

# THAMES CROSSING ACTION GROUP

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## Lower Thames Crossing impacts on badgers

### Introduction

It is important to know that this document was prepared on 23rd March 2022, and is subject to change as National Highways/Lower Thames Crossing make any changes.

Thames Crossing Action Group represents thousands of people who are strongly opposed to the proposed Lower Thames Crossing (LTC). The £8.2bn LTC would be [hugely destructive and harmful](#), it would not meet the project objectives, and is [not fit for purpose](#).

This is a map of the proposed route that would stretch from the M2/A2 in the south through to the M25 near junction 29. A section of the M25 would be widened to accommodate approach lanes etc, so the route is shown as going north of junction 29 for works to the M25.



It is worth noting that this map shows the route and not the associated development boundary. To view the various layers, including Land Use (development boundary) please visit the current LTC interactive map - <https://ltcconsultation.highwaysengland.co.uk/map/> Again this is subject to change, and it is anticipated that the boundary will change in the Local Refinement Consultation which will run from 12<sup>th</sup> May through to 20<sup>th</sup> June 2022.

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## Information

### Statutory Consultation 2018

In the main [Guide to Consultation](#) booklet there was one very brief and basic reference to badgers.

This was about the adverse effects of the proposed Lower Thames Crossing (LTC) on biodiversity. Some issues highlighted during construction and operation included the general loss of habitat, impacts and disturbance through visual, air, noise, soil, water, light pollution, as well as fragmentation of foraging routes and habitat.

They outlined that they need to avoid or reduce the impact of the project on important habitats and protected species such as great crested newts, bats, water voles, reptiles, badgers and birds.

And that to do this they are:

- Carrying out ecological surveys to fully understand where important flora and fauna are – and how they might be affected by the project.
- Will relocate protected species, where necessary, to other sites before they start construction in that area.
- Continuing to work with relevant environmental and conservation organisations, and local authorities, to create new habitats as needed.
- Incorporating infrastructure, such as fencing and planting, to connect habitats either side of the route and to guide animals under, over and away from the road where possible.

In the [Preliminary Environmental Information Report Summary](#) (2018) they stated, “protected species will be moved off-site to suitable receptor areas before construction starts where necessary. New habitats will be created, and existing habitats will be enhanced along the route”

Which could include things such as, “...replacement places of shelter for protected species (for example, artificial badger setts...”

In the [Preliminary Environmental Information Report Volume 1](#) they clarified that legislation in regard to protecting badgers would be ‘Protection of Badgers Act 1992’.

They went on to state that Terrestrial survey work commenced included badgers. “Survey to identify setts and other signs of badgers with a bait marking study to understand distribution and status of badger population.”

It continued:

9.4.148 Badgers are protected under Schedule 6 of the Wildlife and Countryside Act 1981 (as amended) and the Protection of Badgers Act (1992). Badgers are found in a wide range of habitats, from urban environments to upland habitats, although predominantly badgers prefer habitats with woodland and scrub to build setts and grassland where they can forage (Cresswell et al., 1990). Badgers are widespread and common throughout Britain.

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9.4.149 In Kent there are 82 desk-based study records of badgers found within 2km of the Development Boundary. These records are of an unknown nature as badger records are kept confidential, but the records are widespread across the entire length of the Project in Kent. In Essex there are 52 records of badgers within 2km of the Development Boundary. The majority of these records relate to setts that have been assessed by the Essex Wildlife Trust, and these are located along the entire length of the Project in Essex.

9.4.150 During the 2017 badger survey, there have been a total of four main setts identified in Kent, and a further 47 other setts have also been identified. In Essex there has been a total of eight main setts identified, with a further 102 non-main setts also identified. In addition to these setts numerous other signs of badgers have also been identified including badger paths, latrines and badger hair. In addition to these field records, badgers have also been recorded as incidental sightings during the nocturnal bird surveys, with a total of five badgers being recorded. One of these records was located in the South Thames Estuary and Marshes SSSI in Kent, and the other four 4 records were all in the fields adjacent to the River Thames in Essex.

And then went on, *“Additional desk study information pertaining to the terrestrial environment to be collected to inform the assessment of the potential effects of the Project is outlined in Table 9.27. Data from surveys that are currently ongoing or have not yet been started will be included in the ES. This will include arboricultural (tree) surveys which are due to commence this winter, bird surveys (ongoing until March 2019), surveys for bats, Section 41 mammals, invertebrates, lichens and bryophytes, reptiles, Phase 1 and detailed botanical surveys, otters, water voles, dormice and badgers. Surveys will include any ‘gap filling’ for newly identified areas within the Development Boundary which have not been surveyed to date.”*

In regard to Construction, Potential effects and mitigation measures during construction it was stated in regard to badgers:

Potential nature of effect – Incidental mortality through loss of setts and being run over by site traffic and plant. Fragmentation of foraging habitat, Badgers have been identified across the whole Development Boundary.

Likely duration – Construction Phase

Potential mitigation – Closure of setts under licence and creation of new artificial setts. Consider fencing in appropriate locations to minimise contact with site traffic and plant. If survey work indicates fragmentation of foraging habitat to be a significant impact, consider culvert or similar in appropriate locations to facilitate movement of badgers across the route alignment.

The document also included references that included mention of badgers as:

Highways England (1997), Design Manual for Roads and Bridges (DMRB), Volume 10 Environmental Design, Section 1 The Good Roads Guide – New Roads, Part 5 HA 5992, Amendment to Chapter 5.3, Mitigating Against Effects on Badgers \*\*

Natural England and Defra (2015), <https://www.gov.uk/guidance/badgersurveys-andmitigation-for-development-projects> [accessed 09.08.2016]

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**\*\* NB this DMRB info has been withdrawn and appears to have been updated with LD118 – Biodiversity Design - <https://www.standardsforhighways.co.uk/dmr/search/9317652b-4cb8-4aaf-be57-b96d324c8965> that also includes references to other DMRB volumes.**

In [Preliminary Environmental Information Report Appendices Volume 2](#) cover Biodiversity survey methodology.

