figure 2.3 General Arrangement Plans, contained in Volume 6.2.

1.1.7 A detailed description of the scheme is provided within Chapter 2, The Scheme, of Volume 6.1.

Scope of report

1.1.8 The objectives of this report are:

- to inform the Environmental Impact Assessment (EIA)
- to present the results of the presence / absence surveys
- to present the relative abundance of hazel dormouse populations, if any
- to assess the potential impacts of the scheme on dormice
- to provide recommendations for further mitigation, habitat creation and enhancement, where required

1.2 Legislation

Legal protection

1.2.1 Dormice are fully protected by the *Conservation of Habitats and Species Regulations 2017*, which transposes the Council Directive 92/43/ECC (known as the Habitats Directive) on the conservation of natural habitats and of wild

fauna and flora that was adopted in 1992 into UK law. Dormice are also protected under the *Wildlife and Countryside Act 1981* (as amended).

1.2.2 Under Regulation 43 of the *Conservation of Habitats and Species Regulations 2017*, it is illegal to:

- intentionally or deliberately injure, kill or take any wild dormouse
- intentionally or deliberately damage, destroy or obstruct any access to any structure or place used for shelter, breeding, or protection by a dormouse
- or to intentionally or recklessly disturb a dormouse whilst it is using such a structure or place
- possess or advertise / sell / exchange a dormouse (dead or alive) or any part of a dormouse

1.2.3 Under Schedule 5 of the *Wildlife and Countryside Act 1981*, it is illegal to:

- intentionally or deliberately injure, kill, or take any wild dormouse
- intentionally or deliberately damage, destroy or obstruct any access to any structure or place used for shelter, breeding, or protection by a dormouse
- or to intentionally or recklessly disturb a dormouse whilst it is using such a structure or place
- possess or advertise / sell / exchange a dormouse (dead or alive) or any part of a dormouse

1.2.4 The *UK Biodiversity Action Plan* (UKBAP) 1994 – 2010 has been superseded by the *UK Post-2010 Biodiversity Framework* covering the period 2011 - 2020. UKBAP priority habitats and species were used to form the basis for the statutory list of habitats and species of 'principal importance for the conservation of biodiversity in England' under Section 41 of the *Natural Environment and Rural Communities (NERC) Act 2006*.

1.2.5 Section 40 of the NERC Act 2006 requires public bodies, including local authorities, 'to have regard to the conservation of biodiversity in England' when carrying out their normal functions. The local planning authority therefore must consider the impact on biodiversity of the proposed development. The NERC Act identifies species of 'principal importance for the conservation of biodiversity in England' (Section 41) to guide public bodies in implementing their duty. This priority list includes dormice.

1.2.6 The strategic direction for biodiversity policy for the next decade is set out in the national strategy for *England Biodiversity 2020*. As part of that strategy, actions were identified by experts to help in the recovery of populations of the Section 41 listed species. Actions identified for the recovery of dormice that are pertinent to the scheme include the following:

- Promote better consideration by Highways England and local planning authorities when considering development of road proposals to ensure fragmentation of populations does not occur.
- Encourage appropriate habitat management (of woodlands and of hedgerow connectivity) including protecting, maintaining and enhancing current habitat by planting and retaining woodland edge, dense shrubbery and overgrown clearings.
- Increase the extent of suitably managed woodland and connective hedgerows by encouraging appropriate habitat management in priority habitats but note that dormice are found in a wider range of habitats and thus action should not be restricted to these habitats.

National Planning Policy Framework

1.2.7 The *National Planning Policy Framework (NPPF) 2012* sets out government's planning policies for England and how these are expected to be applied. Chapter 11 'Conserving and enhancing the natural environment' sets out the Government's policies on biodiversity. In summary, with regards to ecology and biodiversity, the NPPF requires that the planning system and planning policies should:

- minimise impacts on biodiversity and provide net gains in biodiversity where possible
- recognise the wider benefits of ecosystem services
- explore and encourage opportunities to incorporate biodiversity in and around developments
- refuse planning permission if significant harm cannot be avoided, adequately mitigated, or, as a last resort, compensated for
- not normally lead to a consent where the proposed development on land within or outside a Site of Special Scientific Interest (SSSI) would be likely to have an adverse effect on the SSSI (either individually or in combination with other developments)
- lead to a refusal of planning permission if development will result in the loss or deterioration of irreplaceable habitats, including ancient woodland and the loss of aged or veteran trees found outside ancient woodland, unless the need for, and benefits of, the development in that location clearly outweigh the loss

1.3 Status of hazel dormice at the national level

1.3.1 Hazel dormice are native to the UK but are nationally rare and vulnerable to extinction. They are a priority species listed in the UKBAP, although the exact size of the UK population is unknown. There has been a long-term decline in both number of individuals and the geographical range.

