A12 Chelmsford to A120 widening scheme TR010060

6.3 ENVIRONMENTAL STATEMENT APPENDIX 9.16 DRAFT BAT LICENCE

APFP Regulation 5(2)(a)

Planning Act 2008

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

Volume 6

August 2022

Infrastructure Planning

Planning Act 2008

Development Consent Order 202[ ]

	Regulation 5(2)(a)
	TR010060
	TR010060/APP/6.3
	A12 Project Team & National Highways

Rev 1	August 2022	DCO Application

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The Conservation of Habitats and Species Regulations 2017 (as amended)

Mitigation Licensing - Bats

Wildlife Licensing
Natural England
Horizon House
Deanery Road
Bristol
BS1 5AH
T. 020 802 61089
EPS.Mitigation@naturalengland.org.uk

- Please complete this application form using and BLOCK CAPITALS.
- Return the completed form to the address shown.
- All questions should be answered as appropriate. Questions marked with `*' are mandatory and failing to complete these may result in delays to your application.
- If there is insufficient space for completing answers on this form, please attach a separate sheet.
- Natural England will aim to determine the outcome of a completed licence application within its published service standards.

- If you experience any problems completing this application or using the online Case Work Management (CWM) system - please see our website for guidance or contact Wildlife Licensing.
- Additional guidance is provided in Using CWM - Applicant Guidance Document. This can be downloaded from our website or you can ask Wildlife Licensing to send you a copy.

CWM Ref No:

Charter Deadline

Please enter the details of the person or company who will become the licensee.

-
-

(a) Registered Applicant Details

*Customer Number | *Surname | *Forename | *Postcode

(b) New Applicant Registration

*Title (please tick as appropriate) Mr ☐ Mrs ☐ Ms ☐ Other ☐ (Please Specify)

*Forename: Mark | Middle Name | *Surname: Berg

*Email Address [redacted]

Professional Membership (eg, CIEEM, IEMA, etc.)

House Name / No.

*Address Line 1 [redacted]

*Address Line 2 [redacted]

Address Line 3 [redacted]

Town [redacted]

*County Bedfordshire

*Postcode [redacted]

Country England

Telephone

Mobile

Fax

*Customer Type Government Company

*Are you VAT registered? ☐ Yes ☐ No If Yes, VAT Number:

*Are you registered with the Rural Payments Agency? ☐ Yes ☐ No If Yes, RPS SBI number

(c) If you are registering on behalf of an organisation please complete this section.

*Position

*Organisation Name

What is the size of your organisation?

- ☐ Micro (1 to 10 employees)
- ☐ Small (11 to 49 employees)
- ☐ Medium (50 to 249 employees)
- ☐ Large (250 employees or more)

What is the legal status of your organisation?
(eg. private limited company, registered charity,voluntary organisation, Government agency, Local Authority)

Companies House Registration or Registered Charity Number:

(d) Alternative Applicant Contact Details

In the event that the applicant is unavailable to discuss the application, it would be helpful if alternative contact details could be provided. By completing this section you are confirming that this contact is authorised to act on behalf of the applicant.

Name:

Telephone number:

Email Address:

Please enter the details of the named ecologist. Please note a named ecologist is required for all development and mitigation applications

-
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(a) Registered Named Ecologist Details

*Customer Number	*Surname	*Forename	*Postcode
[redacted]	[redacted]	[redacted]	[redacted]

(b) New Named Ecologist Details

*Email Address

*Title (please tick as appropriate) Mr ☐ Mrs ☐ Ms ☐ Other ☐ (Please Specify)

*Forename | Middle Name | *Surname

Professional Membership (eg, CIEEM, IEMA, etc)

House Name / No.

*Address Line 1

*Address Line 2

Address Line 3

Town | *County

*Postcode | Country

Telephone | Mobile

Fax

*Customer Type

*Are you VAT registered? ☐ Yes ☐ No If Yes, VAT Number:

*Are you registered with the Rural Payments Agency? ☐ Yes ☐ No If Yes, RPS SBI number:

(c) If you are registering on behalf of an organisation please complete this section.

*Position: Associate Director of Ecology | *Organisation Name: Jacobs

What is the size of your organisation?

- ☐ Micro (1 to 10 employees)
- ☐ Small (11 to 49 employees)
- ☐ Medium (50 to 249 employees)
- ☑ Large (250 employees or more)

What is the legal status of your organisation?
(eg, private limited company, registered charity, voluntary organisation, Government agency, Local Authority

PRIVATE LIMITED COMPANY

Companies House Registration or Registered Charity Number:

[redacted]

(d) Alternative Named Ecologist Contact Details

In the event that the named ecologist is unavailable to discuss the application, it would be helpful if alternative contact details could be provided. By completing this section you are confirming that this contact is authorised to act on behalf of the named ecologist and has a detailed knowledge of the application.

Name:

Telephone Number:

Email Address:

Please indicate who should be contacted if we need to discuss this application:

Applicant ☐ Named Ecologist ☑

Please indicate to whom the outcome documentation for this application should be sent:

Applicant ☐ Named Ecologist ☑

Applicant Preferences: Email ☑ Post ☐ Telephone ☐

If `Yes' for telephone, please provide a contact no.

Named Ecologist preferences: Email ☑ Post ☐ Telephone ☐

If `Yes' for telephone, please provide a contact no.

(a) * To your knowledge, have there been any previous applications or licence decisions concerning this site? ☐ Yes ☐ No

(b) * Date of most recent application:

(c) * Which species was the subject of the previous application?

(d) * What was the application or licence reference number?

(e) * What was the outcome of the previous application? (Please select one of the following)

Granted ☐ Not Granted ☐ Advice Only ☐ Deferred ☐ Not yet known ☐

(f) To your knowledge, does this application relate to any previously licensed `mitigation' work for any species on the site being applied for? ☐ Yes ☐ No

Please provide application/ licence reference numbers, species details and outcome details.

(g) To your knowledge, is the site being applied for subject to any recent, concurrent, pending or future applications for licences for the same or other European protected species or other protected species? ☐ Yes ☐ No

Please provide application/ licence reference numbers and/or species information.

European Protected Species Mitigation licences for badgers and great crested newts would be required. Draft licence applications will be submitted to Natural England. Draft licences will also be submitted to the Planning Inspectorate in support of the application for Development Consent Order

For applications which are part of the Pre-Submission Screening Service:

More information on Natural England's Pre-Submission Screening Service can be found here.

Is this a first draft application? ☐ Yes ☐ No Is this a subsequent draft? ☐ Yes ☐ No

Are you aware if your case has been seen or reviewed by Natural England? ☐ Yes ☐ No ☐ Not sure

If yes, who provided the advice and when?

Any further information you would like to provide:

Is this a formal application? ☐ Yes ☐ No

Please provide any earlier reference numbers

For applications which are part of Nationally Significant Infrastructure Projects:

Is this a first draft application? ☐ Yes ☐ No Is this a subsequent draft? ☐ Yes ☐ No

Is this a formal application? ☐ Yes ☐ No

Please provide any earlier reference numbers

(a) * Brief Description of Proposal
eg, Construction of a new road, maintenance of a bridge, construction of five flats with access road and car parking area.

Highway improvements to the A12 between Junction 19 and 25 over approximately 24km. Carriageway widening is planned along most of the scheme and new sections of main carriageway, junctions and sideroads are also proposed.

(b) * Please tell us why you need a licence.
eg. A day roost will be damaged, a night roost will be destroyed, a maternity roost will be modified and a day roost will be destroyed.

Four day roosts are to be destroyed and there will be disturbance to ten buildings and one bridge which are confirmed as supporting bat roosts

(c) * Please confirm the purpose of the application:

- ☑ Imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment under section 55(2)(e)
- ☐ Preserving public health or public safety, under section 55(2)(e)
- ☐ Preventing the spread of disease, under section 55(2)(f)
- ☐ Preventing serious damage to livestock, foodstuffs for livestock, crops, vegetables, fruit, growing timber, fisheries or inland waters, or any other form of property under section 55(2)(g)
- ☐ A purpose not specified in Regulation 55(2) that is consistent with Article 16(1)(e) of the Habitats Directive, under section 55(4)

(d) * Please confirm the category most appropriate to your proposed work
(Please select one of the following): :

- ☐ Agriculture / Farming/ Fishing / Forestry/ Nature conservation
- ☐ Archaeological investigation
- ☐ Barn conversion
- ☐ Commercial - eg, office, retail
- ☐ Communications
- ☐ Energy generation/Energy supply
- ☐ Flood and coastal defences
- ☐ Health and safety
- ☐ Heritage/Historical (eg, National Trust, listed building, scheduled monument)
- ☐ Householder home improvement (eg, loft conversion, extension, garage, conservatory, repairs)
- ☐ Housing (non-householder) (eg, residential development, repairs/maintenance, non-householders)
- ☐ Industrial/Manufacturing
- ☐ Mineral extraction/Quarrying
- ☑ Nationally Significant Infrastructure Projects
- ☐ Places of worship
- ☐ Public buildings and land (eg, schools, universities, hospitals, care facilities, military, prisons)
- ☐ Tourism/leisure eg, golf courses, country parks, holiday camps
- ☐ Transport/Highways
- ☐ Water management
- ☐ Water supply and treatment/water environment
- ☐ Other

If other, please provide details here:

(e) * Is the proposed work part of a phased or a multi-plot development? ☐ Yes ☐ No

If `Yes' to (e): You must submit a species specific master plan and Habitat Management and Maintenance Plan with this application, as a separate document. Guidance on what should be included in a master plan can be found at - http://webarchive.nationalarchives.gov.uk/20140605090108/http://www.naturalengland.org.uk/Images/WML- G11_tcm6-9930.pdf

*Is the address for the site to be licensed different to the applicant's address? ☐ Yes ☐ No

For the Site/Location to be licensed, please complete of the following details:
Please complete Site/Location Name and OS Grid Reference boxes only.

*Site / Location Name:	A12 junction 19 to 25
House Number:	
Address Line 1:	
Address Line 2:	
Address Line 3:	
Town:	
*County:	Essex
Postcode:	
*OS Grid Reference:	Start (south): TL 74081 07788 End (north): TL 93920 24914

(a) *Will any part of the proposed activity fall in and/or adjacent to a Designated Site? ☐ Yes ☐ No ☐ N/A

Please indicate whether the activity will fall on and/or adjacent to a designated site:	Designated Site Name	Type of Designated Site
On ☑ Adjacent to ☑	Whetmead Local Nature Reserve (LNR) / Local Wildlife Site (LWS)	LNR / LWS
On ☐ Adjacent to ☐		
On ☐ Adjacent to ☐		
On ☐ Adjacent to ☐		

Please indicate whether the activity will fall on and/or adjacent to a designated site:	Designated Site Name	Type of Designated Site
On ☐ Adjacent to ☐		
On ☐ Adjacent to ☐		

(b) Have you consulted with Natural England for advice on the implications of the application on the designated site? ☐ Yes ☐ No ☐ Not known

(c) Please give either the outcome of your consultations or the reason why you have not consulted us. Please provide any relevant correspondence and the name of the local Natural England adviser or reserve manager consulted.

Discussions have been held / are ongoing with Witham Town Council with regards to the likely impacts on Whetmead LNR/ LWS and potential mitigation and improvement options.

(a) *Is the applicant the owner/occupier of the land? ☐ Yes ☐ No ☐ N/A

(b) Have you received the owner occupier's permission to apply? ☐ Yes ☐ No

(a) Please add details for all licensable actions you wish to perform. Please complete one column per species. You may enter more than one Activity and/or Method or Field Technique per species.

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Application Subject	Bats	Bats	Bats	Bats	Bats
*Species	Common pipistrelle	Soprano pipistrelle	Brown Long Eared Bat		
*Activity	Capture Take ✔ Disturb ✔ Transport ✔ Damage Breeding Site ☐ Destroy Breeding Site ☐ Damage Resting Place ☐ Destroy Resting Place ✔	Capture Take ✔ Disturb ✔ Transport ✔ Damage Breeding Site ☐ Destroy Breeding Site ☐ Damage Resting Place ☐ Destroy Resting Place ✔	Capture Take ✔ Disturb ✔ Transport ✔ Damage Breeding Site ☐ Destroy Breeding Site ☐ Damage Resting Place ☐ Destroy Resting Place ✔	Capture Take ☐ Disturb ☐ Transport ☐ Damage Breeding Site ☐ Destroy Breeding Site ☐ Damage Resting Place ☐ Destroy Resting Place ☐	Capture Take ☐ Disturb ☐ Transport ☐ Damage Breeding Site ☐ Destroy Breeding Site ☐ Damage Resting Place ☐ Destroy Resting Place ☐
*Method or Field Technique	By hand ✔ By static hand-held net ✔ Temporary exclusion ✔ Permanent exclusion ✔ Destructive search by soft demolition ✔ Mechanical demolition ✔ Disturbance by illumination (intentional by torch) ✔ Disturbance by noise or vibration ✔ Temporary obstruction of roost access ☐ Endoscopes ✔	By hand ✔ By static hand-held net ☐ Temporary exclusion ✔ Permanent exclusion ✔ Destructive search by soft demolition ☐ Mechanical demolition ☐ Disturbance by illumination (intentional by torch) ✔ Disturbance by noise or vibration ✔ Temporary obstruction of roost access ☐ Endoscopes ✔	By hand ✔ By static hand-held net ☐ Temporary exclusion ☐ Permanent exclusion ✔ Destructive search by soft demolition ☐ Mechanical demolition ☐ Disturbance by illumination (intentional by torch) ✔ Disturbance by noise or vibration ✔ Temporary obstruction of roost access ☐ Endoscopes ✔	By hand ☐ By static hand-held net ☐ Temporary exclusion ☐ Permanent exclusion ☐ Destructive search by soft demolition ☐ Mechanical demolition ☐ Disturbance by illumination (intentional by torch) ☐ Disturbance by noise or vibration ☐ Temporary obstruction of roost access ☐ Endoscopes ☐	By hand ☐ By static hand-held net ☐ Temporary exclusion ☐ Permanent exclusion ☐ Destructive search by soft demolition ☐ Mechanical demolition ☐ Disturbance by illumination (intentional by torch) ☐ Disturbance by noise or vibration ☐ Temporary obstruction of roost access ☐ Endoscopes ☐
* Maximum number of bats to be licensed at the time that works are proposed	18	18	2		
* Number of breeding sites to be impacted	0	0	0		
* Number of resting sites to be impacted	8	9	2		

Expected roost type affected					
	Hibernation confirmed ☐	Hibernation confirmed ☐	Hibernation confirmed ☑	Hibernation confirmed ☐	Hibernation confirmed ☐
	Day ☑	Day ☑	Day ☑	Day ☐	Day ☐
	Transitional/ Occasional ☐	Transitional/ Occasional ☐	Transitional/ Occasional ☐	Transitional/ Occasional ☐	Transitional/ Occasional ☐
	Feeding perch ☐	Feeding perch ☐	Feeding perch ☐	Feeding perch ☐	Feeding perch ☐
	Night ☐	Night ☐	Night ☐	Night ☐	Night ☐
	Satellite ☐	Satellite ☐	Satellite ☐	Satellite ☐	Satellite ☐
	Swarming or mating ☐	Swarming or mating ☐	Swarming or mating ☐	Swarming or mating ☐	Swarming or mating ☐
	Maternity ☐	Maternity ☐	Maternity ☐	Maternity ☐	Maternity ☐
	Underground - mines, caves, cellars, tunnels or bridges (number & type) ☐	Underground - mines, caves, cellars, tunnels or bridges (number & type) ☐	Underground - mines, caves, cellars, tunnels or bridges (number & type) ☐	Underground - mines, caves, cellars, tunnels or bridges (number & type) ☐	Underground - mines, caves, cellars, tunnels or bridges (number & type) ☐

Please enter the proposed start date of action below.

*Proposed Date From:	01/01/2024	01/01/2024	01/01/2024		
*Proposed Date To:	01/01/2026	01/01/2026	01/01/2026		

(b) * Have you sent your records to the Local Records Centre? ☐ Yes ☐ No

(c) * Have surveys been conducted within the current or most recent optimal season and undertaken in accordance with the most up to date edition of the Bat Conservation Trust (BCT) and the ? ☐ Yes ☐ No

If `No', please confirm that full justification has been provided in section C5a in the Method Statement template. ☐ Yes, I confirm

(a) * Has the named ecologist associated with this application held or been named on a bat mitigation licence in the past three years for the same species and in relation to a project of similar scale, methodology and mitigation?

☐ Yes ☐ No

(b) * Please provide the name of the issuing authority, the licence reference number, date of issue and the species and roost types of licences held

Natural England WML-OR57. 18 February 2021. Barbastelle, Nathusius', common, soprano pip, Noctule, Leislers', BLE, Natterer's, Daubenton's, Whiskered, Brandt's bat. Various roost types Natural England 2020-49580-EPS-NSIP1-4.

(c) * Does the named ecologist currently hold a valid personal survey licence or are they registered to use a minimum of Level 2 Bat class survey licence?

☐ Yes If `Yes' complete of the following.

☐ No If `No' go to (f)

(d) * What is/are the survey licence reference number(s)?

(e) * Number of years the survey licence(s) have been held (minimum of 2 years):

(f) * Please give brief details of the named ecologist's current science, education or conservation licence or any other licences issued to the ecologist in the last three years relevant to the species relating to this application:

(g) * Please give brief details of the named ecologist's experience on mitigation projects (a minimum of 3 projects) relevant to the species relating to this application, including in what capacity they acted. State the site names and reference numbers of licences and the type of mitigation involved:

(h) * Please provide details of the named ecologist's Qualifications, including any Continual Professional Development (CPD) training relevant to the species relating to this application:

-
-
-
-

(i) * Are you providing references? ☐ Yes ☐ No

Please provide details of the referees. We may need to contact these referees to verify their statements.

(a) * Is any consent required for your proposed project and the subject of this licence application?

☐ 1. Planning-related consent required (e.g. Planning permission, listed building consent, etc)

☐ 2. Demolition consent (under Building Act 1984) including prior notice to demolish.

☑ 3. Other type of consent required (e.g. Minerals consents, Highway Act consents, Secretary of State Decision Letter, Compulsory Purchase Order, Environment Agency Consent, etc.)

☐ 4. Permitted Development (under Town and Country Planning Act 1990) - no specific consent required.

☐ 5. No consent required (e.g. Public Health and safety issues)

(b) * Please provide details of these consents

Development Consent Order

(c) * Please explain why no consent is required

(d) Have you obtained the necessary consent(s) to allow the proposed activity to be commenced? ☐ Yes ☐ No

-
-

* Please confirm that you will submit copies of any consent(s) or extracts that are relevant to the proposed activity and this licence application if applicable: ☐ Yes, I confirm

(e) * Please provide details of the outstanding consents to be obtained and the likely time scales for their determination/issue.

Development Consent Order decision due January 2024.

Pre-submission Screening Service:

We will provide advice on draft applications, prior to consents being in place and prior to a formal licence application being submitted through this chargeable service. We advise customers to use this service rather than trying to pursue a licence under Exceptional Circumstances, particularly where there are concerns about financial implications resulting from delays in obtaining a licence once planning consents are in place. Please see our website for further advice about this.

(f) * Please confirm details of all the consents that have been granted relevant to the proposed activity and this licence application.

Full Planning Permission	☐	Outline Planning Permission	☐
Demolition consent (under Building Act 1984) including prior notice to demolish	☐	Conservation Area Consent	☐
Listed Building Consent	☐	Tree Preservation Order	☐
Highways Act Consent	☐	Utilities Consent	☐
Mineral Consent	☐	Mineral Consent with Review of Mineral Planning Permission	☐
Mineral Consent (Review of Mineral Planning Permission submitted to Mineral Planning)	☐	Other consent type	☐

If Other, please provide details here:

(g) * Please provide consent reference number(s)

(h) For all consents that have been granted, have all conditions or Reserved Matters relating to wildlife species and habitat issues (which are intended to be and are capable of being discharged before development begins) been discharged? ☐ Yes ☐ No

: If it is not possible or not intended for the conditions to be discharged before development commences then please complete the questions below.

(i) Please give details of those conditions that are still to be discharged and explain why they have not been discharged.

(j) Is the site subject to any commitment that affects the protected species named in this application? ☐ Yes ☐ No

Has the commitment been met? Please also explain what has been done.

What work is outstanding and when will it be completed?

(k) Is the site subject to any such commitment that affects other European Protected Species or other protected species? ☐ Yes ☐ No

Has this been met?

When will this be complete?

A Reasoned Statement and supporting documents may be required in support of this application

Copies of the latest version of the Reasoned Statement template which sets out when a Reasoned Statement is required and further guidance to help are available on our website.

Please confirm that you have read and understood the Reasoned Statement template and advice note/guidance

☐ Yes, I confirm

(l) *Does your application require a Reasoned Statement? ☐ Yes ☐ No

*Please confirm the exception that applies

☐ Applications for home improvements and small scale housing developments:

- Repairs and maintenance
- Roof replacements, loft conversions and extensions
- Renovations of existing domestic dwellings and associated structures, such as garages
- Housing developments of less than 1 hectare, including:
  - existing buildings and associated structures that may need to be demolished before redevelopment takes place (whether domestic dwellings or other types of buildings)
  - barn conversions for domestic dwellings (this doesn't include conversions for commercial use, such as holiday lets)

☐ Applications to conserve and protect listed buildings, scheduled monuments or places of worship:

- listed buildings
- scheduled monuments
- registered places of worship or a place of worship belonging to the Church of England for:
  - repairs and maintenance (including roof replacement)
  - restoration
  - essential works to:
    - prevent serious damage to buildings and structures (including contents
    - preserve public health and safety
    - enable continued appropriate use of the building or structure

☐ Applications to maintain, repair, improve public buildings or develop public land

Public buildings and public land includes buildings and land owned or leased by the government, their departments, agencies and arm's length bodies, such as:

- schools (state funded and academies only)
- hospitals
- prisons
- courts
- airfields

You don't need to include a reasoned statement where bats and their roosts will be affected by:

- repairs and maintenance
- restoration
- renovation

- redevelopment of an existing building(s), which may include demolition before redevelopment, as long as it remains in use as a public building
- extending or adding new buildings within the grounds of the existing developed site
- essential works to:
  - prevent serious damage to buildings (including contents)
  - preserve public health and safety
  - allow the building to be continued to be used as it was intended

Extending public buildings beyond existing boundaries, changing them to private use, or developing land for private use will need a reasoned statement with your application.

If you have selected one of the above exceptions, please provide details of how the proposed works meet the exception criteria:

(m) Does your application affect a regionally or nationally important population of a European Protected Species? ☐ Yes ☐ No

(n) You must consult Natural England for advice before making an application. Please give either the outcome of your consultation (with details of who you consulted) or the reason why you have not consulted us

*Consenting Authority Name: Secretary of State

*Title	*Forename	*Surname	*Position
Rt Hon.	Grant	Shapps	Secretary of State for Transport

Email Address:

Telephone Number

Address

A Method Statement must be provided to support this application including a Charge Form, along with other supporting documents, which may include some or all of the following:

- Maps
- Figures
- Habitat management and maintenance plans
- Master plan
- Appended survey results
- A work schedule

Please note: The Method Statement and Charge Form should be prepared by a consultant ecologist or another suitably qualified person because compiling the content requires specific species and site-related knowledge.

Further Advice: Copies of the latest versions of templates for all species and further guidance to help you complete them are available on our website.

This is a draft licence application for the issue of a Letter of No Impediment to submit with the DCO application for the scheme. There is no consent in place at this point of the project and the client is not yet the landowner for all the scheme. These have been ticked as No or N/A in this application form but will be confirmed in any final version of this licence once the DCO is in place.

The data controller is the Natural England, Foss House, Kings Pool, 1-2 Peasholme Green, York, Y01 7PX. You can contact the Natural England Data Protection Manager at: Natural England, County Hall, Spetchley Road, Worcester, WR5 2NP; foi@naturalengland.org.uk.

Any questions about how we are using your personal data and your associated rights should be sent to the above contact. The Data Protection Officer responsible for monitoring that Natural England is meeting the requirements of the legislation is: Defra group Data Protection Officer, Department for Environment, Food and Rural Affairs, SW Quarter, 2nd floor, Seacole Block, 2 Marsham Street, London SW1P 4DF.
DefraGroupDataProtectionOfficer@defra.gsi.gov.uk

The information on the licence application form and any supporting material will be used by Natural England to undertake our licensing functions. This will include, but is not limited assessing your application, issuing a licence

if applicable, monitoring compliance with licence conditions and collating licence returns and reports. The personal information we will process will include, but is not limited to your name and contact details, customer type and reasons for wanting a licence.Processing is necessary for the performance of a task carried out in the public interest or in the exercise of official authority vested in the data controller. That task is to conduct the licensing functions as delegated by Defra to Natural England under Part 8 Agreement under section 78 of the Natural Environment and Rural Communities Act 2006.

The processing by us of personal data relating to wildlife-related or animal welfare offences or related security measures is carried out only under official authority. This information is used in assessing an application as it is a material fact.Natural England will for particular licence applications and at specific stages of the licencing process discuss your application with third parties. The details of this sharing are set out here https://www.gov.uk/government/publications/wildlife-licensing-privacy-notice.

Your personal data will be kept by us for 7 years after the expiry of your licence or longer if stated in the licence conditions.

Failure to provide this information will mean that we will be unable to assess your application for a wildlife licence.The information you provide is not connected with individual decision making (making a decision solely by automated means without any human involvement) or profiling (automated processing of personal data to evaluate certain things about an individual).

The data you provide will not be transferred outside the European Economic Area.

A list of your rights under the General Data Protection Regulation, the Data Protection Act 2018, is accessible at: https://ico.org.uk/for-organisations/guide-to-the-general-data-protection-regulation-gdpr/individual-rights/.

You have the right to lodge a complaint with the ICO (supervisory authority) at any time. Should you wish to exercise that right full details are available at: https://ico.org.uk/for-organisations/guide-to-the-general-data-protection-regulation-gdpr/individual-rights/.

Details of our Personal Information Charter can be found at: https://www.gov.uk/government/organisations/natural-england/about/personal-information-charter.

- If your application is made under the Wildlife and Countryside Act 1981 (as amended) or the Conservation of Habitats and Species Regulations 2017 (as amended), any person who in order to obtain a licence knowingly or recklessly makes a statement or representation, or furnishes a document or information which is false in a material particular, shall be guilty of an offence and may be liable to criminal prosecution. Any person found guilty of such an offence is liable, on summary conviction, to imprisonment for a term not exceeding six months or to a fine not exceeding level 5 on the standard scale, or to both. Regarding other wildlife legislation, we will look to provisions in the Fraud Act 2006 (as amended) in respect of applicants making any false representations.

- Natural England or the Secretary of State can modify or revoke at any time any licence that is issued, but this will not be done unless there is good reason for doing so. Any licence that is issued is likely to be revoked immediately if it discovered that false information has been provided that resulted in the issue of a licence.

*Have you or any person listed in the application been convicted of any wildlife-related or animal welfare offence? ☐ Yes ☐ No

Please provide details of the convictions:

☐ I have read and understood the privacy notice above.

- Where required, I undertake to obtain permission from landowners / occupiers of land to exercise any licence resulting from this application, and to allow any employee or representative of Natural England to monitor or inspect the work described in this application.
- I have read and understood the guidance provided in the application form and on the Wildlife Licensing Internet guidance pages.
- I have read and understood the Terms and Conditions for payment in respect of Wildlife Licence Applications and agree to pay all the relevant charges due.
- I declare the particulars given are correct to the best of my knowledge and belief, and I apply for a licence in accordance with the information I have provided.
- I confirm that there is no satisfactory alternative to meet the need/resolve the problem detailed in this application.

☐ I agree to the declaration above.

Signature of applicant:

For electronic applications, please insert an electronic signature above or tick this box to confirm with the declaration. ☐

Name:

Date:

☐ I have read and understood the privacy notice above.

- I confirm that I have visited the site(s).

- I confirm that I have visited the site(s).
- I have designed and inputted into the licence proposal.
- I confirm that there is no satisfactory alternative to meet the need/resolve the problem detailed in this application
- I am satisfied that the proposal will result in no adverse impact on the species concerned
- I declare the particulars given are correct to the best of my knowledge and belief, and the applicant may apply for a licence in accordance with information I have provided
- I have documentary evidence that I am authorised to act on behalf of the applicant that I will supply to Natural England on request.

☐ I agree to the declaration above.

Signature of ecologist:

For electronic applications, please insert an electronic signature above or tick this box to confirm with the declaration. ☐

Name:

Date:

The applicant is the person submitting the application (usually the landowner or occupier) who, if the licence was granted, would become the licensee. The applicant may appoint agents to produce the application pack and act on their behalf. A person with specific skills and knowledge of the species concerned, such as a consultant ecologist, must be appointed to assist in the preparation and the delivery of the proposals that ensure the species protection requirements can be met.

The "Licensee" named on the licence is responsible for ensuring that all activities carried out on site in relation to the licence comply with the terms and conditions of the licence. However, all persons authorised to act under the licence must comply with the licence and its conditions (see Regulation 60(1) of the 2017 Regulations (as amended)). This means that all authorised persons have a responsibility for ensuring that the licence terms and conditions, including any annex special conditions, are understood and complied with. Failure to do so could lead to prosecution.

The "Named Ecologist" is a professional ecological consultant who has satisfied Natural England that they have the relevant skills, knowledge and experience of the species concerned and is responsible for undertaking and/or overseeing the work undertaken in respect of the licensed species. The `Named Ecologist' has a responsibility for ensuring that the licence is complied with. They are responsible for advising the licensee on the suitability and competence of any Accredited Agents or Assistants employed on site to undertake the required duties and may include the direct supervision of Assistants where appropriate. More information about the experience required to become a named ecologist can be found at: http://webarchive.nationalarchives.gov.uk/20140605090108/http:/www.naturalengland.org.uk/Images/bat- mitigation-guidance_tcm6-10534.pdf

An "Accredited Agent" is a suitably trained and experienced person who is able to carry out work under a licence without the personal supervision of the Named Ecologist. Any Accredited Agent must be appointed by the Licensee and be in possession of a letter signed by the Licensee confirming their appointment. Agents shall carry a copy of the said letter when acting under the licence and shall produce it to any police or Natural England officer on request.

An "Assistant" is a person assisting a Named Ecologist or Accredited Agent. Assistants are only authorised to act under this licence whilst they are under the direct supervision of either the Named Ecologist or an Accredited Agent.

: a place where individual bats, or small groups of males, rest or shelter in the day but are rarely found by night in the summer.

: a place where bats rest or shelter in the night but are rarely found in the day. May be used by a single individual on occasion or it could be used regularly by the whole colony.

: a place where individual bats or a few individuals rest or feed during the night but are rarely present by day.

: used by a few individuals or occasionally small groups for generally short periods of time on waking from hibernation or in the period prior to hibernation.

: where large numbers of males and females gather during late summer to autumn. Appear to be important mating sites.

: where mating takes place from later summer and can continue through winter.

: where female bats give birth and raise their young to independence.

: where bats may be found individually or together during winter. They have a constant cool temperature and high humidity.

: an alternative roost found in close proximity to the main nursery colony used by a few individual breeding females to small groups of breeding females throughout the breeding season.

- if applicable this will be specified in special condition 7.

the taking apart of a bat structure in a controlled and careful manner by hand, or in some instances with the assistance of hand-held tools and machinery, under direct ecological supervision. Only the Named Ecologist, Accredited Agent or a directly supervised Assistant may take any bats found.

destruction of a structure that previously supported a bat roost using mechanical means after the structure has been declared free of bats by the Named Ecologist or Accredited Agent. Mechanical demolition usually is preceded by a soft demolition exercise or completion of an exclusion process.

2

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Horizon House
Deanery Road
Bristol
BS1 5AH.
T. 020802 61089

Provide an overview (no more than 1 side of A4) of what works are proposed and how the impacts identified will be addressed in order to ensure no detriment to the maintenance of the population at a favourable conservation status.

The proposed scheme comprises improvements to the A12 between junction 19 (Boreham interchange) and junction 25 (Marks Tey interchange), a distance of approximately 24km, or 15 miles. The proposed scheme involves widening the A12 to three lanes throughout (where it is not already three lanes) with a bypass between junctions 22 and 23 and a second bypass between junctions 24 and 25 (see Figure D for scheme layout). It also includes safety improvements, including closing off existing private and local direct accesses onto the main carriageway, and providing alternative provision for walkers, cyclists and horse riders (WCH) to existing routes along the A12, which would be removed. The scheme location is provided in figure C5a.

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Extensive bat survey work has been undertaken (2017-2018 and 2019-2021) on the proposed scheme to determine the baseline bat species assemblage, how they use the landscape, the location of any roosting sites and the characterisation of those roosts. A detailed report into all the bat surveys carried out for the scheme is provided in the A12 Chelmsford to A120 widening Bat Survey Report (National Highways, 2022).

The licensable impacts identified to known bat roosts from the scheme are:

- The demolition of building B1463, which is a confirmed day roost for common pipistrelle ( ).
- The felling of trees T1149 and T733 (both soprano pipistrelle ( ) day roost), and T79 (brown long-eared bat ( ) day roost).
- The potential permanent abandonment due to habitat fragmentation of building B1291, which has been found to be a soprano pipistrelle day roost and a hibernation roost for one brown long eared ( ) bat.
- Disturbance at ten buildings (B107, B118, B339, B631, B923, ~~B1291,~~ B1392, B1393, B1522 and B1629) and one bridge (BE11) confirmed as supporting bat roosts which are being retained.

To compensate for the loss of the building (B1463) which supports a day roost for common pipistrelle,

three bat boxes suitable for day roosting common pipistrelle will be installed on nearby trees. To compensate for the felling of trees T1149 (soprano pipistrelle day roost), T79 (brown long-eared bat day roost) and T733 (soprano pipistrelle day roost) nine bat boxes will be installed (three for each roost), in nearby locations all suitable for the species concerned. To compensate for the potential permanent abandonment of B1291 (soprano day roost and brown long-eared bat hibernation roost) six bat boxes will be installed in suitable locations.

The ~~11~~ten structures listed above (nine buildings and one bridge) support ~~15~~13 bat roosts that will be retained but may be subject to significant disturbance from the works and therefore deemed licensable. These potential disturbances include construction disturbance due to noise, vibration, lighting or human presence; fragmentation of habitat and an increase in operational noise levels. To mitigate for these anticipated impacts the following measures have been proposed: restrictions on working hours, restrictions on construction stage lighting and the use of best practice measures for noise mitigation during construction. However, it is acknowledged that there is still a chance that bats will be affected by construction and operational disturbance despite the proposed measures to mitigate these impacts. Therefore, as a precaution one additional bat box will be installed to provide alternate roost sites in less disturbed areas (the number of boxes proposed as mitigation for each roost is listed in section E4.2b and the justification is set out in section E3.1).

Landscape planting will ensure that all bridges on the new section of road are well connected to adjacent linear features to maintain connectivity for bats and enable them to disperse through the landscape on both sides of the scheme. Landscape planting has been designed to guide bats to the crossing structures and funnel them across the new sections of the A12. The scheme-wide effects of habitat fragmentation for this proposed scheme are not considered licensable and the measures which have been designed to mitigate for these are not included in this document but are detailed in the Environmental Statement (ES) (National Highways 2022, [APP-076]) for the scheme.

Include a brief summary of:

Why the activity and a licence are necessary (

).

The A12 Chelmsford to A120 widening scheme comprises improvements to the A12 between junction 19 (Boreham interchange) and junction 25 (Marks Tey interchange), a distance of approximately 24km, or 15 miles. There are four bat roosts (in three trees and one building) within the footprint of the scheme which will be permanently lost. There are five bat roosts within three buildings that are predicted to be impacted by habitat fragmentation. There are ten roosts within seven buildings and one bridge that are predicted to be disturbed by noise (during construction and/or or when the new road is operational) and/or vibration of machinery. A literature review was undertaken to quantify the decibel levels shown to disturb bats. Precautionary criteria were then set based upon this information to assess which bat roosts would potentially be impacted by noise during construction or operation.

Include current status of planning permission (if applicable)

. If the proposal is for demolition only of a structure supporting a bat roost/s, please confirm whether there are plans to develop the site in the future and if so when.

The proposed scheme is classed as a Nationally Significant Infrastructure Project (NSIP) and National Highways (the Applicant) submitted an application for an order to grant development consent in August 2022. This draft licence is submitted to secure a Letter of No Impediment which is required as part of the development consent order (DCO) application. Further pre-construction surveys for bats will be required to update survey data closer to the time of construction in order to secure the full licence.

Is the current application part of a larger development project? For example, is it part of a phased or multi-plot housing development that will require more than one bat licence? Enter Yes, No or N/A in the text box below. If yes, note a separate _____ document will be required.

No

please note that sections in this Method Statement on impact assessment and mitigation measures must explicitly relate to impacts from the works currently proposed.

The separate master plan is expected to take due regard of the overall project to ensure that in-combination effects are considered, and mitigation and compensation measures are both sufficient and coherent.

If the current development is part of a larger development project, summarise very briefly here how the current application relates to the larger project and how the in-combination effects are considered and mitigation/compensation is sufficient.

N/A

Apart from any mention in B2.1, please inform us of any past or future development or other projects (in the last 5 years or next 5 years) in the vicinity which may have significantly impacted or are likely to significantly impact on the same population/s of bats as this application (e.g. loss of maternity or hibernation roosts). You must make reasonable efforts to establish this, including discussions with your client and the Local Planning Authority – stating below what you undertook. A brief summary of the project/s should be provided including the site name and location, dates and if known the licence reference number(s).

A search of the Multi Agency Geographic Information for the Countryside (MAGIC) website for granted European Protected Species (EPS) licences within 2km of the scheme was undertaken in November 2021. The following licences were identified:

– Destruction of a resting place for brown long-eared bat and soprano pipistrelle. c. 2000m north-west of the scheme at junction 19 (TL 72315 10816). Licence valid 30.10.2015 – 31.10.2020.

– Destruction of a resting place for common pipistrelle c. 68m south of the scheme at Marks Tey (TL92102379). Licence valid 17.01.2017 – 17.01.2017.

– Destruction of a resting place for common pipistrelle and soprano pipistrelle c. 326m north of the scheme at Witham (TL80891319). Licence valid 21.11.2016 – 21.11.2016.

– Destruction of a resting place for common pipistrelle and soprano pipistrelle c. 1.8km south-east of the scheme at Wickham Bishops, Maldon (TL83201159). Licence valid 02.08.2017 – 02.08.2022.

– Destruction of resting place for brown long-eared bat and common pipistrelle c. 1.1km north-west of the scheme at Springfield, Chelmsford (TL72800980). Licence valid 01.10.2017 – 31.10.2022.

C Survey and site assessment (also see section 5 of the Bat Mitigation Guidelines)

C1 Pre-existing information on the bat species at the survey site:

Please undertake a historical data search within a 2km search radius and provide a summary of the results of this search. For example, records from local environmental records centres, local bat groups and previous survey work undertaken at the site is all relevant. Please briefly comment on the results in relation to your project/site

- Should no historical records be found from your search please state this – and specify what searches you undertook.
- Note that you must not include records from National Biodiversity Network (NBN) without first obtaining written permission from the relevant Data Provider.

Bat records were requested within 5km of the proposed scheme from the Essex Field Club (which holds data from Essex Bat Group) and the Essex Wildlife Trust Biological Records Centre in June 2021.

Information on EPS Licences within a 5km radius of the proposed scheme was obtained through the MAGIC website on 10 March 2021.

Due to the large numbers of records returned, only those records that were recorded in the previous 15 years have been included as these represent the bat species most likely to be impacted by the proposed scheme. For the purpose of bat records the study area used was defined by Design Freeze (DF) 2.

The desk study returned a total of ten bat species (barbastelle (*Barbastella barbastellus*), brown long-eared bat, common pipistrelle, Daubenton's bat (*Myotis daubentonii*), Leisler's bat (*Nyctalus leisleri*), Nathusius' pipistrelle (*Pipistrellus nathusii*), Natterer's bat (*Myotis nattereri*), noctule (*Nyctalus noctula*), serotine (*Eptesicus serotinus*) and soprano pipistrelle) and four groups of bats which have not been identified to species level (Pipistrelle species, Myotis species, long-eared bat species and unknown bat species) within a 5km search radius of the proposed scheme (Table 1.1).

Nine of these bat species have been recorded as roosting within a 5km search radius of the proposed scheme, including serotine and Natterer's bat. All four of the bat groups recorded roosts. Eighteen hibernation roosts and 50 maternity roosts were returned. The closest of these is located 1.09 km from the scheme and is both a hibernation and a maternity roost for long-eared bat species and common pipistrelle. For records shown as being over 5km away, this is due to the large size of the grid square which, for confidentiality reasons, is provided by the biological records centres for sensitive species.

The closest bat record is of a common pipistrelle within 12m of the proposed scheme. The closest roost record was a common pipistrelle roost located 177.89m from the proposed scheme.

There is a hotspot of bat activity recorded south-west of junction 25 (TL 9140 2330), within 40.6m of the proposed scheme. This location returned records of eight bat species and two bat groups. No roosts were recorded in this area.

Table 1.1 Bat and bat roost records within 5km of the site boundary

Bat species	Total number of records	Date of most recent record	Grid reference of closest bat record	Distance of closest bat and/or roost record to Proposed Scheme
Barbastelle	67 records including 3 roost records - 2 hibernation roosts	2020	TL 850 156	963.6m 6km roost
Brown long-eared bat	310 records including 47 roost records - 11	2020	TL 91400 23300	110m 777.9m roost

	maternity roosts, 9 hibernation roosts and 3 feeding roosts			
Common pipistrelle	750 records including 59 roost records - 3 maternity roosts	2019	TL 92200 24100	12m 177.8m roost
Daubenton's bat	79 records including 3 hibernation roosts	2020	TL 91400 23300	40.6m 5.01km roost
Leisler's bat	26 records (no roosts)	2019	TL 91400 23300	40.6m
Nathusius' pipistrelle	22 records including 4 roost records	2019	TL 8510 1565	1012m 6.7km roost
Natterer's bat	75 records including 18 roost records - 3 hibernation and 4 maternity roosts	2020	TL 91400 23300	40.6m 2.9km roost
Noctule	94 records including 1 maternity roost	2019	TL 9140 2330	40.6m 5.3km roost
Serotine	44 records including 7 roost records	2019	TL 9140 2330	40.6m 3.38km roost
Soprano pipistrelle	434 records including 61 roost records – 26 maternity roosts	2019	TL 9140 2330	40.6m 1.15km roost
Long-eared bat species	26 records including 23 roost records - 1 hibernation and 1 maternity roost	2018	TL 83500 14700	524.6m roost
Myotis species	7 records including 1 roost record	2018	TL 9140 2330	40.6m 2.47km roost
Pipistrelle species	44 records including 20 roost records - 2 maternity roosts.	2016	TL 91400 23300	40.6m 897m roost
Unknown bat species	84 records including 12 roost records	2019	TL 9140 2331	82.89m 1.18km roost

The desk study shows that a wide variety of bat species use the area surrounding the scheme as habitat including for roosting. Included in these species are barbastelle and Nathusius' pipistrelle which are particularly rare in the UK.

Detail conservation status at the local, county and regional levels. Please complete the following table, justifying your assessment, and add additional lines where necessary. If the status is unknown then please enter 'unknown'.

Barbastelle	Rare*	Possibly more widespread than appreciated but considered scarce **.	Barbastelle is a rare bat in the UK***. There is insufficient data to determine a reliable current population trend for barbastelle in the UK****. IUCN Red List Status: Near Threatened.
Brown long eared bat	Common*	Widespread, relatively frequent**.	Common in UK. UK Priority Species. The population of brown long-eared bat in England is considered to have been stable since 1999 *** IUCN Red List Status: Least Concern.
Common pipistrelle	Common*	Widespread, occasionally common**.	Common in UK. The population of common pipistrelle in England is considered to have increased since 1999 ****. IUCN Red List Status: Least Concern.
Soprano pipistrelle	Common*	Widespread, occasionally common**.	Common in UK. UK priority species. The population of common pipistrelle in England is considered to have been stable since 1999 ****. IUCN Red List Status: Least Concern.
Nathusius' pipistrelle	Rare*	Considered rare**.	Nathusius' pipistrelle is rare but widespread throughout Great Britain, although records have increased in recent years***. However, there is currently insufficient data to determine a reliable population trend for Nathusius pipistrelle in the UK****. IUCN Red List Status: Least Concern.
Daubenton's bat	Common*	Widespread, relatively frequent**.	Widespread and relatively common in the UK. The population of Daubenton's bat in England is considered to have been stable since 1999 ****. IUCN Red List Status: Least Concern.
Natterer's bat	Uncommon*	Widespread, relatively scarce**.	Common in the UK. Field survey data show statistically significant population increases nationally since 1999*** however findings

			should be treated with caution until effect of this species' roost switching behaviour on the roost count trend is better understood****. IUCN Red List Status: Least Concern.
Leisler's bat	Scarce*	Widespread, but scarce and possibly declining**.	Leisler's bat is uncommon but widespread throughout England****. There is currently insufficient data to determine a reliable population trend for Leisler's bat in the UK****. IUCN Red List Status: Least Concern.
Noctule	Scarce*	Widespread, but relatively scarce**.	Relatively common in UK. The population of Noctule in the UK is considered to have been stable over the period 1999-2019****. UK Priority Species. IUCN Red List Status: Least Concern.
Serotine	Uncommon*	Widespread, but scarce*.	Thought to be relatively uncommon in the UK and has a southerly distribution. Serotine is relatively infrequently encountered on surveys***. The population of Serotine in England is considered to have been stable since 1999****. IUCN Red List Status: Least Concern.
*Based on abundance determined from bat survey data presented in the ES chapter for the scheme and calculated using methods set out in: Wray, S., Wells, D., Long, E. and Mitchell-Jones, T. (2010) Valuing Bats in Ecological Impact Assessment. In Practice, December pp23-25. ** Essex bat group – Bats of Essex http://essexbatgroup.org/about/bats-of-essex/ [accessed November 2021] *** Bat Conservation Trust, JNCC (2017) The state of the UK's bats 2017 National Bat Monitoring Programme Population Trends. **** Bat Conservation Trust, JNCC (2020) National Bat Monitoring Programme Annual Report.			

* ***Please note*** *that you can add more rows to the table: right click in any cell choose Insert > Insert rows below.*

Please complete the following table, entering 'Yes', 'No' or N/A' to indicate the objective of your survey and provide comments/explanation where necessary:

	Yes	Building inspections (external and internal, where possible), ground level tree assessments, aerial tree inspections/endoscope surveys, dusk emergence and dawn re-entry surveys of buildings, trees and other structures were carried out and also back-tracking surveys in urban areas were used to determine the presence or likely absence of roosting bats.
	Yes	Dusk emergence and dawn re-entry surveys of roosting sites were used to characterise roosts. Infra-red cameras and the installation of static bat detectors were also used to aid in roost characterisation.
	Yes	Walked activity transects were carried out in 2020 to determine which species are present and how they use

		the habitat available along the scheme. They also provided an indication of relative activity levels for different species. The transect surveys were also accompanied by static monitoring to further inform species presence and their use of the landscape. Crossing point surveys were undertaken in 2020 at current crossing points under or over the A12 to determine their use by bats following recoomendations in Berthinussen, A., and Altringham, J. (2015), Appendix G.
	Yes	Any droppings that were found and collected during building inspections of buildings or trees were collected and sent for DNA analysis to confirm species. Linear transects were carried out following the method specified within Berthinussen and Altringham (2015) to enable monitoring to reveal changes in bat activity related to distance from the road.

Please provide:

Brief descriptions of the site, including total size of the development site (ha) (most often within the red line planning boundary) and areas of the site with potential value to bats (ha).

The proposed scheme comprises improvements to the A12 between junction 19 (Boreham interchange) and junction 25 (Marks Tey interchange), a distance of approximately 24km, or 15 miles. The proposed scheme involves widening the A12 to three lanes throughout (where it is not already three lanes) with a bypass between junctions 22 and 23 and a second bypass between junctions 24 and 25. It also includes safety improvements, including closing off existing private and local direct accesses onto the main carriageway, and providing alternative provision for walkers, cyclists and horse riders (WCH) to existing routes along the A12, which would be removed. The area within the order limits is approximately 905 hectares in size.

The route (between J19 and 25) bypasses Witham and Kelvedon but otherwise the principal land use within the Order Limits is agricultural with its associated field boundaries and hedgerows. The soft estate of the current A12 is also within the Order Limits which consists of mainly planted woodland and grassland.

The summary areas of selected major habitat types found within the Order Limits during the baseline survey of the site (including those of potential value to bats) are as follows:

- Arable: 473 hectares
- Grassland: 100 hectares
- Woodland: 62 hectares
- Heathland and scrub: 30 hectares
- Hedgerow: 16 kilometres

The summary figures above are displayed to the nearest hectare or kilometre.

Brief descriptions of the structures on site indicating their roosting suitability (low, moderate or high), differentiating between and , with an explanation why. Ensure structures are referenced and consistently indicated on relevant figures and tables.

The Order Limits for the scheme were updated several times during the survey period however, if any areas were added to the Order Limits, then additional surveys (plus the relevant buffer) were undertaken. In many cases changes led to a reduction in the Order Limits hence why some of the trees and buildings indicated on figure C5b are outside the survey buffer.

In 2020 all buildings extending up to 100m either side of the proposed alignment of the new A12 and 50m of other parts of the proposed scheme (for example construction compounds, borrow pits and drainage areas) were scoped via aerial photography and Ordnance Survey maps for their suitability to support roosting bats.

The scoping exercise categorised the buildings as follows:

Buildings which were scoped out of further assessment due to no likelihood of potential impact from the scheme, for example detrunked sections of the existing A12.*
Buildings in dense residential and industrial areas where the surrounding habitats were predominantly urban and of poor quality to support bats. These areas were assessed by age and structure from public right of way.
Buildings which require full ground-based assessments due to the potential impacts of the scheme.

Ground-based bat roost assessments of buildings were previously undertaken by Jacobs in 2017. These surveys identified all buildings with potential suitability to support roosting bats within a 100m buffer of the proposed scheme at the time of survey.

Further ground-based assessments were then undertaken in 2020 and 2021 to update the previous surveys and to ensure that any additional areas to the new scheme design were fully surveyed (see Figure C5b). Following the desk-based scoping, buildings considered to be impacted by the proposed scheme were ground assessed. Groups of buildings in densely populated areas that were not considered to be directly impacted by the scheme were ground assessed in groups and were subject to back-tracking surveys (back-tracking areas, see figure C5b) from public rights of way. The remainder of the buildings scoped in were subject to individual ground assessment and emergence/re-entry surveys.

Full results for all buildings assessed are provided in the Appendix 9.4 of the ES, Bat Survey Report (National Highways 2022 [APP-134]).

Back-tracking surveys were undertaken in areas as outlined above. These areas were assigned bat roosting suitability and were subject to further surveys as outlined below:

High suitability area: subject to three back-tracking surveys (methods detailed in section C5 below).
Moderate suitability area: subject to two back-tracking surveys
Low suitability area: subject to one back-tracking survey
Negligible suitability area: no further survey required

Back-tracking areas were assigned suitability based on roost guidance rather than habitat suitability transect guidance, (Collins 2016**), as the aim of these surveys was to identify roost locations, basing suitability on the potential for roosts was deemed most appropriate.

Buildings which were likely to be directly removed or disturbed by the proposed scheme had full surveys undertaken, where feasible, as per Collins (2016**). However, in consultation with stakeholders, the methodology set out in Collins (2016**) was altered for those buildings ground assessed individually further away from the scheme to enable a focus on ecologically significant effects. The aim was to identify roosts of higher value in habitats more likely to be impacted by the proposed scheme, for example maternity or more regularly used roosts. The buildings were categorised into offline and online, with buildings in offline areas considered to have a higher potential impact from the proposed scheme than those in online areas (refer to Table 2.1 below).

The areas considered online are those within a 100m buffer of the existing A12 carriageway where widening is proposed. The areas considered offline are those within a 100m buffer of the new proposed A12 carriageway where it diverges from the online widening.

Table 2.1: Number of emergence/re-entry surveys required for buildings based on distance from order limits and roost suitability

Roost suitability	Offline		Online		Within Order Limits
	Up to 50m	50-100m	Up to 25m	25-100m	0m
Confirmed	3	2	3	2	3
High	3	2	3	2	3
Moderate	2	1	2	0	2
Low	1	0	1	0	1
Negligible	0	0	0	0	0

Trees for assessment

Ground-based bat roost assessments of trees were previously undertaken by Jacobs in 2016, 2017 and 2018. These surveys identified all trees with potential to support roosting bats within a predetermined study area, based on the scheme design at the time of survey.

Ground-based bat roost assessments of trees were repeated between 2019 and 2021 due to the changeable nature of bat roosts in trees and changes in the scheme design. All trees up to 100m either side of the proposed route and up to 50m of proposed land use areas (including construction compounds, borrow pits and drainage mitigation) were subject to a ground-based bat roost assessment in 2019 and 2020. The limited areas of trees within these buffers which could not be surveyed due to land access issues or health and safety constraints are shown on Figure C5b.

During the ground-based assessments individual trees that required further survey effort were assessed for their suitability for tree climbing and ground endoscope surveys. The trees were assessed based on health and safety considerations such as the condition of the tree, presence of nearby hazards, and height of the Potential Roost Feature (PRF). If trees were not suitable for tree climbing emergence/re-entry surveys were carried out.

The Bat Conservation Trust (BCT) guidance (Collins, 2016**) outlines that all trees of moderate or high potential, and confirmed roosts, should be surveyed in advance of any removal or disturbance. These surveys are required to identify any active bat roosts, the type of roost and the species of bat using the roost.

The number of further surveys for the proposed scheme was further streamlined (as it was with buildings) based on the distance of the tree from the scheme and if the area of the scheme was considered online or offline; with trees offline having a higher potential impact from the proposed scheme than those trees in online areas.

The areas considered online are those within a 100m buffer of the existing A12 carriageway where widening of the carriageway is proposed. The areas considered offline are those within a 100m buffer of the proposed A12 carriageway to be built as part of the proposed scheme. Table 2.2, below, shows the breakdown of the number of surveys required for individual trees based on their location and suitability grade.

Table 2.2 Number of surveys required for trees based on location in relation to the Order Limits

and tree roost potential

Roost suitability	Offline		Online		
	Up to 50m	50-100m	Up to 25m	25-50m	50-100m (excluding borrow pits)
Confirmed	3	2	3	2	2
High	3	2	2	1	1
Moderate	2	1	2	0	0
Low	0	0	0	0	0
Negligible	0	0	0	0	0

Full results for all trees assessed are provided in the Appendix 9.4 of the ES, Bat Survey Report (National Highways 2022 [TR010060/APP/6.3]).

Bridges and culverts (structures) for assessment
All bridges and culverts within a 100m buffer of the Order Limits were subject to ground-based assessments in May 2020 (see Figure C5b). As all the structures surveyed were directly above or underneath the road the following surveys were carried out dependant on roost suitability (in line with (Collins 2016**)).

- High suitability structure: subject to three emergence/re-entry surveys
- Moderate suitability structure: subject to two emergence/re-entry surveys
- Low suitability structure: subject to one emergence/re-entry survey.
- Negligible suitability structure: no further survey required

Further detail on the survey methodologies and full results of all bridges and culverts assessed are provided in the Appendix 9.4 of the ES, Bat Survey Report (National Highways 2022 [APP-134]).

*For those buildings outside the Order Limits of the scheme but within 100m, a scoping exercise was carried out to consider both proximity to the proposed works and the type of works taking place. Experienced ecologists assessed whether there were any potential impact pathways to the building from the scheme (whether physical or disturbance) and if it was concluded there were no impacts a building was scoped out from the survey. The scoping exercise also took into consideration if there would be a positive impact ecologically on the building such as an advanced ecological mitigation area being sited nearby.

**Collins, J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines. 3rd edn. The Bat Conservation Trust, London.

- A description of adjacent areas/offsite habitats, specifying any relevance to bats, including descriptions of habitat/s relevant to bat commuting/foraging behaviour.

The scheme is located in a landscape dominated be arable habitat, interspersed with urban areas surrounding Boreham, Hatfield Peveral, Witham, Kelvedon and Marks Tey. Hedgerows, watercourses and infrequent copses provide commuting and foraging habitats for bats.

Locations off site with particularly good foraging and suitable roosting habitat for bats include an area to the south of the scheme at Crix where there is established parkland and veteran trees and Whetmead LNR where the River Brain and Blackwater converge and there is plentiful woodland, hedgerow and rough grassland habitat [NB Whetmead LNR is partially within the Order Limits]. The area surrounding Prested Hall (TL 88292 19690) also provides good foraging opportunities for bats with extensive mature woodland, rough grassland and scrubland habitats.

- Please also include annotated (cross reference the structures) and dated photographs (showing both internal and external survey areas) as these are very useful as an assessment aid. These can be inserted below or submitted as a separate (referenced) document.

Photographs of roost locations are shown on figure C6.

: Please provide full justification below if your surveys deviate from the aforementioned best practice guidelines, confirming how you have obtained a full appreciation of the bat species roosting at the site, and of the type and status of roosts they use on site and in the context of the immediate surrounding area.

As explained in section C4, after consultation with stakeholders, a targeted approach was taken to undertaking surveys on trees and buildings which were outside the Order Limits (refer to tables 2.1 and 2.2). In a discretionary advice service (DAS) meeting on the 3 September 2020 Natural England confirmed broad suitability of the assessment and survey approach. The methodology set out in Collins (2016) was altered so fewer surveys were carried out on buildings further away from the scheme to enable a focus on ecologically significant effects. This approach was considered proportionate as buildings outside the Order Limits are not due to be directly affected by the scheme so there is far less impact upon them. However, the aim was to still identify higher value roosts (e.g., maternity or other regularly used roosts) in the vicinity of the scheme which if disturbed by indirect impacts could have a significant impact on the bat population in the area.

