

Appendix I.3 Reptile Survey

East Reading Mass Rapid Transport Scheme

Reptile Survey 2016 and 2018

On behalf of [Reading Borough Council](#)



Project Ref: 28791/3010 | Rev: 1.0 | Date: October 2018



Document Control Sheet

Project Name: East Reading MRT

Project Ref: 28791

Report Title: Reptile Survey

Doc Ref: Final

Date: June 2017

	Name	Position	Signature	Date
Prepared by:	Ed Austin	Ecologist	pp. JF	2016
Checked by:	Johanna Fewtrell	Senior Ecologist	JF	June 2017
Reviewed by:	Kerry Elliott	Associate Ecologist	KE	June 2017
Approved by:	Sarah Matthews	Equity Director	SM	June 2017
For and on behalf of Peter Brett Associates LLP				

Revision	Date	Description	Prepared	Reviewed	Approved
1.0	04/10/2018	Update from 2017 Report to include 2018 Data	EA	RM	SM

Peter Brett Associates LLP disclaims any responsibility to the Client and others in respect of any matters outside the scope of this report. This report has been prepared with reasonable skill, care and diligence within the terms of the Contract with the Client and generally in accordance with the appropriate ACE Agreement and taking account of the manpower, resources, investigations and testing devoted to it by agreement with the Client. This report is confidential to the Client and Peter Brett Associates LLP accepts no responsibility of whatsoever nature to third parties to whom this report or any part thereof is made known. Any such party relies upon the report at their own risk.

© Peter Brett Associates LLP 2018

Contents

1	Executive Summary	1
2	Introduction	2
2.1	Overview.....	2
2.2	Project Background	2
2.3	Aims of Study	3
3	Methods.....	4
3.1	Reptile Presence/Absence Survey 2016.....	4
3.2	Reptile Presence/Absence Survey 2018.....	5
3.3	Site Evaluation and Population Size Class Assessment.....	6
3.4	Survey Limitations	7
3.5	Personnel	7
4	Results and Interpretation.....	8
4.2	Presence/Absence Survey Results - 2016.....	8
4.3	Presence/Absence Survey Results - 2018.....	8
4.4	Site Evaluation and Population Assessment.....	9
4.5	Legislation and Planning Policy Guidance	9
5	Potential Impacts and Outline Recommendations	Error! Bookmark not defined.
5.1	Potential Adverse Impacts and Outline Mitigation/Compensation.....	Error! Bookmark not defined.
6	Conclusion.....	10
7	References	11
	Figures.....	12

Figures

Figure 1: Site Location.....	12
Figure 2: Refugia Location Plan 2016	13
Figure 3: Refugia Location Plan 2018	14
Figure 4: Reptile Results Plan 2016.....	15
Figure 5: Reptile Results Plan 2018.....	16

Tables

Table 1: Dates and Weather Conditions of Reptile Survey Visits - 2016.....	5
Table 2: Dates and Weather Conditions of Reptile Survey Visits - 2018.....	5
Table 3: Population Parameters for the Key Reptile Sites Register (Common Reptile Species)	7
Table 4: Summary of Reptile Survey Results - 2016	8
Table 5: Summary of Reptile Survey Results - 2018	8

Appendices

Appendix A	Raw Survey Data - 2016
Appendix B	Raw Survey Data – 2018

This page is intentionally blank

1 Executive Summary

- 1.1.1 This Reptile Survey Report has been prepared in respect of a planning application for a new Mass Rapid Transit (MRT) scheme to the east of Reading, Berkshire (referred to as the 'Proposed Development'). The redline boundary, referred to as the 'Application Site', is included on Figure 1.
- 1.1.2 The Application Site currently comprises four main land parcels:
- Land which crosses the location of the permitted Thames Valley Park: Park & Ride Site, which had been recently cleared;
 - Land to the east of the River Kennet, which is dominated by poor semi-improved grassland and tall vegetation;
 - A central area of broadleaved woodland and vegetation along the river banks; and
 - Land within the Tesco supermarket at the western extent of the Application Site which is dominated by hardstanding and planted shrubs.
- 1.1.3 Other habitats across the Application Site include dense and scattered scrub, short self-seeded vegetation and scattered trees.
- 1.1.4 An extended Phase 1 habitat survey completed by PBA in April 2016 determined that some areas of habitats within the Application Site had the potential to support common species of reptile. As a result, a reptile survey was completed in 2016. This recorded two species of reptile to use the Application Site; grass snake *Natrix helvetica* and slow worm *Anguis fragilis*. Only very low numbers of grass snakes were recorded (single individuals) with numbers of slow worms indicating that a medium population of this species is likely to be present on site and in the surrounding area. Reptiles were concentrated along the margins of grassland and scrub habitats, particularly close to an adjacent railway corridor in the central part of the Application Site as well as in open areas to the east and west.
- 1.1.5 An additional survey comprising seven further visits was conducted in August/September 2018. This indicated that a medium population of slow worms was still present with a similar distribution to that recorded in 2016. Slow worms were concentrated along the margins of grassland and scrub habitats, particularly close to an adjacent railway corridor in the central part of the Application Site as well as in open areas to the east. No reptiles were recorded in the western extent of the Application Site during these visits. A single grass snake was also identified in the centre of the Application Site in 2018, indicating the continued presence of a low population of this species.
- 1.1.6 This Executive Summary contains an overview of the key findings and conclusions. However, no reliance should be placed on any part of the executive summary until the whole of the report has been read.

2 Introduction

2.1 Overview

- 2.1.1 This Reptile Survey Report has been prepared in respect of a planning application for a new Mass Rapid Transit (MRT) scheme to the east of Reading, Berkshire (referred to as the 'Proposed Development'). The redline boundary, referred to as the 'Application Site', is included on Figure 1.

