A38 Derby Junctions
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Volume 6
6.3 Environmental Statement Appendices
Appendix 8.7c: Reptile Surveys in 2015

Regulation 5(2)(a)

Planning Act 2008

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

April 2019

Infrastructure Planning

Planning Act 2008

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

A38 Derby Junctions Development Consent Order 202[ ]

6.3 Environmental Statement Appendices
Appendix 8.7c: Reptile Surveys in 2015

Regulation Number	Regulation 5(2)(a)
Planning Inspectorate Scheme Reference	TR010022
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1	April 2019	DCO Application

A38 Derby Junctions

Reptile Survey Report

Report No: 47071319-URS-05-RP-EN-010
March 2016

Contents

List of Tables

List of Appendices

List of Figures

1. INTRODUCTION

1.1 Background and Scope

1.1.1 On July 14, 2014, AECOM was awarded the contract by Highways England to provide design services regarding the development of the A38 Derby Junctions Improvements Scheme (referred to herein as the proposed scheme). This proposed scheme concerns three junctions on the A38 in Derby as follows (refer to Figure 1):

- A38/ A5111 Kingsway junction;
- A38/ A52 Markeaton junction; and
- A38/ A61 Little Eaton junction.

1.1.2 These three junctions are spread over an approximate 5.5 km distance along the A38 to the west and north-west of Derby.

1.1.3 AECOM will be preparing an Environmental Assessment Report (EAR), which will assess whether the proposed scheme has the potential to, result in significant environmental effects, taking into account impact avoidance measures that are embedded into the proposed scheme design, as well as standard management activities that will be adopted. To inform the Ecological Impact Assessment (to be reported in the EAR), AECOM undertook an extended Phase 1 Habitat survey along the route of the proposed scheme in January 2015. Results of this extended Phase 1 Habitat survey (AECOM, 2015; report reference 47071319-URS-05-RP-EN-003) highlighted the presence of habitats suitable for supporting reptiles within the scheme boundary and/or the immediate surroundings. As such, further surveys for reptiles were recommended at fourteen (14) discrete locations that were considered to be potentially suitable for this species group.

1.1.4 The reptile survey of the 14 areas was undertaken in June 2015.

1.1.5 Results of this reptile survey are documented herein, together with desktop data and recommendations for further work (where necessary).

1.2 Study Site

1.2.1 The proposed scheme under appraisal (herein the proposed scheme footprint is referred to as the 'Site') encompass the Kingsway and Markeaton junctions, west of the City of Derby (Centroid SK 32801 36103) and the Little Eaton junction north of Derby (Centroid SK 36402 39990). Plans showing the Site boundaries are presented as Figures 2 and 3 in Appendix A. The ecological Study Area extends up to 50 m beyond the Site boundaries.

1.2.2 The A38 is an existing and busy arterial 'A' road carrying traffic around the west and north of the City of Derby. South of the Kingsway junction, the road enters a cutting and is bordered by semi-improved grassland and scrub covered verges. The central reservation south of Kingsway junction and the junction island in this location support a mosaic of habitat types, including semi-improved neutral grassland and native broadleaved woodland. Bramble Brook flows from the west of the proposed scheme in this location, through culverts located under the north-bound carriageway and the central reservation before connecting with further culverts located between the junction islands. North of the Kingsway junction

there is an area of mixed plantation represented by semi-mature trees on embankment.

1.2.3 The Markeaton junction section of the proposed scheme is bordered to the east by residential properties and to the west by parkland with veteran trees. The outfall from Markeaton Lake and Markeaton Brook flows through culverts beneath the existing A38 at the northern extent of the Markeaton junction section of the proposed scheme.

1.2.4 The western boundary of the proposed scheme at Little Eaton borders the road bridge over the River Derwent. The existing A38 is on embankment in this location, with the embankments themselves supporting areas of scrub and immature broadleaved plantation. A variety of grassland types exist at the base of the embankments.

1.3 Relevant Legislation and Biodiversity Strategies

1.3.1 Widespread reptile species are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). It is an offence to intentionally kill, injure or trade in common lizard (*Zootoca vivipara*), slow worm (*Anguis fragilis*), grass snake (*Natrix natrix*) or adder (*Vipera berus*). Neither species listed under European law are likely to be present on Site given their highly prescriptive habitat requirements and restricted geographic range.

1.3.2 In addition to the above, the Natural Environment and Rural Communities (NERC) Act 2006 places additional responsibilities on local planning authorities, in discharging their planning duty; namely, to consider impacts on all reptiles, which are listed on Section 41 of the Act as Species of Principal Conservation Importance in England.

