



Ashfield Land Management and Gazeley GLP Northampton s.à.r.l

Annex H: Breeding Bird Survey Report

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RSK GENERAL NOTES

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Where field investigations have been carried out, these have been restricted to a level of detail required to achieve the stated objectives of the work.

This work has been undertaken in accordance with the quality management system of RSK.

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EXECUTIVE SUMMARY

1. This report presents the results of breeding bird surveys carried out in areas associated with the proposed Strategic Rail Freight Interchange at Milton Malsor, near Northampton (Ordnance Survey Grid reference: SP 73363 54488). The surveys comprised three breeding bird surveys at the Main SRFI Site, carried out between April and June 2016 by Tom Coyne and David Coote, and at Junction 15a between April and May 2017 by Jan Skuriat.
2. Both the Main SRFI Site and Junction 15a support a reasonable diversity of breeding birds owing to the range of habitats (arable farmland, hedgerows, rough grassland and ponds at the Main SRFI Site, and canal, wetland, scrub, and woodland at Junction 15a) that are present.
3. A number of species of Birds of Conservation Concern (BoCC) have been identified at the Main SRFI Site including Barn Owl, Skylark, Grey Partridge, Song Thrush, Common Whitethroat, Garden Warbler, Common Linnet and Yellowhammer.
4. Birds of Conservation Concern (BoCC) recorded at the Junction 15a Site include Dunnock, Kingfisher, Linnet, Stock Dove, Willow Warbler, Yellowhammer and Skylark.
5. The majority of breeding birds were recorded in hedgerows and around waterbodies.
6. Birds within the main development areas that use arable fields and hedgerows are likely to be displaced from this site. However, BoCC species are likely to benefit from the development if the design and mitigation areas incorporate habitats that they can use.
7. Barn Owls were found to be using buildings and trees at the Main SRFI Site and were observed during both the initial bat building surveys, ground level bat tree surveys and bat emergence surveys. It is known that the species is using the barns and trees to breed, and mitigation plans will be reflective of this.
8. Barn Owls were found to be using buildings at the Junction 15a Site in an area which is proposed for ecological mitigation.

1 INTRODUCTION

Purpose of this Report

This report presents the results of breeding bird surveys undertaken in connection with a proposed Strategic Rail Freight Interchange (SRFI) on land south of Milton Malsor, Northamptonshire (Ordnance Survey Grid reference: SP 73363 54488).

Further breeding bird surveys were undertaken at an additional proposed site around Junction 15a of the M1 motorway (Ordnance Survey Grid reference: SP 72700 57162). . This proposed development is required to improve access to the Main SRFI Site.

RSK carried out the surveys between April and June 2016 on the Main SRFI Site, and between April and May 2017 at the Junction 15a Site.

Other highways areas due for junction improvements have not been surveyed at this point and have not therefore been included in this report.

The surveys were undertaken to assess the breeding bird assemblage within development areas associated with the site. *Figure H1* shows the location of both the Main SRFI site and the Junction 15a Site.

Structure of this Report

The remainder of this report is structured as follows:

- *Section 2* describes survey and evaluation methods;
- *Section 3* gives the results;
- *Section 4* evaluates the results and gives conclusions; and
- *Section 5* gives references;

Appendix A provides the relevant legislation;

Appendix B provides the definitions; and

Appendix C provides the figures

2 METHODS

Objectives

The objectives of the breeding bird survey were to:

- identify the distribution of breeding birds across the site;
- locate any birds protected under *Schedule 1 of The Wildlife and Countryside Act 1981*;
- identify any species which may require special mitigation during the works; and
- identify any further, species-specific surveys that may be required.

Breeding Bird Survey

The survey methodology is adapted from the Common Bird Census (CBC) methodology devised jointly by the British Trust for Ornithology (BTO), the Royal Society for the Protection of Birds (RSPB) and the Joint Nature Conservancy Council (JNCC), (Gilbert et al. 1998). A route was walked incorporating all features that may function as nesting bird habitat within and immediately adjacent to the site. All birds seen or heard were recorded onto base maps along with notes of behaviour that may indicate breeding. All surveys were undertaken early in the morning at or just after sunrise to coincide with the period of peak bird activity.

Three surveys were undertaken approximately once per month (survey dates are given in *Section 3*).

Barn Owl Survey

Barn Owl (*Tyto alba*) was confirmed as using the site during the bat initial, tree climbing and bat activity surveys. A specific Barn Owl survey, involving an inspection of the buildings and trees on site for nests, was undertaken on 4 May 2016.

Activity of Barn Owls on the Main SRFI Site has also been recorded during other survey work, and one landowner has informed RSK that Barn Owls use the barns at straw storage barns at Lodge Farm.

Further activity surveys were conducted throughout 2017 to assess the known Barn Owl breeding sites.

There are no buildings within the red line boundary of the Junction 15a site however Barn Owls were recorded during an initial bat survey of buildings within the proposed mitigation area adjacent to the proposed red line boundary.

Limitations

There were no limitations to this survey.

Background Data Search

An updated detailed background data search was undertaken for all species and designated sites in 2018 (*Appendix 16, Annex A*).

Criteria for Evaluation

Determination of Breeding Status

The breeding status of each species is classified into three categories: confirmed breeding; probable breeding; and possible breeding. The behaviour, sex, age and location of individual birds allow conclusions to be drawn about breeding status, based on categories devised by the European Ornithology Atlas Committee (EOAC), 1979. Breeding evidence used in this report follows EOAC guidelines and these are given in *Appendix B* of this Annex. It is also possible that species are merely present in a habitat and are not actually breeding. Birds not thought to be breeding and birds only recorded flying-over are classed as non-breeding.

Species Richness

Fuller (1980) measured the diversity of a site's breeding assemblage using certain criteria for a simple site assessment. This gives an assessment of importance according to the following categories - Local (25-49 species), County (50-69 species), Regional (70-84 species) and National (85+ species).

For the purposes of this assessment, RSK have adapted the Fuller (1980) criteria to follow IEEM (2006) guidelines by introducing a District level as per *Table H1* below.

Table H1: Dates of Breeding Bird Surveys and the Weather Conditions

Level of Importance	Number of Breeding Species	
	Fuller (1980) Criteria	Adapted Criteria
Local	25 to 49	Less than 25
District	-	25 to 49
County	50 to 69	50 to 69
Regional	70 to 84	70 to 84
National	85 +	85 +

The justification for the method adopted for this assessment (adaptation of Fuller, 1980), is due to the fact that declines have occurred in many bird populations since 1980. It should be noted that despite the adaption, this criteria does not give scope for consideration for the size of the site, habitats present or survey effort and therefore it is essential that expert judgement is provided to justify the level of importance of a site.