2.2 Project Background

Site Location

- 2.2.1 The Application Site is located between Thames Valley Business Park and Napier Road, Reading, to the south of the River Thames and north of the Great Western Main Line Railway, as shown on Figure 1.
- 2.2.2 The Application Site comprises four main land parcels:
- Land which crosses the location of the permitted Thames Valley Park: Park & Ride Site, which had been recently cleared;
 - Land to the east of the River Kennet, which is dominated by a matrix of poor semi-improved grassland and tall ruderal habitat;
 - A central area of broadleaved woodland and riparian vegetation (i.e. vegetation along the river banks) associated with The Coal, Kennetmouth and Kings Meadow East Local Wildlife Site (LWS; see below); and
 - Land within the Tesco supermarket ownership at the western extent of the Application Site which is dominated by hardstanding and introduced shrub.
- 2.2.3 Other habitats across the Application Site include dense and scattered scrub, ephemeral/short-perennial vegetation and scattered trees.
- 2.2.4 Within a wider landscape context, the Application Site is located approximately 1 km north-east of Reading town centre within the county of Berkshire. South of the Application Site, land use is dominated by residential and commercial development associated with Reading town. North of the Application Site lies the settlement of Caversham along with a network of lakes and other waterbodies (including a marina and rowing lakes) adjacent to the River Thames.

Proposed Development

- 2.2.5 The Proposed Development is described as follows:

'Construction of a segregated fast-track public transport, pedestrian and cycle bridge and viaduct, comprising concrete bridge structure with a river span of 59.5m and a land span of 316m, supported by concrete columns, steel beams and reinforced soil embankment, together with new footpath links and existing footpath alterations, replacement supermarket car parking provision, junction improvements and landscaping.'

Ecological Background

- 2.2.6 A Preliminary Ecological Assessment (PEA) was completed by PBA in April 2016 including an ecological desk study and Phase 1 habitat survey of the Application Site.

- 2.2.7 The desk study returned a single record of common lizard *Zootoca vivipara* from just over 1 km to the north-east of the Application Site in 2013, with a single record of adder *Vipera berus* returned from 1.3 km north of the Application Site in 2008. Three records of grass snake *Natrix helvetica* were returned from within 2 km of the Application Site within the last 10 years, with the closest record being from semi-natural habitat directly connected to the habitats on-site (e.g. the riparian habitat along the river margins).
- 2.2.8 The extended Phase 1 habitat survey identified the presence of habitat with the potential to support common species of reptile (such as those recorded in the local area as described above). Specifically, this included areas of semi-improved grassland, tall ruderal vegetation, scrub and woodland edge habitats. Overall, the potential for reptiles to be present was considered sub-optimal in these areas due to management (e.g. mowing/cutting of the grassland) and high levels of public activity. However, the margins of the Application Site (e.g. where grassland meets scrub or woodland edge) were considered to have increased potential, particularly along the boundary with the adjacent railway corridor (which in turn can provide suitable habitat for reptiles as well as dispersal corridors).

2.3 Aims of Study

- 2.3.1 Due to the records of common species of reptile in the local area and presence of habitat on-site with the potential to support them, a reptile survey was completed by PBA in 2016. This was updated in 2018.
- 2.3.2 The aims of these surveys and subsequent reporting were to:
- Determine the presence or likely absence of reptiles from within the Application Site;
 - If present, gather information on the likely population status and distribution of reptiles within the Application Site; and
 - Summarise the current legislation and policy guidance relevant to any reptile species recorded.

3 Methods

3.1 Reptile Presence/Absence Survey 2016

- 3.1.1 The reptile presence/absence survey involved the use of artificial refugia and visual searching techniques.
- 3.1.2 A total of 60 artificial refugia (0.5 m by 0.5 m squares of roofing felt) were deployed in suitable habitat within the Application Site and immediate surroundings on 1st June 2016 (see Figure 2: Refugia Location Plan - 2016). These were concentrated in areas of potential reptile habitat including:
- Areas of short grassland, ephemeral vegetation and scrub to the south of the supermarket car-park in the west of the Application Site;
 - The margins of and grassy 'glades' within woodland to the east of the supermarket car-park toward the centre of the Application Site;
 - Marginal habitat on the river bank toward the centre of the Application Site;
 - Open grassland toward the centre of the Application Site (including areas of ruderal vegetation and scrub margins on the adjacent railway boundary);
 - Ruderal vegetation within scrub toward the eastern end of the Application Site; and
 - Areas of ruderal and short vegetation/scrub margins close to the Wokingham Waterside Centre, to the north east of the Application Site, and Thames Valley Park Drive roundabout at the eastern extent of the Application Site.
- 3.1.3 The above areas of suitable habitat covered a total of approximately 1.5 to 2 ha (within a total area of just over 5 ha); this therefore resulted in a refugia density of up to 30/ha. The average refugia density in suitable habitat across the Application Site therefore exceeded the recommended density of 5-10 refugia/ha (Froglife, 1999). However, professional judgement (based on past reptile survey experience) indicates that this refugia density enables a robust assessment of the presence/likely absence of reptiles and an approximate estimate of the population size to be made. Refugia were primarily placed in areas which catch the sun (i.e. those with a southerly aspect) as these are preferred by reptiles over those where sunlight is absent for most of the day (Edgar, Foster & Baker, 2010). These were left *in-situ* to 'bed down' for approximately 3 weeks before being checked for use by reptiles.
- 3.1.4 A total of seven survey visits were then made between mid-June and September 2016. During each of these, each refugia was checked for basking reptiles (either on or beneath the refugia) with any individuals found identified to species level, with details of sex and life stage also noted where possible.
- 3.1.5 Alongside the refugia checks, vegetation and existing refugia (e.g. logs, discarded debris, etc.) within the areas of suitable habitat were also visually searched for the presence of reptiles, with any individuals recorded as above. This helped to ensure that all areas were fully considered in the survey and helped eliminate a bias towards those reptile species more likely to use refugia; primarily slow worms *Anguis fragilis*.
- 3.1.6 The dates and weather conditions during each 2016 survey visit are summarised in Table 1 below.

