

A47 North Tuddenham to Easton Dualling

Scheme Number: TR010038

6.3 Environmental Statement Appendices Appendix 8.7 - Reptile Survey Report

APFP Regulation 5(2)(a)

Planning Act 2008

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

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Infrastructure Planning

Planning Act 2008

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ENVIRONMENTAL STATEMENT APPENDICES Appendix 8.7 - Reptile Survey Report

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1. Scheme introduction

- 1.1.1. In May, June, August and September 2019, Sweco undertook reptile surveys of a route (Route 2) which was chosen at the options stage, along a stretch of the A47 between North Tuddenham and Easton, hereafter referred to as "the site". This report is to inform the Environmental Statement (ES) Chapter at PCF Stage 3 for the A47 North Tuddenham to Easton Improvement Scheme, hereafter referred to as 'the Proposed Scheme'.
- 1.1.2. The Proposed Scheme improvements will:
 - improve accessibility to and around the region, reducing congestion and delays to enable more reliable journey times.
 - improve safety performance for all road users, contributing to a 40% reduction target in accidents across Highways England's roads over the implemented schemes' first five years in operation.
 - provide alternative access to local roads.
 - improve the environmental impact of traffic along the A47 route, particularly for the communities in the six scheme areas.
 - support economic growth in the Peterborough, Norwich and Great Yarmouth areas by improving overall road capacity.
- 1.1.3. The North Tuddenham to Easton section of the A47 lies to the west of Norwich at national grid reference (NGR) TG 05952 13577. This 7.9km single carriageway section forms a part of the main strategic highway route. The Proposed Scheme includes the partial dualling of the existing road with some deviations along the route.
- 1.1.4. This baseline report provides a summary of the results of the reptile surveys undertaken at the site in 2019 and specifies any mitigation or further survey work which may be required.



2. Ecological background

2.1. Previous studies

- 2.1.1. To support the PCF Stage 2 assessment, a Preliminary Ecological Appraisal (PEA) was undertaken by Amey in May 2016. This comprised a desk study and Extended Phase 1 Habitat survey (Amey, 2017). At this time, four (4) route options were under consideration.
- 2.1.2. The desk study returned records of four (4) species of reptile within the study area including slow worm *Anguis fragilis*, grass snake *Natrix natrix*, adder *Vipera berus* and common lizard *Zootoca vivipara*. The extended Phase 1 habitat survey identified several areas of suitable habitat for all of the above reptile species including grassland, hedgerows and woodland (Amey, 2017).
- 2.1.3. All accessible land within the potential footprints of the Proposed Scheme, plus a 50m buffer, was subject to reptile surveys commencing in May 2016, and continued in September and October 2016 (Amey, 2017).
- 2.1.4. No results from these surveys were provided.

2.2. Legislation

Wildlife and Countryside Act (WCA) 1981 (as amended)

- 2.2.1. Common lizard, slow worm, adder and grass snake are native reptile species and are protected under Schedule 5, Section 9.1 and 9.5(a)(b) of the WCA 1981 (as amended), making it an offence to:
 - intentionally kill or injure a reptile
 - trade or sell a reptile
- 2.2.2. Full protection of Schedule 5, Section 9 is afforded the sand lizard *Lacerta agilis* and the smooth snake *Coronella austriaca*, for which it is an offence to:
 - intentionally kill, injure or take (capture) a sand lizard or smooth snake
 - intentionally disturb a sand lizard or smooth snake while it is occupying a place used for shelter or protection
 - intentionally destroy a place used by a sand lizard or a smooth snake for shelter or protection



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

- 2.2.3. The sand lizard and smooth snake are European Protected Species (EPS) afforded protection under Section 2 of the CHSR 2017 (as amended) Regulation 42.
- 2.2.4. Under the CHSR, it is an offence if you:
 - deliberately capture, injure or kill any wild animal which is an EPS.
 - deliberately disturb wild animals of any such species.
 - deliberately take or destroy the eggs of such an animal.
 - damage or destroy a breeding site or resting place of such an animal.
- 2.2.5. Disturbance is defined as that which is likely:
 - 1. To impair their ability –
 - o to survive, to breed or reproduce, or to rear or nurture their young.
 - in the case of animals of a hibernating or migratory species, to hibernate or migrate.
 - 2. To affect significantly the local distribution or abundance of the species to which they belong.