1.3.2 Their distribution is predominantly confined to southern England and southern Wales and is considered to be fragmentary throughout. Dormice monitoring programmes have recently provided an indication that the decline is slowing

and as part of an ongoing hazel dormouse reintroduction programme, the current range is slowly being extended[1].

1.4 Status of hazel dormice at county level

1.4.1 Hazel dormice are found throughout Somerset. They are a 'County Notable' species and the subject of the Taunton Deane District Council and Exmoor *National Park Biodiversity Action Plans*[2]. Natural England has identified high priority areas for action nationally including areas within Taunton Deane.

1.5 Dormouse ecology

1.5.1 Dormice are highly arboreal preferring to move between understory, hedgerows, woodlands and scrub during the active season (April to November). They are reluctant to cross open ground, and are believed to rarely descend to ground level except to hibernate over winter[3].

1.5.2 They have a complex structural habitat requirement including connective habitat to disperse and forage, presence of a range of different tree and scrub species that will provide suitable food year-round, and nesting habitat for shelter, breeding and hibernation[4].

1.6 Study area

1.6.1 Guidance on ecological assessments recommends that all ecological features that occur within a zone of influence (ZoI) for a proposed scheme are investigated[5].

1.6.2 There is no set guidance that confirms a ZoI for dormouse surveys. Therefore, a ZoI of 250 metres was used in accordance with professional judgement and methodology within the *Dormouse Conservation Handbook*[6].

[1] People's trust for endangered species (2018) *Hazel (or Common) dormouse* [online] available at: https://ptes.org/get-informed/facts-figures/hazel-common-dormouse-muscardinus-avellanarius/ (last accessed January 2018).
[2] Somerset Highways (2006) *Somerset Highways Biodiversity Action Plans, Species Action Plans*.
[3] Bright, P. W., Morris, P. A., and Mitchell-Jones, A., (2006) *Dormouse Conservation Handbook*. English Nature.
[4] Highways England (2001) *Design Manual for Roads and Bridges, Volume 10, Section 4, Part 5 HA 97/01 Nature Conservation Advice in Relation to Dormice* [online] available at: http://www.standardsforhighways.co.uk/ha/standards/dmrb/vol10/section4.htm (last accessed April 2018).
[5] Chartered Institute of Ecology and Environmental Management (2016) *Guidelines for Ecological Impact Assessment in the UK and Ireland*: *Terrestrial, Freshwater and Coastal*
[6] Bright et al (2006) The *Dormouse Conservation Handbook*, 2nd Edition.

2 Methodology

2.1 Desk study

2.1.1 Biological records were obtained from Somerset Environmental Records Centre (SERC) in May 2017, within a 2 kilometre radius of the scheme.

2.2 Habitat assessment

2.1.2 An extended Phase 1 habitat survey was undertaken in May 2016 which was updated again in March 2017, and identified suitable habitat for dormice within 250 metres of the scheme.

2.1.3 Hedgerows, woodland and scrub within 250 metres of the scheme, were assessed further for its suitability to support dormice using the following criteria:

- age range of trees and shrubs
- level of diversity of trees and shrubs
- level of suitability of trees and shrubs
- availability of key food sources
- connectivity to wider landscape via suitable habitats
- signs of dormice present for example, open nuts, nests

2.3 Field survey

2.1.4 The dormouse survey methodology followed the *Dormouse Conservation Handbook*. The guidelines recommend that a minimum of 50 nest tubes are deployed in suitable and connected habitat in order to determine the presence or absence of dormice. The nest tubes should be checked monthly across the season (April to November inclusive).

2.1.5 The *Dormouse Conservation Handbook* suggests an index of probability of finding dormice for each month outside of the dormouse hibernation season (Table 2.1). This is used as a basis to calculate the necessary survey effort to make a robust conclusion of presence or likely absence. The table below assumes that 50 tubes have been placed in suitable habitat.

2.1.6 It is recommended that absence should not be assumed on a score of less than 20. It is not possible to wholly prove the absence of dormice from areas of suitable habitat; however, an adequate survey will give confidence that significant populations have not been overlooked.

Table 2.1: Index of probability of finding hazel dormice present in nest tubes in any one month

Month	Index of probability
April	1
May	4
June	2
July	2
August	5
September	7
October	2
November	2

2.1.7 Eight sites were determined as having suitable dormouse habitat within 250 metres of the scheme.

2.1.8 The dormouse nest tube surveys were set up across the 8 chosen sites at the beginning of March 2017. A minimum of 50 tubes were deployed at each site. Appendix A presents the nest tube locations that were surveyed.

