A38 Derby Junctions

TR010022

Volume 6

6.3 Environmental Statement Appendices

Appendix 8.3(a): Extended Phase 1 Habitat Survey and Preliminary Roost Assessment for Bats – Site 25

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 8.3(a): Extended Phase 1 Habitat Survey and Preliminary Roost Assessment for Bats – Site 25

Regulation Number	Regulation 5(2)(a)
Planning Inspectorate Scheme Reference	TR010022
Application Document Reference	6.3
Author	A38 Derby Junctions Project Team, Highways England

Version	Date	Status of Version
1	April 2019	DCO Application

TECHNICAL NOTE

Project:	**A38 Derby Junctions**				
Title:	**Extended Phase 1 Habitat Survey and Preliminary Roost Assessment for Bats – Site 25**				
Doc ID:	**HE514503-ACM-EBD-A38_SW_PR_ZZ-TN-EG-0005**				
Date:	**November 2018**	Version:	**P02**	Status:	**S4**

Revision	Date	Prepared by	Reviewed by	Approved by
P01	12/09/2018	Gaelle Bardsley	Jane Southey	Paul Benyon
P02	14/11/2018	Gaelle Bardsley	Charlotte Bragg Simon Wild	Andy Wilson

1 Introduction

1.1 AECOM has been instructed by Highways England to provide design services with regards to the A38 Derby Junctions Scheme (referred to herein as the Scheme).

1.2 To assist with the assessment of the Scheme's potential environmental effects, a range of environmental surveys have been undertaken since 2015 to define prevailing baseline conditions. However, as the Scheme's design progresses, a number of updates have occurred and the Scheme boundary has been refined.

1.3 The purpose of the surveys reported herein was to ecologically assess Site 25, which was added to the Scheme boundary in 2018 as a result of design changes.

1.4 A plan showing the location of Site 25 is presented in Figure 1 (Appendix A).

1.5 An extended Phase 1 Habitat survey was undertaken on 14 May 2018. An assessment of potential bat roost features (PRF) within Site 25 boundary and/ or the immediate surroundings was also undertaken on the same day. This Technical Note outlines the results of the surveys.

1.6 Refer to the A38 Derby Junctions Extended Phase 1 Habitat Survey Update Report (AECOM(a), 2017; HE514503-ACM-EBD-A38_SW_PR_ZZ-RP-EG-0004) for details of relevant ecological legislation and policy regarding bats.

2 Methodology

Desk-Based Study

2.1 The boundary and 2km buffer of Site 25 were overlapped to the desk study maps from 2017 (A38 Derby Junctions - Extended Phase 1 Habitat Survey Update report, AECOM(a), 2017) and any change of distances between the new Scheme boundary (including Site 25) and designated and notables sites and protected species records were noted.

2.2 Refer to the A38 Derby Junctions - Extended Phase 1 Habitat Survey Update report (AECOM(a), 2017) for details on desk-study methodology and designated sites, notable sites and protected species records.

Extended Phase 1 Habitat Survey

2.3 The Extended Phase 1 Habitat survey was undertaken on 14 May 2018 by AECOM ecologists.

2.4 The Extended Phase 1 Habitat survey was undertaken according to the published guidelines (Joint Nature Conservation Committee, 2016) and summaries of the habitat types recorded are presented as Phase 1 Habitat map (refer to Figure 3, Appendix A). Target Notes (TN) detailed on the Phase 1 Habitat maps are described and referred to throughout the text. The target notes are also listed in Appendix B along with site photographs.

2.5 Additional notes relating to the field assessment undertaken are as follows:

- The Extended Phase 1 Habitat survey included assessments of the potential for protected species and/ or habitats or species groups of nature conservation importance to occur within the Scheme boundary, or within the study area, which extends up to 500m beyond the Scheme boundary;
- Waterbodies and wetland habitats of potential suitability to amphibians, particularly great crested newt *Triturus cristatus* (GCN) were identified and recorded;
- The presence of trees and structures of potential suitability to roosting bats were recorded;
- Signs of badger *Meles meles* activity (for example setts, latrines, paths, feeding remains and footprints) were recorded;
- Habitats of potential suitability to support reptiles were recorded;
- Habitats of potential suitability to support breeding birds were recorded;
- Habitats with potential to support threatened/ scarce plant species or botanical species of conservation importance were noted;
- The extent and locations of stands of invasive, non-native plant species were recorded;
- Watercourses of potential suitability for otter *Lutra lutra*, water vole *Arvicola amphibius*, white-clawed crayfish *Austropotamobius pallipes* or aquatic invertebrates were identified and noted; and
- Habitats with potential to support diverse assemblages of terrestrial invertebrates were identified and noted.