Natural Environment and Rural Communities Act 2006

2.2.6. Species "of principal importance for the purpose of conserving biodiversity" are covered under section 41 (England) of the NERC Act (2006) and therefore need to be taken into consideration by a public body when performing any of its functions. Slow worm *Anguis fragilis*, smooth snake *Coronella austriaca*, sand lizard *Lacerta agilis*, grass snake *Natrix natrix*, adder *Vipera berus* and common lizard *Zootoca vivipara* are listed in section 41.

Norfolk Biodiversity Action Plan (BAP).

2.2.7. There are no reptile species listed as Local Priority Species (LPS) by the Norfolk Biodiversity Partnership (Norfolk Biodiversity Partnership, undated).

2.3. Scope of works

- 2.3.1. The following elements of work were included in the reptile survey programme:
 - Desktop study a review of previous ecological surveys in the area.
 - Field surveys using artificial refugia to determine presence or likely absence of reptiles within areas of suitable habitat on site.



 Ecological report – detailing the survey results, implications of the Proposed Scheme, the scheme's anticipated impacts and any further work or additional considerations arising from those impacts.

2.4. Survey and report objectives

- 2.4.1. This report, detailing surveys undertaken in 2019, is intended as an update to the reptile survey undertaken by Amey in 2016 (Amey, 2017) outlined in Section 2.1 (TR010038/APP/6.1).
- 2.4.2. The aim of the survey was to establish the presence or likely absence of reptiles on site, assess potential impacts of the Proposed Scheme on reptiles and determine how the Proposed Scheme can be undertaken in compliance with relevant legislation as detailed in Section 2.2 (TR010038/APP/6.1).
- 2.4.3. The following elements of work were included in the reptile survey programme:
 - Field surveys, including one visit to place artificial refugia¹ on site and nine subsequent visits undertaken in May, June, July, August and September to survey the refugia and site for reptiles.
 - Ecological reporting, detailing the survey results, implications of the Proposed Scheme on reptiles and any mitigation proposed.

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¹ See Section 3.2 for a description of the artificial refugia used.



3. Methodologies

- 3.1.1. The reptile surveys were undertaken in areas of habitat identified by Amey (2017) as suitable to support reptiles and which would be likely to experience impacts from the Proposed Scheme.
- 3.1.2. The surveys were undertaken with reference to the best practice guidelines in Froglife Advice Sheet 10: Reptile Survey (Froglife, 1999) and the Herpetofauna Workers Manual (Gent and Gibson, 2003).
- 3.1.3. The survey used the following methodologies:
 - The use of survey mats, further referred to as 'artificial refugia', which attract reptiles as a place of shelter from predation and disturbance, and as an aid to absorbing heat when basking.
 - Manual searches of placed artificial refugia on site.
 - Visual observations of all areas of the site, including checking for signs of sloughed skin, burrows and egg-laying.
- 3.1.4. A log was kept throughout the surveys noting any reptile observed, including their species, number, gender and age. Amphibians and other protected or notable species observed during the survey visits were also recorded.

3.2. Artificial Refugia

- 3.2.1. In total one hundred and fifty-two (152) artificial refugia were placed on site, across the five survey areas previously identified by Amey (2017) (Annex A: Artificial refugia locations). The numbers of artificial refugia in each survey area was as follows:
 - Area A (approximately 0.02ha) 10 artificial refugia
 - Area B (approximately 1.5ha) 30 artificial refugia
 - Area C (approximately 0.3ha) 17 artificial refugia
 - Area D (approximately 1.25ha) 19 artificial refugia
 - Area E (approximately 5.05ha) 76 artificial refugia
- 3.2.2. Artificial refugia were composed of roofing felt mats cut to approximately 50cm x 50cm. In addition, a large wooden board, approximately 240cm x 120cm, was found to be present on the ground in Area B during the visit to place the artificial refugia on 9 May 2019. This also constituted an artificial refugia, so it was incorporated into the survey and assigned the number twenty-eight (28) (Annex A: Artificial refugia locations). Artificial refugia were placed in suitable reptile habitat including pathways through grassland/scrub and road verge embankments. These areas provide basking habitat adjacent to areas of shelter



and protection. It was not considered necessary to place artificial refugia in less optimal habitat around the site as the surveys aims to determine presence or likely absence only.