Constraints specific to surveys on roosts included in this licence are detailed in the constraints section under the data tables in section C5b. For limitations of all surveys, please refer to the A12 Chelmsford to A120 widening Bat Survey Report (National Highways 2022). A full suite of pre-construction surveys are planned for the scheme to update data for the final licence application.

Standard survey methodology was adapted as follows with regard to the presence / likely absence surveys.

Current consensus amongst ecologists is that the best practice survey approach to trees is to conduct direct inspections of features using endoscopes to look for evidence of bats and roosts. This advancement in knowledge has occurred largely after publication of the 2016 BCT guidance. It is not considered a deviation as the survey method is appropriate but is described here for clarity. For trees during the ground-based assessments assigned as having moderate or high roost suitability or a confirmed roost; where possible, an endoscope (aerial or ground based) inspection was carried out. Any trees where all potential roost features (PRFs) with moderate or high suitability to support roosting bats could be fully inspected via endoscope survey were subject to the appropriate number of further aerial / endoscope inspection in lieu of emergence / re-entry surveys.

The approach to selected urban areas outside but within 100m of the Order Limits was proportionate to the potential impact. Back-tracking surveys were completed to identify bat roosts rather than full emergence/re-entry surveys. These areas were outside the footprint of the scheme and not due to incur direct impacts (e.g., demolition or clearance). Back-tracking surveys were considered most appropriate in these areas due to several factors, including, the low likelihood that access for surveys would be granted to every property individually. Also, due to the generally less favourable habitat and high concentration of buildings, discovery of a roost by surveying each individual building was unlikely due to sub-optimal vantage points and significantly less efficient when compared to back-tracking.

One complete back-tracking survey consisted of a dusk survey followed immediately by a dawn survey the next morning. Backtracking surveys were only used on buildings outside the Order Limits of the scheme that were in dense residential and industrial areas where the surrounding habitats were predominantly urban and of poor quality to support bats.

The back-tracking surveys were undertaken by suitably qualified ecologists between May and September 2021. Each overall survey area was split into small sections. Each section was patrolled by two surveyors who walked separately of each other, and both had an Echometer Touch 2 Pro bat detectors to record bat activity. The survey team remained in constant communication via walkie talkie and/or phone message to instantly communicate bat movements between the team.

The back-tracking dusk surveys commenced 15 minutes before sunset and finished 2 hours after sunset. When bats were observed commuting during the back-tracking dusk surveys, the surveyors travelled in the opposite direction of the bats to determine if the bat was emerging from a nearby roost location. During the back-tracking dusk surveys, the surveyors paid particular attention to the buildings to identify any bats emerging from them. If a roost was found the surveyor recorded the building location and roosting feature, the time of the emergence, and the number and species of the bats emerging from the building.

The back-tracking dawn surveys commenced 2 hours before sunrise and finished 15 minutes after sunrise. When a bat was observed commuting during the back-tracking dawn surveys, the surveyors followed the bat as far as possible to determine if the bat was returning to a roost. If a bat was seen re-entering a building the surveyor recorded the building location and roosting feature, the time of the emergence, and the number and species of the bats re-entering the building.

To help identify the roost locations, each pair of surveyors were equipped with a radio device to communicate the direction of a bat they were following. If a bat flew into another pair's section of the survey area, the bat could continue to be followed.

(_____ . Please enter 'N/A' if the table is not applicable to your survey. Please ensure the information is consistent with Figure (showing all buildings, structures and habitats that are within the survey area and distinguishing those that were surveyed and those that were not; indicate where surveyors were located):

Due to the volume of data collected on the scheme only data for structures or trees that recorded confirmed roosts have been included in the tables on this licence.			
12/08/2021	B1463	Binoculars, CluLite (high power torch).	Unknown
		: External inspection 2 surveyors	
03/08/2017	B1679	Binoculars, CluLite,	Unknown
: External inspection 2 surveyors			
29/01/2020	B1291	Binoculars, CluLite,	Unknown
: External inspection 2 surveyors.			
14/01/2020	B107	Binoculars, CluLite,	Unknown
: External inspection 2 surveyors			
11/08/2020	B118	Binoculars, CluLite,	Unknown
:			
21/01/2021	B339	Binoculars, CluLite,	Unknown
: External inspection 2 surveyors			
19/05/2020	T1149	Binoculars, CluLite,	Unknown
: External tree inspection 2 surveyors.			
15/01/2020	T79	Binoculars, CluLite,	Unknown
: External tree inspection 2 surveyors.			
07/01/2019	T733	Binoculars, CluLite,	Unknown

: External tree inspection 2 surveyors.			
13/01/2021	B923	Binoculars, CluLite,	Unknown
: External inspection 2 surveyors. The rear of the property could not be viewed fully on the first visual inspection as the back gate was locked however full access was gained for subsequent emergence surveys.			
11/02/2020	B1392	Binoculars, CluLite,	Unknown
: External inspection 2 surveyors			
11/02/2020	B1393	Binoculars, CluLite,	Unknown
: External inspection 2 surveyors			
28/01/2020	B631	Binoculars, CluLite,	Unknown
: External inspection 2 surveyors			
18/02/2020	B1522	Binoculars, CluLite,	Unknown
: External inspection 2 surveyors			
19/05/2020	BE11	Binoculars, CluLite,	Unknown
: External inspection 2 surveyors			

Licensed Surveyor 1 (2020-44639-CLS-CLS), Licensed Surveyor 2 (2018-33484-CLS-CLS-1)

Due to the volume of data collected on the scheme only data for structures or trees that recorded confirmed roosts have been included in the tables on this licence. The scales for weather data in the table below are as follows: 1 (no cloud) – 8 (completely clouded) 1 – 4, 1 = No / Very light rain (0-0.25mm/hr), 2= Light rain (0.26-1mm/hr), 3= Moderate rain (1.01-4mm/hr), 4= Heavy rain (>4mm/hr) Beaufort scale				
14/09/2020 05/08/2021	18:57- 21:12 (Sunset 19:12) 20:24 - 22:39 (Sunset: 20:39)	B1463	Echo meter touch 2 pro	Temp (°C): 22 Cloud Cover: 0 Wind: 0, Rain: 1 Temp (°C): 16 Cloud Cover: 1 Wind: 0, Rain: 1 Temp (°C): 16 Cloud Cover: 8 Wind: 6, Rain: 4 Temp (°C): 17 Cloud Cover: 4 Wind: 2, Rain: 1
(to include # of surveyors used for each visit): 5 Surveyors 14/09/2020, 4 surveyors 05/08/2021. It is acknowledged that the first hour of the survey on 05/08/21 occurred in inclement weather conditions. The limitations of this survey are detailed in the constraints section below this table.				
15/06/2021 07/07/21	21:03 - 23:18 (Sunset 21:18) 21:01 - 23:16 (Sunset 21:16:00)	T1149	Echo meter touch 2 pro	Temp (°C): 15 Cloud Cover: 2 Wind: 2, Rain: 1 Temp (°C): 13 Cloud Cover: 2 Wind: 1, Rain: 1 Temp (°C): 18 Cloud Cover: 1

				Wind: 2, Rain: 1 Temp (°C): 15 Cloud Cover: 1 Wind: 2, Rain: 1
: 2 Surveyors for both visits.				
16/05/2017 03/08/2017	20:30- 22:45 (Sunset 20:45) 20:28 - 22:43 (Sunset 20:43)	B1679	Anabat Walkabout	Temp (°C): 20 Cloud Cover: 6 Wind: 1, Rain: 1 Temp (°C): 18 Cloud Cover: 6 Wind: 1, Rain: 1 Temp (°C): 19 Cloud Cover: 6 Wind: 2, Rain: 1 Temp (°C): 17 Cloud Cover: 6 Wind: 1, Rain: 1
4 surveyors for each of the 2017 surveys. No access was granted for emergence/re-entry surveys in 2020 or 2021 for B1679.				
No dusk surveys	No dusk surveys	B107	No dusk surveys	No dusk surveys
N/A				
08/07/2021 24/08/2021	21:01 – 23:16 (Sunset 21:16) 19:46 – 22:01 (20:01)	B118	Bat detectors- Echometer Touch 2 Pro	Temp (°C): 21 Cloud Cover: 8 Wind: 1, Rain: 1 Temp (°C): 15 Cloud Cover: 0 Wind: 0, Rain: 1 Temp (°C): 21 Cloud Cover: 6 Wind: 1, Rain: 1 Temp (°C): 19 Cloud Cover: 6 Wind: 0, Rain: 1
4 surveyors				
05/08/2021	20:25- 22:40 (Sunset 20:40)	B339	Bat detectors- Echometer Touch 2 Pro	Temp (°C): 16 Cloud Cover: 7 Wind: 4, Rain: 2 Temp (°C): 15 Cloud Cover: 6 Wind: 1, Rain: 1
: 2 surveyors each visit				
18/08/2020 01/09/2020	19:58 - 21:44 (Sunset 20:13) 19:28- 21:13 (Sunset 19:33)	BE11	Bat detectors- Echometer Touch 2 Pro	Temp (°C): 22 Cloud Cover: 2 Wind: 0, Rain: 1 Temp (°C): 20 Cloud Cover: 5 Wind: 0, Rain: 1 Temp (°C): 15 Cloud Cover: 5 Wind: 1, Rain: 1

				Temp (°C): 15 Cloud Cover: 5 Wind: 1, Rain: 1
14/06/2021	21:03- 23:18 (Sunset 21:18)			Temp (°C): 21 Cloud Cover: 8 Wind: 1, Rain: 1 Temp (°C): 17 Cloud Cover: 8 Wind: 1, Rain: 1
: 2 surveyors each visit				
24/06/2020	21:05 - 23:20 (Sunset 21:20)	B1291	Echometer Touch 2 Pro	Temp (°C): 23 Cloud Cover: 1 Wind: 1, Rain: 1 Temp (°C): 23 Cloud Cover: 1 Wind: 1, Rain: 1
: 8 surveyors for each visit				
07/08/2017	20:20 – 22:30 (Sunset 20:37)	T733	Anabat Walkabout and Anabat Express, Sonycam Infrared camera	Start temp (°C): 20 End temp (°C): 17 Cloud Cover: 8 Wind: 1, Rain: 1
07/09/2017	19:17 - 21:07 (Sunset 19:32)			Start temp (°C): 17 End temp (°C): 16 Cloud Cover: 8 Wind: 2, Rain: 1
05/05/2021	20:13 – 22:28 (Sunset 20:28)		Echometer Touch 2 Pro	Temp (°C): 9 Cloud Cover: 5 Wind: 1, Rain: 1 Temp (°C): 7 Cloud Cover: 5 Wind: 0, Rain: 1
15/06/2021	21:03 – 23:18 (Sunset 21:18)			Temp (°C): 15 Cloud Cover: 5 Wind: 1, Rain: 1 Temp (°C): 14 Cloud Cover: 4 Wind: 1, Rain: 1
: 2 surveyors for each visit. 2017 surveys included as roost was identified in 2017 surveys, no emergence/re-entries were recorded in 2021 surveys.				
02/09/2021	19:27 - 21:42 (Sunset 19:43)	B923	Echometer Touch 2 Pro	Temp (°C): 17 Cloud Cover: 8 Wind: 0, Rain: 1 Temp (°C): 15 Cloud Cover: 8 Wind: 1, Rain: 1
22/09/2021	18:41 - 20:56 (Sunset 18:56)			Temp (°C): 19 Cloud Cover: 2 Wind: 1, Rain: 1 Temp (°C): 17

				Cloud Cover: 0 Wind: 0, Rain: 1
: 4 surveyors each visit				
14/07/2020 27/07/2020	20:55 - 23:10 (Sunset 21:10) 20:39 - 22:54 (Sunset 20:54)	B1392	Echometer Touch 2 Pro	Temp (°C): 16 Cloud Cover: 8 Wind: 0, Rain: 1 Temp (°C): 14 Cloud Cover: 8 Wind: 0, Rain: 1 Temp (°C): 20 Cloud Cover: 6 Wind: 1, Rain: 1 Temp (°C): 17 Cloud Cover: 6 Wind: 1, Rain: 1
: 4 surveyors each visit				
09/07/2020	21:00 -23:15 (Sunset 21:15)	B1393	Echometer Touch 2 Pro	Temp (°C): 20 Cloud Cover: 8 Wind: 0, Rain: 1 Temp (°C):16 Cloud Cover: 8 Wind: 0, Rain: 2
: 4 surveyors each visit				
No dusk surveys	No dusk surveys	B631	No dusk surveys	No dusk surveys
: 6 surveyors each visit				
20/07/2020	20:47- 23:02 (Sunset 21:02)	B1522	Echometer Touch 2 Pro	Temp (°C): 18 Cloud Cover: 0 Wind: 0, Rain: 1 Temp (°C):13 Cloud Cover: 0 Wind: 0, Rain: 1
3 surveyors each visit				

Licence numbers of licensed surveyors who undertook the surveys: Surveyor 1 (2020-44639-CLS-CLS)

Due to the volume of data collected on the scheme only data for structures or trees that recorded confirmed roosts have been included in the tables on this licence.

The scales for weather data in the table below are as follows: 1 (no cloud) – 8 (completely clouded) 1 – 4, 1 = No / Very light rain (0-0.25mm/hr), 2= Light rain (0.26-1mm/hr), 3= Moderate rain (1.01-4mm/hr), 4= Heavy rain (>4mm/hr) Beaufort scale

07/07/2021	02:47 – 05:02	B1463	Bat detectors-	Temp (°C): 12

	(Sunrise: 04:47)		Echometer Touch 2 Pro	Cloud Cover: 6 Wind: 3, Rain: 1 Temp (°C): 13 Cloud Cover: 8 Wind: 2, Rain: 1
16/09/2021*	04:34 - 06:49 (Sunrise 06:34)	Survey of B1463a but identified a roost on B1463	Bat detectors- Echometer Touch 2 Pro	Temp (°C): 16 Cloud Cover: 8 Wind: 1, Rain: 1 Temp (°C): 16 Cloud Cover: 8 Wind: 2, Rain: 1
: 5 surveyors 07/07/2021. An incidental re-entry of 1 x common pipistrelle was observed on 16/09/20 on a dawn survey of an adjacent building.				
26/05/2021	02:50- 05:05 (Sunrise 04:50:00)	T1149	Echometer Touch 2 Pro	Temp (°C): 8 Cloud Cover: 1 Wind: 1, Rain: 1 Temp (°C): 8 Cloud Cover: 2 Wind: 1, Rain: 1
: 2 surveyors				
06/09/2017	04:35:00- 06:21 (Sunrise 06:17)	B1679	Anabat Walkabout	Temp (°C): 12 Cloud Cover: 0 Wind: 0, Rain: 1 Temp (°C): 10 Cloud Cover: 0 Wind: 0, Rain: 1
: 4 surveyors for each of the 2017 surveys. No access was granted for emergence/re-entry surveys in 2020 or 2021 for B1291.				
26/08/2020	03:59 - 06:14 (Sunrise 05:59)	B1291	Echometer Touch 2 Pro	Temp (°C): 17 Cloud Cover: 3 Wind: 3, Rain: 1 Temp (°C): 16 Cloud Cover: 6 Wind: 3, Rain: 1
: 8 surveyors each visit				
01/07/2020	02:43 - 04:58 (Sunrise 04:43)	B107	Bat detectors- Echometer Touch 2 Pro	Temp (°C): 18 Cloud Cover: 7 Wind: 2, Rain: 1
: 4 surveyors				
No Dawn surveys	N/A	B118	N/A	N/A
N/A				
06/07/2021	02:47 - 05:02 (Sunrise 04:47)	B339	Bat detectors- Echometer Touch 2 Pro	Temp (°C): 15 Cloud Cover: 2 Wind: 4, Rain: 1 Temp (°C): 14 Cloud Cover: 6 Wind: 6, Rain: 1
2 surveyors each visit				
No Dawn surveys	No dawn surveys	BE11	No Dawn surveys	No Dawn surveys
: N/A				
26/09/2017	04:55- 07:05 (Sunrise 06:50) 02:50 – 05:05	T733	Bat detectors- Anabat Express and Anabat Walkabout Bat detectors-	Start temp (°C): 14 End temp (°C): 14 Cloud Cover: 8 Wind: 1, Rain: 1 Temp (°C): 8

25/05/2021	(Sunrise 04:50)		Echometer Touch 2 Pro	Cloud Cover: 2 Wind: 2, Rain: 1 Temp (°C): 8 Cloud Cover: 1 Wind: 1, Rain: 1
: 2 surveyors for each visit. 2017 surveys included as roost was identified in 2017 surveys, no emergence/re-entries were recorded in 2021 surveys.				
No Dawn surveys	N/A	B923	N/A	N/A
: N/A				
25/08/2020	03:57- 06:12 (Sunrise 05:57)	B1392	Bat detectors- Echometer Touch 2 Pro	Temp (°C):16 Cloud Cover: 7 Wind: 1, Rain: 2 Temp (°C): 17 Cloud Cover: 7 Wind: 2, Rain: 2
: 4 surveyors each visit				
N/A	No dawn surveys	B1393	N/A	N/A
: N/A				
24/06/2021	02:39 - 04:39 (Sunrise 04:39)	B631	Bat detectors- Echometer Touch 2 Pro	Temp (°C):19 Cloud Cover: 0 Wind: 1, Rain: 1 Temp (°C): 12 Cloud Cover: 0 Wind: 1, Rain: 1
: 6 surveyors each visit				
04/08/2021	03:23 - 05:38 (Sunrise 05:23)	B1522	Bat detectors- Echometer Touch 2 Pro	Temp (°C):15 Cloud Cover: 0 Wind: 0, Rain: 1 Temp (°C): 8 Cloud Cover: 0 Wind: 0, Rain: 1
3 surveyors each visit				

*A roost at B1463 identified during a survey of the adjacent B1463a hence why this survey information is provided.

Licence numbers of licensed surveyors who undertook the surveys: Surveyor 1 (2020-44639-CLS-CLS)

Due to the volume of data collected on the scheme only data for structures or trees that recorded confirmed roosts have been included in the tables on this licence.				
08/12/2020 27/01/2021	During the day	B1463	Endoscope and Clulite high power torch	Unknown

Week commencing 22/02/2021				
: 2 surveyors each survey. No evidence of hibernating bats found.				
27/07/2020 02/06/2021 29/06/2021	During the day (aerial endoscope inspection)	T79	Rigid endoscope and tree climbing equipment.	Unknown
: 2 surveyors each survey				

Licensed Surveyor 1 (2018-33484-CLS-CLS-1), Licensed Surveyor 2 (2020-44437-CLS-CLS), Licensed Surveyor 3 (2020-44639-CLS-CLS)

Licensed Surveyor 1 (2020-50135-CLS-CLS)

(time of year, cold weather, refused access, safety issues preventing access etc – justify as necessary and include evidence where required). If access was refused please provide evidence (letter/email) to demonstrate this.

This licence application has been prepared based on the data available at the time of writing the biodiversity assessment for the proposed scheme (Chapter 9: Biodiversity of the Environmental Statement [APP-076], available at: https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/TR010060/TR010060-000179-6.1-Environmental-Statement-Chapter-9-Biodiversity.pdf).

The constraints noted below are limited to those specifically relating to surveys on buildings, structures and trees which are included as roosts within this licence. For all limitations, including specific access limitations, please refer to the A12 Chelmsford to A120 widening Bat Survey Report (National Highways 2022, [APP-128], available at: https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/TR010060/TR010060-000207-6.3-Environmental-Statement-Appendix-9.4-Bat-Survey-Report.pdf.

Where access was restricted, this may have resulted in some roosts not being identified. However, given the extent of survey effort it is unlikely that any roost of significant conservation status has been missed. In addition, preconstruction surveys would be undertaken to mitigate this risk and inform the final licence application.

B1463 - internal access was not granted as part of the hibernation surveys for B1463 however the features identified in the initial visual inspection as having hibernation potential were inspectable externally, so this was not considered a significant constraint.

Access for planned hibernation surveys was refused by landowners for B1291, B1522 and B1679.

Limitations to surveys on roosts included in this licence:

B107- one survey was carried out in 2020, access was refused for the further two planned surveys.

B1463 - on 05/08/2021 the first hour of the surveys was caried out in inclement weather conditions unsuitable for bats as set out in best practice guidelines and was also caried out by four surveyors

rather than five on the other visits. This survey is to be repeated during the suite of pre-construction surveys.

B1393 - one survey was conducted; subsequent access was refused by the tenant so the further two surveys planned in 2020 could not be completed.

B1679 - no access was granted for emergence/re-entry surveys in 2020 or 2021 for B1291. A full suite of surveys was carried out in 2017.

B631- one survey was conducted in 2020, subsequent access was refused for the further two surveys planned.

Regarding instances above where access was refused for surveys, a full suite of pre-construction surveys is planned on the scheme where access for surveys ~~can~~will be re-attempted.

Also complete the following:

- If DNA analysis of droppings has been undertaken, please indicate below (Yes, No, N/A) and ensure that (if applicable – see below) details the locations where the samples were taken. Where long-eared bats are detected but cannot be identified to species level visually, DNA analysis of any droppings will be needed where grey long-eared bats may be present.

Although dropping analysis was carried out on suspected bat droppings found on the scheme, there was no dropping analysis carried out pertaining to roosts included on this licence.

Please confirm that a walk over survey/check has been carried out within 3 months to application submission by a suitably experienced ecologist to ensure that conditions have not changed since the most recent survey was undertaken. Provide details of any changes to conditions and habitats and/or structures on site since the surveys were undertaken.

	To be completed as part of pre-construction surveys
	N/A - walkovers to be completed as part of pre-construction surveys

Summarise your findings in the tables below and cross reference to (which must also include flight lines, access points, dimensions of existing roosts etc). If you did not undertake a specific survey type please add N/A to the relevant table/s. Raw data is to be appended to the Method Statement (including sonograms, DNA analysis results etc).

. See end of document for "Definitions" of these roosts.

When completing " reference

Due to the volume of data collected on the scheme only data for structures or trees that recorded confirmed roosts						

have been included in the tables on this licence.						
12/08/2021	No bats found	N/A	B1463	N/A	N/A	N/A
12/02/2020	No bats found	N/A	B1679	N/A	N/A	N/A
29/02/2020	1 x P. auritus	Hibernation	B1291	See figure C6	See figure C6	See figure C6
: One brown long-eared bat was found hibernating between part of the wooden soffit and the wall on the exterior of the building during the ground-based building assessment.						
14/01/2020	No bats found	N/A	B107	N/A	N/A	N/A
Building was partially demolished by the current landowner; some suspected bat droppings were noted on the window frame in the building						
11/08/2020	No bats found	N/A	B118	N/A	N/A	N/A
21/01/2021	No bats found	N/A	B339	N/A	N/A	N/A
19/05/2020	No bats found	N/A	T1149	N/A	N/A	N/A
15/01/2020	No bats found	N/A	T79	N/A	N/A	N/A
07/01/2019	No bats found	N/A	T733	N/A	N/A	N/A
13/01/2021	No bats found	N/A	B923	N/A	N/A	N/A
11/02/2020	No bats found	N/A	B1392	N/A	N/A	N/A
11/02/2020	No bats found	N/A	B1393	N/A	N/A	N/A
Single suspected bat dropping found on front door porch						
28/01/2020	No bats found	N/A	B631	N/A	N/A	N/A
Single suspected bat dropping found on wall under eaves.						
18/02/2020	No bats found	N/A	B1522	N/A	N/A	N/A
19/05/2020	No bats found	N/A	BE11	N/A	N/A	N/A

Due to the volume of data collected on the scheme only data for structures or trees that recorded confirmed roosts have been included in the tables on this licence.							
14/09/2021 05/08/2021	18:57 - 21:12 20:24 - 22:39	No bats emerged No bats emerged	N/A N/A	B1463	N/A	N/A	N/A
None							
15/06/2021 07/07/21	21:03 - 23:1 21:01 - 23:16	1 x P. pygmaeus No bats emerged	Day roost N/A	T1149	See figure C6	See figure C6	See figure C6
Silent re-entry on 15/06/2021 so no confirmed call identification from the emergence.							

However, the bat was determined to be most likely soprano pipistrelle. This was decided based on a number of factors including that in previous surveys high levels of soprano pipistrelle circling and social calls had been noted in the area, the surrounding habitat being highly suitable with aquatic habitats nearby to forage and the roost location under a section of lifted bark a feature often favoured by the species.							
24/06/20	21:05 - 23:20	1 x P. pipistrellus	Day roost	B1291	See figure C6	See figure C6	See figure C6
Emergence on 24/06/2020 seen from soffit box area on corner of building. Floodlight shining obscured view so couldn't pinpoint exactly where bat came from.							
No dusk surveys	N/A	N/A	N/A	B107	N/A	N/A	N/A
08/07/2021 24/08/2021	21:01 - 23:16 19:46 - 22:01	1 x Pip sp. (P. pipistrellus or P. pygmaeus) 1 x P. pipistrellus and 1x P. pygmaeus	Day roosts	B118	See figure C6	See figure C6	See figure C6
05/08/2021	20:25 - 22:40	No bats emerged	N/A	B339	N/A	N/A	
16/05/2017 03/08/2017	20:30 - 22:45 20:28- 22:43	1 x P. pipistrellus 1 x P. pipistrellus	Day roost	B1679	See figure C6	See figure C6	See figure C6
07/08/2017 07/09/2017 05/05/2021 15/06/2021	20:20– 22:30 19:17- 21:07 20:13– 22:28 21:03– 23:18	4 x P. pygmaeus No bats emerged No bats emerged No bats emerged	Day roost	T733	See figure C6	See figure C6	See figure C6
2017 surveys included as roost was identified in 2017 surveys, no emergence/re-entries were recorded in 2021 surveys.							
02/09/2021 22/09/2021	19:27 -21:42 18:41- 20:56	2 x P. pipistrellus No bats emerged	Day roost	B923	See figure C6	See figure C6	See figure C6
14/07/2020	20:55 -23:10	1x P. pygmaeus	Day roost	B1392	See figure C6	See figure C6	See figure C6

27/07/2020	20:39 - 22:54	No bats emerged					
09/07/2020	21:00 - 23:15	No bats emerged	N/A	B1393	See figure C6	See figure C6	See figure C6
No dusk surveys	N/A	N/A	N/A	B631	N/A	N/A	N/A
	N/A						
20/07/2020	20:47 - 23:02	3 x P. pipistrellus	N/A	B1522	See figure C6	See figure C6	See figure C6
18/08/2020 01/09/2020 14/06/2021	19:58 -21:44 19:28 - 21:13 21:03 - 23:18	1x P. pipistrellus 1x P. pipistrellus, 2x P. pygmaeus 6x P. pipistrellus 2x P. pygmaeus	Day roosts	BE11	See figure C6	See figure C6	See figure C6
one emergence on 01/09/2020 was silent so there was so confirmed call ID however P. pygmaeus activity was recorded soon after and other P. pygmaeus emergences recorded in bridge so thought most likely to be P. pygmaeus.							

Due to the volume of data collected on the scheme only data for structures or trees that recorded confirmed roosts have been included in the tables on this licence.							
*16/09/2021 07/07/202	Incidental 02:47-05:02	1x P. pipistrellus No bats re-entered	Day roost	B1463	See figure C6	See figure C6	See figure C6
An incidental re-entry of 1 x common pipistrelle was observed on 16/09/20 on a dawn survey of an adjacent building							
06/07/2021	02:47- 05:02	1x P. pipistrellus	Day roost	B339	See figure C6	See figure C6	See figure C6
26/05/2021	02:50 - 05:05	No bats re-entered	N/A	T1149	N/A	N/A	N/A
26/08/2020	03:59 - 06:14	No bats re-entered	N/A	B1291	N/A	N/A	N/A
01/07/2020	02:43 - 04:58	2 x P. pygmaeus	Day roost	B107	See figure C6	See figure C6	See figure C6

		re-entries					
No Dawn surveys	N/A	N/A	Day roost	B118	N/A	N/A	N/A
06/09/2017	04:35 - 06:21	3 x P. pipistrellus	Day roost	B1679	See figure C6	See figure C6	See figure C6
26/09/2017 25/05/2021	04:55- 07:05 02:50 - 05:05	No bats re-entered No bats re-entered	N/A N/A	T733	N/A	N/A	N/A
2017 surveys included as roost was identified in 2017 surveys, no emergence/re-entries were recorded in 2021 surveys.							
No Dawn surveys	N/A	N/A	N/A	B923	N/A	N/A	N/A
N/A							
25/08/2020	03:57 - 06:12	No Bats re-entered	N/A	B1392	N/A	N/A	N/A
No dawn surveys	No Dawn surveys	N/A	N/A	B1393	N/A	N/A	N/A
N/A							
24/06/2021	02:39 - 04:39	1x P. pygmaeus re-entered	Day roost	B631	See figure C6	See figure C6	See figure C6
04/08/2021	03:23- 05:38	1x P. pygmaeus re-entered	Day roost	B1522	See figure C6	See figure C6	See figure C6
No dawn surveys	N/A	N/A	N/A	BE11	N/A	N/A	N/A

*Roost at B1463 identified during incidental sighting from survey of B1463a, an adjacent building

Due to the volume of data collected on the scheme only data for structures or trees that recorded confirmed roosts have been included in the tables on this licence.						
08/12/2020 27/01/2021 Week commencing 22/02/2021	No bats found	N/A	B1463	N/A	N/A	N/A

27/07/2020 02/06/2021 29/06/2021	1 x P. auritus No bats found No bats found	Day roost	T79	At the base of a woodpecker hole 5m up tree N/A N/A	One woodpecker hole	Woodpecker hole 5m up tree on northwest aspect. Extends approx. 30cm up and small distance down to a flat base.
N/A						

(also see the Bat Mitigation Guidelines section 5.8 and Figure 4 for conservation significance of roost type): Please complete the following table:

B1463	P. pipistrellus	1	Behind cladding Western aspect of building (see figure C6)	Day roost	Local
B1679	P. pipistrellus	3	Entry points under lifted roof tiles on the southern porch and under a ridge tile (see figure C6)	Day roost	Local
B1291	P. pipistrellus	1	Max count 1 x P.pip, emerged from soffit locations on East and then SW aspect of building on separate surveys.	Day roost	Local
	P. auritus	1	Found hibernating in January during ground level assessment between soffit box and wall on east side of the building (see figure C6)	Hibernation roost	County
B107	P. pygmaeus	2	In brickwork seen entering from south side	Day roost	Local

			of building (see figure C6)		
B118	P. pipistrellus	1	Entry points identified in the roof of the building south-west end (see figure C6)	Day roost	Local
	P. pygmaeus	1	Entry points identified in the roof of the building south-west end (see figure C6)	Day roost	Local
B339	P. pipistrellus	1	Re-entry into soffit box in SE corner of the building (see figure C6)	Day roost	Local
T1149	P. pygmaeus	1	Split feature on south-east side of tree in tree (see figure C6)	Day roost	Local
T79	P. auritus	1	In woodpecker hole in tree	Day roost	Local
T733	P. pygmaeus	4	Under lifted bark on end of dead limb facing west (see figure C6).	Day roost	Local
B923	P. pipistrellus	2	Emerged from soffit area on western aspect of the house (see figure C6)	Day roost	Local
B1392	P. pygmaeus	1	In buildings roof. One emergence from N dormer area of roof and one from south dormer area of roof on a different survey.	Day roost	Local
B1393	P. pygmaeus	5	In buildings roof in multiple features. Three from lifted tiles (North), one from lead flashing (North-West) and another one from tiles (North), (see figure C6).	Day roost	Local
B631	P. pygmaeus	1	Entry point at apex of gable end to the north	Day roost	Local

			of the building (see figure C6)		
B1522	P. pipistrellus	3	Entry points southwestern end of building. Exact location of roost inside unknown as it's a large outbuilding and had no internal access (see figure C6).	Day roost	Local
	P. pygmaeus	1	Entry point southwestern end of building. Exact location of roost inside unknown as it's a large outbuilding and had no internal access (see figure C6).	Day roost	Local
BE11	P. pipistrellus	6	Multiple entry locations in underside of bridge structure. See figure C6.	Day roost	Local
	P. pygmaeus	2	Multiple entry locations in underside of bridge structure. See figure C6.	Day roost	Local

	☐ ☐ ☐

During ground assessment initially assessed as high suitability but after three further hibernation endoscope surveys the building was downgraded to having low hibernation potential due to the internal characteristics of the features.

Assessed during ground assessment as having high hibernation potential. Three hibernation surveys planned but access was refused to all of them.

One hibernating brown long-eared bat found between the soffit and brickwork of the building on 29/02/2020.

No features recorded with notable hibernation potential in ground assessment.

No features recorded with notable hibernation potential in the ground assessment of this residential property.

No features recorded with notable hibernation potential in the ground assessment of this residential property.

No features recorded during the ground-based tree assessment with notable hibernation potential.

No features recorded during the ground-based tree assessment with notable hibernation potential.

No features recorded during the ground-based tree assessment with notable hibernation potential.

. No features recorded with notable hibernation potential in the ground assessment of this residential property.

. No features recorded with notable hibernation potential in the ground assessment of this residential property.

. No features recorded with notable hibernation potential in the ground assessment of this residential property.

. No features recorded with notable hibernation potential in the ground assessment of this residential property.

A barn assessed during ground assessment as having high hibernation potential. No access inside was granted for planned hibernation surveys.

Although the initial ground-based assessment recorded the structure as low overall suitability for bats and noted no features with hibernation potential at the time, two roost locations with a number of bats were found during subsequent emergence/re-entry surveys indicating that features may be large enough for hibernation. As the structure is a concrete bridge with large enough crevices for summer roosts, they are likely to have hibernation suitability. With this information it is considered that the bridge has moderate suitability for hibernation. The temporary exclusion during demolition works on the upper deck of the bridge (which could disturb roosts within the structure) is planned to be carried out between May and September to avoid the winter hibernation period (as detailed in section E1).

Regarding instances above where access was refused for surveys, a full suite of pre-construction surveys is planned on the scheme where access for surveys can be re-attempted.

(also see section 6 of the Bat Mitigation Guidelines). Where appropriate you must take into consideration cumulative impacts of your proposals on the bat species and populations identified in your survey in each section.

The impact/s of activities undertaken on site pre-development and during works must be considered and explained. (such as human presence, noise, vibration, dust, lighting, access obstruction due to scaffolding and plastic sheeting etc),

In the absence of mitigation, the works are likely to lead initially to increased noise and vibration, loss of commuting routes and increase in lighting and human presence which may cause disturbance impacts to the ten roosts listed in the “estimated disturbance impacts” table below.

Noise produced by machinery during the construction of the scheme has the potential to cause a significant disturbance to bats in and around their roosts. In order to quantify these impacts, noise modelling data for the scheme have been used. The noise modelling data were produced using the methodology contained within BS5228-1:2009+A1:2014 “Code of practice for noise and vibration control on construction and open sites”. This involved calculating a baseline noise level at each roost site (which is the calculated noise level of the ambient noise without construction activities) and a construction machinery noise level (which is the noise produced by the loudest piece of machinery that is going to be used in that area). A calculation is then made to work out overall construction noise level, this is the baseline noise level combined with the construction machinery noise level in the form of an $LA_{eq,16h}$ figure in line with noise modelling guidance. The overall construction noise level is then compared to the baseline noise level to work out the change in noise level at each roost location on the scheme.

A review of the available scientific literature was undertaken which found six relevant peer reviewed papers with data on the topic of noise levels of acoustic disturbance in bats (Barber, Crooks, Fristrup (2009), Bennett and Zurcher (2013), Finch, Schofield and Mathews (2020), Luo, Siemers and Koselj (2015), Schaub, Otswald and Siemers (2008) and Siemers and Schaub (2010)). Traffic noise has been shown to contain both sonic and ultrasonic components so contains a range of sounds in frequencies to which bats are most sensitive ~~to~~ (Finch, Schofield and Mathews (2020)). Of all the papers reviewed the lowest level of sound shown to disturb bats was 68 dB. This was in Luo, Siemers and Koseli (2015) where traffic noise played back between 68-84 dB (average 76 dB) was shown to have a significant effect on foraging success. Therefore, for the purpose of this licence, 68 dB is the threshold value above which a bat may be disturbed by noise. This estimate is deemed to be conservative as threshold noise levels in other comparable studies of free flying bats were deemed to be over 80 dB (e.g., Bennet and Zurcher (2013)). There is also likely to be a higher background noise level tolerance for bats in roosts due to the acoustic shielding the roost surroundings provide (e.g., the tiles of a structure or wood of a tree).

Some roosts were found to occur in areas where the baseline noise level is already above 68 dB. In these cases, for the purpose of the licence, it was considered that a bat may be disturbed if noise levels increased by one decibel or more outside a roost.

Most of the machinery used for construction use diesel engines that emits noise at frequencies predominantly below 1kHz and often less than 500Hz. However, small items of plant, such as chainsaws, mainly used during vegetation clearance as part of enabling works, emit noise at higher frequencies as a consequence of being fitted with small two stroke or four stroke petrol engines. Therefore, noise disturbance to bats is more likely to occur during activities using small items of plant such as chainsaws, as these high frequencies are more likely to be within the most sensitive hearing range of bats which has been shown in multiple studies to be tuned to the frequencies at which bats emit their social and echolocation calls (Geipel et al. (2021) and Russ, Jones, and Racey (2005) and Lattenkamp et al. (2020)).

For the purpose of the licence, a roost was considered likely to be disturbed if:

Noise levels at the roost location increased from below 68 dB to more than 68 dB as a result of construction noise; and/or
If a roost location has a baseline noise level of 68 dB or over, the construction noise increases the overall noise level by 1 dB or greater from the baseline level.

It is assumed that if a roost is considered disturbed by construction noise in this licence, it may lead to temporary abandonment of the roost. The table below shows the data from the roosts that met the criteria listed above. With the exception of those marked with asterisks (see notes below the table) they are therefore considered at risk of disturbance from construction noise by the proposed scheme.

BE11	78.8	80	1.2
B339	70.9	74.6	3.7
B923	69.4	74.2	4.8
B1392	69.6	72.1	2.5
B1393	70.2	71.4	1.2
B1291*	56.8	69.6	12.8
B107	67.5	69.1	1.6
B118	73.4	77.7	4.3
B1463**	67.9	68.3	0.4
T79***	66.8	68.3	1.5
B631	67.9	68.1	0.2

*For B1291 the highest noise increase shown in our noise model was 12.8dB (56.8- 69.6dB). However, the noise model measures an output at each corner of the building and this noise output location does not correlate with the roost locations which are on a different side of the large office building (approx. 1000m^2 footprint). All the roosts are on sections of the building further north away from the construction noise where noise levels are not predicted to reach the threshold values for disturbance (63, 64.9 and 66.6dB respectively, see figure C6). Therefore, it is considered that the recorded roosts at B1291 will not be disturbed by construction noise.

** B1463 is due to be demolished to allow for the road widening in this location. The activity that triggered noise levels to go above the threshold of 68dB during construction in the noise modelling was road surfacing. This is due to occur at a late stage of construction after the building is due to be demolished to facilitate earthworks for the road widening. Therefore, B1463 is included on this licence for its destruction during demolition only and not for any construction noise prior to that.

*** T79 is due to be felled during works and the activity in the noise model that is due to push the noise level past the 68dB threshold is the earthworks which is due to take place after vegetation is cleared and the tree is due to be felled. Therefore, this tree is included on the licence for its destruction during felling only and not for construction noise prior to that.

The level of construction stage disturbance has been assessed following evaluation of estimated construction noise levels at the roost (detailed in table above), and the characterisation of the roost and its vulnerability to disturbance. The loss of roosts is discussed in section D2.2.

BE11	P. pygmaeus	6	Day roost	Low
	P. pipistrellus	2	Day roost	Low
B339	P. pipistrellus	1	Day roost	Low
B923	P. pipistrellus	2	Day roost	Low
B1392	P. pygmaeus	1	Day roost	Low

B1393	P. pygmaeus	5	Day roost	Low
B107	P. pygmaeus	2	Day roost	Low
B118	P. pipistrellus	1	Day roost	Low
	P. pygmaeus	1	Day roost	Low
B631	P. pygmaeus	1	Day roost	Low

Confirm number of roosts to be damaged: 0 (10 roosts within 7 buildings and 1 structure are due to be disturbed by construction noise).

Consider and explain the impacts of the proposed works on the different species populations at a site, local, regional, and national level

e.g. changes to roosts/access points, new entrances (including human access e.g. for servicing/maintenance etc), change in size of roost space, changes in air flow, temperature and humidity, light etc. Please detail the access points into each roost and the type/s of roosts which will be modified.

N/A – construction or operation of the scheme will not result in roost modifications.

Confirm number of roosts to be modified: 0

Loss or deterioration of roosting sites, access points, habitat, etc must be considered. Please detail the access points into each roost and types of roost/s which will be lost.

Demolition of B1463 would lead to a permanent loss of a day roost for one common pipistrelle. Unsupervised demolition of this building could kill or injure a common pipistrelle. This would lead to a moderate negative impact to common pipistrelles at a site level.

Felling of T1149 would lead to permanent loss of a day roost for one soprano pipistrelle. Without mitigation this could kill or injure a soprano pipistrelle. This would lead to a moderate negative impact to soprano pipistrelle at a site level.

Felling of T79 would lead to permanent loss of a day roost for one brown long-eared bat. Without mitigation this could kill or injure a brown long-eared bat. This would lead to a moderate negative impact to brown long-eared bats at a site level.

Felling of T733 would lead to the permanent loss of a day roost of four soprano pipistrelles. Without mitigation this could kill or injure four soprano pipistrelles. This would lead to a moderate negative impact to soprano pipistrelles at a site level.

Confirm number of roosts to be destroyed: four (in one building and three trees).

Will the proposed works results in these impacts? E.g. loss of linear features such as hedges, tree lines, increased lighting, severance of flight lines by roads/rail lines, separation of breeding/hibernation sites from feeding grounds, etc.

The majority of the proposed scheme involves widening the existing A12 carriageway where no significant habitat fragmentation impacts are expected. However, there are some offline sections of

new road, sideroads and junctions being constructed where habitat fragmentation is predicted to occur as detailed below (see figure D for associated mapping).

The effects of fragmentation and severance of linear routes is expected to have a low to moderate negative impact on bat populations at the local level during construction.

Building B1679 - The hedgerow to the south of B1679 (which contains a common pipistrelle day roost) will be severed by a proposed offline section of road. This will fragment this commuting route which connects the roost to foraging habitat to the south. There will still be approximately 3.5 hectares of suitable scrubland/woodland habitat directly north of the roost, and over a hectare of vegetated gardens across a field to the west (see figure E3). However, as a precaution, it is assumed that the roost will be disturbed by fragmentation and will be mitigated for accordingly.

Building B1291 (soprano pipistrelle day roost and brown long-eared bat hibernation roost) – Small areas of woodland and hedgerows to the south of these roosts are being cleared. This will fragment the commuting route to the foraging habitat to the south. An overbridge is proposed approximately 100m south of B1291 and 120m southwest of T79. Although the bridge is not designed specifically for bats and will require lighting on its northern approach it will be vegetated on its embankments and may be used by bats to cross the road. However, as a precaution, it will be assumed that bats do not use the overbridge and thus the roost will become isolated, and potentially permanently abandoned, which will be mitigated for accordingly.

Building B1522 (recorded day roosts of common pipistrelle and soprano pipistrelle) - A new section of road will result in the severance of hedgerows and a row of trees to the south and east of the building that are currently being used as commuting flightlines. A new overbridge is proposed approximately 600 m south of the roost (BN11 Prested Hall overbridge) which will have vegetated embankments on the approach. Additionally, a 1.2m diameter pipe culvert (CL-24/CN-12) is proposed under the new road, approximately 200m east of the roost. Although neither the bridge nor culvert are specifically designed for bats, they may be used by bats to cross the road. However, as a precaution, it is assumed that the roost will ~~become isolated~~be disturbed by fragmentation and will be mitigated for accordingly.

Fragmentation of specific roosts found during the schemes bat surveys have been considered in this licence. The potential impacts of habitat fragmentation for bats as a whole across the wider scheme are assessed further in the Environmental Statement (National Highways 2022, [APP-076]) for the scheme It is acknowledged that there would be a temporary impact on bats during construction of the proposed scheme as a result of habitat losses. However, the creation of ecological mitigation areas in advance of construction would provide some benefits to bats, and where practicable linear planting would tie in with culverts to guide bats through these as opposed to over nearby side roads. There would be an overall increase in suitable bat commuting and foraging habitats in the long term (see paragraphs 9.11.28 to 9.11.153 and Table 9.25 in Chapter 9 of the Environmental Statement [APP-076]).

e.g. extra street lighting or other external lighting, use of loft space as storage, increased noise. Please also consider other direct or indirect post development impacts which may include disturbance/ injuring/killing.

For the scheme, long term post-developmental impacts are termed “operational impacts”. The operational disturbance impacts for all roosts impacted are discussed below.

As the proposed scheme involves construction of new sections of road away from the existing A12 and resurfacing sections of the road to a quieter surface, operational noise impacts will be varied along the scheme. Most identified roosts will experience a reduction in noise levels post development. However, some roosts will experience an increase in noise levels following works.

Changes in operational noise levels are not considered to be licensable for free flying bats in the area.

This is because baseline levels of noise in areas surrounding the road are already high (with existing bats habituated to this) and overall noise pollution will be reduced in the landscape as a quieter road surface is to be laid. This is evident in the noise models as roosts next to road sections to be widened are predicted to have significant fall in noise levels post construction (e.g., BE11, B339, B361 table below).

Similarly, to the construction noise impact assessment (see section D1), spatial noise modelling data were used to quantify changes in operational noise levels as a result of the scheme. Decibel levels were modelled for the operational noise levels of the scheme post development and compared to baseline levels if no development was carried out on the road.

As was used for construction noise impacts, for the purpose of the licence, a roost was considered to be significantly disturbed by operational noise if (see Section D1 for explanation on how threshold values were decided):

- Operational noise level increased from below 68dB to above 68dB as a result of the proposed development; and/or
- If a roost location has a baseline noise level of 68dB or over, the post-development operational noise level is a 1dB or greater increase from the baseline level.

It is assumed that if a roost is considered significantly disturbed by operational noise increases as a result of the works the roost could potentially be permanently abandoned and therefore destroyed. The table below summarises all roosts from the noise model that are subject to operational noise levels of 68 dB or above post development.

Structure or Tree ID	Baseline operational noise level (dB)	Post-development operational noise level (dB)	Decibel (dB) level change post construction compared to baseline	Likely operational noise disturbance?
B1997	80.1	80.1	0	No
BE11	78.8	78.0	-0.8	No
B1463	75.9	77.3	1.4	No (building is due to be demolished during construction)
T733	76.8	77.5	0.7	No
B637	76.2	75.1	-1.1	No
B1928c	74.2	74.4	0.2	No
B1992d	74.3	74.3	0	No
B118	74.7	73.2	-1.5	No
T1149	72.0	71.3	-0.7	No
B1455	77.4	71.3	-6.1	No
B1928	70.9	70.9	0	No
B1447	76.4	70.4	-6	No
B631	71.5	70.0	-1.5	No
B339	70.9	68.7	-2.2	No
T79	66.8	69.1	2.3	No (tree is due to be felled during construction)
B107	67.5	68.2	0.7	No – see justification below

~~Following the assessment above, roost B107 has been identified as being impacted by an increase in operational noise and is therefore included on this licence.~~

The post-development operational noise level for B107 would increase from below 68dB to above 68dB as a result of the proposed development. Applying the disturbance threshold criteria provided above (see Section D1 for explanation on how threshold values were decided), this would suggest a likely operational noise disturbance for B107. However, the predicted post-development operational noise levels are based on datapoints closest to the road, which in this instance would be the external wall of the northern aspect of the building and therefore not where the bat roost is. Survey data for B107 shows that the two soprano pipistrelle bats recorded during the dawn survey re-entered the building on the southern aspect. This is also where the droppings were found during the ground-based assessment. As advised by the project noise modelling team, on a building such as B107, a slate roof on a timber frame (assuming no insulation) would reduce noise levels by at least 15dB. If we assume as a worst-case that bats are roosting within the northern aspect of the building closest to the road, the maximum likely post-development operation noise level within the building itself would in fact be 53.2dB and therefore significantly below the disturbance threshold. B107 is therefore not considered to be subject to noise disturbance once the proposed scheme is operational and is as such considered to be retained.

: Please complete the following table to explain what this is likely to be at the site, local/county and regional levels for each roost type and species. Add additional lines when necessary

(which will be affected at the time works will be undertaken)					(include impact on roost – damage / destruction /modification etc)
The following roost sizes are current “worst case scenarios” and take into account that maximum roost sizes may be larger than peak counts recorded in surveys.					
P. pipistrellus (x18)	Day roost	X			B1463 is due to be demolished as part of the works (x1 P. pipistrellus roost) Severe fragmentation from ~~foraging~~ habitat by severance of hedgerow and wooded areas to the south of the roost, which could lead to permanent abandonment of the roost (x3 P. pipistrellus). Construction noise disturbance, the most severe of which will be caused by the demolition of a bridge approximately 15m south of the building (x1 P. pipistrellus). Fragmentation from foraging habitat to the south by severance of hedgerow (x1 P. pipistrellus). Construction noise disturbance principally cause by bridge joint and beam installation at a bridge 30m north-west of the roost location (x1 P. pipistrellus).

					The main construction noise impact for B923 is due to be the installation of the permanent noise barrier approximately 20m northwest of the building (x2 P. pipistrellus). Fragmentation from foraging habitat to the south by severance of a line of trees near to the roost (x3 P. pipistrellus). Construction noise disturbance and possible vibration impacts principally from demolition of the parapets adjacent to the bridge and hydro-demolition of the central reserve on the road above (x6 P. pipistrellus).
P. pygmaeus (x18)	Day roost	X			Potential felling of T1149 (x1 P. pygmaeus roost) Construction noise impact principally from structure demolition and sheet piling nearby (x2 P. pygmaeus). Construction noise disturbance, the most severe of which will be caused by the demolition of a bridge approximately 15m south of the building (x1 P. pygmaeus). Potential felling of T733 (x4 P. pygmaeus). Construction noise disturbance principally caused by the construction of a footbridge approximately 70m northwest of B1392 (B1392: 1x P. pygmaeus and B1393: 5x P. pygmaeus). Construction noise disturbance principally caused by operation of the borrow pits approximately 80m to the west (1x P. pygmaeus). Fragmentation from foraging habitat to the south by severance of a line of trees near to the roost (1x P. pygmaeus). Construction noise disturbance and possible vibration impacts principally from demolition of the parapets adjacent to the bridge and hydro-demolition of the central reserve on the road above (2x P. pygmaeus)
P.auritus (x1)	Day roost	X			Potential felling of T79 (1x P. auritus)
P.auritus (x1)	Hibernation roost	X			Severe fragmentation from ~~foraging~~ habitat by severance of hedgerow and wooded areas to the south of the roost, which could lead to permanent abandonment of the roost (1x P. auritus)

* *

Provide further comments/explanation as required (this helps understand how the impacts will be mitigated or compensated for when assessing section E):

Please ensure that a separate 'Impact map' is provided (Figure D) which must show all structures or habitats (clearly referenced) that will be disturbed, damaged or destroyed, detailing where the roosts and access points are etc. Also .

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The mitigation solution being proposed in the method statement should be the one that delivers the 'need' with the least impact on the bat population.

A number of road designs have been considered for this scheme with different combinations of online widening and new offline road sections. Online widening along the whole route was unfeasible and did not provide the 'need' due to constraints such as houses adjacent to the road that would need to be demolished with the extra human cost this would entail (also potentially destroying more roosting locations). New offline sections have been limited to where they are necessary (and are predominantly on agricultural land) due to the additional financial costs and greater environmental impact (including on bat populations) that the additional land take for more offline sections would incur.

Building B1463 which contains a P.pipistrellus day roost. It would be subject to an internal search followed by destructive search by soft demolition. The work is currently proposed to be carried out between May and August during the bat active season as the building has high suitability for hibernating bats (hibernation surveys found no evidence but an internal inspection was not possible). Previous surveys conducted during the maternity season (May to August) found no evidence of roosting bats, therefore it is anticipated that bats will be less likely to be using the building for roosting in these months.

Prior to demolition works, three compensatory bat boxes will be installed nearby. The roof void will then be inspected, and any roosting bat(s) found will be captured by hand or using a hand net. They will then be translocated to one of the compensatory boxes if necessary. All features suitable for use by roosting bats (roof tiles, fascia, gaps in brickwork and cladding etc.) will then be removed by hand (after thorough endoscopy if possible) or blocked after full endoscopy under the supervision of the licenced ecologist/accredited agent prior to demolition. The roost entrance is under an external wooden board which will be inspected using an endoscope via a MEWP (mobile elevated working platform) and the feature removed if no bats are present. If bats are found and cannot be removed by hand, or, if any feature cannot be fully surveyed and the removal of the feature could lead to the injury of killing of a bat, a one-way exclusion device would be fitted and would remain in situ for a minimum of five nights of favourable weather. Following this, the device would be checked to ensure it is still installed correctly and then the feature would be removed under supervision.

T1149, T79 and T733 are all due to be felled after a thorough pre-works check using an endoscope. Although the trees have no hibernation potential, there may be a residual risk of finding a hibernating bat, and therefore the trees would be felled in the bat active season. Prior to tree felling activities, three compensation bat boxes per tree roost lost would be installed as close as possible to the original roost location but far enough away from the works area to not be impacted. All features on the tree would be thoroughly checked with an endoscope prior to felling (via aerial means if necessary) and if no bats are found, the tree would be either immediately felled, or the features would be permanently excluded. If features are excluded, they would be inspected prior to felling to ensure the exclusion is

still working. If a tree cannot be fully endoscoped, or a bat is found in a feature that cannot be removed without risking injury or death to the bat, a one-way excluder would be fitted to the feature. The one-way excluders would then remain in place for a minimum of five nights of favourable weather. Prior to felling the one-way excluder would be inspected to insure it is still working correctly.

It is noted that pre-construction surveys are to take place on the buildings and trees above and that the status of roosts are subject to change. In that case the licensed exclusion and demolition/felling techniques will be tailored to new survey results and written into the final licence as appropriate.

The trees and building listed above for loss are included as they are due to be felled/demolished in the current scheme of works. However, now the roosts have been identified, before designs are finalised, efforts will be made to retain these roosts if possible. If works can feasibly avoid damage or disturbance to these roosts, the roosts will be retained, and the final licence will be updated to reflect this.

B1291 is a day roost for P. pipistrellus (x2) and a hibernation roost for P. auritus (x1). The removal of sections of hedgerow and a small area of woodland to make way for a new road will result in the severance of most flightlines and will potentially cause severe fragmentation from foraging habitat. An overbridge is proposed approximately 100m south of B1291 which is not designed specifically for bats and will require lighting on its northern approach, but it will be vegetated on its embankments and may be used by bats to cross the road.

As a precaution it is assumed that this roost could be abandoned permanently (and therefore destroyed). To mitigate for the potential impacts, three bat boxes suitable for these species and roost types are to be installed along a hedgerow approximately 250m to the south (see figure E3). These bat boxes will provide suitable alternative roosting locations for pipistrelle and brown long-eared bats and are connected to suitable foraging habitat to the south.

All roosts to be lost are of local conservation status, apart from the hibernation roost of one brown long eared bat (B1291) which could potentially be permanently abandoned due to fragmentation disturbance. The roosts all have small numbers of bats and the above mitigation (avoiding harm to bats and providing alternative roost locations) is deemed appropriate. In addition, all roosts to be disturbed are of local conservation status ~~apart from the hibernation roost of one brown long-eared bat in B1291 that is due to have potential fragmentation disturbance~~. In this case a bat box is the most appropriate mitigation in replicating the crevice feature on the outside of the building in which the bat was found to be hibernating. Therefore, the mitigation for disturbed bats (detailed in section E3.1) is also deemed appropriate.

Please confirm that you agree to undertake the following procedures for the capture and exclusion of bats, where these are applicable:

a. The use of endoscopes, artificial light from torches, destructive search by soft demolition (see Definitions), temporary obstruction of roost access, temporary or permanent exclusion methods (including installation) and use of static hand held nets must only be undertaken or directly supervised by the Named Ecologist, or an Accredited Agent.

b. Where capture and/or handling of bats are necessary, only the Named Ecologist, Accredited Agent, or an Assistant directly supervised by the Named Ecologist may do so. Capture/handling/exclusion of bats must only be undertaken in conditions suitable for bats to be active.

c. Where bats are discovered and taken (excluding unexpected discoveries during adverse weather conditions) they must either be relocated to an alternative roost (see Definitions) suitable for the species, or where bats are held this must be done safely and bats released on site at dusk in, or adjacent to, suitable foraging/ commuting habitat in safe areas within or directly adjacent to the pre-works habitat.

d. Endoscopes and hand held nets are only to be used to assist with the locating and capture of bats.

e. Temporary and permanent exclusion must be carried out using techniques specified in the most up to date edition of the ‘ ’. If one-way exclusion devices are to be used, each device must remain in position for a period of at least 5 consecutive days/ nights throughout a spell of suitable weather conditions, or remain longer until these conditions prevail.

f. Prior to destructive works, an inspection using torches and/or an endoscope must be performed internally to search for the presence of bats. If any licensed vesper bat species is found and is accessible, each will be captured by gloved hand or hand-held net, given a health check and then each placed carefully inside a draw-string, calico cloth holding bag or similar for transport. If any licensed horseshoe bat species is found, the capture methods outlined in (h) will only be used after it has been shown that overnight dispersal or exclusion are no longer practicable methods.

g. Following inspection and exclusion operations, the removal of any feature with bat roost potential, will be only performed by hand in suitable weather conditions and under direct ecological supervision. Where applicable, materials will be removed carefully away and not rolled or sprung to avoid potential harm to bats. The undersides of materials will be checked by the Named Ecologist or Accredited Agent for bats that may be clung to them before removal.

h. For sites where the presence of horseshoe species has been confirmed, the following exclusion method will be used: prior to work commencing, the Named Ecologist or Accredited Agent will conduct a thorough internal inspection for the presence of horseshoe bats. Only after the void is shown to be unoccupied will the destructive search commence, or all apertures into that void be closed and sealed (windows, doors, etc) by use of boarding, sealed tarpaulin or similar.