Identification of Birds of Conservation Concern

A number of criteria are available to determine the conservation status of those bird species recorded. These criteria aid in evaluating the function of the site for breeding birds and thus the value of the breeding bird assemblage. The most appropriate of these are outlined below.

- *The Birds Directive - Directive 2009/147/EC* of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (this is the codified version of Directive 79/409/EEC as amended) is the EU's oldest piece of nature legislation and one of the most important, creating a comprehensive scheme of protection for all wild bird species naturally occurring in the Union. It was adopted unanimously by the Members States in 1979 as a response to increasing concern about the declines in Europe's wild bird populations resulting from pollution, loss of habitats as well as unsustainable use. It was also in recognition that wild birds, many of which are migratory, are a shared heritage of the Member States and that their effective conservation required international co-operation. The Birds Directive bans activities that directly threaten birds, such as the deliberate killing or capture of birds, the destruction of their nests and taking of their eggs, and associated activities such as trading in live or dead birds.
- *Wildlife and Countryside Act 1981 Schedule 1 Species* – All bird species are protected from intentionally or recklessly killing and injuring, and from the destruction of nests, eggs and dependent young. *Schedule 1* species are also protected from disturbance whilst nesting or attempting to make a nest.
- *Birds of Conservation Concern 4 (Eaton et al. 2015)* – Under this approach bird populations are assessed, using quantitative criteria, to determine the population status of each species and then placed on one of three lists: Red, Amber or Green. Red list species are of high conservation concern, being either globally threatened, having historical UK population declines between 1800 and 1995 or a rapid population decline or breeding range contraction by 50% or more in the last 25 years. Amber list species are of medium conservation concern due to a number of factors, for example having suffered between 25% and 49% contraction of UK breeding range or a 25-49% reduction in breeding or non-breeding populations over the last 25 years. Species that have a five year mean of 1-300 breeding pairs (bp) in the UK or an unfavourable European conservation status or for which the breeding population in the UK represents

20% or more of the European breeding populations are also listed on the Amber list.
Green list species have a favourable conservation status.

Nomenclature

The nomenclature for common and scientific names and the taxonomic ordering of species accounts follows that contained in The British List: A checklist of Birds of Britain (8th edition), British Ornithological Union (2013).

3 RESULTS

Background Data Search

Designated Sites

Main SRFI Site: Statutory Sites

There are no sites within 5km of the Main SRFI Site where the designation relates primarily to bird species; however there are five statutory designated sites within 5 km of the site boundary, which may provide suitable habitat for birds in proximity to the site. The statutory sites comprise two Sites of Special Scientific Interest (SSSI) and three Local Nature Reserves (LNR). Full details are provided in the BDS report (*Appendix 16, Annex A (Part 1)*).

The Upper Nene Valley Gravel Pits (Ramsar Site & SPA) SSSI is situated 5.7 km away from the site at the closest location. Golden Plover (*Pluvialis apricaria*) and Bittern (*Botaurus stellaris*) are a qualifying species of the site. Both species winter in at the SPA and therefore are not considered further within this report. Golden Plover surveys were conducted at the Main SRFI site and are reported in *Appendix 16, Annex I, Golden Plover Report*.

Main SRFI Site: Non-statutory Sites

There is an un-named Potential Wildlife Site (pWS) in the southwest corner of the site which features a mosaic of scrub and grassland. Three further pWS sites and a Local Wildlife Site (LWS), the Northampton Arm of the Grand Union Canal, are within 10m of the development area. These sites could provide suitable habitat for a variety of species, including birds, however birds are not a primary concern. Full details can be found in the BDS report (*Appendix 16, Annex A*).

Junction 15a Site: Statutory Sites

There are no sites within 5km of the Junction 15a site where the designations relates primarily to bird species however there are six statutory designated sites within 5 km of the site boundary, which may provide suitable habitat for birds in proximity to the site. The statutory sites comprise two Sites of Special Scientific Interest (SSSI) and four Local Nature Reserves (LNR). Full details are provided in the BDS report (*Appendix 16, Annex A (Part 2)*).

Junction 15a Site: Non-statutory Sites

The Grand Union Canal (Northampton Arm) runs directly through the site with associated bankside features of scrub, trees and grassland. An un-named Potential Wildlife site is located south of the M1 and west of the A43 and adjacent to the Grand Union Canal. Following the Phase 1 survey this site is known to feature tall herb swamp, rush pasture,

wet ditches, a brook and trees. Full details can be found in the BDS report (*Appendix 16, Annex A*).

Bird Records

The detailed results of the data search are provided in *Appendix 16, Annex A (Part 1 and Part 2)*. This displays the bird records located within 5 km of the site boundary that were obtained from Northamptonshire Biodiversity Records Centre. The Latin and common names for bird species are given as well as their level of designation.

Barn Owl (*Tyto alba*), Kingfisher (*Alcedo atthis*), Hobby (*Falco subbuteo*) have been recorded within 2 km of the site along with a wide range of garden and farmland bird species. Habitats on site are considered suitable for these species.

Survey Dates and Weather

The dates of the surveys and general weather conditions are shown in *Table H2*.

Table H2: Dates of Breeding Bird Surveys and the Weather Conditions

Site	Survey Visit	Date and Times	Weather
Main SRFI Site	1	04 April 2016 04:30 to 07:30	Cloud – 4 (Octas). Wind – 2 (Beaufort scale). No rain, clear, warm and sunny intervals (10 °C).
	2	19 April 2016 – 05:00 to 08:00	Cloud – 2 (Octas). Wind – 2 (Beaufort scale). No rain, sunny and light winds (12 °C).
	3	01 June 2016 – 05:00 to 08:00	Cloud – 1 (Octas). Wind – 2 (Beaufort scale). No rain, sunny and light winds (14 °C).
J15a	1	27 April 2017 07:00 to 10:00	Cloud – 3 (Octas). Wind – 1 (Beaufort scale). No rain, sunny and light breeze (6°C).
	2	8 May 2017 07:00 to 10:00	Cloud – 8 (Octas). Wind – 2 (Beaufort scale). No rain, overcast, cool (7°C).
	3	31 May 2017 06:00 to 09:00	Cloud – 6 (Octas). Wind – 2 (Beaufort scale). No rain, sunny, warm (20°C).

Summary of Survey Results

Survey results for both the Main SRFI Site and J15a are illustrated in *Figures H2-4*.

Main SRFI Site

Forty-nine species were recorded on the Main SRFI Site – of these forty-three species were confirmed breeding, probable breeding or possible breeding. A complete species list summarising breeding status, based on EOAC criteria is presented in *Appendix B*.