1.3.3 Adders, grass snakes, common lizards and slow worms are reptile species that in Derbyshire are recognised as Local Biodiversity Action Plan (LBAP) priority species. These have been recorded in the Lowland Derbyshire Biodiversity Action Plan area since 2000 (Lowland Derbyshire Biodiversity Partnership, 2011).

1.3.1 Highways England, through the national Road Investment Strategy (RIS), has set an aspiration that the operation, maintenance, and enhancement of the Strategic Road Network (SRN) should move to a position that delivers no net loss of biodiversity; and, in the long term, Highways England should deliver a net gain in biodiversity across its broader range of works. Highways England published a Biodiversity Plan (HEBP) in 2015 to show how it will work with service providers to halt overall biodiversity loss, and maintain and enhance habitats and ecological networks. The Government requires Highways England to demonstrate progress against the HEBP, to secure an ongoing annual reduction in the loss of net biodiversity due to its activities. The HEBP provides a general plan to protect and increase biodiversity. The HEBP supersedes the preceding 2002 Highways Agency Biodiversity Action Plan (HABAP), which still however carries some relevance as it lists specific species of conservation concern. Reptiles (all species) are listed in the 2002 HABAP as priority species.. The objectives of this species action plan for reptiles is to enhance the value of the soft estate for all reptile species, as appropriate, and to mitigate any potential effects of new schemes on reptiles.

2. METHODOLOGY

2.1 Desk-based Study

2.1.1 A desk-based study was undertaken to identify internationally, nationally and locally designated statutory sites, local designated non-statutory sites and records of reptiles within 2 km of central OS grid locations of the two sections of the proposed scheme. The OS grid references representing the central points of the two desk-based studies undertaken were SK 32801 36103 and SK 36402 39990 and relate to the Kingsway and Markeaton junctions section and the Little Eaton junction section respectively. Online resources reviewed included the Multi-Agency Geographic Information Centre (MAGIC), Nature on the Map and the National Biodiversity Network (NBN) Gateway. A data search to identify any further reptile records within 1 km of the central OS grid locations detailed above was also requested from the Derbyshire Wildlife Trust.

2.1.2 The Highways England Environmental Information System (EnvIS) was also searched for any reptile records.

2.2 Reptile Survey

2.2.1 Reptile surveys were carried out throughout June 2015 at 14 locations identified as potentially suitable for this species group. The surveys utilised four recognised methodologies i.e.:

- Use of refugia to attract reptiles on site;
- Manual searches of suitable refugia present on site;
- Checks for signs of reptile activity including sloughed skins, burrows, egg laying sites *etc*.; and
- Sustained visual observation of banks within the site.

2.2.2 The methods for survey using artificial refugia was based upon Froglife (1999) Adivce Sheet 10 for reptile surveys and the Herpetofauna Workers' Manual (1998) with particular reference to those species most likely to be encountered: common lizard and grass snake. The reptile surveys comprised eight visits; one to place the artificial refugia and seven separate visits in suitable weather conditions to check them.

2.2.3 Common lizards will typically bask at temperatures between 9°C and 18°C between March and June; though gravid females will bask through to the end of July when they give birth.

2.2.4 Grass snakes will bask at temperatures between 12°C and 20°C. They typically lay eggs in compost heaps, manure piles and grass cuttings and careful checking of these sites offers a potential means of survey. Eggs are laid between June and the end of July. The Herpetofauna Workers' Manual (1998) recommends checking – without disturbing – such sites.

2.2.5 Refugia used were of standard size and specification, namely 0.5 m^2 tiles of roofing felt.

2.2.6 A total of 225 tiles (between 30 and 50 refugia per hectare though this was higher in a number of locations) were placed at specific locations on Site (areas in the Markeaton and Kingsway junctions section: 1A, 1B, 1C, 1D, 1E, 1F, 1L, see Figure

4; areas in Little Eaton junction section: 2B, 2C, 2D, 2E, 2H, 2J, 2K, see Figure 5). The refugia were placed on the May 20, 2015, two weeks prior to the first survey visit, to allow for 'bedding in'. Refugia were set in transects and within areas of favourable habitat, which were exposed to the sun.

2.2.7 Attention was paid to the forecast temperatures to ensure periods of extreme heat were avoided during surveys. Surveys were carried out between 6.30am and 11am, in an effort to try and ensure that surveying was undertaken between guideline temperatures of 12°C and 18°C and when there was little wind and intermittent hazy sunshine (representing ideal basking temperatures for UK reptiles). On some survey occasions temperatures did exceed 18°C, as shown in Table 1, however this is not considered have affected validity of results as explained in the limitations section below.