3.3. Survey timings and weather conditions

- 3.3.1. Reptiles are active between March and October (Froglife, 1999) and the survey visits were undertaken in May, June, July, August and September 2019.
- 3.3.2. Survey timings focused on the species most likely to be found at the site: slow worm, grass snake, common lizard and adder. The sand lizard is associated with heathland and coastal sand dunes and the smooth snake is associated with heathlands (Gent and Gibson, 2003). Therefore, it is considered unlikely these species are present on site due to lack of suitable habitat to support them.
- 3.3.3. Froglife (1999) recommends surveying between temperatures of 9 18°C. Common lizard and slow worm will bask between 9 18°C, grass snake will bask between 12 20°C and adder will bask between 8 16°C (Gent and Gibson, 2003). All surveys were undertaken within the recommended temperatures of 9 18°C (see Table 4:1 below) (**TR010038/APP/6.1**).
- 3.3.4. The recommended times for checking artificial refugia are between 8:30 11:00am and 16:00 18:30pm in April, May and September, as conditions at these times in optimum months are generally best for basking (Froglife, 1999). The timings of the survey visits undertaken differ slightly from recommended timings based on professional judgement and to ensure compliance with the recommended temperatures for survey, 9 18°C (Froglife, 1999).
- 3.3.5. The surveys comprised nine (9) visits, one (1) visit to place out the artificial refugia, undertaken on 9 and 10 May 2019, and up to eight (8) subsequent visits in suitable weather conditions to survey the artificial refugia and undertake visual observations of the site. Not all survey areas were accessed on each visit due to access restrictions placed by the landowners. The survey visits were undertaken on the dates shown in Table 3-1 below (**TR010038/APP/6.1**).



Table 3-1 dates of reptile surveys in each survey area

Survey area	Dates surveyed
A	Not surveyed (see 3.4.2.)
В	15 May 2019, 21 May 2019, 26 June 2019, 2 August 2019, 13 August 2019, 20 August 2019, 17 September 2019, 19 September 2019
С	15 May 2019, 22 May 2019, 26 June 2019, 17 September 2019, 19 September 2019
D	15 May 2019, 21 May 2019, 26 June 2019, 2 August 2019, 20 August 2019, 17 September 2019, 19 September 2019
Е	15 May 2019, 22 May 2019, 26 June 2019, 22 August 2019, 17 September 2019, 19 September 2019

3.3.6. The surveys were undertaken by Ishbel Campbell ACIEEM (Consultant Ecologist, Sweco), Adam West GradCIEEM (Consultant Ecologist, Sweco), Beth Mell GradCIEEM (Consultant Ecologist, Sweco), Harry Jarvis (Seasonal Field Ecologist, Sweco) and Charlotte Ward (Seasonal Field Ecologist, Sweco).

3.4. Limitations

- 3.4.1. Five (5) of the mats (numbered 41 to 45) deployed in Area C were found, on the next visit, to have been destroyed by cattle. These were not replaced as the cattle would have destroyed the replacement mats. Twelve (12) mats remained in Area C beyond the reach of the cattle. The loss of these five (5) mats is not seen as a significant constraint on the survey as the remaining mats were considered sufficient to meet the survey's aim.
- 3.4.2. The ten (10) mats deployed in Area A were found, on the next visit, to have been removed. Area A is a grass verge adjacent to the footpath of a busy road on the outskirts of Easton village. It is assumed that the mats had been removed by local residents. The mats were replaced but on the next visit were found to have been removed again. It was decided not to replace the mats as they would likely be removed each time. This area is a very small linear area (approximately 100m²). To mitigate this constraint, the area will have a fingertip search by an Ecological Clerk of Works during the reptile active season immediately prior to works commencing in the area. If reptiles are found, they will be moved to the allotments which are adjacent to the DCO boundary.
- 3.4.3. Areas C and E were not subjected to the minimum recommended number of seven (7) surveys as access was not permitted for all survey visits. Area C was surveyed five (5) times, while Area E was surveyed six (6) times. Area C has since been removed from the DCO boundary. Area E will be subject to precautionary measures of fingertip searching prior to construction, if required. No reptiles were found on any other survey visit to these two areas.