Junction 15a Site

Thirty species were recorded on the Junction 15a Site – of these twenty-seven species were confirmed breeding, probable breeding or possible breeding. A complete list summarising breeding status, based on EOAC criteria is presented in *Appendix B*.

Other Minor Junction Improvements

Vegetation may be present which is suitable for nesting birds, but no detailed surveys have been completed to date due to lack of access and detail regarding extent of vegetation clearance required.

Breeding Status

Main SRFI Site

Interpreting the data using the EOAC criteria, eight species (16%) are confirmed as breeding, fifteen (31%) as probable breeding species, twenty (41%) as possible breeding. In addition, six species (12%) are categorised as either non-breeding species or were simply recorded flying over the site.

Junction 15a Site

Interpreting the data using the EOAC criteria, four species (13%) are confirmed as breeding, eleven (36%) as probable breeding species, twelve (40%) as possible breeding. In addition, three species (10%) are categorised as either non-breeding or were simply flying over the site.

Other Junction Improvements

Locations of minor highway works are within the adopted highway. Habitats are poor and likely to support common garden species only.

Main SRFI Site: Birds of Conservation Concern

Of all the bird species recorded, eighteen (including Barn Owl) are designated as *Annex 1* on the *EU Birds Directive*, *Schedule 1* on *The Wildlife and Countryside Act 1981* or are Species of Conservation Concern (BOCC). Their associated conservation and breeding status are presented in *Table H3*. A summary of the number of designated bird species recorded and their associated EOAC breeding status is given in *Table H4*. Key points from the data are summarised below.

Nine Red listed bird species were recorded on site. These are Fieldfare, House Sparrow, Lapwing, Linnet, Grey Partridge, Skylark, Starling, Song thrush, and Yellowhammer. Lapwing and Skylark have been confirmed as breeding on site. House sparrow, Linnet, Song thrush and Yellowhammer are classified as probable breeders at the site. Fieldfare are winter visitors to this country and therefore are not classified as breeding on site. It is possible for all of the other species to be breeding on site owing to the habitats present, which are suitable for nesting

Eight Amber listed species have been recorded on site. These are Dunnock, Kestrel, Mallard, Meadow Pipit, Mute Swan, Reed Bunting, Stock Dove, and Willow Warbler. Dunnock and Kestrel have been confirmed as breeding on site. It is possible that the remaining species are breeding on site, with the exception of the Mute Swan for which nesting habitat is not present on site.

Barn Owl

A Barn Owl was found to be using a barn (Building 1) at the farm during the internal building inspection for bats. The Barn Owl was using a ledge on the upper floor of the building and there were many pellets on the ground floor. For health and safety reasons, the nest site could not be accessed due to the unstable nature of the walls of the barn.

During bat emergence, re-entry and activity surveys Barn Owls were observed frequently and they are very active at the site. The owls were seen frequently entering and exiting Building 1 through a large hole in the roof of the barn. During some of the surveys juvenile birds were heard calling from inside and therefore this building is confirmed as a breeding site for the species.

In addition, two separate Barn Owl nests were recorded on site in cavities within trees during the tree climbing surveys for bats in 2016.

An additional Barn Owl nest was recorded in a cavity within a tree during tree climbing surveys in 2017. It is considered highly likely that this nesting site was used as an alternative to one of the tree nesting sites identified in 2016.

It is therefore considered likely that there are three pairs of Barn Owls using buildings and trees within the Main SRFI Site boundary to breed.

The owner of Lodge Farm has indicated that Barn Owls are regularly observed entering and exiting the barns within the Lodge Farm complex of buildings (Building 2), however no evidence has been found. It is considered likely that hay bales in barns are used as a roost or nest site but this could not be substantiated due to the unstable nature of the hay bales posing a health and safety constraint to surveyors.

Barn Owls were also seen during bat activity surveys hunting over the areas of rough grassland in the south-east corner of the site and generally throughout the site.

The location of Building 1, Building 2 and the tree breeding sites is provided in *Figure H5.1*.

Incidental Records

Tawny Owl and Little Owl were heard calling on site during bat surveys throughout the summer months.

Junction 15a Site: Birds of Conservation Concern

Of all bird species recorded, twelve are designated as *Annex 1* on the *EU Birds Directive*, *Schedule 1* on *The Wildlife and Countryside Act 1981* or are Species of Conservation Concern (BOCC). Their associated conservation and breeding status are presented in *Table H5*. A summary of the number of designated bird species recorded and their associated EOAC breeding status is given in *Table H6*. Key points from the data are summarised below.

Nine Red listed bird species were recorded on the site. These are Linnet, Mistle Thrush, Skylark, Song Thrush and Yellowhammer. Skylark and Song Thrush are classified as probable breeders at the site. Linnet, Mistle Thrush and Yellowhammer are classified as possible breeders at the site.

Seven Amber listed species have been recorded on site. These are Dunnock, Kingfisher, Mallard, Reed Bunting, Stock Dove, Common Swift and Willow Warbler. Stock Dove has been confirmed as breeding on site. It is possible that the remaining species are breeding on site.

Kingfisher is the only species recorded on the site that is designated as *Annex 1* on the *EU Birds Directive* and *Schedule 1* on *The Wildlife and Countryside Act 1981*. It is considered possible that Kingfisher may breed on the site however further surveys are required.

Barn Owls were recorded in buildings within the proposed mitigation area, adjacent to the Junction 15a site. The location of the buildings is provided in *Figure H5.2*. A nesting platform was observed within one of the barns and many pellets and feathers were found on the floor of the barn. A dead juvenile Barn Owl was found on the floor of the barn in 2017 that was not recorded in the initial bat survey earlier in the year and therefore this site is a confirmed breeding site.

