A303 Amesbury to Berwick Down

TR010025

6.3 Environmental Statement Appendices

Appendix 8.14 Reptile survey report (2003)

Volume 6

APFP Regulation 5(2)(a)

Planning Act 2008

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

October 2018

Part 3 c: Reptiles, Amphibians and Fish
APPENDIX 2
Reptiles
Baseline Survey Results
(abridged)

NICHOLAS PEARSON ASSOCIATES

January 2003

CONTENTS

REPTILES
BASELINE CONDITIONS

1.0 INTRODUCTION

As part of the Extended Phase I Habitat Survey, carried out in September /October 2000, habitat of potential value to the more common species of reptile, including Slow-worm *Anguis fragilis*, Common Lizard *Lacerta vivipara* and Grass Snake *Natrix Natrix* was noted. Although each species may have more specific habitat requirements, Grass Snake for example are particularly associated with habitats close to freshwater, reptiles thrive in a variety of conditions determined by the availability of food, sunlight and refuges (Langton 1989). Habitats favoured by reptiles tend to be sunny, open, undisturbed, well-drained and often south facing (Froglife 1999). Typical habitats which were found to occur within the area covered by the Extended Phase I Habitat Survey (i.e. 500 m either side of the planning corridor) included road verges/cuttings, rough grassland/wasteground and hedgerow bases.

Common Lizard and Slow-worm are both widespread throughout mainland Britain with Grass Snake common throughout much of Southern England but much rarer further north (Arnold 1995). Of the other common species, Adder *Vipera Berus* is infrequently recorded in central England (Arnold 1995) and given its habitat preference for heathland, it was considered unlikely to occur within the area covered by the current survey.

All British reptiles are afforded legal protection under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) largely as a consequence of a national decline in numbers associated with habitat loss. Under the terms of the Act, it is illegal to intentionally kill or injure a reptile. In terms of development, mitigation methods for reptiles include trapping and translocation to a previously identified receptor site, or retention on the existing site but with exclusion fencing and habitat enhancement applied as appropriate. Mitigation for common reptiles does not require a licence from English Nature or DEFRA.

2.0 SCOPE OF SURVEY

In scoping the level of field survey required to determine the presence/absence of common reptiles, the following factors were considered:

- Likely location of, and activities associated with the development, including construction and operational phases;
- Likely biophysical changes that would result from the development;
- Information on the autecology of reptiles, particulary Slow-worm, Common Lizard and Grass Snake, to determine how the biophysical changes could be relevant to them;
- Likely extent of suitable habitat within the scheme corridor – based on the Extended Phase I Habitat Survey.

The illustrative design alignment of the A303 passes through several habitats with potential to support the more common British reptile species. These areas are primarily associated with road verges and cuttings, where the establishment of rough grassland provides suitable feeding habitat. Habitat away from the existing road corridor was restricted to patches of wasteground near the River Till and the bases of hedgerows in a landscape predominated by cattle grazed pasture and arable fields. On the basis of this information it was decided that:

- In accordance with other baseline surveys, desk study information should be obtained for an area extending up to 2 km either side of the illustrative design alignment of the A303;
- Field survey should be targeted in suitable habitat identified during the Extended Phase I Habitat Survey. Since hedgerow bases provide suitable habitat, all hedgerows directly affected by the illustrative design were subject to survey;
- Field survey be based on standard methods involving the deployment of artificial refugia to confirm presence/absence of reptiles in a particular area. The survey was not designed to provide a population assessment of reptiles;
- Field survey be undertaken wherever possible by two or more surveyors in order to satisfy Health and Safety considerations arising from working alongside roads and the remote possibility of encountering Adders.

3.0 METHODS

3.1 Desk study

Information relating to reptiles was sought from the Wiltshire and Swindon Biological Records Centre (WSBRC). Any records of common reptile species i.e. Slow-worm, Adder, Common Lizard and Grass Snake were requested for an area extending up to 2 km either side of the illustrative design alignment of the A303. In addition, the local Herpetofauna Group and local landowners were consulted and reference made to a previous survey report (AERC 2000) for a site adjacent to the River Avon north of Countess Roundabout.

3.2 Deployment of artificial refuges

The standard method for reptile surveys is the deployment of artificial refuges, which reptiles use to bask on or shelter under. A range of materials can be used to fabricate suitable refuges including corrugated metal sheets, carpet tiles and roofing felt. All these materials absorb heat (from the sun) and therefore provide reptiles with the opportunity to warm up without exposing themselves to obvious danger, and in some cases can attract reptiles from surrounding habitat where suitable sites for basking/shelter are sparse (Froglife 1999). For the purpose of the current survey, roofing felt (10 x 1 m rolls) was selected since this material was considered to be the easiest to transport and deploy in the field for a team of two workers. The rolls were cut as required in the field into refuges of approximately 0.5 x 1 m, slightly larger than the minimum recommended size (0.5m x 0.5 m). Refuges were deployed on top of short or flattened vegetation and additional 'bedding material' i.e. handfuls of dry grass was also added. This helps to trap humidity, creates a temperature gradient and gives reptiles a more diverse hiding place (Froglife 1999). In most cases, the refuges were staked through one corner using 0.5 m bamboo canes, which facilitated locating refuges on subsequent visits and helped minimise the risk of disturbance by e.g. draft from passing vehicles. Refuges could not be deployed within 1.3 m of the carriageway due to safety considerations.

