

# A47 Blofield to North Burlingham Dualling

**Scheme Number: TR010040**

**Volume 6**

## **6.2 Environmental Statement Appendices**

### **Appendix 8.4 – 2018 Breeding bird survey report**

APFP Regulation 5(2)(a)

Planning Act 2008

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

December 2020

Infrastructure Planning

Planning Act 2008

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

A47 Blofield to North Burlingham  
Development Consent Order 202[x]

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**ENVIRONMENTAL STATEMENT APPENDICES**  
**Appendix 8.4 2018 Breeding bird survey report**

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**A47 Blofield to North Burlingham  
Environmental Statement  
Appendix 8.4  
2018 Breeding Bird Survey Report**

**Date: August 2018**

## **Table of Contents**

<b>1</b>	<b>INTRODUCTION .....</b>	<b>3</b>
1.1	Background.....	3
1.2	Scheme Descriptions .....	3
1.3	Aims and Objectives .....	4
1.4	Relevant Bird Legislation .....	5
1.5	Conservation Status and Guidance.....	7
1.6	Designated Sites.....	7
<b>2</b>	<b>DESK STUDY RESULTS .....</b>	<b>10</b>
2.2	Previous Survey.....	10
2.3	Data Search .....	12
<b>3</b>	<b>METHODOLOGY .....</b>	<b>14</b>
3.1	Field Survey .....	14
3.2	Survey Constraints.....	17
<b>4</b>	<b>FIELD SURVEY RESULTS .....</b>	<b>18</b>
4.2	Survey Date and Conditions.....	18
4.3	Bird Survey Records .....	18
4.4	Disturbance Events .....	20
<b>5</b>	<b>RESULTS .....</b>	<b>21</b>
<b>6</b>	<b>ASSESSMENT AND RECOMMENDATIONS .....</b>	<b>26</b>
6.1	Bird Assemblage Value.....	26
6.2	Species Level Value .....	26
6.3	Impacts of Habitat Change/Loss.....	26
6.4	Impact of Habitat Change/Loss on Other Species.....	33
6.5	Construction Impacts.....	33
6.6	Operational Impacts .....	33



**A47 Blofield to North Burlingham  
Breeding Bird Survey**

6.7	Mitigation Measures .....	34
6.8	Mitigation and Conservation Compensation .....	34
6.9	Barn Owl Survey .....	35
	<b>REFERENCES .....</b>	<b>37</b>
7	<b>ANNEX A – ASSESSMENT OF BREEDING STATUS CODES .....</b>	<b>39</b>
8	<b>ANNEX B – BBS TRANSECT ROUTES.....</b>	<b>40</b>
9	<b>ANNEX C – FULL SURVEY RESULTS .....</b>	<b>41</b>

# **1 Introduction**

## **1.1 Background**

1.1.1 In November 2017, MMSJV was commissioned by Highways England to undertake a breeding bird survey between Blofield and North Burlingham in line with the Road Investment Strategy announced in 2014 (Highways England 2014). Full details on the site can be found in section 1.2. This is to inform the Environmental Statement (ES) Chapter at PCF Stage 3 for the A47 Blofield to North Burlingham Improvement Scheme.

1.1.2 This scheme improvements will:

- Improve accessibility to and around the region, reducing congestion and delays so encouraging more reliable journey times
- Improve safety performance for all road users – drivers, public transport users, cyclists, horse riders and pedestrians - contributing to a 40% reduction target in accidents across Highways England’s roads over the implemented schemes’ first five years
- Provide alternative access to local roads
- Improve the environmental impact of traffic along the A47 route, particularly for the communities in the six scheme areas
- Support economic growth in the Peterborough, Norwich and Great Yarmouth areas, improving overall road capacity

1.1.3 The report details the results of the breeding bird survey undertaken between Blofield and North Burlingham by Mike Youdale, Consultant Ecologist (MMSJV), in April to July 2018

1.1.4 This detailed baseline report provides a summary of the results of the surveys carried out, the impacts of the proposed development and proposals for mitigation which are addressed in chapter six.

## **1.2 Scheme Descriptions**

1.2.1 The site is located along the A47 in Blofield, Norfolk and is located between grid ref TG 3349 1012 to the west and TG 3887 1019 to the east. It is proposed to:

- Upgrade the existing 2.6km section of single carriageway between Blofield and North Burlingham to dual carriageway. The new section of dual carriageway with junction improvements is proposed to be constructed to the south of the existing carriageway

## **A47 Blofield to North Burlingham Breeding Bird Survey**

- Introduce a compact grade separated junction at B1140 Junction
  - Improve Yarmouth Road Junction
  - Construct a new overbridge at Blofield traversing the proposed A47 dual carriageway, connecting Yarmouth Road with the existing A47
  - Provide new drainage systems including an attenuation pond and retention of existing drainage systems where possible
- 1.2.2 The survey area comprises of the proposed route of the new road layout, with a buffer zone of 500m. The buffer is primarily the existing A47 and agricultural fields with associated hedgerows, stands of trees, small woodlands, farm buildings and residential properties.