Table H3: Main SRFI Site: Bird Species Recorded during the Breeding Bird Surveys of Conservation Concern, their Conservation Status and their Breeding Status

English name	Scientific name	EU Birds Directive Annex 1	WCA 1981 Sch 1	BoCC Red / Amber	UK or Local BAP	Species Summary	Breeding Status
Dunnoch	<i>Prunella modularis</i>			Amber	UK BAP and LBAP	Nesting pair observed and frequent singing noted	Confirmed
Feral Pigeon	<i>Prunella modularis</i>				UK BAP	Pair observed	Possible
Fieldfare	<i>Turdus pilaris</i>		Yes	Red		Flying overhead	Non Breeding
Grey Partridge	<i>Perdix perdix</i>			Red	UK BAP and LBAP	One pair seen	Possible
House Sparrow	<i>Passer domesticus</i>			Red	UK BAP and LBAP	Multiple calls heard	Probable
Kestrel	<i>Falco tinnunculus</i>			Amber		Nest found and female seen on the site	Confirmed
Lapwing	<i>Vanellus vanellus</i>			Red	UKBAP and LBAP	Known breeding activity	Confirmed
Linnet	<i>Carduelis cannabina</i>			Red	UK BAP and LBAP	Pair witnessed on the site	Probable
Mallard	<i>Anas platyrhynchos</i>			Amber		Pair seen on site	Possible
Meadow Pipit	<i>Anthus pratensis</i>			Amber		Calls heard	Possible
Mute Swan	<i>Cygnus olor</i>			Amber		Flying overhead	Non Breeding
Red Kite	<i>Milvus milvus</i>	Yes	Yes			Flying overhead	Non Breeding
Reed Bunting	<i>Emberiza schoeniclus</i>			Amber	UK BAP and LBAP	Heard singing	Possible
Skylark	<i>Alauda arvensis</i>			Red	UK BAP and LBAP	Frequent singing heard and one nest identified	Confirmed
Song Thrush	<i>Turdus philomelos</i>			Red	UK BAP and	Singing heard on multiple occasions	Probable

English name	Scientific name	EU Birds Directive Annex 1	WCA 1981 Sch 1	BoCC Red / Amber	UK or Local BAP	Species Summary	Breeding Status
					LBAP		
Starling	<i>Sturnus vulgaris</i>			Red	UK BAP and LBAP	Calls heard on a few occasions	Possible
Stock Dove	<i>Columba oenas</i>			Amber		One pair seen on site	Possible
Willow Warbler	<i>Phylloscopus trochilus</i>			Amber		Singing heard	Possible
Yellowhammer	<i>Emberiza citrinella</i>			Red	UK BAP and LBAP	Frequent and varied activity across the site	Probable

Table H4: Main SRFI Site: A summary of the number of all the designated birds species recorded and their associated EOAC breeding status.

Designation	Confirmed Breeding	Probable Breeding	Possible Breeding	Non Breeding	Total
EU Birds Directive Annex 1	0	0	0	1	1
WCA 1981 Schedule 1	0	0	0	2	2
BoCC Red List	2	4	2	1	9
BoCC Amber List	2	0	5	1	8
UK BAP	3	4	4	0	11
No Designation	4	11	12	3	30

Table H5: Junction 15a: Bird Species Recorded during the Breeding Bird Surveys of Conservation Concern, their Conservation Status and their Breeding Status

English name	Scientific name	EU Birds Directive Annex 1	WCA 1981 Sch 1	BoCC Red / Amber	UK or Local BAP	Species Summary	Breeding Status
Dunnock	<i>Prunella modularis</i>			Amber	UK BAP and LBAP	Frequent singing noted	Probable
Kingfisher	<i>Alcedo atthis</i>	Yes	Yes	Amber		Flying along canal	Possible
Linnet	<i>Carduelis cannabina</i>			Red	UK BAP and LBAP	Pair witnessed on the site	Possible
Mallard	<i>Anas platyrhynchos</i>			Amber		Pair seen on site (on Canal)	Possible
Mistle Thrush	<i>Turdus viscivorus</i>			Red		Observed on site	Possible
Reed Bunting	<i>Emberiza schoeniclus</i>			Amber	UK BAP and LBAP	Heard singing	Possible
Skylark	<i>Alauda arvensis</i>			Red	UK BAP and LBAP	Frequent singing heard	Probable
Song Thrush	<i>Turdus philomelos</i>			Red	UK BAP and LBAP	Observed on multiple occasions	Probable
Stock Dove	<i>Columba oenas</i>			Amber		One pair seen on site in a nest box	Confirmed
Common Swift	<i>Apus apus</i>			Amber		Flying over the site	Non Breeding
Willow Warbler	<i>Phylloscopus trochilus</i>			Amber		Singing heard on multiple occasions	Probable
Yellowhammer	<i>Emberiza citrinella</i>			Red	UK BAP and LBAP	Heard singing	Possible

Table H6: Junction 15a: A summary of the number of all the designated birds species recorded and their associated EOAC breeding status.

Designation	Confirmed Breeding	Probable Breeding	Possible Breeding	Non Breeding	Total
EU Birds Directive Annex 1	0	0	1	0	1
WCA 1981 Schedule 1	0	0	1	0	1
BoCC Red List	0	1	4	0	5
BoCC Amber List	1	2	3	1	7
UK BAP	0	1	4	0	6
No Designation	2	8	6	0	20

4 EVALUATION AND CONCLUSIONS

Evaluation

Main SRFI Site: Assemblage

Forty-nine species were recorded of which forty-three species were confirmed as breeding, probable breeding or possible breeding species.

Using the adapted criteria set out by Fuller (1980) the site has a breeding bird assemblage that is of importance at a District level (25 to 49 species).

The value of the site's breeding bird assemblage including BoCC and BAP species is due to the mosaic of habitats present at the site. The site comprises primarily arable farmland but there are also areas of rough grassland, hedgerows, and drainage ditches present. These habitats allow species of conservation concern to breed and forage on site.

Farm buildings are present in various locations across the site and this allows species such as House Sparrow and Barn Owl to breed and forage within the site.

Junction 15a Site: Assemblage

Thirty species were recorded of which twenty-seven were confirmed as breeding, probable breeding or possible breeding species.

Using the adapted criteria set out by Fuller (1980) the site has a breeding bird assemblage that is of importance at a District level (25 to 49 species).

The value of the sites breeding bird assemblage including BoCC and BAP species is largely due to the habitats present at the site. The green corridor adjacent to the canal and the tall herb swamp, rush pasture, wet ditches, a brook and trees situated in the potential wildlife site. These habitats allow species of conservation concern to breed and forage on site.

A complex of field barns (building 3) is present within the potential development area, however these are located within the proposed mitigation area and will not be adversely affected. Barn Owls are present within the field barns and it is considered highly likely that this is a breeding site. The barn complex is structurally unsound and deteriorating for Barn Owls, but will be renovated and nesting locations provided, to ensure the longevity of this site.

Main SRFI Site: Important Species

Barn Owl

Barn Owl is known to be breeding on site and is a *Wildlife and Countryside Act 1981 Schedule 1 species*. This protection means that nesting sites are protected from disturbance (additional to destruction) whilst the adult birds are preparing to nest, actively nesting and has dependant young. It is understood that some farm buildings will be demolished as part of the site preparation. Where known nest sites are to be lost, replacement sites should be incorporated into the mitigation plans for the site.