2.1.9 In order to achieve a point score of 20, the tubes were checked for evidence of dormice once a month between April to November 2017 or until evidence of dormice is identified on-site. All surveys were carried out in suitable weather conditions and by competent ecologists, led by a class survey licence holder. The dates and weather conditions for each survey undertaken is detailed in appendix B.

Survey constraints

2.1.10 A small number of nest tubes were destroyed by livestock or by hedge trimming. However, these were replaced as soon as discovered.

2.1.11 Surveys at sites D and E were stopped due to the pheasant shooting season (September to February inclusive) and subsequent concerns over health and safety. Therefore, at these sites only 14 points were achieved and not the full 20 points required to assume absence. To compensate for this the tubes at site D and E were checked for evidence of dormice when safe access was reinstated in March 2018, at which time the tubes were then removed.

3 Results

3.1 Desktop study

3.1.1 Biological records obtained from SERC revealed no record of dormice within a 2 kilometre radius of the scheme. However, dormice are known to be present within the region as Somerset is a stronghold for the species.

3.2 Habitat assessment

3.2.1 All habitat within 250 metres of the scheme was assessed for its suitability to support dormice. Eight sites were determined as having suitable dormouse habitat. Each site habitat is described in more detail in the sections below. A site map which shows the locations of the sites is presented in appendix A.

Site C

3.2.2 Site C lies 200 metres north of the centreline of the scheme and consists of a wooded track (Slate Lane) with connecting hedgerows and woodland edges bordering arable fields. The hedgerows have good connectivity to the surrounding landscape and other areas of suitable dormice habitat. Site C consists of 0.5 hectares of woodland and 2.2 kilometres of linear hedgerow habitat. The woodland has a canopy consisting of hawthorn *Crataegus monogyna*, field maple *Acer campestre,* ash *Fraxinus exelsior* and hazel *Corylus avellana*. Hedgerow species present include: bramble *Rubus fruticosus*, common nettle, *Urtica dioica*, ivy *Hedera helix* and dogwood *Cornus sanguinea*.

3.2.3 Figure 3.1 below demonstrates the type of habitat present at this site.

Figure 3.1: Site C habitat example

Site D

3.2.4 Site D (Steart Wood) lies 230 metres north of the scheme centre line. It consists of a large, mature broadleaved woodland covering an area of 5.7 hectares with good diversity and understorey structure. It is also designated as ancient woodland and a local wildlife site (LWS). There is good availability of food sources and connectivity to further areas of dormice habitat. Woodland flora species present include, ash and horse chestnut *Aesculus hippocastanum*, ground flora comprises barren strawberry *Potentilla sterilis*, bluebell *Hyacinthoides non-scripta*, black bryony *Dioscorea communis*, stinking iris *Iris foetidissima*, dog's mercury *Mercurialis perennis* and sedge *Cyperaceae sp*.

3.2.5 Figure 3.2 below demonstrates the type of habitat present at this site.

Figure 3.2: Site D habitat example

Site E

3.2.6 Site E (Rewber Brake) lies 330 metres north of the scheme centre line. It is a mature, broadleaved woodland set on a hillside covering an area of 1.3 hectares with interconnecting linear hedgerows of 184 metres. There is an abundant availability of food sources and connectivity to the surrounding landscape and further dormouse habitat. Woodland species present include ash, field maple, hawthorn and hazel. Hedgerow species include; common nettle, blackthorn *Prunus spinosa* and hawthorn.

3.2.7 Figure 3.3 below demonstrates the type of habitat present at this site.

Figure 3.3: Site E habitat example

Site G

3.2.8 Site G lies 130 metres north of the scheme centre line. The site consists of a broadleaved woodland (Pepper Hill Copse) connected by hedgerows. The

broadleaved woodland has a high canopy, hawthorn understorey and dense ivy cover. Surrounding connected hedgerows are dominated by hawthorn, blackthorn, ash and bramble. The hedgerows border arable farmland and are well managed. There is good connectivity to the surrounding landscape and food source availability. Site G consists of 1.27 hectares of woodland habitat and a total of 805 metres length of linear hedge.

3.2.9 Figure 3.4 below demonstrates the type of habitat present at this site.

Figure 3.4: Site G habitat example

Site H

3.2.10 Site H lies 350 metres north of the scheme centre line. It consists of 1.5 hectares of broadleaved woodland with a sparse understorey connected by hedgerows. This habitat is directly linked to continuous, dense scrub with frequent mature trees that border the existing A303 Sparkford Bypass. Species found here include English elm *Ulmus minor 'Atinia'*, hawthorn, blackthorn and ash. The hedgerows border grazed farmland and are well managed, species present include; bramble, common nettle, hawthorn and bramble.