Table 1: Dates and Weather Conditions of Reptile Survey Visits - 2016

Visit No.	Date and Time	Weather Conditions
1	14/06/16	Dry and mild (17-18°C) with partially cloudy skies (5/8-7/8 cloud cover), a moderate breeze (Beaufort Scale F3-F4) and occasional hazy/strong periods of sunshine.
2	21/06/16	Dry and mild (18°C) with full cloud (8/8 cloud cover), a light breeze (Beaufort Scale F2) and hazy sunshine.
3	11/07/16	Dry, warm (23°C) and generally overcast (6/8-7/8 cloud cover) with moderate to strong winds (Beaufort Scale F4-F5) and occasional/strong sunshine.
4	15/08/16	Dry and hot (25-23°C) with clear skies (1/8 cloud cover), a light/moderate breeze (Beaufort Scale F2-F3) and strong sunshine.
5	05/09/16	Dry and warm (18-19°C) with overcast skies (8/8 cloud cover) and calm conditions (Beaufort Scale F1) and very intermittent sunshine.
6	12/09/16	Dry and warm (23°C) with overcast skies 8/8 cloud cover, light wind (Beaufort Scale F2) and very intermittent sunshine.
7	19/09/16	Dry and mild (15°C) with 6/8 cloud cover, calm conditions (Beaufort Scale F1) and occasional sunshine.

3.2 Reptile Presence/Absence Survey 2018

- 3.2.1 As in 2016, the reptile presence/absence survey involved the use of artificial refugia and visual searching techniques.
- 3.2.2 During this survey a total of 40 artificial refugia (0.5 m by 0.5 m squares of roofing felt and 0.5m by 1m corrugated metal and corrugated bitumen refugia) were deployed in similar locations to that sampled in 2016 within the Application Site and immediate surroundings on 1st August 2018 (see Figure 3: Refugia Location Plan - 2018). Less refugia were considered necessary in light of the clearance of the TVP P&R Site prior to the 2018 survey. The findings of the initial survey work undertaken in 2016 also helped to target the deployment of refugia more effectively to maximise the potential for reptile encounters. The survey information gained in 2016 was used to help refine refugia deployment to more suitable areas of habitat where reptiles were more likely to be encountered.
- 3.2.3 A total of seven survey visits were then made between mid-August and late September 2018. During each of these, each refugia was checked for basking reptiles (either on or beneath the refugia) with any individuals found identified to species level, with details of sex and life stage also noted where possible.
- 3.2.4 The dates and weather conditions during each survey visit are summarised in Table 2 below.

Table 2: Dates and Weather Conditions of Reptile Survey Visits - 2018

Visit No.	Date and Time	Weather Conditions
1	15/08/18 08:45–09:50	Dry and warm (19-22°C) with overcast skies (8/8-7/8 cloud cover), a light breeze (Beaufort Scale F2) and occasional periods of sunshine.
2	22/08/18 09:30-10:40	Dry and mild (19-20°C) with overcast skies (7/8 cloud cover) and a light breeze (Beaufort Scale F2).
3	28/08/18 14:30-15:25	Dry, warm (19-21°C) and generally overcast (6/8-7/8 cloud cover) with calm conditions (Beaufort Scale F1) and hazy sunshine.
4	06/09/18 09:15-10:30	Dry and mild (16-18°C) with clear skies (1/8 cloud cover), a light breeze (Beaufort Scale F2) and strong sunshine.

Visit No.	Date and Time	Weather Conditions
5	13/09/18 15:05-16:15	Dry and warm (20°C) with partially cloudy skies (4/8-5/8 cloud cover) and a light breeze (Beaufort Scale F2).
6	21/09/18 14:15-15:15	Dry and partially cloudy (5/8-6/8 cloud cover) with strong winds (Beaufort Scale F5). Air temperatures remained at 16°C throughout the duration of the survey.
7	26/09/18	Dry with clear skies (1/8 cloud cover) and calm conditions (Beaufort Scale F1). Air temperatures ranged between 19°C and 20°C during the survey.

3.3 Site Evaluation and Population Size Class Assessment

- 3.3.1 The Guidelines for Biological Selection of SSSIs (JNCC, 1989), gives a scoring system for the evaluation of sites on the basis of their reptile population. It suggests that for the commoner species of reptile, the best sites (in which three or more species occur) should be considered for their potential to qualify as SSSIs.
- 3.3.2 The Herpetofauna Worker's Manual (JNCC, 2003) suggests that sites not meeting the SSSI selection criteria should be designated as Sites of Importance for Nature Conservation (SINCs¹) if they meet any of the following criteria:
- They support a large population of a single species
 - They support a moderate population of two species
 - They are at the edge of a geographical range of a species
 - They have a long documented history of use by reptiles
- 3.3.3 In addition to the above, the Key Reptile Site Register is a mechanism designed to promote the safeguard of important reptile sites. To qualify for the register, a site must meet at least one of the following criteria (Froglife, 1999):
- Support three or more reptile species
 - Support two snake species
 - Support an exceptional population of at least one species (see Table 2)
 - Support an assemblage of species scoring at least 4 in total (see Table 2)
 - Does not satisfy the above criteria but is of particular regional importance due to local rarity (e.g. in the East Midlands, adders are very rare so even "low" populations should be designated as Key Sites).
- 3.3.4 The criteria for scoring populations of the four common reptile species for the purpose of the Key Reptile Register are given in Table 3 below.

¹ Note that SINCs are now referred to as Local Wildlife Sites (LWS) in Berkshire; a non-statutory designation reflecting their value for wildlife within the County.