2.2.8 In order to minimise any potential disturbance to animals basking on the tiles, the surveyor's approach was cautious and slow, and where possible tiles were observed with binoculars from a distance prior to approach.

2.2.9 A log was kept of any reptiles observed, noting species, number, gender (where possible) and age of reptiles i.e. adult, sub-adult, juvenile or hatchling (where possible). Other animals, such as amphibians and small rodents, were also recorded as well as the date, weather conditions and temperature during each survey (see Table 1).

2.2.10 During the initial Phase 1 assessment, Areas 1B (central reservation) and 1D (Markeaton roundabout) were ruled out as potential reptile habitats on the basis of their limited extent and extreme isolation from surrounding habitats. Furthermore, 1B is unmanaged and succeeding to scrub. Hence it was judged unlikely that reptiles would be present in these habitats.

2.2.11 After consultation with Derbyshire Wildlife Trust on June 4 2015, it was decided to place refugia in Areas 1B and 1D to confirm the likely absence of reptiles at these locations. Refugia were therefore set out at these locations at a later date, on June 12, 2015. The refugia in Area 1D were then checked on seven separate survey occasions in June. The refugia in Area 1B were checked on four separate survey occasions in June before safe access to this area was prevented due to the growth of dense scrub vegetation. Surveys were therefore drawn to a close in this location in the interests of surveyor safety.

Table 1: Reptile Survey Conditions

Area	Visit number	Date	Weather conditions	Temperature range throughout survey
1A 1C 1E 1F 1L 2B 2C 2D 2E 2H 2J 2K	Refugia placement	20/05/2015	N/A	
	1	4/06/2015	Sunny, 20% cloud, no wind	11°C - 19°C*
	2	9/06/2015	Sunny spells, light wind	8°C - 15°C
	3	12/6/2015	Intermittent sunny spells, 80% cloud, calm	12°C - 18°C
	4	18/06/2015 and 19/06/2015	Sunny, 20% cloud, no wind, sunny spells after light shower, 90% cloud, no wind	16°C - 18°C 13°C - 17°C
	5	23/06/2015	Intermittent sunny spells, 80% cloud, calm	12°C - 18°C

Area	Visit number	Date	Weather conditions	Temperature range throughout survey
	6	26/06/2015	Intermittent sunny spells, 60% cloud, light breeze	15.7°C - 19°C
	7	29/6/2015	Intermittent sunny spells, 60% cloud, calm	14.4°C - 19.3°C
1D	Refugia placement	9/6/2015	N/A	
	1	11/6/2015	Sunny, 5% cloud, light breeze	15°C - 17°C
	2	12/6/2015	Intermittent sunny spells, 80% cloud, calm	12°C - 18°C
	3	18/06/2015	Sunny, 20% cloud, no wind	16°C - 18°C
	4	19/06/2015	Sunny spells after light shower, 90% cloud, no wind	16°C - 18°C
	5	23/6/2015	Intermittent sunny spells, 80% cloud, calm	12°C - 18°C
	6	26/6/2015	Intermittent sunny spells, 60% cloud, light breeze	15.7°C - 19°C
	7	29/6/2015	Intermittent sunny spells, 60% cloud, calm	14.4°C - 19.3°C
1B	Refugia placement	9/6/2015	N/A	
	1	11/6/2015	Sunny, 5% cloud, light breeze	15°C - 17°C
	2	12/6/2015	Intermittent sunny spells, 80% cloud, calm	12°C - 18°C
	3	18/06/2015	Sunny, 20% cloud, no wind	16°C - 18°C
	4	19/06/2015	Sunny spells after light shower, 90% cloud, no wind	13°C - 17°C

2.3 Limitations

2.3.1 No significant constraints to the validity of the surveys were identified.

2.3.2 On June 4, 26 and 29, 2015, the temperature recorded at the end of the survey was 19°C or greater, approximately 1°C above the 18°C recommended by Herpetofauna Workers' Manual to survey for common lizards. As the 14 sites were all surveyed in different orders on each survey occasion, the last site surveyed was different on each survey replicate. As such, if a location was subject to survey outside of optimum temperature conditions during a single replicate, it was nonetheless surveyed within optimum temperature conditions during other survey replicates.