   If a horseshoe bat is encountered, it will be left undisturbed during daylight. After all bats have dispersed overnight, the void will be sealed as described above. If all bats have not emerged, the Named Ecologist will either use torchlight and non-tactile human presence to disturb the bat to encourage it to emerge and disperse, during night only, or through use of a hand held net. Only after all bats have emerged from the building or void will it be sealed.

Yes

Please use this text box to describe any additional information on protocols to be employed if bats are found during works. Non-standard capture and exclusion apparatus must be shown on .

Should your proposals include capture (taking) please specify numbers of each species that will be affected at the time the works are to be undertaken:

	. .
	One common pipistrelle may be captured and transported during the destructive search prior to the demolition of B1463.
	Five in total: Four soprano pipistrelle may be captured prior to the felling of T733 and one during the felling of T1149.
	One brown long-eared bat may be captured prior to the felling of tree T79.

Please detail how all impacts to each species (as identified in sections C and D) will be mitigated. If not applicable to your proposals please state 'N/A' in the relevant text boxes.

Please note that breathable roofing membranes must not be installed into a roof used by bats. If the use of roof membranes is necessary, only Bitumen type 1F felt with a hessian matrix will be permitted under licence:

N/A

emporary
. Provide details of all works including:

Number and description of roosts to be retained, with an explanation of how they will be retained. Confirm dimensions to be retained.

Only retained roosts deemed to have licensable levels of disturbance are considered in this section. A list of all roosts included in the licence are detailed in Section C7.

Of the roosts deemed to have licensable disturbance impacts upon them, there are 15 that will be retained (in ten buildings and one bridge). There will be no material changes to these roosts.

The 15 roosts that are being retained and have been identified as being vulnerable to significant disturbance from noise and habitat fragmentation, have specific mitigation explained below. Details on noise calculations are included in section D1 and D3.

Day roost for P. pygmaeus (x2). Structure demolition and sheet piling works approximately 50m away will result in a 1.6dB temporary noise level increase. Although this low noise increase may not disturb bats significantly, a bat box suitable for this species and roost type will be installed for mitigation approximately 100 – 150m away along a tree line to the southwest (see Figure E3).

Two day roosts - one for P. pipistrellus (x1) and one for P. pygmaeus (x1). Bridge demolition works approximately 15m south of the building will result in a 4.3dB temporary noise increase outside the roost. Following the works a decrease in noise levels of 1.5dB is predicted, decreasing noise levels at the roost. However, as mitigation for the potential temporary roost disturbance, it is proposed that two bat boxes suitable for these species and roost types are installed at the nearest suitable mitigation area, as shown on figure E3.

Day roost for P. pipistrellus (x1). Bridge joint and beam installation works at BE05, approximately 30m northwest of the roost at B339 will result in a 3.7dB temporary noise level increase. However, the roost was identified on the opposite side of the building to where works are being undertaken so it is assumed that works noise will be buffered by the building. As mitigation for the potential temporary roost disturbance, it is proposed that a bat box is installed at the nearest suitable mitigation area, as shown on figure E3.

Day roost P. pygmaeus (x1). The creation of borrow pits 80m west will result in a temporary 0.2dB noise level increase at building B631 which takes the noise level marginally above the 68dB precautionary disturbance threshold. Works on the borrow pits will only be undertaken in daylight hours so emerging and foraging bats will not be impacted. Additionally, whilst in the roost, the house materials will act as a sound dampener and will keep the noise level significantly below 68dB (within a residential property in theory protection levels up to approximately -40dB might be expected according to the guidance provided in BS8233:2014 'Guidance on Sound Insulation and Noise Reduction in Buildings'). Therefore, no significant disturbance to bats is anticipated at this roost location. For the purpose of this draft licence a licensable impact is assumed but due to the low likelihood of the impact occurring and the works temporary, no compensation is proposed.

Day roost for P. pipistrellus (x2). A permanent noise barrier will be installed approximately 20m northwest of B923, this will result in a 4.8dB temporary noise level increase. As the roost is in a residential area, there are multiple roosting opportunities that bats may utilise if the disturbance is too great. Following works, a -9.3dB change to noise levels is predicted, resulting in a positive impact to the roost. However, to mitigate for the potential noise impact during construction the installation of a bat box suitable for this species and roost type is proposed at the nearest suitable mitigation area as shown on Figure E3.

~~Day roost for P. pipistrellus (x2), hibernation roost for P. auritus (x1). The removal of sections of hedgerow and a small area of woodland to make way for a new road will result in the severance of most flightlines and sever fragmentation of foraging habitat. An overbridge is proposed approximately 100m south of B1291 which is not designed specifically for bats and will require lighting on its northern approach, but it will be vegetated on its embankments and may be used by bats to cross the road.~~

~~To mitigate for the fragmentation impacts, two bat boxes suitable for these species and roost types are to be installed along a hedgerow approximately 250m to the south (see figure E3). These bat boxes will provide suitable alternative roosting locations for pipistrelle and brown long-eared bats and are connected to suitable foraging habitat to the south.~~

- Both buildings are classified as day roosts for P. pygmaeus (B1392, P.pygmaeus x1, B1393, P. pygmaeus x 5). The construction of a footbridge, approximately 70m northwest of B1392, will cause a significant increase in noise. It is predicted that noise levels will increase by 2.5dB for B1392 and 1.2dB for B1393. Post-construction of the footbridge, operational noise levels will drop by 5dB for both buildings. This is because the main A12 carriageway will be moved further away. B1392 and B1393 are part of a group of seven buildings that have features suitable for roosting bats, identified through ground assessments. The other five buildings are not expected to be disturbed by construction noise. Four of these buildings were recorded as P. pygmaeus day roosts. It is likely these bats are part of the same colony and will use these roosts interchangeably. If they are disturbed at B1392 or B1393 by noise levels, there are other alternative roost sites to use nearby. Because of this, provision of alternative roosting habitat (e.g., bat boxes) in case of disturbance, is not thought to be required.

- Day roost P. pipistrellus (x3), and day roost P. pygmaeus (x1) - A new section of road will result in the severance of hedgerows and a row of trees to the south and east of the roosts. This vegetation is currently being used by bats as a flightline. A new overbridge is proposed approximately 600m south of the roost (BN11 Prested Hall overbridge) which will have vegetated embankments on the approach. , a 1.2m diameter pipe culvert (CL-24/CN-12) is proposed under the new road, approximately 200m east of the roost. Although neither the bridge nor culvert are specifically designed for bats, they may be used by bats to cross the road.

A number of hedgerows sections and treelines will be retained and there will still be some surrounding foraging habitat. Additionally, the bats found in the roosts are species that readily adapt to urban environments, and it is shown that they are resistant to disturbance by the fact the building they are roosting in is currently less than 10m from the existing A12 carriageway.

However, as a precaution, it is assumed that the roost ~~will become isolated.~~will be temporarily disturbed by the works. Therefore, to mitigate for the potential fragmentation impact caused, two bat boxes suitable for these species and roost types will be installed on mature trees approximately 440m south of B1522. These locations are situated south of the road and will provide suitable alternative roosting locations for the bats if they are disturbed by the works (see figure E3).

Day roost of P. pipistrellus (x3). Due to a new section of road, the hedgerow 100m to the south of the roost will be severed. This will fragment the roost from foraging habitat to the south. However, there is still approximately 3.5 hectares of suitable scrubland/woodland habitat directly north of the roost, and over a hectare of vegetated gardens across a field to the west (see figure E3). Nevertheless, ~~as mitigation~~as a precaution it is assumed that the roost could be temporarily disturbed by the works, so two bat boxes suitable for this species and roost type will be installed along a hedgerow south of the carriageway which is part of the permanent land take for the scheme (see

figure E3). Two bat boxes will be provided as the bats were found using different locations in the large residential building, so it was thought appropriate to provide two separate boxes in mitigation. The area surrounding this hedgerow will also be an ecological mitigation are so will have habitats enhanced for wildlife which will present foraging opportunities. These bat boxes will provide suitable alternative roosting habitat for pipistrelles, better connected to the wider habitat to the south, should the bats be disturbed from ~~cease to use~~ B1679 due to fragmentation.

Day roost of P. pipistrellus (x6), and day roost of P. pygmaeus (x2). These roosts are predicted to be potentially disturbed by construction noise and potentially vibration of certain works carried out on the road above. The roosts are situated underneath the bridge deck, along an underpass of the road (see figure C6 for details).

There is no physical widening of the bridge required, so the underside of the bridge deck will be untouched. However, both the outer parapets of the bridge and the central reserve on the road above will be demolished. The noise models have estimated that this will increase noise levels from 78.8dB to 80dB during construction. Additionally, these works may result in significant vibration that could disturb roosting bats. Therefore, temporary exclusion of roosting bats during these essential works is deemed appropriate. As the bridge has features that could be suitable for hibernating bats, the demolition works are to be carried out between May and September. Approximately two weeks prior to the demolition works described above, features suitable for roosting bats will be fully endoscoped to check for bats and if none are present, the feature will be temporarily blocked. If features cannot be fully endoscoped or bats are found, one-way excluders will be installed. One-way excluders will be left in place for a minimum of five nights with conditions suitable for bat activity before demolition works take place. Immediately prior to demolition works, the excluders and temporary blocks will be inspected to insure they are still functioning. Once demolition work is complete on the bridge, the soft block and one-way excluders will be removed to allow bats to return to the roosting features.

As the surrounding area consists of old residential housing, there are likely ample opportunities for bats to roost during construction work. However, as a precaution two suitable bat boxes will be installed approximately 40m north of the roost (in a small area of trees which is part of the permanent land take of the scheme) to provide suitable alternative roosting habitat for the two pipistrelle day roosts.

Number of access/entrance points to be retained and how this will be achieved. If enhancements to the roosts will be provided, such as through crevice provision, please detail.

N/A

Mitigation for any other impacts e.g. new lighting at the site.

The following measures will be finalised when an Environmental Management Plan is confirmed closer to construction.

Temporary construction stage lighting – Construction lighting will be provided in essential areas only. Artificial lighting required within bat activity periods will be directional and designed to ensure no significant light spill on to any identified commuting and foraging areas or roosting habitats.

Operational lighting design – The operational lighting design for the scheme is currently at an early stage of development. At this stage, a scheme-wide lighting assessment has been undertaken which has determined that lighting will only be required at the junctions, and not on the main carriageway, with handrail lighting also on the footbridges. Side roads are due to have some lighting. Overbridges and underbridges are not due to have lighting where the road itself is not planned to ~~already~~ be lit. LED luminaires are to be used which have a glare rating of G4 or higher, meaning they will be designed with zero tilt and therefore will produce no upward glare and minimal back light. The design will be carried out in accordance with the latest BS 5489 standard (British Standards Institution, 2020) and National Highways' specifications. The design would also take into consideration guidance notes

from the Institution of Lighting Professionals, including Guidance Note 1 for the Reduction of Obtrusive Light (2020) and Guidance Note 8 Bats and Artificial Lighting (2018).

Standard best practice for noise mitigation will be used during construction i.e., where possible, noisy plant / machinery will be placed away from noise sensitive receptors such as bat roosts. Additionally, noise will be mitigated at source where possible e.g., fully silenced acoustic enclosures will be used around generators in construction compounds.

Toolbox talks will be delivered to all site personnel to ensure they are aware of roost locations and construction restrictions (such as noise / lighting restrictions).

-

Please provide the following:

Dimension details of modified roosts: clearly state what the original roost dimensions were and what the dimensions of the modified roost will be.

N/A

Dimension details of modified access points: clearly state how the access points are being modified.

N/A

Details of any other modifications to be made to roosts.

N/A

Mitigation for any impacts of lighting on the modified roost/s if appropriate.

N/A

. For all other species and roost types please provide information under .

Select 'yes' for those species impacted or 'N/A' if not applicable to this application			
	Compensation should be in line with the . Where compensation is being provided, there should be at least , OR If a proposal impacts more than one bat species and / or roost type then cumulative impacts must be considered when designing the compensation; this should always be in line with the species and / or roost type which will be subject to the greatest impact and ensure that the requirements of all species impacted are met.		
			(as shown on Figure E3)

☒ Yes ☐ N/A	☒ Bat box ☐ Integrated bat box/ bat brick/ bat tube ☐ Bat tile (including ridge tile) ☐ Other (specify): ☐ None	11	☐ In same building ☐ In other existing building on site ☐ In new building ☒ Other (specify): Nearby suitable habitat away from potential disturbance from the scheme.
☒ Yes ☐ N/A	☒ Bat box ☐ Integrated bat box/ bat brick/ bat tube ☐ Bat tile (including ridge tile) ☐ Other (specify): ☐ None	12	☐ In same building ☐ In other existing building on site ☐ In new building ☐ Other (specify): Nearby suitable habitat away from potential disturbance from the scheme.
☐ Yes ☒ N/A	☐ Bat box ☐ Integrated bat box/ bat brick/ bat tube ☐ Bat tile (including ridge tile) ☐ Other (specify): ☐ None		☐ In same building ☐ In other existing building on site ☐ In new building ☐ Other (specify):
☐ Yes ☒ N/A	☐ Bat box ☐ Integrated bat box/ bat brick/ bat tube ☐ Bat tile (including ridge tile) ☐ Other (specify): ☐ None		☐ In same building ☐ In other existing building on site ☐ In new building ☐ Other (specify):
☐ Yes ☒ N/A	☐ Bat box ☐ Integrated bat box/ bat brick/ bat tube ☐ Bat tile (including ridge tile) ☐ Other (specify): ☐ None		☐ In same building ☐ In other existing building on site ☐ In new building ☐ Other (specify):
☐ Yes ☒ N/A	☐ Bat box ☐ Integrated bat box/ bat brick/ bat tube ☐ Bat tile (including ridge tile) ☐ Other (specify): ☐ None		☐ In same building ☐ In other existing building on site ☐ In new building ☐ Other (specify):
☒ Yes ☐ N/A	Note: boxes for this species will only be acceptable in certain circumstances, where this is justified on an ecological basis ☒ Bat box, justification T79 (x3) the roost to be mitigated is situated in a woodpecker hole. A bat box on a tree will closely replicate this type of feature. B1291 (x3) bat boxes in this instance replicates the roosting feature in which the bat was found wedged, in an exposed external crevice between a soffit box and an external wall. ☐ Other (specify): ☐ None	6	☐ In same building ☐ In other existing building on site ☐ In new building ☐ Other (specify): Nearby suitable habitat away from potential disturbance from the scheme.

☐ Yes ☒ N/A	Note: bat boxes are not suitable for this species. Compensation should replicate, as closely as possible, the existing roost: ☐ Bat tile ☐ Bat brick ☐ Other (specify):		☐ In same building ☐ In other existing building on site ☐ In new building ☐ Other (specify):
☐ Yes ☒ N/A	A proportionate number of bat features suitable for the species. The provision of one feature, suitable for the species concerned (eg void) per roost to be impacted will be considered appropriate: Specify:		☐ In same building ☐ In other existing building on site ☐ In new building ☐ Other (specify):

please provide the following:

New roost dimension details or features (to include bat tiles/boxes as applicable).

N/A All in table above

Access points and size of access points.

N/A

Location details (including an 8-figure grid reference for bat houses or bat lofts relating to the structure. 8-figure grid references are not required for positions of individual boxes, tiles etc).

N/A

Aspect. Explain how the internal conditions of the roost will be created.

N/A

Details of the materials to be used e.g. timber, sarking, felt etc.

N/A

Justification for any variation from the original roost and/or deviations from recommendations in the Bat Mitigation Guidelines. (

).

N/A

Mitigation for any impacts of lighting if appropriate.

N/A

Structures for access for monitoring / maintenance purposes (if applicable)

N/A

(e.g. retention of existing flight lines, retention or creation of appropriate vegetation around roost entrances where applicable) – please include details of:

Habitat replacement (following works resulting in temporary impacts) or creation not covered by sections E2 to E3 such as hedgerow/woodland planting or enhancement. State the length of hedgerow planting and areas (ha) of other planting to be provided such as woodland and anticipated establishment period etc.

For more detail, please see Appendix 9.14 of the ES, biodiversity net gain report (National Highways 2022, [TR010060/APP/6.3]) which sets out the overall net gain of habitats following implementation of the Environment Masterplan.

42.30 hectares
26.3 kilometres
200.11 hectares

Creation of flight lines/routes of connectivity.

Overbridges in the offline sections are being designed to maximise their use by bats. The embankments leading up to these overbridges will be planted with dense tree lines/hedgerows (see figure E3).

Foraging area enhancements, etc

Areas of habitats suitable for bat foraging will be increased across the scheme including for woodland, hedgerows, grassland and shrub as shown with the net gain figures above. In addition to this wildlife and attenuation ponds for drainage will be created across the scheme which will provide further foraging opportunities for bats.

Mitigation for any impacts of lighting if appropriate.

Temporary construction stage lighting – Construction lighting will be provided in essential areas only. Artificial lighting required within bat activity periods will be directional and designed to ensure no significant light spill on to any identified commuting and foraging areas or roosting habitats.

Operational lighting design – At this stage, a scheme-wide lighting assessment has been undertaken which has determined that lighting would only be required at the junctions, and not on the mainline. Side roads are due to have some lighting and there will be handrail lighting on footbridges. Overbridges and underbridges are not due to have lighting where the road itself is not planned to already be lit. LED luminaires are to be used which have a glare rating of G4 or higher, meaning they will be designed with zero tilt and therefore will produce no upward glare and minimal back light. The design will be carried out in accordance with the latest BS 5489 standard (British Standards Institution, 2020) and National Highways' specifications. The design would also take into consideration guidance notes from the Institution of Lighting Professionals, including Guidance Note 1 for the Reduction of Obtrusive Light (2020) and Guidance Note 8 Bats and Artificial Lighting (2018).

Please indicate if enhancements, over and above what is necessary to mitigate the impact of the activity of the licence proposal, are being provided. Please indicate if enhancements are included to satisfy the requirement of a planning permission, and if so state the relevant planning condition, or other consents in your response below. Please also state if an applicant wishes to provide more than is typically required to mitigate for the impacts. Enter N/A if this is not applicable to your application.
:

.

Biodiversity net gain has been calculated using the Natural England Metric 3.0 calculation tool to assess biodiversity unit change for area-based habitats, hedgerows and rivers and streams. The forecast biodiversity unit change for each of the three types of biodiversity units assessed is as follows:

- Habitats: 633.58 (25.01%)
- Hedgerows: 152.70 units (36.06%)
- Rivers and streams: 147.47 units (157.13%)

Enhancements for bats would include:

- Provision of bat roosting boxes (over and above the numbers required for mitigating confirmed bat roosts and losses of trees with bat roost potential) suitable for supporting roosts of various species. These would range from summer roosts for low numbers of non-breeding male crevice-dwelling species (e.g., common pipistrelle) to larger boxes suitable for maternity roosts, and hibernation boxes.
- Creation of a bat hibernacula within an advanced ecology mitigation area to provide new hibernation habitat for the local bat population.

Enhancements for other protected species are detailed within the ES (National Highways 2022 [TR010060/APP/6.1]).

of mitigation/compensation must be provided as separate maps/figures (also
:

if non-standard capture and exclusion apparatus is proposed please include diagrams/photographs.

to show specifications for mitigation / compensation to be provided and annotate where it will be provided. Should the scheme be large or complicated it may be necessary to submit more than one figure.

NOTE: It must be possible to compare these with the survey results plan ( ) and 'Impacts' Figure (.

Further guidance and explanation on post-development monitoring requirements are included within our 'How to get a licence' document http://www.naturalengland.org.uk/Images/wml-g12_tcm6-4116.pdf. Also see Section 8.7 of the Bat Mitigation Guidelines.

Is any specific post-development habitat management and site maintenance planned? If 'No; state 'N/A'. If 'Yes' include the following:

The period (years and months) for which habitat management and maintenance will take place. Ensure that this is consistent with the post development works detailed in section of the
.

Details of what will be undertaken in terms of site maintenance required to ensure long-term security of the affected population (e.g. maintain, repair or reinstate access points; maintain and repair heaters and /or data loggers; maintain, repair or restore bat feature / bat loft in good condition; repair or replace inspection hatches; management and maintenance of lighting regime, or bat boxes etc).

The ~~25~~29 bat boxes to be installed as part of mitigation on this licence (see figure E3) will all be maintained on the following schedule. They are to be maintained 1 year after installation, then in year 1 and year 3 after the scheme is operational. The bat boxes have a design life of at least 10 years.

Details of what will be undertaken in terms of habitat management (e.g. planting cover around roost structure, hedgerow management regime, checking establishment of habitat creation; reduction of shade around roosts, woodland management to maintain species and structural diversity etc). Ensure this relates to the relevant map.

REAC commitment LV17 states '

(commitment LV SM 17, REAC [TR010060/APP/6.5]).

Monitoring of the new habitats and planting would be required annually for the first five years post creation to identify any further work or remedial measures needed to deliver the landscape and habitat types committed to, and the appropriate level of mitigation. The management and maintenance plan for each habitat or landscape feature may require annual changes to help establishment. When the

habitat is considered established, then standard highway soft estate management and maintenance practices can commence (usually after year 5). Monitoring may be required beyond this five-year period if habitats have not established sufficiently, less frequent over time, until target habitats are considered to be successful.

Management of habitats beyond the first five years would be the responsibility of National Highways agents.

for phased or multi-plot developments a separate habitat management and maintenance plan is required, which must be submitted with the master plan: see guidance on phased developments.

Please include as a separate figure to show which structures and habitats will be managed, maintained and monitored post development as part of your proposal – also
.

: This should be in line with the monitoring requirements detailed in the Bat Mitigation Guidelines section 8.7 and Figure 4.

Please complete the table below for the species and roost types listed. For all other species and roost types please provide information under E4.2b.

		☐ None. There is no post-development requirement for proposals affecting bat roosts supporting up to any 3 species indicated, of the roost types listed, where they are used by low numbers of each species. ☐ A single presence / absence survey at an appropriate time of year is to be undertaken. This should not take place in the first year following completion of development. Timing (year): ☒ Other (specify): see section E4.2b
		☐ A single presence / absence survey at an appropriate time of year is to be undertaken. This should not take place in the first year following completion of development. Timing (year): ☐ Other (specify):
		☐ A single presence or absence survey at an appropriate time of year to be undertaken in year 2 post development plus a check of the condition and suitability of the roost. ☐ Other (specify):

include details of:
Timing – state the years and months post development monitoring or other will be undertaken. Ensure that is consistent with the post development works detailed in section of the
.

Bat boxes will be monitored in the month of September during construction one year after they are installed and then in year 1 and year 3 post construction.

The type of monitoring which will be undertaken – include survey methods and equipment to be used. If it is expected any bats are to be taken or disturbed during this period please state anticipated numbers per species against each licensable activity.

Bat box monitoring will be a daytime check of bat boxes, this will entail either use of a ladder or if more appropriate tree climbing equipment, and then either an endoscope/torch to check the box if feasible, or a full inspection involving opening the box if required. Boxes will also be cleaned out using a brush if required.

Specify which compensation/mitigation measures will be subject to monitoring (as referenced on Figure E4).

B1463 - 3 x bat box installed for loss of day roost (1 x P. pipistrellus).

T1149 - 3 x bat box installed for loss of day roost (1 x P. pygmaeus.).

T79 - 3 x bat box installed for loss of day roost (1 x P. auritus).

T733 - 3 x bat box installed for loss of day roost (4 x pygmaeus).

B1679 - 2 x bat boxes installed for potential fragmentation disturbance of day roost (3 x P. pipistrellus)

B1291 - ~~2~~6 x bat boxes installed for potential fragmentation disturbance of one day roost (1 x P. pipistrellus) and one hibernation roost (1 x P. auritus)

B107 - 1 x bat box installed for potential construction and operational noise disturbance of day roost (2 x pygmaeus).

B118 - 2 x bat boxes installed for the potential construction noise disturbance of two day roosts (1x P. pipistrellus and 1 x pygmaeus)

B339 - 1 x bat box installed for potential construction noise disturbance of day roost (1 x P. pipistrellus).

BE11 - 2 x bat box for construction noise and temporary exclusion of two day roosts (6 x P. pipistrellus, 2 x pygmaeus)

B923 - 1 x bat box installed for potential construction noise disturbance of day roost (2 x P. pipistrellus)

B1522 - 2 x bat boxes installed for potential fragmentation disturbance of two day roosts (3 x P. pipistrellus, 1 x pygmaeus)

Please note that it will be a requirement of the licence to undertake remedial action should monitoring identify that further management/maintenance is required of any compensation/mitigation provided, to ensure that mitigation/compensation measures are working effectively and are fit for purpose.

Please always consider whether any monitoring effort should be staggered over alternate years in cases where use of the compensation measures may not occur in the same year of provision.

Please explain what mechanism is in place to ensure safeguard of mitigation/compensation provisions (e.g. Restrictive Covenant, clause to relinquish future development rights in S106 agreement, NERC Act agreement, explicit recognition of site in local planning documents, designation as County Wildlife Site or similar.) The need for this, and the type of mechanism, will vary with the scheme and impact. For substantial impact schemes (e.g. destruction of a significant maternity roost, or important hibernation site), some mechanism is always required. If you offer no specific mechanism, explain how you believe the population will be free of threats as far as can be reasonably determined ( ).

All mitigation / compensation provisions will be secured through the Register of Environmental Actions and Commitments [APP-185] within the first iteration Environmental Management Plan (National Highways 2022 [APP-184].

The environmental management plan would be updated in line with the final bat licence application following pre-construction surveys.

~~25~~29 compensation bat boxes are to be installed on land to be bought by National Highways.

Explain how all post-development works (management, maintenance (including remedial action) and monitoring, as appropriate) will be ensured? Include a commitment that the monitoring, habitat management and maintenance work will be undertaken. Mechanism/s for ensuring delivery must be in place before applying for a licence (also see Section F).

All post-development management, maintenance and monitoring will be secured through the Register of Environmental Actions and Commitments [APP-185] within the first iteration Environmental Management Plan (National Highways 2022 [APP-184].

Please complete the

If the mitigation/compensation area/s is/are not owned by the applicant, you must have consent from the relevant land owner(s). You must have also secured details of how any measures to maintain the population in the long term will be achieved (e.g. a legal agreement).

I confirm that relevant landowner consent/s has/have been granted to accept bats into roosts or access into roosts on land outside the applicant's ownership:

N/A

I confirm that landownership consent/s has/have been granted to allow the creation of the proposed compensation on land outside the applicant's ownership

N/A

- I confirm that consent/s has/have been granted by the relevant landowner/s for monitoring, management and maintenance purposes on land outside the applicant's ownership

N/A

Comments if applicable:

Unsecured consents statement:

If you have been unable to secure consents for any of the three declarations please explain why and detail any plans you have in place to obtain the consent(s) or provide details of any right(s) or agreement(s) that will enable the lawful implementation of the proposed mitigation, compensation and monitoring. Failure to provide the appropriate landowner consents means that the Method Statement is unlikely to meet the requirements for the FCS test to be met. It is therefore in your interest to ensure that the appropriate consents have been secured applying for a licence.

Pre-existing survey reports;

Raw survey data.

Note that some can be included within the Method Statement itself (if preferred) and others must be submitted individually (i.e. separate documents) Maps/Figures must include the title, site name as referenced on your application form, date and figure reference. If a grid reference is more applicable (e.g. a bat house is being provided please included this). Include a scale bar (appropriate to the situation e.g. 100m on site maps, 1km on location maps) and direction of North etc.

Additional maps, photographs or diagrams should be included where necessary to adequately explain the scheme.

	-	Yes, if the application is part of a phased or multi-plot development	note – this is not the same as a master plan document, for which you should follow the guidance as stated in section B2.1.
	-	Yes, if applicable	
	-	Yes	at an appropriate scale for the application (often 1:50,000 or 1:25,000)
	-	Yes	showing all buildings, structures and habitats that are within the survey area and distinguishing those that were surveyed and those that were not. Indicate where surveyors were located for each of the surveys and their respective field of view. Aerial photographs should be provided where possible (ensure you have permission to use copy righted maps). If automated detectors and/or transect routes were used, ensure that these are indicated (as appropriate).
	-	Yes	provide clear, annotated and cross-referenced maps/plans/photographs to show the survey results (access points, location of roosts, flight lines, results of activity surveys where DNA samples were taken etc). Ensure the Figure is at a suitable scale to show the results. If presenting multiple survey results on a single Figure, ensure the results are clearly differentiated.
			map/figure which must show all structures or habitats (clearly referenced) that will be disturbed, damaged or destroyed, detailing where the roosts and access points are.
	– but only if applicable to the application		If these are proposed please include diagrams/photographs.
			(including all dimensions for bat lofts/houses/stand-alone structures and materials to be used etc and 8-figure grid reference). Mitigation / compensation (must show all habitat creation, restoration, boxes). It

			may be necessary to submit more than 1 figure if the proposal is large or complicated.
	– when monitoring and maintenance will be included in the licence		Please indicate the specific structures and habitat that are to be managed, maintained and monitored as part of this licence proposal. Ensure that they are correctly referenced and are consistent with other parts of the Method Statement and figures.

a. : a place where individual bats, or small groups of males, rest or shelter in the day but are rarely found by night in the summer.

b. : a place where bats rest or shelter in the night but are rarely found in the day. May be used by a single individual on occasion or it could be used regularly by the whole colony.

c. : a place where individual bats or a few individuals rest or feed during the night but are rarely present by day.

d. : used by a few individuals or occasionally small groups for generally short periods of time on waking from hibernation or in the period prior to hibernation.

e. : where large numbers of males and females gather during late summer to autumn. Appear to be important mating sites

f. : sites where mating takes place from later summer and can continue through winter.

g. : where female bats give birth and raise their young to independence.

h. : where bats may be found individually or together during winter. They have a constant cool temperature and high humidity. Sites where hibernating bats have been confirmed by appropriate survey effort should be classed as ‘ ’.

i. : an alternative roost found in close proximity to the main nursery colony used by a few individual breeding females to small groups of breeding females throughout the breeding season.

– please explain what the roost type is if not one of the above (we recognise that roost types are interchangable and not always easy to classify according to the nuances of certain species).

An shall include: a purposely installed bat box; an existing roost which will not be impacted by the works; or other new/enhanced roosting opportunities. Any alternative roost must be suitable for the species, within or close to the existing roost and free from additional disturbance or development pressure.

Barber JR, Crooks KR, Fristrup KM. (2009) The costs of chronic noise exposure for terrestrial organisms. Trends Ecol Evol. 2010 Mar; 25(3):180-9. doi: 10.1016/j.tree.2009.08.002.

Bennett, Tory & Zurcher, Arthur. (2013). When Corridors Collide: Road-Related Disturbance in Commuting Bats. The Journal of Wildlife Management. 77. 93-101. 10.2307/23361316.

Berthinussen, A., and Altringham, J. (2015). WC1060 Development of a cost-effective method for monitoring the effectiveness of mitigation for bats crossing linear transport infrastructure. University of Leeds, Leeds LS2 9JT.

Finch, D., Schofield, H. and Mathews, F. (2020). Traffic noise playback reduces the activity and feeding behaviour of free-living bats. , , p.114405.

Geipel, Inga & Lattenkamp, Ella & Dixon, Marjorie & Wiegrebe, Lutz & Page, Rachel. (2021). Hearing sensitivity: An underlying mechanism for niche differentiation in gleaning bats. Proceedings of the National Academy of Sciences. 118. e2024943118. 10.1073/pnas.2024943118.

Russ, Jon & Jones, Gareth & Racey, Paul. (2005). Responses of soprano pipistrelles, Pipistrellus pygmaeus, to their experimentally modified distress calls. Animal Behaviour. 70. 397-404. 10.1016/j.anbehav.2004.11.006.

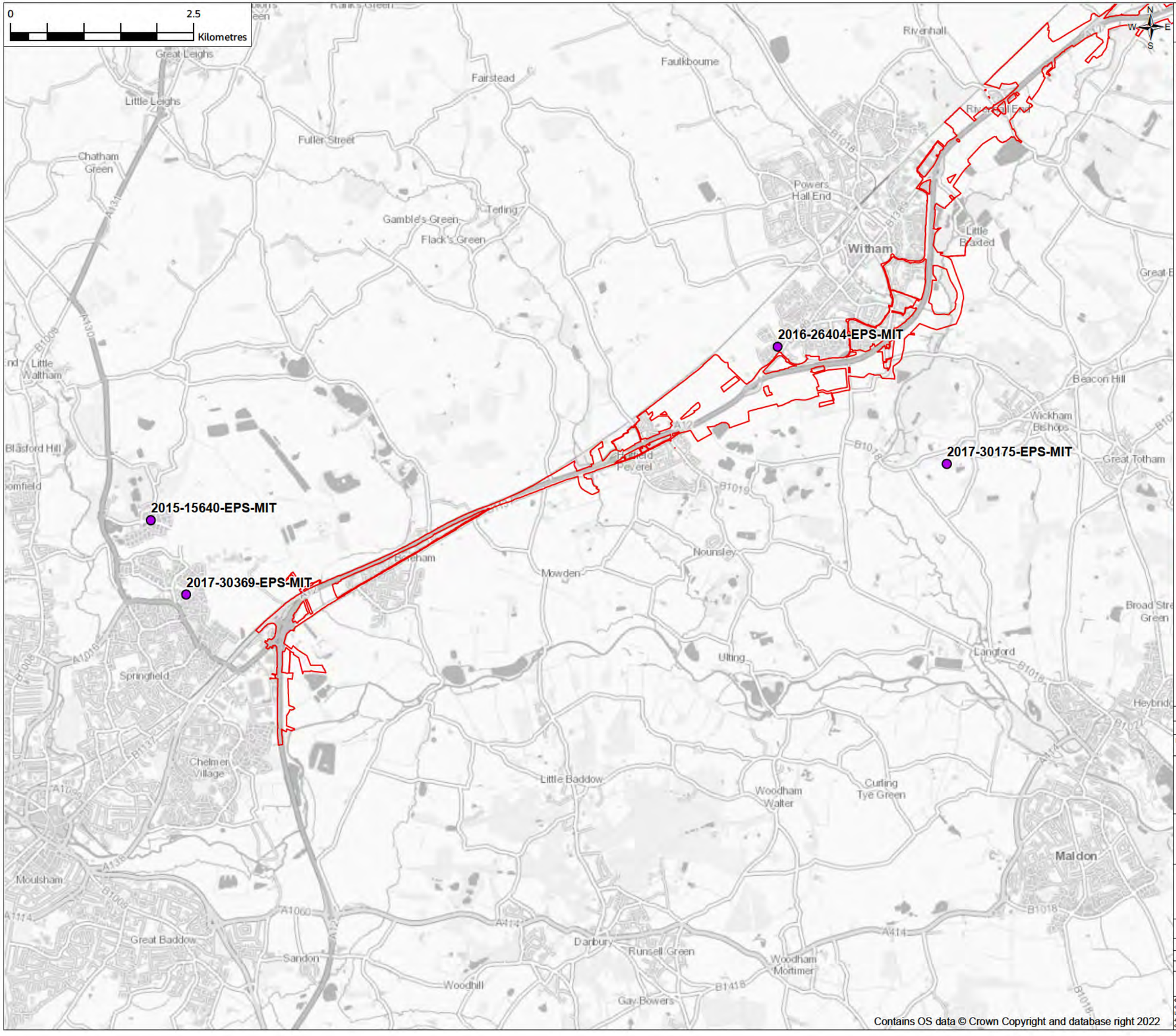
Lattenkamp, E. Z., Nagy, M., Drexl, M., Vernes, S. C., Wiegrebe, L., & Knörnschild, M. (2021). Hearing sensitivity and amplitude coding in bats are differentially shaped by echolocation calls and social calls. Proceedings. Biological sciences, 288(1942), 20202600. https://doi.org/10.1098/rspb.2020.2600

Luo J, Siemers BM, Koselj K. (2015). How anthropogenic noise affects foraging. Glob Chang Biol. 2015 Sep;21(9):3278-89. doi: 10.1111/gcb.12997.

Schaub, A., Ostwald, J., & Siemers, B.M. (2008). Foraging bats avoid noise. , 3174 - 3180.

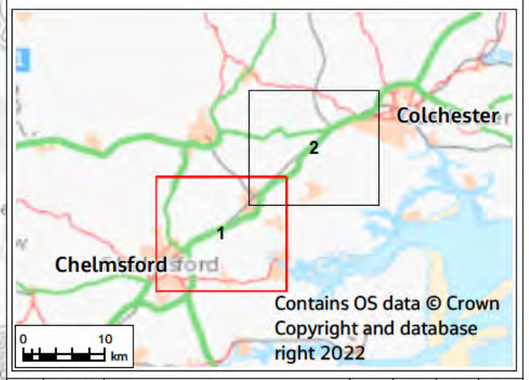
Siemers, B.M & Schaub, A. (2010). Hunting at the highway: Traffic noise reduces foraging efficiency in acoustic predators. Proceedings. Biological sciences / The Royal Society. 278. 1646-52. 10.1098/rspb.2010.2262.

FIGURE B2.2



Legend

- Order Limits
- Bat licences within the last 5 years that are within 2km of the scheme



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P00	19/07/22	For DCO application	ML	LW	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

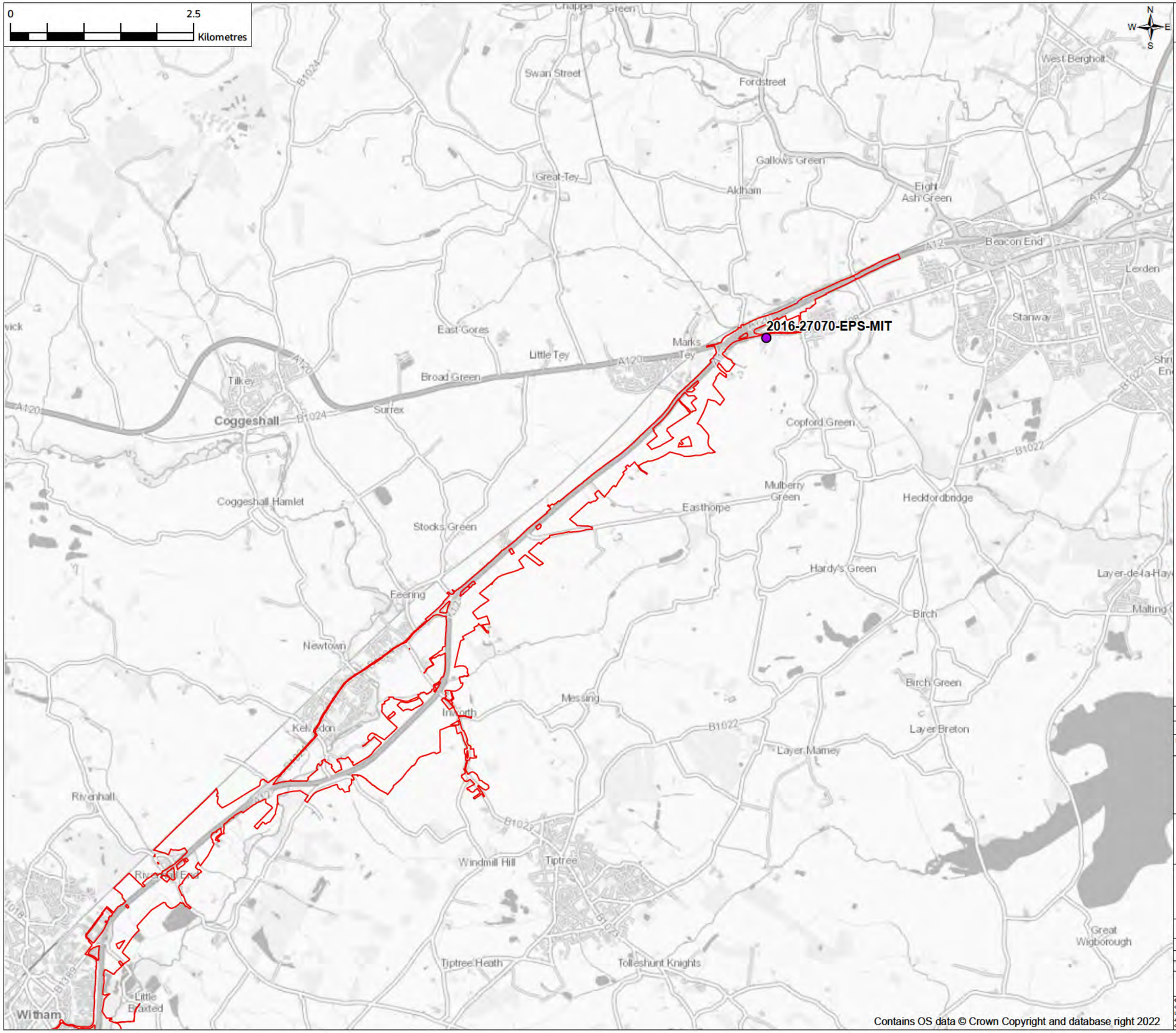
Drawing Title: A12 BAT LICENCE
LOCATIONS OF BAT LICENSED SITES WITHIN 2KM OF THE SCHEME FROM THE LAST 5 YEARS
SHEET 1 OF 2

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:50000	DO NOT SCALE
Jacobs No.	B36601D1	Rev P00
Client No.	HE551497	

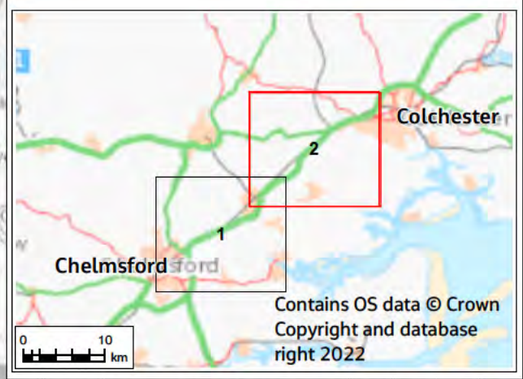
Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0491

FIGURE B2.2



Legend

- Order Limits
- Bat licences within the last 5 years that are within 2km of the scheme



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P00	19/07/22	For DCO application	ML	LW	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE
LOCATIONS OF BAT LICENSED SITES WITHIN 2KM OF THE SCHEME FROM THE LAST 5 YEARS
SHEET 2 OF 2

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

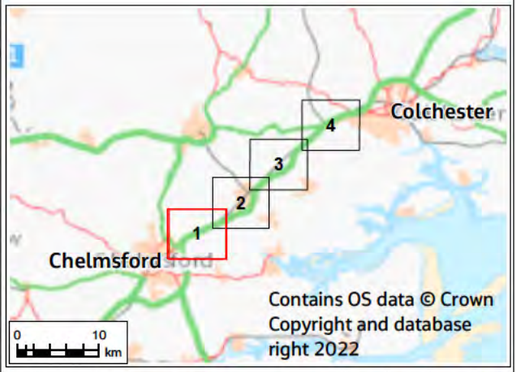
Scale @ A3	1:50000		DO NOT SCALE
Jacobs No.	B36601D1		
Client No.	HE551497	Rev	P00

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0492

FIGURE C5a

Legend

Order Limits



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Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE
LOCATION MAP
SHEET 1 OF 4

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:25000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P00

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0493

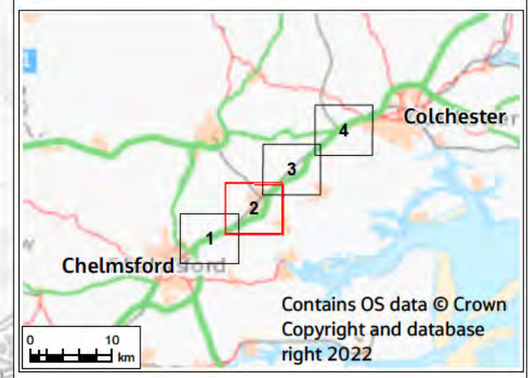
FIGURE C5a

0 0.5 Kilometres

N W E S

Legend

Order Limits



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Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE
LOCATION MAP
SHEET 2 OF 4

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

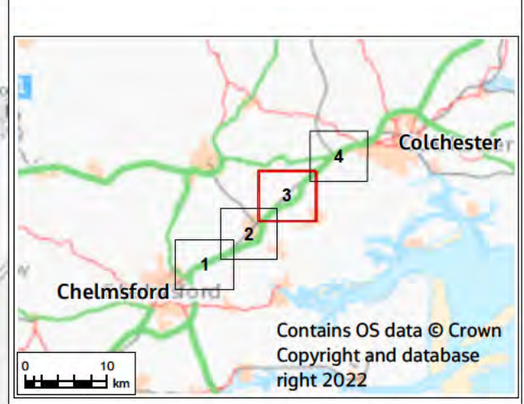
Scale @ A3	1:25000		DO NOT SCALE
Jacobs No.	B36601D1	Rev	P00
Client No.	HE551497		

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0494

FIGURE C5a

Legend

Order Limits



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P00	19/07/22	For DCO application	ML	LW	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE
LOCATION MAP
SHEET 3 OF 4

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

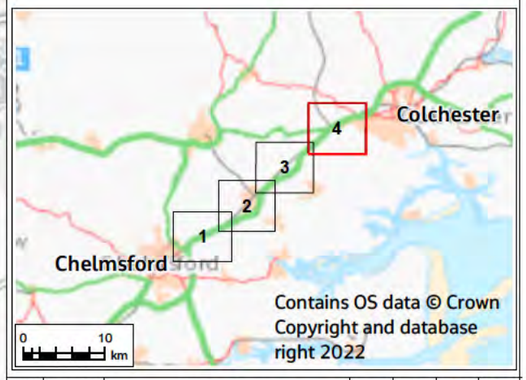
Scale @ A3	1:25000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P00

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0495

FIGURE C5a

Legend

Order Limits



P00	19/07/22	For DCO application	ML	LW	NP	SG
Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE
LOCATION MAP
SHEET 4 OF 4

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:25000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P00

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0496

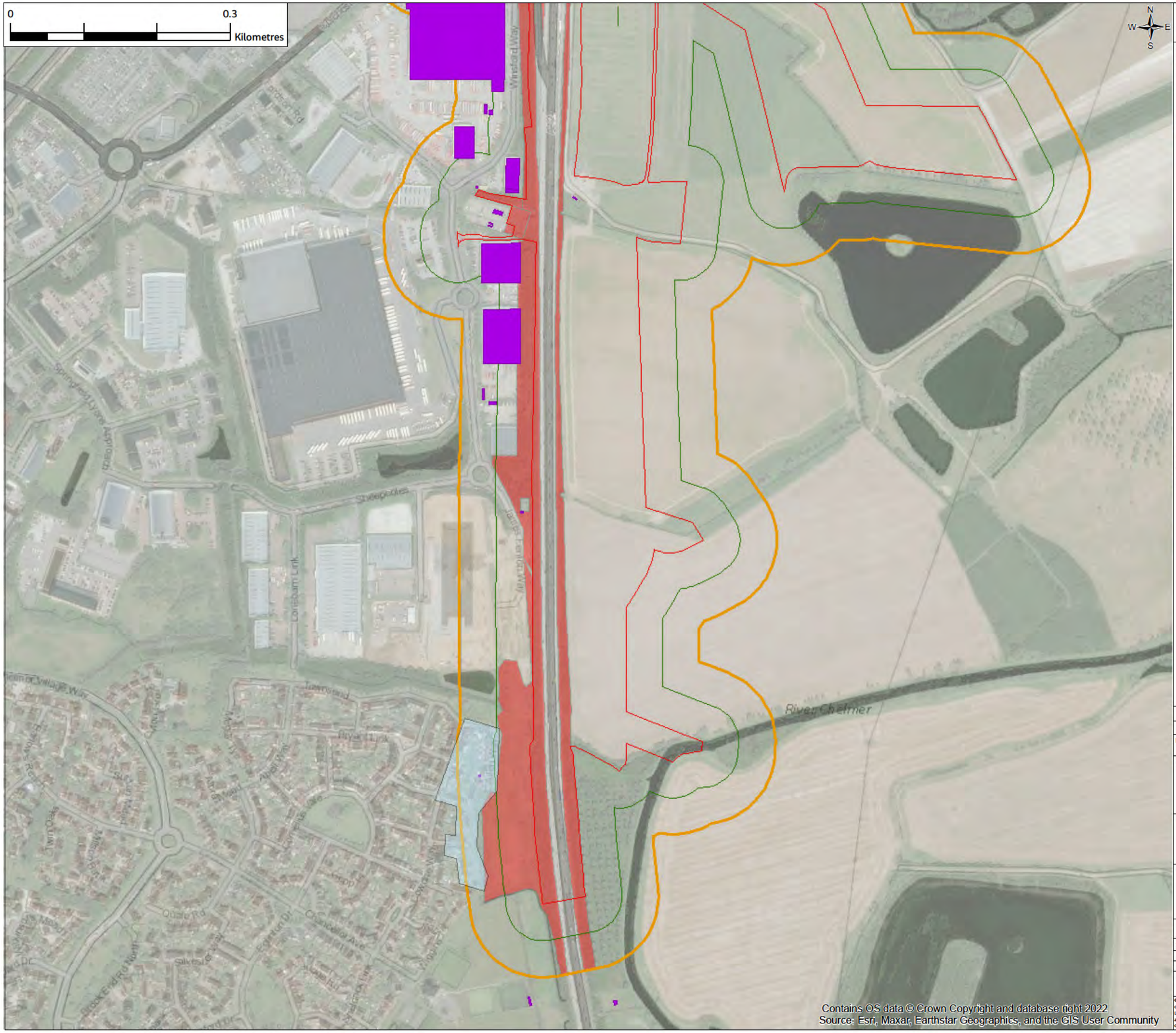
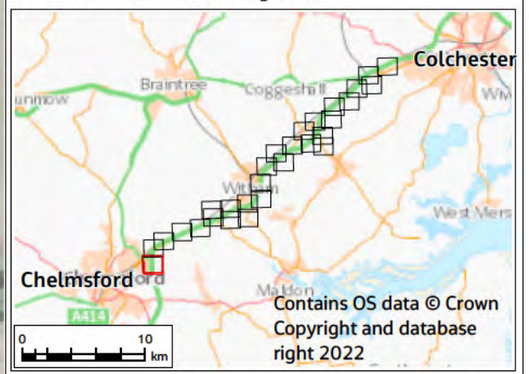


FIGURE C5b

Legend

- Order Limits
- 50m buffer
- 100m buffer
- Structures assessed for bat suitability
- Trees recorded as having low, moderate, high or confirmed roost bat suitability
- Backtracking survey area (group assessment of buildings and subsequent further backtracking surveys if required)
- Buildings that were individually ground assessed and subject to further survey if required
- Mapped buildings not surveyed or ground assessed (except if they are inside a backtracking area, see above)
- Areas of trees not surveyed (due to H&S constraints or land access issues)

Note:
Due to the number of features surveyed, surveyor locations will be shown for the roosts on figure C6



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P00	19/07/22	For DCO application	ML	OB	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3	APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

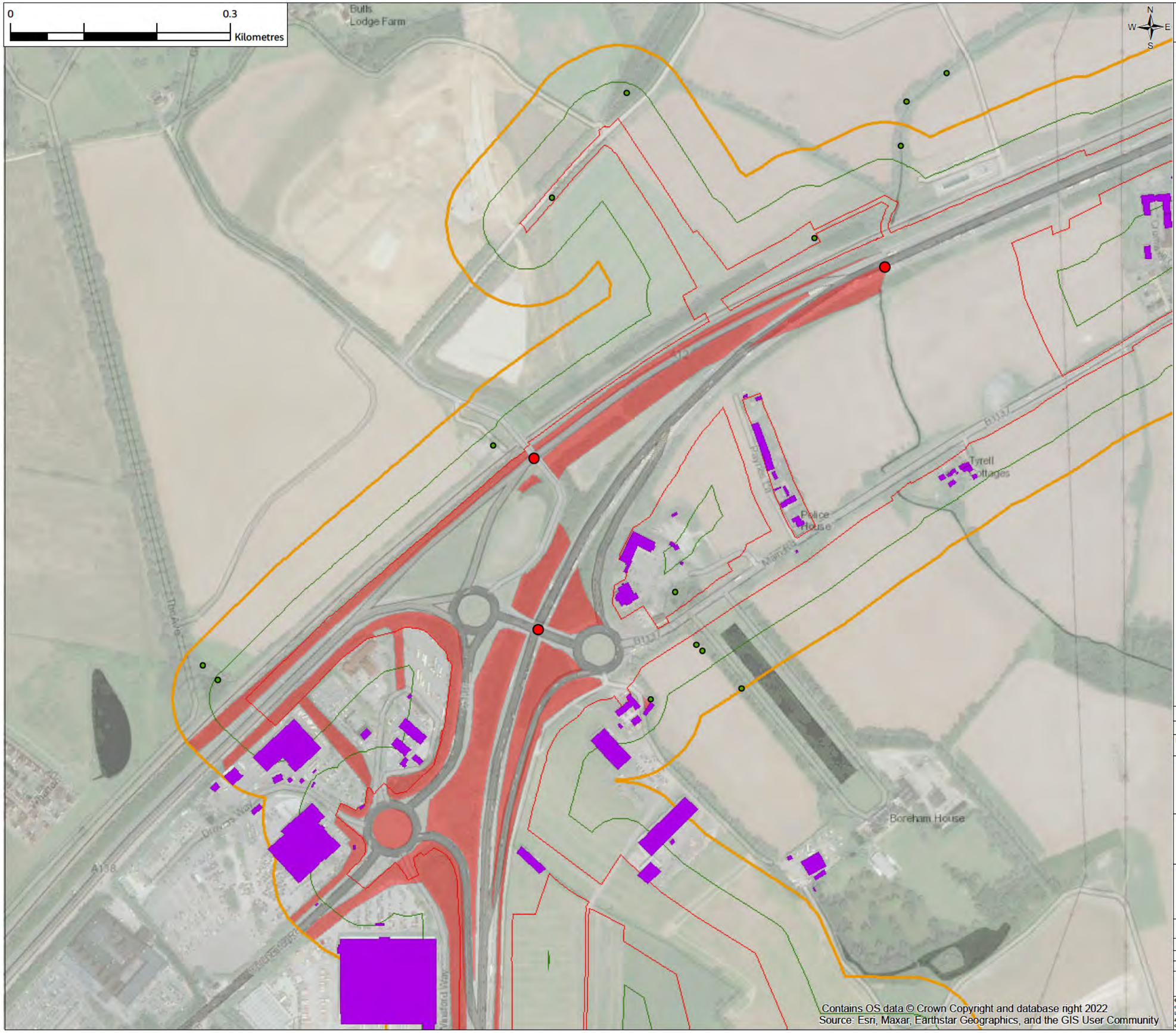
Drawing Title: A12 BAT LICENCE
SURVEY AREA
SHEET 1 OF 29

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P00

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0497

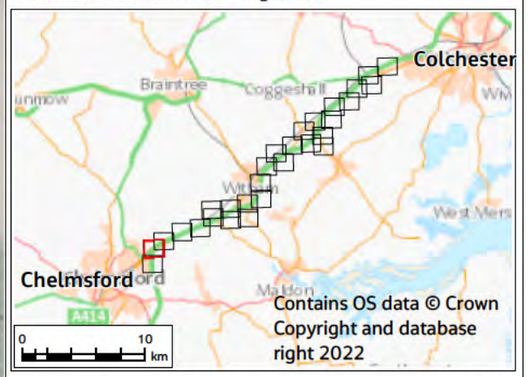
FIGURE C5b



Legend

- Order Limits
- 50m buffer
- 100m buffer
- Structures assessed for bat suitability
- Trees recorded as having low, moderate, high or confirmed roost bat suitability
- Backtracking survey area (group assessment of buildings and subsequent further backtracking surveys if required)
- Buildings that were individually ground assessed and subject to further survey if required
- Mapped buildings not surveyed or ground assessed (except if they are inside a backtracking area, see above)
- Areas of trees not surveyed (due to H&S constraints or land access issues)

Note:
Due to the number of features surveyed, surveyor locations will be shown for the roosts on figure C6



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P00	19/07/22	For DCO application	ML	OB	NP	SG

Development Consent Order Drawing Number:	TR010060/APP/6.3
APFP Regulation:	Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE SURVEY AREA SHEET 2 OF 29