- 3.4.4. Three of the four surveys visits in August were undertaken whilst temperatures where at 19°C and one survey visit in August was undertaken when temperatures were 18°C (see Table 4-1). As adder will bask between the temperatures of 8 16°C (see Section 3.3.3 (Gent and Gibson, 2003)) it is less likely that adders would be present within the survey area basking at the times of the four survey visits undertaken in August. In August three of eight surveys in survey area B, two of seven surveys in survey area D and one of six surveys in survey area E were undertaken. As all three survey areas (B, D and E) have had a minimum of five survey visits undertaken in suitable temperatures (see Table 4-1) the temperatures being considered two high to observe adder basking during the four August survey visits is not considered a significant limitation.
- 3.4.5. Reptiles are highly mobile species and therefore, their distribution is likely to change over time. A reptile survey will be required before the start of works to update these results. Due to seasonality constraints this survey will be undertaken up to a year² before works start. This would allow time for the consideration of further mitigation or avoidance works as required.

² CIEEM (2019) Advice note: On the Lifespan of Ecological Reports and Surveys



4. Survey results

4.1.1. The date of survey, time of survey and weather conditions are shown in Table 4-1 below.

Table 4-1 survey dates and weather conditions

Date	Weather conditions	Temperature (°C)
15 May 2019	Precipitation – 0 Wind (Beaufort) - 2	14°C
21 May 2019	Precipitation – 0 Wind (Beaufort) - 2	16°C
22 May 2019	Precipitation – 0 Wind (Beaufort) – 2	13°C
26 June 2019	Precipitation – 0 Wind (Beaufort) - 3	15°C
2 August 2019	Precipitation – 0 Wind (Beaufort) - 0	19°C
13 August 2019	Precipitation – 0 Wind (Beaufort) - 1	19°C
20 August 2019	Precipitation – 0 Wind (Beaufort) - 1	18°C
22 August 2019	Precipitation – 0 Wind (Beaufort) – 2	19°C
17 September 2019	Precipitation – 0 Wind (Beaufort) - 2	11°C

- 4.1.2. Reptiles were only recorded during the survey in Area B. Table 4-2 presents details of the findings made. Locations of observations are also presented in Annex B: Survey results map.
- 4.1.3. An incidental observation of common lizard was recorded in Area D on 02 July 2020 during Ground Investigation works. The lizard was located on a pile of matting (Grid Reference Easting: 610971.197 Northing: 311699.787) and was moved to a safe location outwith the works area by the on site ECoW.

Table 4-2 findings of reptiles made during the 2019 surveys (Area B only)

Survey date	Findings
9 May 2019 (Incidental)	Incidental observation 1 adult slow worm found under wooden board while artificial refugia were being deployed
21 May 2019	1 adult slow worm



Survey date	Findings
26 June 2019	12 adult slow worms, 4 juvenile slow worms, 1 juvenile grass snake, 3 sub-adult grass snakes
2 August 2019	2 juvenile female slow worm, 3 male slow worms, sloughed grass snake skin
13 August 2019	4 female slow worms, 1 juvenile slow worm, 1 adult grass snake, 1 juvenile slow worm or juvenile grass snake (not seen clearly enough to be certain), sloughed grass snake skin
20 August 2019	1 female slow worm, 1 adult grass snake, 1 male slow worm, 4 juvenile slow worms
19 September 2019	1 adult slow worm

4.2. Incidental recordings

4.2.1. A number of incidental recordings of amphibians were made during the 2019 reptile surveys. The findings from these incidental observations are presented in Table 4-3.