Table 3: Population Parameters for the Key Reptile Sites Register (Common Reptile Species)

	Low population Score 1	Medium population Score 2	High population Score 3
Adder	<5	5-10	>10
Grass snake	<5	5-10	>10
Common lizard	<5	5-20	>20
Slow-worm	<5	5-20	>20

3.4 Survey Limitations

- 3.4.1 All surveys visits were carried out under optimal conditions (intermittent or hazy sunshine, mild to warm temperatures and low winds). No significant limitations were therefore encountered in relation to weather conditions.
- 3.4.2 During the 2016 surveys, the grassland area toward the centre of the Application Site (as well as ruderal vegetation and scrub on the margins) was noted to have been cut/mown on visit 2 (21st June 2016). This resulted in a reduction of the vegetation in this area to a short height, rendering it largely unsuitable for reptiles at this time (i.e. until re-grown). A number of the artificial refugia in this area had also been destroyed. A series of replacement refugia were re-deployed within this area to replace some of these lost. However, as the habitat in this part of the Application Site was largely now unsuitable (due to cutting) these were limited to replacement refugia along the margins of the grassland. As a high density of refugia had initially been deployed (see reptile presence/absence survey methods above), this still meant the total number of refugia deployed on site exceeded the recommended minimum for a survey of this type.
- 3.4.3 There were not considered to be any significant constraints to the methods employed during the 2018 suite of surveys with survey visits conducted in suitable weather conditions and at a suitable time of year.
- 3.4.4 The area included within the surveys varied slightly from the Application Site – see Figure 2 and 3 for extent, with a more extensive survey area considered (namely an area of ruderal and short vegetation/scrub margins close to the Wokingham Waterside Centre, to the north east of the Application Site). The results within this location provide contextual information and as such, are not considered to limit the findings of the survey.

3.5 Personnel

- 3.5.1 Stephen Foot MCIEEM, the lead surveyor on the reptile survey visits, has worked as a professional ecologist since 2005. He specialises in herpetofauna and has undertaken a large number of survey and mitigation projects for reptiles across the UK within a variety of habitat types. His MSc project investigated the efficacy of differing refugia materials to aid reptile detection and he has undertaken voluntary surveys for the Surrey Amphibian and Reptile Group (SARG). Stephen holds a class licence to disturb and take smooth snakes *Coronella austriaca* and sand lizards *Lacerta agilis* (both European Protected Species) for the purposes of science and education.

4 Results and Interpretation

4.1.1 This section sets out the results of the reptile survey. The implications of the results are then explored with reference to current legislation and planning policy.

4.2 Presence/Absence Survey Results - 2016

4.2.1 Individuals of two separate reptile species; grass snake and slow worm, were recorded within the Application Site and its immediate surrounds during the survey visits. Table 4 below provides an overview of the survey results with the raw survey data provided in Appendix A. The location of reptile records is shown in Figure 4: Reptile Survey Results - 2016.

Table 4: Summary of Reptile Survey Results - 2016

Visit No.	No. Grass Snakes Recorded			No. Slow Worms Recorded		
	Male	Female	Juvenile	Male	Female	Juvenile
1	0	1	0	0	2	2
2	0	0	0	0	0	1
3	0	0	0	0	1	0
4	0	1	0	0	2	0
5	0	0	0	0	7	1
6	0	0	0	0	3	1
7	0	0	0	0	3	0

4.2.2 As shown above, a peak count (i.e. the highest number recorded on any one visit) of one adult grass snake was recorded (on both visit 1 and 4) with a peak count of seven adult slow worms (on visit 5).

4.2.3 Slow worms were concentrated in the eastern part of the Application Site; in particular, on the interface between grassland and scrub (see Figure 4). However, this species was also found (albeit with lower frequency) in the western part of the Application Site, again on the interface between scrub and open habitat south of the supermarket. Grass snakes were only recorded from within an open clearing (with tall ruderal vegetation) within an area of scrub toward the eastern end of the Application Site (see Figure 4).

4.3 Presence/Absence Survey Results - 2018

4.3.1 As in 2016, two species of reptile (grass snake and slow worm) were recorded over the seven survey visits conducted in 2018. Table 5 below provides an overview of the survey results with the raw survey data provided in Appendix B. The location of reptile records is shown in Figure 5: Reptile Survey Results - 2018.

Table 5: Summary of Reptile Survey Results - 2018

Visit No.	No. Slow Worms Recorded			No. Grass snakes Recorded		
	Male	Female	Juvenile	Male	Female	Juvenile
1	2	0	0	0	0	0
2	1	2	0	0	0	0
3	1	4	1	0	0	0
4	0	2	0	0	0	0
5	0	1	0	0	0	0
6	0	2	0	0	0	0
7	0	1	0	0	1	0

- 4.3.2 As shown above, a peak count of one adult grass snake was recorded (on visit 7) with a peak count of 5 adult slow worms (on visit 3).
- 4.3.3 During 2018, slow worms were concentrated in the eastern portion of the Application Site; in particular, on the interface between grassland and scrub and from within an open clearing (with tall ruderal vegetation and scattered scrub) toward the eastern end of the Application Site (where grass snakes were recorded previously in 2016 (see Figure 5).
- 4.3.4 The single grass snake recorded in 2018 was recorded in an area of scrub in the centre of the Application Site (see Figure 5). Grass snakes are commonly found in association with waterbodies/watercourses where they predate amphibians and fish. Grass snakes are also a wide-ranging species known to move considerable distances within its home range (Vaughan, 2007). Grass snakes are therefore likely to move through the Application Site and be present on an occasional basis.

4.4 Site Evaluation and Population Assessment

- 4.4.1 The survey results in both years indicate that a medium population of slow worms is present with a low population of grass snakes. The presence of juvenile slow worms in 2016 also confirms the presence of a breeding population of this species.
- 4.4.2 Based on the survey results (and using the methods set out in Section 3 of this report) the Application Site does not meet the selection criteria for a SSSI, SINC (or LWS) or Key Reptile Site as a result of the reptile species and populations present.