2.6 Survey effort was focused on those habitats within the Site 25 boundary. However, where justified by habitat connectivity, and in line with the details provided above, consideration was given to habitats and the potential presence of protected or notable species within the study area, which extends up to 500m beyond the Scheme boundary.

2.7 The results of the Extended Phase 1 Habitat survey have been used to inform the potential presence of protected or notable species within or around Site 25 as well as the requirement for further surveys.

Preliminary Roost Assessment for Bats

2.8 A Preliminary Roost Assessment for bats was undertaken on 14 May 2018 by two experienced ecologists from AECOM, one of whom holds a Natural England Bat

Class License WML CL18. The surveys were conducted in line with the Bat Conservation Trust (BCT) survey guidelines (Collins, 2016). Close focusing binoculars were used to conduct an external assessment of all relevant trees, building and structures within the boundary of Site 25.

2.9 All potential bat access/ egress points and features with potential roosting features (PRF) (e.g. cracks, crevices) were identified and recorded along with any evidence, which may have indicated the location of roosts, such as:

- Stains around entrance holes (resulting from the deposition of oil secretions in bat fur);
- Scratch marks around entrance holes (resulting from bat claw holds);
- Bat droppings;
- Feeding remains; and
- Odours or noise characteristics of bats.

2.10 Based on the external assessment, the suitability of the structures to support roosting bats was then classified using a scale of negligible, low, moderate, high or confirmed. This assessment was based on the intrinsic suitability of the feature to support roosting bats and other evidence giving an indication of the likelihood of use (e.g. presence of droppings, cobwebs, or exposure to elements).

2.11 The grading system used to determine the potential suitability of a feature to support roosting bats is given above in Table 1.

Table 1: Grading system used to determine the potential suitability of a feature to support roosting bats

Habitat Suitability/ Level of Risk	Type of roost		
	Summer or transitional roost used by non-breeding bats	**Maternity Roost**	**Hibernation Roost**
Confirmed	Presence of bats or evidence of bats. Confirmation of roost status may require further roost clarification survey.		
High	Feature with multiple roosting opportunities for one or more species of bat with good connectivity to high quality foraging habitat.	Feature with multiple roosting opportunities for one or more species of bat with good connectivity to high quality foraging habitat.	Feature with multiple roosting opportunities for one or more species of bat with good connectivity to high quality foraging habitat.
Moderate	Feature with some roosting opportunities with connectivity to moderate or high quality foraging habitat.	Feature with some roosting opportunities with connectivity to moderate or high quality foraging habitat.	Feature with some roosting opportunities with connectivity to moderate or high quality foraging habitat.
Low	Feature with a limited number of roosting opportunities with poor connectivity to foraging habitat.	Feature with a limited number of roosting opportunities with poor connectivity to foraging habitat.	Feature with a limited number of roosting opportunities with poor connectivity to foraging habitat.
Negligible	Feature with no or very limited roosting opportunities for bats or where the feature is isolated from foraging habitat.	Feature with no or very limited roosting opportunities for bats or where the feature is isolated from foraging habitat.	Feature with no or very limited roosting opportunities for bats or where the feature is isolated from foraging habitat.

Survey Limitations

2.12 The results of the Extended Phase 1 Habitat survey are not definitive and it is not intended that they will negate the need for further survey work.

3 Results

Desk study

3.1 Refer to Figures 1 and 2, Appendix A, which detail the results of the desk study review.

3.2 A single change was noted regarding the proximity of designated and notable sites with the addition of Site 25 to the Scheme boundary. A further section of Markeaton Brook System Local Wildlife Site (LWS) is now located within the Scheme boundary – full details of the LWS are presented in the A38 Derby Junctions - Extended Phase 1 Habitat Survey Update report (AECOM(a), 2017).