F.1.2 These surveys will inform likely mitigation and/or compensation requirements for the Project on a species and habitat-specific basis. Survey information will also be used for micro-siting or minor realignments (where the route allows). It will inform, where necessary, safe methods of work (eg, root protection zones) or licensing requirements. This is specifically for European Protected Species which are protected under the Habs Regs, badgers which are protected under The Protection of Badgers Act 1992 and water voles which are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended)). Surveys methodologies follow best practice guidance including, but not restricted to, NE and Defra guidelines, DMRB Volume 10, Section 4, Parts 1 to 6 and Chartered Institute of Ecology and Environmental Management (CIEEM) Competencies for species surveys, as appropriate.

## **Badger surveys**

### **When**

F.1.133 - Early winter is the best time to undertake surveys, when vegetation is dying back, eg, November and December. However, if required, surveys can be undertaken at any time of year if, for example, access restraints restrict survey timings.

### **Coverage**

F.1.134 - All suitable habitat within a 500m buffer of the Development Boundary would be assessed and surveyed. The survey footprint may need to be widened to 1km (as necessary) to locate nearby setts or other features of importance (DMRB 1997).

### **Equipment**

F.1.135 - iPad and/or GPS and paper map (to record data in the event of an equipment failure) and camera. Surveyor experience/licence requirement

F.1.136 - Experienced surveyor, likely to be senior ecologist and assistant, no licence is required for survey.

### **Methodology**

F.1.137 - Survey methodology is provided by NE (2015). Areas identified as potentially suitable for badgers, which could not be ruled out during the Phase 1 survey, will be surveyed further and all setts will be classified confirming level of use and current occupation. All areas of suitable habitat (eg, areas of woodland, dense scrub, field margins) will be searched thoroughly for signs of

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badger activity, eg, tracks (footprints), badger runs (paths), latrines (dung pits), badger hair on fences and vegetation, snuffle holes (evidence of digging for food), sett entrances, and bedding or spoil heaps outside sett entrances (NE and Defra 2015).

F.1.138 - If a sett is identified within 1km of the Development Boundary, and confirmed as active (and will be directly impacted by proposals), a bait marking survey will be carried out to determine the territorial boundaries of the sett and if the animals using the sett have an alternative place of shelter (this will also determine if there is the requirement to provide a replacement artificial sett and inform the mitigation proposals, ie, a suitable location for the replacement sett).

## **Badger bait marking survey**

### **When**

F.1.139 - During Late February to early April or early September and mid-October.

### **Coverage**

F.1.140 - Approximately 1km around sett that will be impacted, all other setts in the immediate vicinity that a badger from the sett to be impacted could reach.

### **Equipment**

F.1.141 - Buckets, peanuts, golden syrup, peanut butter, coloured beads (red, blue, orange white, not muted or similar colours - enough colours to be different for each sett within the survey), spade (to deploy bait), signs for members of the public (if in a public location) and iPad and/or GPS and paper map (to record data in the event of an equipment failure) and camera.

### **Surveyor experience**

F.1.142 - Experience of looking for signs of badgers beneficial when looking for coloured pellets.

### **Methodology**

F.1.143 - Plastic beads are mixed with peanuts and syrup bait and placed in the vicinity of each sett. Different coloured beads are placed at each sett. Dung pits and latrines are checked after bait deployment and the colour beads in the dung pits are recorded. Bait marking and latrine inspections should be undertaken on a daily basis for approximately three weeks depending on bait uptake and weather conditions (Scottish Natural Heritage (SNH) 2004).

### **Lower plants (fungi, bryophytes, lichens)**

F.1.144 Detailed desk study coupled with extended Phase 1 survey to confirm presence of suitable habitats would inform the requirement to undertake detailed surveys for notable Section 41 lower plants, which will also be dependent on the likely impacts of the Project on local populations and whether detailed mitigation would be required. Note, specialist surveyor is likely to be required if surveys for lower plants are required.

In the [Environmental Impact Assessment – Scoping Report](#)



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9.2.6 - The NPSNN provides guidance for decision-making in relation to important sites and protected and notable species and habitats in Paragraph 5.27 to Paragraph 5.35. The Applicants' assessment should cover all designated sites of international (including European), national (e.g. SSSIs, Marine Conservation Zones (MCZs)) and local importance (local wildlife sites, local nature reserves, local geological sites and Natural England's Nature Improvement Areas), protected species (e.g. European protected species, species protected under the Wildlife and Countryside Act as amended) and species with their own legislation (e.g. the Protection of Badgers Act 1992). In addition, habitat and other species of principal importance (e.g. irreplaceable habitats such as ancient woodland and veteran trees) as well as biodiversity and geological interests within the wider environment that may be affected by a scheme should be considered as part of the assessment.

9.4.23 - Initial badger surveys commenced on 2 October within the 500m buffer for the Project alignment. Further surveys will be carried out in 2018 (including bait-marking for setts directly impacted by the Project). Details of the survey methodology is included in Table 9.1 and Appendix C.

9.5.1 - A detailed desk study will be undertaken to inform the assessment of both the terrestrial and marine environments affected by the Project. Additional data will be requested from the following sources, includes West Kent Badger Group and Essex Badger Protection Group amongst others.

Table 9-1: Proposed Terrestrial Ecology Surveys For EIA And HRA

## Survey – Badger

Area requiring survey (application boundary or application boundary + additional) - Application boundary + 500m, extending up to 1km where setts are identified which require closure

Survey window - Nov- Feb

Survey frequency / duration - Once, end of year 1/early year 2 (2017-2018)

## Survey - Badger bait marking

Area requiring survey (application boundary or application boundary + additional) - Application boundary + 1km

Survey window - Late Feb – early Apr, and early Sep – mid Oct.

Survey frequency / duration - Three weeks in one year (if required) per affected sett (i.e. to determine if suitable alternative shelter for badgers is available), year 2 (2018).

9.6.6 - In addition to features present within designated sites listed above, the following are deemed likely to be potentially Important Ecological Features which have been scoped in for further assessment: Protected species of conservation concern: including badgers.