4.5 Legislation

- 4.5.1 All common reptile species in the UK are protected from killing or injury under the Wildlife and Countryside Act 1981 (as amended).
- 4.5.2 In addition, all native reptiles in the UK are listed as species of principal importance to the conservation of biodiversity in England. This list was drawn up in response to the requirements of Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006; it is often referred to as the 'S41 list'. The S41 list is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under the related Section 40 of the NERC Act, to have regard to the conservation of biodiversity in England, when carrying out their normal functions. The presence of a S41 species on site is therefore a material consideration in the planning process.

5 Conclusion

- 5.1.1 The reptile surveys completed in 2016 and 2018 revealed low numbers of grass snakes to use the Application Site, with numbers of slow worms indicating a medium population to be present.

6 References

Edgar, P., Foster, J. & Baker, J. (2010). Reptile Habitat Management Handbook. Amphibian and Reptile Conservation, Bournemouth.

Froglife (1999). Reptile Survey. An introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife Advice Sheet 10. Froglife, Halesworth.

HMSO (Her Majesty's Stationary Office) (1981). Wildlife and Countryside Act (as amended by the Countryside and Rights of Way Act 2000)

HMSO (2006) Natural Environment and Rural Communities Act.

JNCC (Gent, T. & Gibson, S. Eds) (2003). Herpetofauna Workers Manual. JNCC, Peterborough.

JNCC (2013). Guidelines for the Selection of Biological SSSIs. JNCC, Peterborough. Revision based upon Ratcliffe, D.A., ed. (1989). Guidelines for selection of biological SSSIs. Peterborough, Nature Conservancy Council.