For general survey purposes, a deployment of between 5 and 10 refuges per hectare is recommended (Froglife 1999). In the current survey, since most of the suitable habitat was linear in nature i.e. hedgerow bases and road verges, refuges were deployed at approximately 20 m intervals (equivalent to 5 in 100 m). A total of 250 refuges were deployed in late July/August 2001. The location of all refuges is shown in Figure 2.1 - 2.4. At the eastern and western limits of the scheme, i.e. east of Countess roundabout and west of refuge number 326/336 (Figure 2), no refuges were deployed due to a combination of safety considerations and the fact that these stretches of the A303 are in existing dual carriageway and therefore no loss of roadside verge habitat would be predicted. In addition, no refuges were deployed along the hedgerow on the westbound side of the approach to Longbarrow crossroads (from Winterbourne Stoke). This was due to an extremely narrow verge, which could not be surveyed for safety reasons and the unsuitability of the arable habitat, which was planted right up to the hedgerow.

Refuges were left out over the winter of 2001/2002, since it was considered logistically impractical to collect all refuges and re-deploy in Spring 2002. However, prior to the first check on 11 April 2002, a walkover survey was undertaken to confirm that all refuges were still in place. Any damaged/missing refuges were replaced. Five additional refuges (V1 – 5 on Figure 2.4) were deployed at the bottom of the cutting on the eastbound carriageway near Countess Roundabout (previously only deployed at top of slope) and three additional refuges (Numbers n25, n26, n28 on Figure 2.3) deployed on the eastbound side of the cutting at Stonehenge Bottom to provide coverage on both sides, which had been overlooked in the original deployment. Walkover survey also confirmed that many of the refuges on the cutting of the westbound A303 near countess had been removed during the winter – these refuges were replaced (Numbers n3 – n15 on Figure 2.4).

3.3 Checking of Refuges

Due to seasonal constraints, imposed by restriction on access during the Foot and Mouth crisis, checking of refuges was carried out in autumn 2001 and spring/summer 2002. For general survey purposes i.e. to confirm presence/absence, seven separate checks on each refuge are recommended (Froglife 1999). Three of these checks were carried out between 05 September to 10 October 2001, with the remainder between 11 April to 26 July 2002. The recommended conditions and timing for checks of artificial refuges are between March to October (April, May and September are optimum) when the air temperature is between 9 – 18 ° C with an absence of wind and rain. At the lower end of the temperature scale, bright sunny days are most appropriate, with more overcast conditions preferable as temperature increases. Generally the best times for detecting reptiles under these conditions are between 08 30 – 11 00 and between 16 00 – 18 30. However during the earlier part of the year, reptiles are often encountered around midday (Froglife 1999).

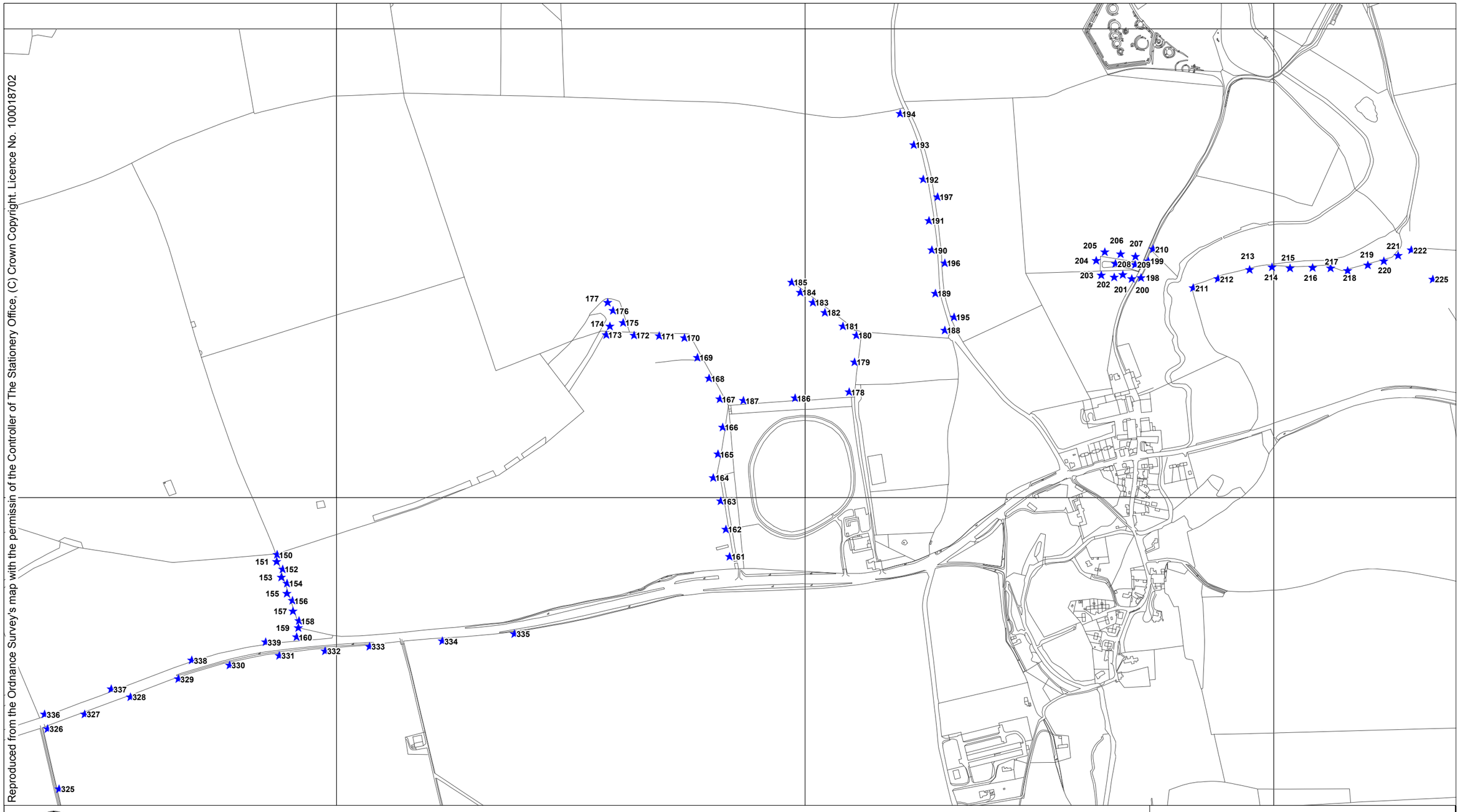
For the current scheme, checks were undertaken under appropriate weather conditions as described above, with a selection preference for mild overcast days, with only patchy sunlight. Days where the weather forecast was for bright sunlight, wind or rain were avoided. Checking involved visually scanning the area surrounding each refuge on approach to detect any basking reptiles. The corner of the refuge was lifted vertically to check for reptiles sheltering. This was repeated for each individual refuge, with visual scanning (whilst walking) of the area between successive refuges also incorporated into the survey. Where reptiles were noted species, sex and approximate size was recorded where possible in addition to incidental records of refuge use by other species, particularly Field Vole *Microtus agrestis.*