3.3 With regards to protected species records, the signs of otter presence along Middle Brook are now included in the Scheme boundary through the inclusion of Site 25.

Habitats

3.4 The following habitats were present within the survey area for Site 25. Habitat descriptions are not provided for areas within 50m of Site 25, but the habitat types are given in Figure 3, Appendix A:

- **Broad-leaved woodland:** TN1 is a fringe of broad-leaved woodland to the south-west of the site supporting planted mature trees such as copper beech *Fagus sylvatica purpurea*, sycamore *Acer pseudoplatanus*, horse-chestnut *Aesculus hippocastanum*, alder *Alnus glutinosa*, *cherry Prunus sp*., ash *Fraxinus excelsior* with a shrub layer including self-established elderberry *Sambucus nigra*, common hawthorn *Crataegus monogyna* and bramble *Rubus fruticosus* agg. Ground flora records included dominant common ivy *Hedera helix* with areas of stinging nettle *Urtica dioica*, dog's mercury *Mercurialis perennis*, wood avens *Geum urbanum*, hogweed *Heracleum sphondylium* with rare lords-and-ladies *Arum maculatum*.
- **Scattered trees:** T78 – T82, T89 and T90 were mature trees including dominant pedunculate oak *Quercus robur*, and rare alder and weeping beech *Fagus sylvatica pendula*.
- **Scrub:** Scrub species typically variously included bramble and raspberry *Rubus idaeus*.
- **Running Water:** At TN2, there is a bridge over Markeaton Brook, a tributary of the River Derwent. Markeaton Brook flows in a south easterly direction towards the City of Derby. At this location, the brook had a wetted width of approximately 7m and had a water depth of approximately 0.5m. The channel bed here supported numerous features including boulders, cobbles and exposed gravel beds. The channel was heavily shaded by overhanging vegetation, including broad-leaved woodland and scrub and no channel vegetation was recorded.

  At TN3, the proposed Scheme boundary crosses the Middle Brook. The Middle Brook is a small watercourse which runs through playing fields and discharges to the Markeaton Brook. At TN3, the watercourse had a wetted width of approximately 3m, a bank full width of approximately 6m and had an average water depth of less than 0.2m. The channel was heavily shaded and therefore

very little in-channel or marginal vegetation was found. Some patches of sedge *Carex sp*. on the banks, with sparse emergent broad-leaved herbs such as rosebay willowherb *Chamerion angustifolium*, and some filamentous algae. There was also abundant freshwater sponge in the brook, and a significant coverage of sewage fungus associated with an outfall immediately downstream of the A38 culvert.

- **Semi-improved neutral grassland:** Within the site, this habitat was restricted to a small area at TN4. Species included dominant Yorkshire-fog *Holcus lanatus* with abundant cow parsley *Anthriscus sylvestris*, broad-leaved *dock Rumex obtusifolius* and clover sp*. Trifolium sp*. Other species sporadically found were common nettle, yarrow *Achillea millefolium*, garlic mustard *Alliaria petiolata*, meadow *foxtail Alopecurus pratensis*, wild angelica *Angelica sylvestris*, cuckooflower *Cardamine pratensis*, common mouse-ear *Cerastium fontanum*, rosebay willowherb, spear thistle *Cirsium vulgare*, cock's-foot *Dactylis glomerata*, wild teasel *Dipsacus fullonum*, red fescue *Festuca rubra*, cleavers *Galium aparine*, wood avens, bristly oxtongue *Helminthotheca echioides*, hogweed, white dead-nettle *Lamium album*, forget-me-not *Myosotis spp*, ribwort plantain *Plantago lanceolata*, greater plantain *Plantago major*, silverweed *Potentilla anserina*, meadow buttercup *Ranunculus acris*, creeping buttercup *Ranunculus repens*, broad-leaved dock *Rumex obtusifolius*, red campion *Silene dioica*, hedge woundwort *Stachys sylvatica* and common vetch *Vicia sativa*.
- **Amenity grassland:** Amenity grassland was the dominant habitat type within the survey area with the sward dominated by Yorkshire-fog. Typical herbaceous species included common daisy *Bellis perennis*, ribwort plantain, greater plantain, dandelion *Taraxacum officinale* agg., creeping buttercup, common field speedwell *Veronica persica*, white clover *Trifolium repens*, cleavers and common mouse-ear.
- **Tall ruderal:** Areas of tall ruderal species were commonly found around the site boundary and particularly to the north and north-east of the site. Recorded species included great willowherb *Epilobium hirsutum*, common nettle and small patches of pioneering scrub comprising bramble and raspberry.
- **Building and hard standing:** The site and 50m buffer included two buildings (B12 and B13), a concrete bridge at TN2 and associated areas of hard standing.