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P00

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0498

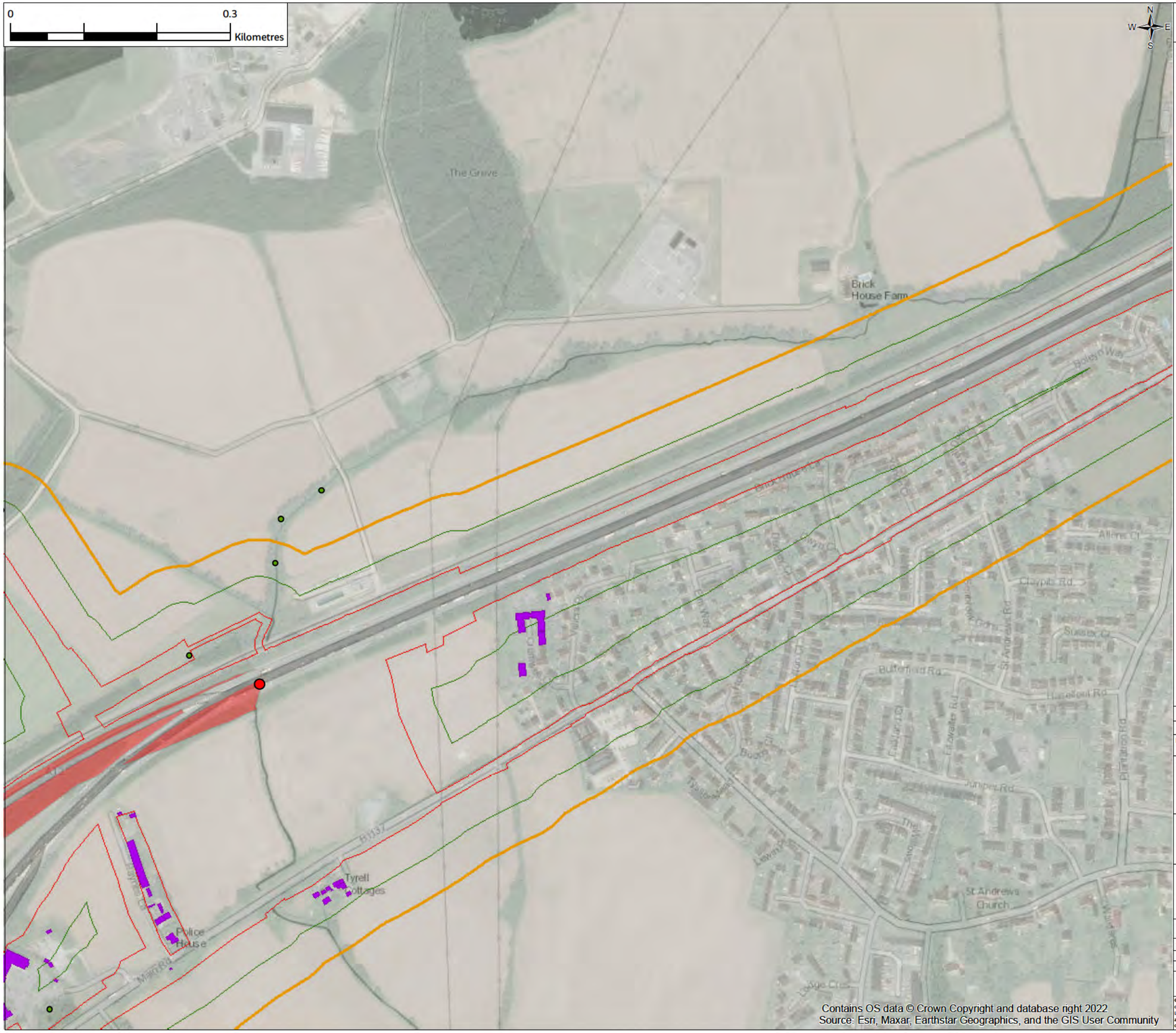
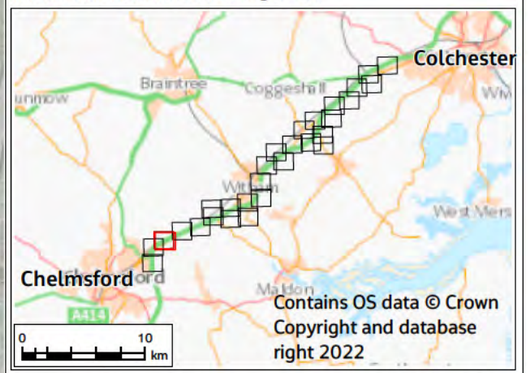


FIGURE C5b

Legend

- Order Limits
- 50m buffer
- 100m buffer
- Structures assessed for bat suitability
- Trees recorded as having low, moderate, high or confirmed roost bat suitability
- Backtracking survey area (group assessment of buildings and subsequent further backtracking surveys if required)
- Buildings that were individually ground assessed and subject to further survey if required
- Mapped buildings not surveyed or ground assessed (except if they are inside a backtracking area, see above)
- Areas of trees not surveyed (due to H&S constraints or land access issues)

Note:
Due to the number of features surveyed, surveyor locations will be shown for the roosts on figure C6



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P00	19/07/22	For DCO application	ML	OB	NP	SG

Development Consent Order Drawing Number:	TR010060/APP/6.3
APFP Regulation:	Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE
SURVEY AREA
SHEET 3 OF 29

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE	
Jacobs No.	B36601D1		
Client No.	HE551497	Rev	P00

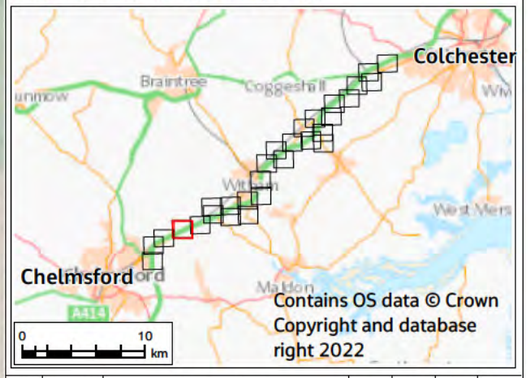
Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0499

FIGURE C5b

Legend

- Order Limits
- 50m buffer
- 100m buffer
- Structures assessed for bat suitability
- Trees recorded as having low, moderate, high or confirmed roost bat suitability
- Backtracking survey area (group assessment of buildings and subsequent further backtracking surveys if required)
- Buildings that were individually ground assessed and subject to further survey if required
- Mapped buildings not surveyed or ground assessed (except if they are inside a backtracking area, see above)
- Areas of trees not surveyed (due to H&S constraints or land access issues)

Note:
Due to the number of features surveyed, surveyor locations will be shown for the roosts on figure C6



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P00	19/07/22	For DCO application	ML	OB	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE
SURVEY AREA
SHEET 4 OF 29

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P00

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0500

FIGURE C5b

0 0.3 Kilometres

N W E S

B118

B107

T733

Berwick Farm

Crix

Crix Corner Cottage

Woodhouse

Spitman's Garden

Brewhouse Wood

Bishop's Wood

Sandpit Wood

River Ter

Hatfield Place

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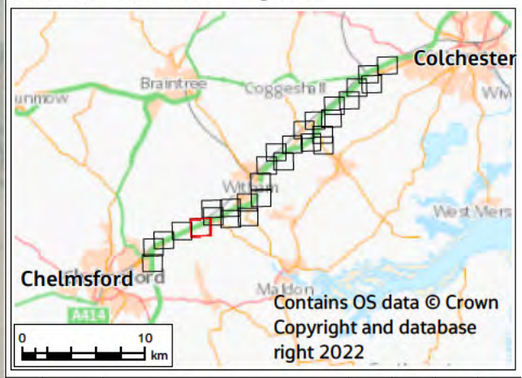
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Legend

- Order Limits
- 50m buffer
- 100m buffer
- Structures assessed for bat suitability
- Trees recorded as having low, moderate, high or confirmed roost bat suitability
- Backtracking survey area (group assessment of buildings and subsequent further backtracking surveys if required)
- Buildings that were individually ground assessed and subject to further survey if required
- Mapped buildings not surveyed or ground assessed (except if they are inside a backtracking area, see above)
- Areas of trees not surveyed (due to H&S constraints or land access issues)

Note:
Due to the number of features surveyed, surveyor locations will be shown for the roosts on figure C6



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P00	19/07/22	For DCO application	ML	OB	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE SURVEY AREA SHEET 5 OF 29

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P00

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0501

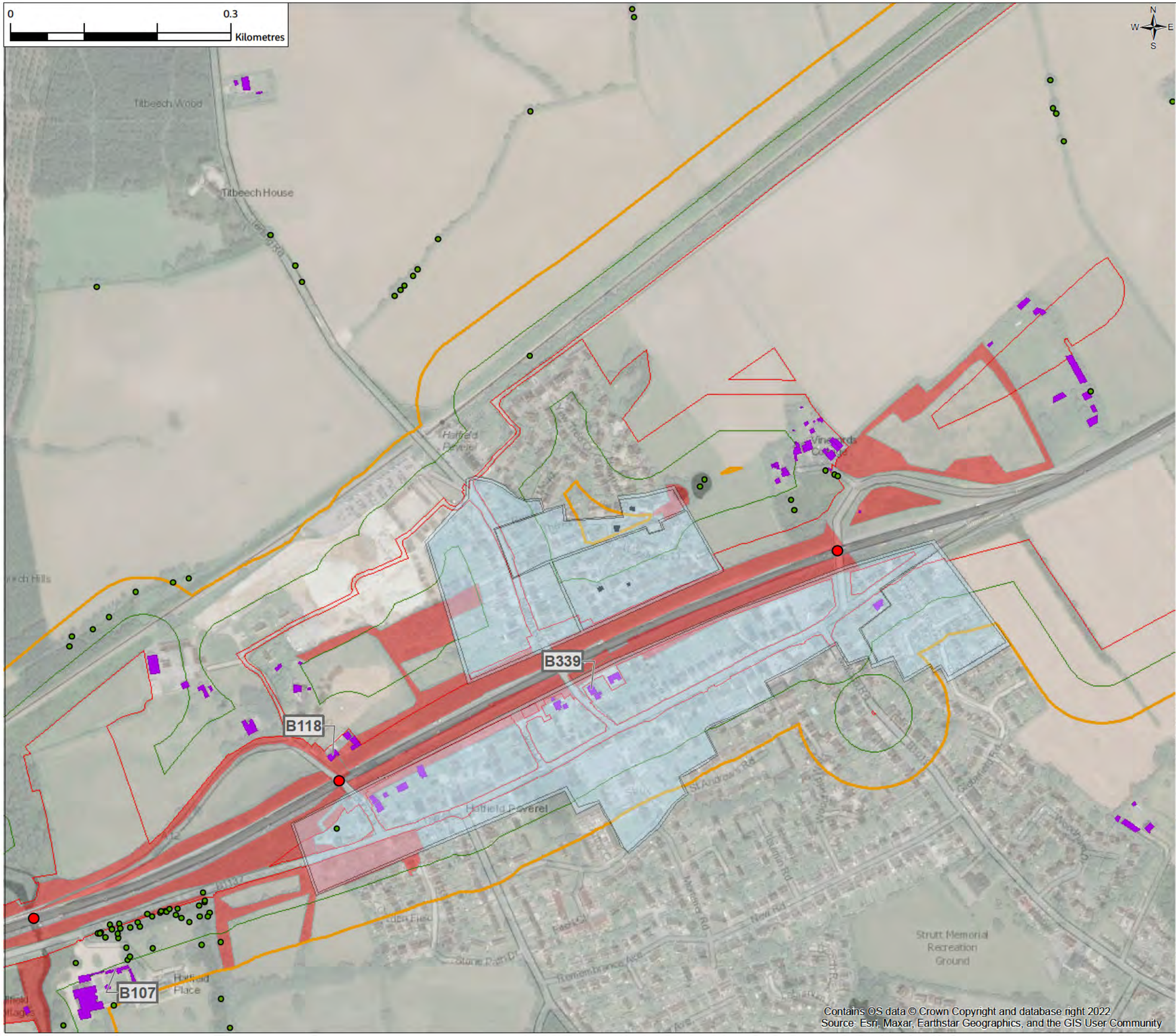


FIGURE C5b

Legend

- Order Limits
- 50m buffer
- 100m buffer
- Structures assessed for bat suitability
- Trees recorded as having low, moderate, high or confirmed roost bat suitability
- Backtracking survey area (group assessment of buildings and subsequent further backtracking surveys if required)
- Buildings that were individually ground assessed and subject to further survey if required
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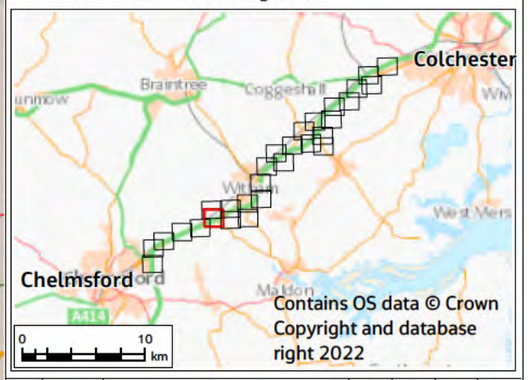
- Areas of trees not surveyed (due to H&S constraints or land access issues)

Note:
Due to the number of features surveyed, surveyor locations will be shown for the roosts on figure C6



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P00	19/07/22	For DCO application	ML	OB	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE SURVEY AREA SHEET 6 OF 29

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P00

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0502

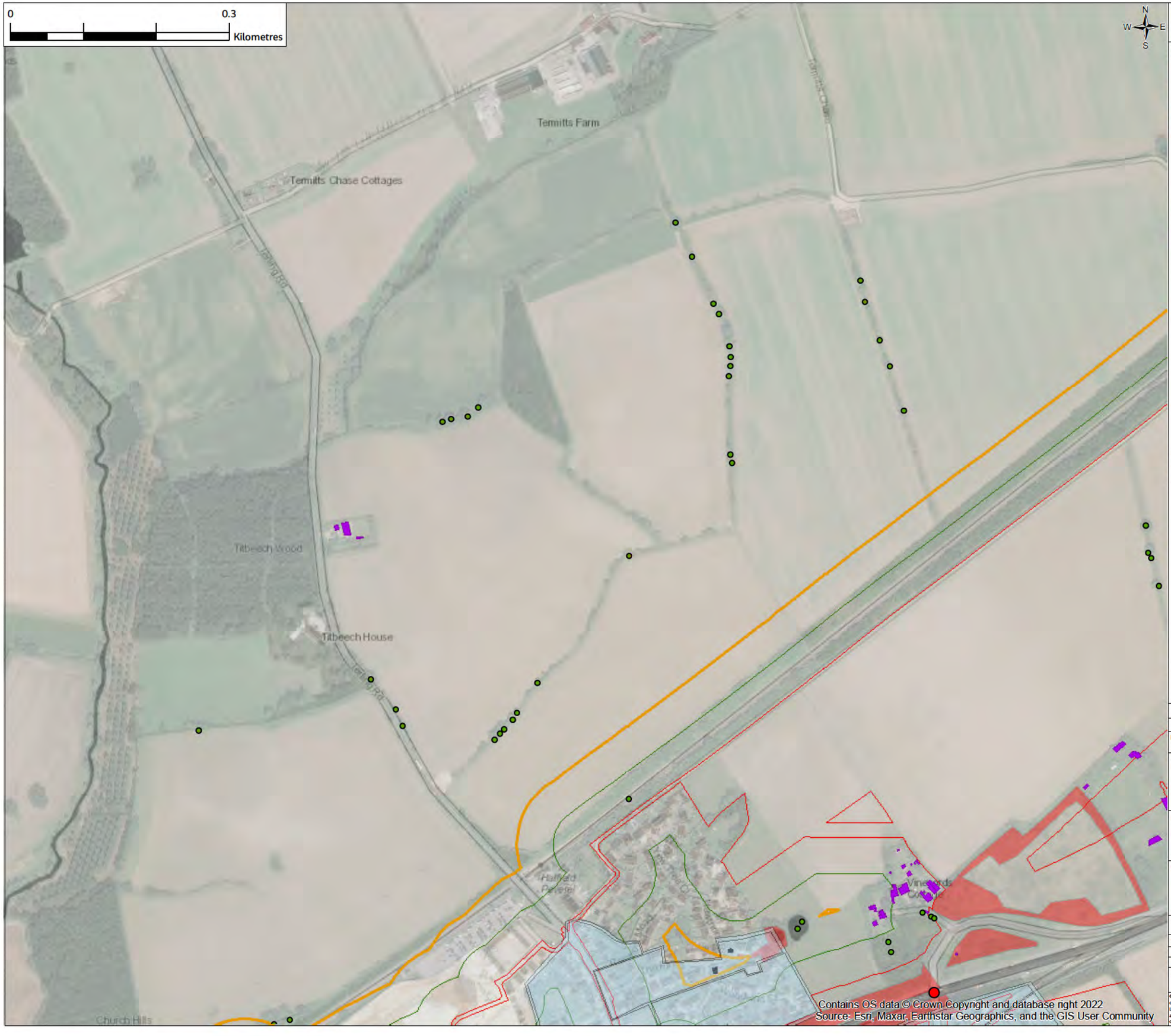
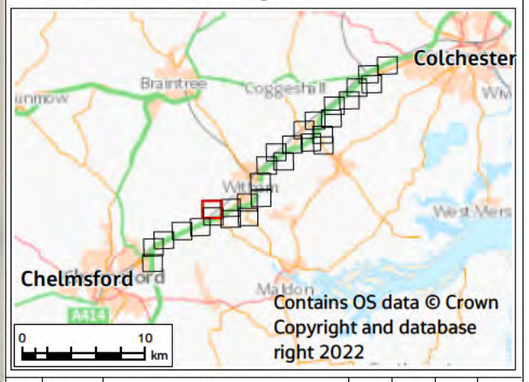


FIGURE C5b

Legend

- Order Limits
- 50m buffer
- 100m buffer
- Structures assessed for bat suitability
- Trees recorded as having low, moderate, high or confirmed roost bat suitability
- Backtracking survey area (group assessment of buildings and subsequent further backtracking surveys if required)
- Buildings that were individually ground assessed and subject to further survey if required
- Mapped buildings not surveyed or ground assessed (except if they are inside a backtracking area, see above)
- Areas of trees not surveyed (due to H&S constraints or land access issues)

Note:
Due to the number of features surveyed, surveyor locations will be shown for the roosts on figure C6



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P00	19/07/22	For DCO application	ML	OB	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE
SURVEY AREA
SHEET 7 OF 29

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P00

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0503

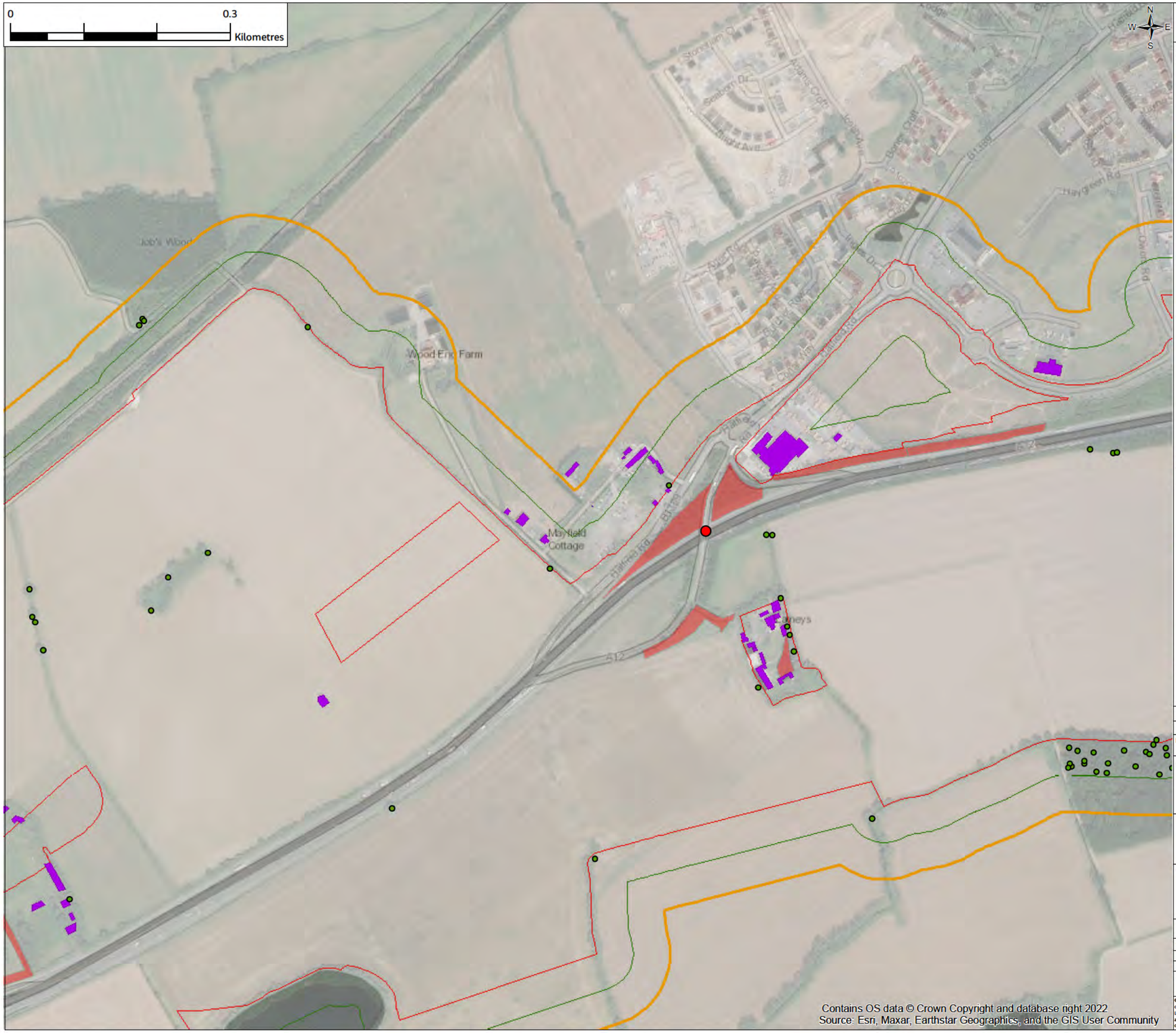


FIGURE C5b

Legend

- Order Limits
- 50m buffer
- 100m buffer
- Structures assessed for bat suitability
- Trees recorded as having low, moderate, high or confirmed roost bat suitability
- Backtracking survey area (group assessment of buildings and subsequent further backtracking surveys if required)
- Buildings that were individually ground assessed and subject to further survey if required
- Mapped buildings not surveyed or ground assessed (except if they are inside a backtracking area, see above)
- Areas of trees not surveyed (due to H&S constraints or land access issues)

Note:
Due to the number of features surveyed, surveyor locations will be shown for the roosts on figure C6

Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P00	19/07/22	For DCO application	ML	OB	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE
SURVEY AREA
SHEET 8 OF 29

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P00

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0504

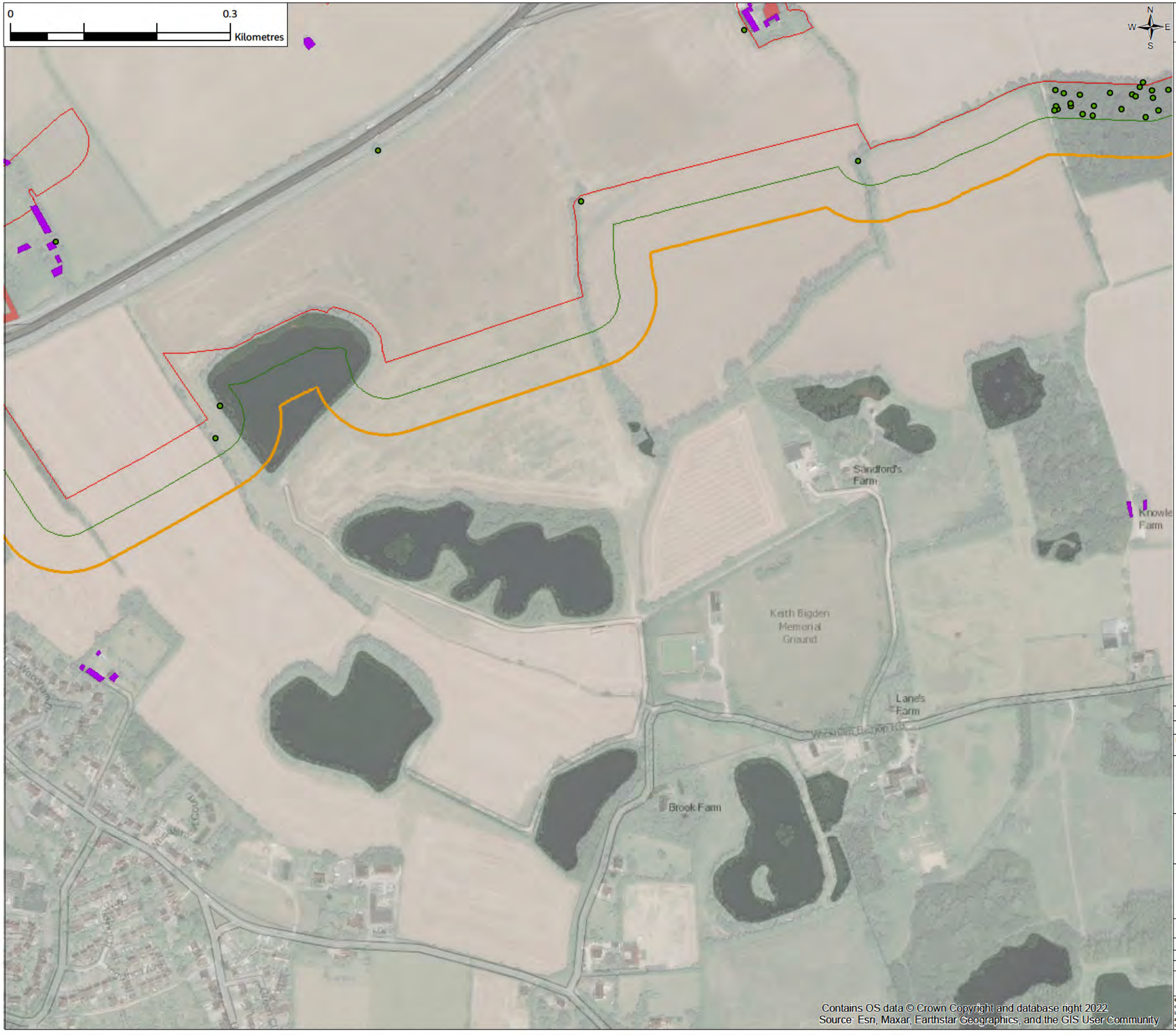


FIGURE C5b

Legend

- Order Limits
- 50m buffer
- 100m buffer
- Structures assessed for bat suitability
- Trees recorded as having low, moderate, high or confirmed roost bat suitability
- Backtracking survey area (group assessment of buildings and subsequent further backtracking surveys if required)
- Buildings that were individually ground assessed and subject to further survey if required
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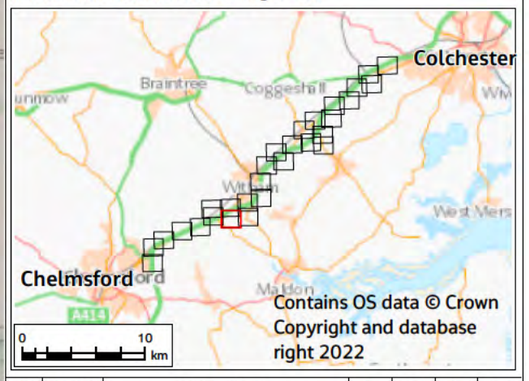
- Areas of trees not surveyed (due to H&S constraints or land access issues)

Note:
Due to the number of features surveyed, surveyor locations will be shown for the roosts on figure C6



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P00	19/07/22	For DCO application	ML	OB	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE SURVEY AREA SHEET 9 OF 29

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P00

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0505

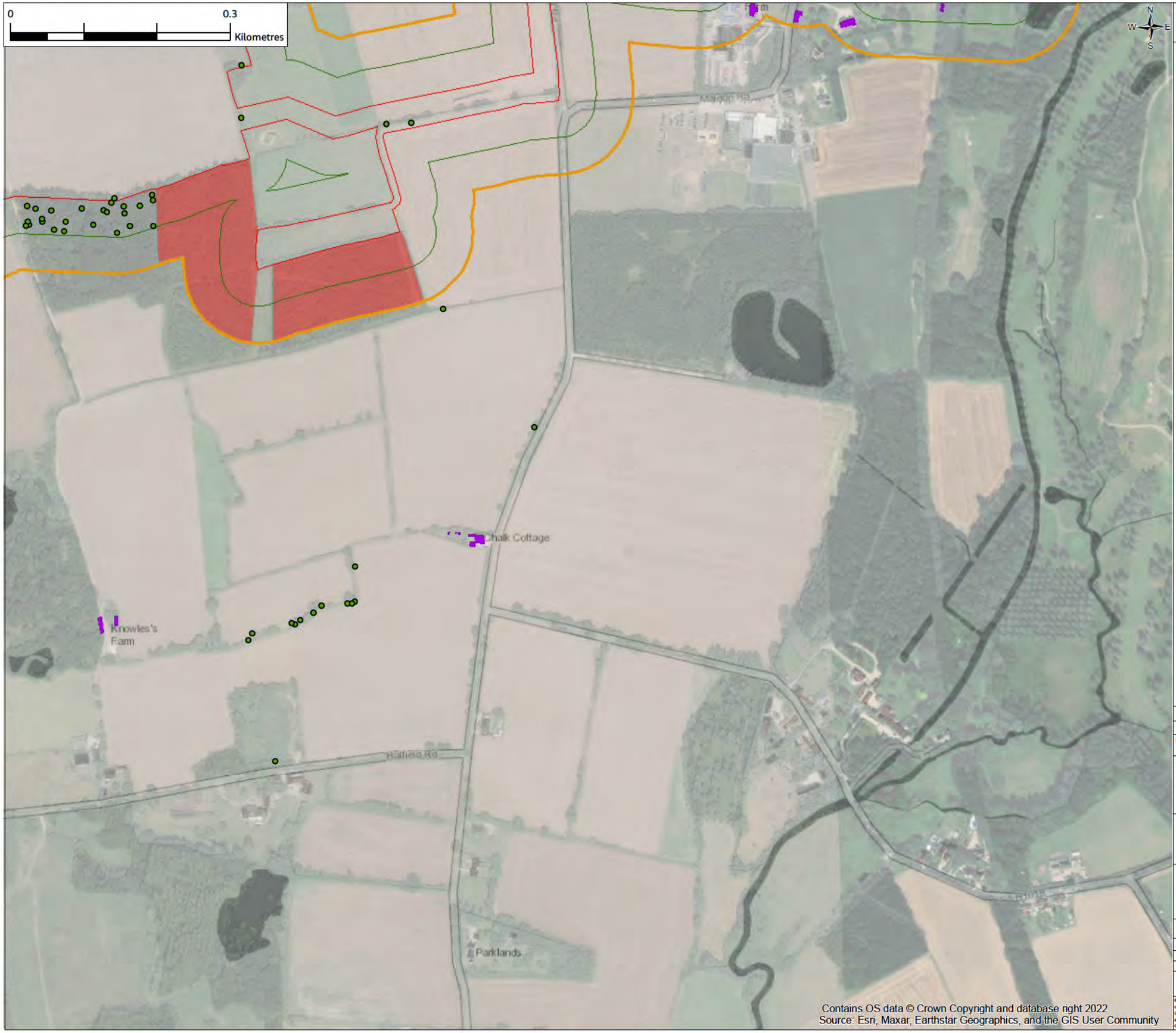


FIGURE C5b

Legend

- Order Limits
- 50m buffer
- 100m buffer
- Structures assessed for bat suitability
- Trees recorded as having low, moderate, high or confirmed roost bat suitability
- Backtracking survey area (group assessment of buildings and subsequent further backtracking surveys if required)
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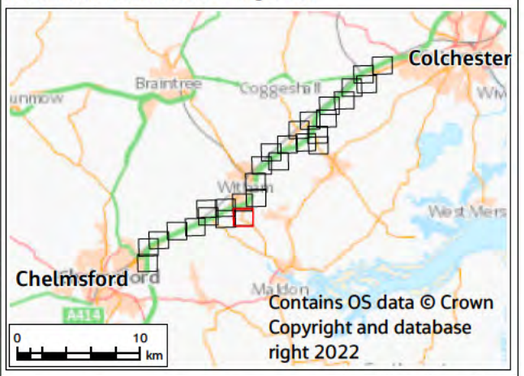
- Areas of trees not surveyed (due to H&S constraints or land access issues)

Note:
Due to the number of features surveyed, surveyor locations will be shown for the roosts on figure C6



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P00	19/07/22	For DCO application	ML	OB	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE SURVEY AREA SHEET 10 OF 29

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P00

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0506

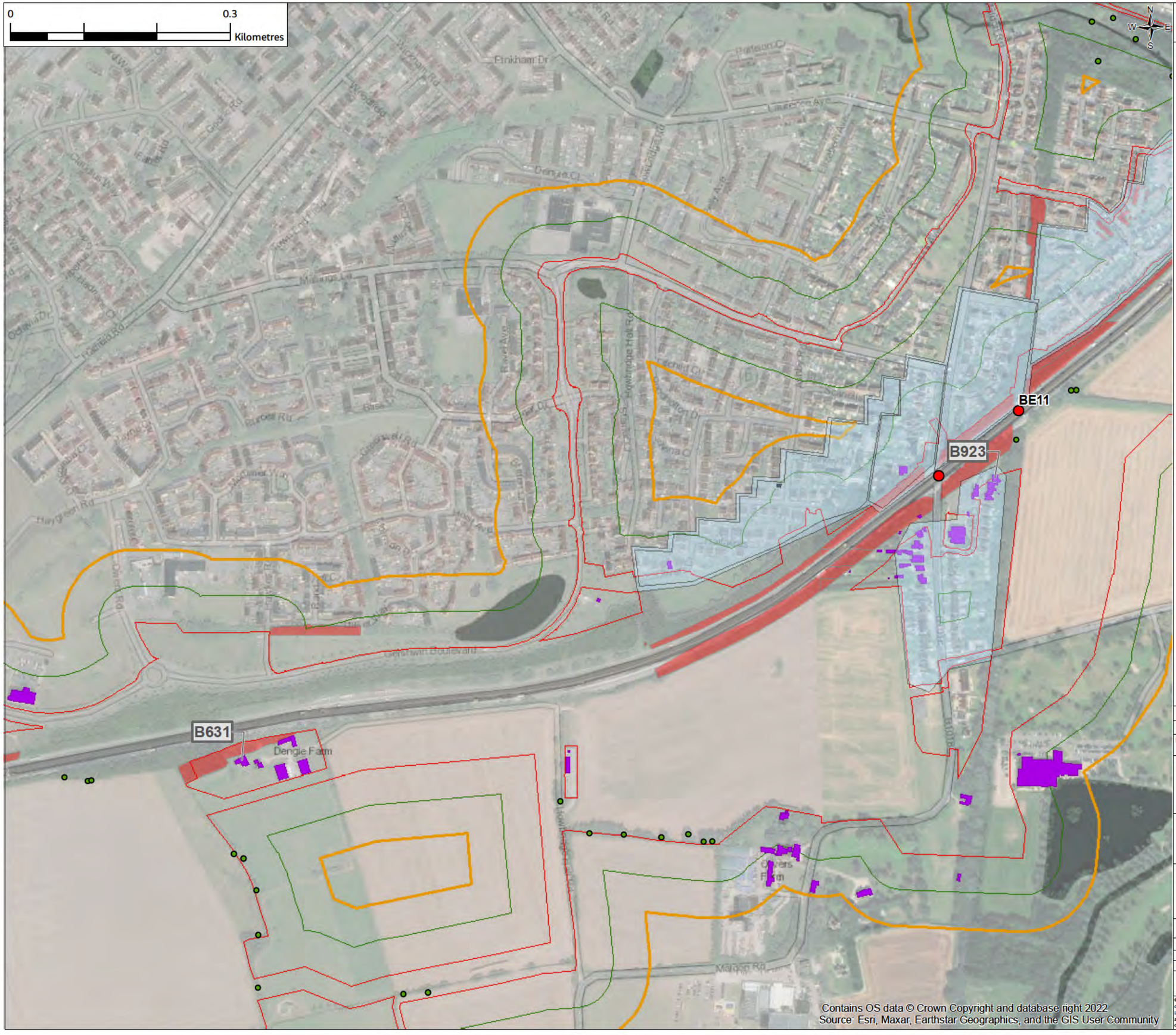


FIGURE C5b

Legend

- Order Limits
- 50m buffer
- 100m buffer
- Structures assessed for bat suitability
- Trees recorded as having low, moderate, high or confirmed roost bat suitability
- Backtracking survey area (group assessment of buildings and subsequent further backtracking surveys if required)
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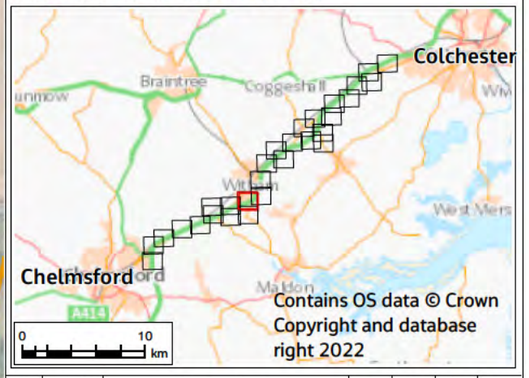
- Areas of trees not surveyed (due to H&S constraints or land access issues)

Note:
Due to the number of features surveyed, surveyor locations will be shown for the roosts on figure C6



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P00	19/07/22	For DCO application	ML	OB	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE SURVEY AREA SHEET 11 OF 29

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
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Client No.	HE551497	Rev P00

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0507

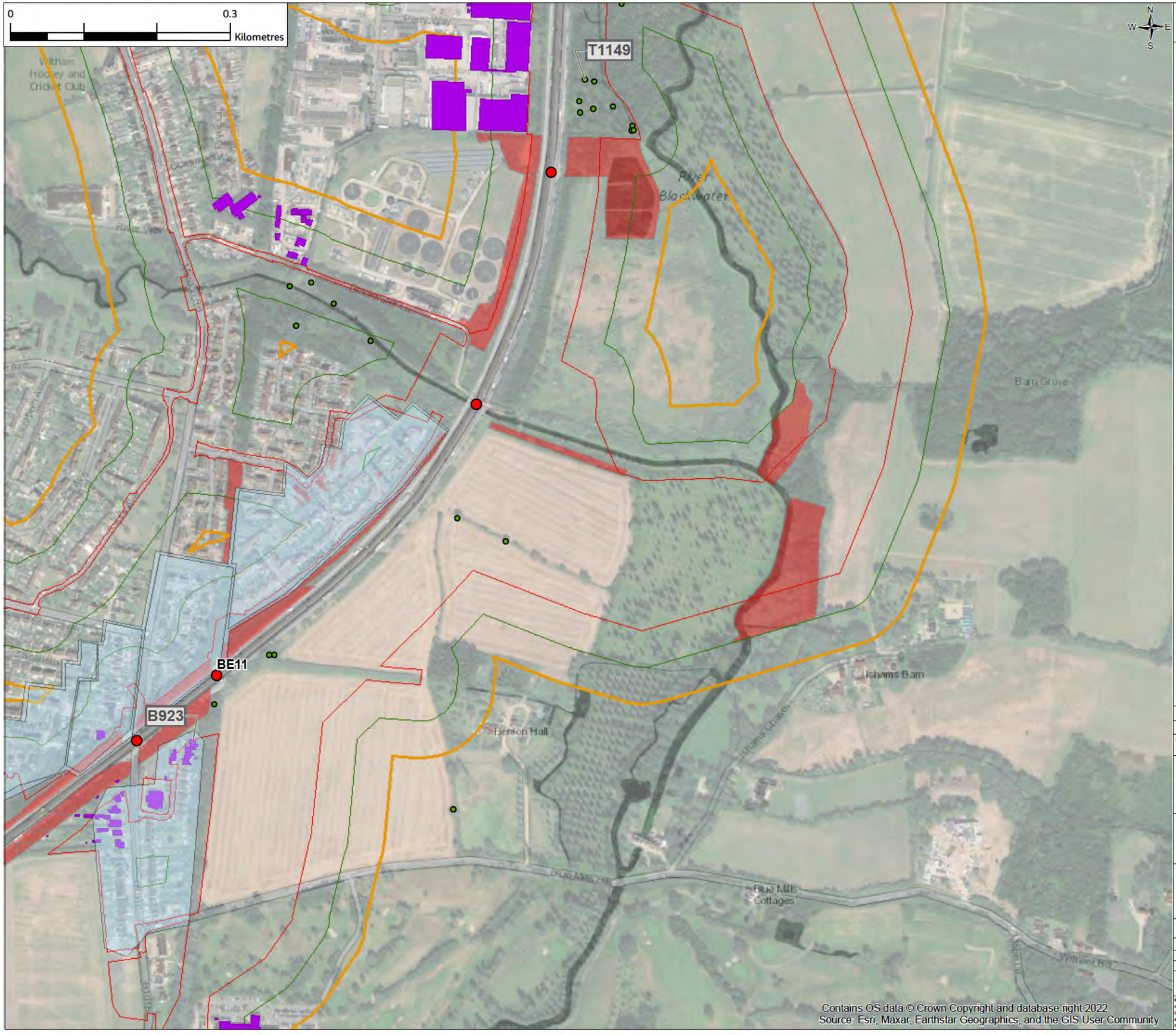

FIGURE C5b

Legend

- Order Limits
- 50m buffer
- 100m buffer
- Structures assessed for bat suitability
- Trees recorded as having low, moderate, high or confirmed roost bat suitability
- Backtracking survey area (group assessment of buildings and subsequent further backtracking surveys if required)
- Buildings that were individually ground assessed and subject to further survey if required
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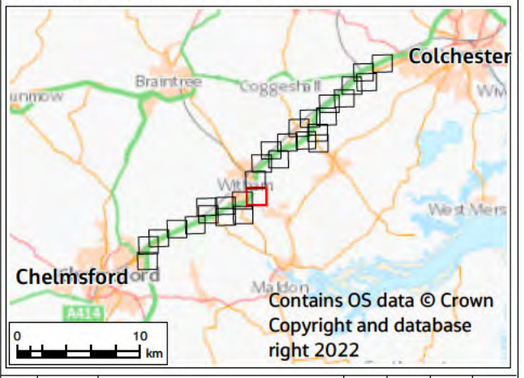
- Areas of trees not surveyed (due to H&S constraints or land access issues)

Note:
Due to the number of features surveyed, surveyor locations will be shown for the roosts on figure C6



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P00	19/07/22	For DCO application	ML	OB	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE
SURVEY AREA
SHEET 12 OF 29

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P00

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0508

FIGURE C5b

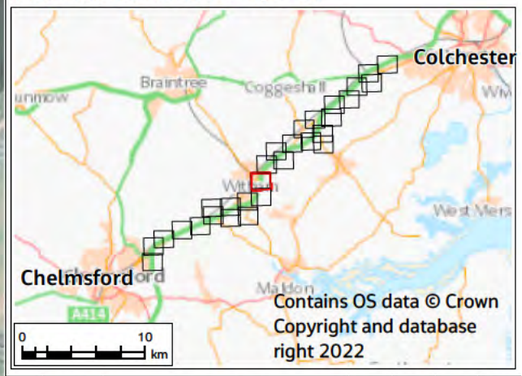
0 0.3 Kilometres

N W E S

Legend

- Order Limits
- 50m buffer
- 100m buffer
- Structures assessed for bat suitability
- Trees recorded as having low, moderate, high or confirmed roost bat suitability
- Backtracking survey area (group assessment of buildings and subsequent further backtracking surveys if required)
- Buildings that were individually ground assessed and subject to further survey if required
- Mapped buildings not surveyed or ground assessed (except if they are inside a backtracking area, see above)
- Areas of trees not surveyed (due to H&S constraints or land access issues)

Note:
Due to the number of features surveyed, surveyor locations will be shown for the roosts on figure C6



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P00	19/07/22	For DCO application	ML	OB	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

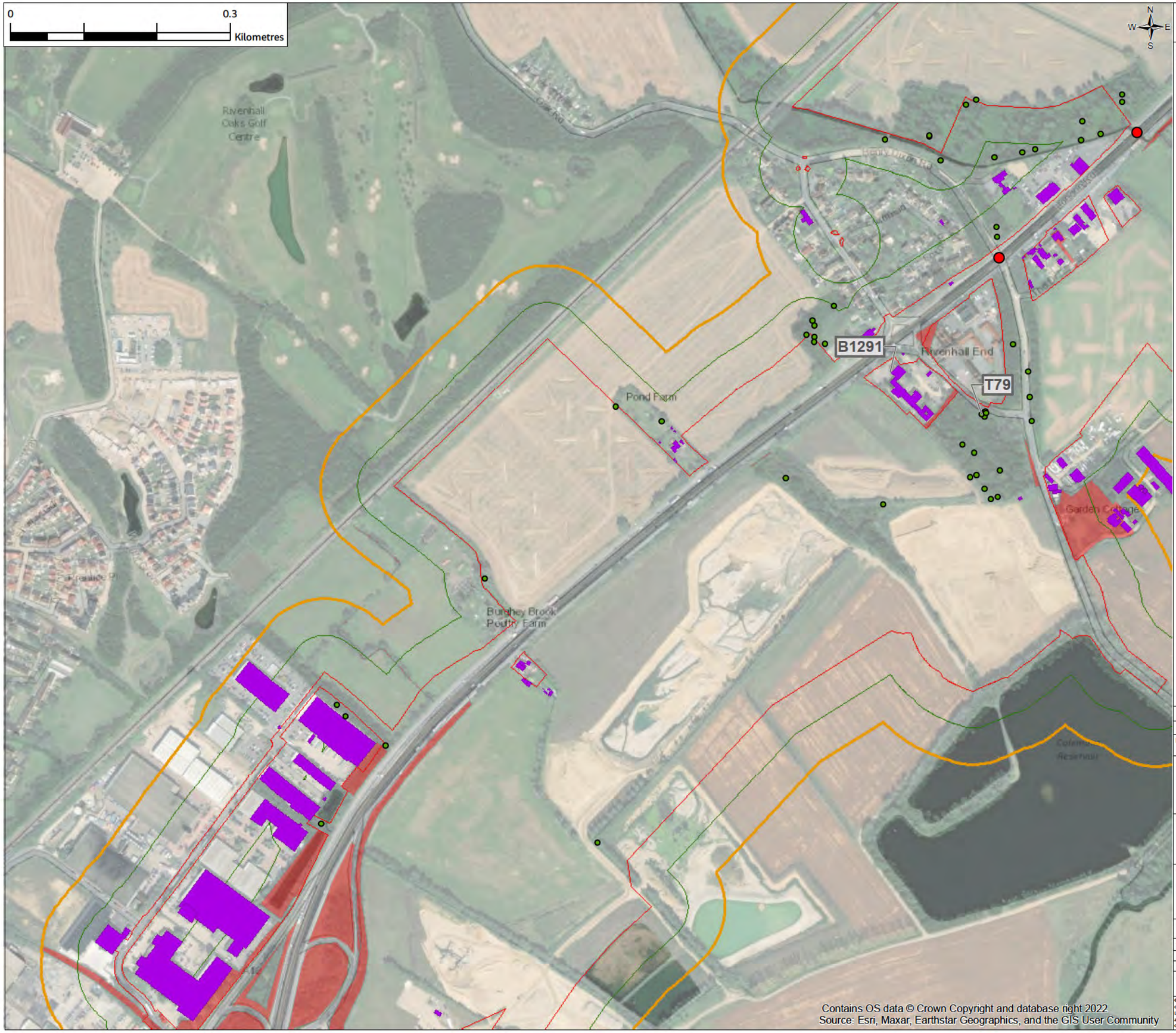
Drawing Title: A12 BAT LICENCE SURVEY AREA SHEET 13 OF 29

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P00

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0509

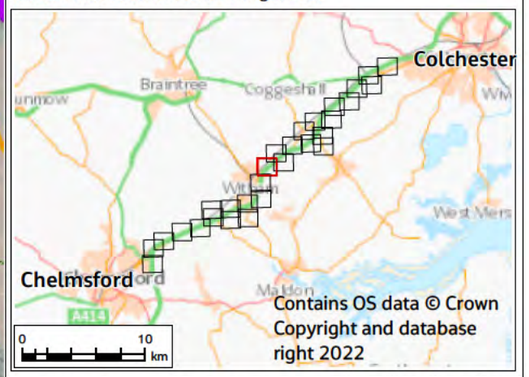
FIGURE C5b



Legend

- Order Limits
- 50m buffer
- 100m buffer
- Structures assessed for bat suitability
- Trees recorded as having low, moderate, high or confirmed roost bat suitability
- Backtracking survey area (group assessment of buildings and subsequent further backtracking surveys if required)
- Buildings that were individually ground assessed and subject to further survey if required
- Mapped buildings not surveyed or ground assessed (except if they are inside a backtracking area, see above)
- Areas of trees not surveyed (due to H&S constraints or land access issues)

Note:
Due to the number of features surveyed, surveyor locations will be shown for the roosts on figure C6



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P00	19/07/22	For DCO application	ML	OB	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE SURVEY AREA SHEET 14 OF 29

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P00

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0510

0 0.3 Kilometres

N W E S

The Granary

B1393

B1392

Hare Lodge

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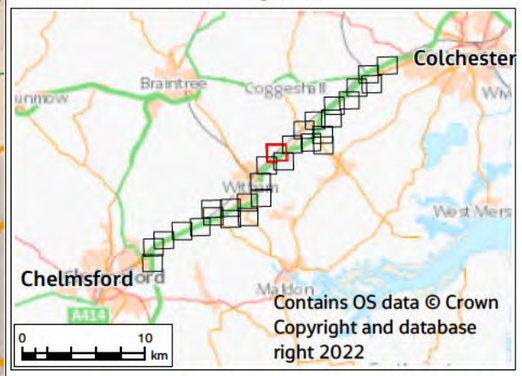
FIGURE C5b

Legend

- Order Limits
- 50m buffer
- 100m buffer
- Structures assessed for bat suitability
- Trees recorded as having low, moderate, high or confirmed roost bat suitability
- Backtracking survey area (group assessment of buildings and subsequent further backtracking surveys if required)
- Buildings that were individually ground assessed and subject to further survey if required
- Mapped buildings not surveyed or ground assessed (except if they are inside a backtracking area, see above)
- Areas of trees not surveyed (due to H&S constraints or land access issues)

Note:
Due to the number of features surveyed, surveyor locations will be shown for the roosts on figure C6



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P00	19/07/22	For DCO application	ML	OB	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE SURVEY AREA SHEET 15 OF 29

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P00

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0511

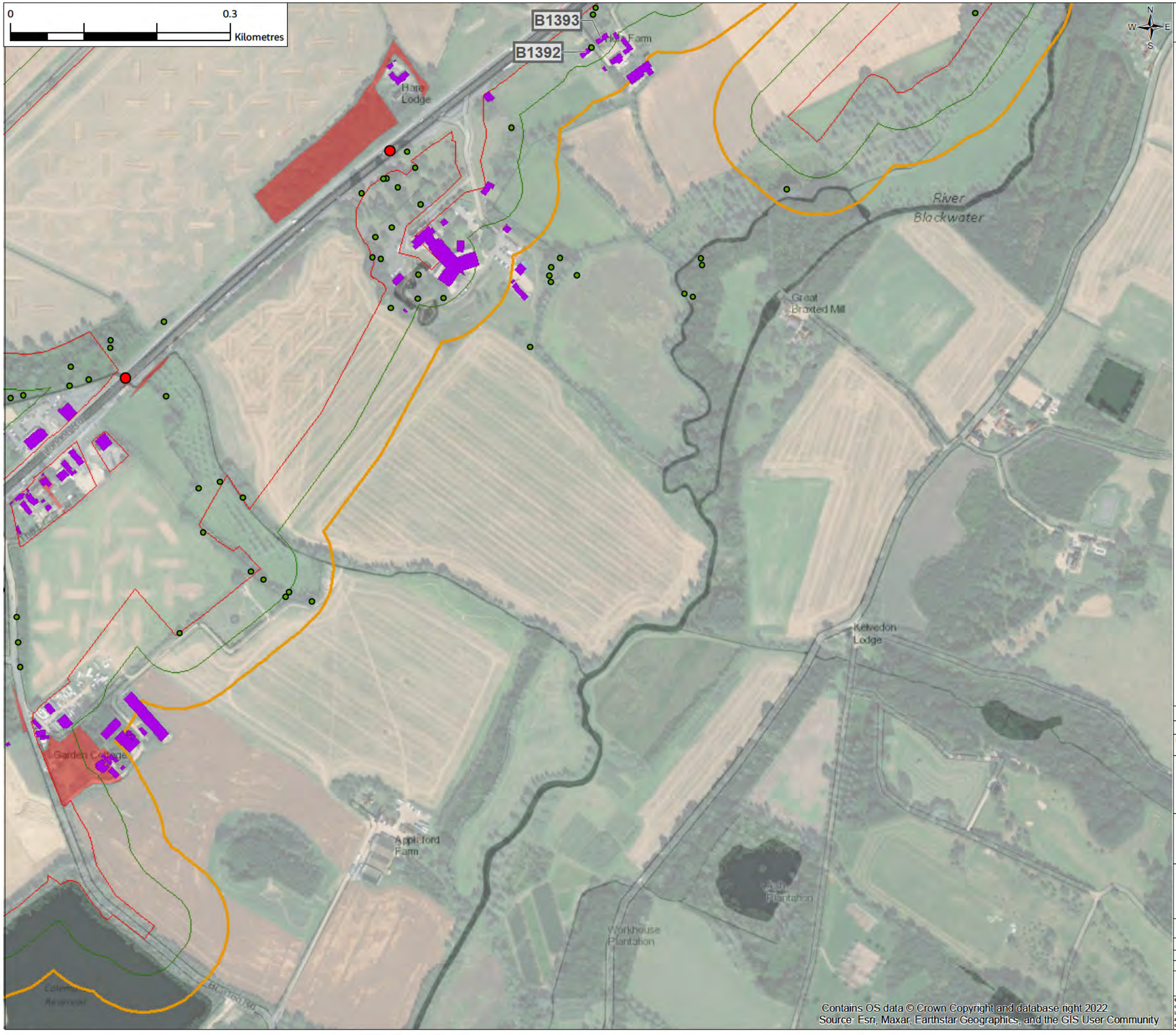


FIGURE C5b

Legend

- Order Limits
- 50m buffer
- 100m buffer
- Structures assessed for bat suitability
- Trees recorded as having low, moderate, high or confirmed roost bat suitability
- Backtracking survey area (group assessment of buildings and subsequent further backtracking surveys if required)
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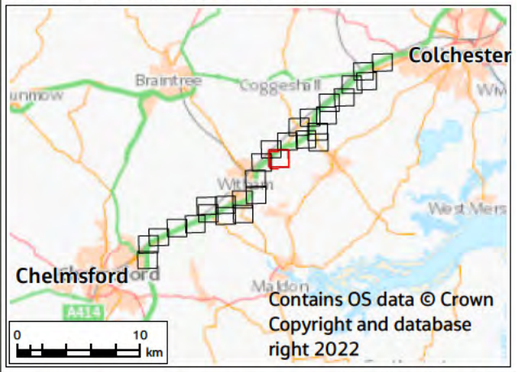
- Areas of trees not surveyed (due to H&S constraints or land access issues)

Note:
Due to the number of features surveyed, surveyor locations will be shown for the roosts on figure C6



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P00	19/07/22	For DCO application	ML	OB	NP	SG

Development Consent Order Drawing Number:	TR010060/APP/6.3
APFP Regulation:	Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE
SURVEY AREA
SHEET 16 OF 29

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
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Client No.	HE551497	Rev P00

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0512

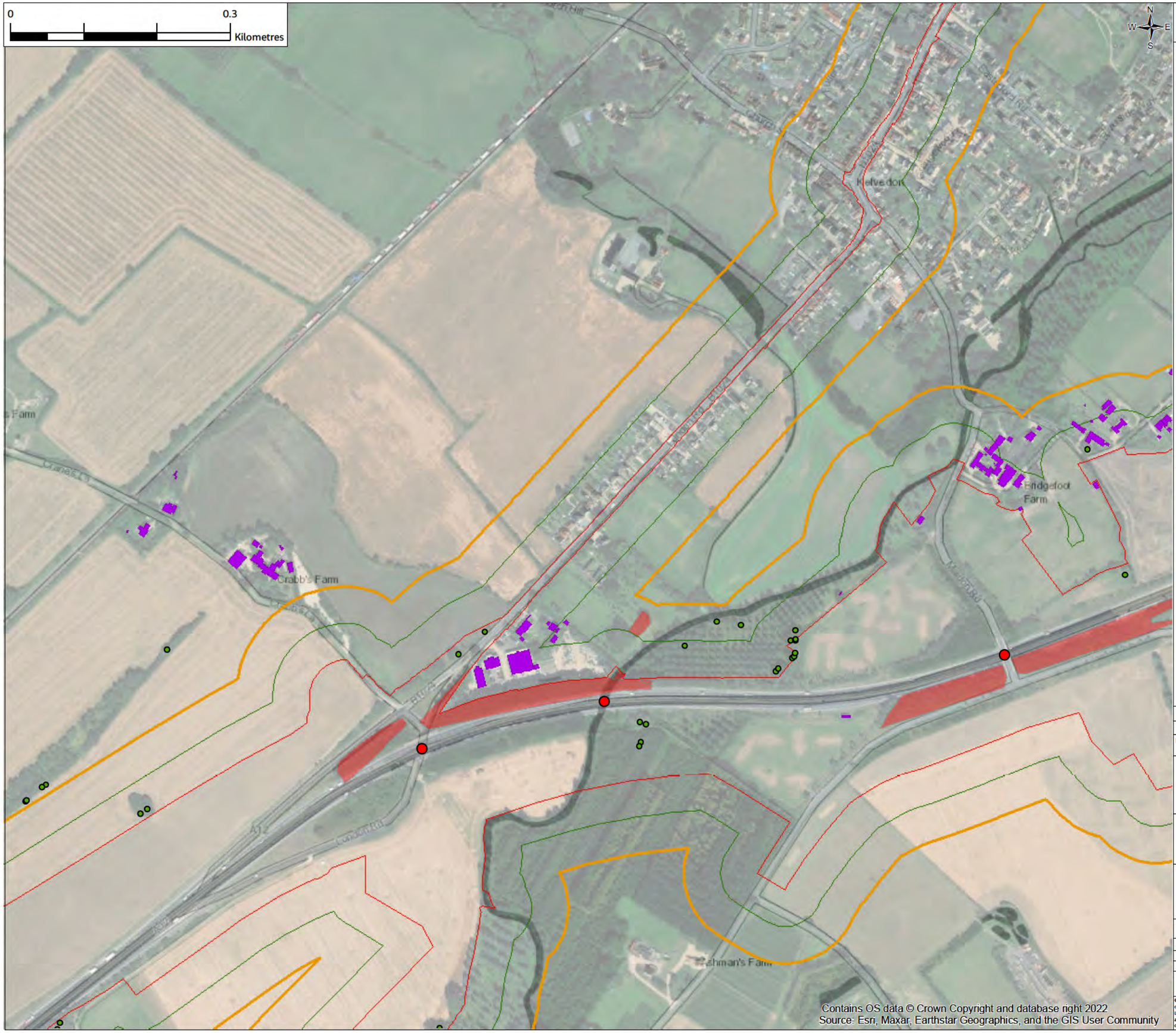

FIGURE C5b

Legend

- Order Limits
- 50m buffer
- 100m buffer
- Structures assessed for bat suitability
- Trees recorded as having low, moderate, high or confirmed roost bat suitability
- Backtracking survey area (group assessment of buildings and subsequent further backtracking surveys if required)
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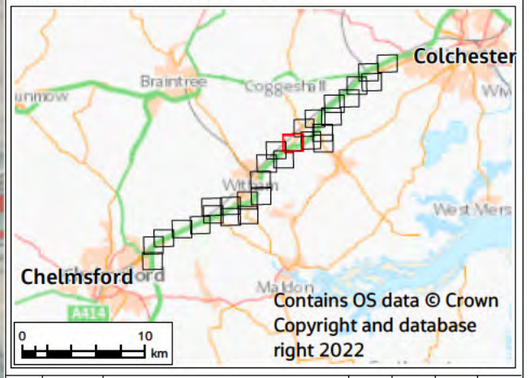
Note:
Due to the number of features surveyed, surveyor locations will be shown for the roosts on figure C6