2.3.3 The refugia in Areas 1B and 1D were set out two days prior to the commencement of surveys in these locations. Best practice dictates that refugia should be left to 'bed in' for generally a two week period. However, the 'bedding in' period was necessarily reduced in Areas 1B and 1D to co-ordinate the surveys with those already underway elsewhere across the proposed scheme. Additional artificial refugia checks were employed at each survey location and included searches of natural refugia. Given the additional survey methods to increase survey effort, lack of reptiles found across the scheme, and suboptimal and isolated habitat identified at this location, it is considered that the shortened 'bedding in' period for the

artificial refugia at Areas 1B and 1D does not represent a significant constraint to the surveys undertaken.

2.3.4 Surveys at Area 1B were stopped due to the growth of dense vegetation and constraints to safe site access. It was considered unsafe to use any other informal access route located adjacent to the A38 dual carriageway owing to the high speeds at which nearby traffic would pass by surveyors, and the absence of a safety barrier. As such, four reptile survey replicates were completed of the seven recommended. Between 30 and 50 refugia were set out per hectare (more in some locations), representing increased survey effort relative to guidelines, and improved confidence in the survey results. Given that no reptiles were recorded at any location within or adjacent to the proposed scheme during the course of the surveys, and the encroachment of dense scrub within Area 1B (which is expected to reduce habitat suitability and basking opportunities with regard to reptiles), and isolation, it is considered that this data set is sufficient to inform an environmental assessment and that no further survey replicates are required in this location at this time.

2.3.5 The potential to undertake a full replicate of reptile surveys, including a full suite of surveys covering Areas 1B and 1D and a two week bedding in period for refugia prior to survey, will be explored when undertaking the full Environmental Impact Assessment.

2.3.6 The location of construction compounds and flood attenuation areas is yet to be determined; these areas have not been included within the reptile survey.

3. RESULTS

3.1 Desk-based Study

3.1.1 Biological records were provided by Derbyshire Wildlife Trust as part of the desk based investigations (see Figures 2 and 3 in Appendix A).

3.1.2 There are records of reptiles from within 2 km of the proposed scheme from within the last ten years: two records of grass snakes situated 1 km from the Markeaton junction (shown in Figure 2, Appendix A) and 11 records of slow worms for the Little Eaton junction including three records approximately 600 m from the site boundary and eight approximately 1 km to the north (presented in Figure 3, Appendix A).

3.1.3 No reptile records were found on EnvIS.

3.2 Survey Results

Habitat Description

3.2.1 Fourteen areas within the Site boundary and the associated 50 m buffer were identified as having potential to support reptiles. These areas (shown in Figures 4 and 5, Appendix A) are described in Table 2.

Table 2: Habitat Description for Reptile Survey Areas

Area	Habitat Description	Number of refugia in area; Density	Plate Reference (Appendix B)
1A	Approx. 0.62 ha area of tall, unmanaged, neutral, grassland that is dominated by Yorkshire-fog (*Holcus lanatus*) with stands of tall herbs such as great willow herb (*Epilobium hirsutum*) and common nettle (*Urtica dioica*) and taller coarser grass sward. The levels of great willow herb and soft rush (*Juncus effusus*) suggest that this area is slightly damper than Areas 1C and 1K. The most suitable habitat for reptiles was along the western edge of the field, by a margin of tall herb and scrub. This particular area measured approx. 0.35 ha.	15 refugia; 42 refugia/ha	Plate 1
1B	This area is the A38 Roundabout Local Wildlife Site. This physically isolated approx. 0.40 ha area, lying between the A38 carriageways, is represented by unmanaged neutral grassland which is succeeding to scrub due to lack of management. Scrub encroachment represents at least 40% cover, comprising largely dog-rose (*Rosa canina*), bramble (*Rubus fruticosus agg.*) and willow sp. (*Salix spp.*). Some hawthorn (*Crataegus monogyna*) scrub is also present. The scrub encroachment reduced the survey area to approx. 0.3 ha.	15 refugia; 50 refugia/ha	Plate 2
1C	This is an approx. 0.40 ha area of tall, unmanaged, neutral, grassland that is dominated by Yorkshire-fog with locally dominant rosebay willowherb (*Chamerion angustifolium*).	20 refugia; 50 refugia/ha	Plate 3