3.2.11 Figure 3.5 below demonstrates the type of habitat present at this site.

Figure 3.5: Site H habitat example

Site I and L

3.2.12 Site I and L has areas that sit directly on the scheme centre line. It consists of pockets of woodland and hedgerows within Hazlegrove Registered Park and Garden. Hedgerows provide 968 metres of linear habitat and are dominated by hawthorn, blackthorn, ash and bramble. They border arable farmland, are well managed and heavily cow grazed. This habitat is directly linked to continuous, dense scrub with frequent mature trees that borders the existing A303 Sparkford Bypass. The broadleaved woodlands cover 2.6 hectares of the site and species include; oak *Quercus robur,* English elm, ash and field maple. There is good connectivity to the wider landscape and food source availability.

3.2.13 Figure 3.6 below demonstrates the type of habitat present at this site.

Figure 3.6: Site I and L habitat example

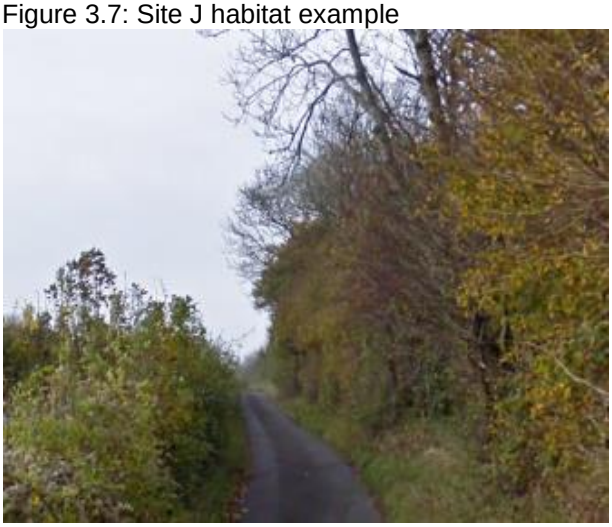
Site J

3.2.14 Site J lies 80 metres south of the scheme centre line. It comprises broadleaved woodland of Ridge Copse and covers an area of 3.02 hectares with species including; ash, cherry laurel *Prunus laurocerasus*, English oak and field Maple.

Hedgerows provide 290 metres of linear habitat which border Gason Lane contain species such as common nettle, hazel, hawthorn and bramble. This habitat is directly linked to continuous, dense scrub with frequent mature trees that borders the existing A303 near to Sparkford Roundabout. There is good connectivity to surrounding landscape and food source availability.

3.2.15 Figure 3.7 below demonstrates the type of habitat present at this site.

Figure 3.7: Site J habitat example



Site K

3.2.16 Site K lies 50 metres south east of the scheme centre line. The habitat borders Hazlegrove Lodge and Long Hazel caravan site. This habitat is directly linked to continuous, dense scrub with frequent mature trees that borders the existing A303 Sparkford Bypass. There is good connectivity to the wider landscape and food source availability. The site consists of 1 hectare of woodland habitat, species including; ash, elder *Sambucus nigra*, field maple and hazel. The hedgerow provides 136 metres of linear habitat contains species including; bramble, common nettle, hawthorn and dog rose *Rosa canina. L*.

3.2.17 Figure 3.8 below demonstrates the type of habitat present.

Figure 3.8: Site K habitat example

3.3 Presence or absence

3.3.1 Following the completion of the dormouse surveys involving monthly checks of nest tubes, no dormice or evidence of their presence was discovered. Survey summary information for each site has been summarised in appendix B.

3.3.2 It is not possible to wholly prove the absence of dormice from areas of suitable habitat, however the adequate survey data has provided confidence that significant populations have not been overlooked and concluded that dormice are considered likely to be absent from the works footprint. Dormice are therefore considered not to be a direct constraint to the scheme.

3.4 Site status

3.4.1 Dormice are locally common in Somerset, despite a national decline. Whilst the nest tube surveys concluded the likely absence of dormice within 250 metres of the scheme, several areas of habitat within the scheme footprint are considered suitable for dormice. Taking into account the small size of the area within the project footprint and the amount of suitable habitat present within the wider area, the project site is considered to be of Local conservation value for dormice. Any onsite loss of a dormice population would be unlikely to affect the conservation status of the species at a county level or higher, due to Somerset being a stronghold for the species.

4 Potential impacts

4.1 Construction and operation

4.1.1 On the basis of survey evidence, hazel dormice are likely absent from the survey area. Therefore, it is considered that the residual effect from construction and operation on dormice would be Neutral.