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P00	19/07/22	For DCO application	ML	OB	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE
SURVEY AREA
SHEET 17 OF 29

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P00

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0513

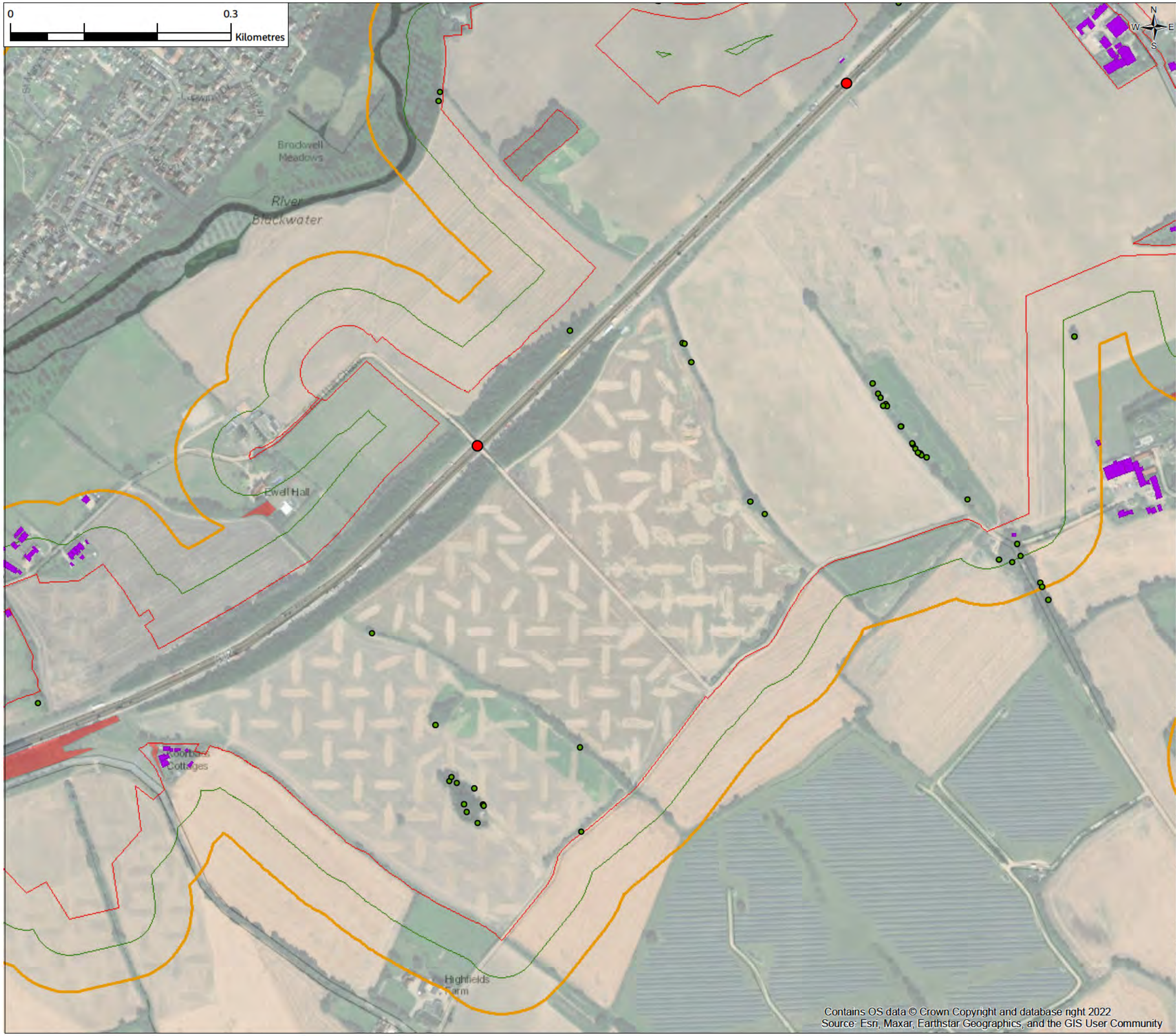
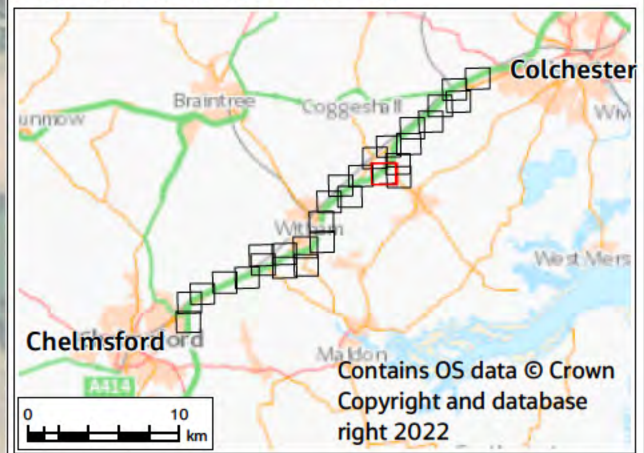


FIGURE C5b

Legend

- Order Limits
- 50m buffer
- 100m buffer
- Structures assessed for bat suitability
- Trees recorded as having low, moderate, high or confirmed roost bat suitability
- Backtracking survey area (group assessment of buildings and subsequent further backtracking surveys if required)
- Buildings that were individually ground assessed and subject to further survey if required
- Mapped buildings not surveyed or ground assessed (except if they are inside a backtracking area, see above)
- Areas of trees not surveyed (due to H&S constraints or land access issues)

Note:
Due to the number of features surveyed, surveyor locations will be shown for the roosts on figure C6



P00	19/07/22	For DCO application	ML	OB	NP	SG
Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE
SURVEY AREA
SHEET 18 OF 29

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P00

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0514

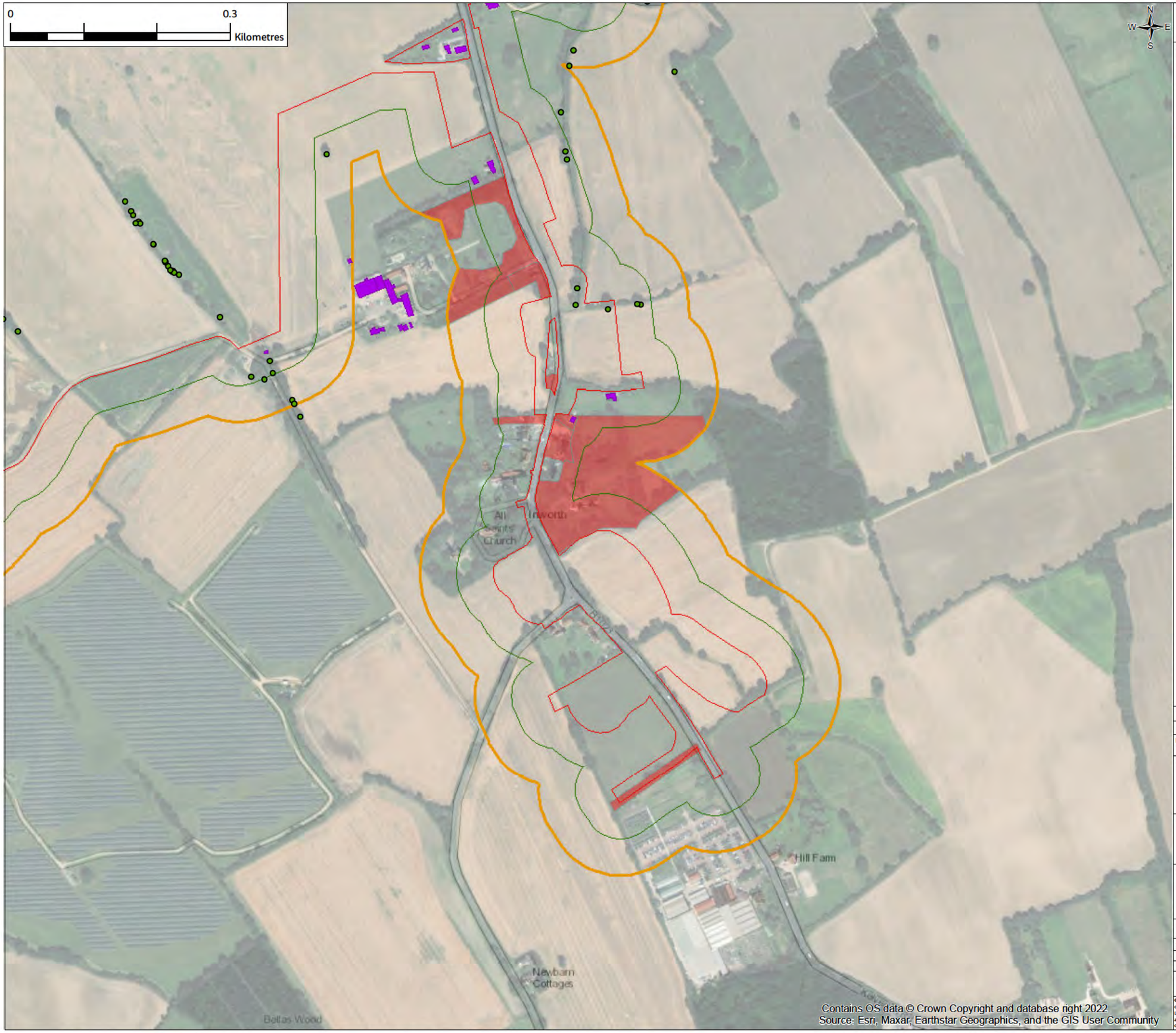
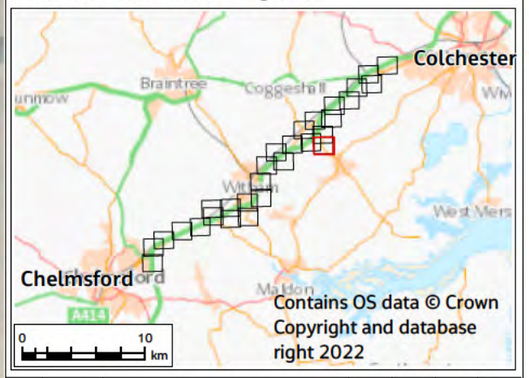


FIGURE C5b

Legend

- Order Limits
- 50m buffer
- 100m buffer
- Structures assessed for bat suitability
- Trees recorded as having low, moderate, high or confirmed roost bat suitability
- Backtracking survey area (group assessment of buildings and subsequent further backtracking surveys if required)
- Buildings that were individually ground assessed and subject to further survey if required
- Mapped buildings not surveyed or ground assessed (except if they are inside a backtracking area, see above)
- Areas of trees not surveyed (due to H&S constraints or land access issues)

Note:
Due to the number of features surveyed, surveyor locations will be shown for the roosts on figure C6



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P00	19/07/22	For DCO application	ML	OB	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE
SURVEY AREA
SHEET 19 OF 29

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P00

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0515

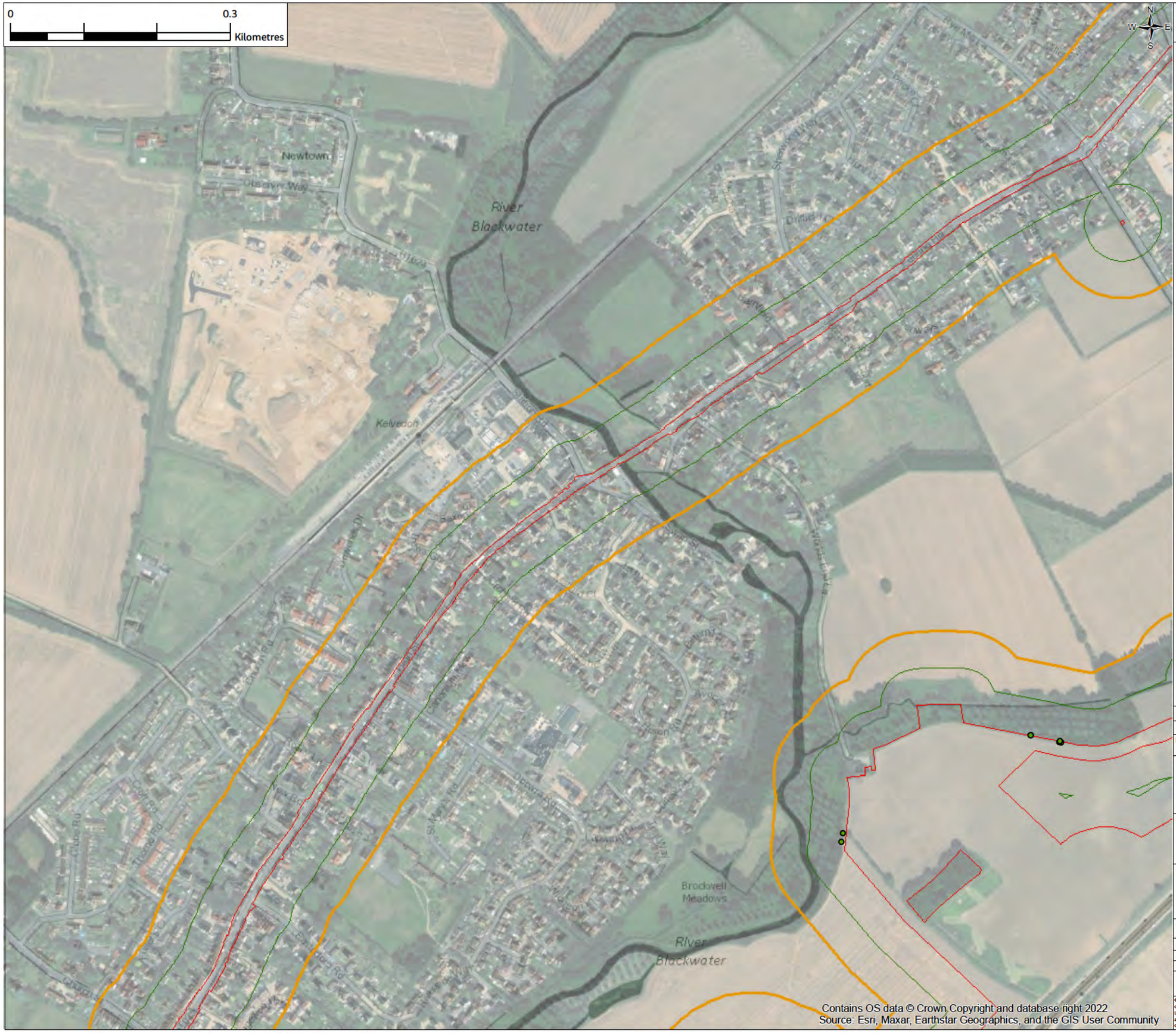
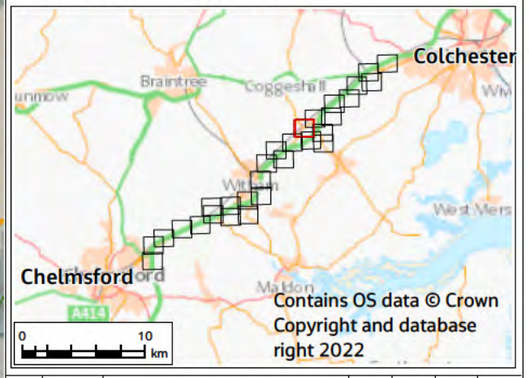


FIGURE C5b

Legend

- Order Limits
- 50m buffer
- 100m buffer
- Structures assessed for bat suitability
- Trees recorded as having low, moderate, high or confirmed roost bat suitability
- Backtracking survey area (group assessment of buildings and subsequent further backtracking surveys if required)
- Buildings that were individually ground assessed and subject to further survey if required
- Mapped buildings not surveyed or ground assessed (except if they are inside a backtracking area, see above)
- Areas of trees not surveyed (due to H&S constraints or land access issues)

Note:
Due to the number of features surveyed, surveyor locations will be shown for the roosts on figure C6



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P00	19/07/22	For DCO application	ML	OB	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE
SURVEY AREA
SHEET 20 OF 29

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P00

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0516

FIGURE C5b

0 0.3 Kilometres

N W E S

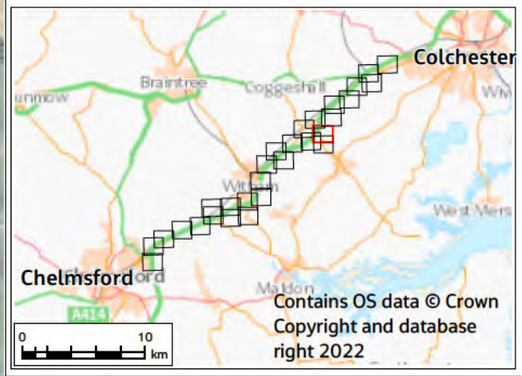
B1463

Yewtree Farm

Legend

- Order Limits
- 50m buffer
- 100m buffer
- Structures assessed for bat suitability
- Trees recorded as having low, moderate, high or confirmed roost bat suitability
- Backtracking survey area (group assessment of buildings and subsequent further backtracking surveys if required)
- Buildings that were individually ground assessed and subject to further survey if required
- Mapped buildings not surveyed or ground assessed (except if they are inside a backtracking area, see above)
- Areas of trees not surveyed (due to H&S constraints or land access issues)

Note:
Due to the number of features surveyed, surveyor locations will be shown for the roosts on figure C6



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P00	19/07/22	For DCO application	ML	OB	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE SURVEY AREA SHEET 21 OF 29

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P00

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0517

FIGURE C5b

0 0.3 Kilometres

N W E S

B1522

Feering

All Saints Church

The Green

Rye Mill Cottage

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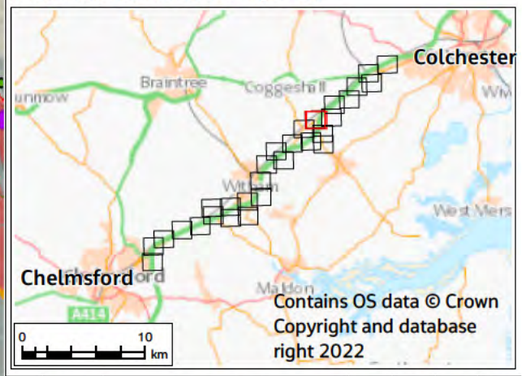
Legend

- Order Limits
- 50m buffer
- 100m buffer
- Structures assessed for bat suitability
- Trees recorded as having low, moderate, high or confirmed roost bat suitability
- Backtracking survey area (group assessment of buildings and subsequent further backtracking surveys if required)
- Buildings that were individually ground assessed and subject to further survey if required
- Mapped buildings not surveyed or ground assessed (except if they are inside a backtracking area, see above)
- Areas of trees not surveyed (due to H&S constraints or land access issues)

Note:
Due to the number of features surveyed, surveyor locations will be shown for the roosts on figure C6



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P00	19/07/22	For DCO application	ML	OB	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE SURVEY AREA SHEET 22 OF 29

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P00

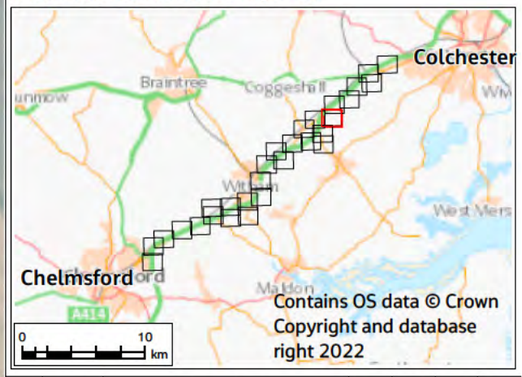
Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0518

FIGURE C5b

Legend

- Order Limits
- 50m buffer
- 100m buffer
- Structures assessed for bat suitability
- Trees recorded as having low, moderate, high or confirmed roost bat suitability
- Backtracking survey area (group assessment of buildings and subsequent further backtracking surveys if required)
- Buildings that were individually ground assessed and subject to further survey if required
- Mapped buildings not surveyed or ground assessed (except if they are inside a backtracking area, see above)
- Areas of trees not surveyed (due to H&S constraints or land access issues)

Note:
Due to the number of features surveyed, surveyor locations will be shown for the roosts on figure C6



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P00	19/07/22	For DCO application	ML	OB	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE
SURVEY AREA
SHEET 23 OF 29

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P00

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0519

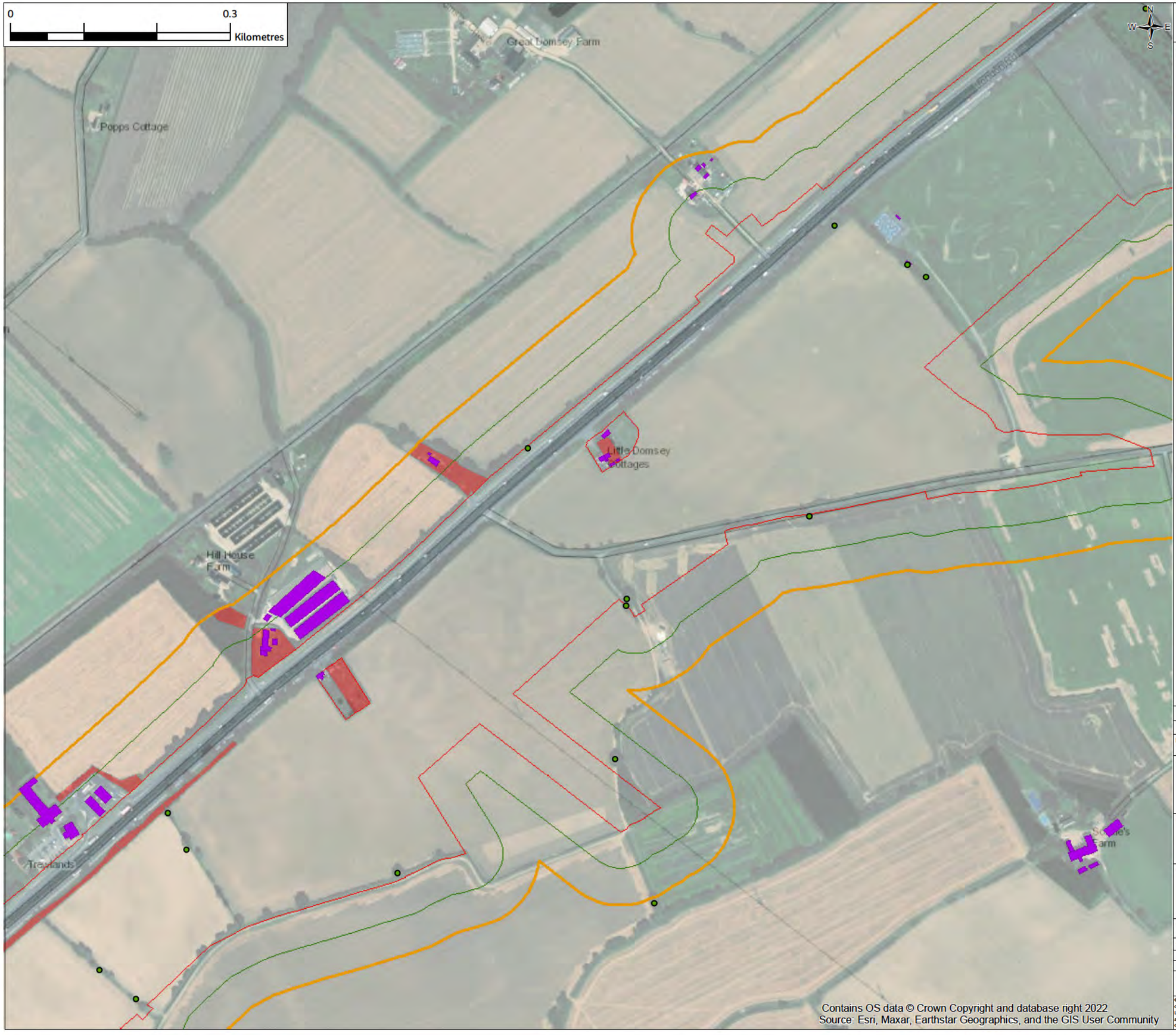
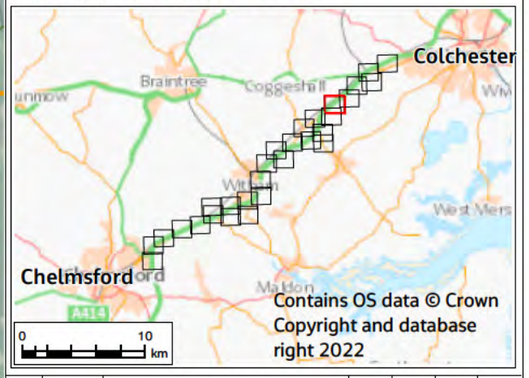


FIGURE C5b

Legend

- Order Limits
- 50m buffer
- 100m buffer
- Structures assessed for bat suitability
- Trees recorded as having low, moderate, high or confirmed roost bat suitability
- Backtracking survey area (group assessment of buildings and subsequent further backtracking surveys if required)
- Buildings that were individually ground assessed and subject to further survey if required
- Mapped buildings not surveyed or ground assessed (except if they are inside a backtracking area, see above)
- Areas of trees not surveyed (due to H&S constraints or land access issues)

Note:
Due to the number of features surveyed, surveyor locations will be shown for the roosts on figure C6



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P00	19/07/22	For DCO application	ML	OB	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE SURVEY AREA SHEET 24 OF 29

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P00

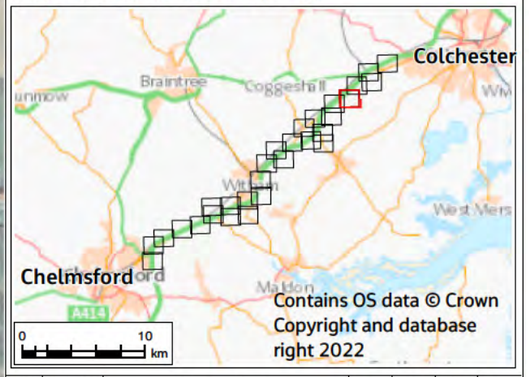
Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0520

FIGURE C5b

Legend

- Order Limits
- 50m buffer
- 100m buffer
- Structures assessed for bat suitability
- Trees recorded as having low, moderate, high or confirmed roost bat suitability
- Backtracking survey area (group assessment of buildings and subsequent further backtracking surveys if required)
- Buildings that were individually ground assessed and subject to further survey if required
- Mapped buildings not surveyed or ground assessed (except if they are inside a backtracking area, see above)
- Areas of trees not surveyed (due to H&S constraints or land access issues)

Note:
Due to the number of features surveyed, surveyor locations will be shown for the roosts on figure C6



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P00	19/07/22	For DCO application	ML	OB	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE SURVEY AREA SHEET 25 OF 29

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P00

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0521

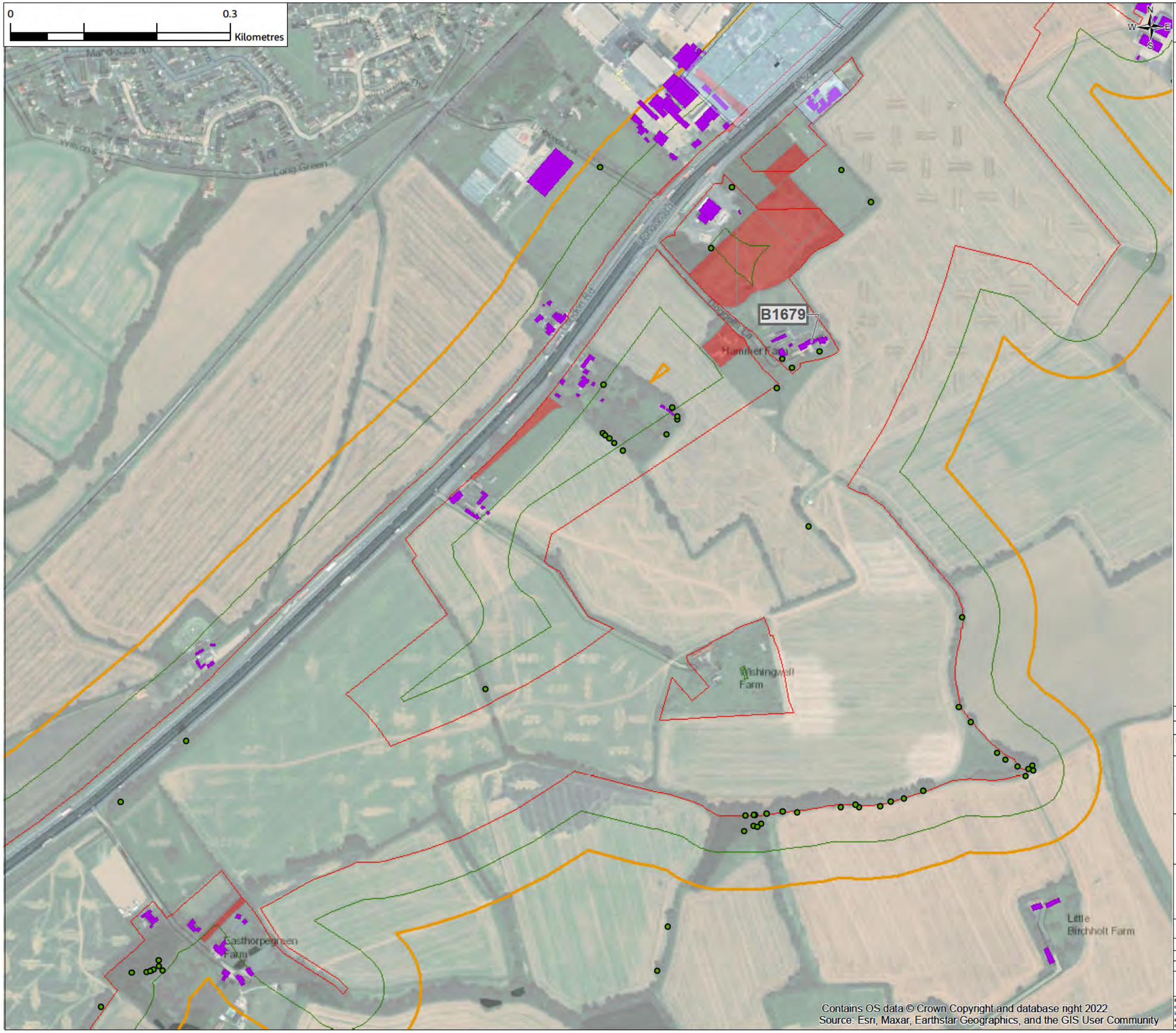
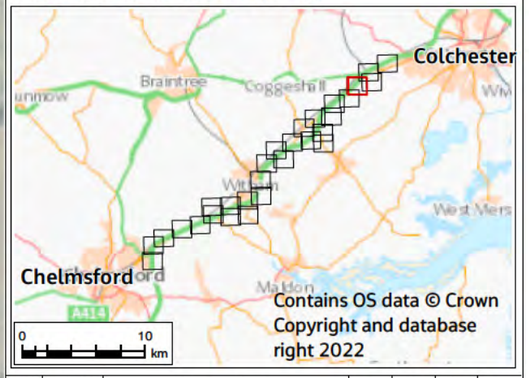


FIGURE C5b

Legend

- Order Limits
- 50m buffer
- 100m buffer
- Structures assessed for bat suitability
- Trees recorded as having low, moderate, high or confirmed roost bat suitability
- Backtracking survey area (group assessment of buildings and subsequent further backtracking surveys if required)
- Buildings that were individually ground assessed and subject to further survey if required
- Mapped buildings not surveyed or ground assessed (except if they are inside a backtracking area, see above)
- Areas of trees not surveyed (due to H&S constraints or land access issues)

Note:
Due to the number of features surveyed, surveyor locations will be shown for the roosts on figure C6



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P00	19/07/22	For DCO application	ML	OB	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE SURVEY AREA SHEET 26 OF 29

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P00

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0522

FIGURE C5b

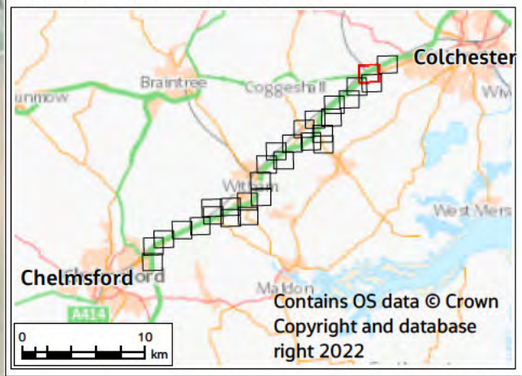
0 0.3 Kilometres

N W E S

Legend

- Order Limits
- 50m buffer
- 100m buffer
- Structures assessed for bat suitability
- Trees recorded as having low, moderate, high or confirmed roost bat suitability
- Backtracking survey area (group assessment of buildings and subsequent further backtracking surveys if required)
- Buildings that were individually ground assessed and subject to further survey if required
- Mapped buildings not surveyed or ground assessed (except if they are inside a backtracking area, see above)
- Areas of trees not surveyed (due to H&S constraints or land access issues)

Note:
Due to the number of features surveyed, surveyor locations will be shown for the roosts on figure C6



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Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P00	19/07/22	For DCO application	ML	OB	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE SURVEY AREA SHEET 27 OF 29

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P00

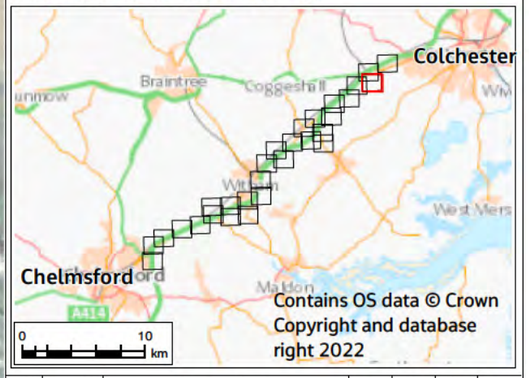
Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0523

FIGURE C5b

Legend

- Order Limits
- 50m buffer
- 100m buffer
- Structures assessed for bat suitability
- Trees recorded as having low, moderate, high or confirmed roost bat suitability
- Backtracking survey area (group assessment of buildings and subsequent further backtracking surveys if required)
- Buildings that were individually ground assessed and subject to further survey if required
- Mapped buildings not surveyed or ground assessed (except if they are inside a backtracking area, see above)
- Areas of trees not surveyed (due to H&S constraints or land access issues)

Note:
Due to the number of features surveyed, surveyor locations will be shown for the roosts on figure C6



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P00	19/07/22	For DCO application	ML	OB	NP	SG

Development Consent Order Drawing Number:	TR010060/APP/6.3
APFP Regulation:	Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE
SURVEY AREA
SHEET 28 OF 29

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P00

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0524

0 0.3 Kilometres

N W E S

Lampits Farm

Lamp's Farm

Roman River

Copford

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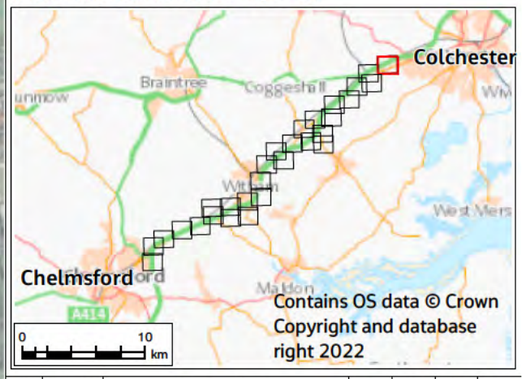
FIGURE C5b

Legend

- Order Limits
- 50m buffer
- 100m buffer
- Structures assessed for bat suitability
- Trees recorded as having low, moderate, high or confirmed roost bat suitability
- Backtracking survey area (group assessment of buildings and subsequent further backtracking surveys if required)
- Buildings that were individually ground assessed and subject to further survey if required
- Mapped buildings not surveyed or ground assessed (except if they are inside a backtracking area, see above)
- Areas of trees not surveyed (due to H&S constraints or land access issues)

Note:
Due to the number of features surveyed, surveyor locations will be shown for the roosts on figure C6



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P00	19/07/22	For DCO application	ML	OB	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE SURVEY AREA SHEET 29 OF 29

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P00

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0525

FIGURE C6

0 0.2 Kilometres

N W E S

Legend

- Order Limits
- Confirmed bat roost structures
- Confirmed bat roost trees
- Confirmed bat roost buildings
- Roost Location
- SL Surveyor Location
- Direction of flight path

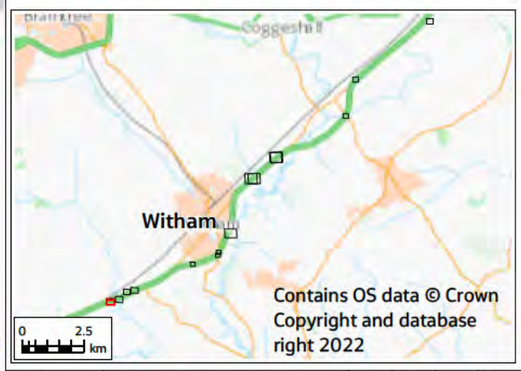
On 07/08/17: at 20:54
Four soprano pipistrelle emergences were recorded from end of westward limb, confirmed on infra-red camera

Millfield Cottages

T733

Crix

Crix Corner Cottage



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P00	19/07/22	For DCO application	ML	LW	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE
SURVEY RESULTS - TREE ID T733
SHEET 1 OF 15

Drawing Status: S4 – SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:2500	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P00

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0545

FIGURE C6

0 0.2 Kilometres

N W E S

Legend

- Order Limits
- Confirmed bat roost structures
- Confirmed bat roost trees
- Confirmed bat roost buildings
- Access point
- SL Surveyor Location
- Direction of flight path

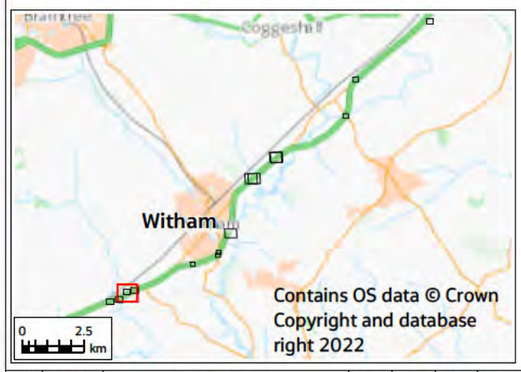
B107

Hatfield Place

Millfield Cottages

On 01/07/20: at 4:17
One Soprano pipistrelle re-entry was observed

On 01/07/20: at 4:18
One Soprano pipistrelle re-entry was observed



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P00	19/07/22	For DCO application	ML	LW	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE
SURVEY RESULTS - BUILIDNG ID B107
SHEET 2 OF 15

Drawing Status: S4 – SUITABLE FOR STAGE APPROVAL

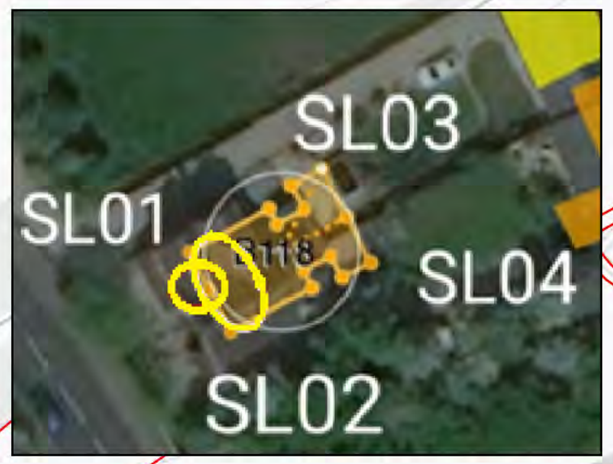
Scale @ A3	1:2500	DO NOT SCALE	
Jacobs No.	B36601D1	Rev	P00
Client No.	HE551497		

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0546

FIGURE C6

0 0.2 Kilometres

N W E S



On 08/07/21: at 22:13
One unconfirmed pipistrelle species emerged from under fascia ends of roof

On 24/08/21: at 20:25
One common pipistrelle and one soprano pipistrelle were observed emerging

B118
A12
Hatfield Peverel
Garden Field
Stone Path Dr
Hatfield Place
Rainbow Mead
The Pines
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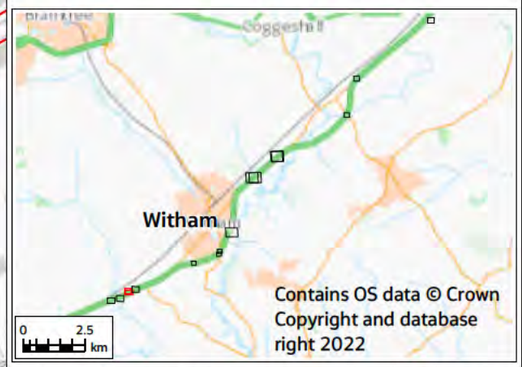
Legend

- Order Limits
- Confirmed bat roost structures
- Confirmed bat roost trees
- Confirmed bat roost buildings
- Access point
- SL Surveyor Location
- Direction of flight path



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P00	19/07/22	For DCO application	ML	LW	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE
SURVEY RESULTS - BUILIDNG ID B118
SHEET 3 OF 15

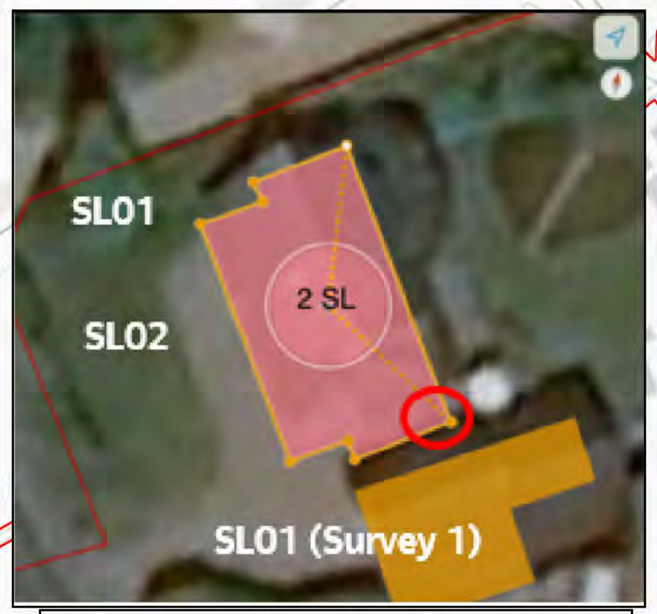
Drawing Status: S4 – SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:2500	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P00

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0547

FIGURE C6

0 0.2 Kilometres

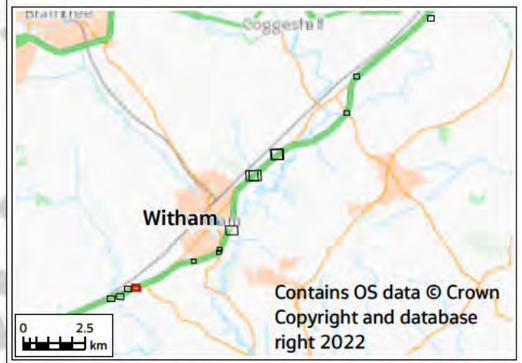


SL01 sat in different locations during survey 1 and 2

On 06/07/21 at 04:05 one common pipistrelle re-entry was observed

Legend

- Order Limits
- Confirmed bat roost structures
- Confirmed bat roost trees
- Confirmed bat roost buildings
- Roost Location
- SL Surveyor Location
- Direction of flight path



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P00	19/07/22	For DCO application	ML	LW	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE
SURVEY RESULTS - BUILIDNG ID B339
SHEET 4 OF 15

Drawing Status: S4 – SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:2500	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P00

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0548

0 0.2 Kilometres

N W E S

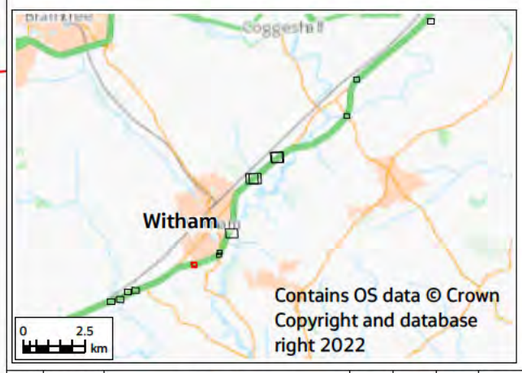
FIGURE C6

Legend

- Order Limits
- Confirmed bat roost structures
- Confirmed bat roost trees
- Confirmed bat roost buildings
- Access point
- SL Surveyor Location
- Direction of flight path

On 24/06/20 at 04:06
One soprano pipistrelle return to roost at roof apex

B631
Dengie Farm
Hawkes Rd
Randall Cl
Baker Way
Morrison Dr
Hoist Ave
Gershwin Boulevard



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P00	19/07/22	For DCO application	ML	LW	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE
SURVEY RESULTS - BUILDING ID B631
SHEET 5 OF 15

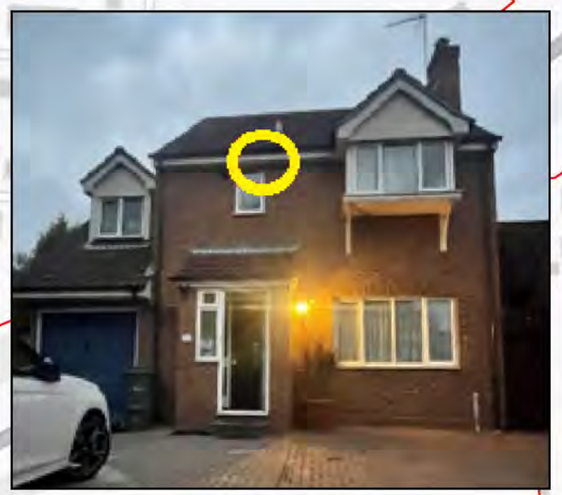
Drawing Status: S4 – SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:2500	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P00

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0549

0 0.2 Kilometres

N W E S



On 02/09/21 at 19:58, at location SL01
Two common pipistrelles were seen emerging from the building

B923

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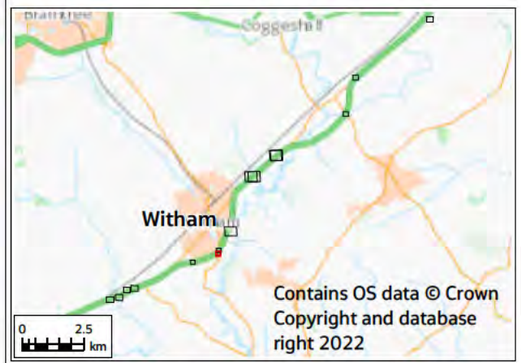
FIGURE C6

Legend

- Order Limits
- Confirmed bat roost structures
- Confirmed bat roost trees
- Confirmed bat roost buildings
- Access point
- SL Surveyor Location
- Direction of flight path



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P00	19/07/22	For DCO application	ML	LW	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE
SURVEY RESULTS - BUILDING ID B923
SHEET 6 OF 15

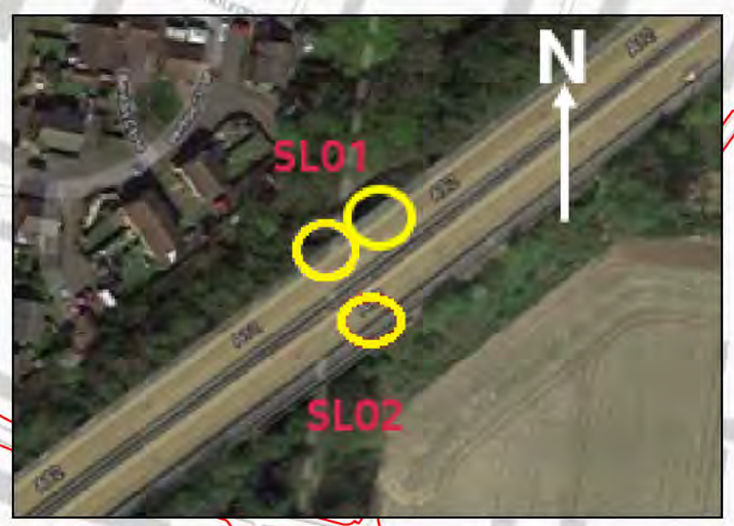
Drawing Status: S4 – SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:2500	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P00

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0550

FIGURE C6

0 0.2 Kilometres



NORTH (SL01)

On 18/08/21: at 20:20
one soprano pipistrelle emergence from wall next to ivy was observed

On 01/09/20: at 19:51
one soprano pipistrelle emergence from northern side of bridge

On 14/06/21: five common pipistrelle and two soprano pipistrelle emergences from combination of both emergence points circled above was observed

BE11

SOUTH (SL02)

On 14/06/21: at 21:34
one common pipistrelle emergence was observed

On 01/09/2020:one soprano pipistrelle and one common pipistrelle emerging from the southern end of the bridge

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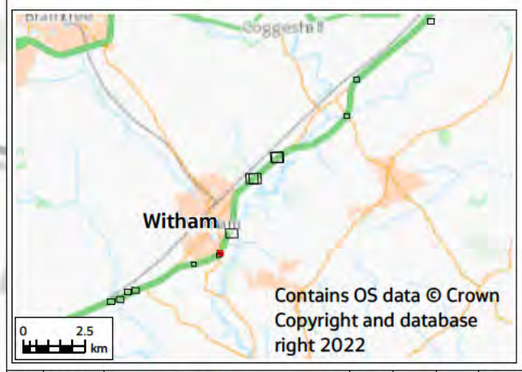
Legend

- Order Limits
- Confirmed bat roost structures
- Confirmed bat roost trees
- Confirmed bat roost buildings
- Access point
- SL Surveyor Location



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P00	19/07/22	For DCO application	ML	LW	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE
SURVEY RESULTS - STRUCTURE ID BE11 - BENTON BRIDGE
SHEET 7 OF 15

Drawing Status: S4 – SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:2500	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P00

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0551

0 0.2 Kilometres

On 15/06/21 at 21:28
one soprano pipistrelle emergence
was observed

T1149

River Blackwater

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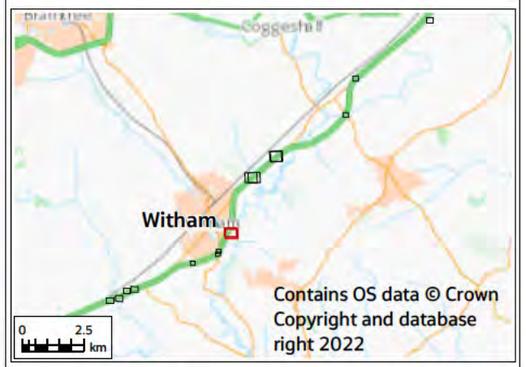
N
W E
S

FIGURE C6

Legend

- Order Limits
- Confirmed bat roost structures
- Confirmed bat roost trees
- Confirmed bat roost buildings
- Roost Location
- SL Surveyor Location
- Direction of flight path



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P00	19/07/22	For DCO application	ML	LW	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE
SURVEY RESULTS - TREE ID T1149
SHEET 8 OF 15

Drawing Status: S4 – SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:2500	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P00

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0552

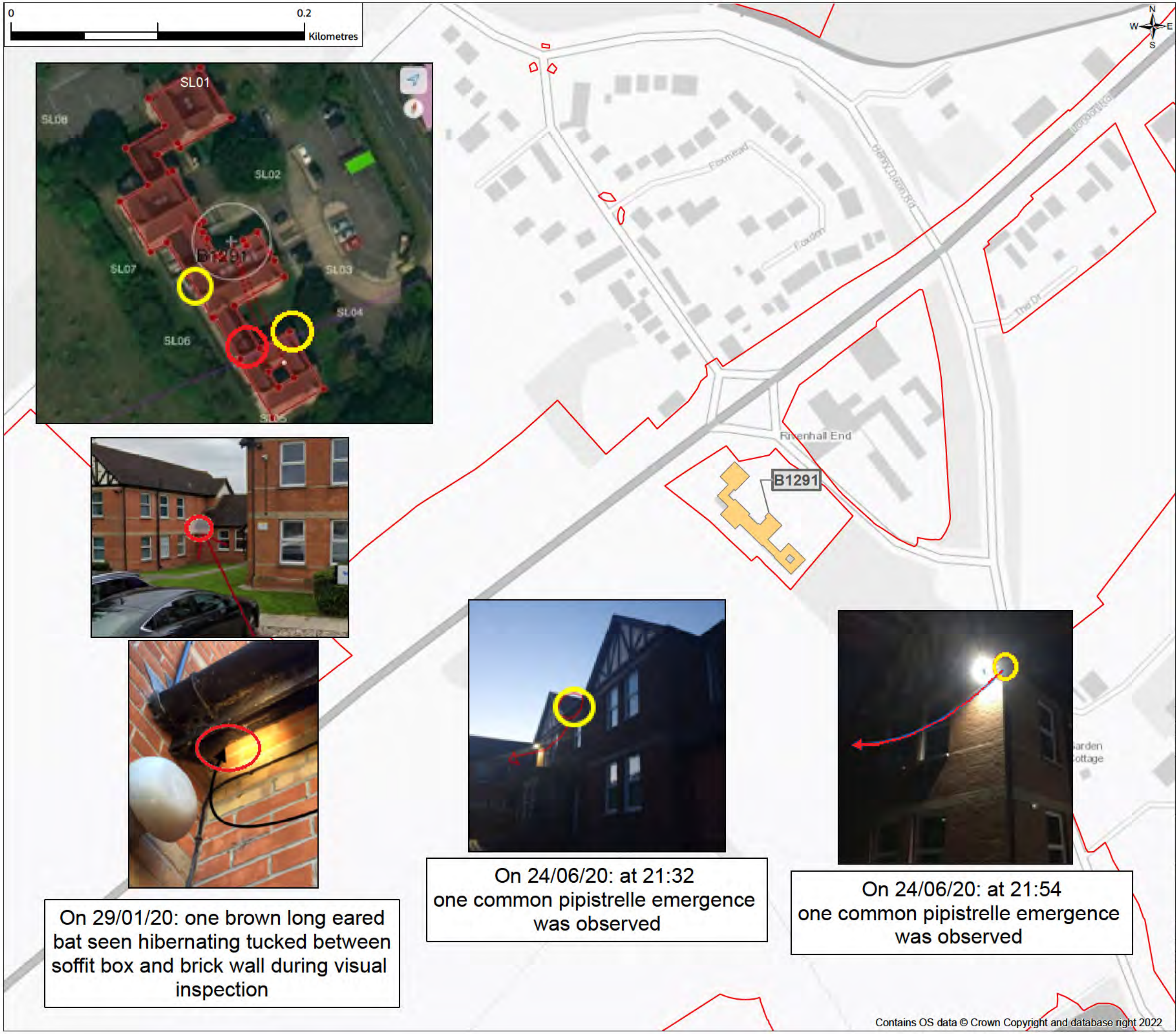
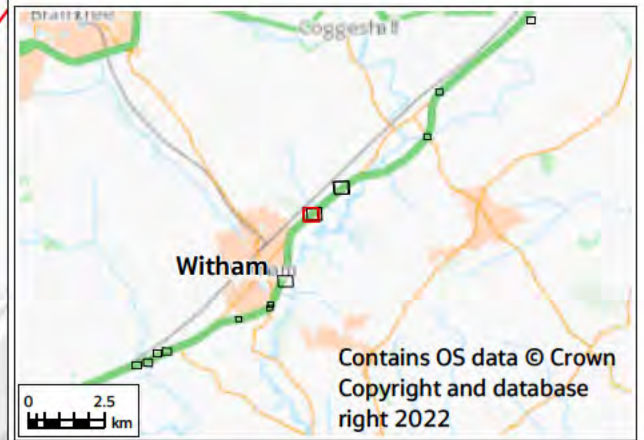


FIGURE C6

Legend

- Order Limits
- Confirmed bat roost structures
- Confirmed bat roost trees
- Confirmed bat roost buildings
- Roost Location
- Access point
- SL Surveyor Location
- Direction of flight path