Area	Habitat Description	Number of refugia in area; Density	Plate Reference (Appendix B)
1D	This tall unmanaged grassland occurs by the Kingsway roundabout and covers approx. 0.32 ha in area. It is dominated by false oat-grass (*Arrhenatherum elatius*) with abundant red clover (*Trifolium pratense*).	10 refugia; 31 refugia/ha	Plate 4
1E	This is an approx. 1.04 ha area of managed grassland within the grounds of the Territorial Army site. It is largely grass dominated with herbs making up a smaller proportion of the sward. There was grass thatch on the ground from mowing on site. The most suitable habitat for reptiles was along the western edge of the field, by a margin of scrub. This particular area measured approx. 0.50 ha.	20 refugia; 40 refugia/ha	Plate 5
1F	This is an area of approx. 2 ha of mown amenity grassland at Derby University. It is not species-rich and is dominated by perennial rye-grass (*Lolium perenne*). The most suitable habitat for reptiles was along the western edge of the field, by a margin of tall herb and scrub. This particular area measured approx. 0.15 ha.	15 refugia; 100 refugia/ha	Plate 6
1L	In this approx. 1.09 ha area, Yorkshire-fog dominates with lesser amounts of false oat grass (*Arrhenatherum elatius*) and frequent meadow foxtail (*Alopecurus pratensis*) and great willow herb. The most suitable habitat for reptiles was along the western edge of the field, by a margin of scrub. This particular area measured approx. 0.75 ha.	25 refugia; 30 refugia/ha	Plate 7
2B	This approx. 0.40 ha area is a disturbed grassland field which is used as storage /work area for a turf farm. Species present include creeping buttercup (*Ranunculus repens*) along with frequent stands of invasive common nettle and creeping thistle (*Cirsium arvense*).	20 refugia; 50 refugia/ha	Plate 8
2C	This tall coarse grassland area occurs adjacent to the River Derwent.It is likely to have been enriched by river silt and flooding events, and is lacking management. The invasive species Himalayan balsam (*Impatiens glandulifera*) occurs in frequent stands. The area of habitat of potential suitability to reptiles was approx. 0.20 ha.	10 refugia; 50 refugia/ha	Plate 9
2D	A horse grazed and species poor neutral grassland area of approx. 0.31 ha located by the River Derwent with high composition of perennial rye-grass. Stands of common nettle have developed in response to horse grazing. The invasive species giant knotweed (*Fallopia sachalinensis*) borders the grassland fence along the river edge. Habitat of potential suitability to reptiles was limited in this location and refugia were laid along the southern field boundary. The area of habitat of potential suitability to reptiles was approx. 0.1 ha.	5 refugia; 50 refugia/ha	Plate 10

Area	Habitat Description	Number of refugia in area; Density	Plate Reference (Appendix B)
2E	This is a horse grazed field of approx. 3.44 ha by the A38 with local stands of perennial weeds such as common nettle, creeping thistle and spear thistle (*Cirsium vulgare*). The field is variously inundated through the seasons and the invasive species New-Zealand pigmyweed (*Crassula helmsii*) is locally dominant. There is an area of open water with a drawdown zone at the southern end of the field. Habitat of potential suitability to reptile was located along the eastern boundary of the field measuring approx. 0.42 ha in extent.	20 refugia; 47 refugia/ha	Plate 11
2H	This tall unmanaged and physically dense grassland sward covering approx. 1.98 ha, is overwhelmingly dominated by Yorkshire-fog, with lesser amounts of other robust grass species. Herbs represent only a minor sward component in this location. Suitable habitat was located alongside the hedgerow in this location and measured approx. 0.1 ha in extent.	20 refugia; 200 refugia/ha	Plate 12
2J	This approx. 0.96 ha area is a damp horse-grazed pasture. It has small areas of very shallow, seasonally standing water with poached margins.	40 refugia; 40 refugia/ha	Plate 13
2K	This unmanaged species-rich grassland sward covering approx. 0.24 ha occurs on a steep slope near a sewage works adjacent to the existing A38. There is extensive scrub and tree encroachment from species including ash (*Fraxinus excelsior*) and common hawthorn.	15 refugia; 62 refugia/ha	Plate 14

Presence/Absence Survey Results

3.2.2 No reptiles were recorded during the surveys at any of the 14 locations across the proposed scheme.

3.2.3 Smooth newts (*Lissotriton vulgaris*) were found in Area 1F. A maximum count of four smooth newts was recorded during any single survey replicate.

3.2.4 Frogs (*Rana temporaria)* (either adults or juveniles) were also found within area 1F. A maximum of four frogs were found during any single survey replicate.

3.2.5 Adult toads (*Bufo bufo*), a species of principal importance listed under Section 41 of the NERC Act 2006, were found in Area 1E and juvenile toads were found in Area 1F. A maximum count of one toad in Area 1E and four toads in Area 1F were recorded during any single survey replicate.