4.1.2 Sites C, D, E, H and J would not result in any direct habitat loss.

4.1.3 Sites G, I+L and K would be directly impacted through clearance of vegetation and earthworks associated with the construction and operation of the proposed scheme. Potential impacts to each affected site are detailed in sections 4.1.4 to 4.1.9 below.

4.1.4 Site G direct impacts

4.1.5 Site G would result in the removal of approximately 215 metres of hedgerow in order to accommodate the works. Following mitigation replanting, approximately 260 metres of hedgerows would be replanted within this site. There would be no overall loss of potential dormouse habitat at this site. Further mitigation replanting would be undertaken in the wider area, connected to Site G. Therefore, whilst there would be some localised loss of potential dormouse habitat within Site G, there would be an overall net gain in potential dormouse habitat within the wider area.

4.1.6 Site I+L direct impacts

4.1.7 Site I+L would result in the removal of approximately 2.83 hectares of woodland and 238 metres of hedgerow in order to accommodate the works. Following mitigation replanting, approximately 1 hectare of woodland would be replanted within this site. The overall loss of potential dormouse habitat would be approximately 1.83 hectares of woodland and 238 metres of hedgerow. Further mitigation replanting would be undertaken in the wider area, connected to Site I+L. Therefore, whilst there would be some localised loss of potential dormouse habitat within Site I+L, there would be an overall net gain in potential dormouse habitat within the wider area.

4.1.8 Site K direct impacts

4.1.9 Site K would result in the removal of approximately 0.35 hectares of woodland in order to accommodate the works. Following mitigation replanting, approximately 0.2 hectares of woodland would be replanted within this site. The overall loss of potential dormouse habitat would be approximately 0.15 hectares of woodland. Further mitigation replanting would be undertaken in the wider area, connected to Site K. Therefore, whilst there would be some

localised loss of potentially suitable dormouse habitat within Site K, there would be an overall net gain in potential dormouse habitat within the wider area

5 Mitigation and enhancement recommendations

5.1.1 Sites G, I and L and K would be subject to temporary and permanent loss of habitat due to the scheme during construction.

5.1.2 Precautionary measures are recommended to Sites G, I and L and K, in order to avoid potential impacts to dormice. Prior to any clearance of woodland, scrub or hedgerow vegetation, personnel would receive a toolbox talk (appendix C) by a suitably qualified ecologist, covering the identification, ecology, conservation status and legislative protection of dormice, as well as general good environmental practice on-site.

5.1.3 All retained woodland and hedgerow habitat would be fenced off so that it is protected from physical disturbance during the construction phase. All temporary and permanent lighting would be minimised where possible and directed away from retained and replanted habitat through the use of directional LED lanterns.

5.1.4 If in the unlikely event that a dormouse is discovered during site clearance or construction activities, works would be called to a temporary halt while an appropriately qualified ecologist is consulted. It is likely that a European Protected Species Mitigation (EPSM) licence from Natural England would be required to secure legal compliance and to complete the works. A licence may take 6 weeks to obtain from the submission date, and would commit the project to specific impact mitigation and compensation measures.

5.1.5 Following the completion of construction, any trees or hedgerows that would be removed in order to accommodate the works, would be reinstated to ensure that no net loss of dormouse vegetation occurs. Replanted species would be native, of local provenance and favourable to dormice and other wildlife (for example hazel, blackthorn and hawthorn). Once matured, this would provide optimal habitat for dormice and provide connectivity across the wider landscape. Areas of fragmented and sub-optimal dormouse habitat within the study area would also be improved to increase the overall habitat for dormice in the long-term. In total an additional 4.7 hectares of woodland, 7,161 metres of hedgerows and 21 hectares of native trees and shrubs would be replanted as part of ecology and landscape mitigation. This additional replanting provides an overall net gain of potential dormouse habitat.

5.1.6 Following the implementation of the above measures it is expected that any adverse long-term impacts on potential dormouse habitat would be reduced. Furthermore, with the improvement of habitat connections following maturing of replanting species, dormouse habitat would be considered to improve in the long-term.

6 Conclusion

6.1.1 The nest tube surveys concluded the likely absence of dormice within 250 metres of the scheme. Therefore, the scheme is not anticipated to result in significant impacts to dormouse species directly or indirectly, either during construction or operation. However, due to the good suitability of habitat for this species within certain areas of the scheme, and the availability of habitat connections to suitable off-site habitats, mitigation and enhancement measures have been proposed. These include the requirement for a toolbox talk for all construction site staff, and habitat improvements.