The timing of survey checks on each visit deviated slightly from that recommended as standard (see above) due to the logistical constraints of a two man team checking up to 200 refuges. Typically checks were undertaken between 09 00 up to 15 00. However, the starting point for checks was varied such that of the seven checks required for each refuge, as many as practicable of these was undertaken during the optimum time window, which in the case of this scheme, was considered to be between 09 00 and 12 30. This was considered appropriate since most checks were undertaken between September and October 2001 and between April

and May 2002 when the lower air temperatures meant that surveys could be extended into the afternoon. Only two checks were undertaken during the height of summer, on 13 June and 26 July 2002.

Wherever possible, all artificial refuges were checked on seven separate occasions, in line with the minimum standard to confirm presence/absence. However, in some cases this number of checks was not possible. For example, refuges were originally deployed on the central reservation on the eastern approach to Countess roundabout, on the roundabout itself and on the eastern side of the roundabout (Refuge numbers 2 – 23) but subsequent safety considerations did not permit any checks to be made on these refuges. In addition, refuge numbers 30 – 48 were only checked on five occasions, subsequent visits not being possible as the refuges had been removed/damaged when the field was ploughed or by passing traffic. Checking of refuges was typically undertaken by a team of two surveyors each working independently, so as to maximise coverage. Due to safety considerations, all checks along road verges were undertaken in pairs, with appropriate high-visibility clothing and warning signs employed.

Click here to view Figure 2.1, 2.2, 2.3 and 2.4



Reproduced from the Ordnance Survey's map with the permissin of the Controller of The Stationery Office, (C) Crown Copyright. Licence No. 100018702