Work to barns at Lodge Farm and the field barns (B1) will be undertaken outside of the nesting period so that Barn Owls are not disturbed during the breeding period. As access to one barn at Lodge Farm (B2) was not possible due to health and safety concerns it is assumed that Barn Owls are using the barn for breeding purposes and this will be taken into account in the development of the habitat management plan.

Mitigation for Barn Owls will be required prior to construction and will include replacement barn and tree roost sites. Parts of Building 1 are structurally unsound and deteriorating. It will be renovated to provide a Barn Owl nesting site within the roof and pole mounted nest boxes will be installed both on-site and off -site. In addition, mitigation will also ensure that the development will incorporate areas of suitable foraging habitat and commuting routes.

Main SRFI Site: Important Species

Barn Owl

The field barns (B3) are not within the boundary of the site however these buildings will be renovated as part of the off-site mitigation for the project. As the buildings are in a state of disrepair this will ensure the continued provision of an optimal breeding site for Barn Owls beyond the current lifespan of the buildings. In addition pole mounted nest boxes will be installed within the ecological mitigation area.

Kingfisher

It is considered possible that Kingfisher may breed on site. No burrows were recorded within the stream banks during 2016 or 2017 however pre-construction surveys will be undertaken to ensure newly created burrows are not overlooked,

Other Species of Conservation Concern

Most of the other species of conservation concern recorded at this site are common species in Northamptonshire. Some of the species recorded are documented to be suffering severe national declines, with a major factor being loss of breeding habitat in the UK.

Although none of the species recorded were at population levels over a site level importance it should be considered that these are nationally declining species. Where possible mitigation will be put in place to maintain or improve their habitat.

Implications for Development

Based on the results of the survey it is clear that many of the species are typically breeding in habitat such as hedgerows, grazed fields, and around waterbodies.

Main SRFI Site

The key species that are likely to be affected by development are those that breed on the ground in arable fields (*i.e.* Skylark) and those that breed in rough grassland habitat surrounding the arable fields (*i.e.* Grey Partridge) as some of this habitat will be lost. This is also likely to affect species that feed in arable fields and rely on open habitat (*i.e.* Linnet and Meadow Pipit). These species were only recorded in low numbers and therefore the loss of these species at this site would not have a significant impact on the population of these species in this area. It is likely that these species will be displaced to nearby arable land to the south or east.

A distinct congregation of birds were recorded within the hedgerows across the site during all three of the breeding bird survey visits. It is clear that these features provide an excellent foraging and potential breeding habitat for a variety of bird species including Yellowhammer, Reed Bunting, Wren, Chaffinch, Dunnock, Blackbird, Robin, Goldfinch and Blackcap. Whilst many hedgerows are due to be removed, mitigation proposals will include significant replacement and enhancement to maintain and enhance the foraging and nesting opportunities. This will include hedgerows and arable field margins managed specifically for wildlife.

The final design of the development and the amount of vegetation retained or planted will be considered so that there are positive effects for many species. Planting of hedgerows and trees will benefit some BoCC species by providing more nesting or foraging habitat (*e.g.* Song Thrush, Dunnock and Whitethroat). Building 1 is in a severe state of disrepair and it will be enhanced to ensure it provides a suitable Barn Owl nesting site in the future. Further pole mounted nest boxes for Barn Owls are also recommended to the north of the site along with the creation of foraging habitat (rough

grassland) on site. Off site mitigation will include the provision of pole mounted nest boxes in nearby farmland.

Junction 15a Site

A distinct congregation of birds were recorded within the potential wildlife site (PWS). It is clear that the habitats within this area are of a higher value than the rest of the site which is largely vegetation on roadside verges. Birds foraging and potentially breeding in this area include Reed Bunting, Willow Warbler, Chiffchaff, Wren, Chaffinch, Dunnock, Blackbird, Robin, Goldfinch and Blackcap. Stock Dove have been confirmed as breeding within a nest box at the site. Whilst this area will be directly affected by the new slip road, mitigation proposals will include significant replacement and enhancement to maintain and enhance the foraging and nesting opportunities.

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APPENDIX A: RELEVANT LEGISLATION

All breeding birds are protected under *Section 1* of The *Wildlife and Countryside Act 1981* (as amended). This protection extends to intentionally killing and injuring, and to the destruction of nests, eggs and dependent young. The only exceptions are with certain game species (listed in *Schedule 2*), which can be killed during specific seasons (see *Section 2*), and to certain pest species, which can be controlled under licence (Statutory Instrument 3010, 1986).

Additional protection is offered to bird species listed on *Schedule 1* of the *Wildlife and Countryside Act 1981*, which are protected for example, from disturbance whilst nesting or attempting to make a nest. The *Countryside and Rights of Way Act 2000* added reckless disturbance to intentional disturbance of *Schedule 1* species as an offence.

The above is a summary of the legislation and the original Acts and Schedules should be referred to for the precise wording.

APPENDIX B: DEFINITIONS

The following evidence is used to define breeding categories during breeding bird surveys.

Possible Breeding

1. Species observed in breeding season in possible nesting habitat.
2. Singing male(s) present (or breeding calls heard) in breeding season.

Probable Breeding

1. Pair observed in suitable nesting habitat in breeding season.
2. Permanent territory presumed through registration of territorial behaviour (song, etc.) on at least two different days a week or more apart at the same place.
3. Courtship and display.
4. Visiting a probable nest site.
5. Agitated behaviour or anxiety calls from adults.
6. Brood patch on adult examined in the hand.
7. Nest building or excavating nest-hole.

Confirmed Breeding

1. Distraction-display or injury feigning.
2. Used nest or eggshells found (occupied or laid within period of survey).
3. Recently fledged young (nidicolous species) or downy young (nidifugous species).
4. Adults entering or leaving nest-site in circumstances indicating occupied nest (including high nest or nest-holes, the contents of which cannot be seen) or adult seen incubating.
5. Adult carrying faecal sac or food for young.
6. Nest containing eggs.
7. Nest with young seen or heard.