Table 4-3 incidental observations of amphibian species

Survey date	Area	Findings
21 May 2019	В	1 adult common toad <i>Bufo bufo</i>
22 May 2019	E	5 juvenile common toads, two common frogs Rana temporaria
22 May 2019	С	1 adult common toad, 1 juvenile common frog
13 August 2019	В	1 adult common toad
22 August 2019	E	4 juvenile common toads



5. Assessment and additional requirements

5.1. Reptile status at the site

- 5.1.1. Reptiles were recorded in one (1) of the five (5) areas surveyed, specifically Area B. Two (2) species of reptile were recorded in Area B: grass snake and slow worm. One incidental observation of common lizard was recorded in Area B. These species are listed as species of principal importance on Section 41 of the Natural Environment and Rural Communities Act 2006 and protected from intentional killing or injury and being traded or sold under the Wildlife and Countryside Act 1981 (as amended).
- 5.1.2. The presence of juveniles of both slow worms and grass snake suggests that Area B is used as a breeding ground by these species. The reptile observations recorded during the survey (see Section 4.1.1) suggest good populations of slow worm and grass snake in Area B (Froglife, 1999).
- 5.1.3. The lack of observations of other common reptile species, in Areas A, C, and E, does not prove their absence, but likely absence.

5.2. Impact assessment

- 5.2.1. The current detailed design will not directly impact Area B and Area D, the only part of the site where reptiles have been seen.
- 5.2.2. Suitable reptile habitat including roadside verges, reedbeds, woodlands and rough grassland with scrub will be affected during works. The total area of suitable habitat which will be temporarily lost is relatively small. This is not considered to be a significant in the wider landscape where further suitable habitat is available. The creation of road verges and planting detailed within the landscape plan post-construction will replace and provide new habitat for reptiles.
- 5.2.3. The construction phase could adversely impact reptiles through the risk of incidental mortality. Vegetation removal undertaken prior to the start of construction works may result in injury or death of reptiles on site if done without appropriate mitigation.

5.3. Mitigation measures

5.3.1. It is recommended that vegetation clearance takes place during the reptile active season (from March to October inclusive) in order to prevent any hibernating reptiles being killed or injured which would constitute an offence (see Section 2.2).



- 5.3.2. An Ecological Clerk of Works (ECoW) should be present during vegetation clearance to deliver a toolbox talk regarding relevant legislation, the risk of finding reptiles on site and reptile identification. Vegetation should be directionally strimmed to a height of approximately 10 15cm to allow the ECoW to undertake a fingertip search, removing any reptiles, or other animals found, offsite to a place of safety. Vegetation should then be strimmed to ground level and any areas of potential refugia on site should be subject to a destructive search by the ECoW and removed from site.
- 5.3.3. The following general mitigation measures should be employed on site throughout works:
 - In the event a reptile is found on site during works, works in the vicinity of the reptile should cease until the reptile has moved out of the works area.
 - Trenches or excavations should be covered overnight to prevent injury/death
 of animals. If this is not possible, a means of escape, such as a ramp, should
 be inserted into the trench or excavation to allow animals to escape.