HIGHWAYS AGENCY

Mott MacDonald

NICHOLAS PEARSON ASSOCIATES
ENVIRONMENTAL PLANNERS • LANDSCAPE ARCHITECTS

Wessex Archaeology

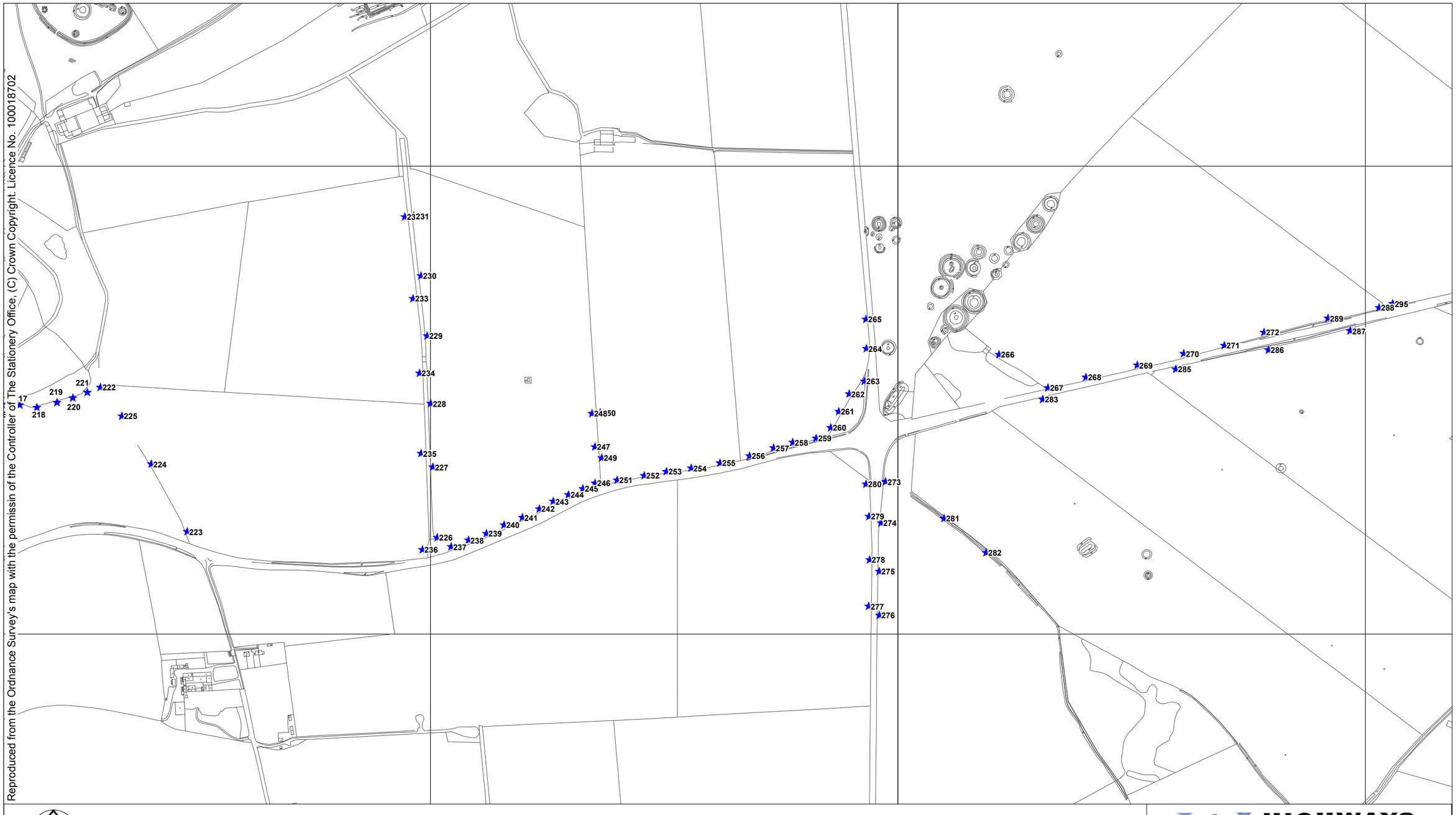
A303 STONEHENGE

Locations of artificial refuges deployed along the A303 and in adjacent habitat.

Sheet 1 of 4 figure 2.1

Continue Menu

Reproduced from the Ordnance Survey's map with the permissin of the Controller of The Stationery Office, (C) Crown Copyright. Licence No. 100018702



HIGHWAYS AGENCY

Mott MacDonald

NICHOLAS PEARSON ASSOCIATES
ENVIRONMENTAL PLANNERS • LANDSCAPE ARCHITECTS

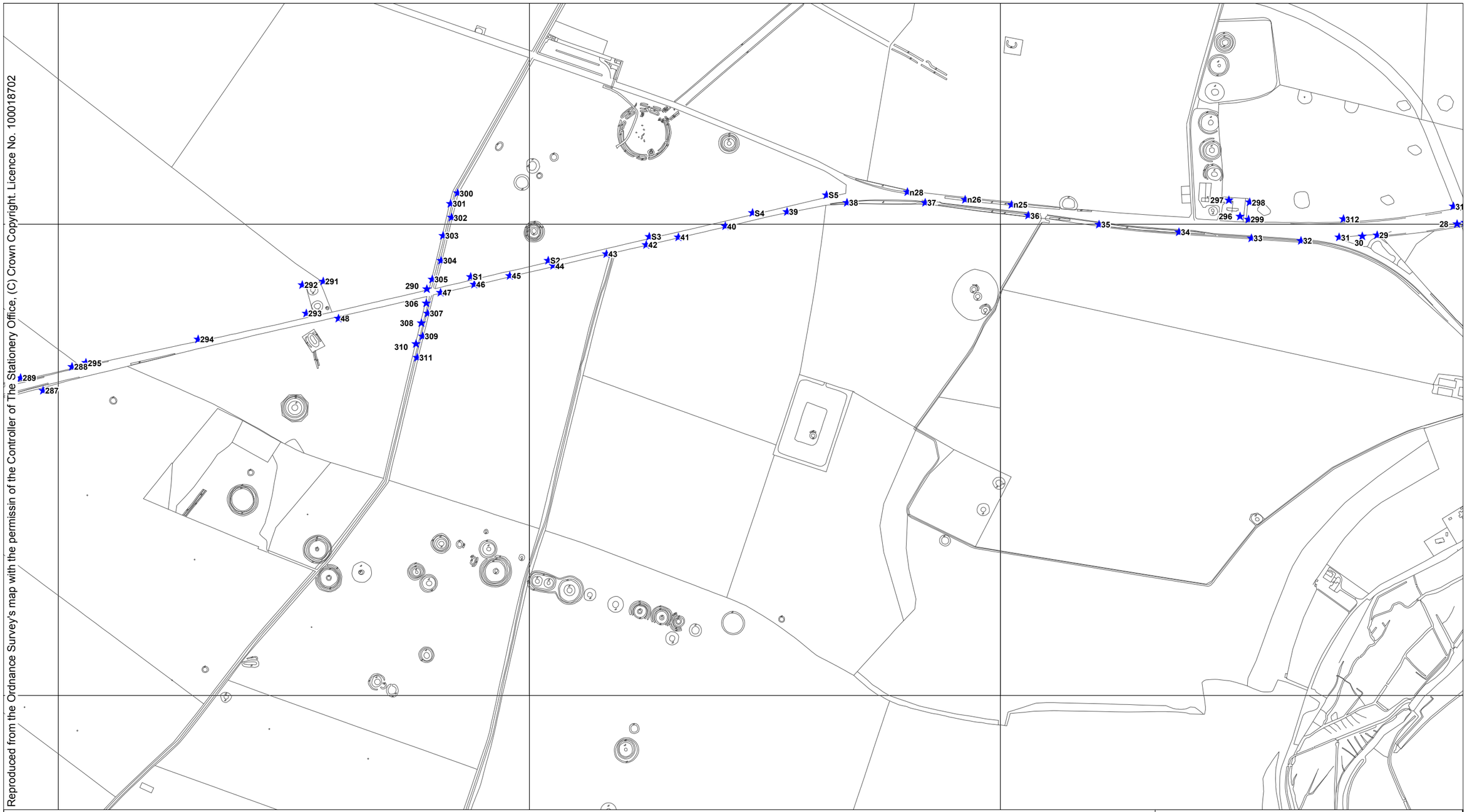
Wessex Archaeology

A303 STONEHENGE

Locations of artificial refuges deployed along the A303 and in adjacent habitat.