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9.7.4 - For example, while badgers are not considered to be of importance for biodiversity, they are included as an Important Ecological Feature due to the protection they receive under the Protection of Badgers Act (1992).

## Construction

9.7.13 - The construction period is likely to be a six year program and will comprise the main period when the most significant impacts on terrestrial and marine ecology are most likely to occur. Construction impacts will be identified during the pre-construction assessment and, where required, ecological mitigation measures will be put in place prior to construction commencing. Due to the length of the construction period, ongoing monitoring will be carried out throughout the construction footprint to make sure that no new ecological constraints arise during this time, for example newly excavated badger setts.

9.8.2 - Each of these potential construction impacts is discussed in relation to the potentially Important Ecological Features outlined in paragraph 9.6 and the likelihood of such impacts is detailed in Table 9-8.

Table 9-8: Potential Construction Effects On Potential Important Terrestrial Ecological Features:

- Important Ecological Feature – Badger
- Indirect effects – N
- Loss of functionally linked land associated with designated site – N/A
- Direct habitat loss – Y
- Severance – Y
- Direct mortality – Y
- Disruption to local water courses – N/A

9.8.16 - Each of these possible operational impacts is discussed in relation to the potentially Important Ecological Features outlined in paragraph 9.6 and the likelihood of such impacts is detailed in Table 9-9

In Table 9-9: Potential Operational Effects On Potentially Important Ecological Features:

- Potential Important Ecological Feature – Badger
- Air quality – N
- Disturbance or hydrological effect on designated sites, functionally linked land or qualifying features – N/A
- Traffic collisions – Y
- Polluted road run off – N
- Road lighting – N
- Polluted spray impacting verge habitat – N
- Noise disturbance – N

## References in this document relating to badgers

Highways England (1997) Design Manual for Roads and Bridges (DMRB), Volume 10 Environmental

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Design, Section 1 The Good Roads Guide – New Roads, Part 5 HA 5992, Amendment to Chapter 5.3, Mitigating Against Effects on Badgers. \*\*

Natural England and Defra (2015) <https://www.gov.uk/guidance/badgers-surveysand-mitigation-for-development-projects> accessed 09 August 2016].

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In [Environment Impact Assessment – Appendix F](#) states that Biodiversity Desk Study Data Required

- Desk Study data - Badger Records for Kent ( if not available from record centre)  
Source - West Kent Badger Group

## Appendix C – Biodiversity Survey Methodology

Survey work is required to comply with EIA and HRA assessment requirements to comply with UK and European wildlife legislation (Wildlife & Countryside Act 1981 (as amended), the Natural Environment and Rural Communities Act 2006 (NERC) and the Conservation of Habitats and Species Regulations 2010 (as amended) – often abbreviated to 'Habs Regs'). These surveys have been informed by the preliminary desk study undertaken for the long and short list of options, including consultation with key stakeholders and statutory consultees. This approach to assessment is also consistent with the principles set out in Highways England's Biodiversity Plan. These surveys will inform likely mitigation and/or compensation requirements for the Project on a species- and habitat-specific basis. Survey information will also be used for micro-siting or minor realignments (where route allows) and will inform, where necessary, safe methods of work (e.g. root protection zones) or licensing requirements (specifically for European Protected Species which are protected under the Habs Regs, badgers which are protected under The Protection of Badgers Act 1992 and water voles which are protected under Schedule 5 of the Wildlife & Countryside Act). Surveys methodologies follow best practice guidance including, but not restricted to, NE & Defra guidelines, DMRB Volume 10, Section 4, Parts 1 to 6 and CIEEM Competencies for species surveys, as appropriate.

### Badgers

**When:** Early winter is the best time to undertake surveys, when vegetation is dying back, e.g. November and December. However, if required, surveys can be undertaken at any time of year if, for example, access restraints restrict survey timings.

**Coverage:** All suitable habitat within a 500m buffer of the application site boundary would be assessed and surveyed. The survey footprint may need to be widened to 1km (as necessary) to locate nearby setts or other features of importance (DMRB 1997).

**Equipment:** iPad and/or GPS and paper map (to record data in the event of an equipment failure) and camera



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**Surveyor experience/ licence requirement:** Experienced surveyor, likely to be Senior Ecologist and assistant, no licence is required for survey.

**Methodology:** Survey methodology is provided by NE (2015). Areas identified as potentially suitable for badgers, which could not be ruled out during the Phase 1, will be surveyed further and all setts will be classified confirming level of use and current occupation. All areas of suitable habitat (e.g. areas of woodland, dense scrub, field margins etc.) will be searched thoroughly for signs of badger activity, e.g. tracks (foot prints), badger runs (paths), latrines (dung pits), badger hair on fences and vegetation, snuffle holes (evidence of digging for food), sett entrances, and bedding or spoil heaps outside sett entrances (NE and Defra 2015).

If a sett is identified within 1km of the application site boundary, where badgers may be impacted by the proposals, it will be necessary to monitor the sett to see if it is active (i.e. currently occupied). If the sett is confirmed as active (and will be directly impacted by proposals), a bait marking survey will be carried out to determine the territorial boundaries of the sett and if the animals using the sett have an alternative place of shelter (this will also determine if there is the requirement to provide a replacement artificial sett and inform the mitigation proposals i.e. suitable location for the replacement sett

**When:** During Late February to early April or early September and mid-October

**Coverage:** Approximately 1km around sett that will be impacted, all other setts in the immediate vicinity that a badger from the sett to be impacted could reach.

**Equipment:** Buckets, peanuts, golden syrup, peanut butter, coloured beads (red, blue, orange white, not muted or similar colours - enough colours to be different for each sett within the survey), spade (to deploy bait), signs for members of the public (if in a public location) and iPad and/or GPS and paper map (to record data in the event of an equipment failure) and camera.

**Surveyor Experience:** Experience of looking for signs of badgers beneficial when looking for coloured pellets.

**Methodology:** Plastic beads are mixed with peanuts and syrup bait and placed in the vicinity of each sett. Different coloured beads are placed at each sett. Dung pits and latrines are checked after bait deployment and the colour beads in the dung pits are recorded. Bait marking and latrine inspections should be undertaken on a daily basis for approximately three weeks depending on bait uptake and weather conditions (Scottish Natural Heritage (SNH) 2004).