Vaughan, R (2007) Grass snakes

Figures

Figure 1: Site Location

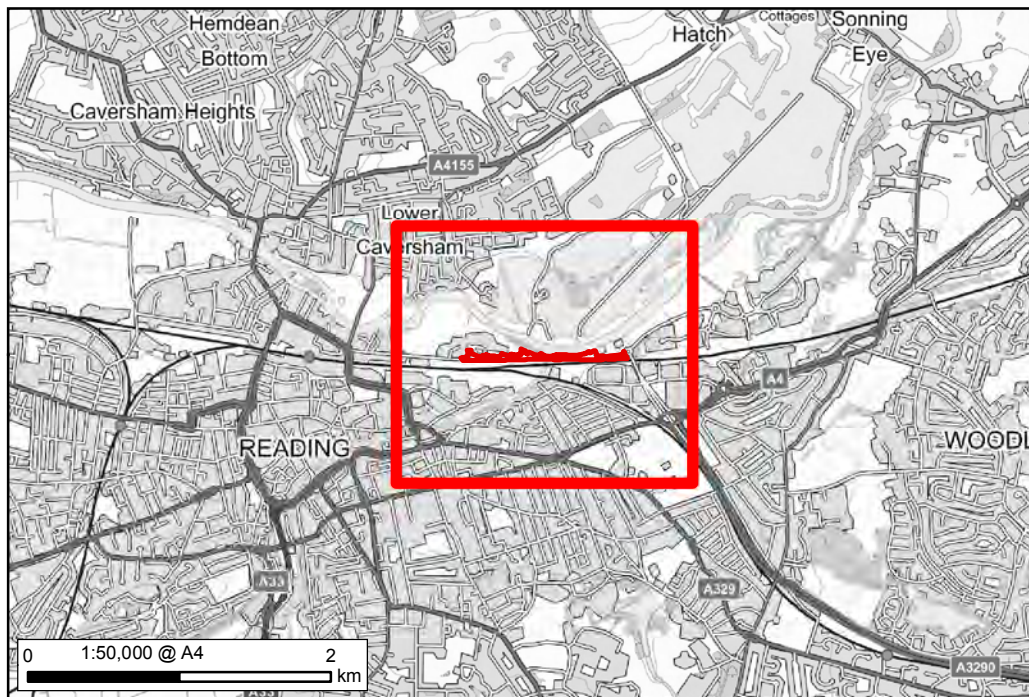


Figure 2: Refugia Location Plan - 2016

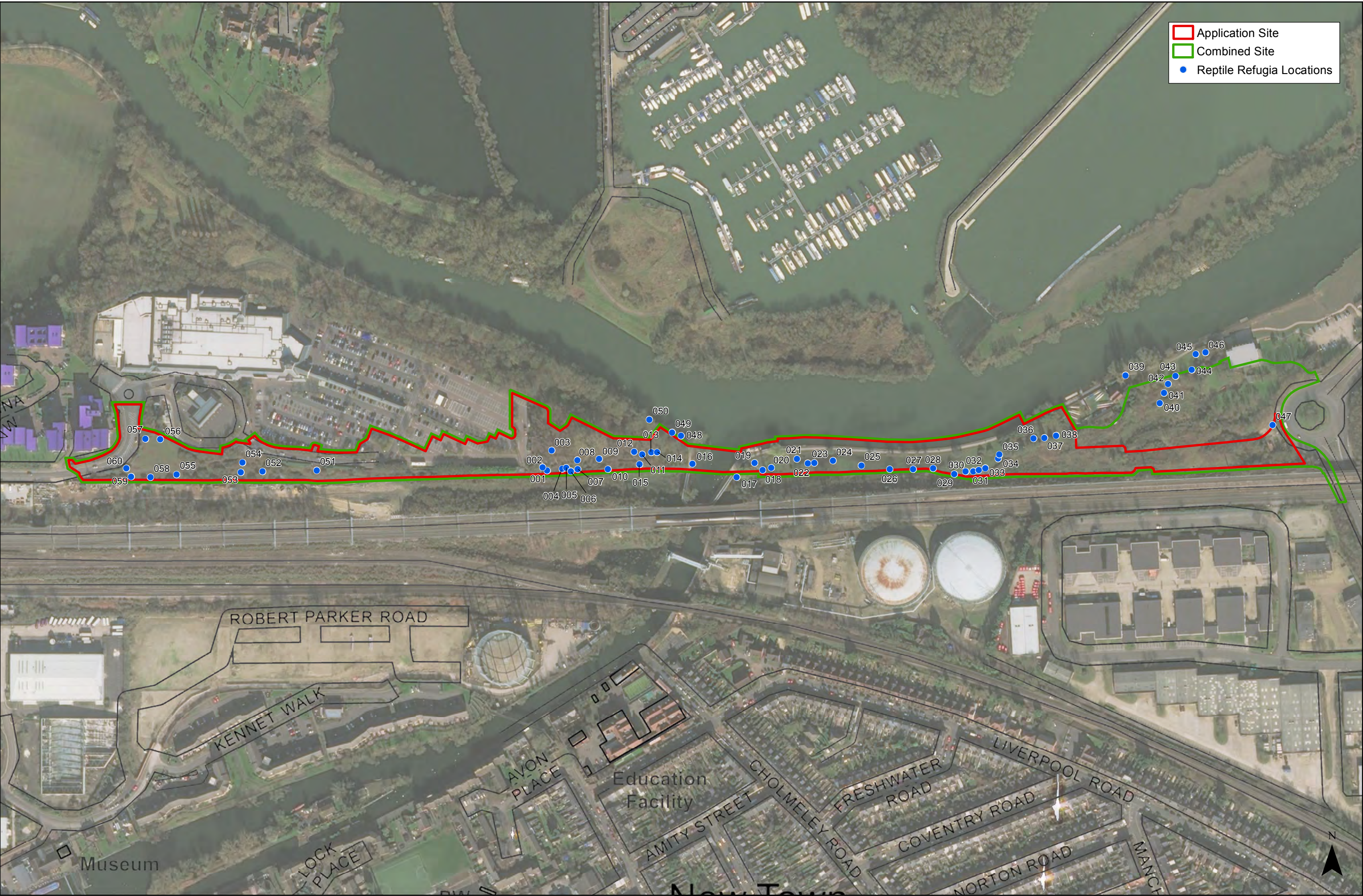
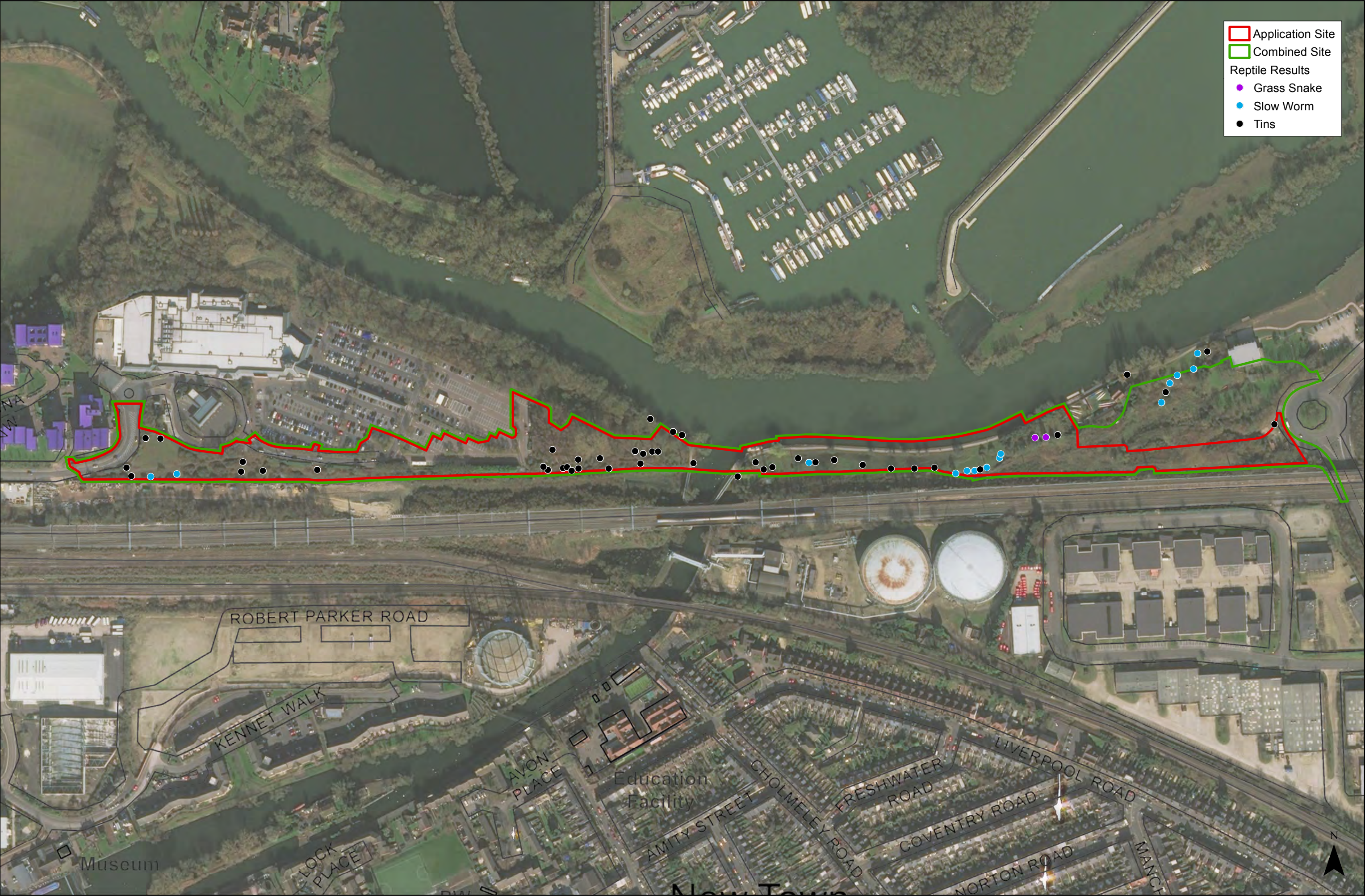