Sheet 2 of 4 figure 2.2

Continue Menu



HIGHWAYS AGENCY

Mott MacDonald

NICHOLAS PEARSON ASSOCIATES
ENVIRONMENTAL PLANNERS • LANDSCAPE ARCHITECTS

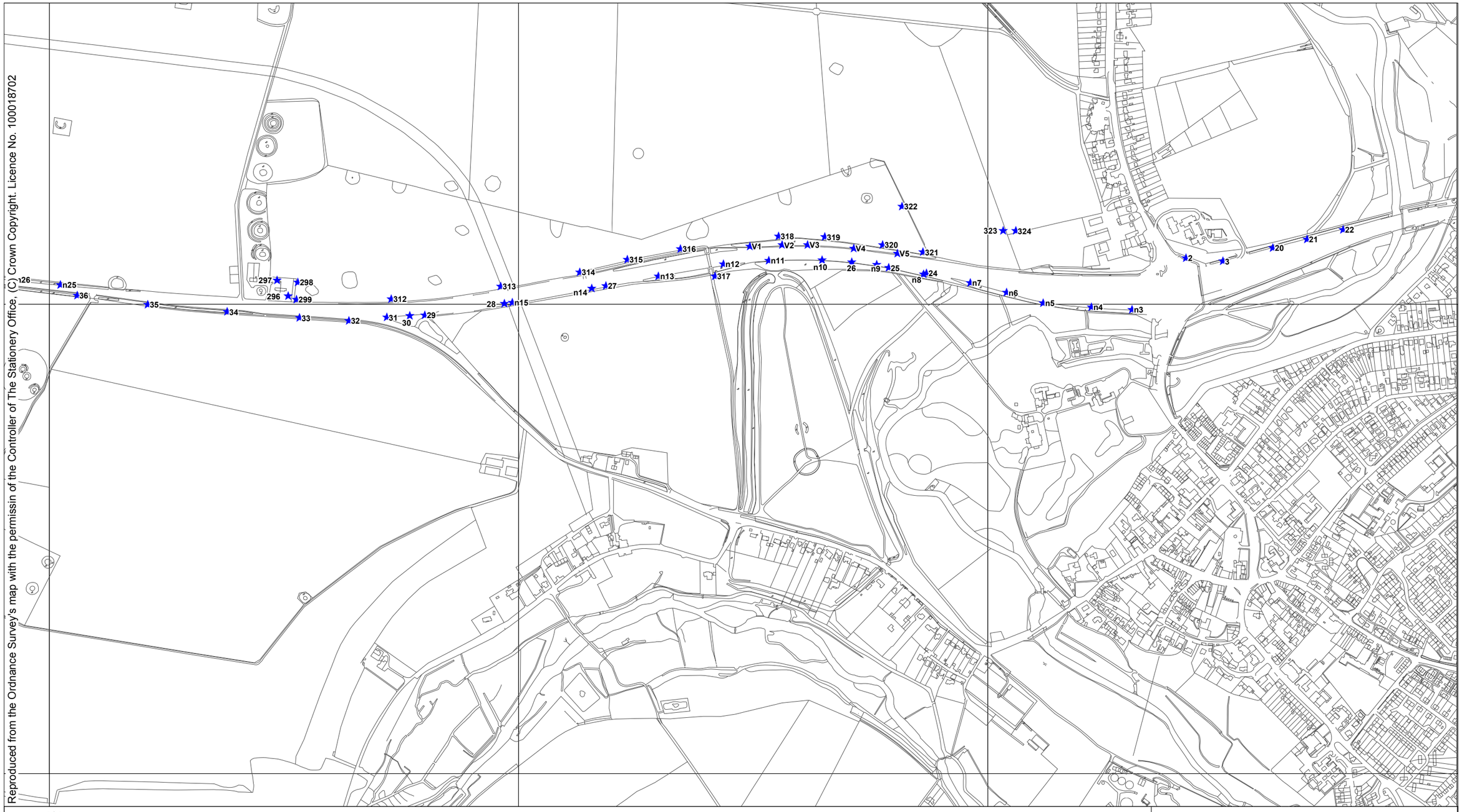
Wessex Archaeology

A303 STONEHENGE

Locations of artificial refuges deployed along the A303 and in adjacent habitat.

Sheet 3 of 4 figure 2.3

Continue Menu



Reproduced from the Ordnance Survey's map with the permissin of the Controller of The Stationery Office, (C) Crown Copyright. Licence No. 100018702

HIGHWAYS AGENCY

Mott MacDonald

NICHOLAS PEARSON ASSOCIATES
ENVIRONMENTAL PLANNERS • LANDSCAPE ARCHITECTS

Wessex Archaeology

A303 STONEHENGE

Locations of artificial refuges deployed along the A303 and in adjacent habitat.

Sheet 4 of 4 figure 2.4

Continue Menu

4.0 RESULTS

4.1 Desk study

Few records of reptiles were available from WSBRC and none were found to lie within 500 m of the illustrative design alignment of the A303. Records of Slow-worm, Grass Snake and Common Lizard to the west and south of Amesbury were provided but these were close to the 2 km search boundary. Records of Slow-worm were found for the 1 km grid squares SU 13 43 and SU 14 43, approximately 1 km north of the existing A303 at Stonehenge Bottom. Similarly a record of Grass Snake at the upper end of the River Till, up to 2 km north of the A303, near Rollestone (SU 07 43) was provided. The local Herpetofauna Group confirmed that they did not hold any additional records for reptiles to those supplied by WSBRC.

Records of relevance to the extended Phase I Habitat survey area were restricted to a report of a Grass Snake by Mrs Robert Turner of Manor Farm, on wasteground near the River Till (SU 07 41, 08 41). Artificial refuges were deployed in this area as part of the current survey. The study by AERC (2000) of land near Countess Roundabout did identify the presence of suitable reptile habitat, particularly for Grass Snake, although none were recorded during a targeted field survey or desk study.