References in this report that refer to badgers

Highways England (1997) Design Manual for Roads and Bridges (DMRB), Volume 10 Environmental Design, Section 1 The Good Roads Guide – New Roads, Part 5 HA 5992, Amendment to Chapter 5.3, Mitigating Against Effects on Badgers.\*\*

Natural England & Defra (2015) <https://www.gov.uk/guidance/badgers-surveys-and-mitigation-for-development-projects> [accessed 09.08.2016].

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In [2017 Environmental Scoping Opinion](#) is states:

### **3.4 Confidential Information**

3.4.1 In some circumstances it will be appropriate for information to be kept confidential. In particular, this may relate to information about the presence and locations of rare or sensitive species such as badgers, rare birds and plants where disturbance, damage, persecution or commercial exploitation may result from publication of the information. Where documents are intended to remain confidential the Applicant should provide these as separate paper and electronic documents with their confidential nature clearly indicated in the title, and watermarked as such on each page. The information should not be incorporated within other documents that are intended for publication or which the Inspectorate would be required to disclose under the Environmental Information Regulations 2014.

### **Protected species - Species protected by the Wildlife and Countryside Act 1981 (as amended) and by the Conservation of Habitats and Species Regulations 2017**

8.3 The ES should assess the impact of each phase of the proposal on all protected species including, for example, great crested newts, reptiles, birds, water voles, badgers and bats.

**No additional information on badgers where detailed in the Supplementary Consultation 2020 or the Design Refinement Consultation 2020.**

### **Community Impacts Consultation 2021**

[Construction Update](#) mentions, there are many other sites within our study area of importance to biodiversity, including country parks, Ancient Woodlands, ancient semi-natural woodland and Local Wildlife Sites. These sites support habitats and species of importance, including ancient woodland, ancient and veteran trees, great crested newts, bats, dormice, barn owls, water voles and badgers.

### **South of the River**

“We carried out surveys across the project to set a baseline for assessment, and these identified the presence of a range of protected and notable species. Species within the woodland in the A2/M2 corridor include bats, badgers, and dormice, as well as a range of woodland bird and invertebrate species.”

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## **Shorne, Cobham and Luddesdown**

Construction impacts - Construction of the project would require the removal of areas of habitat, both temporarily and permanently from the route. This habitat consists of areas of arable fields, landscape planting, scrub, rough grassland and woodland. Some areas of Ancient Woodland would be removed including areas of Shorne and Ashenbank SSSI and Claylane Wood Ancient Woodland. This currently supports a range of species, some protected, that would be impacted by construction in terms of direct habitat loss (the loss of badger setts, bat roosts, dormouse, reptile and invertebrate habitat); fragmentation of habitat (loss of hedgerows linking woodland); and disturbance to retained habitat.

Measures to reduce biodiversity impacts during construction - Where protected species are present, these would be moved away from the site prior to any construction activities either through habitat manipulation (for example strimming to reduce the height of vegetation to displace reptiles), or translocation. Where required, works affecting protected species would be carried out under a Natural England licence. Mitigation would include the creation of an artificial badger sett as a replacement for a main sett that would be lost. Boxes to support bats, dormice and birds would be set up within retained habitat.

## **Westcourt**

Biodiversity Existing situation - The main habitat within the Order Limits in the Westcourt ward is arable fields, with some scattered trees, scrub and defunct hedgerow. Consistent with this habitat, there are few notable or protected species within the Order Limits. The ward does not contain any designated sites such as Sites of Special Scientific Interest (SSSI), locally designated sites such as Local Wildlife Sites (LWS), or Ancient Woodland. We carried out surveys across the project to set a baseline for assessment, and these identified the presence of a range of protected and notable species. Badger outlier setts were identified within the hedgerow habitats, as well as common reptile and amphibian species.

Construction impacts - Construction activities within this ward are summarised in the Project description section above. Construction would require the removal of areas of habitat, both temporarily and permanently from the route alignment. This habitat consists of areas of arable fields and hedgerows. It supports protected and notable species that would be impacted by construction in terms of direct habitat loss (the loss of badger setts, reptile and amphibian habitat); fragmentation of habitat (loss of hedgerows, particularly a minor bat commuting route); and disturbance to retained habitat.

Measures to reduce biodiversity impacts of construction - Any protected species would be moved away from the site prior to any construction activities either through habitat manipulation (for example, strimming to reduce the height of vegetation and displace reptiles), or translocation. Where required, works affecting protected species would be carried out under a Natural England licence.

## **Riverview**

Biodiversity Existing situation - Of the habitats present within the Order Limits in Riverview ward, the main area is Southern Valley Golf Course. The golf course habitat consists of short amenity

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grassland with some areas of rough grassland and scrub. There is a small area of arable field within the Order Limits in Riverview ward. Riverview ward contains no designated or non-designated sites. We carried out surveys across the project to set a baseline for assessment, and these identified the presence of a range of protected and notable species. Within the habitat present on the golf course, these included reptiles, badgers, and dormice.

Construction impacts - The construction activities in this ward are summarised in the project description section above. Construction of the project would require the removal of areas of habitat, both temporarily and permanently, from the route alignment. This habitat consists of areas of arable fields, scrub and rough grassland. This habitat supports protected and notable species which would be impacted by construction in terms of direct habitat loss (the loss of badger setts, dormouse and reptile habitat); fragmentation of habitat (loss of hedgerows); and disturbance to retained habitat.

Measures to reduce construction impacts on biodiversity - Where protected species are present, these would be moved away from the site before any construction activities, either through habitat manipulation (for example strimming to reduce the height of vegetation to displace reptiles), or translocation. Where required, works affecting protected species would be carried out under a Natural England licence. Boxes to support dormice and birds would be erected within retained habitat. To provide habitat connectivity within this area a green bridge would be created over the project immediately to the south of Riverview ward.

## **Singlewell**

Construction Impacts - The construction of the project would involve the removal of areas of habitat, both temporarily and permanently for the new road. This includes the loss of badger setts and removal of trees with potential for roosting bats.