P00	19/07/22	For DCO application	ML	LW	NP	SG
Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project

REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title

A12 BAT LICENCE
SURVEY RESULTS - BUILIDNG ID B1291
SHEET 9 OF 15

Drawing Status: S4 – SUITABLE FOR STAGE APPROVAL

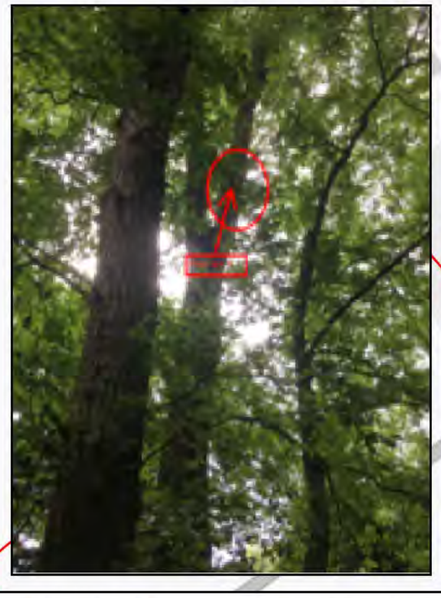
Scale @ A3	1:2500	DO NOT SCALE	
Jacobs No.	B36601D1		
Client No.	HE551497	Rev	P00

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0553

FIGURE C6

0 0.2 Kilometres

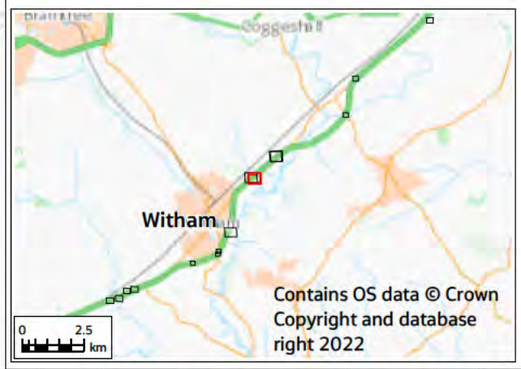
N W E S



On 27/07/20: a brown long-eared bat roost was located

Legend

- Order Limits
- Confirmed bat roost structures
- Confirmed bat roost trees
- Confirmed bat roost buildings
- Roost Location
- SL Surveyor Location
- Direction of flight path



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P00	19/07/22	For DCO application	ML	LW	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE
SURVEY RESULTS - TREE ID T79
SHEET 10 OF 15

Drawing Status: S4 – SUITABLE FOR STAGE APPROVAL

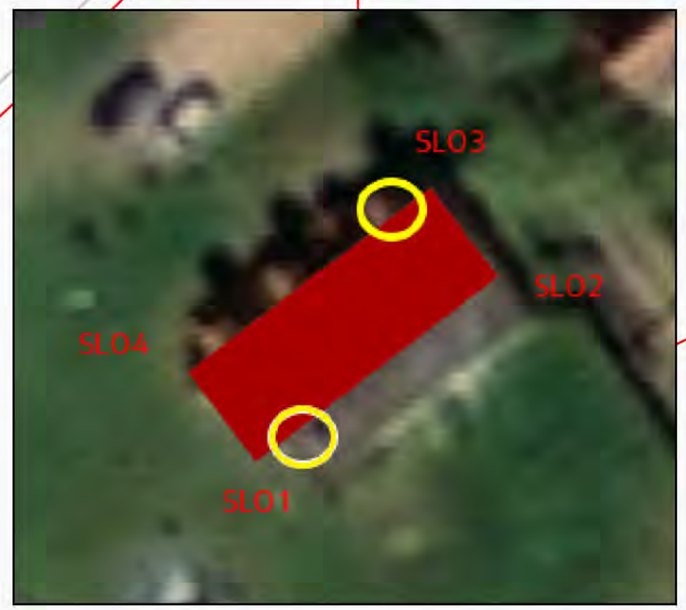
Scale @ A3	1:2500	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P00

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0554

FIGURE C6

0 0.2 Kilometres

N W E S



A12

A12

B1392

Hoe Farm

Legend

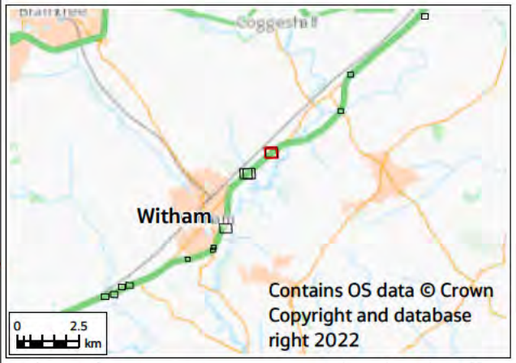
- Order Limits
- Confirmed bat roost structures
- Confirmed bat roost trees
- Confirmed bat roost buildings
- Access point
- SL Surveyor Location
- Direction of flight path

SL01 (S)

On 14/07/20 at 21:43
one soprano pipistrelle emerged
from the southern dormer

SL03 (N)

On 27/07/20: at 21:48
one soprano pipistrelle emerged
from the northern dormer



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P00	19/07/22	For DCO application	ML	LW	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE
SURVEY RESULTS - BUILDING ID B1392
SHEET 11 OF 15

Drawing Status: S4 – SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:2500	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P00

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0555

FIGURE C6

On 31/08/17 at 05:11-05:13
five soprano pipistrelles seen emerging;
four from underneath lifted tiles, and one
from underneath lead flashing

0 0.2 Kilometres

N W E S

A12

B1393

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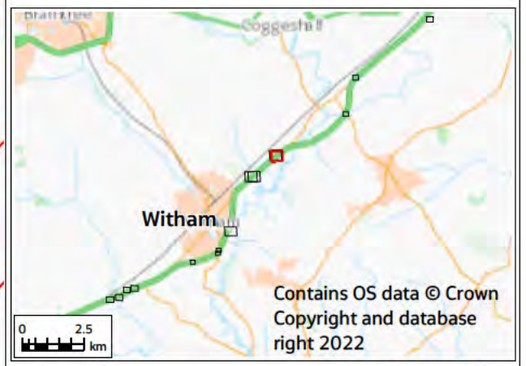
Legend

- Order Limits
- Confirmed bat roost structures
- Confirmed bat roost trees
- Confirmed bat roost buildings
- Access point
- SL Surveyor Location



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P00	19/07/22	For DCO application	ML	LW	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE
SURVEY RESULTS - BUILDING ID B1393
SHEET 12 OF 15

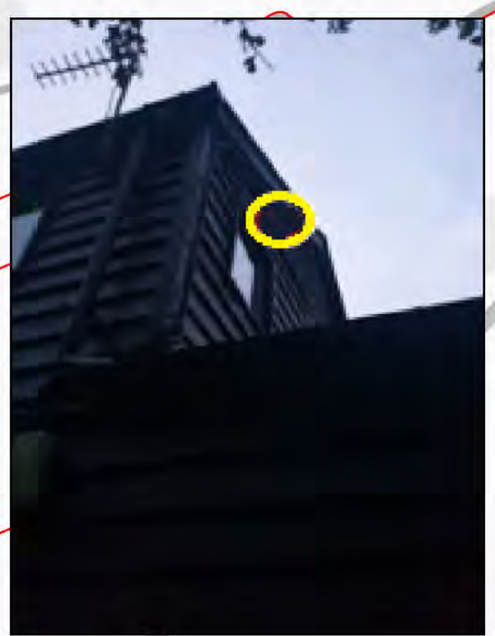
Drawing Status: S4 – SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:2500	DO NOT SCALE	
Jacobs No.	B36601D1	Rev	P00
Client No.	HE551497		

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0556

0 0.2 Kilometres

N W E S



On 16/09/21 at 06:20 one common pipistrelle was observed re-entering behind cladding

B1463

B1024

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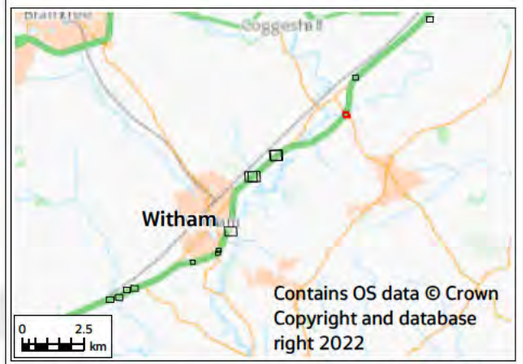
FIGURE C6

Legend

- Order Limits
- Confirmed bat roost structures
- Confirmed bat roost trees
- Confirmed bat roost buildings
- Access point
- SL Surveyor Location



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P00	19/07/22	For DCO application	ML	LW	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE
SURVEY RESULTS - BUILIDNG ID B1463
SHEET 13 OF 15

Drawing Status: S4 – SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:2500	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P00

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0557

FIGURE C6

0 0.2 Kilometres

N W E S

Legend
- Order Limits
- Confirmed bat roost structures
- Confirmed bat roost trees
- Confirmed bat roost buildings
- Access point
- SL Surveyor Location
- Direction of flight path

SL Distribution 20/07/2020

SL03 (N) 20/07/2020

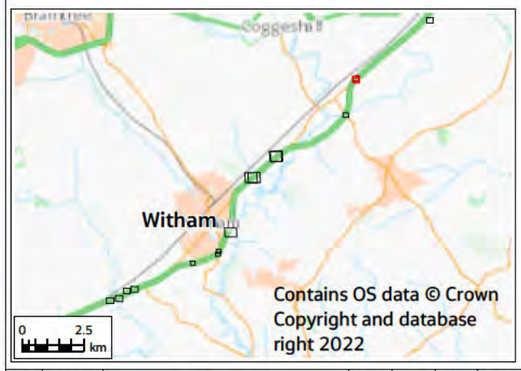
At 21:28
two common pipistrelle emerged from under fascia

At 21:34
one common pipistrelle emergence

SL Distribution 04/08/2020

SL02 (N) 04/08/2020

At 04:36
one soprano pipistrelle re-entered building through lifted wooden slats



P00	19/07/22	For DCO application	ML	LW	NP	SG
Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE
SURVEY RESULTS - BUILDING ID B1522
SHEET 14 OF 15

Drawing Status: S4 – SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:2500	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P00

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0558

0 0.2 Kilometres

N W E S

FIGURE C6

Legend

- Order Limits
- Confirmed bat roost structures
- Confirmed bat roost trees
- Confirmed bat roost buildings
- Access point
- SL Surveyor Location

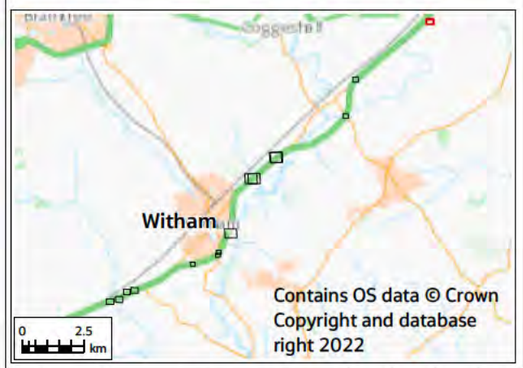
B1679

Hammer Farm

On 16/05/17: at 20:58
one common pipistrelle emerged
from a ridge tile on the roof

On 03/08/17: at 21:03
one common pipistrelle emerged
from under lifted tile on porch

On 06/09/17: at 05:41-05:48
three common pipistrelle re-entered
under a lifted tile



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P00	19/07/22	For DCO application	ML	LW	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE
SURVEY RESULTS - BUILIDNG ID B1679
SHEET 15 OF 15

Drawing Status: S4 – SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:2500	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P00

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0559

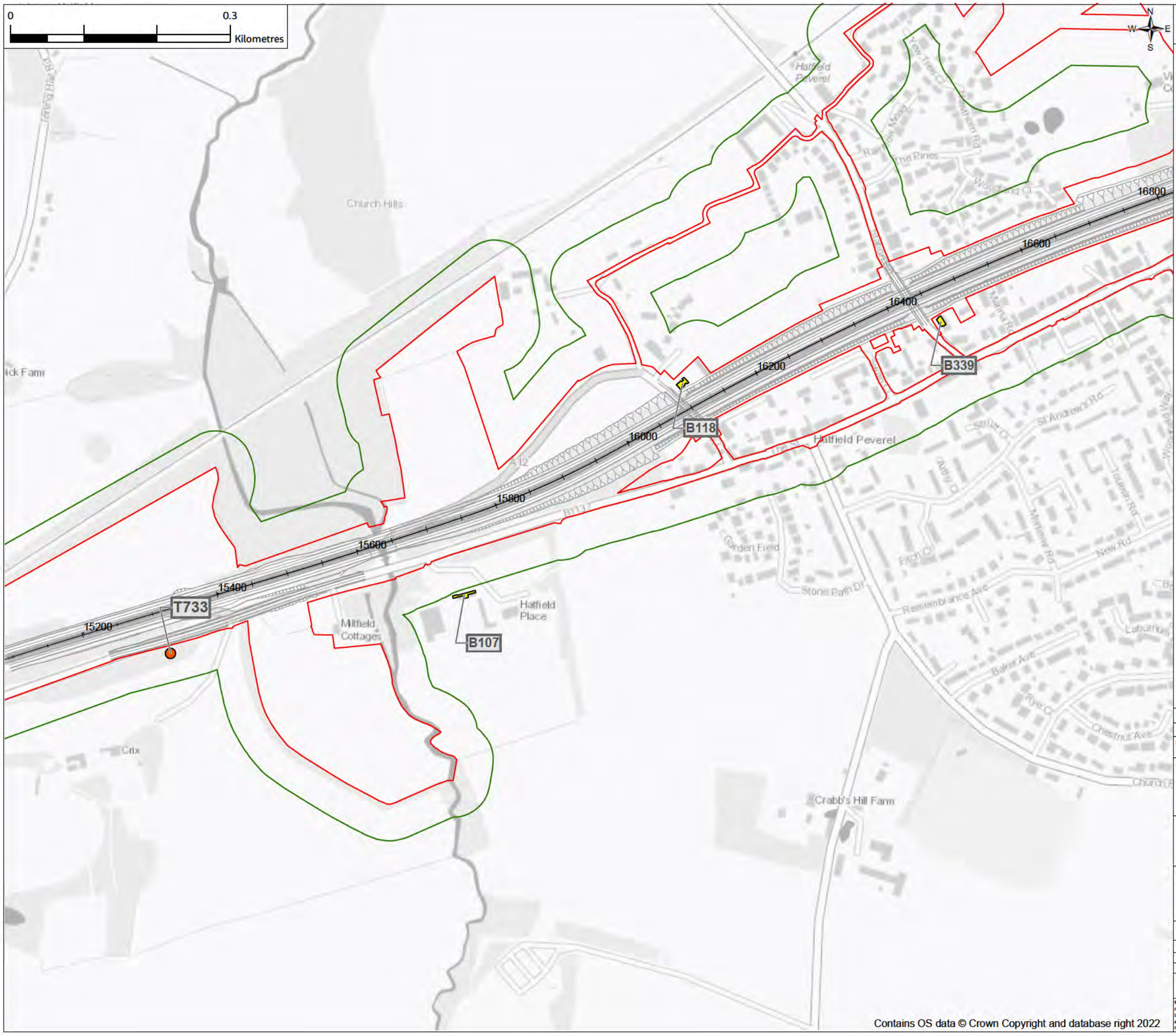
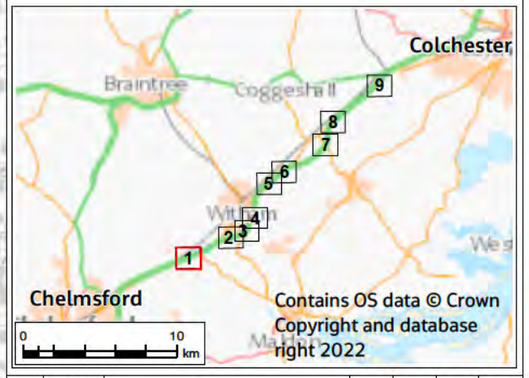


FIGURE D

Legend

- Scheme Layout
- Chainage
- Order Limits
- 50m buffer
- Building roosts to be disturbed
- Building roost to be lost
- Tree roosts to be lost
- Structure roosts to be disturbed



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P00	19/07/22	For DCO application	ML	LW	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE
IMPACTS PLAN
SHEET 1 OF 9

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P00

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0526

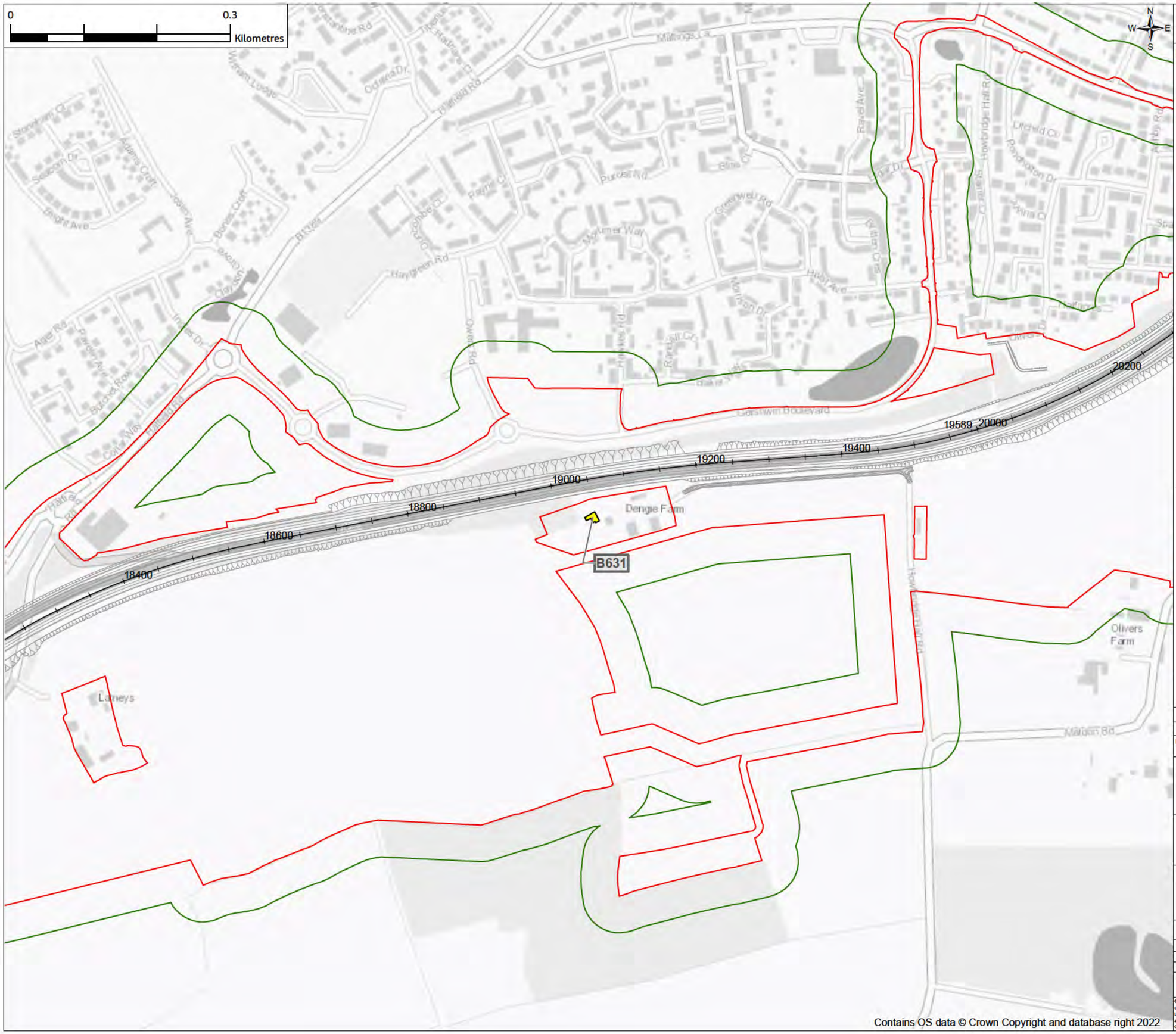
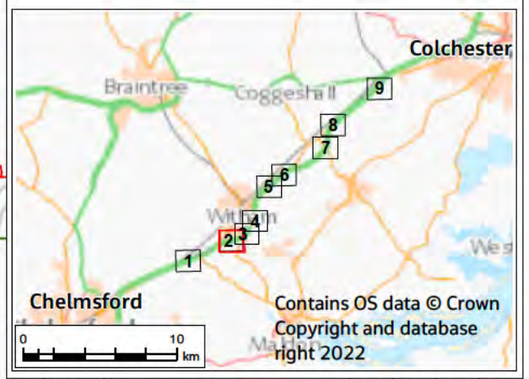


FIGURE D

Legend

- Scheme Layout
- Chainage
- Order Limits
- 50m buffer
- Building roosts to be disturbed
- Building roost to be lost
- Tree roosts to be lost
- Structure roosts to be disturbed



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P00	19/07/22	For DCO application	ML	LW	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

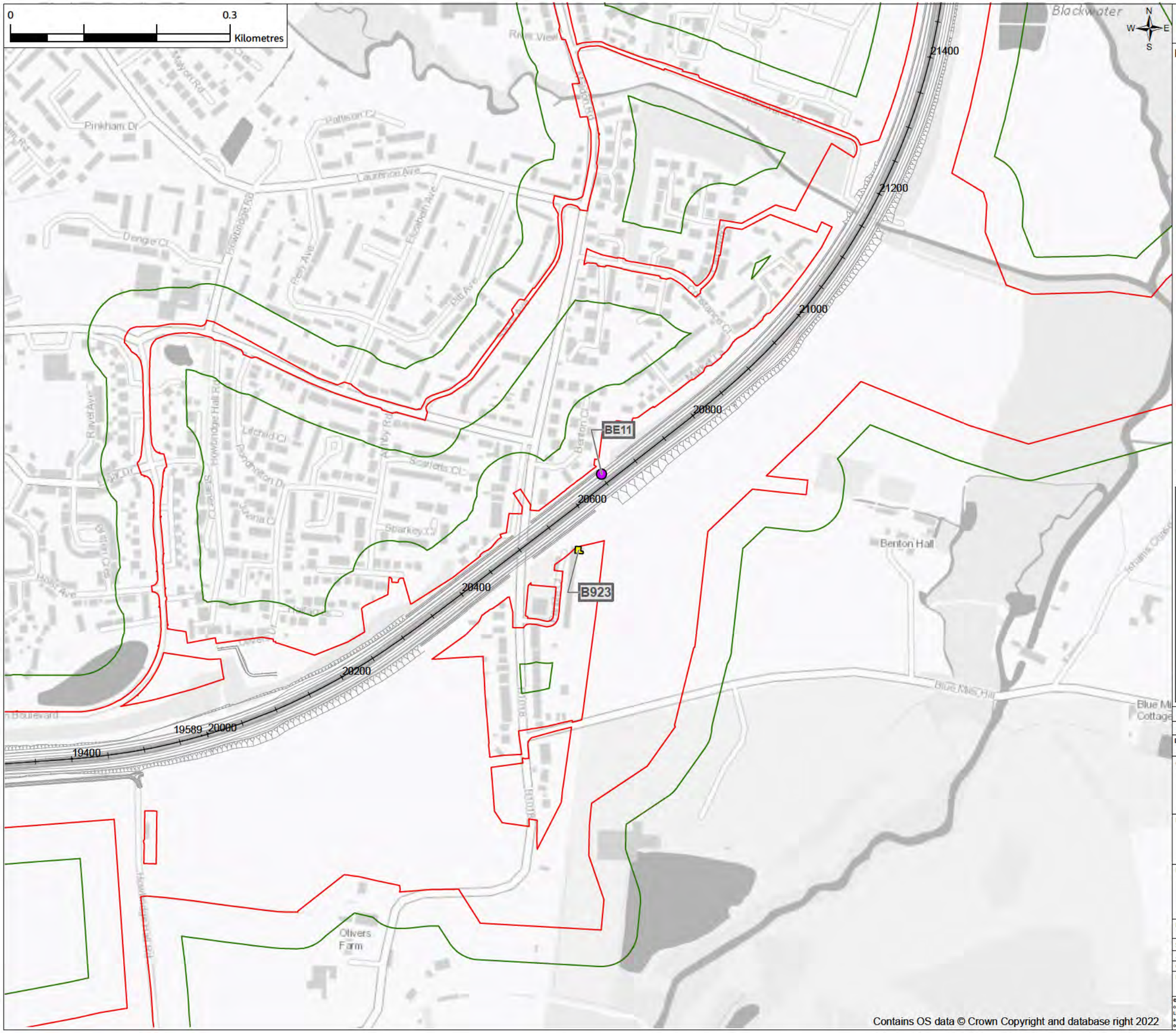
Drawing Title: A12 BAT LICENCE IMPACTS PLAN SHEET 2 OF 9

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P00

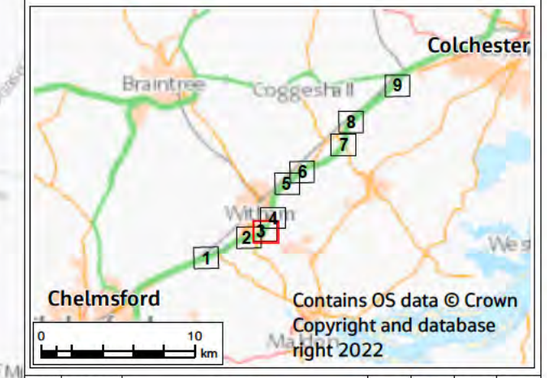
Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0527

FIGURE D



Legend

- Scheme Layout
- Chainage
- Order Limits
- 50m buffer
- Building roosts to be disturbed
- Building roost to be lost
- Tree roosts to be lost
- Structure roosts to be disturbed



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P00	19/07/22	For DCO application	ML	LW	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE
IMPACTS PLAN
SHEET 3 OF 9

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

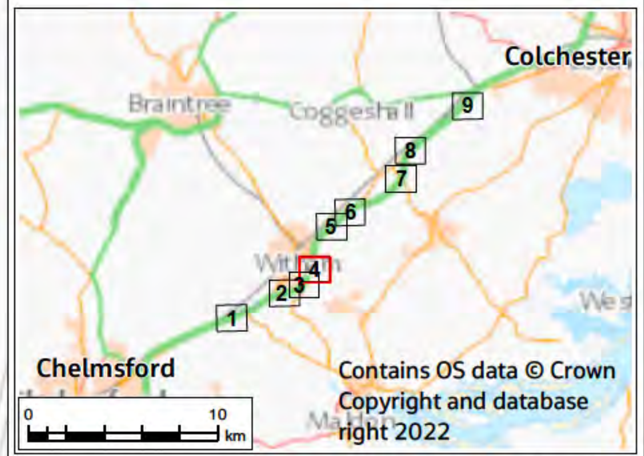
Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P00

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0528

FIGURE D

Legend

- Scheme Layout
- Chainage
- Order Limits
- 50m buffer
- Building roosts to be disturbed
- Building roost to be lost
- Tree roosts to be lost
- Structure roosts to be disturbed



P00	19/07/22	For DCO application	ML	LW	NP	SG
Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE
IMPACTS PLAN
SHEET 4 OF 9

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

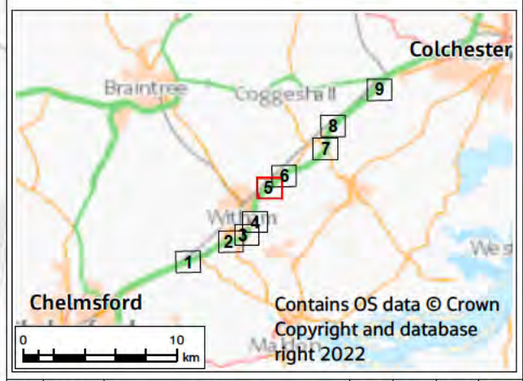
Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P00

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0529

FIGURE D

Legend

- Scheme Layout
- Chainage
- Order Limits
- 50m buffer
- Building roosts to be disturbed
- Building roost to be lost
- Tree roosts to be lost
- Structure roosts to be disturbed



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P00	19/07/22	For DCO application	ML	LW	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(i)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE
IMPACTS PLAN
SHEET 5 OF 9

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P00

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0530

FIGURE D

0 0.3 Kilometres

N W E S

Crabb's Farm

26400
26200
26000
25800
25600
25400
25200
25000
24800
24600

B1393
B1392

Pyle Farm

River Blackwater

Great Braxted Mill

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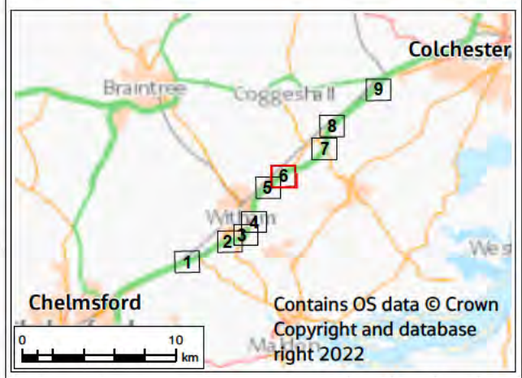
Legend

- Scheme Layout
- Chainage
- Order Limits
- 50m buffer
- Building roosts to be disturbed
- Building roost to be lost
- Tree roosts to be lost
- Structure roosts to be disturbed



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P00	19/07/22	For DCO application	ML	LW	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE
IMPACTS PLAN
SHEET 6 OF 9

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P00

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0531

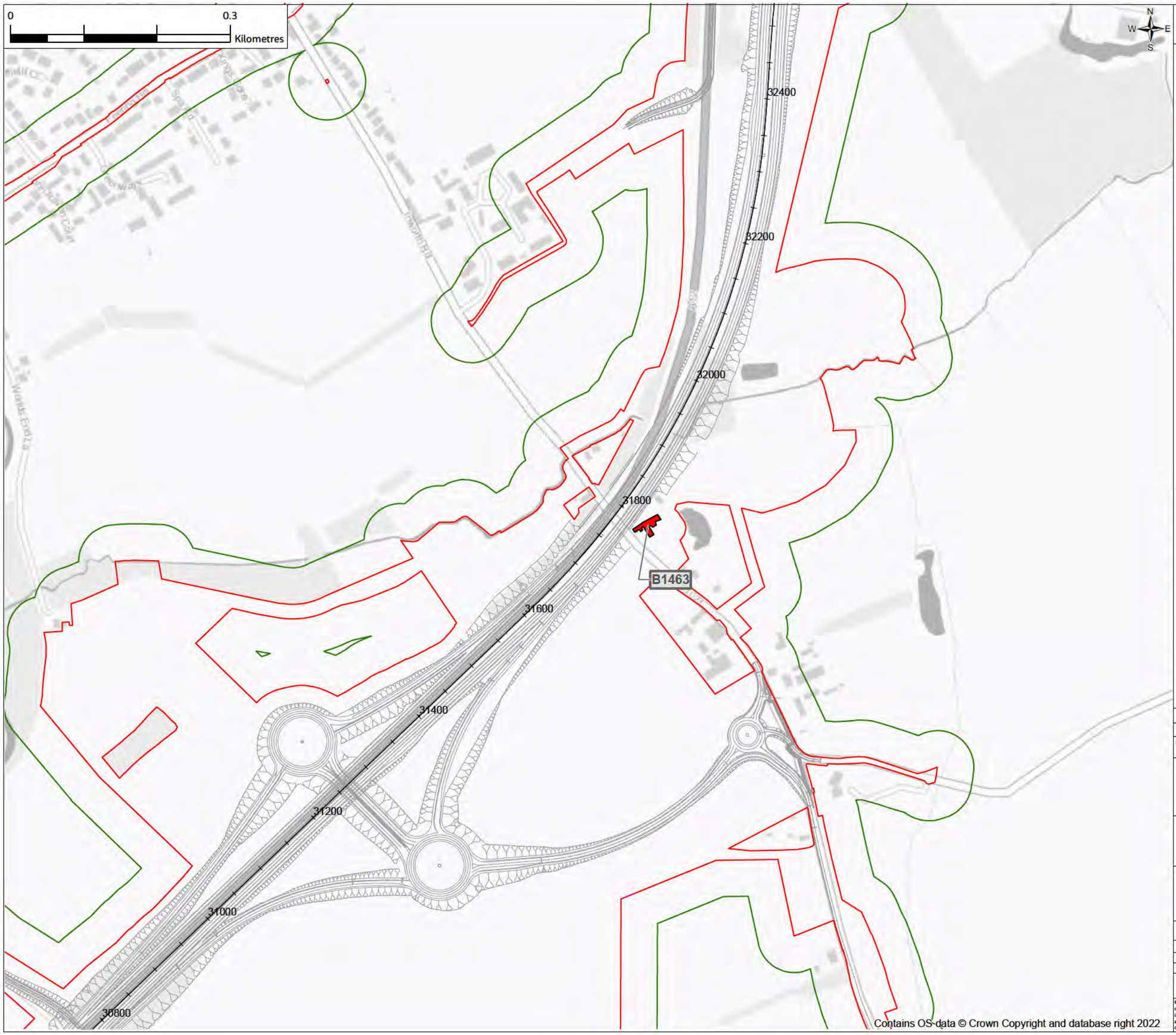
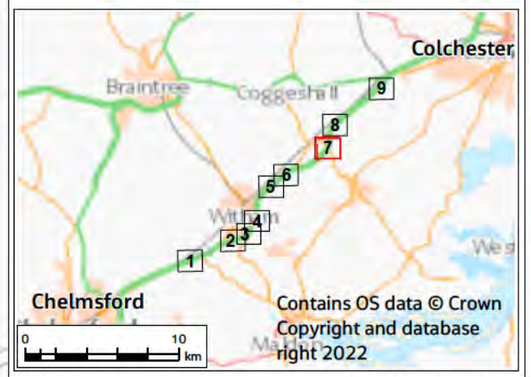


FIGURE D

Legend

- Scheme Layout
- Chainage
- Order Limits
- 50m buffer
- Building roosts to be disturbed
- Building roost to be lost
- Tree roosts to be lost
- Structure roosts to be disturbed



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P00	19/07/22	For DCO application	ML	LW	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE IMPACTS PLAN SHEET 7 OF 9

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P00

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0532

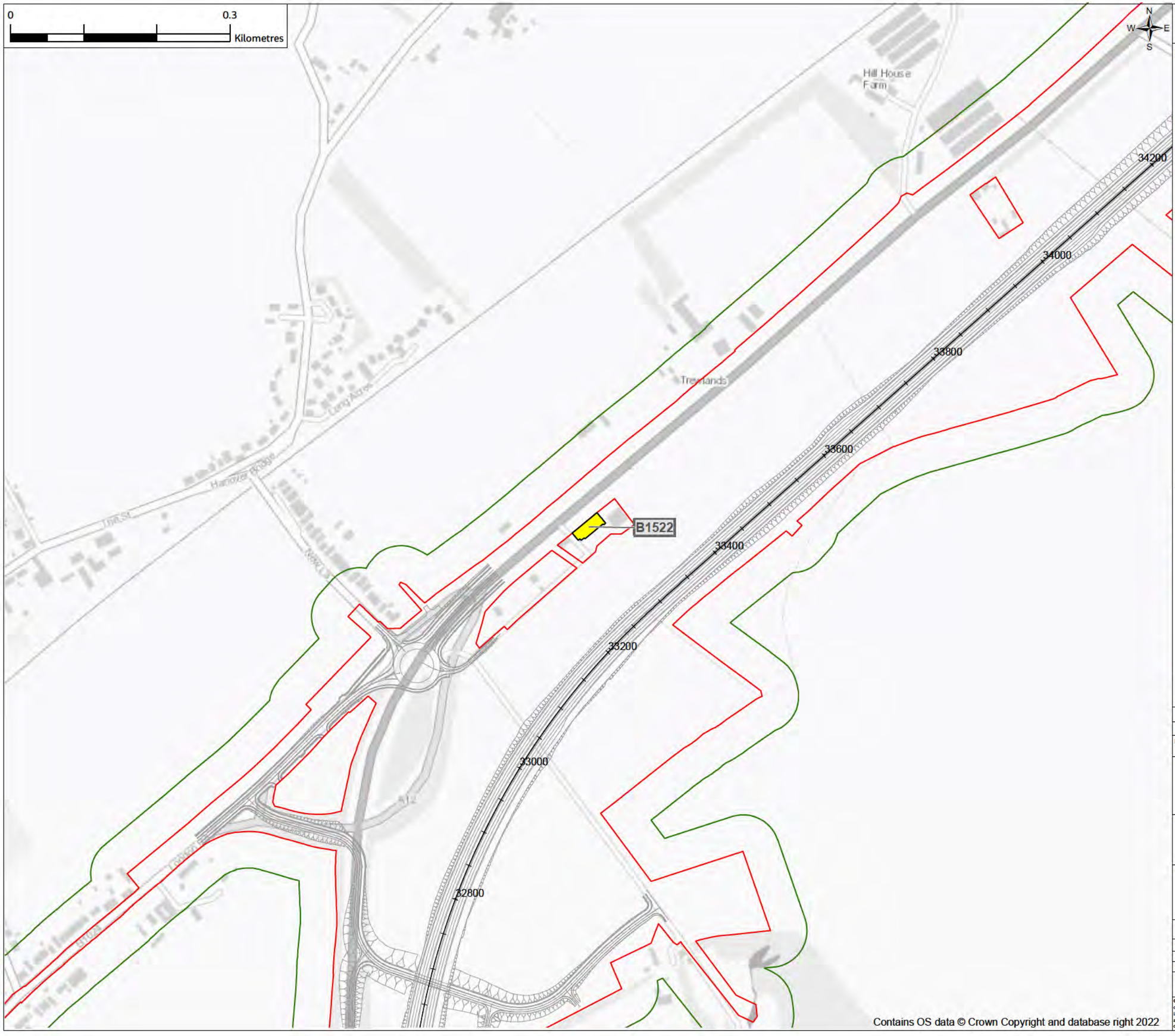
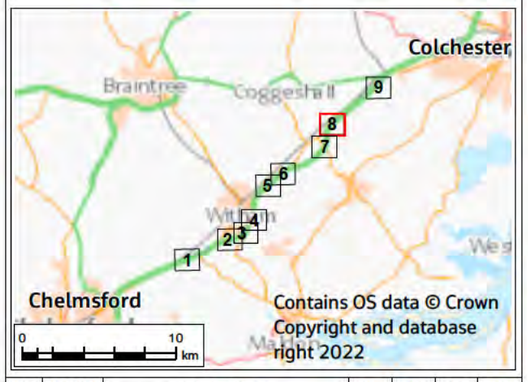


FIGURE D

Legend

- Scheme Layout
- Chainage
- Order Limits
- 50m buffer
- Building roosts to be disturbed
- Building roost to be lost
- Tree roosts to be lost
- Structure roosts to be disturbed



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P00	19/07/22	For DCO application	ML	LW	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

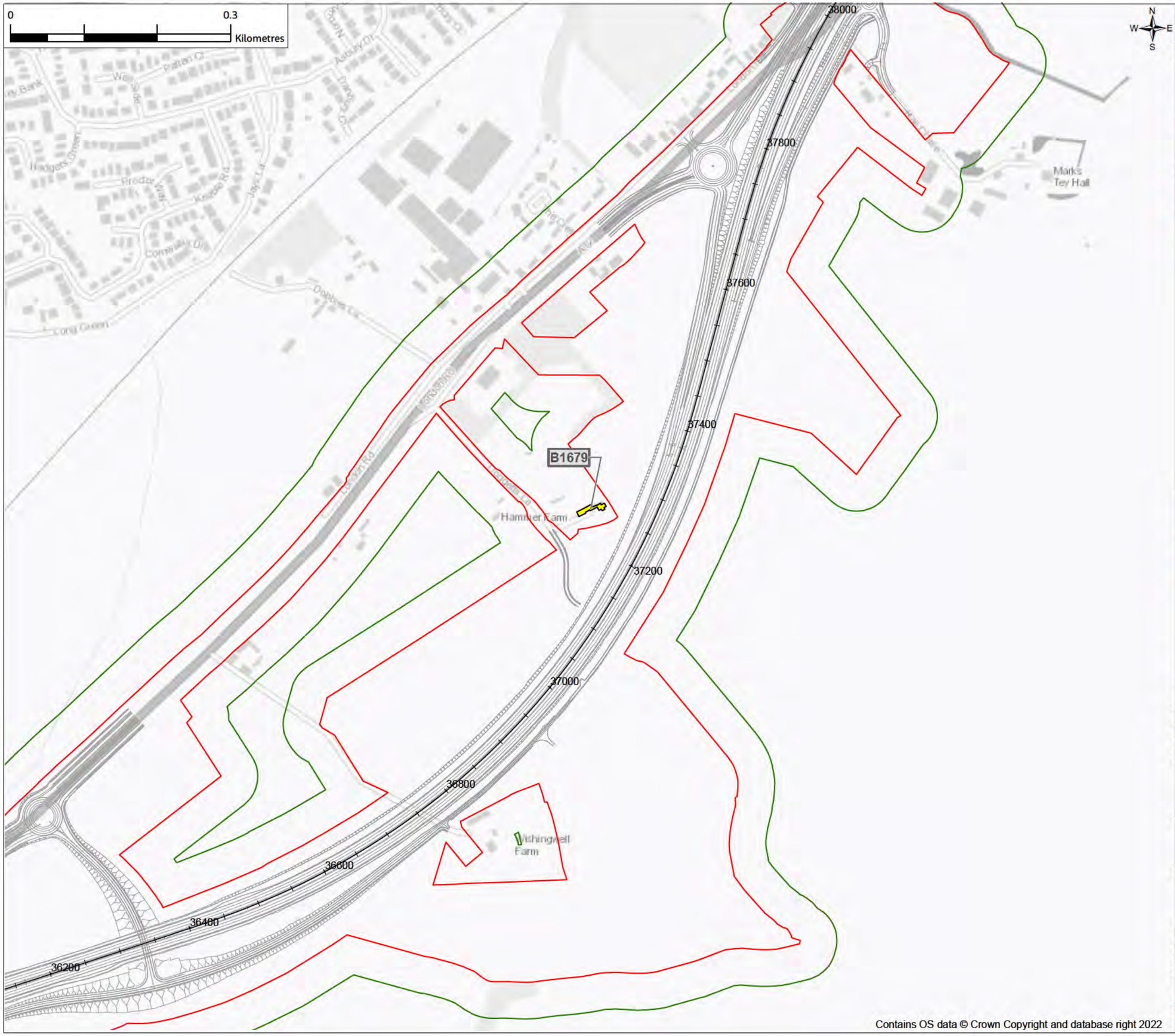
Drawing Title: A12 BAT LICENCE IMPACTS PLAN SHEET 8 OF 9

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P00

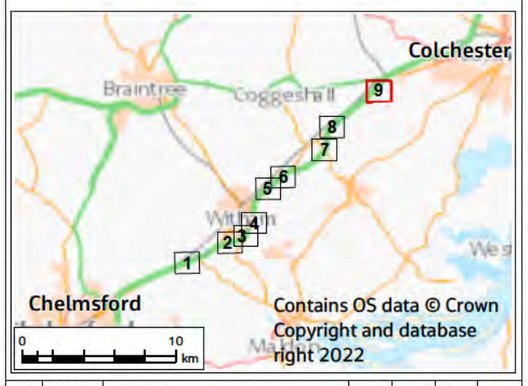
Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0533

FIGURE D



Legend

- Scheme Layout
- Chainage
- Order Limits
- 50m buffer
- Building roosts to be disturbed
- Building roost to be lost
- Tree roosts to be lost
- Structure roosts to be disturbed



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P00	19/07/22	For DCO application	ML	LW	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE
IMPACTS PLAN
SHEET 9 OF 9

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P00

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0534

FIGURE E3

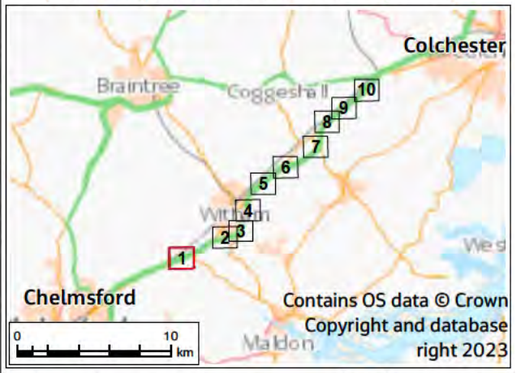
0 0.3 Kilometres

N W E S

Legend

- Scheme Layout
- Chainage
- Order Limits
- 50m buffer
- Building roosts to be disturbed
- Building roost to be lost
- Proposed bat box installation
- Tree roosts to be lost
- Structure roosts to be disturbed
- Potential crossing point for bats (for information, not licensed mitigation)
- Bat

* All bat boxes are to be monitored three times, once during construction a year after they are installed and then once in both year 1 and year 3 post construction respectively



T733 B339 B118 B107

15200 15400 15600 15800 16000 16200 16400 16600 16800

3 x Schwegler 2F bat boxes (or equivalent) for loss of soprano pipistrelle day roost at T733

2 x Schwegler 1FF bat boxes and
2 x Schwegler 2F bat boxes (or equivalent) for the potential noise disturbance of day roosts at B339, B118 and B107

Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P01	22/03/23	For DCO application	AD	LW	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE
SPECIFICATIONS FOR MITIGATION/COMPENSATION
SHEET 1 OF 10

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P01

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0535

FIGURE E3

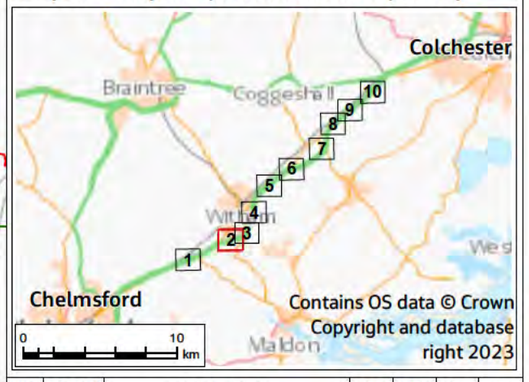
0 0.3 Kilometres

N W E S

Legend

- Scheme Layout
- Chainage
- Order Limits
- 50m buffer
- Building roosts to be disturbed
- Building roost to be lost
- Proposed bat box installation
- Tree roosts to be lost
- Structure roosts to be disturbed
- Potential crossing point for bats (for information, not licensed mitigation)
- Bat

* All bat boxes are to be monitored three times, once during construction a year after they are installed and then once in both year 1 and year 3 post construction respectively



P01	22/03/23	For DCO application	AD	LW	NP	SG
Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE
SPECIFICATIONS FOR MITIGATION/COMPENSATION
SHEET 2 OF 10

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P01

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0536

FIGURE E3

0 0.3 Kilometres

N W E S

2 x Schwegler 1FF and 1 x Schwegler 2F bat boxes (or equivalent) for potential disturbance of day roosts at B923

BE11

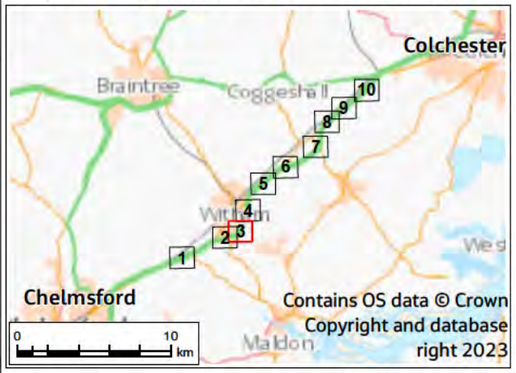
B923

21400 21200 21000 20800 20600 20400 20200 20000 19800 19589 19400

Legend

- Scheme Layout
- Chainage
- Order Limits
- 50m buffer
- Building roosts to be disturbed
- Building roost to be lost
- Proposed bat box installation
- Tree roosts to be lost
- Structure roosts to be disturbed
- Potential crossing point for bats (for information, not licensed mitigation)
- Bat

* All bat boxes are to be monitored three times, once during construction a year after they are installed and then once in both year 1 and year 3 post construction respectively



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Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

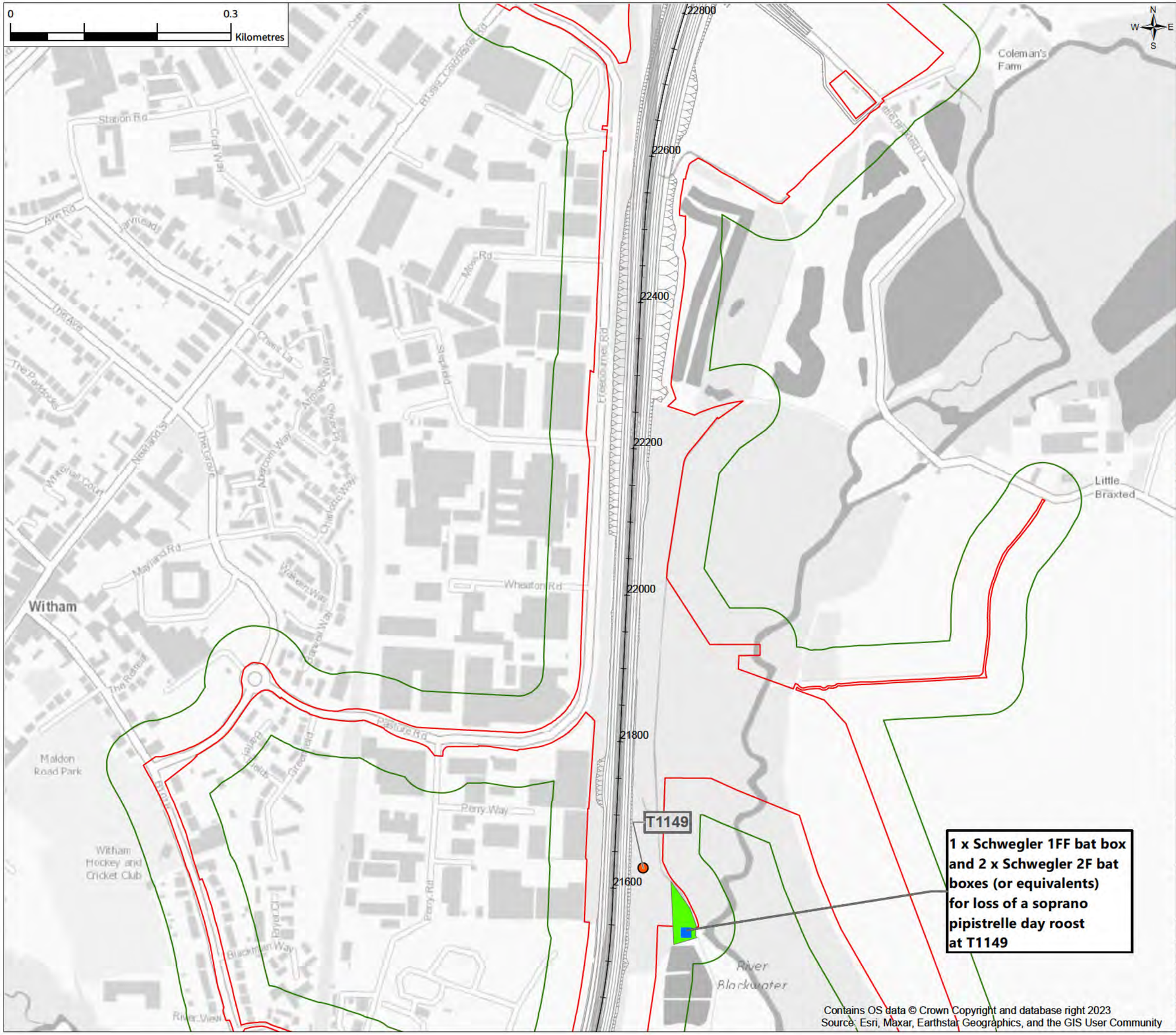
Drawing Title: A12 BAT LICENCE
SPECIFICATIONS FOR MITIGATION/COMPENSATION
SHEET 3 OF 10

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P01

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0537

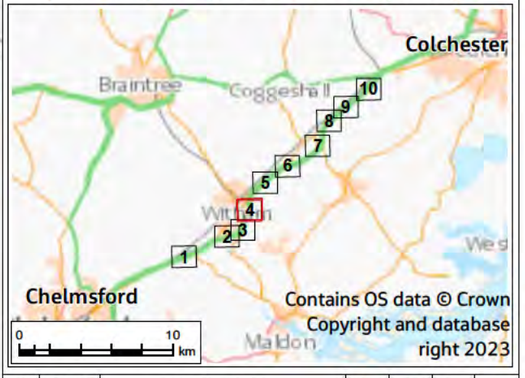
FIGURE E3



Legend

- Scheme Layout
- Chainage
- Order Limits
- 50m buffer
- Building roosts to be disturbed
- Building roost to be lost
- Proposed bat box installation
- Tree roosts to be lost
- Structure roosts to be disturbed
- Potential crossing point for bats (for information, not licensed mitigation)
- Bat

* All bat boxes are to be monitored three times, once during construction a year after they are installed and then once in both year 1 and year 3 post construction respectively



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P01	22/03/23	For DCO application	AD	LW	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE
SPECIFICATIONS FOR MITIGATION/COMPENSATION
SHEET 4 OF 10

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P01

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0538

FIGURE E3

0 0.3 Kilometres

N W E S

2 x Schwegler 1FW (hibernation) bat boxes and 1 x 2F Schwegler bat box (or equivalent) for potential loss of a soprano pipistrelle day roost and brown long-eared hibernation roost due to fragmentation disturbance at B1291

BN06 Braxted Road Overbridge

1 x Schwegler 1FW (hibernation) bat box and 2 x Schwegler 1FF bat boxes (or equivalents) for potential fragmentation disturbance of brown long eared hibernation roost.