4.2 Field Survey (Refuge Checks)

The presence of three reptile species, Common Lizard, Slow-worm and Grass Snake was confirmed at several locations throughout the scheme corridor. The location of artificial refuges where one or more species was found is shown in Figure 3.1 – 3.2. Distribution of reptiles was uneven throughout the scheme, which was probably a reflection of the paucity and distribution of suitable habitat. For example, records of Common Lizard and Slow-worm were concentrated along the road verges and cutting near Countess Roundabout and Slow-worm were not found to the west of Stonehenge Bottom. Although Common Lizard were occasionally noted in other parts of the scheme (Figure 3.1 – 3.2), the predominantly arable landscape offered very little suitable reptile habitat, with a general lack of connectivity between those areas that were suitable**.** Grass Snake were only found in wasteland habitat near the River Till, a result that reflects the established association between this species and freshwater habitats. Table 1 provides summary of those refuges where reptiles were recorded (see also Figure 3.1 – 3.2).

In addition to reptiles, many refuges exhibited signs of use by small mammals, with nests and tunnels in the vegetation noted together with several sightings of Field Vole, Bank Vole *Clethrionomys glareolus* and Woodmouse *Apodemus sylvaticus.*

Click here to view Figure 3.1 and 3.2

Reproduced from the Ordnance Survey's map with the permissin of the Controller of The Stationery Office, (C) Crown Copyright. Licence No. 100018702

N

0 0.5 1 km

Legend

- Grass Snake
- Lizard
- Slow-worm
- Lizard and Grass Snake
- Slow-worm and Lizard

Mott MacDonald

Nicholas Pearson Associates
Environmental Planners • Landscape Architects

Wessex Archaeology

A303 STONEHENGE

Locations of refuges where presence of Reptiles was confirmed

Sheet 1 of 2 figure 3.1

Continue Menu

Reproduced from the Ordnance Survey's map with the permissin of the Controller of The Stationery Office, (C) Crown Copyright. Licence No. 100018702

N

0 0.5 1 km

Legend

- Grass Snake
- Lizard
- Slow-worm
- Lizard and Grass Snake
- Slow-worm and Lizard

Mott MacDonald

Nicholas Pearson Associates
Environmental Planners • Landscape Architects

Wessex Archaeology

HIGHWAYS AGENCY

A303 STONEHENGE

Locations of refuges where presence of Reptiles was confirmed

Sheet 2 of 2 figure 3.2

Continue Menu

Table 1 Common reptile species recorded along the A303 and in adjacent habitat up to 250 m from the illustrative design alignment

Date	Refuge Number	Time of Day	Reptile species present
05 Sept 2001	165	11.10	Common Lizard basking on refuge
	271	13.30	2 Common Lizard basking on refuge
	309	14.25	Common Lizard under refuge (Male)
18 Sept 2001	24	11.15	2 Common Lizard under refuge
	26	11.20	4 Common Lizard under refuge
	36	11.55	Sloughed Lizard skin close by
	39	12.00	Common Lizard basking on discarded traffic sign close to refuge 39.
	289	15.12	Common Lizard (Female).
27 Sept 2001	208	12.50	Grass Snake estimated at 25 – 30 cm seen moving away from refuge into area of rubble and ruderal vegetation.
	271	15.00	Common Lizard (Male) basking on refuge.
	304	13.10	Small (possibly juvenile) Commom Lizard basking on refuge.
28 Sept 2001	26	14.00	Common Lizard basking
10 Oct 2001	26	13.30	Common Lizard under refuge
	32	13.30	Common Lizard (juvenile)basking
11 Apr 2002	25	10.15	Male Slow-worm under refuge
	29	10.15	Common Lizard basking on refuge
16 Apr 2002	Verge 4	16.00	Common Lizard
15 May 2002	3	08.40	2 Male Slow-worm
	5	08.40	Common Lizard basking
	24	08.50	Common Lizard
	26	08.50	Common Lizard
	28	08.50	Female Slow-worm
	29	08.50	2 Common Lizard close to refuge
	42	09.00	Common Lizard
	216	11.30	Common Lizard (Female)
	221	11.30	Small (12 – 15 cm) Grass Snake
	238	12.15	Small, black (Juvenile) Common Lizard close to refuge on rubble pile.
13 Jun 2002	6	9.40	1 juvenile Slow-worm
	7	9.40	1 juvenile and 1 male Slow-worm
	10	10.05	1 female Slow-worm
	22	10.40	Common Lizard basking on sand bag close to refuge

Date	Refuge Number	Time of Day	Reptile species present
	25	10.40	Juvenile Slow-worm
	28	10.40	3 male and 2 female Slow-worm
	Verge 4	11.55	2 Female Slow-worms
	Verge 5	11.55	1 Common Lizard, 1 Female, 1 juvenile Slow-worm
	316	11.40	2 female, 1 male Sow Worm
	318	11.40	3 Common Lizard basking, 1 male, 1 female Slow-worm
	319	11.40	1 female Slow-worm
	328	11.00	Common Lizard
	208	14.15	Grass Snake – approx 20cm.
	217	14.45	2 Grass Snake, one approx 20 cm, the other 25 – 30 cm
	221	14.45	2 Common Lizard under refuge
26 July 2002	297	9.30	1 male, 1 female Slow-worm
	314	9.30	2 male, 1 female Slow-worm
	317,318	11.00	Both refuges with 1 male, 1 female Slow-worm
	319, 320	11.00	Both refuges with a single female Slow-worm
	321	11.00	2 male Slow-worm
	Verge 4	11.00	1 female Slow-worm
	Verge 5	11.00	1 male Slow-worm
	6	15.00	1 Slow-worm (sex not established)
	8	15.00	1 Common Lizard
	10	15.00	2 female Slow-worm
	22	15.00	Common Lizard noted close to refuge
	25	15.00	1 Slow-worm (sex not established)
	28	15.00	1 Slow-worm (sex not established)

A total of 37 Common Lizard, 35 Slow-worm and 5 Grass Snake were recorded (Figure 4), with most of the records occurring in May, June and July. The actual number of animals present in habitat where reptiles were recorded is likely to be higher than the totals described here, since some animals will inevitably have gone undetected. Estimation of population size and density was outside the scope of the current survey and would have required up to 20 checks to be carried out. The results show that reptiles were detected between 08.40 in the morning to as late as 16.00, providing evidence that conducting refuge checks on days with suitable weather conditions (section 3.3) did allow reptiles to be detected later in the day.