Mitigation - Vegetation clearance would be undertaken in winter to avoid impacting breeding birds. Protected species would be relocated, carried out under a Natural England licence. Boxes to support bats, dormice and birds would be erected.

Operations Impacts - There is the potential to cause mortality of species by encountering road traffic as well as habitat fragmentation and disturbance from traffic.

Mitigation - New habitat would be created to support animals moved away from the construction area. Impacts would also managed through the range of good practice measures set out in the CoCP and REAC.

## Biodiversity

Only a small area of Singlewell ward falls within the Order Limits and where it does, the Order Limits are restricted to a small area of landscape and woodland planting north of Hever Court Road. Singlewell ward contains no designated or non-designated sites, although Claylane Wood ancient woodland is adjacent to the south-east boundary of the ward.

We carried out surveys across the project to set a baseline for assessment, and these identified the presence of a range of protected and notable species. Only badger outlier setts were identified

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within the woodland area. No other protected species were identified, although some trees were assessed as having potential for roosting bats.

Construction impacts - Construction of the project would require the removal of areas of habitat, some temporarily and some permanently, as a result of construction of the new road including utility diversions. The removal of woodland would cause the loss of badger setts, disturbance to roosting bats, and disturbance to retained habitats. For more information about the impacts on Claylane Wood, see the Shorne, Cobham and Luddesdown ward chapter.

Measures to reduce biodiversity impacts of construction - Any protected species would be moved away from the site prior to any construction activities, either through habitat manipulation (for example strimming to reduce the height of vegetation and displace reptiles), or translocation. Where required, works affecting protected species would be carried out under a Natural England licence. Boxes to support bats, dormice and birds would be erected within retained habitat. Habitat lost for temporary construction works would be reinstated following construction.

## **North of the River**

### **East Tilbury**

Construction Impacts - The construction of the project would involve the removal of areas of habitat, both temporarily and permanently for the new road, including an area of Ancient Woodland within Rainbow Shaw. These habitats support a number of protected and notable species which would be impacted including badgers, bats, water voles, reptiles, great crested newts (GCN), breeding birds and invertebrates.

Mitigation - Vegetation clearance would be undertaken in winter to avoid impacting breeding birds. Protected species would be relocated, carried out under a Natural England licence. Boxes to support bats and birds would be erected. Areas of woodland planting are proposed to offset woodland lost. Two green bridges would be created to provide habitat connectivity within this area at Muckingford Road and Hoford Road.

Operations Impacts - There is the potential to cause mortality of species by encountering road traffic as well as habitat fragmentation and disturbance from traffic.

Mitigation - Landscape planting would be designed to provide strong links for animal movement and foraging. Impacts would also be managed through the range of good practice measures set out in the CoCP and REAC.

We carried out surveys across the project to set a baseline for assessment, and these identified the presence of a range of protected and notable species. Species present include bats, badgers, water vole, terrestrial invertebrate species, great crested newt (GCN) and reptiles such as adder.

Construction impacts - Construction of the project would require the removal of areas of habitat,

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both temporarily and permanently, from the route of the new road. This habitat consists of areas of arable farmland, brownfield habitat, scrub, rough grassland and woodland. A small area of ancient woodland would be removed within Rainbow Shaw. This habitat supports a range of protected and notable species which would be impacted by construction in terms of direct habitat loss (the loss of badger setts, including two main setts, bat roosts, water vole, reptile, great crested newt, breeding bird and invertebrate habitat); fragmentation of habitat (which includes the loss of two bat routes); and disturbance to retained habitat.

Measures to reduce the impact of construction on biodiversity - Where protected species are present, these would be moved away from the site prior to any construction activities either through habitat manipulation (for example strimming to reduce the height of vegetation and displace reptiles), or translocation. Where required, works affecting protected species would be carried out under a Natural England licence. Mitigation would include the creation of an artificial badger sett as a replacement for one of the main setts that would be lost. Boxes to support bats and birds would be erected within retained habitat.

## **Tilbury Riverside and Thurrock Park**

Biodiversity Impacts - The construction of the project would require the removal of areas of habitat, both temporarily and permanently for the new road. These habitats support a number of protected and notable species, including badgers, water voles, reptiles, breeding birds and invertebrates.

Mitigation - Vegetation clearance would be undertaken in winter to avoid impacting breeding birds. Protected species would be relocated, carried out under a Natural England licence. Boxes to support bats and birds would be erected. Areas of woodland planting are proposed to offset woodland loss.

Operations Impacts - There is the potential to cause mortality of species by encountering road traffic as well as habitat fragmentation and disturbance from traffic.

Mitigation Landscape planting is designed to provide strong links for animal movement and foraging. Impacts would also be managed through the range of good practice measures set out in the CoCP and REAC. Newly created habitats would be managed to retain structure and function for the species present.

We carried out surveys across the project to set a baseline for assessment, and these identified the presence of a range of protected and notable species. Species present included badgers, water vole, terrestrial invertebrate species and reptiles including adder.

Construction impacts - Construction of the new road would require the removal of areas of habitat, both temporarily and permanently from the route alignment. This habitat consists of areas of arable farmland, brownfield habitat and grazing marsh and supports a range of protected and notable species. These would be affected by construction through direct habitat loss (the loss of badger setts, water vole, reptile, breeding bird and invertebrate habitat) and the fragmentation and disturbance to retained habitat.



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Measures to reduce biodiversity impacts of construction - Where protected species are present, these would be moved away from the site prior to any construction either through habitat manipulation (for example strimming to reduce the height of vegetation to displace reptiles), or translocation. Where required, works affecting protected species would be performed under a Natural England licence. Boxes to support birds would be set up within retained habitat. Habitat lost for temporary construction works would be reinstated on completion.

## **Tilbury St Chads**

Biodiversity Impacts - The construction of the project would involve the removal of areas of habitat, both temporarily and permanently for the new road. These habitats support a number of protected and notable species which would be impacted including badger setts, water vole and reptile habitats.