Species

3.5 Site 25 and its immediate environs were appraised for their potential to support notable/ protected species. The results of this appraisal are summarised below:

- **Bats:** The 2017 AECOM survey (AECOM(b), 2017; HE514503-ACM-EBD-A38_SW_PR_ZZ_RP-EG-0005 P01 S0) identified the Mill pond area as a bat activity hot spot. A confirmed common pipistrelle *Pipistrellus pipistrellus* tree roost was also identified in this area at M2. These surveys also identified 15 potential roost features (PRF) less than 50m from Site 25 as well as 56 trees with potential roost features within Markeaton Park.

  Trees with Potential Roosting features were recorded within Site 25 and details of the survey findings are available in Table 2.

Table 2: Trees with Potential Roosting features within Site 25

Tree ID	Species	Grid reference	Diameter at breast height (m)	Feature(s)	Potential Roosting Feature (BCT, 2016)
T78	Oak	SK 33967 37258	0.75	Light ivy cover. Callus roll on underside of branch. No cavities, 4 m above ground level.	Negligible
T79	Copper beech	SK 33969 37271	-	-	Negligible
T80	Oak	SK 33962 37282	-	-	Negligible
T81	Alder	SK 33947 37286	1.00	Two trunks meeting with a possible southwest-facing cavity 5m above ground level. Numerous shallow cavities.	Low
T82	Dead tree by elder	SK 33823 37319	2.0 3x cut branches	Peeling bark covering the main trunk. With a west-facing split. Branch tear out with west-facing cavities present.	Moderate
T83	Weeping beech	SK 33803 37250	1.0	Sparse ivy.	Negligible
T84	Semi-mature sycamore	SK 33870 37120	0.4	East-facing shallow callus roll 4m above ground level. East-facing branch split. 12m above ground level.	Low
T85	Mature beech	SK 33873 37127	2.0	North-facing callus roll with shallow cavities 6m above ground level. West-facing branch split 4m above ground level. East-facing branch split and callus roll on underside of branch, 2m long and 3m above ground level.	Low
T86	Sycamore	SK 33999 37279	-	Two bat boxes.	Negligible
T87	Semi-mature sycamore	SK 33976 37283	-	Large amounts of ivy that would need stripped before removal (if required).	Low
T88	Group of trees	SK 33827 37183	-	Variable amounts of ivy that would need to be stripped before removal (if required).	Low
T89	Oak	SK 33960 37229	0.75	Peeling bark on branch 6m above ground level. Shallow callus roll with an 8m clear drop zone. Filled callus roll, east-facing, located 4m above ground level.	Low
T90	Oak	SK 33970 37240	0.5	Hanging over fence. Branch snap located 4m above ground level.	Low

3.6 Two buildings with Potential Roosting features were recorded adjacent to Site 25 - details of the survey findings are provided in Table 3.

Table 3: Buildings with Potential Roosting features within Site 25

Building ID	Description	Potential Roosting Feature (BCT, 2016)
B12 Jonty Farmer Public House	Two storey brick building with a pitched concrete pantile roof of multiple pitches. The roof tiles were in good condition with no obvious gaps or defects. No bargeboards, fascias or soffits were present; plastic mesh was present at the eaves blocking the naturally shaped gap below pantiles. Potential roof features were noted at gaps where bats could gain access to either the underside of roof tiles, or the roof void, at missing verge mortar on the north-eastern gable end; at missing mesh grill at eaves on the north-eastern wall/roof; and gaps around lead flashing surrounding a chimney on the northern side of the building. Gaps were also present in-between bricks above ground floor windows on the western aspect of the building. No access was sought into the roof void. The building is situated adjacent to mature trees and Markeaton Brook providing suitable foraging and commuting routes for bats.	Moderate
B13 Brook Medical Centre	Brick built single storey medical surgery dating to 1991 with lean-to single pitched slate roofs with skylights. Potential roof features were noted at gaps where bats could gain access at missing verge mortar on the eastern side of the building, under ridge tiles and under fascias under the a wall below the apex of the higher pitched roof, above the lower pitched roof. Gaps were also noted at the apex of the southern / southwestern gable end under flashing.	Moderate