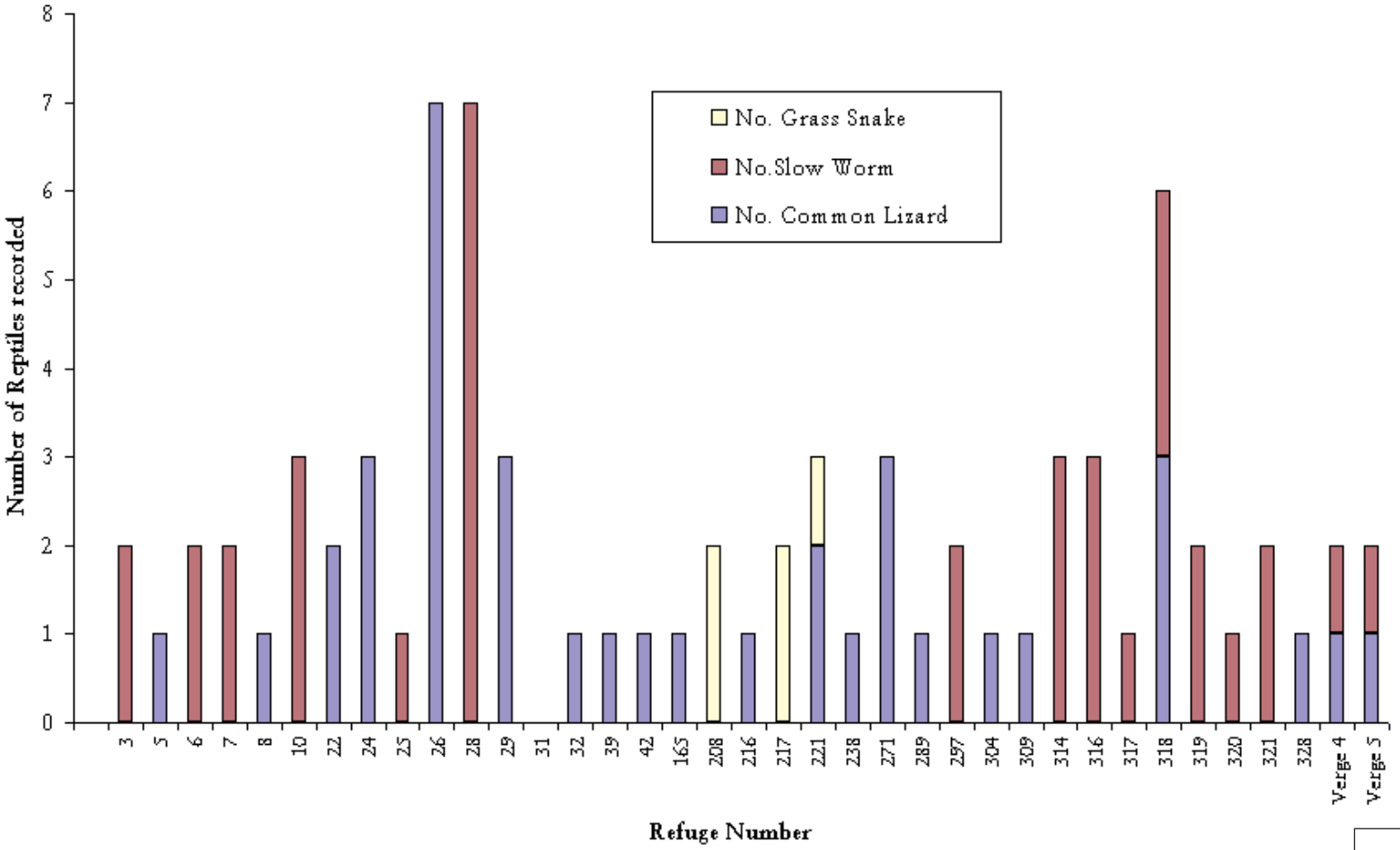
The location of 'positive' refuges shown in Figure 3.1 – 3.2 takes into account the re-numbering that occurred prior to the start of the 2002 checks. The safety restrictions imposed meant that refuges 2– 23 on the central reservation and Countess Roundabout could not be

checked at all. The loss of some refuges on the cutting of westbound carriageway in winter 2001, meant that subsequent re-numbering refuge numbers n3-n15 (Figure 2.4) were deployed between Countess and Stonehenge bottom in March 2002 in addition to remaining refuges from the 2001 deployment.

Several sets of refuges were checked on fewer than 7 occasions due to reasons other than safety restrictions. For example numbers 25, 26, 28 V1 – 5 were not deployed until 2002 and were only checked on 4 occasions between April and July. Problems with damage and removal, either by the landowner or draft from vehicles meant that numbers 30 – 48 were only checked on 5 occasions. However in all instances, the presence of reptiles, i.e. Common Lizard or Slow-worm, had been confirmed – in other words the aim of the survey had been achieved.

Click here to view Figure 4

Figure 4.0. Total number of reptiles associated wih atificial refuges along the A303 and in adjacent habitat. Numbers were derived from up to seven checks on each refuge.