Figure 3: Refugia Location Plan - 2018



Figure 4: Reptile Results Plan - 2016



Application Site

Combined Site

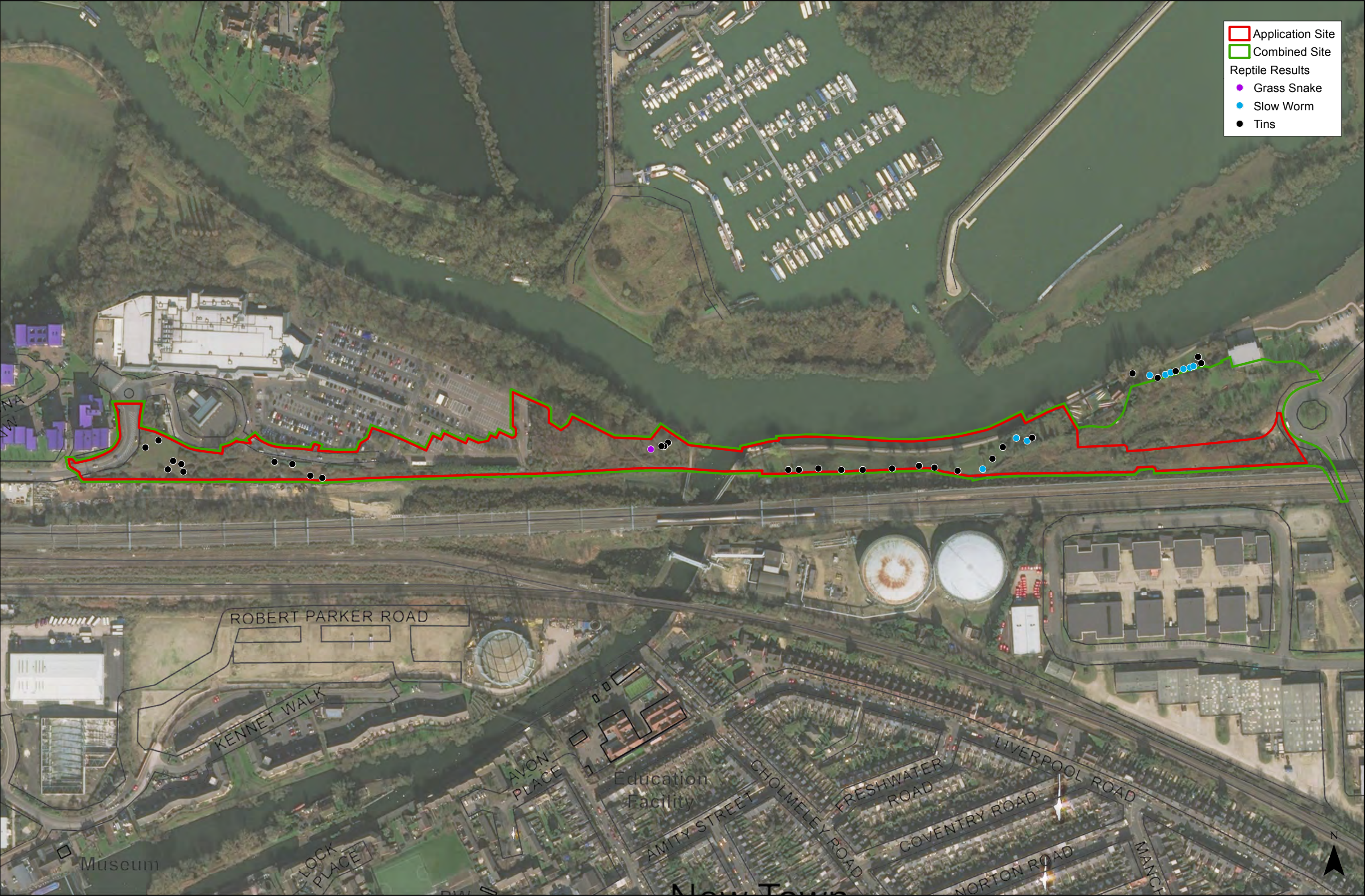
Reptile Results

Grass Snake

Slow Worm

Tins

Figure 5: Reptile Results Plan - 2018



Appendix A Raw Survey Data - 2016

A.1.1 Visit 1

Species	Sex (M/F)	Life Stage	Refugia No.	Time	Cloud (/8)	Rain (Y/N)	Wind (still, light or strong)	Sun (strong, hazy, occ., none)	Amb. Temperature °C
Af	F	Adult	31	16:46	5/8	N	F3-F4	Occasional/strong	18
Nh	F	Adult	37	16:50	5/8	N	F3-F4	Occasional/strong	18
Af	-	Juvenile	42	16:58	7/8	N	F3-F4	Occasional/strong	17
Af	-	Juvenile	42	16:58	7/8	N	F3-F4	Occasional/strong	17
Af	M	Adult	44	17:02	7/8	N	F3-F4	Occasional/strong	17
Af	F	Adult	45	17:04	7/8	N	F3-F4	Occasional/strong	17

A.1.2 Visit 2

Species	Sex (M/F)	Life Stage	Refugia No.	Time	Cloud (/8)	Rain (Y/N)	Wind (still, light or strong)	Sun (strong, hazy, occ., none)	Amb. Temperature °C
Af	N/A	Juvenile	34	13:35	8/8	N	F2	Hazy	18