6.1.2 Sites C, D, E, H and J would not be directly impacted by the scheme therefore, no mitigation is required.

6.1.3 Sites G, I and L and K would be directly impacted by the scheme through temporary and / or permanent habitat removal.

6.1.4 Following the implementation of mitigation and enhancement measures outlined in section 5, it is expected that any adverse long-term impacts on potential dormouse habitat at Sites G, I and L and K would be reduced. Furthermore, with the improvement of habitat connections following maturing of replanted species, dormouse habitat would be considered to improve in the long-term and there would be an overall net gain in potential dormouse habitat.

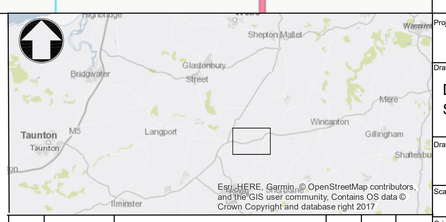
Appendix A: Dormouse survey area map

Cary Fitzpaine
Dyke Brook
Trackside Farm
Hazlegrove Cottages
Mill Cottage
Sparkford Hall
Brains La
High Street
Site H
Site I and L
Site K
Site G
Site I and L
Site K
Sparkford
Church Road
Steart Hill Farm
Steart Hill
Vale Farm
Site C
Site E
Parsons Steeple
Site D
Mead Farm
Camel Hill
Annis Hill
Site C
Blue Haze
Sparkford Hill
Camel Hill
80
Site J
Higher Mead
Mason La
Sparkford Hill
65
The Spinney
Downhead
Eyewell
Coneygore Farm
Howell Hill
Traits La
Queen Camel
Blackwell Road
Podimore
A303
Plowage La
West Camel
Fore Street
Wales
Weston Bampfylde
Slow Court Manor
Frog La
Back Street
Parsonage Road
Wales Lane
High Street
B3151
Stockwitch Farm
Urgashay
Chantry Lane
Southmead
West Camel Road
Rectory Farm
Camel Farm
Hollingthorpe Lodge
Southfield Farm
Bridgehampton
Camel Farm Cottages

KEY

PROPOSED RED LINE BOUNDARY

DORMICE SURVEY SITES



REV.	DATE	AMENDMENT DETAILS	ORIG	CHK'D	APP'D
C01	JULY 2018	DCO SUBMISSION	ER	VC	ER

Project Title: A303 SPARKFORD TO ILCHESTER DUALLING

Drawing Title: DORMICE SURVEY SITES

Drawing Status: Published - DEFINITION

Suitability: A3

Scale	Designed	Drawn	Checked	Approved
NTS	NB	ER	VC	ER

Original Size	Date	Date	Date	Date
A1	JULY 2018	JULY 2018	JULY 2018	JULY 2018

Drawing Number: HE PIN | Originator | Volume
HE551507 - MMSJV - EBD
000 - DR - LB - 0053
Location | Type | Role | Number

Project Ref. No.: 389107

Revision: C01

Appendix B: Dormouse presence / absence results

B.1 Site C

The dormouse survey results for site C are summarised in Table B.1 below.

Table B.1: Dormouse tube survey results - site C

Date	Weather	Result	Scoring
6-10 March 2017	N/A	Tube setup.	N/A
11 April 2017	Warm, dry, sunny spells, 80% cloud cover	No dormice	1
15 May 2017	Cloudy	No dormice 1 tube missing 1 insert replaced	4
7 June 2017	Cloudy	No dormice 1 tube replaced	2
5 July 2017	No cloud, no wind, very hot and dry	No dormice 3 tubes not found 1 insert on floor 2 tubes on floor	2
10 August 2017	5% cloud cover, no wind, warm and dry	No dormice 3 tubes not found 2 tubes on floor 1 broken insert on floor 2 tubes with loose leaves	5
5 September 2017	Dry and cloudy, scattered showers	No dormice 2 wood mice 2 inserts replaced 1 tube not found 3 tubes with loose green leaves	7
2 October 2017	5% cloud cover, no wind, warm and dry	No dormice 8 woodmice 7 tubes with loose green leaves	2
22 November 2017	50% cloud cover, low wind, cool, dry	No dormice; Tubes removed after checking	2
Total score			**25**

B.2 Site D

The dormouse survey results for site D are summarised in Table B.2 below.

Table B.2: Dormouse tube survey results - site D

Date	Weather	Result	Scoring
6-10 March 2017	N/A	Tube setup.	N/A
12 April 2017	Windy, mild	No dormice	1
17 May 2017	Light rain	No dormice	4
7 June 2017	40% cloud cover, some wind, no rain	No dormice	2
5 July 2017	No wind, no cloud, very hot and dry	No dormice	2
9 August 2017	Cloudy, low wind, light drizzle	No dormice 1 tube not found	5
12 March 2018	50% cloud cover, no rain, dry and warm	No dormice	0
Total score			**14**

B.3 Site E

The dormouse survey results for site E are summarised in Table B.3 below.