3.2.6 Table 3 shows the results of the reptile survey. All the animals recorded were found beneath the refugia.

Table 3: Reptile Survey Results*

Area	Visit 1	Visit 2	Visit 3	Visit 4	Visit 5	Visit 6	Visit 7
1A	-	-	-	-	-	-	-
1B	-	-	-	-	N/A	N/A	N/A
1C	-	-	-	-	-	-	-
1D	-	-	-	-	-	-	-
1E	-	-	1♀ toad	Small rodent	1♀ toad	1♀ toad	1♀ toad
1F	1♀ SN, 2 juv toads	2♀ SN, 1 frog, 2 juv toads	1 juv SN, 3 juv toads		4 juv SN, 2 juv frogs, 3 juv toads	4 juv frogs, 4 juv toads	1 juv frog, 4 juv toads
1L	-	-	-	-	-	-	-
2B	-	-	-	-	-	-	-
2C	-	-	-	-	-	-	-
2D	-	-	-	-	-	-	-
2E	-	-	-	-	-	-	-
2H	-	-	-	-	-	-	-
2J	-	-	-	-	-	-	-
2K	-	-	-	-	-	-	-

*Juv = Juvenile; SN = Smooth newt; ♀ = Female

4. SUMMARY

4.1.1 A presence/ absence survey for reptiles was undertaken at 14 locations within the Site boundary and associated 50 m buffer identified as being of potential suitability to reptiles. No reptiles were recorded during the surveys and it is assessed that reptiles are absent from the Site and do not represent a constraint to the proposed scheme.

4.1.2 Although a full suite of reptile survey replicates could not be completed within the central reservation area of the A38 Local Wildlife Site (Area 1B), it is considered that there is sufficient survey data relating to nearby and surrounding habitat areas (including the roundabout island, Area 1D) to inform an environmental assessment: a full suite of reptile survey replicates were completed for the wider scheme with no reptiles being found, and the habitats within Area 1B are currently unmanaged, succeeding to scrub, isolated and of limited suitability to this species group.

4.1.3 Although no reptiles were observed at the time of survey, other species were recorded, including small rodents and amphibians. Smooth newts, frogs and toads were found in Area 1F, which correlates with the results of the great crested newt surveys undertaken within the Markeaton junction section of the proposed scheme (AECOM 2015, report number: 47071319-URS-05-RP-EN-009).

4.1.4 Recommendations for mitigation and/ or enhancement of the proposed scheme with regard to reptiles will be considered and reported in the Environmental Assessment Report (EAR).

5. REFERENCES

AECOM (2015), A38 Junction Improvements - Extended Phase 1 Habitat survey (Report number 47071319-URS-05-RP-EN-003).

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

Gent, A.H. and Gibson, S.D., eds. (1998) Herpetofauna workers’ manual. Joint Nature Conservation Committee, Peterborough.

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Highways England (2015) Our plan to protect and increase biodiversity. Publication code PR34/15.