- **Breeding Birds**: The breeding bird surveys undertaken by AECOM in 2015 (AECOM(c), 2016; 47071319-URS-05-RP-EN-008) covered the two Mill ponds and the eastern side of Markeaton Park. Species recorded included several Birds of Conservation Concern (Eaton *et al*., 2015); three species on the Red list, grey wagtail *Motacilla cinerea,* house sparrow *Passer domesticus* and song thrush *Turdus philomelos*; three on the Amber list, mallard *Anas platyrhynchos*, stock dove *Columba oenas* and house martin *Delichon urbica*; and a number on the Green list including robin *Erithacus rubecula*, wren *Troglodytes troglodytes* and blackcap *Sylvia atricapilla.*

  Several habitat types could support nesting birds during the nesting season including broad-leaved woodland and scrub.

- **White clawed crayfish** *Austropotamobius pallipes*: The 2016 desk study provided three records of white clawed crayfish within the Markeaton Brook area of Site 25. It also returned four records of white clawed crayfish within 500m of Site 25; the closest record bordered the western side of Site 25. The AECOM 2015 survey (AECOM(d), 2016; 47071319-URS-05-RP-EN-017) surveyed portions of Markeaton Lake, Mill ponds 1 and 2 and the connecting Middle Brook and found no sign of white clawed crayfish, but confirmed the presence of signal crayfish *Pacifastacus leniusculus.* It is therefore very likely that white clawed crayfish will have been outcompeted by signal crayfish and will now be absent from the site.

- **Amphibians**: The 2016 desk study provided no records of any great crested newts (GCN) *Triturus cristatus* within 1km of Site 25. The AECOM 2015 surveys

(AECOM(e), 2016; 47071319-URS-05-RP-EN-009) covered both Mill ponds 1 and 2, Markeaton Lake and ponds and drains within the allotments to the east of Site 25 and detected no GCN. However, the same survey discovered a large population of common toad *Bufo bufo* in Mill ponds 1 and 2 and Markeaton Lake. This result was backed up by desk study data.

- **Reptiles**: Good reptile habitat was recorded along the margins of Site 25. The AECOM 2015 reptile surveys (AECOM(f), 2016; 47071319-URS-05-RP-EN-010), which covered the western side of the site (adjacent to the A38) detected no reptiles. This result correlates with the negative results brought back by the desk study and the on-going survey effort undertaken since 2015 along the A38 proposed scheme boundary.
- **Badgers:** The 2016 desk study returned no records of badgers *Meles meles* within 1km of the Site. The 2015 AECOM survey (AECOM(g), 2016; 47071319-URS-05-RP-EN-012) which covered a small section of Site 25 surrounding the A38 junction recorded no signs within Site 25; however, road-kill has been found along the A38 where it borders the western boundary of Markeaton Park. Site 25 offers good potential for foraging and sett establishment, but no signs of badger were found there during the 2018 survey.
- **Riparian mammals:** No records of water vole were returned within 1km of Site 25 boundary for the last 10 years. The 2017 AECOM survey (AECOM(h), 2018; HE514503-ACM-EBD-A38_SW_PR_ZZ-RP-EG-0002) covered Markeaton Brook, Middle Brook and the Mill ponds and identified several otter sprainting sites way the far east of the Mill ponds site, but no water vole signs were recorded.
- **Terrestrial Invertebrates:** Good terrestrial invertebrate habitat was recorded along the margins of Site 25 and particularly within the area of semi-improved grassland (TN4).
- **Aquatic Invertebrates:** The AECOM 2015 survey (AECOM(i), 2016; 47071319-URS-05-RP-EN-018) included Markeaton Brook, which connects to Middle Brook. This was assessed as having an invertebrate community of good biological quality that is considered to be sensitive to changes to water quality.