Mitigation - Vegetation clearance would be undertaken in winter to avoid impacting breeding birds. Protected species would be relocated, carried out under a Natural England licence. Boxes to support bats and birds would be erected. Habitat lost for temporary construction works would be reinstated following construction.

Operation Impacts - There is the potential to cause mortality of species by encountering road traffic as well as habitat fragmentation and disturbance from traffic.

Mitigation Landscape planting is designed to provide strong links for animal movement and foraging. Impacts would also be managed through the range of good practice measures set out in the CoCP and REAC. Newly created habitats would be managed to retain structure and function for the species present.

Biodiversity Existing situation - The main habitats in Tilbury St Chads within the Order Limits are arable farmland, with a small area of woodland, scrub and watercourses. There are no designated sites within 2km of the Order Limits in this ward. Within 500 metres of the Order Limits, there are no non-designated sites, although both Lytag Brownfield Local Wildlife Site (LWS) and Broom Hill LWS are immediately adjacent to the boundary of the ward. We carried out surveys across the project to set a baseline for assessment, and these identified the presence of a range of protected and notable species. These included bats, badgers, water vole and reptiles.

Construction impacts - Construction of the project would require removing areas of habitat, both temporarily and permanently. This habitat consists of arable farmland and scrub and supports a range of protected and notable species. These would be affected by construction due to direct habitat loss (the loss of badger setts, water vole and reptile habitat), fragmentation of habitat and disturbance to retained habitat.

Measures to reduce biodiversity impacts of construction - Where protected species are present, these would be moved from the site before construction, either through habitat manipulation (for example strimming to reduce the height of vegetation to displace reptiles), or translocation. Where necessary, works affecting protected species would be carried out under a Natural England licence. Boxes to support birds and bats would be set up within retained habitat. Habitat lost for temporary construction works would be reinstated following construction.

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## **Chadwell St Mary**

Biodiversity Existing situation - The main natural habitats in the parts of Chadwell St Mary ward that fall within the wider construction area are arable, with some pasture, scrub and rough grassland. There are no designated sites of natural importance within 2km of the Order Limits within this ward. Within 500 metres, there is one non-designated site, the Mucking Heath Local Wildlife Site (LWS). We carried out surveys across the project to set a baseline for assessment, and these identified the presence of a range of protected and notable species, including bats, badgers, terrestrial invertebrates and reptiles.

Construction impacts - Construction work in this ward would require the removal of areas of habitat, both temporarily and permanently, from the proposed route. This habitat consists of areas of arable fields, pasture, rough grassland and scrub. It supports a range of protected and notable species which would be impacted by construction in terms of direct habitat loss (for example, the loss of badger setts, terrestrial invertebrates and reptile habitat); fragmentation of habitat and disturbance to retained habitat.

Measures to reduce biodiversity impacts of construction - Where protected species are present, these would be moved away from the site prior to any construction activities either through habitat manipulation (for example strimming to reduce the height of vegetation and displace reptiles), or translocation. Where required, works affecting protected species would be carried out under a Natural England licence. Boxes to support birds and bats would be erected within the retained habitat. Habitat lost for temporary construction works would be reinstated following construction.

## **Orsett**

Biodiversity Impacts - The construction of the project would involve the removal of areas of habitat, both temporarily and permanently for the new road. These habitats support a number of protected and notable species which would be impacted including badger setts, bat roosts, water vole, reptiles, great crested newts and invertebrate habitats.

Mitigation - Vegetation clearance would be undertaken in winter to avoid impacting breeding birds. Protected species would be relocated, carried out under a Natural England licence. Boxes to support bats and birds would be erected. Habitat lost for temporary construction works would be reinstated following construction. Areas of mixed habitats and new ponds would be created. A large area of wetland habitat would be created adjacent to the Mardyke. A green bridge would be constructed at Green Lane. Biodiversity impacts would also be mitigated through a range of good practice control measures set out in the project's CoCP and REAC.

Operations Impacts - There is the potential to cause mortality of species by encountering road traffic as well as habitat fragmentation and disturbance from traffic.

Mitigation - Landscape planting is designed to provide strong links for animal movement and foraging. Impacts would also be managed through the range of good practice measures set out in the CoCP and REAC. Newly created habitats would be managed to retain structure and function for the species present.

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Biodiversity Existing situation - In Orsett, the main habitats within the Order Limits are areas of arable farmland with a large number of watercourses. There are also areas of pasture, rough grassland, scrub and woodland. There are no designated sites in Orsett within 2km of the Order Limits. Within 500 metres of the Order Limits, the non-designated sites are Mucking Heath Local Wildlife Site (LWS) and Blackshots Nature Area LWS. We carried out surveys across the project to set a baseline for assessment, and these identified the presence of a range of protected and notable species including bats, badgers, water vole, otter, terrestrial invertebrate species, great crested newts and reptiles.

Construction impacts - Project construction would require temporary and permanent removal of areas of habitat from the route alignment. This habitat consists of arable fields, scrub, rough grassland and watercourses and supports a range of protected and notable species. These would be affected by construction through direct habitat loss (the loss of badger setts, including a main sett, bat roosts, water vole, reptiles, great crested newts and invertebrate habitat); fragmentation of habitat (which includes the loss of three bat commuting routes); and disturbance to the retained habitat.

Measures to reduce biodiversity impacts of construction - Vegetation clearance would take place during the winter where possible, to avoid disturbing breeding birds. Where this is not practicable, clearance would be supervised by an ecological clerk of works to ensure no nests are disturbed or destroyed. Where protected species are present, these would be moved away from the site before construction either through habitat manipulation (for example strimming to reduce the height of vegetation and displace reptiles), or translocation. Where required, works affecting protected species would be carried out under a Natural England licence. Mitigation measures would include the creation of an artificial badger sett to replace the loss of the main sett. Boxes to support bats and birds would be set up within retained habitat.

## **Little Thurrock, Blackshots, and Little Thurrock Rectory**

Biodiversity Impacts - The construction of the road would involve the removal of habitat areas, both temporarily and permanently. The removal of hedgerows would result in the loss of badger setts and reptile habitat.