Table B.3: Dormouse tube survey results - site E

Date	Weather	Result	Scoring
6-10 March 2017	N/A	Tube setup.	N/A
10 April 2017	Sunny, warm, dry, light wind, 40% cloud cover	No dormice	1
17 May 2017	Light rain	No dormice	4
7 June 2017	40% cloud cover, no rain, some wind	No dormice	2
5 July 2017	No wind, no cloud, very hot and dry	No dormice 1 tube not found	2
9 August 2017	100% cloud, low wind. Rained earlier in the day	No dormice 3 tubes not found 2 tubes on floor 1 tube with loose green leaves	5
12 March 2018	50% cloud cover, no rain, dry and warm	No dormice	0
Total score			**14**

B.4 Site G

The dormouse survey results for site G are summarised in Table B.4 below.

Table B.4: Dormouse tube survey results - site G

Date	Weather	Result	Scoring
6-10 March 2017	N/A	Tube setup.	N/A
18 April 2017	Bright, sunny and windy. Cool	No dormice; 1 tube cache of ivy berries 1 tube cache of hawthorn flowers and mammal droppings 1 tube used as bird's nest	1
16 May 2017	Cloudy and wet	No dormice 1 tube cache of ivy berries	4
6 June 2017	40% cloud cover and some wind	No dormice 1 tube cache of ivy berries	2
5 July 2017	No cloud, low wind, very hot and dry	No dormice 1 tube with green leaves and dead leaves, no smell	2
9 August 2017	100% cloud, low wind. Rained earlier in the day	No dormice 5 tubes not found 1 tube on floor; 1 tube with green leaves and dead leaves, no smell	5
5 September 2017	Overcast, light drizzle	No dormice 5 tubes missing 7 tubes with non-dormouse nests/loose leaves	7
3 October 2017	100% cloud and low wind, rained earlier in the day	No dormice 4 tubes not found 6 tubes with non-dormouse nests/loose leaves 2 tubes with feeding remains 1 tube on floor	2
21 November 2017	50% cloud, low wind, dry	No dormice Tubes removed after checking	2
Total score			**25**

B.5 Site H

The dormouse survey results for site H are summarised in Table B.5 below.

Table B.5: Dormouse tube survey results - site H

Date	Weather	Result	Scoring
6-10 March 2017	N/A	Tube setup.	N/A
19 April 2017	Sunny, light breeze, 10 degrees, 30% cloud cover.	No dormice.	1
16 May 2017	Mild, light breeze, 15 degrees, 60% cloud cover.	No dormice.	4
6 June 2017	40% cloud cover, windy, dry	No dormice.	2
4 July 2017	No cloud, light wind, hot and dry	No dormice, 1 tube with loose moss, 7 tubes not found, 1 tube on floor	2
9 August 2017	60% cloud cover, light wind, cool and dry	No dormice, 13 tubes not found, 7 tubes on floor, 2 inserts on floor	5
5 September 2017	100% cloud cover, dry and muggy	No dormice, 17 tubes replaced due to cow damage, 2 tubes on floor	7
3 October 2017	5% cloud cover, dewy ground, dry, 13 degrees	No dormice, 2 possible wood mouse nests, 2 tubes on floor	2
21 November 2017	50% cloud cover, dewy ground, dry, 12 degrees	No dormice 3 old non-dormouse nests Tubes removed after checking	2
Total score			**25**

B.6 Site I+L

The dormouse survey results for site I and L are summarised in Table B.6 below.

Table B.6: Dormouse tube survey results - site I and L

Date	Weather	Result	Scoring
6-10 March 2017	N/A	Tube setup.	N/A
19 April 2017	Sunny, light breeze. 30% cloud cover, 10 degrees.	No dormice, 1 bird's nest	1
16 May 2017	Sunny, light breeze. 40% cloud, 13 degrees.	No dormice, 2 missing inserts, 3 tubes on floor, 1 tube with mammal droppings	4
6 June 2017	40% cloud cover, warm and windy	No dormice, 2 tubes not found, 2 inserts missing, 3 tubes on floor, 1 tube with mammal droppings	2
4 July 2017	No cloud, hot, light wind	No dormice, 2 inserts on floor	2
10 August 2017	Low cloud cover, warm, light wind	No dormice, 2 tubes not found, 2 inserts missing, 3 tubes on floor, 1 insert missing	5
5 September 2017	Overcast, light drizzle	No dormice, 2 tubes not found, 2 inserts missing, 3 tubes on floor, 1 insert missing	7
3 October 2017	Low cloud cover, dewy ground, dry, 13 degrees	No dormice, 1 wood mouse in nest, 1 non-dormouse nest	2
22 November 2017	50% cloud cover, damp ground, low wind, 12 degrees	No dormice; Tubes removed after checking	2
Total score			**25**

B.7 Site J

The dormouse survey results for site J are summarised in Table B.7 below.