4 Potential Ecological Constraints

4.1 Potential ecological constraints at Site 25 are:

- **LWS:** Middle Brook and Markeaton Brook, which form part of the Markeaton Brook System LWS, cross Site 25.
- **Grassland:** The semi-improved neutral grassland present within Site 25 may be of botanical interest.
- **Bats:** The site is used by bats for potential roosting, foraging and commuting.
- **Nesting birds:** There is potential for birds to nest within or adjacent to Site 25.
- **White-clawed crayfish:** White-clawed crayfish do not represent a constraint for this area.
- **Amphibians:** Great crested newts do not represent a constraint in this area.
- **Reptiles:** Reptiles do not represent a constraint for this area.
- **Badger:** Badgers do not represent a constraint for this area.

- **Riparian mammals:** Water voles do not represent a constraint for this area. However, there is evidence for foraging and commuting otters within Site 25 and the 50m buffer.
- **Aquatic invertebrates:** Middle Brook and Markeaton Brook have an invertebrate community of good biological quality that is considered to be sensitive to changes to water quality.

5 Recommendations

5.1 Recommended surveys with regard to Site 25 are:

- **Grassland survey:** A survey of the grassland within Site 25 is recommended to be undertaken in June to obtain additional species data.
- **Bats roosts:** Bat activity surveys will be required for tree T82 as per the Bat Conservation Trust Survey Guidance (Collins, 2016). Further assessment will be required for B12 and B13.
- **Aquatic invertebrates:** Aquatic invertebrate surveys are recommended to be undertaken within Site 25 to obtain additional species data. The results of which will feed into the Water Framework Directive (WFD) assessment.

6 References

AECOM(a) (2017). A38 Derby Junctions Extended Phase 1 Habitat Survey Update Report Ref. No. HE514503-ACM-EBD-A38_SW_PR_ZZ-RP-EG-0004.

AECOM(b) (2018) A38 Derby Junctions Bat Activity Survey Report Ref. No. HE514503-ACM-EBD-A38_SW_PR_ZZ_RP-EG-0005 P01 S0.

AECOM(c) (2016) A38 Derby Junctions Breeding Bird Survey Report Ref. No. 47071319-URS-05-RP-EN-008.

AECOM(d) (2016) A38 Derby Junctions White-Clawed Crayfish Survey Report Ref. No. 47071319-URS-05-RP-EN-017.

AECOM(e) (2016) A38 Derby Junctions Great Crested Newt Survey Report Ref. No. 47071319-URS-05-RP-EN-009.

AECOM(f) (2016) A38 Derby Junctions Reptile Survey Report Ref. No. 47071319-URS-05-RP-EN-010.

AECOM(g) (2016) A38 Derby Junctions Badger Survey Report (Confidential) Ref. No. 47071319-URS-05-RP-EN-012.

AECOM(h) (2016) A38 Derby Junctions Otter and Water Vole Survey Report Ref. No. HE514503-ACM-EBD-A38_SW_PR_ZZ-RP-EG-0002.

AECOM(i) (2016) A38 Derby Junctions Aquatic Macroinvertebrate Survey Report Ref. No. 47071319-URS-05-RP-EN-018.

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Eaton MA, Aebischer NJ., Brown AF., Hearn R., Lock L., Musgrove AJ., Noble DG., Stroud D. and Gregory R.D (2015) Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and the Isle of Man. British Birds 108, pp 708–746.

Joint Nature Conservation Committee (2016) Handbook for Phase 1 habitat survey – a technique for environmental audit. ISBN 0 86139 636 7.

Appendix A Figures

N

Allestree Park LNR and LWS
Woodlands School Hedges LWS
AV017/3 Markeaton Brook
Kedleston Park SSSI
DE088/3 St Edmunds Churchyard
Allestree
A6 Bank PLWS
DE/3 stream
ER017/3 Plantation
ER018/3 Boosemoor Brook
DE050/3 A38 Scrub
Marsh Area, Breadsall PLWS
ER003/3 Old Derby Canal
Croft Wood PLWS
Holme Nook Ponds PLWS
ER187/3 Garage Pond
Darley and Nutwood LNR and LWS
Markeaton Lane Meadow LWS
Kedleston Road Marsh LWS
Kedleston Road Hedge LWS
Markeaton Park LWS
Beech Wood LWS
Haslams Lane Brook Course
Haslams Pond LWS
Watermeadows Ditch LWS
Osierbed and Gravelpit Woods LWS
AV015/3 All Saints Churchyard
DE056/3 Broadway Stream
Darley Park LWS
River Derwent LWS
Mickleover Meadows LNR
Markeaton Brook System LWS
Mickleover Railway Cutting LWS
Friargate Station LWS
Land off Kingsway PLWS
DE072/3 King Street
DE081/3 Old Cemetery
A38 Roundabout LWS
DE073/3 Littleover Brook
DE087/3 Rykneld Recreation Ground
Bramble Brook and margins LWS
DE082/3 Old Hall Wood
Bunkers Wood LWS