Mitigation - Vegetation clearance would be carried out in winter to avoid impacting breeding birds. Protected species would be relocated, under a Natural England licence. Boxes to support bats and birds would be erected. Habitat lost temporarily for construction works would be reinstated.

Operations Impacts - There is the potential to cause mortality of species by encountering road traffic as well as habitat fragmentation and disturbance from traffic.

Mitigation Newly created areas of habitat would be managed to ensure they provide high quality habitat to support a broad range of plant and animal species. Impacts would also be managed through the range of good practice measures set out in the CoCP and REAC.

Biodiversity Existing situation - Only a small area of the Little Thurrock Blackshots ward falls within the Order Limits. The main habitat type is arable fields, with some hedgerows. Little Thurrock

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Blackshots ward contains the designated site Hangman's wood and Deneholes SSSI and the non-designated sites of Terrels Heath Grays Local Wildlife Sites (LWS) and Chadwell Wood Ancient Woodland. We carried out surveys across the project to set a baseline for assessment, and these identified the presence of a range of protected and notable species. A number of badger outlier setts were identified and reptiles are present, and Hangman's Wood and Deneholes SSSI is a known bat roost. No other protected species were identified.

Construction impacts - Construction of the project would require the removal of areas of habitat, both temporarily and permanently from the route alignment and compound locations. Removal of the hedgerows would cause the loss of badger setts and reptile habitat and cause disturbance to retained habitats.

Measures to reduce biodiversity impacts during construction - Where protected species are present, these would be moved away from the site prior to any construction activities either through habitat manipulation (for example, strimming to reduce the height of vegetation to displace reptiles) or translocation. Where required, works affecting protected species would be carried out under a Natural England licence. Boxes to support bats and birds would be erected within retained habitat. Habitat lost for temporary construction works would be reinstated following construction.

## **Stifford Clays**

Within the Order Limits the main habitats here are arable, with some hedgerows. There are no designated sites within 2km of the Order Limits. There is one non-designated site within 500 metres, Cats Mede LWS. Our survey identified a range of protected and notable species including water vole, badgers and reptiles.

## **Ockendon**

Biodiversity Existing situation - The main habitats within the Order Limits in the Ockendon ward are areas of arable, with some areas of rough grassland, which contain a number of watercourses. In addition, there are areas of pasture, scrub and woodland. There are no designated sites within 2km of the Order Limits in the Ockendon ward. However, there are non-designated sites within 500 metres of the Order Limits including St Nicholas Church Local Wildlife Site (LWS), West of Arisdale Avenue LWS, Belhus Lakes, Belhus Wood Country Park LWS and North Ockendon Pit Site of Importance for Nature Conservation. We carried out surveys across the project to set a baseline for assessment, and these identified the presence of a range of protected and notable species. These included bats, badgers, water voles, otters, terrestrial invertebrate species, great crested newts, barn owls and reptiles.

*NB. Whilst there is mention of badgers in the Ockendon area, there is no mention of mitigation for badgers as they have detailed for other areas.*

## **Upminster**

Biodiversity Impacts - The construction of the project would involve the removal of areas of habitats, including woodland, both temporarily and permanently for the new road. The removal of these habitats would affect protected and notable species including badgers, bats, water voles, reptiles, great crested newts, breeding birds and invertebrates.

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Mitigation Vegetation clearance would be undertaken in winter to avoid disturbing breeding birds. Protected species would be relocated, carried out under a Natural England licence. Boxes to support bats, birds and barn owls would be erected. A green bridge would be built over North Road to connect habitats. New areas of grassland, scrub and bare earth would be created to provide homes for a number of species. Woodland would be created to the south of the Thames Chase woodland to compensate for the loss of wooded areas. Impacts would also be controlled through a range of good practice measures set out in our CoCP and REAC.

Operations Impacts - There is the potential to cause mortality of species by encountering road traffic as well as habitat fragmentation and disturbance from traffic.

Mitigation Newly created areas of habitat would be managed to ensure they provide high-quality environments to support a broad range of plant and animal species. Impacts would also be managed through the range of good practice measures set out in the CoCP and REAC.

Biodiversity Existing situation - Of the habitats present within the Order Limits in Upminster ward, the main areas are arable land, with some areas of rough grassland that contain a number of watercourses. In addition, there are areas of pasture, scrub, woodland and community woodland.

There is one designated site within 2km of the Order Limits in Upminster ward, Cranham Marsh Local Nature Reserve. Within 500 metres of the Order Limits, the non-designated sites are Hall Farm moat, paddock and the following Sites of Importance for Nature Conservation (SINCs): St Mary Magdalene Churchyard, Stubbers Adventure Centre, Fields South of Cranham Marsh, Fairplay Farm, Thames Chase Forest Centre, Puddledock Farm Fisheries, Cranham Hall Shaws and Pasture, Ockendon Railsides and North Ockendon Pit, Clay Tye Wood and Ancient Woodland, Franks Wood, Cranham Brickfields and Ancient Woodland.

We carried out surveys across the project to set a baseline for assessment, and these identified the presence of a range of protected and notable species. These included bats, badgers, water vole, otter, terrestrial invertebrate species, great crested newt, barn owl and reptiles.

Construction impacts - Our construction work would require us to remove areas of habitat, both temporarily and permanently, from along the length of the route. These include areas of arable fields, scrub, rough grassland and woodland that support a range of protected and notable species that would be affected through direct habitat loss. This would include badger setts, bat roosts, water vole, reptile, great crested newts, breeding bird (including barn owl roosts) and invertebrate habitat; breakup of habitat; and disturbance to retained habitat.

Measures to reduce biodiversity impacts during construction - Where protected species are found, we would move these from the site before any construction activities, either through habitat manipulation (for example strimming to reduce the height of vegetation and displace reptiles), or translocation. Where required, we would carry out works that affect protected species under a Natural England licence. We would also set up boxes within retained habitat to support bats, birds and barn owls. To connect habitats, we would create a green bridge over North Road, to the south of the ward.