Table B.7: Dormouse tube survey results - site J

Date	Weather	Result	Scoring
6-10 March 2017	N/A	Tube setup.	N/A
19 April 2017	100% cloud cover, bright, slight breeze, 11 degrees	No dormice	1
16 May 2017	Overcast, slight breeze. 11 degrees	No dormice	4
8 June 2017	40% cloud cover, windy	No dormice	2
4 July 2017	No cloud cover, light wind, hot and dry	No dormice, 1 tube missing, 1 tube with bird droppings	2
10 August 2017	Low cloud cover, light wind, warm and dry	No dormice	5
5 September 2017	Overcast with scattered showers	No dormice	7
2 October 2017	Low cloud cover, light wind, warm and dry	No dormice, 1 tube with loose green leaves	2
21 November 2017	50% cloud cover, low wind, damp ground, 12 degrees	No dormice; Tubes removed after checking	2
Total score			**25**

B.8 Site K

The dormouse survey results for site K are summarised in Table B.8 below.

Table B.8: Dormouse tube survey results - site K

Date	Weather	Result	Scoring
6-10 March 2017	N/A	Tube setup.	N/A
11 April 2017	Cloudy, mild	No dormice.	1
16 May 2017	Cloudy, mild	No dormice.	4
6 June 2017	40% cloud cover, windy and dry	No dormice.	2
4 July 2017	No cloud, light wind, very hot and dry	No dormice, 2 non-dormouse nut caches, 1 starter mammal nest, green leaves, droppings and urine	2
10 August 2017	5% cloud cover, low wind, warm and dry	No dormice, 2 non-dormouse nut caches, 2 tubes with loose leaves and bark, 5 tubes missing	5
5 September 2017	Overcast	No dormice, 2 non-dormouse nut caches, 4 tubes with loose leaves and bark, 2 tubes missing	7
3 October 2017	Low cloud cover, damp dewy ground, dry, 13 degrees	No dormice, 2 non-dormouse nut caches, 4 tubes with loose leaves and bark	2
21 November 2017	50% cloud, damp ground, dry, 12 degrees	No dormice; Tubes removed after checking	2
Total score			**25**

Appendix C: Dormouse toolbox talk

Toolbox Talk: Dormice

MOTT MACDONALD

What are they and how do I recognise them?

- Dormice are orange brown with a white belly and a furry tail. Their body is approximately 60-90mm long including their tail.
- They have large black eyes and round ears.

Dormouse in hand

Dormouse in nesting box

Where might I expect to find them?

- Dormice live in well-established broadleaved woodland and thick hedges where there is plenty of ground cover.
- They are nocturnal, spending most of their time above ground level in trees and shrubs and live in low numbers, so sightings are rare.
- It is more likely that you will see signs, including nests and nibbled hazelnuts than the animals themselves.
- Nests are up to 150mm wide, round and woven out of grasses and leaves. They may be found within scrub, trees, hedgerows, tree holes and sometimes in buildings.
- Winter hibernation nests are often at ground level within exposed roots of trees or under leaf litter, wood piles or rocks.

Summer Nest- above ground in vegetation.

Winter Nest – ground level within root systems.

When might I expect to find a dormouse?

- Dormice are only active between May and early October, but nests may be found all year round. Between November and April they are often in hibernation.

Penalties

Penalties for breaking the law can include large fines, imprisonment and the seizure of equipment. Both the company and individuals can be held liable.

What do I do if I find a dormouse?

- Dormice are protected by British and European Law (Wildlife and Countryside Act 1981 and The Conservation of Habitats and Species Regulations 2010).
- It is illegal to injure, kill, capture or disturb a dormouse, or to damage its nests or any place it uses for shelter or protection.
- If you think you have found a dormouse or a nest, do not touch or disturb it, stop works in the area immediately and contact Mott MacDonald on the telephone number below.

IF YOU THINK YOU HAVE FOUND A DORMOUSE OR ITS NEST ON SITE, STOP ALL WORK IN THE AREA IMMEDIATELY AND CONSULT VICKY HOLLANDS AT MOTT MACDONALD ON +442380628967.