APPENDIX C: FIGURES

Figure H1.1 – Site Location Plan

Figure H1.2 – Site Location Plan

Figure H2.1 – 2016 Breeding Bird Survey Results

Figure H2.2 –

Figure H3.1 – Map of Barn Owl Nesting Locations

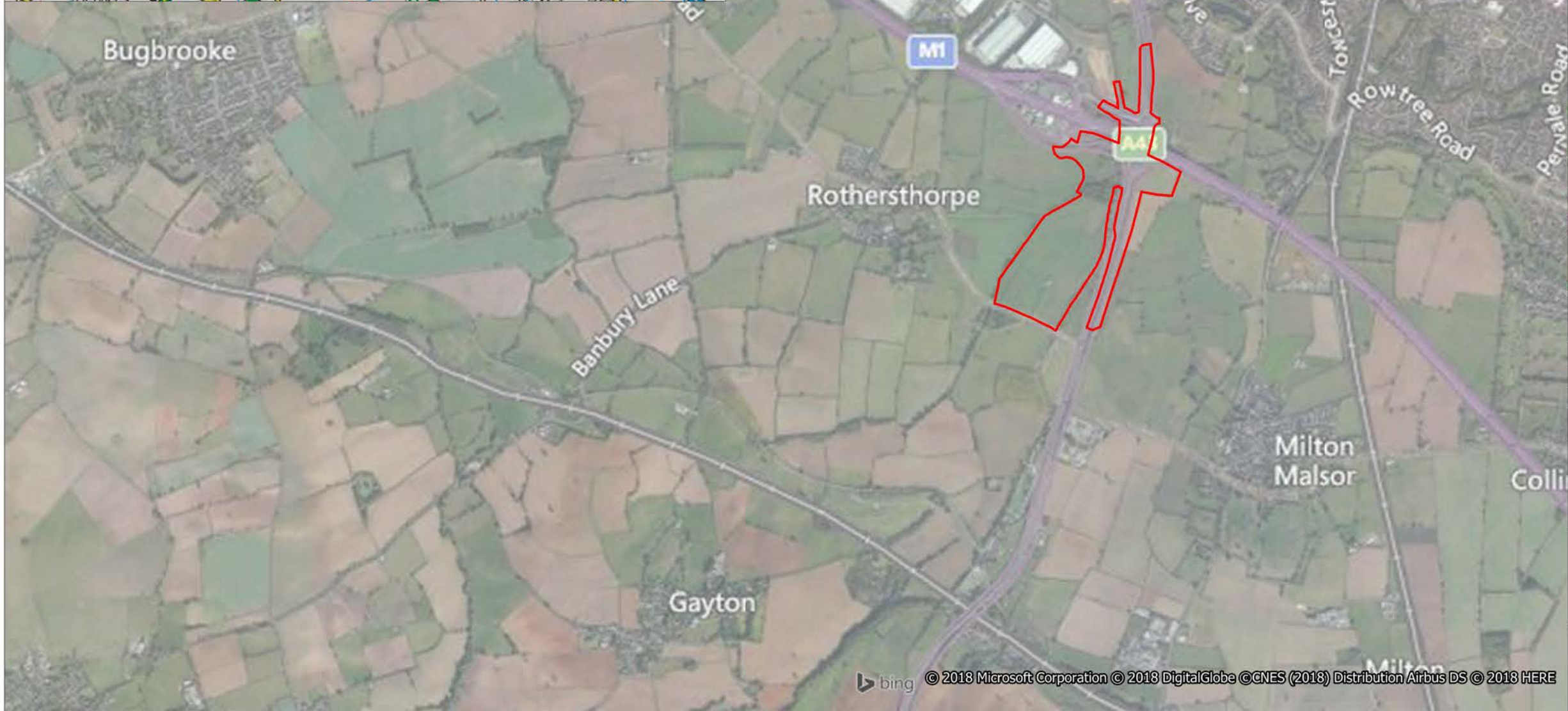
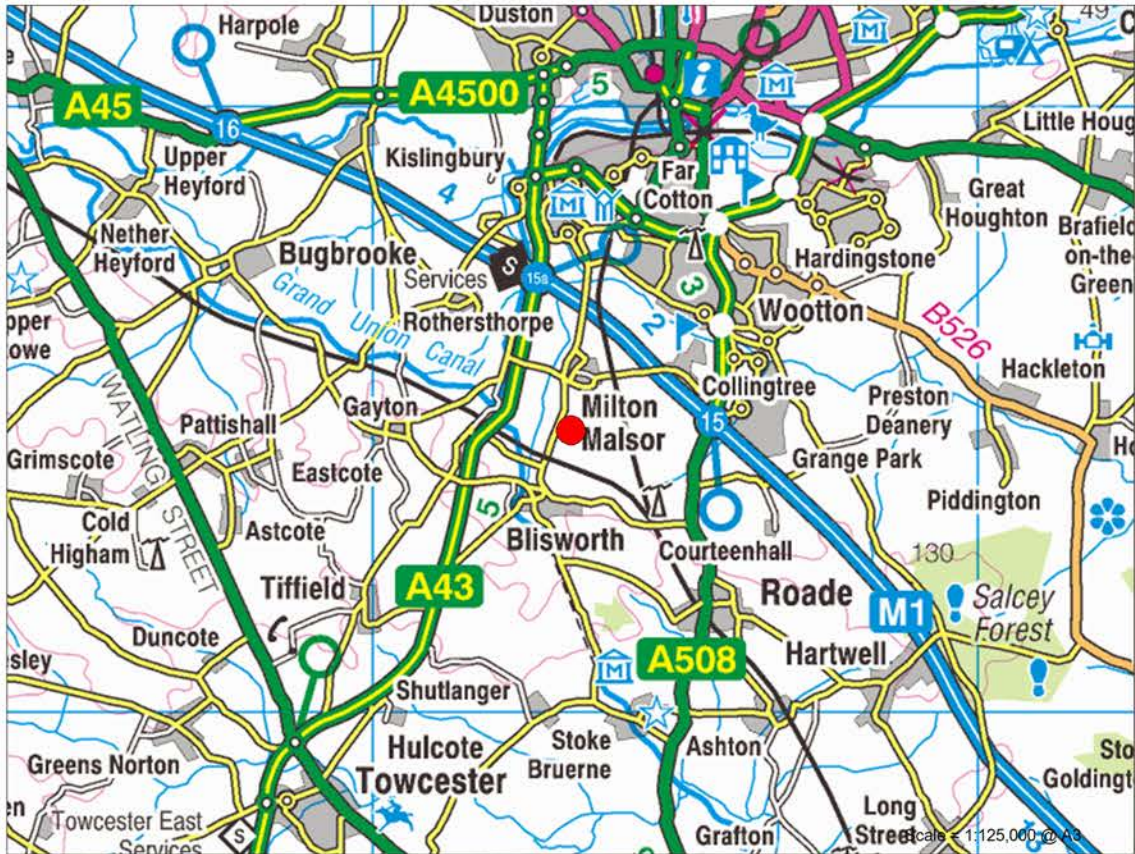
Figure H3.2 –

Figure H4.1 –

Figure H4.2 –

Figure H5.1 –

Figure H5.2 –



Site boundary (Jan 2018)

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Rail Central

Figure H1.2

Junction 15a

Site Location Plan

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Metres

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Site boundary (July 2017)