500 0 500 1000 1500 2000 Metres

Legend

- Site 25_boundary
- 2km Buffer
- Scheme boundary - indicative
- 2km buffer

Designated sites

- SSSI
- LNR
- LWS
- Ancient woodland

Notable habitats

- BAP - Wood pasture
- BAP - Lakes, ponds
- BAP - Lowland fen
- BAP - Open mosaic
- BAP - Traditional orchard
- Other site of interest
- Potential LWS

Project Title/Drawing Title

A38 DERBY JUNCTIONS
SITE 25
DESK STUDY
DESIGNATED AND NOTABLE SITES

AECOM Internal Project Number
60533462

Drawn	Checked	Approved
GSB	HP	PB
Date	Scale @ A3	Purpose of issue
30/08/2018	1:20,000	FINAL
Drawing Number		Rev
Figure 1		.

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File Name:X:\Highways Agency\47071390 A38 Derby Jcns - Environment\Technical\Ecology\GIS_A38_2018\project_files\Phase 1 site 25\A38_DeskStudy_Designated Sites_Site25_2018.mxd

Legend

- Site 25_boundary
- 1km Buffer
- Scheme boundary - indicative (20170426)
- 1 km buffer (20170426)

Derbyshire Wildlife Trust records_Nov. 2016

- Great crested newt
- Grass Snake
- White-clawed crayfish
- Bat roost
- Bat sighting
- Song thrush
- Derbyshire Red Data Book plant
- Toad crossing
- Veteran tree

AECOM data - 2015 and 2016

- Otter signs
- Bat roost
- No bat roost recorded
- American Signal crayfish
- No great crested newts recorded
- No reptiles recorded
- No Water Vole recorded
- Grassland area of interest

Records not shown but available in 2016 species specific baseline reports for: Breeding birds, wintering birds, terrestrial and aquatic invertebrates, otter holts and badgers.

N

500 0 500 1000 1500 2000 Metres

File Name:X:\Highways Agency\47071390 A38 Derby Jcns - Environment\Technical\Ecology\GIS_A38_2018\project_files\Phase 1 site 25\A38_DeskStudy_Protected species_Site 25_2018.mxd

Project Title/Drawing Title

A38 DERBY JUNCTIONS
SITE 25
DESK STUDY
PROTECTED AND NOTABLE SPECIES RECORDS

AECOM Internal Project Number
60533462

Drawn	Checked	Approved
GSB	HP	OB
Date	Scale @ A3	Purpose of issue
30/08/2018	1:15,000	FINAL
Drawing Number		Rev
Figure 2		.

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Legend

- Site 25 - Proposed boundary
- 50m buffer
- Fence
- Broad-leaf tree
- Target Note

Potential Roosting Features (with reference)

- Confirmed
- Moderate
- Low
- Neg

Habitats

- Broad-leaved woodland
- Broad-leaved plantation
- Dense scrub
- Parkland
- Mixed parkland
- Semi-improved grassland (SI)
- Tall ruderal
- Water
- Invasive Non-Native Species
- Amenity grassland (A)
- Introduced shrubs
- Building
- Hard standing
- Private Gardens - Not surveyed

Markeaton Park
Kedleston Road
Markeaton Brook
Middle Brook
Mill pond 1
Mill pond 2
B12
B13
TN1
TN2
TN3
TN4
M2
T78
T79
T80
T81
T82
T83
T84
T85
T86
T87
T88
T89

N

20 0 20 40 60 80 100 Metres

File Name:X:\Highways Agency\47071390 A38 Derby Jcns - Environment\Technical\Ecology\GIS_A38_2018\project_files\Phase 1 site 25\A38_P1HS_Site25.mxd