A.1.3 Visit 3

Species	Sex (M/F)	Life Stage	Refugia No.	Time	Cloud (/8)	Rain (Y/N)	Wind (still, light or strong)	Sun (strong, hazy, occ., none)	Amb. Temperature °C
Af	F	Adult	58	15:10	6/8	N	F4-F5	Occasional / strong	23

A.1.4 Visit 4

Species	Sex (M/F)	Life Stage	Refugia No.	Time	Cloud (/8)	Rain (Y/N)	Wind (still, light or strong)	Sun (strong, hazy, occ., none)	Amb. Temperature °C
Af	F	Adult	33	16:25	1/8	N	F2	Strong	25
Nh	F	Adult	36	16:35	1/8	N	F2	Strong	25
Af	F	Adult	43	16:50	1/8	N	F2	Strong	24

A.1.5 Visit 5

Species	Sex (M/F)	Life Stage	Refugia No.	Time	Cloud (/8)	Rain (Y/N)	Wind (still, light or strong)	Sun (strong, hazy, occ., none)	Amb. Temperature °C
Af	F	Adult	22	11:20	8/8	N	F1	Occasional	18
Af	F	Adult	22	11:20	8/8	N	F1	Occasional	18
Af	F	Adult	30	11:30	8/8	N	F1	Occasional	18
Af	F	Adult	33	11:33	8/8	N	F1	Occasional	18
Af	F	Adult	40	11:45	8/8	N	F1	Occasional	18
Af	N/A	Juvenile	40	11:45	8/8	N	F1	Occasional	18
Af	F	Adult	44	11:52	8/8	N	F1	Occasional	18
Af	F	Adult	58	12:10	8/8	N	F1	Occasional	18

A.1.6 Visit 6

Species	Sex (M/F)	Life Stage	Refugia No.	Time	Cloud (/8)	Rain (Y/N)	Wind (still, light or strong)	Sun (strong, hazy, occ., none)	Amb. Temperature °C
Af	F	Adult	55	15:00	8/8	N	F2	None	23
Af	F	Adult	29	15:32	8/8	N	F2	None	23
Af	N/A	Juvenile	35	15:35	8/8	N	F2	None	23
Af	F	Adult	43	15:50	8/8	N	F2	None	23

A.1.7 Visit 7

Species	Sex (M/F)	Life Stage	Refugia No.	Time	Cloud (/8)	Rain (Y/N)	Wind (still, light or strong)	Sun (strong, hazy, occ., none)	Amb. Temperature °C
Af	F	Adult	33	10:36	6/8	N	F1	Occasional	15
Af	F	Adult	40	10:44	7/8	N	F1	Occasional	15
Af	F	Adult	42	10:45	7/8	N	F1	Occasional	15

Appendix B Raw Survey Data – 2018

B.1.1 Visit 1

Species	Sex (M/F)	Life Stage	Refugia No.	Time	Cloud (/8)	Rain (Y/N)	Wind (still, light or strong)	Sun (strong, hazy, occ., none)	Amb. Temperature °C
Af	M	Adult	24	09:15	7/8	N	F2	Occasional	21
Af	M	Adult	24	09:15	7/8	N	F2	Occasional	21

B.1.2 Visit 2

Species	Sex (M/F)	Life Stage	Refugia No.	Time	Cloud (/8)	Rain (Y/N)	Wind (still, light or strong)	Sun (strong, hazy, occ., none)	Amb. Temperature °C
Af	F	Adult	27	09:50	7/8	N	F2	None	20
Af	M	Adult	31	09:55	7/8	N	F2	None	20
Af	F	Adult	37	10:05	7/8	N	F2	None	20

B.1.3 Visit 3

Species	Sex (M/F)	Life Stage	Refugia No.	Time	Cloud (/8)	Rain (Y/N)	Wind (still, light or strong)	Sun (strong, hazy, occ., none)	Amb. Temperature °C
Af	F	Adult	27	14:58	6/8	N	F1	Hazy	21
Af	M	Adult	27	14:58	6/8	N	F1	Hazy	21
Af	Unknown	Juv	27	14:58	6/8	N	F1	Hazy	21
Af	F	Adult	28	15:00	6/8	N	F1	Hazy	21
Af	F	Adult	28	15:00	6/8	N	F1	Hazy	21
Af	F	Adult	33	15:05	6/8	N	F1	Hazy	21

B.1.4 Visit 4

Species	Sex (M/F)	Life Stage	Refugia No.	Time	Cloud (/8)	Rain (Y/N)	Wind (still, light or strong)	Sun (strong, hazy, occ., none)	Amb. Temperature °C
Af	F	Adult	27	10:15	1/8	N	F2	Strong	18
Af	F	Adult	27	10:15	1/8	N	F2	Strong	18
Af	F	Adult	34	10:22	1/8	N	F2	Strong	18

B.1.5 Visit 5

Species	Sex (M/F)	Life Stage	Refugia No.	Time	Cloud (/8)	Rain (Y/N)	Wind (still, light or strong)	Sun (strong, hazy, occ., none)	Amb. Temperature °C
Af	F	Adult	34	16:03	4/8	N	F2	Strong	20

B.1.6 Visit 6

Species	Sex (M/F)	Life Stage	Refugia No.	Time	Cloud (/8)	Rain (Y/N)	Wind (still, light or strong)	Sun (strong, hazy, occ., none)	Amb. Temperature °C
Af	F	Adult	34	14:45	8/8	N	F5	Occasional	16
Af	F	Adult	36	14:47	8/8	N	F5	Occasional	16

B.1.7 Visit 7

Species	Sex (M/F)	Life Stage	Refugia No.	Time	Cloud (/8)	Rain (Y/N)	Wind (still, light or strong)	Sun (strong, hazy, occ., none)	Amb. Temperature °C
Nh	F	Adult	14	12:36	1/8	N	F1	Strong	20
Af	F	Adult	38	12:48	1/8	N	F1	Strong	20

Key: Nh = Grass snake, Af = Slow worm