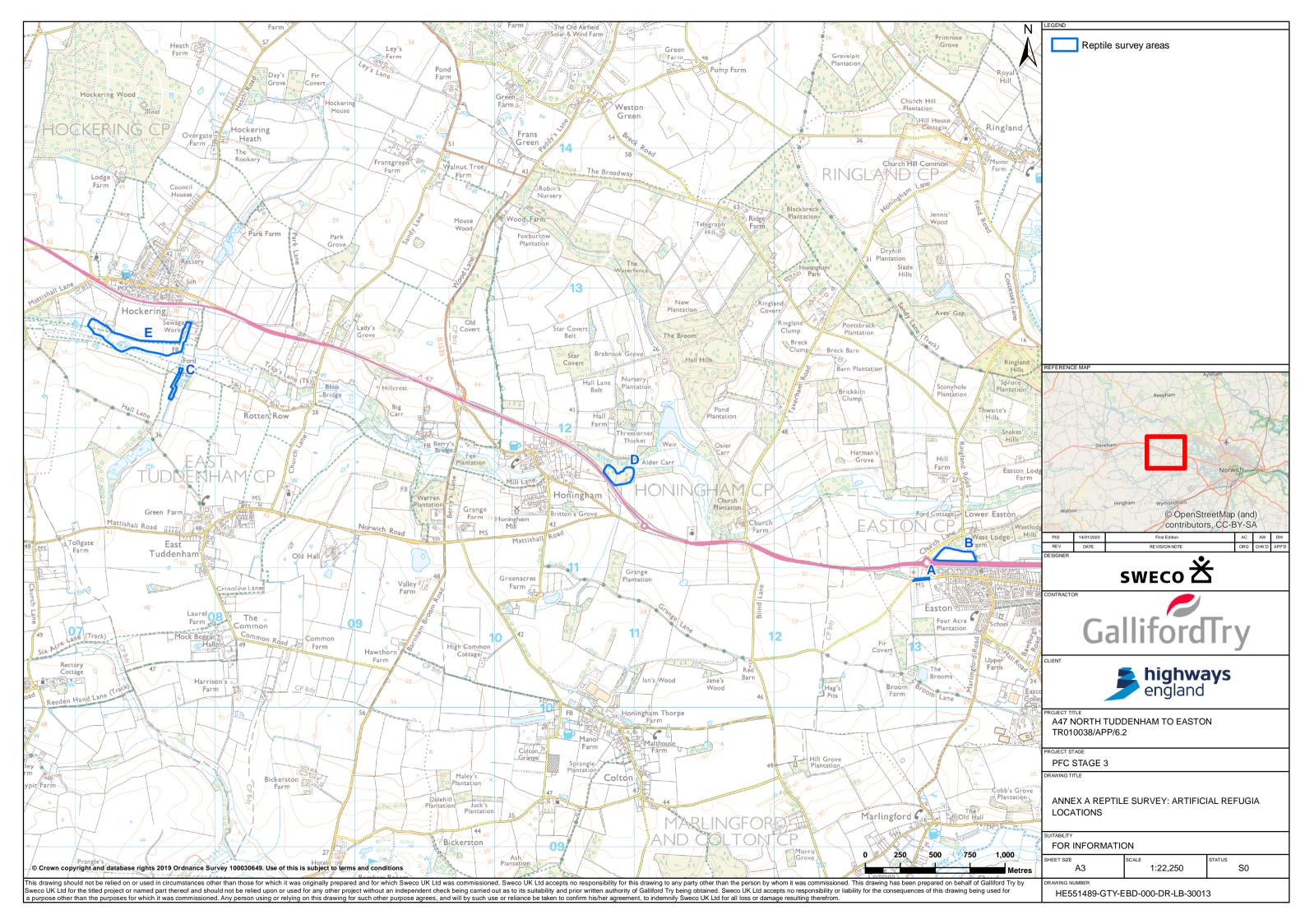


6. References

- 6.1.1. Amey (2017) A47 North Tuddenham to Easton Interim Environmental Assessment Report (A47IMPS2-AMY-TE-ZZ-DO-J0024)
- 6.1.2. Froglife (1999). Froglife Advice Sheet 10 'Reptile Survey an introduction to planning, conducting and interpreting surveys for snake and lizard conservation'. Froglife. Available online at: http://bailey.persona-pi.com/Public-Inquiries/M4-Newport/C%20-
 - %20Core%20Documents/11.%20Ecology%20and%20Nature%20Conservation/11.3.3%20-
 - %20Froglife%20Froglife%20Advice%20Sheet%2010%20reptile%20survey.%20Froglife%2C%20London.%201999.pdf (Accessed January 2020)
- 6.1.3. Gent, T. and Gibson, S. (2003). Herpetofauna Workers Manual. Available online at: http://archive.jncc.gov.uk/default.aspx?page=3325 (Accessed January 2020)
- 6.1.4. Norfolk Biodiversity Partnership (undated) Habitats and Species. Available online at: http://www.norfolkbiodiversity.org/habitats-and-species/ (Accessed January 2020)



Annex A Artificial refugia locations





Annex B Survey results map