Project Title/Drawing Title: A38 DERBY JUNCTIONS PHASE 1 HABITAT SURVEY SITE 25	AECOM Internal Project Number 60533462		A38 Derby Junctions Project, Highways England, Floor 5, 2 Colmore Square, 38 Colmore Circus, Birmingham, B4 6BN
	Drawn: GSB	Checked: HP	Approved: PB
	Date: 07/11/2018	Scale @ A3: 1:1,600	Purpose of issue: FINAL
	Drawing Number: Figure 3		Rev: 0

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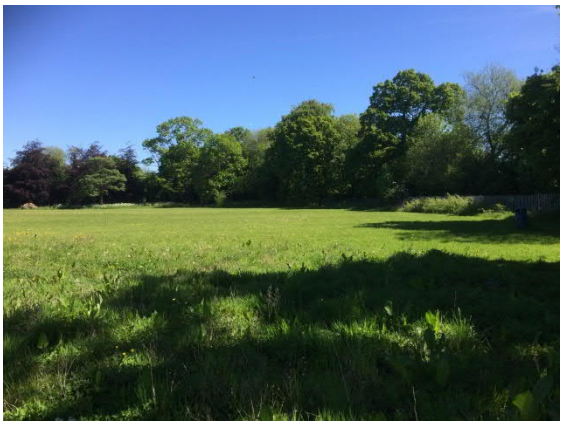
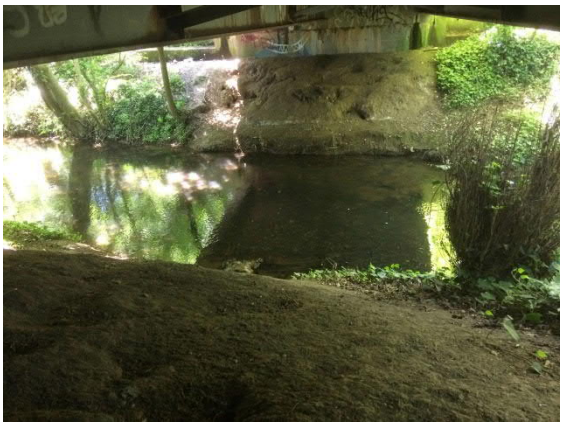
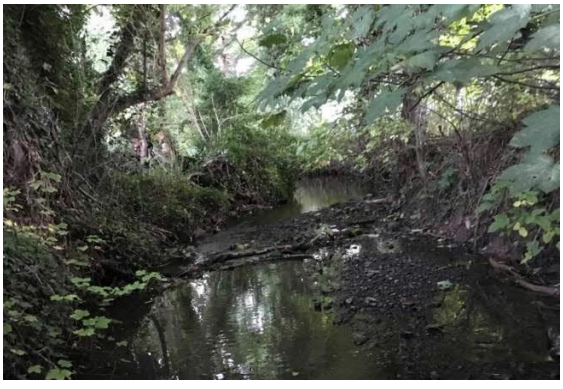
Appendix B Target Notes

Target Note (TN)	Description	Photograph
1	TN1 is a fringe of broad-leaved woodland to the south-west of the site supporting planted mature trees such as copper beech, sycamore, horse-chestnut, alder, cherry, ash with a shrub layer including self-established elderberry, common hawthorn and bramble.	
2	TN2 is a steel-span bridge with a concrete deck. The bridge crosses over the Markeaton Brook, a tributary of the River Derwent. Markeaton Brook flows in a south easterly direction towards the City of Derby.	
3	At TN3, the proposed redline crosses the Middle Brook. The Middle Brook is a small watercourse which runs through playing fields and discharges to the Markeaton Brook.	

Target Note (TN)	Description	Photograph
4	Small area of semi-improved grassland including dominant Yorkshire-fog with abundant cow parsley, broad-leaved dock and clover sp. Other species sporadically found were common nettle, yarrow, garlic mustard, meadow foxtail, wild angelica, cuckooflower, common mouse-ear, spear thistle, cock's-foot, wild teasel, red fescue, cleavers, wood avens, bristly oxtongue, hogweed, white dead-nettle, forget-me-not, ribwort plantain, greater plantain, silverweed, meadow buttercup, creeping buttercup, broad-leaved dock, red campion, hedge woundwort and common vetch.