HIGHWAYS AGENCY

A303 STONEHENGE

Figure 4
Total number of reptiles associated with artificial refuges along the A303 and in adjacent habitat

Issued: September 2001 Status: Draft

MM/NPA/312

Wessex Archaeology

Nicholas Pearson Associates
Environmental Planners • Landscape Architects • Ecologists

Mott MacDonald

Continue Menu

5.0 ECOLOGICAL VALUATION

5.1 Overall Value

The distribution of reptiles throughout the scheme corridor was found to be strongly associated with isolated areas of suitable habitat. Although all species of reptile are afforded legal protection under the Wildlife and Countryside Act, the original primary dribver for ths legislation was to ensure animal welfare, protecting reptiles from individual acts of persecution. The three species recorded during this survey i.e. Slow-worm, Common Lizard and Grass Snake are not considered to be rare or endangered in a national context. None of these species appears to be particularly widespread in the Salisbury Plain area, presumably due to a lack of suitable habitat (Arnold, 1995). FrogLife (1999) provide a means of assessment for key reptiles sites based on a number of selection criteria e.g. a site supporting three or more reptile species. However, none of the separate areas surveyed in the present study fulfil these criteria, typically achieving a population score of 1 – 2 and as such would not be considered as key reptile sites. Froglife do not indicate the geographical level at which such sites should be valued but the text implies that at least County value be assigned. By logical extrapolation from these criteria, sites supporting apparently sustainable populations of reptiles would be assigned the highest value below County (District/Borough).

In assigning an ecological valuation, the reptile populations in three separate areas have been considered separately. The Slow-worm and Common Lizard recorded in road verge habitat between Countess Roundabout and Stonehenge Bottom and the Grass Snake and Common Lizard on wasteground adjacent to the Till are considered to be of District/Borough importance since sites providing suitable reptile habitat were scarce within the surveyed area. Calcareous grassland, which was noted along the road cuttings near Countess is also noted on the Wiltshire BAP. The low numbers of Common Lizard recorded away from these habitats are considered to be of parish/neighbourhood importance.

On the basis of the categories listed in GOMMMS relating to ecological features, the overall value of reptiles along the A303 and adjacent habitats is considered to be of Lower Value.

6.0 WORKSHEETS FOR ENVIRONMENT: BIODIVERSITY

As an additional aid to summarising and interpreting the results of the current survey data, the common reptile species recorded within the survey area have been described by GOMMMS worksheets (DETR 2000, DETR &HA 2001). However, the impact and mitigation columns within this worksheet are to be completed at a later date.

Worksheet for Environment: Biodiversity
(Source: Equals GOMMMS Worksheet 4.10)

Area	Description of feature/attribute	Scale (at which attribute matters)	Importance (of attribute)	Trend (in relation to target)	Biodiversity and earth heritage value
Common Lizard and Slow-worm.	Presence of both species associated with grassland verge habitat between Countess Roundabout and Stonehenge Bottom.	District/Borough	Legal protection under the WCA, 1981 against intentional killing or injury.	All Reptile species are threatened by loss/ degradation of habitat suitable habitat was found to be scarce within the surveyed area. Neither species is considered to be rare or endangered.	Lower
Grass Snake and Common Lizard	Both species were associated with wasteground habitat adjacent to the River Till.	District Borough	Legal protection under the WCA, 1981 against intentional killing or injury.	All Reptile species are threatened by loss/ degradation of habitat suitable habitat was found to be scarce within the surveyed area. Neither species is considered to be rare or endangered	Lower
Common Lizard found in other habitat.	Small numbers found in isolated sections between Longbarrow and Stonehenge and west of Winternourne Stoke.	Parish/Neighbourhood	Legal protection under the WCA, 1981 against intentional killing or injury.	All Reptile species are threatened by loss/ degradation of habitat suitable habitat was found to be scarce within the surveyed area. This species is not considered to be rare or endangered	Lower

REFERENCES

Applied Environmental Research Centre Ltd (AERC). 2000. *Ecological assessment, Countess East*. Report prepared on behalf of English Heritage.

Arnold, H.R. 1995. *Atlas of amphibians and reptiles in Britain*. HMSO, London.

Department of the Environment, Transport and the Regions. 2000. *Guidance on the Methodology for Multi-Modal Studies*.

Department of the Environment, Transport and the Regions (HETA Division) & Highways Agency. 2001. *Applying the Multi-Modal New Approach to Appraisal to Highway Schemes.*

Froglife. 1999. *Reptile survey: An introduction to planning, conducting and interpreting surveys for snake and lizard conservation.* Froglife Advice Sheet **10**, Froglife, Halesworth.

Joint Nature Conservancy Council (JNCC). 1993. Handbook for Phase 1 habitat survey – a technique for environmental audit. JNCC.

Langton, T. 1989. *Snakes and Lizards*. Whittet Books, 18 Anley Road, London

Nicholas Pearson Associates. 2002. *Amphibian survey (with emphasis on Great Crested Newts). Baseline conditions.*

If you need help accessing this or any other Highways England information, please call **0300 123 5000** and we will help you.

© Crown copyright 2018.
You may re-use this information (not including logos) free of charge in any format or medium, under the terms of the Open Government Licence. To view this licence:
visit **www.nationalarchives.gov.uk/doc/open-government-licence/**
write to the **Information Policy Team, The National Archives, Kew, London TW9 4DU**, or email **psi@nationalarchives.gsi.gov.uk**.

This document is also available on our website at **www.gov.uk/highways**

If you have any enquiries about this document email **info@a303stonehenge.co.uk** or call **0300 123 5000***.

*Calls to 03 numbers cost no more than a national rate call to an 01 or 02 number and must count towards any inclusive minutes in the same way as 01 and 02 calls.
These rules apply to calls from any type of line including mobile, BT, other fixed line or payphone. Calls may be recorded or monitored.

Registered office Bridge House, 1 Walnut Tree Close, Guildford GU1 4LZ
Highways England Company Limited registered in England and Wales number 09346363