Appendix A Figures

N

M1 JUNCTION 28

A38/A61 LITTLE EATON JUNCTION

A38/A6 PALM COURT JUNCTION

A38/A52 MARKEATON JUNCTION

A38/A5111 KINGSWAY JUNCTION

A50/A38 JUNCTION

2 0 2 4 6 8 Kilometres

Project Title/Drawing Title

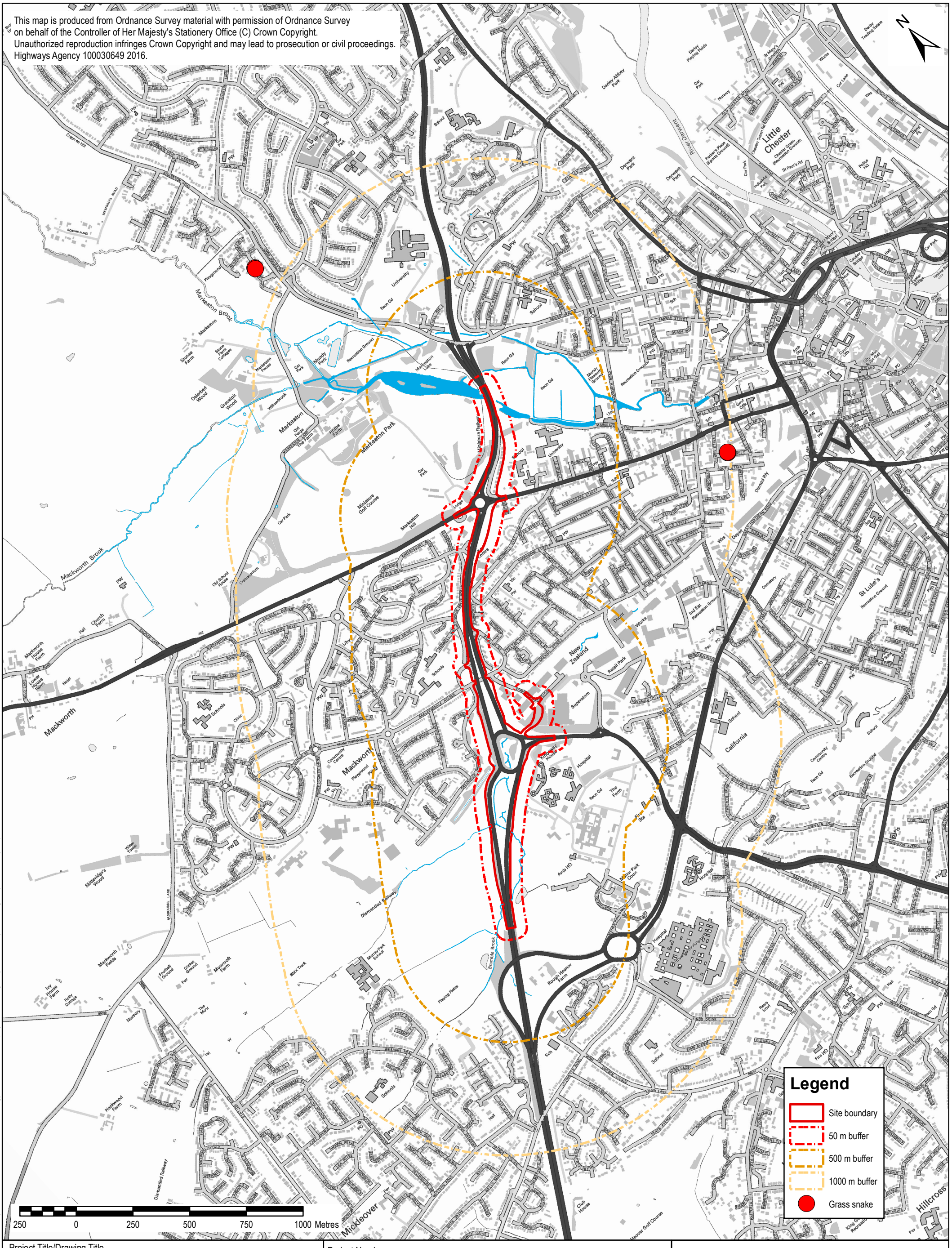
A38 DERBY JUNCTIONS SCHEME LOCATION PLAN

Project Number 47071319		
Drawn GB	Checked SW	Approved SW
Date 04/02/2016	Scale @ A3 1:100,000	Purpose of issue FINAL
Drawing Number Figure 1		Rev 3F

Highways England
Major projects
Piccadilly Gate
Store Street
Manchester
M1 2WD

AECOM
Royal Court
Basil Close, Chesterfield
Derbyshire. S41 7SL
+44 (0) 1246 209221
+44 (0) 1246 209229
www.aecom.com

File Name:\\ch-wip-001\CH_Roads\A38 Derby Jcns - PO1339\12 CAD\12.1 WIP\FIGURE 1.1 - LOCATION PLAN F1.mxd



File Name:X:\Highways Agency\47071390 A38 Derby Jcns - Environment\Technical\Ecology\GIS_Chesterfield\project_files\Kingsway\Desk Study\A38 Kingsway Desk study Reptile 04122015.mxd

Project Title/Drawing Title

A38 DERBY JUNCTIONS MARKEATON AND KINGSWAY DESK STUDY - REPTILE SPECIES RECORDS FROM DWT

Project Number 47071319		
Drawn GSB	Checked HP	Approved OB
Date 25/02/2016	Scale @ A3 1:15,000	Purpose of issue FINAL
Drawing Number Figure 2		Rev 3F

Highways England
Major projects
Piccadilly Gate
Store Street
Manchester
M1 2WD

AECOM
Royal Court
Basil Close, Chesterfield
Derbyshire. S41 7SL
+44 (0) 1246 209221
+44 (0) 1246 209229
www.aecom.com