3 x Schwegler 2F bat boxes (or equivalent) for loss of pipistrelle day roost at T79

1 x Schwegler 1FW bat box and 2 x Schwegler 2F bat boxes (or equivalents) for potential loss of a soprano pipistrelle day roost due to fragmentation disturbance at B1291

Hoo Hall Lodge
Pond Farm
Ivenhall End
T79
B1291
Garden Cottage
Appleford Farm
Burghey Brook Poultry Farm
25000
24800
24600
24400
24200
24000
23800
23600
23400

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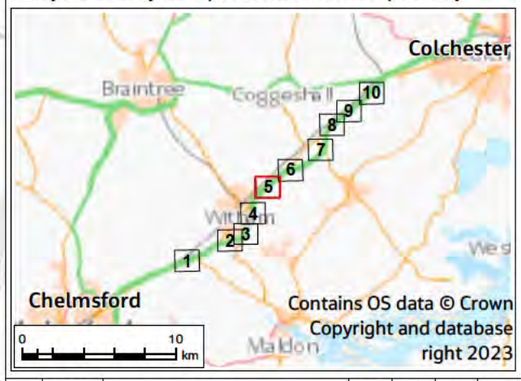
Legend

- Scheme Layout
- Chainage
- Order Limits
- 50m buffer
- Building roosts to be disturbed
- Building roost to be lost
- Proposed bat box installation
- Tree roosts to be lost
- Structure roosts to be disturbed
- Potential crossing point for bats (for information, not licensed mitigation)
- Bat

* All bat boxes are to be monitored three times, once during construction a year after they are installed and then once in both year 1 and year 3 post construction respectively



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P01	22/03/23	For DCO application	AD	LW	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE
SPECIFICATIONS FOR MITIGATION/COMPENSATION
SHEET 5 OF 10

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P01

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0539

FIGURE E3

0 0.3 Kilometres

N W E S

BN09 Highfields Overbridge replacement

Clarks Farm

Crabb's Farm

Ashman's Farm

Hole Farm

River Blackwater

Great Braxted Mill

B1393

B1392

25200 25400 25600 25800 26000 26200 26400 26600 26800

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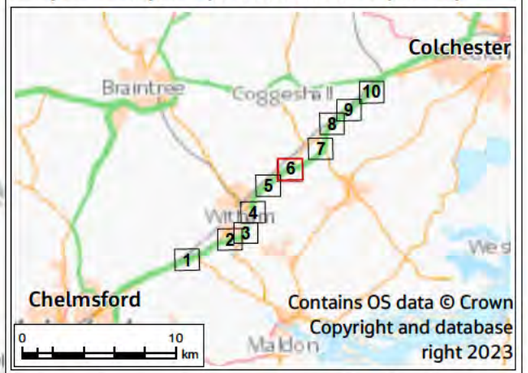
Legend

- Scheme Layout
- Chainage
- Order Limits
- 50m buffer
- Building roosts to be disturbed
- Building roost to be lost
- Proposed bat box installation
- Tree roosts to be lost
- Structure roosts to be disturbed
- Potential crossing point for bats (for information, not licensed mitigation)
- Bat

* All bat boxes are to be monitored three times, once during construction a year after they are installed and then once in both year 1 and year 3 post construction respectively



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P01	22/03/23	For DCO application	AD	LW	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

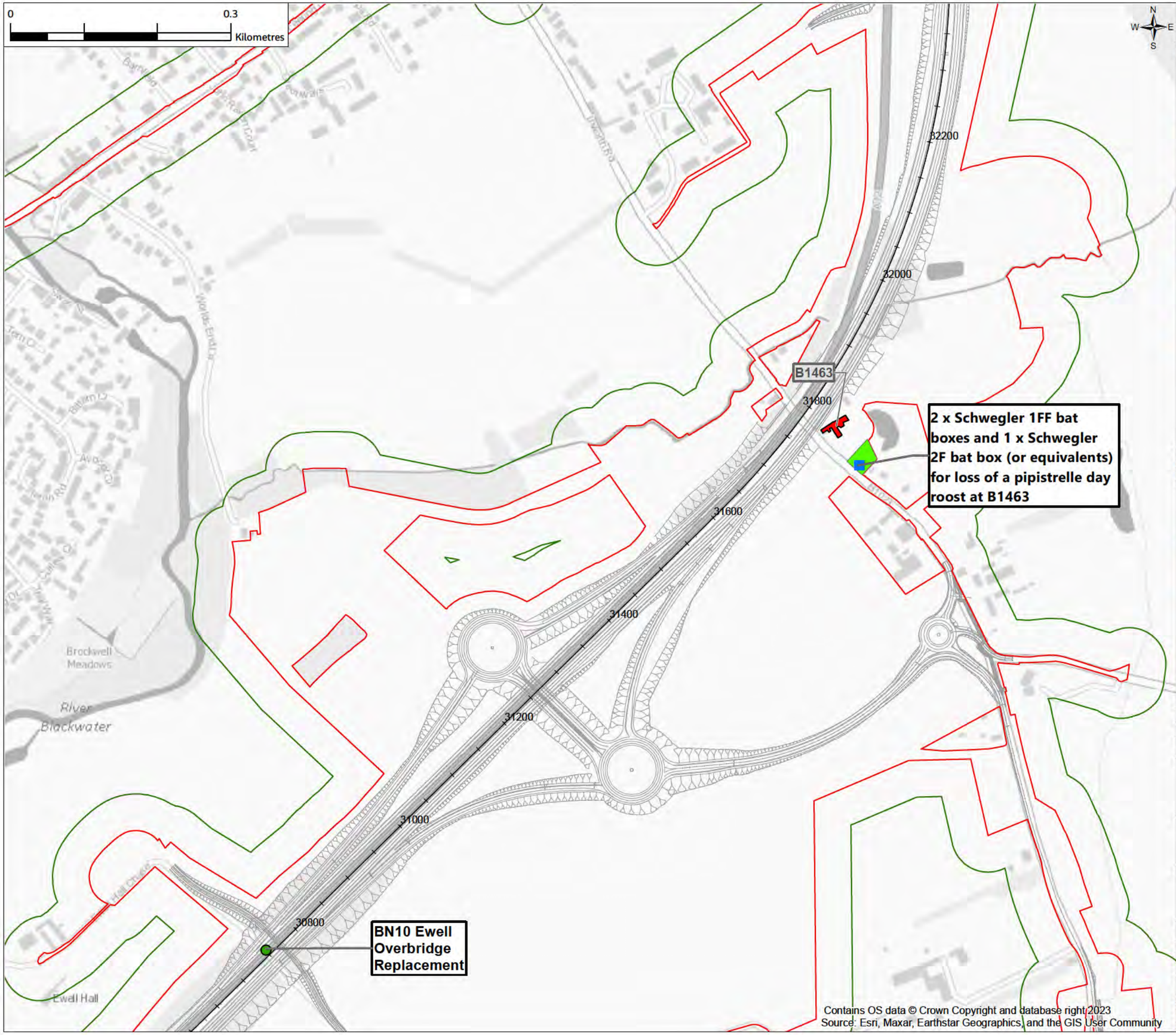
Drawing Title: A12 BAT LICENCE
SPECIFICATIONS FOR MITIGATION/COMPENSATION
SHEET 6 OF 10

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P01

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0540

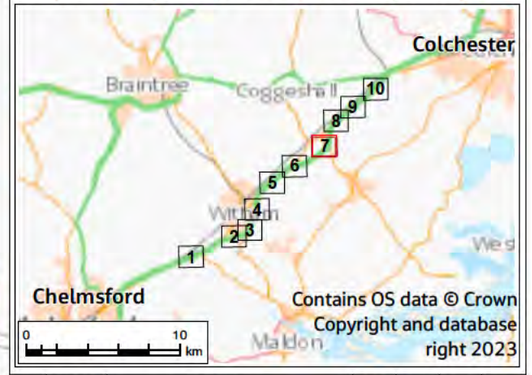
FIGURE E3



Legend

- Scheme Layout
- Chainage
- Order Limits
- 50m buffer
- Building roosts to be disturbed
- Building roost to be lost
- Proposed bat box installation
- Tree roosts to be lost
- Structure roosts to be disturbed
- Potential crossing point for bats (for information, not licensed mitigation)
- Bat

* All bat boxes are to be monitored three times, once during construction a year after they are installed and then once in both year 1 and year 3 post construction respectively



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P01	22/03/23	For DCO application	AD	LW	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

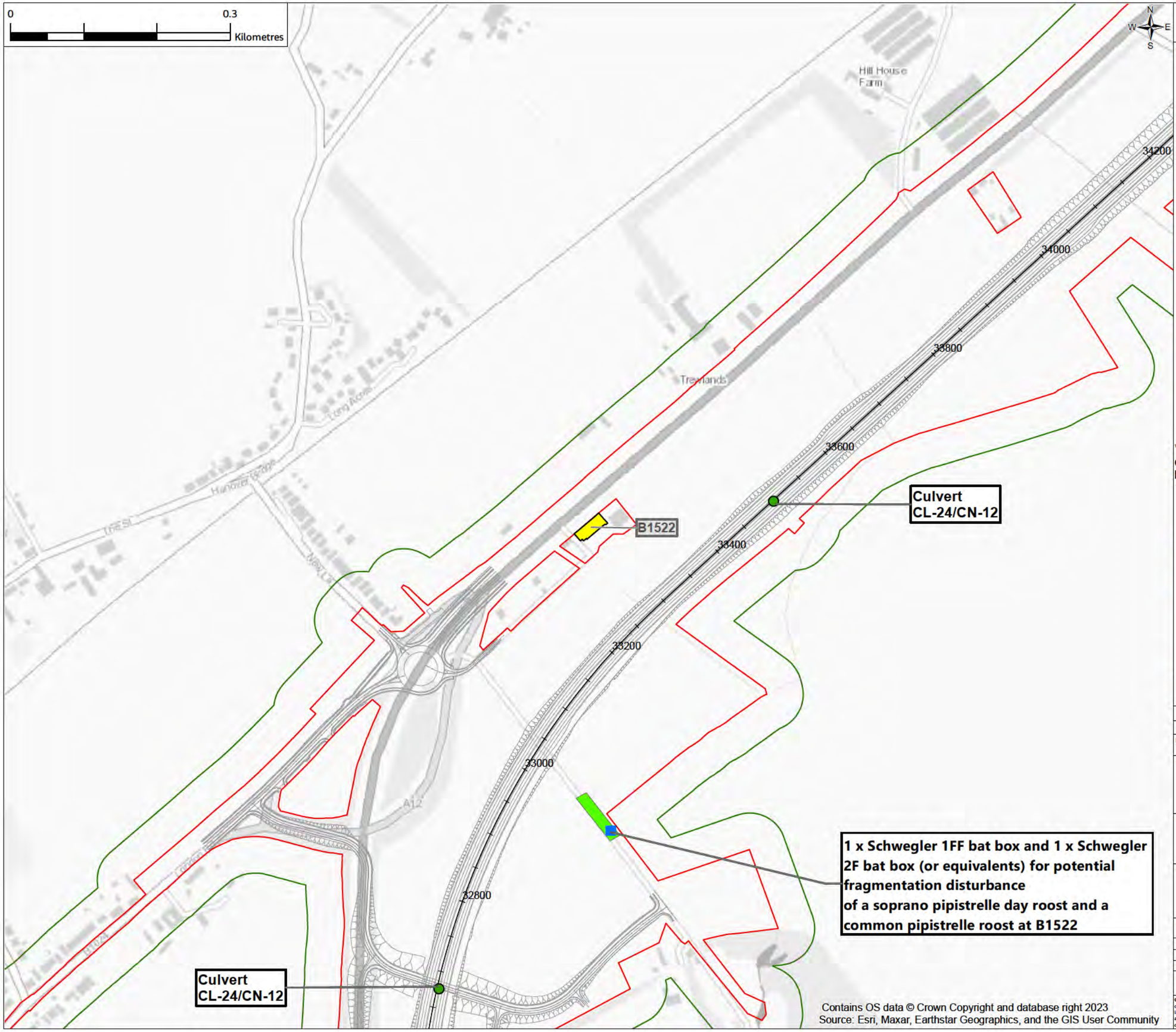
Drawing Title: A12 BAT LICENCE
SPECIFICATIONS FOR MITIGATION/COMPENSATION
SHEET 7 OF 10

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P01

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0541

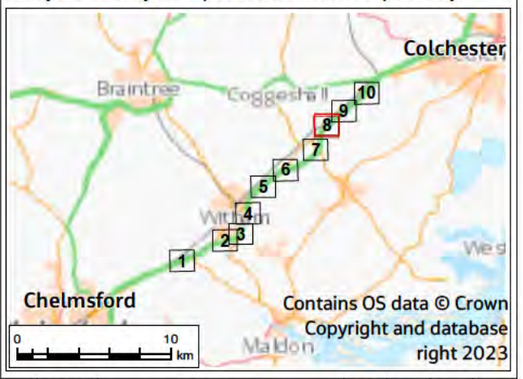
FIGURE E3



Legend

- Scheme Layout
- Chainage
- Order Limits
- 50m buffer
- Building roosts to be disturbed
- Building roost to be lost
- Proposed bat box installation
- Tree roosts to be lost
- Structure roosts to be disturbed
- Potential crossing point for bats (for information, not licensed mitigation)
- Bat

* All bat boxes are to be monitored three times, once during construction a year after they are installed and then once in both year 1 and year 3 post construction respectively



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
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Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE
SPECIFICATIONS FOR MITIGATION/COMPENSATION
SHEET 8 OF 10

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P01

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0542

FIGURE E3

0 0.3 Kilometres

N W E S

Great Domsey Farm

Little Domsey Cottages

Hill House Farm

35600
35400
35200
35000
34800
34600
34400
34200
34000
33800

BN13 Easthorpe road overbridge

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Legend

- Scheme Layout
- Chainage
- Order Limits
- 50m buffer
- Building roosts to be disturbed
- Building roost to be lost
- Proposed bat box installation
- Tree roosts to be lost
- Structure roosts to be disturbed
- Potential crossing point for bats (for information, not licensed mitigation)
- Bat

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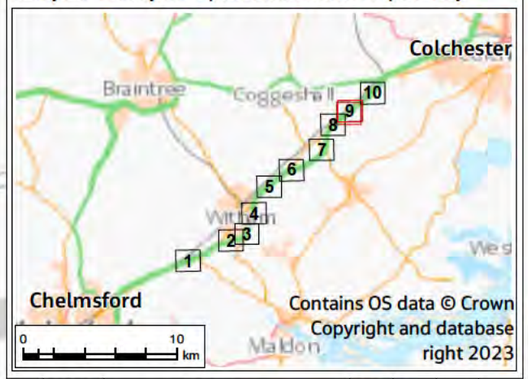

Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
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Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

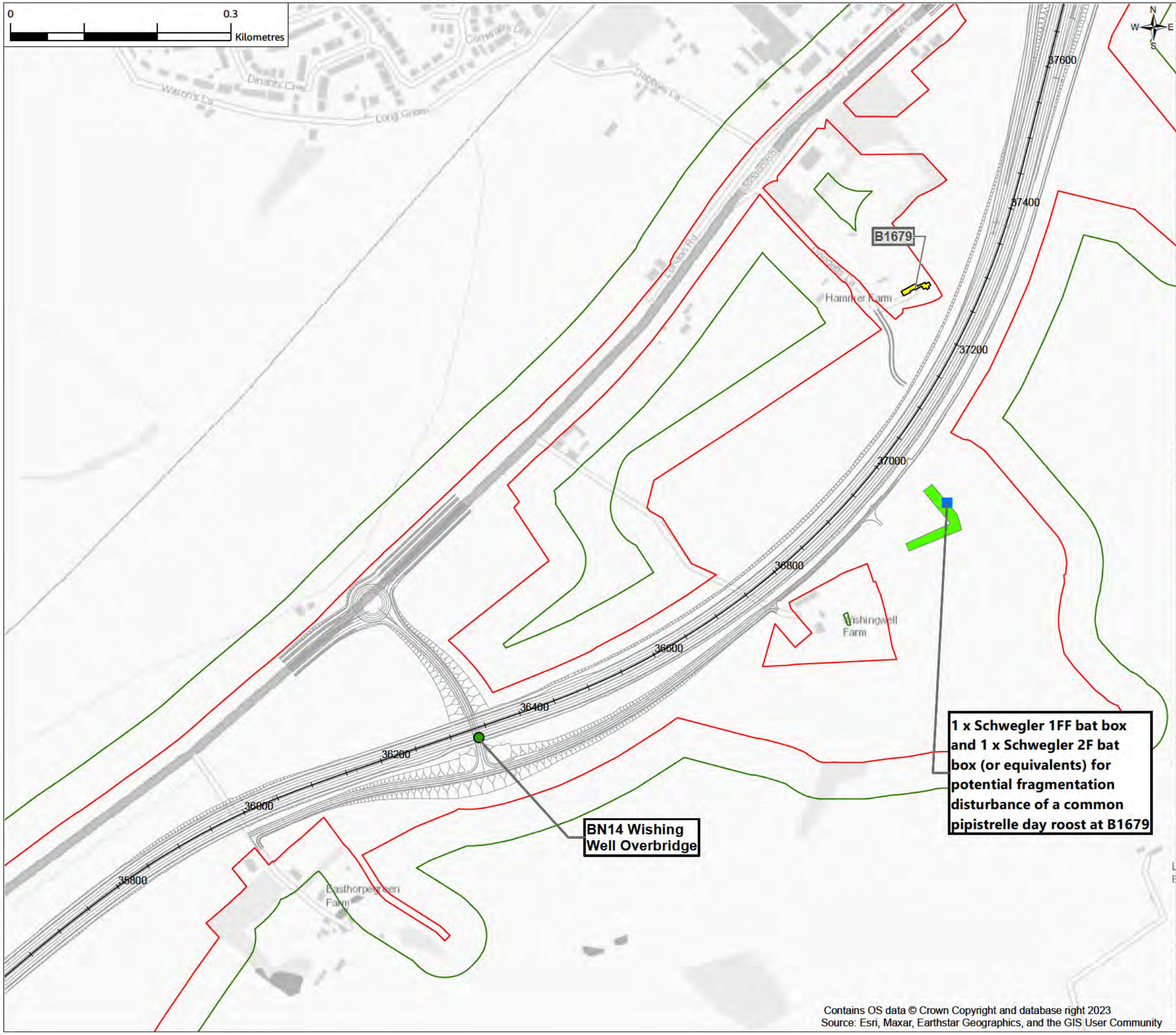
Drawing Title: A12 BAT LICENCE
SPECIFICATIONS FOR MITIGATION/COMPENSATION
SHEET 9 OF 10

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P01

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0543

FIGURE E3



Legend

- Scheme Layout
- Chainage
- Order Limits
- 50m buffer
- Building roosts to be disturbed
- Building roost to be lost
- Proposed bat box installation
- Tree roosts to be lost
- Structure roosts to be disturbed
- Potential crossing point for bats (for information, not licensed mitigation)
- Bat

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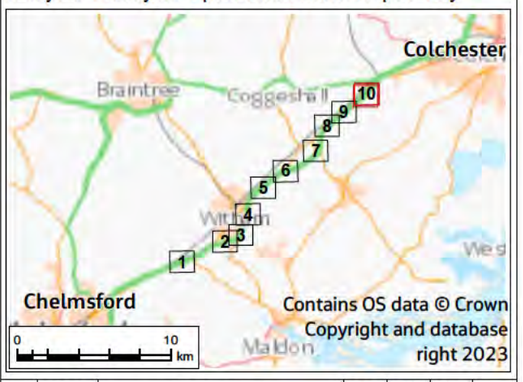

Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
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Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE
SPECIFICATIONS FOR MITIGATION/COMPENSATION
SHEET 10 OF 10

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	Rev P01
Client No.	HE551497	

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0544

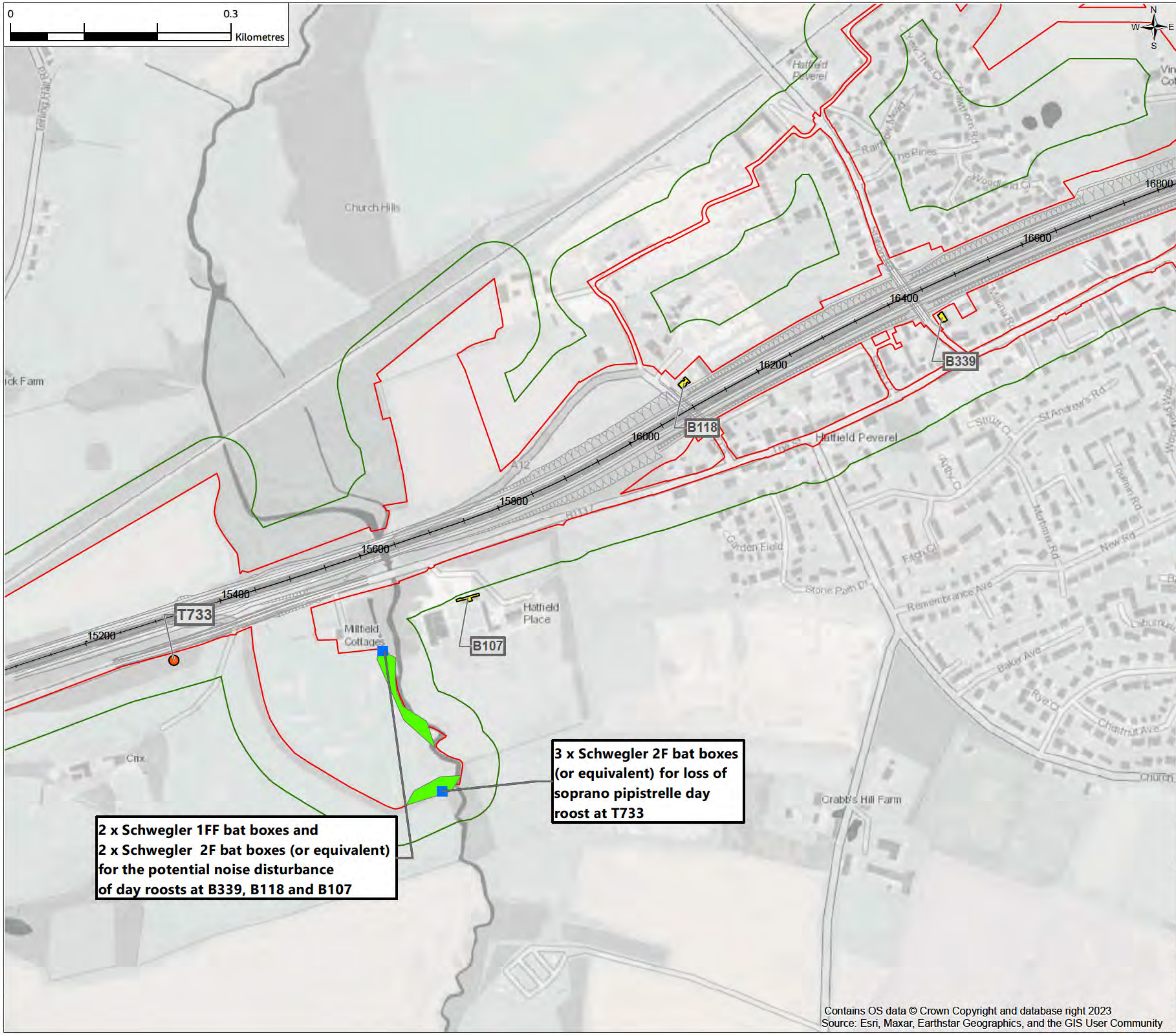

FIGURE E4

Legend

- Scheme Layout
- Chainage
- Order Limits
- 50m buffer
- Building roosts to be disturbed
- Building roost to be lost
- Proposed bat box installation
- Tree roosts to be lost
- Structure roosts to be disturbed
- Potential crossing point for bats (for information, not licensed mitigation)
- Bat

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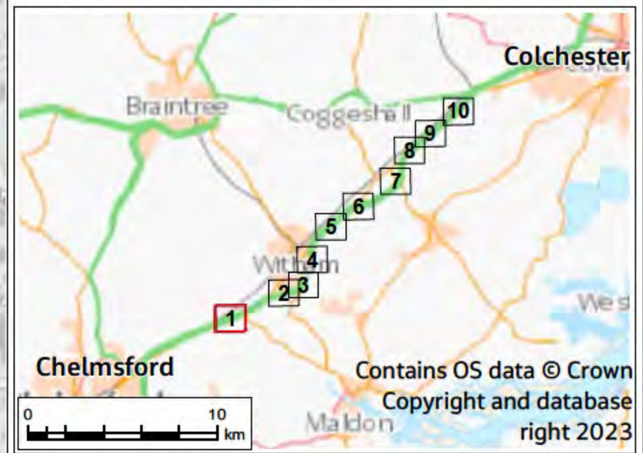

Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
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Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE
MONITORING, MANAGEMENT AND MAINTENANCE MAP
SHEET 1 OF 10

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P01

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0823

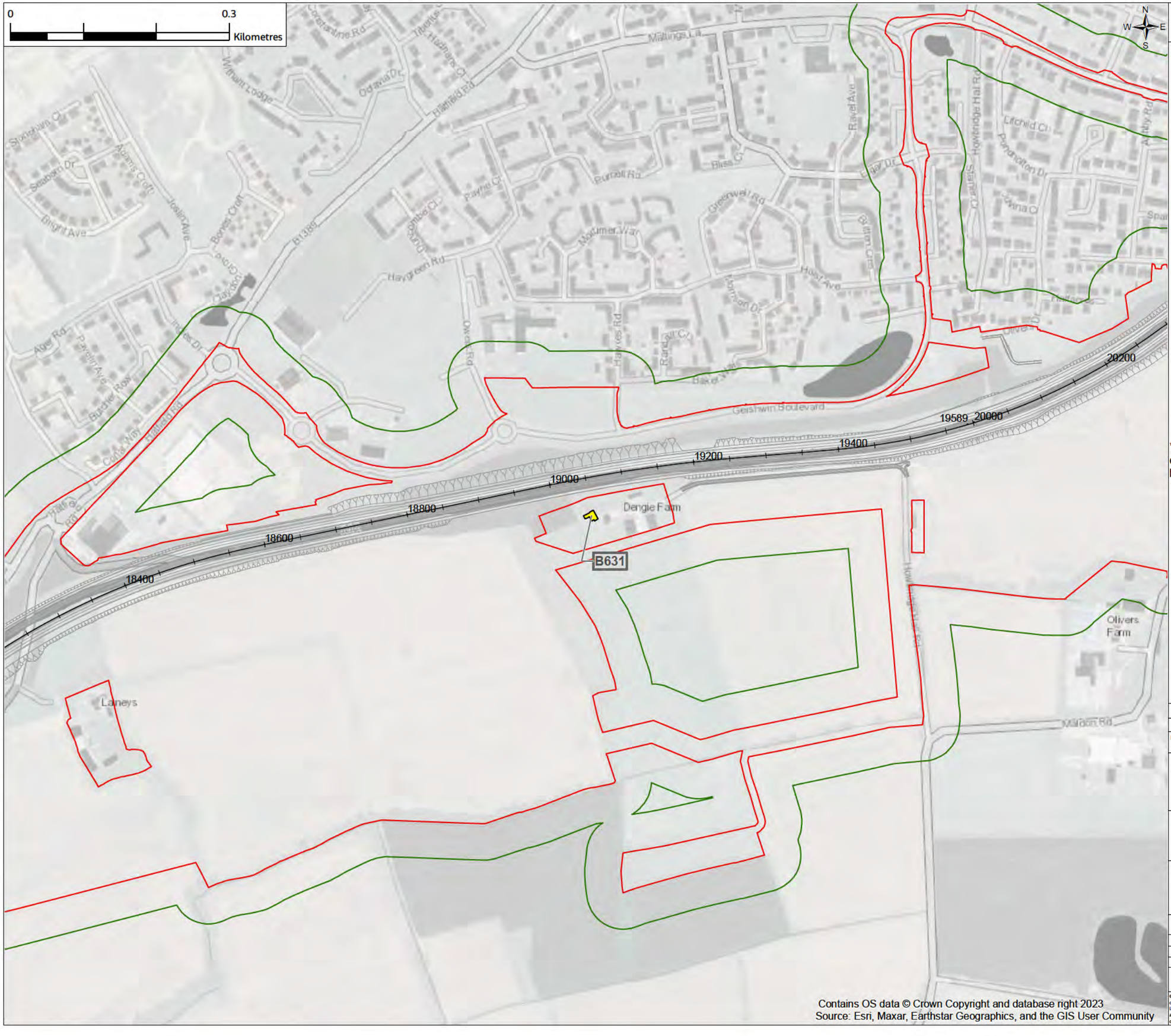

FIGURE E4

Legend

- Scheme Layout
- Chainage
- Order Limits
- 50m buffer
- Building roosts to be disturbed
- Building roost to be lost
- Proposed bat box installation
- Tree roosts to be lost
- Structure roosts to be disturbed
- Potential crossing point for bats (for information, not licensed mitigation)
- Bat

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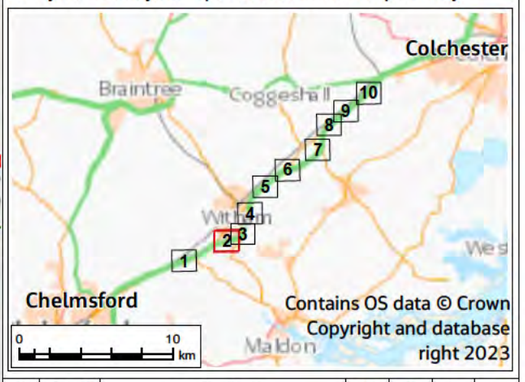

Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
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Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE
MONITORING, MANAGEMENT AND MAINTENANCE MAP
SHEET 2 OF 10

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P01

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0824

FIGURE E4

0 0.3 Kilometres

N W E S

2 x Schwegler 1FF and 1 x Schwegler 2F bat boxes (or equivalent) for potential disturbance of day roosts at B923

BE11

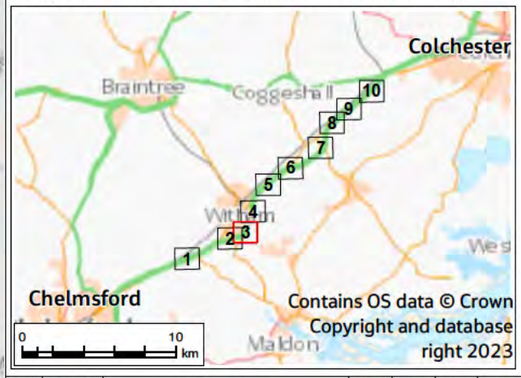
B923

21400 21200 21000 20800 20600 20400 20200 20000 19800 19589 19400

Legend

- Scheme Layout
- Chainage
- Order Limits
- 50m buffer
- Building roosts to be disturbed
- Building roost to be lost
- Proposed bat box installation
- Tree roosts to be lost
- Structure roosts to be disturbed
- Potential crossing point for bats (for information, not licensed mitigation)
- Bat

* All bat boxes are to be monitored three times, once during construction a year after they are installed and then once in both year 1 and year 3 post construction respectively



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Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P01	22/03/23	For DCO application	AD	LW	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE
MONITORING, MANAGEMENT AND MAINTENANCE MAP
SHEET 3 OF 10

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P01

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0825

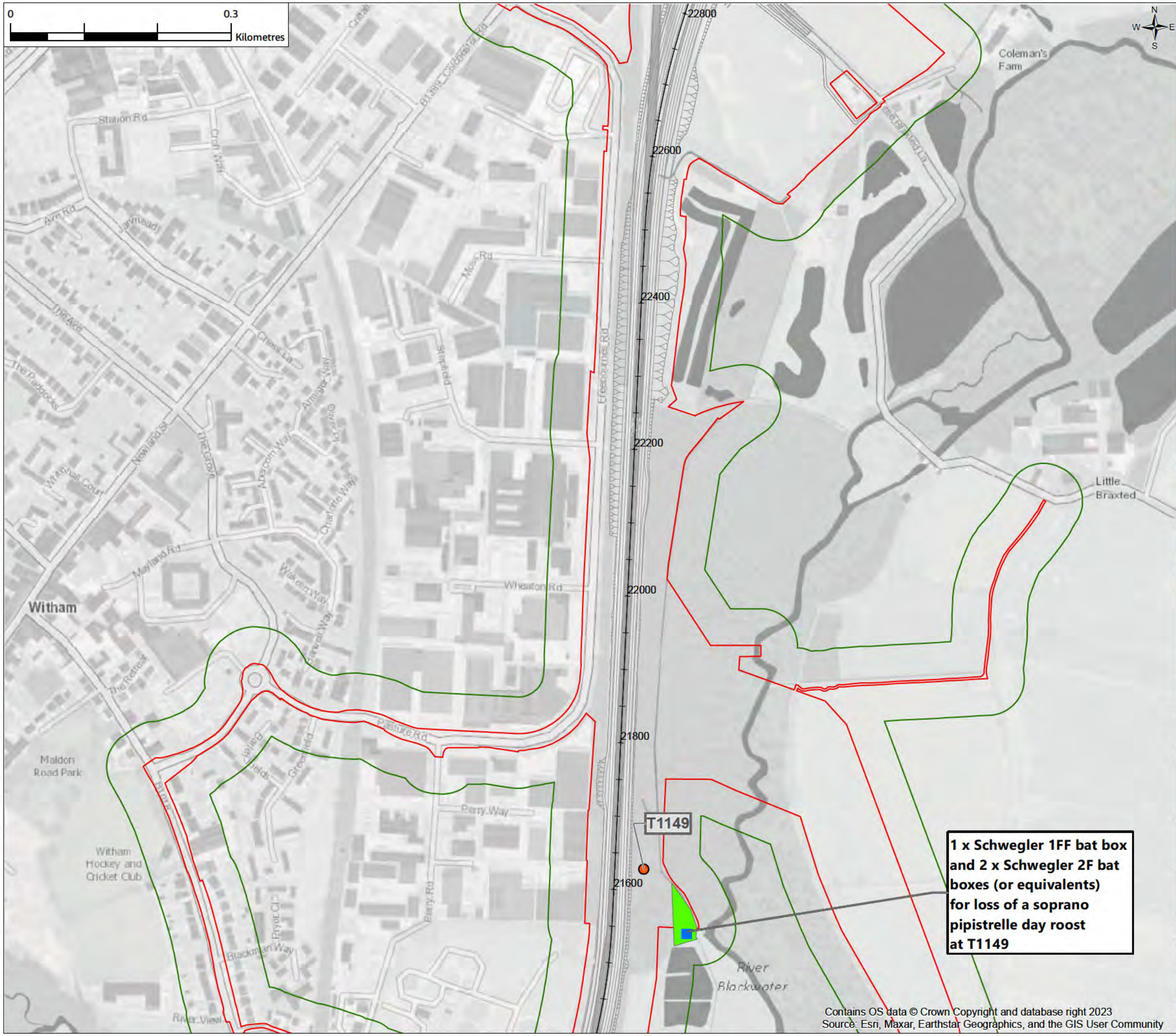
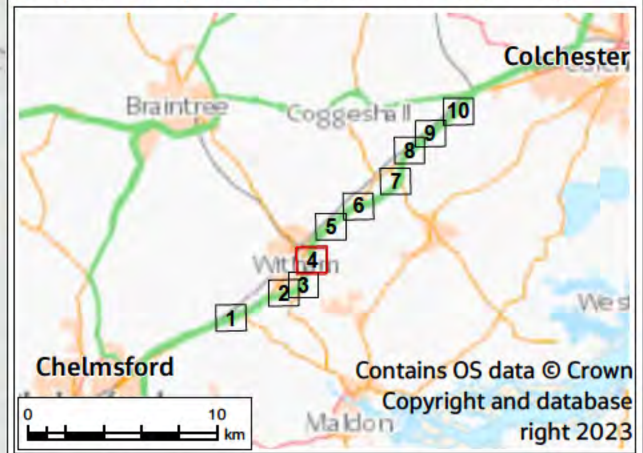


FIGURE E4

Legend

- Scheme Layout
- Chainage
- Order Limits
- 50m buffer
- Building roosts to be disturbed
- Building roost to be lost
- Proposed bat box installation
- Tree roosts to be lost
- Structure roosts to be disturbed
- Potential crossing point for bats (for information, not licensed mitigation)
- Bat

* All bat boxes are to be monitored three times, once during construction a year after they are installed and then once in both year 1 and year 3 post construction respectively



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P01	22/03/23	For DCO application	AD	LW	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE
MONITORING, MANAGEMENT AND MAINTENANCE MAP
SHEET 4 OF 10

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P01

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0826

FIGURE E4

0 0.3 Kilometres

N W E S

2 x Schwegler 1FW (hibernation) bat boxes and 1 x 2F Schwegler bat box (or equivalent) for potential loss of a soprano pipistrelle day roost and brown long-eared hibernation roost due to fragmentation disturbance at B1291

BN06 Braxted Road Overbridge

1 x Schwegler 1FW (hibernation) bat box and 2 x Schwegler 1FF bat boxes (or equivalents) for potential fragmentation disturbance of brown long eared hibernation roost.

3 x Schwegler 2F bat boxes (or equivalent) for loss of pipistrelle day roost at T79

1 x Schwegler 1FW bat box and 2 x Schwegler 2F bat boxes (or equivalents) for potential loss of a soprano pipistrelle day roost due to fragmentation disturbance at B1291

Hoo Hall Lodge
Pond Farm
Ivenhall End
T79
B1291
Garden Cottage
Appleford Farm
Burghey Brook Poultry Farm
Compensation Reservoir
25000
24800
24600
24400
24200
24000
23800
23600
23400

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Legend

- Scheme Layout
- Chainage
- Order Limits
- 50m buffer
- Building roosts to be disturbed
- Building roost to be lost
- Proposed bat box installation
- Tree roosts to be lost
- Structure roosts to be disturbed
- Potential crossing point for bats (for information, not licensed mitigation)
- Bat

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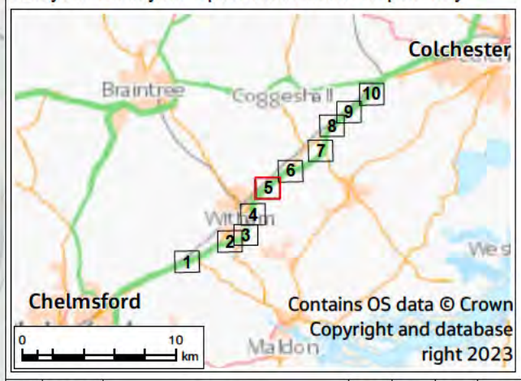

Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
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Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

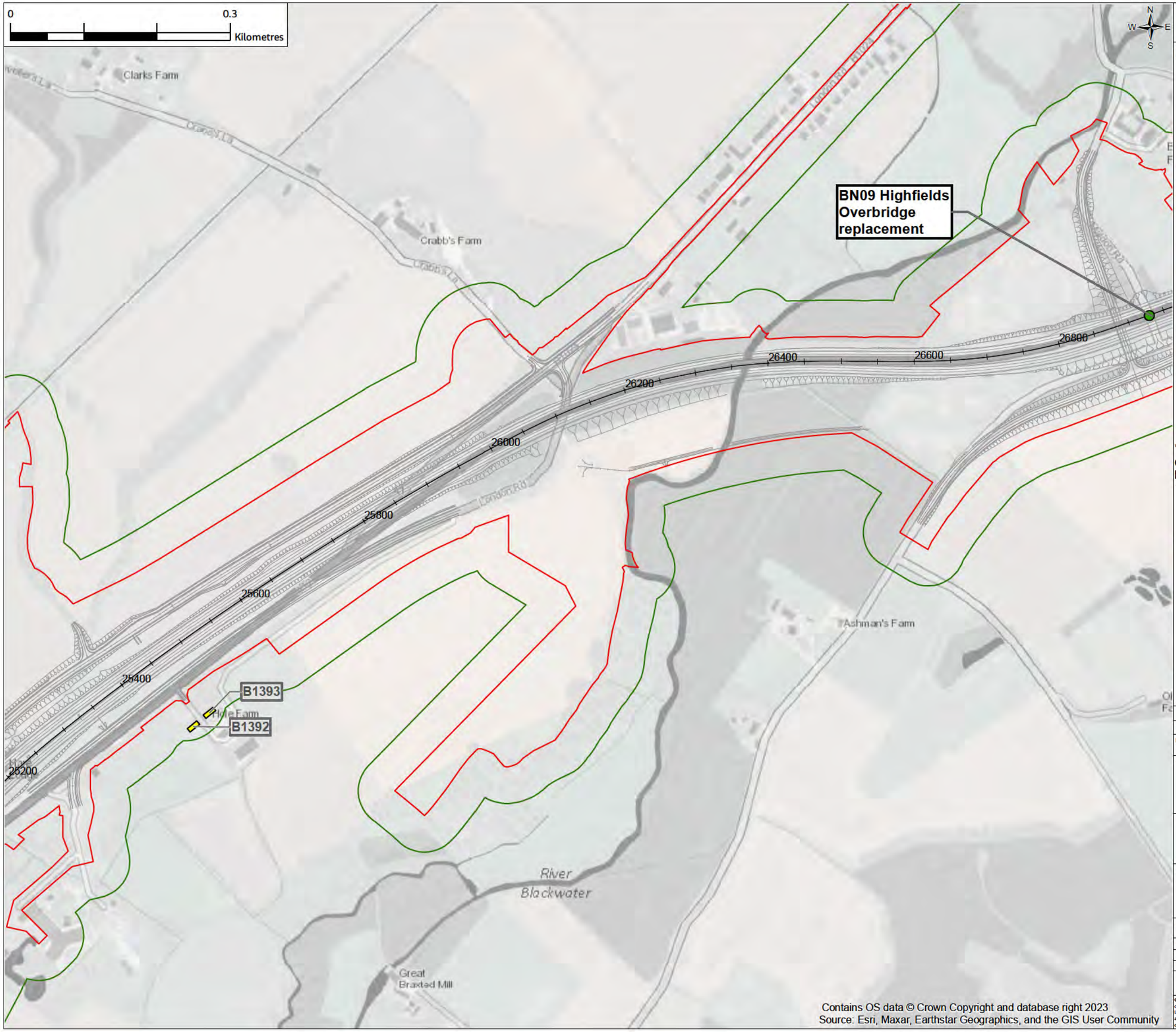
Drawing Title: A12 BAT LICENCE
MONITORING, MANAGEMENT AND MAINTENANCE MAP
SHEET 5 OF 10

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P01

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0827

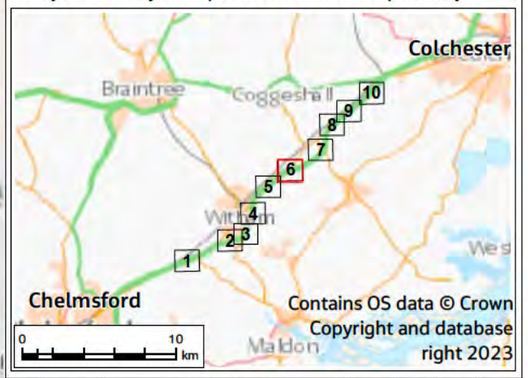
FIGURE E4



Legend

- Scheme Layout
- Chainage
- Order Limits
- 50m buffer
- Building roosts to be disturbed
- Building roost to be lost
- Proposed bat box installation
- Tree roosts to be lost
- Structure roosts to be disturbed
- Potential crossing point for bats (for information, not licensed mitigation)
- Bat

* All bat boxes are to be monitored three times, once during construction a year after they are installed and then once in both year 1 and year 3 post construction respectively



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Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

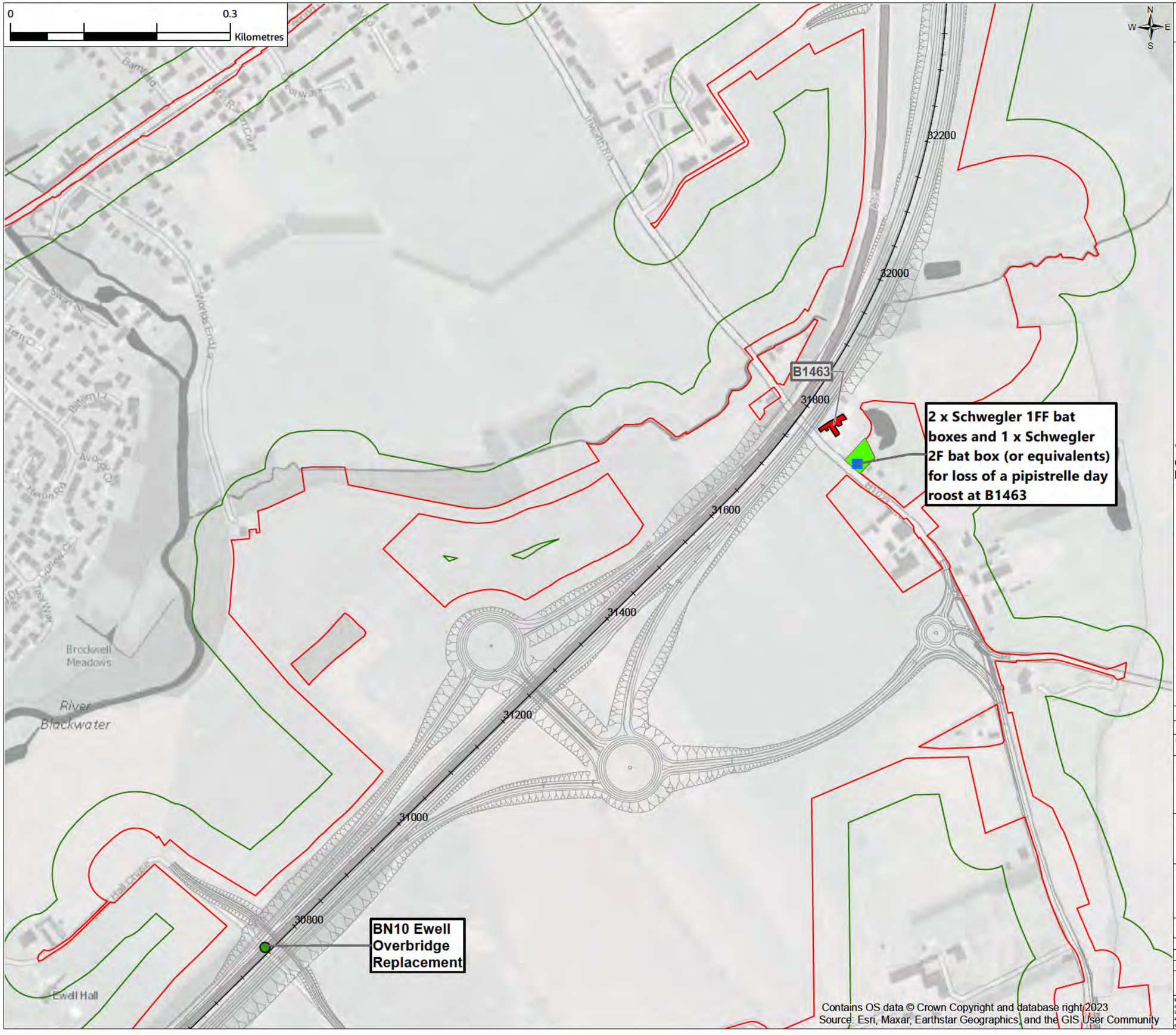
Drawing Title: A12 BAT LICENCE
MONITORING, MANAGEMENT AND MAINTENANCE MAP
SHEET 6 OF 10

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P01

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0828

FIGURE E4



Legend

- Scheme Layout
- Chainage
- Order Limits
- 50m buffer
- Building roosts to be disturbed
- Building roost to be lost
- Proposed bat box installation
- Tree roosts to be lost
- Structure roosts to be disturbed
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- Bat

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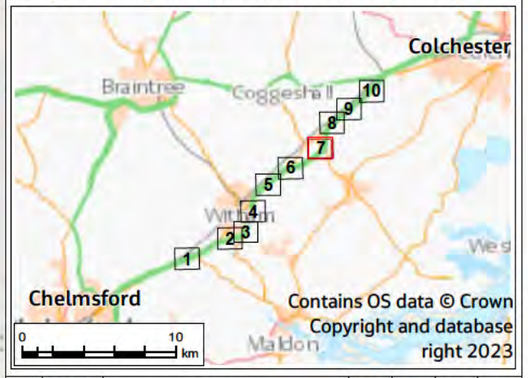

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Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

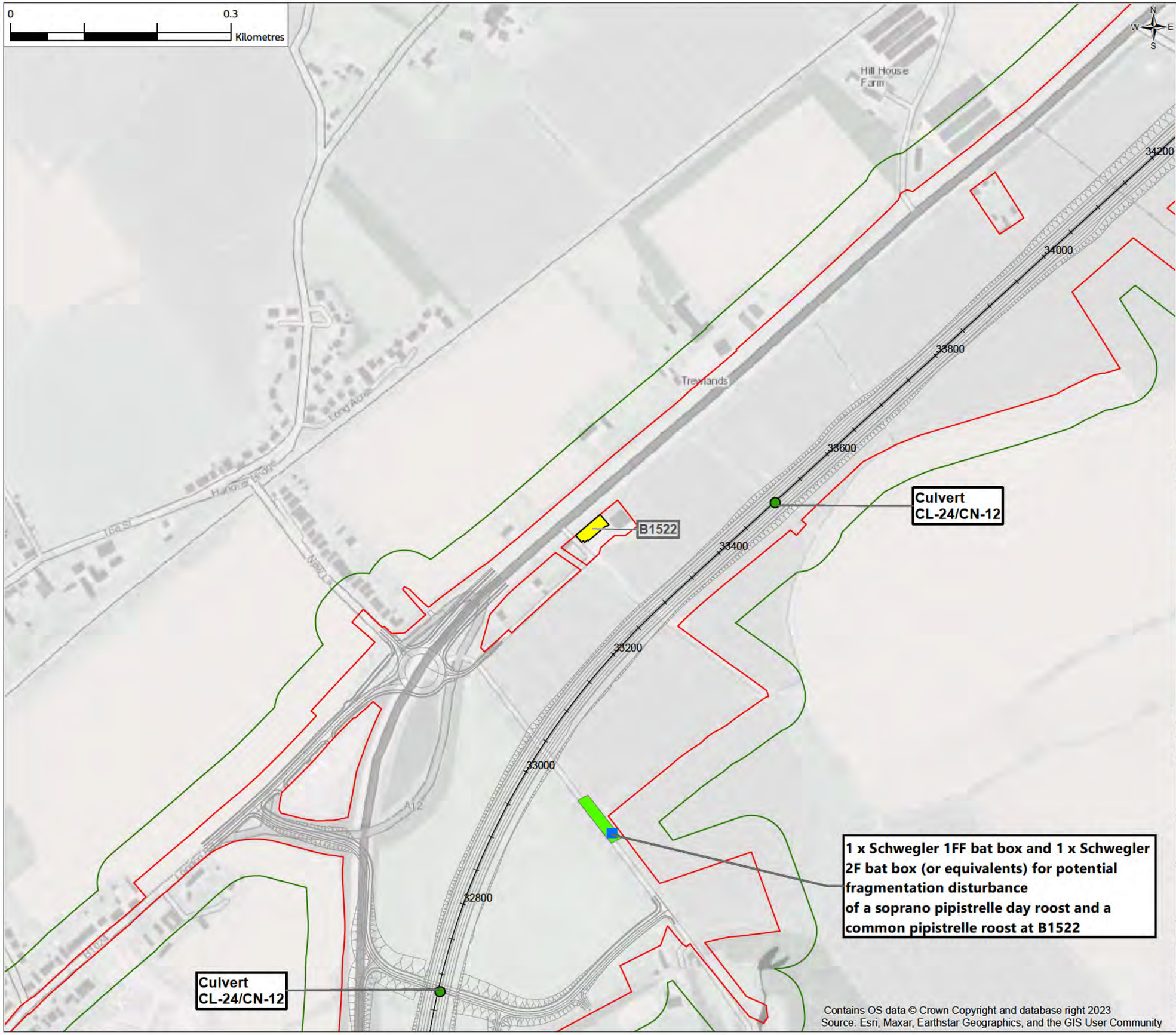
Drawing Title: A12 BAT LICENCE
MONITORING, MANAGEMENT AND MAINTENANCE MAP
SHEET 7 OF 10

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P01

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0829

FIGURE E4



Legend

- Scheme Layout
- Chainage
- Order Limits
- 50m buffer
- Building roosts to be disturbed
- Building roost to be lost
- Proposed bat box installation
- Tree roosts to be lost
- Structure roosts to be disturbed
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- Bat

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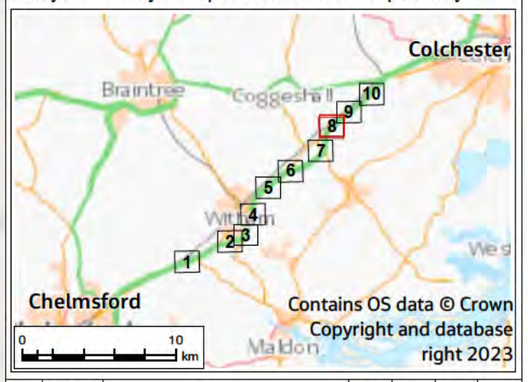

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Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

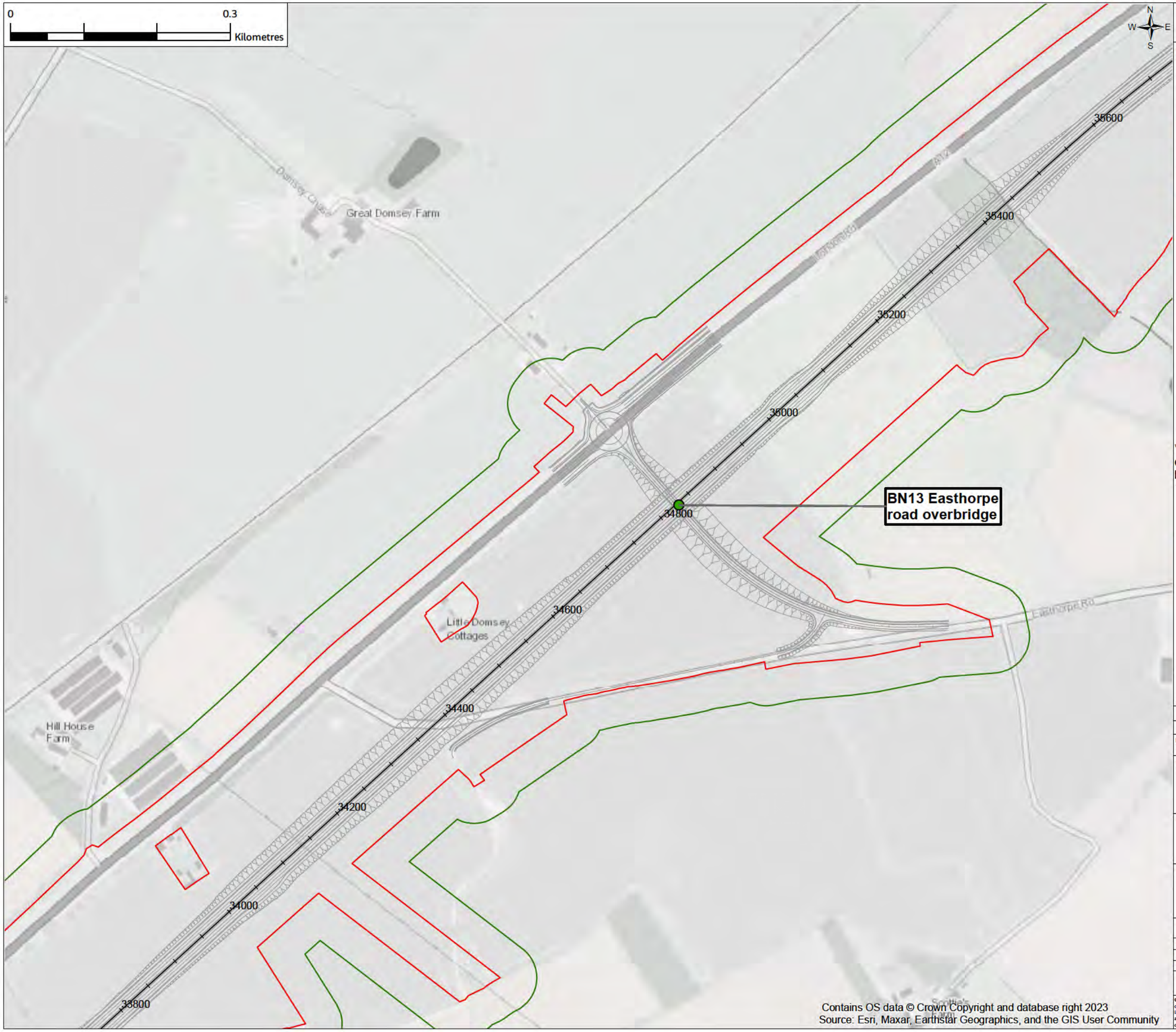
Drawing Title: A12 BAT LICENCE
MONITORING, MANAGEMENT AND MAINTENANCE MAP
SHEET 8 OF 10

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P01

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0830

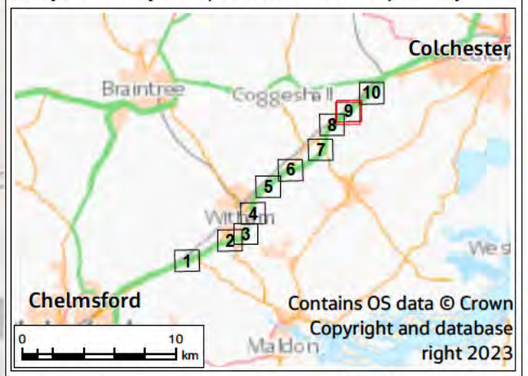
FIGURE E4



Legend

- Scheme Layout
- Chainage
- Order Limits
- 50m buffer
- Building roosts to be disturbed
- Building roost to be lost
- Proposed bat box installation
- Tree roosts to be lost
- Structure roosts to be disturbed
- Potential crossing point for bats (for information, not licensed mitigation)
- Bat

* All bat boxes are to be monitored three times, once during construction a year after they are installed and then once in both year 1 and year 3 post construction respectively



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P01	22/03/23	For DCO application	AD	LW	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

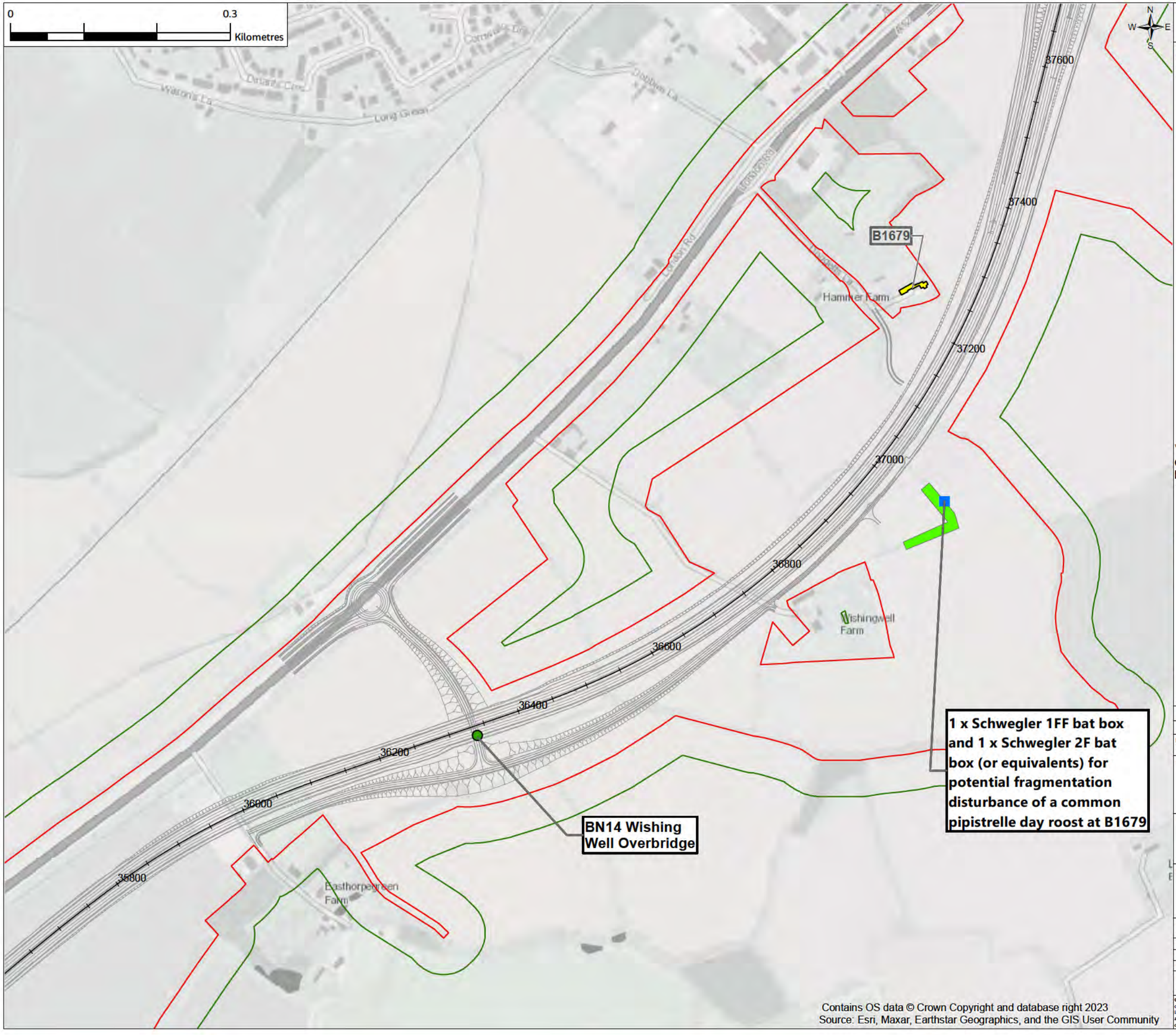
Drawing Title: A12 BAT LICENCE
MONITORING, MANAGEMENT AND MAINTENANCE MAP
SHEET 9 OF 10

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	
Client No.	HE551497	Rev P01

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0831

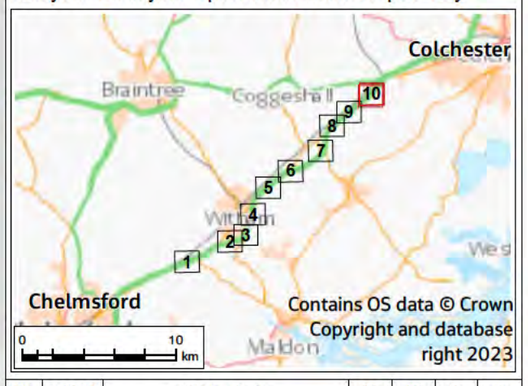
FIGURE E4



Legend

- Scheme Layout
- Chainage
- Order Limits
- 50m buffer
- Building roosts to be disturbed
- Building roost to be lost
- Proposed bat box installation
- Tree roosts to be lost
- Structure roosts to be disturbed
- Potential crossing point for bats (for information, not licensed mitigation)
- Bat

* All bat boxes are to be monitored three times, once during construction a year after they are installed and then once in both year 1 and year 3 post construction respectively



Rev.	Rev. Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
P01	22/03/23	For DCO application	AD	LW	NP	SG

Development Consent Order Drawing Number: TR010060/APP/6.3

APFP Regulation: Regulation 5(2)(l)

Client: national highways

Project: REGIONAL DELIVERY PARTNERSHIP
A12 CHELMSFORD TO A120 WIDENING SCHEME

Drawing Title: A12 BAT LICENCE
MONITORING, MANAGEMENT AND MAINTENANCE MAP
SHEET 10 OF 10

Drawing Status: S4 - SUITABLE FOR STAGE APPROVAL

Scale @ A3	1:5000	DO NOT SCALE
Jacobs No.	B36601D1	Rev P01
Client No.	HE551497	

Drawing Number: HE551497-JAC-LDC-SCHW-SK-GI-0832

3

WML-A13a-E5a&b – WORK SCHEDULE FOR BAT

ANNEXED LICENCE

Site name and address (as stated on the application form or licence granted): A12 Junction 19 to 25 (Start (south): TL 74081 07788 End (north): TL 93920 24914)

Please ensure that the work schedules are S.M.A.R.T and appropriate timescales are provided for each activity, to fit with order of events. Complete these schedules to show timings for all categories of work (mitigation and compensation measures), and to show the main construction period. The most common activities are listed here, and you can add up to 6 more if needed. Leave blank if not applicable. Enter timing by stating **start and end dates, to nearest month and year** (see first lines for examples). Enter comments if you need to clarify timings. For very complex schemes (e.g. high impact or phased development schemes) if additional lines are needed please do add in. This work schedule will form part of any annexed licence.