Bird Activity Codes

- 2B. Number of birds
- B.m Male bird
- B.fm Female bird
- B.pr Pair of birds
- B.mat Bird carrying nesting material
- (B) Bird singing
- B. Bird calling
- B. Bird alarm calling
- B. Bird in flight
- B. Bird flying to perch
- B. → Bird flying from perch

Bird Species Codes

- | | | | |
|----|----------------------|----|--------------|
| B. | Blackbird | WP | Woodpigeon |
| BT | Blue Tit | WR | Wren |
| C. | Carion Crow | Y. | Yellowhammer |
| CC | Chiffchaff | | |
| CD | Collared Dove | | |
| CH | Chaffinch | | |
| D. | Duncock | | |
| G. | Green Woodpecker | | |
| GO | Goldfinch | | |
| GR | Greenfinch | | |
| GT | Great Tit | | |
| JD | Jackdaw | | |
| MG | Magpie | | |
| MP | Meadow Pipit | | |
| PW | Pied Wagtail | | |
| R. | Robin | | |
| RL | Red-legged Partridge | | |
| S. | Skylark | | |
| SG | Starling | | |
| SK | Siskin | | |
| ST | Song Thrush | | |



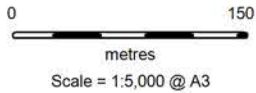
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Figure H2.1

Breeding Birds Survey
Visit 1 April 2016
Map 3 of 4



REV 00



Site boundary (July 2017)

Bird Activity Codes

- 2B. Number of birds
- B.m Male bird
- B.fm Female bird
- B.pr Pair of birds
- B.mat Bird carrying nesting material
- (B) Bird singing
- B. Bird calling
- B. Bird alarm calling
- B. Bird in flight
- B. Bird flying to perch
- B. Bird flying from perch

Bird Species Codes

- B. Blackbird
- BT Blue Tit
- C. Carrion Crow
- CC Chiffchaff
- CD Collared Dove
- CH Chaffinch
- D. Dunnock
- G. Green Woodpecker
- GO Goldfinch
- GR Greenfinch
- GT Great Tit
- JD Jackdaw
- MG Magpie
- MP Meadow Pipit
- PW Pied Wagtail
- R. Robin
- RL Red-legged Partridge
- S. Skylark
- SG Starling
- SK Siskin
- ST Song Thrush
- WP Woodpigeon
- WR Wren
- Y. Yellowhammer

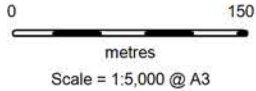


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Figure H2.1

Breeding Birds Survey
Visit 1 April 2016
Map 4 of 4



REV 00



- Site boundary (Jan 2018)
- Ecological mitigation area

Bird Activity Codes

- 2B. Number of birds
- B.pr Pair of birds
- B.fam Family of birds
- (B.) Bird singing
- B Bird in flight

Bird Species Codes

- B. Blackbird
- BC Blackcap
- BF Bullfinch
- BT Blue Tit
- BZ Buzzard
- CC Chiffchaff
- CH Chaffinch
- D. Dunnock
- GO Goldfinch
- GT Great Tit
- JD Jackdaw
- M. Mistle Thrush
- MA Mallard
- MG Magpie
- PH Pheasant
- R. Robin
- RB Reed Bunting
- S. Skylark
- SD Stock Dove
- ST Song Thrush
- WH Whitethroat
- WR Wren
- WW Willow Warbler

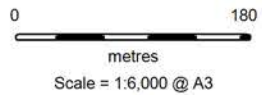


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Rail Central



Figure H2.2
Breeding Birds Survey
Visit 1 April 2017



REV 00



Site boundary (July 2017)

Bird Activity Codes

2B.

Number of birds

B.m

Male bird

B.fm

Female bird

B.pr

Pair of birds

B.dis

Bird displaying

B.*

Birds nest

B.

Bird singing

B.

Agressive birds

B.

Bird calling

B.

Bird alarm calling

B.→

Bird in flight

→ B.

Bird flying to perch

B.→

Bird flying from perch

Bird Species Codes

B.

Blackbird

BC

Blackcap

BT

Blue Tit

BZ

Buzzard

C.

Carrian Crow

CC

Chiffchaff

CD

Collared Dove

CH

Chaffinch

CT

Coal Tit

D.

Dunnock

FF

Fieldfare

FP

Feral Pigeon

G.

Green Woodpecker

GC

Goldcrest

GO

Goldfinch

GR

Greenfinch

GT

Great Tit

HS

House Sparrow

J.

Jay

JD

Jackdaw

K.

Kestrel

KT

Red Kite

L.

Lapwing

LI

Linnet

LT

Long-tailed Tit

MA

Mallard

MG

Maggie

MP

Meadow Pipit

MS

Mute Swan

P.

Grey Partridge

PH

Pheasant

PW

Pied Wagtail

R.

Robin

RB

Reed Bunting

RO

Rook

S.

Skylark

SD

Stock Dove

SG

Starling

SL

Swallow

ST

Song Thrush

WP

Woodpigeon

WR

Wren

WW

Willow Warbler

Y.

Yellowhammer

Wellingborough

Northampton

Towcester

Silverstone

Newport

00

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Figure H3.1

Breeding Birds Survey

Visit 2 April 2016

Map 2 of 4

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metres

Scale = 1:5,000 @ A3

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Site boundary (July 2017)

Bird Activity Codes

2B.

Number of birds

B.m

Male bird

B.fm

Female bird

B.pr

Pair of birds

B.dis

Bird displaying

B.*

Birds nest

(B)

Bird singing

(B)

Agressive birds

B

Bird calling

B

Bird alarm calling

→B

Bird in flight

→B

Bird flying to perch

B→

Bird flying from perch

Bird Species Codes

B.

Blackbird

BC

Blackcap

BT

Blue Tit

BZ

Buzzard

C.

Carrian Crow

CC

Chiffchaff

CD

Collared Dove

CH

Chaffinch

CT

Coal Tit

D.

Dunnock

FF

Fieldfare

FP

Feral Pigeon

G.

Green Woodpecker

GC

Goldcrest

GO

Goldfinch

GR

Greenfinch

GT

Great Tit

HS

House Sparrow

J.

Jay

JD

Jackdaw

K.

Kestrel

KT

Red Kite

L.

Lapwing

LI

Linnet

LT

Long-tailed Tit

MA

Mallard

MG

Magpie

MP

Meadow Pipit

MS

Mute Swan

P.

Grey Partridge

PH

Pheasant

PW

Pied Wagtail

R.

Robin

RB

Reed Bunting

RO

Rook

S.

Skylark

SD

Stock Dove

SG

Starling

SL

Swallow

ST

Song Thrush

WP

Woodpigeon

WR

Wren

WW

Willow Warbler

Y.