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## Warley

Biodiversity Existing situation - The main habitat in Warley ward is arable fields. In addition, there are areas of rough grassland, scrub and woodland with some watercourses. Warley contains no designated habitat within 2km of the Order Limits. Within 500 metres of the Order Limits, the non-designated sites are: Codham Hall Wood Local Wildlife Site (LWS) and Ancient Woodland, Coombe Wood LWS, Jackson's Wood LWS and Ancient Woodland and Coombegreen Ancient Woodland.

We carried out surveys across the Lower Thames Crossing to set a baseline for assessment, and these identified the presence of a range of protected and notable species, including bats, badgers, terrestrial invertebrates and reptiles in Warley ward.

*NB. Whilst there is mention of badgers in the Warley area, there is no mention of mitigation for badgers as they have detailed for other areas.*

In the [Code of Construction Practice](#) it is stated:

Table 3.1 Pre-commencement activities and locations

- Installation of artificial badger setts – Sitewide
- Closure of badger setts – Sitewide

Table 4.2 Consents and permits that may be required includes

- Issue - Badger licence  
Consent/licence/agreement and legislation - Protection of Badgers Act 1992 (section 10(1)(d))  
Consenting authority- Natural England  
Requirement - Badger setts have been identified within the Order Limits and it may be necessary to undertake the closure and removal of confirmed badger setts during the scheme construction. This consent is therefore likely to be required prior to commencement of construction activities.

Environmental asset data and as-built drawings

Surveys for the following species have been undertaken to inform the ES and subsequent delivery and management of mitigation measures identified in the REAC to control environmental effects: included badgers.

Table 7.1 Pre-Commencement REAC Table and Table 7.2 REAC table

- Topic - Terrestrial Biodiversity
- REAC Ref no - TB008



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- Issue - Badger setts
- Commitment - Badger setts identified within the Order Limits for closure would be closed by permanently excluding badgers and then removing the empty setts. The setts would be closed under licence from Natural England outside of the badger breeding season (breeding season takes place between 1 December and 30 June). For any main setts that will be closed with no suitable naturally occurring alternative sett, an artificial sett will be constructed in a suitable location.
- Achievement criteria - Compliance with requirements of Natural England licences
- Party responsible – Contractor
- Stage – Construction
- Securing mechanism in DCO - EMP2 - Requirement 4

## Conclusion

In 2018 they were reporting that in Kent there are 82 desk-based study records of badgers found within 2km of the Development Boundary. And in Essex there are 52 records of badgers within 2km of the Development Boundary

During the 2017 badger survey, there have been a total of 4 main setts identified in Kent, and a further 47 other setts have also been identified. In Essex there has been a total of 8 main setts identified, with a further 102 non-main setts also identified. In addition there were numerous other signs of and sightings of badgers along the proposed route.

There seems to be suggestion that the loss/impact of badger setts/habitat south of the river would be in Shorne, Cobham and Luddesdown. Westcourt, Riverview, and Singlewell wards..

And to the north of the river in East Tilbury, Tilbury Riverside and Thurrock Park, Tilbury St Chads, Chawell St Mary, Orsett, Little Thurrock, Blackshots, and Little Thurrock Rectory, Stifford Clays, Ockendon, Upminster, and Warley wards.

It is not clear if any more recent surveys have been carried out, as it appears the ones mentioned happened some time ago now.

We note that the development boundary has also changed over the years, and is again likely to change for this next consultation, although we won't know how until 12<sup>th</sup> May. Obviously the changes to the development boundary could also change the impacts to badgers.

We are also more than aware that nature has thrived during COVID, so there could potentially be changes to impacts in this regard too.

Obviously as well as direct loss of badger setts there is also the serious concern of how habitat and foraging routes would be destroyed and impacted.

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## References

The following reference points highlight where in the Lower Thames Crossing consultation materials we have located that badgers have been mentioned.

### Statutory Consultation 2018

- [Guide to Consultation](#) – See page 97
- [Preliminary Environmental Information Report Summary](#) – See page 22
- [Preliminary Environmental Information Report Volume 1](#) - See pages 273 , 285, 325, 326, 327, 334, 582, 585
- [Preliminary Environmental Information Report Appendices Volume 2](#) – See pages 253, 274, 275
- [Environmental Impact Assessment – Scoping Report](#) – See pages 127, 134, 137,145, 147, 151, 158, 165, 294, 297
- [Environment Impact Assessment – Appendix F](#) – See pages 12, 13, 20, 21, 30, 31
- [2017 Environmental Scoping Opinion](#) – See pages 17, 218

**Supplementary Consultation 2020** – No further details on badgers provided

**Design Refinement Consultation 2020** – No further details on badgers provided

### Community Impacts 2021

- [Construction Update](#) – See page 249
- [Ward Ward Summary South](#) – See pages 161, 163, 323, 324, 375, 376, 388, 431, 432
- [Ward Summary North 1](#) – See pages 33, 99, 119, 161, 178, 215, 216, 282, 301, 383, 385, 404, 453, 454, 522
- [Ward Summary North 2](#) – See pages 89, 110, 173, 175, 309
- [Code of Construction Practice](#) – See pages 19, 30, 32, 61, 108
- [Ward Summaries - Easy Read](#) – See pages 27, 32, 36, 65
- [Ward Summary Shorne, Cobham, Luddesdown](#) – See pages 81, 83
- [Ward Summary Westcourt](#) – See pages 47, 48
- [Ward Summary Riverview](#) - See pages 45, 46
- [Ward Summary Singlewell](#) – See pages 8, 51, 52
- [Ward Summary East Tilbury](#) – See pages 11, 77
- [Ward Summary Tilbury Riverside](#) – See pages 9, 51
- [Ward Summary Tilbury St Chadds](#) – See pages 10, 47, 48
- [Ward Summary Chadwell St Mary](#) – See pages 56, 64
- [Ward Summary Orsett](#) – See pages 11, 93, 95
- [Ward Summary Little Thurrock](#) – See pages 10, 59, 60
- [Ward Summary Stifford](#) – See page 64
- [Ward Summary Ockendon](#) – See page 67
- [Ward Summary Upminster](#) – See pages 12, 75, 77
- [Ward Summary Warley and South Weald](#) – See page 59