E5a

PLEASE INCLUDE DATE OF SUBMISSION (e.g. 01 July 2016). This will be referenced in the annex →		**July 2022**
Activity	**Timing**	**Comments**
Pre- development activity		
Example: Bat house creation (in advance of licence)	***Sept-14 to Nov-14***	***Also put up 3 bat boxes before end of December 2015, in advance of works commencing***
Creation of standalone bat feature/s (state completed and fit for purpose if created before licensable works due to commence)	N/A	N/A
Installation of bat boxes pre-development works (state completed and fit for purpose if created before licensable works due to commence)	October-23 to January-24	25 bat boxes to be installed in advance of commencent of works.
Permanent exclusion measures (e.g. use of one-way excluders prior to permanent blocking of access points or destruction of roost)	May to August (2024-2027)	Building B1463: All features suitable for use by roosting bats (roof tiles, fascia, gaps in brickwork and cladding etc.) will be removed by hand (after thorough endoscope inspection

		if possible) or blocked after full endoscope inspection under the supervision of the licenced ecologist/accredited agent prior to demolition.The roost entrance is under an external wooden board which will be inspected using an endoscope via a MEWP (mobile elevated working platform) and the feature removed if no bats are present. If bats are found and cannot be removed by hand, or, if any feature cannot be fully surveyed and the removal of the feature could lead to the injury of killing of a bat, a one-way exclusion device would be fitted and would remain in situ for a minimum of five nights of favourable weather. Following this, the device would be checked to ensure it is still installed correctly and then the feature would be removed under supervision.
Mid-development activity		
Example: Capture exercise (e.g. by hand /hand-held nets, etc)	***Sept-2016***	***By hand***
Pre-works inspection by Named Ecologist or Accredited Agent	May - August (2024-2027)	Building B1463: Prior to demolition works, three compensatory bat boxes will be installed nearby. The roof void will then be inspected, and any roosting bat(s) found will be captured by hand or using a hand net. They will then be translocated to one of the compensatory boxes if necessary. All features suitable for use by roosting bats (roof tiles, fascia, gaps in brickwork and cladding etc.) will then be removed by hand (after thorough endoscope inspection if possible) or blocked after full endoscope inspection under the supervision of the licenced ecologist/accredited agent prior to demolition. Trees T1149, T79 and T733: All features on each tree would be thoroughly checked with an endoscope prior to felling (via

		aerial means if necessary) and if no bats are found, the tree would be either immediately felled, or the features would be permanently excluded. If features are excluded, they would be inspected prior to felling to ensure the exclusion is still working.
Installation of protective measures (e.g. separation membranes whilst working in lofts)	N/A	N/A
Disturbance by noise, illumination or vibration (please specify)	May - August (2024-2027)	Impact to B118: Construction noise disturbance, the most severe of which will be caused by the demolition of a bridge approximately 15m south of the building; impacts to BE11: Construction noise disturbance and possible vibration impacts principally from demolition of the parapets adjacent to the bridge and hydro-demolition of the central reservation on the road above; impacts on BE11: Construction noise disturbance and possible vibration impacts principally from demolition of the parapets adjacent to the bridge and hydro-demolition of the central reservation on the road above.
Temporary exclusion measures (e.g. use of one-way excluders with access re-instated following works)	N/A	N/A
Permanent exclusion measures (e.g. use of one-way excluders prior to permanent blocking of access points or destruction of roost)	May - August (2024-2027)	Trees T1149, T79 and T733: All features on each tree would be thoroughly checked with an endoscope prior to felling (via aerial means if necessary) and if no bats are found, the tree would be either immediately felled, or the features would be permanently excluded. If features are excluded, they would be inspected prior to felling to ensure the exclusion is still working.
Capture exercise (e.g. by hand / hand-held nets, etc – please state)	May - August (2024-2027)	Building B1463: The roof void will be inspected and any roosting bat(s) found will be captured by hand or using a hand net. Trees T1149, T79 and T733: features will be

		inspected and any roosting bat(s) found, where safe to do so, will be captured by hand.
Destructive search by soft demolition	May - August (2024-2027)	Building B1463 would be subject to an internal search followed by a destructive search by soft demolition.
During development		
Example: Mechanical demolition	***Oct-2016***	***Buildings X and Y will be knocked down after sign off from Named Ecologist***
Mechanical demolition of all or part of structures (once declared free of bats by Named Ecologist or Accredited Agent) – please state	May - August (2024-2027)	Building B1463 would be demolished once declared free of bats by the licenced ecologist or accredited agent.
Construction period start and end dates	February-24 - April-27	
Site checks and maintenance during construction	N/A	N/A
Felling of trees (once delcared free of bats)	May - August (2024-2027)	Trees T1149, T79 and T733 will be felled during the bat active season once declared free of bats by the licenced ecologist or accredited agent.
Post construction mitigation/compensation on 'development' site or other (provide details below)		
Example: Installation of access points and bat boxes	***Feb-2017***	***Access points will be installed after completion of new roof structure; remaining 3 x bat boxes installed by end of this month.***
Creation of mitigation/compensation post development (e.g. installation of bat tubes, bricks, boxes, access points, etc – specify in comments section)	**Oct-24 to Jan-25, and then 2028 and 2030**	**The 25 bat boxes to be installed as part of mitigation will be maintained 1 year after installation, and subsequently in Year 1 and Year 3 after the scheme is operational. The bat boxes have a design life of at least 10 years.**
Habitat reinstatement or restoration (following temporary impacts)	May-23 to March-27	For more detail please see Appendix 9.14 of the ES, biodiversity net gain report (National Highways 2022, [TR010060/APP/6.3]) which sets out the overall net gain of habitats

		following implementation of the Environment Masterplan.
Hedgerow or woodland planting (please specify)	May-23 to March-27	Areas of habitats suitable for bat foraging will be increased across the scheme including for woodland, hedgerows, grassland and shrub. The programmed net gain from the baseline to the completion of the scheme of selected habitats suitable for bats is as follows; - Woodland: 42.30 hectares - Hedgerows: 26.3 kilometres - Grassland: 200.11 hectares

E5b) Post-development works - type a "Y" where each activity will occur for a given year and leave blank for no activity.

Year:	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Monitoring												
Habitat management								Y	Y	Y	Y	Y
Site maintenance												

Year:	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
Monitoring												
Habitat management												
Site maintenance												

4

The information provided in this form will be used by Natural England to determine whether the proposed activity affecting the European Protected Species meets the requirements of Regulation 55(2)(e) and 55(9)(a) within The Conservation of Habitats and Species Regulations 2017 (as amended). These are known as the ‘ ’ and ‘ ’ tests.

This form, for the purpose of Imperative Reasons of Overriding Public Interest, only needs to be completed if your application proposal is covered by one the scenarios and categories listed

: Detailed information on the proposal is required to demonstrate that it will meet the tests set out under the Regulations. If you encounter difficulty answering the questions or providing the evidence required, it may suggest that your proposal is insufficiently advanced to satisfy the licensing tests. In that case, you should consider delaying your application until this information is available.

“ ”

The tests are applied proportionately, so the strength of the evidence required to meet each will need to be sufficient to justify the impact upon the protected species. You need to provide clear, concise information for us to be able to meet the licensing tests.

When providing please provide clear referencing, such as page numbers and paragraphs of specific documents, so these can easily be cross-referenced. Please only provide the relevant extracts that help to demonstrate your reasoning rather than including lengthy documents in their entirety. Please do not provide website links to separate documentation, unless you identify where exactly in the linked document or web page the evidence referred to is located. Please note that it may take longer to determine your application if the evidence is submitted as individual documents in their entirety or website links.

Section A: Purpose Test

A1 Please select against all of the following below which apply to your proposal. You are asked to indicate against those that apply whether the projected benefits are primary or secondary or not applicable to your proposal.

Please note: A primary benefit is considered to be the key social, economic or environmental benefit brought about from the proposal. A secondary benefit is considered to be an additional benefit, but not the main reason for the proposal. There may be more than one secondary benefit but supporting evidence should be provided in Section A3 where applicable, for each benefit selected.

Does your proposal:	
Provide housing in an area where shortfalls have been clearly identified?	☐ Primary benefit ☐ Secondary benefit ☒ N/A
Create, repair or enhance essential infrastructure at a local, regional or national level?	☒ Primary benefit ☐ Secondary benefit ☐ N/A
Provide care facilities or another essential public service in an area where it is known to be required?	☐ Primary benefit ☐ Secondary benefit ☒ N/A
Address another clearly identified social, religious or cultural need?	☐ Primary benefit ☒ Secondary benefit ☐ N/A
Create long term employment opportunities in an area of high unemployment?	☐ Primary benefit ☒ Secondary benefit ☐ N/A
Deliver other economic benefits or otherwise contribute in some way to the wider economy?	☒ Primary benefit ☐ Secondary benefit ☐ N/A
Contribute to addressing problems associated with climate change or promote sustainable energy use	☐ Primary benefit ☒ Secondary benefit ☐ N/A
Conserve a place of environmental interest?	☐ Primary benefit ☐ Secondary benefit ☒ N/A
Provide alternative sources of energy?	☐ Primary benefit ☐ Secondary benefit ☒ N/A
Deliver other benefits from those specified above?	☒ Primary benefit ☒ Secondary benefit ☐ N/A
If 'Other benefits' is selected, please provide details here:	• An improved environment – reducing the visual, air and noise quality impacts on affected communities along the route • Supporting economic growth - proposed scheme supports the growth identified in Local Plans by reducing congestion related delay, improving journey time reliability, and increasing the overall transport capacity of the A12 • Proposed scheme improves accessibility for WCH, and public transport users

A2 In relation to the primary and secondary benefits identified in A1, to help demonstrate the need for the proposal, please provide the evidence and details for all the benefits ticked above.

Important note: Reference the supporting evidence upon which your reasoning is based and include the relevant extracts. This evidence must link back to the tick boxes selected above. Failure to do so will lead to us having to come back to you for further information.

Supporting evidence can usefully include some or more of the following: Local planning polices and plans, planning permission, policy documents, specialist reports, feasibility studies, extracts from relevant legislation, photographs, media articles or related correspondence. **Where applicable, please ensure that planning officer or committee reports, and design and access statements are included as supporting evidence.**

A2 (i) Please provide full details of the proposal in the box below.

The A12 widening scheme between junctions 19 (Boreham interchange) and 25 (Marks Tey interchange) is proposed to improve safety, solve strategic traffic problems arising from inadequate and varying route standards, and reduce congestion and delay which will collectively increase resilience along this key part of the strategic road network (SRN).

National Highways is seeking powers to widen the existing A12 to three lanes (where it is not already three lanes) between junction 19 and junction 25. The proposed works extend for a total of 15 miles (24km).

The proposed scheme also includes safety-related improvements, including closing off existing private and local direct accesses onto the main carriageway, and alterations and improvements to existing non-vehicular routes along the A12 for walkers, cyclists and horse riders (WCH).

A detailed description of the proposed scheme can be found in Chapter 2 of the Environmental Statement [TR010060/APP/6.1].

The section of the A12 to be altered is located wholly within the administrative area of Essex County Council (which is the local highway authority for roads not forming part of the SRN in Essex). The proposed scheme is mainly within the administrative areas of Braintree District Council and Colchester Borough Council, with parts also being within the Chelmsford City Council and Maldon District Council administrative areas.

Chelmsford is located to the south-west of the proposed scheme and Colchester to the north-east. The settlements of Boreham, Hatfield Peverel, Witham, Rivenhall End, Kelvedon, Feering and Marks Tey are along the route. The A12 runs parallel and to the south of the Great Eastern Main Line (GEML) railway (which connects London with Colchester, Ipswich and Norwich) for most of its length between junctions 19 and 25.

Major connecting roads include the A130 which joins the A12 at junction 19 and the A120 which joins the A12 at junction 25. The B1137 links Boreham to junction 19 and Hatfield Peverel, the B1018 and the B1019 links Maldon to Witham and Hatfield Peverel respectively. The B1023 (Inworth Road) links Kelvedon to Tiptree and Braxted Park Road connect Tiptree to Rivenhall End. These are the main local roads that connect directly to the A12 and therefore will be subject to some associated development to integrate the proposed scheme with the local traffic network.

The proposed scheme will also require the diversion and alteration of utilities, including apparatus for electricity, communications, water and gas. One of the high-pressure gas main diversions has the potential to be an NSIP on its own right under section 20 of the Planning Act 2008. A screening opinion was prepared to support the significant impacts caused by the diversion and policy accordance to the relevant National Planning Policy carried on the Case for the Scheme (doc. Ref TRO/10060/App/7.1)

The proposed scheme's main components:

a) *Alteration of the A12 and associated highway development*

I. Widening of A12 junction 19 Boreham Interchange bridge from two to three lanes in each direction and associated roundabouts to increase capacity and to enable the A12 widened to three lanes at the junction (to tie in with the current 3 lane section between Boreham and Hatfield Peverel (junction 20a).

II. two new three-lane dual carriageway sections, between the existing Junction 22 and 23 and between junctions 24 and 25.

III. The remaining sections of the existing A12 to be altered will be widened online.

IV. Three new all movement junctions (dumbbell layout) at junctions 21, 22 and 24 which replace junction 20a, 20b and 23. Junction 21 and 22 will be above ground level with a bridge over the A12 to connect both roundabouts. Junction 24 will be built in cut, with the A12 at ground level and an underpass to connect both roundabouts.

V. Junction 25 will be improved with the South roundabout replaced by a signalised junction with a new local road connection (London Road) where the new section of A12 joins the existing mainline.

b) *Utilities*

I. The proposed scheme will have to divert existing utilities which are either located on existing A12 verges or will be affected by the widening works (embankments, retaining walls and associated works). The diversion will include water mains, wastewater, low, medium and high voltage cables with some pylons being removed to provide underground diversion. Gas mains ranging from low to high pressure, and it also includes telecommunications diversions to be installed on the A12 and local highways verges.

II. To enable construction of the proposed scheme several existing utilities will need to be temporarily diverted. This will safeguard the existing supplies during construction operations whilst the permanent diversion routes are being constructed. The quantity and length of temporary diversions will be minimised where possible and will include all the affected utilities mentioned above.

c) *Biodiversity ecology open spaces and WCH routes*

I. The proposed scheme will maximise biodiversity value with several proposed green areas where habitats, hedgerows and native species of trees and hedges are intended to improve and connect wildlife corridors. Landscape screening is proposed, including retaining existing vegetation where possible.

II. The proposed green areas are to be located adjacent to the A12 and comprise flood and drainage mitigation areas, together with a new network of ditches, pipes and drainage systems.

III. As the proposed scheme will impact on some open space and a local nature reserve, National Highways will provide new open space of an equivalent area.

IV. New walking and cycling routes will be provided alongside the proposed scheme together with new WCH bridges over the A12.

d) Mitigation of operational effects

The proposed scheme includes design and mitigation measures to avoid or reduce its operation effects. Certain measures are embedded into the scheme design, for example:

i. Mitigation planting to screen views of the proposed scheme, including planting of woodland, individual trees, hedgerows, shrubs, and grassland

ii. Noise bunds and use of low noise road surfacing to reduce noise impacts from vehicles using the proposed scheme

iii. Provision of sustainable drainage systems and attenuation to reduce flood risk and mitigate water quality impacts.

iv. Additional mitigation measures have also been developed to mitigate likely significant adverse effects during operation, including:

v. Habitat creation and enhancements to replace habitat lost to the proposed scheme.

vi. Use of noise barriers and surfacing with better noise reducing properties than a conventional low noise surface to mitigate significant noise impacts.

vii. Flood storage areas to mitigate increased flood risk.

viii. Use of bank protection measures, baffles and pool-riffle sequences to mitigate impacts on hydromorphology.

e) Compounds, Haul Roads and Borrow Pits

i. The proposed scheme includes two main compounds, one located north of Junction 21 and another north of Junction 22, adjacent to Eastways Industrial area.

ii. The main compounds will have offices, welfare facilities, parking, training rooms, materials storage, asphalt and concrete batching plants.

iii. The scheme also proposes 3 small satellite compounds adjacent to the other Junctions in the scheme. There will also be laydown areas (self-contained small compound) throughout the proposed scheme.

iv. There would be a prefabrication site compound west of Hatfield Peverel which would allow offline construction of some bridge elements.).

v. Throughout the proposed scheme will be soil storage areas to store topsoil during construction and haul routes parallel to the A12 to connect borrow pits, site compounds and construction areas, reducing construction traffic on the local road and strategic road network.

vi. There are four proposed borrow pits in total, being located:

- North of the proposed Junction 21

- South of the A12 to the East of Junction 21

- East of Rivenhall End between the A12 and GEML railway, and South of the A12 to the West of the proposed Junction 24.

vii. These borrow pits will be used to extract materials from the land for the construction of the proposed scheme and reduce the import of inert materials from other quarries.

viii. Junction 22 will be built on a currently active quarry (owned by Brice Aggregates), where extraction is being expedited to prevent sterilisation of minerals.

f) Slow moving traffic and Walking, Cycling and Horse Riding infrastructure

i. The proposed scheme will improve the quality and capacity of existing Walking, Cycling and Horse Riding (WCH) infrastructure, seek opportunities for new routes and address historic severance. This includes controlled and uncontrolled crossings at junctions and adjacent local roads.

ii. The proposed scheme will also create new WCH routes to connect North and South of the A12 and connect existing routes along the A12. This includes seven pedestrian and cyclist bridges. There would be four additional new accommodation bridges to provide local residents and farmers access to their land.

iii. The proposed scheme also proposes to reduce the speed limit on local roads within villages (Boreham and Hatfield Peverel) and standardise speed limits between villages (Boreham to Hatfield, Inworth to Tiptree and betrunked sections of the A12) to improve safety, especially for home-to-school transport, and other walking and cycling activity on local roads.

iv. The proposed scheme will prohibit on the altered A12 walking, cycling, horse-riding, horse-drawn carriages, and slow-moving vehicles, all of which will be accommodated on local roads.

v. Roadside technology will be added between J21 and 25 to smooth traffic flow, reduce speed limits in congestion to improve safety and to close lanes when vehicles break down or other incidents occur, to reduce the likelihood of collisions. Messages on electronic signs will inform drivers of reasons for lane closures or reduces speed limits.

g) Works to the local highway network, including those parts of the Existing A12 which will no longer from part of the SRN

i. The proposed scheme also includes the detrunking of two sections of the A12 which will become local roads managed by Essex County Council. These are at Rivenhall End and between Feering and Marks Tey.

ii. There would be traffic management improvements to Boreham (Main Road), Hatfield Peverel (The Street), Little Braxted Road and Inworth Road.

iii. New alignments with new overbridges over the A12 are proposed for Braxted Road, Easthorpe Road. The scheme will also provide three accommodation overbridges along Kelvedon bypass at Highfields Lane, Ewell overbridge, Prested and Threshelfords bridges.

A detailed description of the scheme is provided in Chapter 2, section 2.5 to 2.7 of the Environmental Statement.

The proposed scheme is currently in the pre application process for a Development Consent Order with the full application expected to be submitted to the Planning Inspectorate in Q2 of 2022.

A2 (ii) (a) Explain why your proposal is considered to be imperative (essential).
For example, if your development proposal is for a housing development reference the local housing need as set out in the area plan and explain how your proposal contributes to meeting this need, or how the requirement for the proposed new public service, care facility or infrastructure project was identified.

The A12 is an important economic link in Essex and across the east of England. It provides the main south-west / north-east route through Essex and Suffolk, connecting Ipswich to London and to the M25. The section between Chelmsford and Colchester (junction 19 Boreham interchange to junction 25 Marks Tey interchange) carries high volumes of traffic, with up to 90,000 vehicles every day. Heavy Goods Vehicles (HGV) account for between 9% and 12% of the traffic on this section due to its important freight connection, especially to Felixstowe and Harwich ports.

This section of the A12 is also an important commuter route between Chelmsford and Colchester, and acts as a link, via the A120, to London Stansted Airport. The resulting congestion leads to delays and means that, during the morning commute, a driver's average speed can be particularly slow in both directions for an A-road. Previous studies, including the East of England Route Strategy, the A12/A120 Route Based Strategy, and the Essex Local Transport Plan, indicate several problems between junction 19 and junction 25 of the A12.

The key problems and issues from these studies are summarised below:

Traffic flows and congestion- Congestion is experienced routinely on all links along the length of the A12. The busiest link is between J20b and J21 and is linked to the commuter route between Braintree and Maldon. These routes put pressure on traffic through Witham at J21 and affect the performance of the A12 between Boreham and Marks Tey.

Consistency in standard- The A12 has been improved in a piecemeal way which has resulted in a route with little consistency in terms of provision. It varies between dual two-lane and dual three-lane all-purpose carriageways and has numerous variations of junction types, surfacing, geometry, access, asset condition, lighting and lay-by provision. There is also limited technology along the whole route.

Resilience- There are limited suitable diversion routes for the A12, which can lead to significant disruption when incidents occur. The lack of diversion routes also makes it more difficult to undertake maintenance to the route.

Safety- There were approximately 132 collisions in the section of A12 between J19 and J25 between 2015 and 2017. Motorcyclists and pedestrians have been identified as 'vulnerable' road user groups; however, this is based on low numbers and as such are more vulnerable to fluctuation. There are elements of the existing A12 with substandard design, including slip roads with inadequate length, and poor visibility at junctions and bends. There are also several direct accesses onto the A12 from residential, commercial and agricultural properties, particularly on the section between J24 and J25.

Walkers, cyclists and horse riders (WCH) and public transport provision- As the A12 becomes busier, there is an aspiration to move WCH provision and bus stops onto safer alternative routes. There are also issues regarding existing rights of way that were severed during the construction of the current A12 alignment.

The need for the proposed scheme was outlined within the Governments first Road Investment Strategy (RIS) as one of the projects to be delivered in Road Period 1 between 2015 and 2020. RIS1 was published in December 2014, which outlines a long-term programme for major roads across England between 2015 and 2020. RIS1 establishes how the Strategic Road Network (SRN) requires upgrading and improving to ensure that it can deliver the performance needed to improve connectivity, environmental impacts and efficiency.

In March 2020 the government published RIS2 which covers investment in, and management of, the SRN from April 2020 to March 2025. The proposed scheme was identified as a "committed scheme" within RIS2.

The National Policy Statement for National Networks (NPSNN) is the primary policy document against which a nationally significant road scheme is assessed, and which establishes a range of options to address the need and pressures for growth across the SRN. Section 2 of the NPSNN sets out that there is a compelling need at a strategic level for the development of national networks, citing their significant role in supporting economic growth and a prosperous economy. Section 2 of the NPSNN also sets out the Government's vision and strategic objectives for the development of the national networks. The alignment of the scheme objectives with the Vision and Strategic Objectives established in paragraph 2 of NPSNN is set out within Chapter 2, section 2.2 of the Environmental Statement.

A2 (ii) (b) Please provide details of supporting evidence. See guidance on page 1 and above in A2

Which of the following are you providing to support the statement you have made above?	
☐ Relevant extracts from specific documents	*Reference the document name/s, relevant page/paragraph number/s and insert extracts here:* ***Case for the Scheme [TR010060/APP/7.1] Section 2 The need for the proposed scheme:*** ***Road Investment Strategy 1 2015-2020*** The development of improvements to the A12 Chelmsford to A120 were announced as part of the Government's 2015-2020 Road Investment Strategy 1 (RIS1). The A12 has previously been improved in stages and is now a dual carriageway for its entire length between the M25 and A14. However, this has resulted in a road constructed to varying standards with sections that are dual 2 and dual 3 lane, and locations where at-grade accesses to residential, commercial and agricultural properties have been retained. In March 2015, the Department for Transport (DfT) announced major new investment for the A12 as part of the RIS including widening (A12 to three lanes between junction 19 (north of Chelmsford) and junction 25 (A120 interchange), traffic technology improvements and a package of associated mitigation schemes. ***Part 1 of RIS1 sets out that it wants National Highways to:*** "Make the network safer and improve user satisfaction, while smoothing traffic flow and encouraging economic growth. We want to see Highways England delivering better environmental outcomes and helping walkers, cyclists and other vulnerable users of the network at the same time as achieving real efficiency and keeping the network in good condition". ***Road Investment Strategy 2 2020-2025*** In March 2020, the government published the 2020-2025 Road Investment Strategy 2 (RIS2), which covers investment in, and management of, the SRN from April 2020 to March 2025 (DfT, 2020). RIS2 commits £27.4 billion of Government spending to deliver improvements in the capacity and quality of the SRN between financial year 2020/21 to 2024/25. It sets out the standard that National Highways must meet and identifies the proposed scheme for which funding will be made available and that the Government expects will be built. The proposed scheme is a committed scheme in RIS2:

"In Essex, our A12 Chelmsford to A120 scheme will deliver a wide range of benefits, including reduced congestion, and will align with local authority development plans".

"A12 Chelmsford to A120, developing proposals for widening to three lanes between junctions 19 and 23, as well as finalising the options for junctions 23 25, aligning with local authority development plans".

Highways England Strategic Business Plan 2020-2025

Highways England's Strategic Business Plan sets out its commitment to protecting the environment and neighbouring communities, while preparing roads for future developments. It sets out the Applicant's response to RIS2 and presents the careful balancing between maintaining and operating the SRN safely and providing new capacity where it's needed.

Highways England Delivery Plan 2020-2025

The Highways England Delivery Plan 2020 to 2025 (HEDP) (INSERT REF) explains how the committed schemes included in the RIS will be delivered in the period up to 2025. The HEDP, notes that the proposed scheme will deliver a wide range of benefits, including reduced congestion, and will align with local authority development plans.

Environmental Statement Chapter 2 [TR010060/APP/6.1] section 2.1 and 2.2

The A12 is an important economic link in Essex and across the east of England. It provides the main south-west/north-east route through Essex and Suffolk, connecting Ipswich to London and to the M25.

The section of the A12 between Chelmsford and Colchester (junction 19 Boreham interchange to junction 25 Marks Tey interchange) carries high volumes of traffic, with up to 90,000 vehicles every day. Heavy goods vehicles (HGVs) account for between 9% and 12% of the traffic on this section due to its importance as a freight connection, especially to Felixstowe and Harwich ports. This section of the A12 is also an important commuter route between Chelmsford and Colchester, and acts as a link, via the A120, to London Stansted Airport. The resulting congestion leads to delays and means that, during the morning commute, a driver's average speed can be particularly slow for an A-road, in either direction.

Previous studies, including the East of England Route Strategy (Highways England, 2015), the A12/A120 Route Based Strategy (Highways Agency, 2013) and the Essex Local Transport Plan (Essex County Council, 2011), indicate several problems between junction 19 and junction 25 of the A12. The key problems and issues from these studies are documented in the A12 Chelmsford to A120 Widening Options Assessment Report (Highways England, 2016, pages 44–47) and summarised in Table 2.1.

Table 2.1 Current issues along the A12

Strategic ssue	Locations

Traffic flows and congestion	Congestion is experienced routinely on all links along the length of the A12. The busiest link is between J20b and J21 and is linked to the commuter route between Braintree and Maldon. These routes put pressure on traffic through Witham at J21 and affect the performance of the A12 between Boreham and Marks Tey.
Consistency n standard	The A12 has been improved in a piecemeal way which has resulted in a route with little consistency in terms of provision. It varies between dual two-lane and dual three-lane all-purpose carriageways and has numerous variations of junction types, surfacing, geometry, access, asset condition, lighting and lay-by provision. There is also limited roadside technology along the whole route.
Resilience	There are limited suitable diversion routes for the A12, which can lead to significant disruption when incidents occur. The lack of diversion routes also makes it more difficult to undertake maintenance to the route.
Safety	There were approximately 141 collisions in the section of A12 between J19 and J25 between 2017 and 2019[1]. Motorcyclists, cyclists, horse riders and walkers are identified as 'vulnerable' road user groups. There are elements of the existing A12 with substandard design, including slip roads with inadequate length, and poor visibility at junctions and bends. There are also several direct accesses onto the A12 from residential, commercial and agricultural properties, particularly on the section between J24 and J25.
Walkers, cyclists and horse riders (WCH) and public transport provision	As the A12 becomes busier, there is an aspiration to move WCH provision and bus stops onto safer alternative routes. There are also issues regarding existing rights of way that were severed during the construction of the current A12 alignment.

Table 2.2 Proposed scheme-specific objectives

Objective	How it aligns with DfT strategic objectives	How it aligns with RIS2 strategic outcomes
Proposed scheme supports the growth identified in Local Plans by reducing congestion related delay, improving journey time reliability and increasing the overall transport capacity of the A12	Grow and level up the economy	Providing fast and reliable journeys (supporting economic growth)
Improved safety design: private accesses to the strategic road network closed off and alternative access to local roads provided by the proposed scheme	Improve transport for the user	Improving safety for all
Proposed scheme improves road user safety		
Proposed scheme improves road worker safety during maintenance operation		
Proposed scheme reduces current and forecast congestion related delays and therefore increases journey time reliability	Improve transport for the user	Providing fast and reliable journeys
Proposed scheme understands the impacts of other schemes and recognises other RIS schemes.		
Reduce the visual, air and noise quality impacts of the proposed scheme on affected communities on the route	Reduced environmental Impacts	Delivering better environmental outcomes
Reduce the capital carbon and biodiversity impact of the proposed scheme		

	Proposed scheme reduces the impact of severance of communities along the route	Improve transport for the user	Meeting the needs of all users	
	Proposed scheme improves accessibility for walkers, cyclists, horse riders, and public transport users			
	Improve customer satisfaction, and reduce customer impact during construction			
☐ Individual documents in their entirety	*List the document name/s attached to your application and provide the relevant page/paragraph number/s here*			
☒ Website links	As referenced above, Page 10 of East of England Route Strategy: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/416730/East_of_England.pdf Chapter 2 of the A12/A120 Route Based Strategy: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/364194/FINAL_A12_RBS__with_figures_.pdf Chapter 4 of the Essex Local Transport Plan: https://www.essexhighways.org/uploads/downloads/essex_ltp.pdf Page 43 of The Road Investment Strategy 2015-2020: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/408514/ris-for-2015-16-road-period-web-version.pdf Page 102 of the Road Investment Strategy 2: 2020-2025: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/951100/road-investment-strategy-2-2020-2025.pdf Section 2 of the NPSSN, found at the following location: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/387222/npsnn-print.pdf			

A2 (ii) (c) If you have not inserted the relevant extracts in the table above, please confirm the above cited supporting evidence is attached to your application. Yes ☐ **N/A** ☐

A3 There must be a Public Interest. You need to demonstrate that your proposal will deliver a public benefit rather than a solely private interest.
Note: Planning consent (or its equivalent) is considered evidence of public interest so please ensure to reference here but only include details in the application form.

A3 (a) Indicate the scale of these benefits: Local ☒ Regional ☒ National ☒

A3 (b) Where possible, explain the scale of the primary and secondary benefits that will be achieved from your proposal, in quantifiable terms, as indicated above.
For example, this could be the number of new houses provided in proportion to the identified need (including the number of affordable units) at a local and regional scale; the number of long term employment opportunities that will be created at a local level; the level of reduced Co2 emissions at an 'X' level and any other economic benefits for the local area.

As set out in Chapter 1 of the Environmental Statement, national policy including the Road Investment Strategy (RIS1) 2015-2020, the Road Investment Strategy (RIS2) 2020-2025 and the NPSNN set out clearly that investment in the strategic road network is in the public interest, with benefits of improved efficiency, environmental impacts and connectivity and support for economic growth and the existing economy of the country.

The proposed scheme is being delivered by a public body and is nationally significant infrastructure which would be used by and bring benefits to the general public, including users of the road for business, leisure, tourism and local connectivity.

The Case for the Scheme sets out on Chapter 6 the Economic Case for the scheme, including the monetise cost and benefits and value for money assessment.

A3 (c) Please provide details of supporting evidence. See guidance on page 1 and above in A2

Which of the following are you providing to support the statement you have made above?	
☒ Relevant extracts from specific documents	*Reference the document name/s, relevant page/paragraph number/s and insert extracts here:* ***Environmental Statement Chapter 1 Introduction*** ***Section 1.4: Transport policy*** *1.4.19 In March 2020, government published its second Road Investment Strategy (RIS2), which covers investment in, and management of, the SRN from April 2020 to March 2025 (DfT, 2020). The proposed scheme is a committed scheme in RIS2.* *1.4.20 National Highways developed the following documents to respond to and align with RIS2:* ***Strategic Business Plan 2020-2025 (Highways England, 2020b) –** This document provides the high-level direction for Road Period 2 (2020 to 2025), including the outcomes and the strategic priorities. The plan identifies the following environmental commitments:* *- Improving the health and wellbeing of people living near its roads* *- Supporting government's ambition to achieve net zero UK carbon emissions by 2050* *- Maximising opportunities for sustainability* *- Improving the natural, built and historic environment* *- Creating a network resilient to a changing climate* ***Case for the Scheme [TR010060/APP/7.1] Chapter 6 Economic Case*** **Overall Value for Money Assessment** The overall VfM assessment includes the additional benefits not included in the AMCB table, namely Journey Time Reliability Benefits and Wider Impacts.

Further appraisal is undertaken to calculate an Adjusted BCR for the Overall Value for Money Assessment (VfM).

Journey time reliability impacts

Road users experience day-to-day variability in travel times due to high congestion, and delays from accidents and other incidents. The additional lane offered by the scheme, and the presence of improved technology, will result in lower congestion and an ability to deal with incidents effectively. This improvement in journey time reliability results in significant economic benefits.

The impact of the proposed scheme on journey time reliability was assessed in the ComMa (Doc Ref). The results for the core scenario are provided in Table 6.12. The results are disaggregated by the benefits derived from changes in incident delay benefit and those from changes in Travel Time Variability. The results represent monetary benefits over 60 years, and are provided in 2010 prices, discounted to 2010.

Journey time reliability benefits in 2010 prices, discounted to 2010 (£000s)

Benefit Type	Benefits (£000's)
Incident Delay Benefit, MyRIAD Links	£87,927
Incident Delay Benefit-Diversion Area	£22,630
Travel Time Variability	£70,190
Total	**£180,747**

The results show that the reduction in congestion caused by the proposed scheme will lead to reduced day to day variability in travel times, generating economic benefit. The proposed scheme will also lead to a reduction in incident delays, as a greater number of lanes and greater technology means delays are shorter when incidents do occur. Benefits are also predicted to occur on routes that are used as diversions when incidents do occur.

Wider Economic Impacts

A summary of the results for a wider economic impact is provided in Table 6.13. The agglomeration benefits are split by the various employment sectors.

Wider impact summary, benefits over 60-year appraisal period, in 2010 prices discounted to 2010 (£000s)

Wider Economic Impact	Benefits (£000's)
Agglomeration – Manufacturing	£12,937
Agglomeration - Construction	£24,027
Agglomeration - Consumer Services	£64,995
Agglomeration - Producer Services	£114,262
Total Agglomeration ('static clustering')	**£216,222**
Labour supply impacts	£6,257
Increased business output (output change in imperfectly competitive markets	£31,438
Total Wider Impact Benefits	**£253,917**

	In line with guidance, it can be seen that the agglomeration results are by far the largest source of wider impact benefit. The majority of agglomeration benefits accrue to the "Producer Services" employment sector. This reflects the higher agglomeration elasticity value for Producer Services, i.e. it is more sensitive than other employment sectors to changes in agglomeration. The WITA results are at the top end of the typically expected range. However, the proposed scheme's economic narrative has provided context-specific evidence which suggests that benefits from wider impacts such as agglomeration would be material.
☐ Individual documents in their entirety	*List the document name/s attached to your application and provide the relevant page/paragraph number/s here:*
☐ Website links	*Insert website links here and specify where exactly in the linked document or web page the evidence referred to is located:*

A3 (d) If you have not inserted the relevant extracts in the table above, please confirm the above cited supporting evidence is attached to your application. Yes ☐ **N/A** ☐

A4 (a) Explain why the benefits of your proposal (as detailed above in A3) override any harm to the protected species.

The benefit/s arising from the proposal must outweigh the harm (or risk of harm) to the protected species. Generally, this means long-term public benefits rather than short term benefits (i.e. creation of permanent employment opportunities rather than temporary employment or creation of infrastructure that helps to provide long-term solutions to clearly identified national problems associated with energy demands). Please ensure you reference the species concerned i.e. the population size or common/rare species of bat and if the proposed mitigation/compensation will maintain or increase the favourable conservation status (FCS) of the species impacted by works.

The proposed scheme comprises improvements to the A12 between junction 19 (Boreham interchange) and junction 25 (Marks Tey interchange). The proposed scheme involves widening the A12 to three lanes throughout (where it is not already three lanes) with two new sections of three-lane dual carriageway, between junctions 22 and 23 and between junctions 24 and 25. It also includes safety improvements, including closing off existing private and local direct accesses onto the main carriageway, and alterations and improvements for walkers, cyclists and horse riders to existing non-vehicular routes along the A12.

Bat surveys were undertaken up to 100m from the proposed scheme between 2017 and 2021 (some surveys for the recently added gas main area are still ongoing). A total of 72 bat roosts in trees, buildings and structures were recorded within the study area. Construction of the proposed scheme may result in four currently identified roosts being destroyed: a common pipistrelle day roost in a building, a common pipistrelle day roost in an aspen tree, a brown long eared bat day roost in a willow tree and a soprano pipistrelle day roost in an oak tree. A further 15 roosts (including 10 buildings and one bridge) have been identified as being at risk from disturbance via noise, vibration, or habitat fragmentation impacts.

All roosts identified as being destroyed or disturbed by the proposed scheme are day or transitional roosts that are occupied by common species of bat both nationally and for the area. To mitigate for the roosts predicted to be destroyed or disturbed 25 bat boxes will be installed, the specifics of which will be appropriate to the roost species and type they are mitigating for. In addition to this the amount of habitat suitable for bats across the proposed scheme will increase due to habitat creation and enhancement measures.

It is concluded in section 9.11 of Chapter 9 of the Environmental Statement that the construction and operation of the scheme, in light of mitigation measure proposed in section 9.10, would lead to a neutral significance of effect on bats.

The bat species identified as roosting within the study area are common and widespread both in Essex and the UK, and it is not considered that construction or operation of the proposed scheme would result in a reduction in either the local bat populations or availability of suitable commuting or foraging habitat. As well as potential impacts to roosting bats, impacts to bat species using the local landscape for commuting and foraging have also been considered and appropriate mitigation measures have been proposed to ensure that habitat connectivity is maintained, therefore supporting the mobility of bats across the proposed scheme and ensuring continued ecological function. The Favourable Conservation Status of bats is therefore maintained.

A4 (b) Please provide details of supporting evidence to verify the above, (this can be documents you are providing in relation to the FCS test). See guidance on page 1 and above in A2

Which of the following are you providing to support the statement you have made above?	
☒ Relevant extracts from specific documents	*Reference the document name/s, relevant page/paragraph number/s and insert extracts here:* • PEIR – Section 9.10.105 *The significance of effects on bats is therefore considered to be neutral.* **Environmental Statement [TR010060/APP/6.1] Biodiversity Chapter** • 6.1 Environmental Statement Chapter 9 Biodiversity – Section 9.8.45 *A total of 72 bat roosts in trees, buildings and structures were recorded within the study area, with nine roosts located within the Order Limits (Table 9.14). Of the 72 roosts, 10 are within buildings or structures where more than one species was present. For the purposes of this assessment, these have been considered separate roosts. In addition, 252 trees of moderate to high bat roost potential, 1,479 buildings of moderate to high potential, and two structures of moderate potential are located within the study area. Of these, 43 buildings, 109 trees and two structures are located within the Order Limits. Locations of roosts are shown on Figure 9.3 [TR010060/APP/6.2].* • 6.1 Environmental Statement Chapter 1 Introduction – Section 1.1.1 *The A12 Chelmsford to A120 widening scheme (the 'proposed scheme') comprises improvements to the A12 between junction 19 (Boreham interchange) and junction 25 (Marks Tey interchange), a distance of approximately 24km, or 15 miles (Plate 1.1). The proposed scheme involves widening the A12 to three lanes throughout (where it is not already three lanes) with two new sections of three-lane dual carriageway, between junctions 22 and 23 and between junctions 24 and 25. It also includes safety improvements, including closing off existing private and local direct accesses onto the main carriageway, and*

	alterations and improvements for walkers, cyclists and horse riders to existing non-vehicular routes along the A12. **Environmental Statement [TR010060/APP/6.1] REAC (secure the proposed mitigation** **Environmental Statement [TR010060/APP/6.1] Environmental Masterplan (distribution of the proposed mitigation)**
☐ Individual documents in their entirety	*List the document name/s attached to your application and provide the relevant page/paragraph number/s here:*
☐ Website links	*Insert website links here and specify where exactly in the linked document or web page the evidence referred to is located:*

A4 (c) If you have not inserted the relevant extracts in the table above, please confirm the above cited supporting evidence is attached to your application	Yes ☐ **N/A** ☐

SECTION B: No Satisfactory Alternative Test (NSA)

Please explain why there is no satisfactory alternative to your proposal.

A "satisfactory alternative" is a different way of achieving the objective of the activity (i.e. meeting your need) which has a *less negative impact on the protected species*. If there is a less damaging satisfactory alternative available that is feasible, then legally, a licence cannot be granted.

You are expected to have considered all reasonable alternative solutions when developing your proposal(s) and to have suitable grounds (and evidence) for discounting each against the proposed solution to meet the need. There are technical and non-technical elements to consider for this test and this part of your application will consider the non-technical elements – focussing on delivering the need. Alternatives can include different locations, routes, designs and construction methods. The Method Statement focusses on the technical elements of this test – i.e. reducing the impact on the species (see 'Important Note' below).

Important Note: Alternative mitigation (including timing of licensable works) and compensation solutions are considered as part of the Favourable Conservation Status test and should be included in the relevant species Method Statement submitted with your application and not here.

B1 (a) Firstly, please explain why the current situation (i.e. the status quo) isn't acceptable or feasible, e.g. The consequences of doing nothing.

This section of the A12 carries high volumes of traffic and experiences congestion and delays throughout the year, with poor journey time reliability. The route is in need of improvement to meet Highways England's objectives of maintaining the smooth flow of traffic, making the network safer and supporting economic growth.

Current congestion on the existing A12 between Chelmsford and Colchester forms a bottleneck on the road network Essex, preventing reliable east – west journeys and stifling economic activity in Essex and the surrounding counties. If not improved, the existing infrastructure will continue to contribute to growing congestion, poor reliability and efficiency, and poor journey times – all of which fail to meet Highways England's business strategy and the Government's strategic vision outlined in the Road Investment Strategy (RIS).

The issues identified on the current A12 between Chelmsford and Colchester are:
- traffic flows and congestion experienced routinely on all links along the length of the A12;
- Consistency in standard, the A12 has been improved in a piecemeal way which has resulting a route with little consistency in terms of provision;
- limited technology along the entire route;
- lack of suitable diversion routes for the A12, resulting in significant disruption when incidents occur;
- lack of diversion routes makes maintenance on the A12 more challenging;
- motorcyclists and pedestrians have been identified vulnerable on this route;
- elements of the A12 have a substandard design which impacts the safety of motorists;
- numerous properties have direct access to the A12.

The consequences of these issues are:
- congestion and longer journey times, particularly during peak times;
- unreliable journey times;
- endangering the safety of the public and motorists;
- queuing at the junctions, due to the interaction between local and strategic traffic, particularly at peak times; and
- queuing when incidents occur with knock on effects to surrounding local routes.

B1 (b) Please provide details of supporting evidence. See guidance on page 1 and above in A2.

Which of the following are you providing to support the statement you have made above?	
☒ Relevant extracts from specific documents	*Reference the document name/s, relevant page/paragraph number/s and insert extracts here:* **Environmental Statement [TR010060/APP/6.1] Chapter 2**
☐ Individual documents in their entirety	*List the document name/s attached to your application and provide the relevant page/paragraph number/s here:*
☒ Website links	Chapter 2, section 2.2 of the Environmental Statement *(link to be included for the final licence submission).*

B1 (c) If you have not inserted the relevant extracts in the table above, please confirm the above cited supporting evidence is attached to your application	Yes ☐ N/A ☐

Please use the tables below to describe each alternative considered.
Please use a separate line for each and tick the relevant reason(s) why it was dismissed. It is important to explain why each alternative was judged to be unsatisfactory or unfeasible to meet the need for the proposal put forward in your application and to provide concise supporting evidence as appropriate (*Please insert additional rows as required).* All three sections (B2, B3 & B4) need to be completed even if you think that the alternative is not applicable; you must provide an explanation as to why an alternative is not applicable and provide supporting evidence.

B2 (a) Set out <u>what</u> alternative locations and/or routes (for linear schemes) were considered and indicate how and why they were not acceptable.			
☐ **'Not applicable to situation'** **If you have ticked *'Not applicable to situation'*, please explain why here and include supporting evidence in B2 (b):**			
Otherwise please complete this table as appropriate	Won't deliver need	Not feasible	Greater impact on species
Location or route 1:	☒	☐	☐
Describe the location or route considered	Online widening throughout and provision of a local access road to provide alternative access to existing single tier junctions. Three lanes provided throughout completely online with removal of single tier junctions by providing local access roads. Remove J20a and J20b and replace with either a combined J20 to the south of Hatfield Peverel or replace with an improved J21 with access roads to Hatfield Peverel.		
Clearly set out how and why the alternative location/route was discounted.	An online option would have less impact to ecology and landscape in general, as there would be minimal land take and severance. It would also avoid impacts to the Colemans Farm quarry site near Rivenhall End. However, there would potentially be worse air quality and noise impacts as there would be no opportunity to move strategic traffic onto new bypasses. While		

	there were some environmental benefits to widening the existing A12, by reducing impacts on previously undisturbed land, there were concerns about the impact on local businesses and residents in Rivenhall End, as this option would not provide a bypass. Local access roads would be required to remove private accesses onto the A12, which would not have the safety benefits of building new sections of road away from the existing A12. There would be impacts to people and the landscape of urban areas as the road is widened, and from the loss of existing vegetation screening. In addition, there were concerns that this option would not handle traffic and congestion as well as other options, nor be as safe to construct. Although Option 1 is likely to have the least overall impact, there are still potential significant effects, particularly to the landscape and setting of historic buildings along the A12.		
Location or route 2	☒	☐	☒
Describe the location or route considered	Online widening with an offline bypass between junctions 22 and 23. Three lanes provided throughout with offline sections to the south of the A12 between J22-J23.		
Clearly set out how and why the alternative location/route was discounted.	This option has the potential for significant environmental effects. The offline section would sever areas of BMV agricultural land and would have a detrimental effect on landscape and ecology. The offline section would be within the Blackwater Valley, with the potential to cause significant effects to the landscape character. The footprint would also affect an archaeologically rich area and would likely cause substantial harm to the setting of the Rivenhall Long Mortuary Enclosure scheduled monument. Large areas of floodplain, the operational quarry at Colemans Farm, and an MSA would also be affected. Mitigation would include reducing the extent of works into these sensitive features. However, it is likely that some effects could not be mitigated, with significant residual effects remaining. In addition, there were concerns that this option would not handle traffic and congestion as well as other options, nor be as safe to construct.		
Location or route 3:	☒	☐	☒
Describe the location or route considered	Online widening with an offline bypass between junctions 24 and 25. Three lanes provided throughout with offline sections to the south of the A12 between J24-J25.		
Clearly set out how and why the alternative location/route was discounted.	This option has the potential for significant environmental effects. The offline section would sever areas of BMV agricultural land and would have a detrimental effect on landscape and ecology. There would also be significant impacts on the setting of several listed buildings, notably major impacts to the grade II listed building, Doggets Hammer Farm, located within 20m of this option. There would be no bypass between J22 and J23; the option would therefore avoid impacts on the Rivenhall Long Mortuary Enclosure scheduled monument. This alignment would also reduce the area of development in the River Blackwater floodplain. There is still potential for significant effects on other receptors from the proposed bypass, but it is likely these could be mitigated. However, while this option would have addressed the problems with private access between junctions 24 and 25, it would not have provided the bypass at Rivenhall End. In addition, there were concerns that this option would not handle traffic and congestion as well as other options, nor be as safe to construct.		
Location or route 4:	☐	☐	☐

Describe the location or route considered	
Clearly set out how and why the alternative location/route was discounted.	

**Please note: you can add more rows to the table: Right click in the bottom row > Choose Insert > Insert rows below.*

B2 (b) Please provide details of supporting evidence. See guidance on page 1 and above in A2.

Which of the following are you providing to support the statement you have made above?	
☒ Relevant extracts from specific documents	**Environmental Statement [TR010060/APP/6.1] Chapter 3 Consideration of Alternatives of the Environmental Statement** **Case for the Scheme [TR010060/APP/7.1] Section 3.2 Options Identification, Assessment and Shortlisting for Consultation**
☐ Individual documents in their entirety	*List the document name/s attached to your application and provide the relevant page/paragraph number/s here:*
☒ Website links	The route selection and options assessment process for the scheme, including why options were discounted and a preferred route selected, is detailed in Chapter 3- Consideration of Alternatives of the Environmental Statement *(link to be included for the final licence submission).*

B2 (c) If you have not inserted the relevant extracts in the table above, please confirm the above cited supporting evidence is attached to your application	Yes ☐ N/A ☐

B3 (a) Set out <u>which</u> alternative development scales or designs were considered for the chosen plot or route.			
Important note: If new infrastructure is to be created explain why the need cannot be met by expanding existing infrastructure.			
☐ **'Not applicable to situation'** **If you have ticked *'Not applicable to situation'*, please explain why here and include supporting evidence in B3 (b):**			
Otherwise please complete this table as appropriate	Won't deliver need	Not feasible	Greater impact on species
Development scale or Design 1:	☐	☐	☒
Describe the development scale or design considered.	The original preferred route encompassed online widening with two offline bypasses between junctions 22 and 23 and between junctions 24 and 25.		
Clearly explain how and why the different development scale or design considered was discounted.	The offline section of the original preferred route option between J22-J23 would be within the Blackwater Valley, with the potential to cause significant effects to the landscape character. The footprint would also affect an archaeologically rich area and would likely		

	cause substantial harm to the setting of the Rivenhall Long Mortuary Enclosure scheduled monument, as well as associated archaeological remains that contribute to the wider historic setting of the monument. Large areas of floodplain, an operational quarry and an MSA would also be affected. The operational quarry at Colemans Farm near Rivenhall End has a planning condition for restoration to be one of Essex's flagship biodiversity sites. If the footprint of the road were to impinge on the planned restoration area, then equivalent biodiversity areas would need to be provided elsewhere. The offline section between J24-J25 would result in significant impacts on the setting of a number of listed buildings, notably major impacts to the grade II listed building, Doggets Hammer Farm, located within 20m of this option A refined Option 2 alignment was created to reduce impacts on the Rivenhall Long Mortuary Enclosure scheduled monument and the River Blackwater floodplain. For the refined Option 2, the length of the bypass between junctions 22 and 23 was reduced, re-joining the existing A12 at a point just east of Rivenhall End, thereby taking the alignment away from the scheduled monument and reducing potential development in the floodplain. The refined option would also result in reduced loss of BMV land and sterilisation of minerals compared to the original Option 2. The refined Option 2 therefore reduces overall impacts in compliance with the NNNPS.		
Development scale or Design 2:	☐	☐	☐
Describe the development scale or design considered.			
Clearly explain how and why the different development scale or design considered was discounted.			
Development scale or Design 3:	☐	☐	☐
Describe the development scale or design considered.			
Clearly explain how and why the different development scale or design considered was discounted.			
Development scale or Design 4:	☐	☐	☐
Describe the development scale or design considered.			
Clearly explain how and why the different development scale or design considered was discounted.			

**Please note: you can add more rows to the table: Right click in the bottom row > Choose Insert > Insert rows below*

B3 (b) Please provide details of supporting evidence. See guidance on page 1 and above in A2.

Which of the following are you providing to support the statement you have made above?	
☐ Relevant extracts from specific documents	*Reference the document name/s, relevant page/paragraph number/s and insert extracts here:*
☒ Individual documents in their entirety	*List the document name/s attached to your application and provide the relevant page/paragraph number/s here:* **Environmental Statement [TR010060/APP/6.1] Chapter 3 Consideration of Alternatives of the Environmental Statement** **Case for the Scheme [TR010060/APP/7.1] Section 3.2 Options Identification, Assessment and Shortlisting for Consultation**
☒ Website links	*Insert website links here and specify where exactly in the linked document or web page the evidence referred to is located:* The route selection and options assessment process for the scheme, including why options were discounted and a preferred route selected, is detailed in Chapter 3- Consideration of Alternatives of the Environmental Statement *(link to be included for the final licence submission).*

B3 (c) If you have not inserted the relevant extracts in the table above, please confirm the above cited supporting evidence is attached to your application.	Yes ☐ N/A ☐

B4 (a) Other alternative activities, processes or construction methods considered which would achieve the design but reduce the impact upon the species
Important note – detailed timings of licensable works, alternative mitigation and compensation which will reduce the degree of harm are to be considered within the Method Statement and not here.
☒ **'Not applicable to situation'** **If you have ticked 'Not applicable to situation', please explain why here and include supporting evidence in B4 (b):**

Otherwise please complete this table as appropriate	Won't deliver need	Not feasible	Greater impact on species
Alternative activity, process or method 1:	☐	☐	☐
Describe the alternative activity, process or method considered.			
Clearly explain why this alternative was discounted.			
Alternative activity, process or method 2:	☐	☐	☐
Describe the alternative activity, process or method considered.			
Clearly explain why this alternative was discounted.			
Alternative activity, process or method 3:	☐	☐	☐

Describe the alternative activity, process or method considered.			
Clearly explain why this alternative discounted.			
Alternative activity, process or methods 4:	☐	☐	☐
Describe the alternative activity, process or method considered.			
Clearly explain why this alternative was discounted			

**Please note: you can add more rows to the table: Right click in the bottom row > Choose Insert > Insert rows below*

B4 (b) Please provide details of supporting evidence. See guidance on page 1 and above in A2

Which of the following are you providing to support the statement you have made above?	
☐ Relevant extracts from specific documents	*Reference the document name/s, relevant page/paragraph number/s and insert extracts here:*
☒ Individual documents in their entirety	*List the document name/s attached to your application and provide the relevant page/paragraph number/s here:* **Environmental Statement [TR010060/APP/6.1] Aspect individual chapters 6 to 17 and Chapter 3 Consideration of Alternatives of the Environmental Statement** **Case for the Scheme [TR010060/APP/7.1] Section 3.2 Options Identification, Assessment and Shortlisting for Consultation**
☐ Website links	*Insert website links here and specify where exactly in the linked document or web page the evidence referred to is located:*

B4 (c) If you have not inserted the relevant extracts in the table above, please confirm the above cited supporting evidence is attached to your application.	Yes ☐ **N/A** ☐