Yellowhammer

Wellingborough

Northampton

Towcester

Silverstone

Newport

00

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SP

RG

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Rev

Date

Description

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Figure H3.1

Breeding Birds Survey

Visit 2 April 2016

Map 4 of 4

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metres

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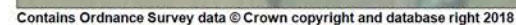
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Site boundary (July 2017)

Bird Activity Codes

2B. Number of birds

B.m Male bird

B.fm Female bird

B.pr Pair of birds

B.dis Bird displaying

B.* Birds nest

B.food Bird carrying food

B.fam Family of birds

B.juv Juvenile bird

B. Bird singing

B. Bird calling

B. Bird alarm calling

B. Bird in flight

B. Bird flying to perch

B. Bird flying from perch

Bird Species Codes

B. Blackbird

BC Blackcap

BT Blue Tit

BZ Buzzard

C. Carrion Crow

CC Chiffchaff

CH Chaffinch

D. Duncock

FP Feral Pigeon

GC Goldcrest

GO Goldfinch

GR Greenfinch

GS Great Spotted Woodpecker

GT Great Tit

GW Garden Warbler

HS House Sparrow

JD Jackdaw

K. Kestrel

L. Lapwing

LT Long-tailed Tit

MA Mallard

MG Magpie

MP Meadow Pipit

P. Grey Partridge

PH Pheasant

R. Robin

S. Skylark

SD Stock Dove

SG Starling

SL Swallow

ST Song Thrush

WH Whitethroat

WP Woodpigeon

WR Wren

Y. Yellowhammer

Wellingborough

Northampton

Towcester

Silverstone

Backley

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Rail Central

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Figure H4.1

Breeding Birds Survey

Visit 3 June 2016

Map 1 of 4

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metres

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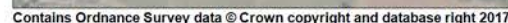
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Site boundary (July 2017)

Tree with Barn Owl nest

Building with Barn Owl nest

Buildings used by Barn Owls but no roost found

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Figure H5.1

Barn Owl Nest Locations

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metres

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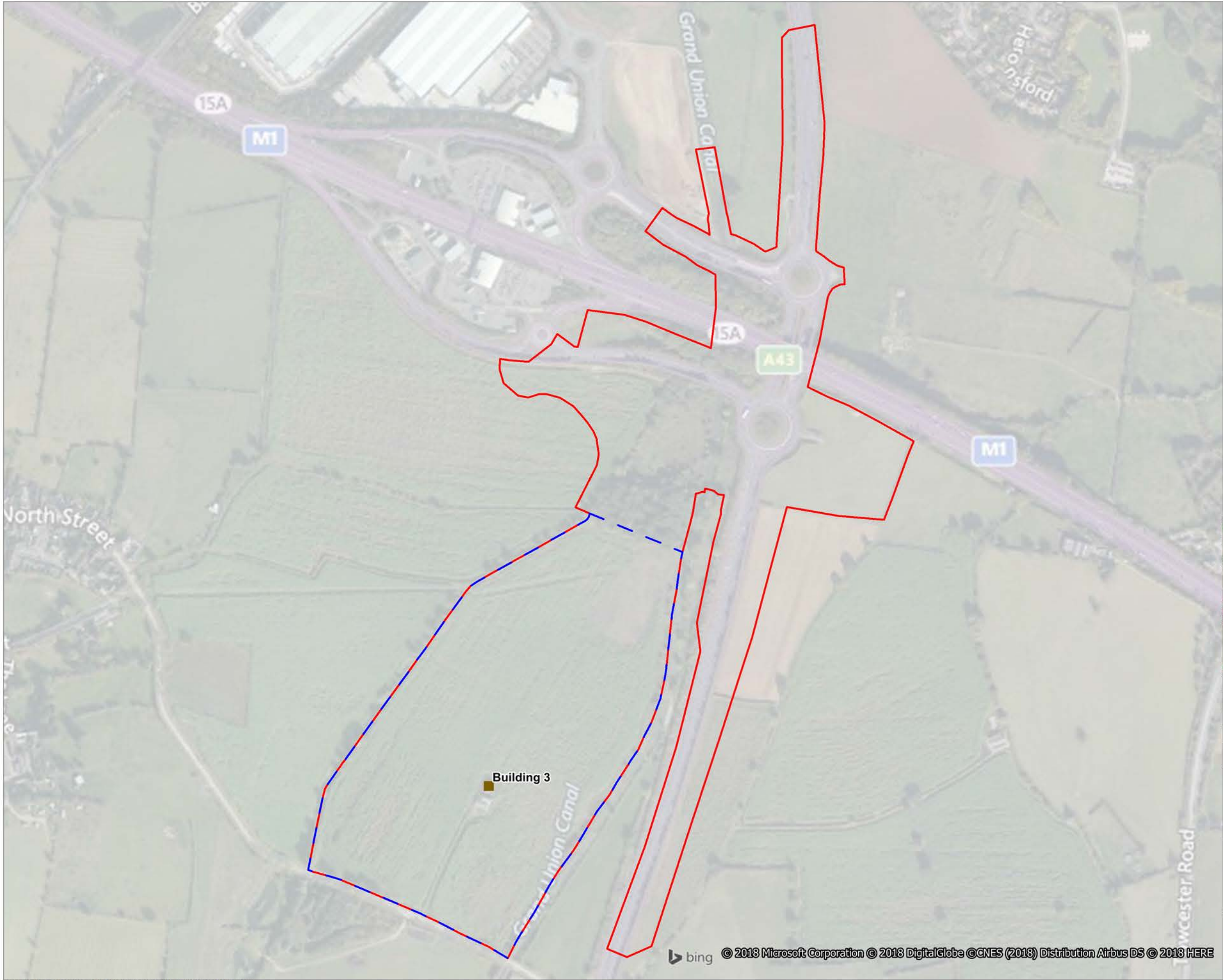
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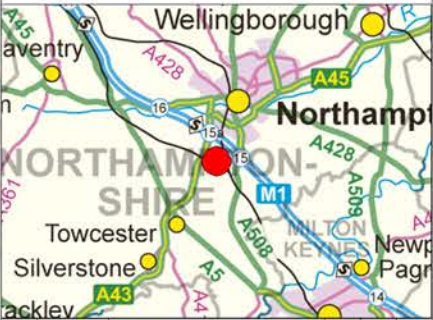
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- Site boundary (Jan 2018)
- Ecological mitigation area
- Building with Barn Owl nest

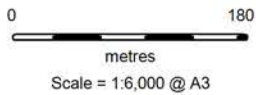


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Figure H5.2
Barn Owl Nest Locations



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