N

Little Eaton

Burley Hill

Burleyhill Farm

The Bungalow

Roundabout

Fields Farm

Allestree Park Golf Course

Gorses' Wood

Path

St Peter's Park

Pav

PW

Sch

PO

Elms Farm

Bsns Pk

Works

Wks

Ppg Sta

Air

Little Eaton Junction

Water Treatment

Garden Centre

Moor End Farm

Moor End Farm Bungalow

Meter House

The Bungalow

Reservoirs

Cotter Wood

Bleak House

Camp Wood

Broadsall Lodge

Glebe Farm

Boosemoor Brook

Knoll Side Farm

Breadsall Manor

Allestree Ford Bridge

Mobile Home Park

Peg Low

Frog Hall

Rectory Farm

Brookside Farm

Dam Brook

Church Farm

Breadsall

Recn Gd

Hall

Mill Plantation

Willow Holt Plantation

The Slip

Holme Nook Farm

Holme Nook

Croft Wood

Manor Farm

The Retreat

Warehouse

Nooney's Pond

Nut Wood

Darley Abbey

Trav Cs

Superstore

Factory

Toll

Mill House

Rugby Ground

The Meteor Centre

Park & Ride

Breadsall Hilltop

Chadwell

Legend

- Site boundary
- 50 m buffer
- 500 m buffer
- 1000 m buffer
- NERC Section 41 Reptile species

200 0 200 400 600 800 1000 Metres

File Name:X:\Highways Agency\47071390 A38 Derby Jcns - Environment\Technical\Ecology\GIS_Chesterfield\project_files\Little Eaton\Desk study\A38 Little Eaton reptile records 26062015.mxd

Project Title/Drawing Title

A38 DERBY JUNCTIONS
LITTLE EATON
DESK STUDY - REPTILE
SPECIES RECORDS FROM DWT

Project Number 47071319		
Drawn GSB	Checked HP	Approved OB
Date 25/02/2016	Scale @ A3 1:10,000	Purpose of issue FINAL
Drawing Number Figure 3		Rev 3F

Highways England
Major projects
Piccadilly Gate
Store Street
Manchester
M1 2WD

AECOM
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Derbyshire. S41 7SL
+44 (0) 1246 209221
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N

1F

1E

1D

1C

1B

1A

1L

15

20

10

25

Legend

- Site boundary
- 50 m buffer
- 250 m buffer
- 500 m buffer
- Reptile refugia locations and extent

Habitats

- Semi-natural broad-leaved woodland
- Coniferous woodland
- Mixed plantation woodland
- Dense scrub
- Parkland
- Semi-improved grassland
- Tall ruderal
- Open water
- Amenity grassland
- Introduced shrub
- Building
- Bare ground
- Hard standing
- Invasive non-native species
- No access

100 0 100 200 300 400 500 Metres

File Name:X:\Highways Agency\47071390 A38 Derby Jcns - Environment\TechnicalEcology\GIS_Chesterfield\project_files\Kingsway\Reptile survey\A38 Kingsway Markeaton Reptile surveys 04122015.mxd

Project Title/Drawing Title

A38 DERBY JUNCTIONS MARKEATON AND KINGSWAY REPTILE SURVEY

Project Number 47071319		
Drawn GSB	Checked HP	Approved OB
Date 25/02/2016	Scale @ A3 1:7,000	Purpose of issue FINAL
Drawing Number Figure 4		Rev 3F

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N

2K

15

2D

2B

20

5

10

2C

2E

20

40

2J

20

2H

20

Legend

- Site boundary
- 50 m buffer
- 250 m buffer
- 500 m buffer
- Reptile refugia locations and extent

Habitats

- Plantation broad-leaved woodland
- Dense scrub
- Semi-improved grassland
- Improved grassland
- Open water
- Boulders
- Arable
- Amenity grassland
- Building
- Bare ground
- Hard standing
- Invasive non-native species

100 0 100 200 300 400 500 Metres

File Name:X:\Highways Agency\47071390 A38 Derby Jcns - Environment\Technical\Ecology\GIS_Chesterfield\project_files\Little Eaton\Reptile survey\A38 Little Eaton Reptile surveys.mxd

Project Title/Drawing Title

A38 DERBY JUNCTIONS
LITTLE EATON
REPTILE SURVEY

Project Number
47071319

Drawn	Checked	Approved
GSB	HP	OB
Date	Scale @ A3	Purpose of issue
25/02/2016	1:5,000	FINAL
Drawing Number		Rev
Figure 5		3F

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Appendix B Site photos

Plate number	Area	Plate
1	1A	
2	1B	

Plate number	Area	Plate
3	1C	
4	1D	
5	1E	(No Photo)

Plate number	Area	Plate
6	1F	
7	1L	

Plate number	Area	Plate
8	2B	 

Plate number	Area	Plate
9	2C	
10	2D	

Plate number	Area	Plate
11	2E	 

Plate number	Area	Plate
12	2H	
13	2J	

Plate number	Area	Plate
14	2K