### **1.3 Aims and Objectives**

- 1.3.1 The aim of the breeding bird survey is to determine which species are using the study area during the breeding season and to assess its importance for supporting populations of notable bird species including:
- Species protected under Schedule 1 of the Wildlife and Countryside Act (WCA) 1981 (as amended);
  - Species of Principal Importance for the purpose of conserving biodiversity covered under Section 41 (S41) of the Natural Environment and Rural Communities (NERC) Act 2006;
  - Red and Amber listed under the Birds of Conservation Concern (BoCC) (Eaton *et al.*, 2015).
- 1.3.2 The data gathered will assist in the determining the potential significant effects on breeding birds and the potential effects on assemblages through:
- Construction
    - Habitat loss (direct impact)
    - Disturbance of construction i.e. noise and visual disturbance (indirect impact)
  - Operation
    - Mortality of breeding birds e.g. traffic collisions (direct impact)
    - Reduced population size and breeding success due to traffic noise and visual disturbance (indirect impact)

## 1.4 Relevant Bird Legislation

- 1.4.1 This legal information is presented in summary form and is intended for general guidance only. It is recommended the original documentation is referred to for detailed and definitive information. Web addresses in the form of Uniform Resource Locator (URL) can be found in chapter seven.
- Birds are afforded various levels of protection and levels of conservation status on a species-by-species basis, with the inclusion of a number of species on the following legislation:
    - Bonn Convention (1979)
      - African-Eurasian Migratory Waterbird Agreement (AEWA)
      - Memorandum of Understanding on the Conservation of Migratory Birds of Prey in Africa and Eurasia
      - Convention on the Conservation of Migratory Species (CMS)
    - Bern Convention (1982)
  - The most significant general legislation for British birds is within Part 1 of the Wildlife and Countryside Act 1981 (as amended). Under current legislation it is an offence to:
    - Kill, injure or take any wild bird;
    - Take, damage or destroy the nest of any wild bird while that nest is in use or being built;
    - Take or destroy an egg of any wild bird.
    - In addition, Schedule 1 of the Act lists a number of species which are protected by special penalties at all times.
  - The Birds Directive
    - Council Directive 2009/147/EC on the conservation of wild birds (the 'Birds Directive') provides for the conservation and management of all wild bird species naturally occurring in the European Union, their nests, eggs and habitats. The Birds Directive bans activities that directly threaten birds (e.g. deliberate killing and destruction of nests and young), regulates hunting of selected species, bans non-selective and large scale killing of birds, and promotes research for bird conservation and management. Article 4(4) of the Birds Directive requires that member states "should strive to avoid pollution or deterioration of habitats." The Conservation of Habitats and Species (Amendment) Regulations 2017 provide a fuller transposition of the Birds Directive into English law. Regulation 8 introduces a new Regulation 9A to the Habitats Regulations for duties of appropriate authorities in relation to wild bird habitat. Regulation 9A(3) addresses the transposition of Article 2 of the Birds Directive, while Regulation 9A(8), requiring competent authorities

**A47 Blofield to North Burlingham  
Breeding Bird Survey**

to “use all reasonable endeavours” to “avoid any pollution or deterioration of habitats of wild birds.”

- Annex 1 of the EC Birds Directive also lists rare and vulnerable species of wild birds that are subject to special conservation measures.
- In addition to statutory protection, some bird species have been identified within key documents as species of conservation concern
  - The UK Post 2010 Biodiversity Framework (2012) has now succeeded the UK Biodiversity Action Plan (UKBAP) (2007). Much of the work previously carried out by the UKBAP is now focussed at country level. The UKBAP lists of priority species and habitats remain important, and have been used to draw up the statutory lists of species of principal importance for the conservation of biodiversity in England, Scotland, and Wales under the Natural Environment and Rural Communities (NERC) Act (2006). The UK Biodiversity Action Plan (UKBAP) (2007) lists 59 bird species as priority species requiring conservation action, and consequently action plans have been developed for the conservation of these species;
  - Local Biodiversity Action Plan; Norfolk Biodiversity Partnership (2011) lists 16 bird species as priority species requiring conservation action; Local Biodiversity Action Plans identify habitat and species conservation priorities at a local level (typically at the County level), and are usually drawn up by a consortium of local Government organisations and conservation charities.
- National Planning Policy Framework (NPPF)
  - The NPPF was adopted in March 2018 and outlines government planning policies and how they should be applied within local authorities. The framework places an emphasis on sustainable development, encouraging the re-use of land that has previously been developed over using land that has a higher environmental value and by minimising impacts on biodiversity. The NPPF states that developments should aim to conserve or enhance biodiversity and encourages opportunities to incorporate biodiversity in and around developments.
- The Greater Norfolk Development Partnership (2014) – Environmental adoption statement mentions the following environmental objectives;
  - To reduce the effect of traffic on the environment (EN1)
  - To improve the quality of the water environment.
  - To maintain enhance biodiversity and geodiversity (EN4)
  - To maintain and enhance the quality of landscapes, townscapes and the historic environment (EN 5)

## 1.5 Conservation Status and Guidance

### 1.5.1 Birds of Conservation Concern 4: The Red List for Birds

- The Birds of Conservation Concern 4: The Red List for Birds was published in December 2015. This is the fourth review of the status of birds in the UK, Channel Islands and Isle of Man, and updates the last assessment in 2009. Using standardised criteria, 244 species with breeding, passage or wintering populations in the UK were assessed by experts from a range of bird NGOs and assigned to the Red, Amber or Green lists of conservation concern.
  - Red List species are those whose breeding population or range is rapidly declining (50% or more in the last 25 years), recently or historically, and those of global conservation concern.
  - Amber List species are those whose breeding population is in moderate decline (25 – 49% in the last 25 years), rare breeders, internationally important and localised species and those of unfavourable conservation status in Europe.

### 1.5.2 The International Union for Conservation of Nature (IUCN) Red List of Threatened Species

- The IUCN Red List of Threatened Species is widely recognized as the most comprehensive, objective global approach for evaluating the conservation status of plant and animal species. The introduction in 1994 of a scientifically rigorous approach to determine risks of extinction that is applicable to all species, has become a world standard.
- The European Red List is a review of the status of European species according to IUCN regional red list guidelines. It identifies species that are threatened with extinction at the European level (Pan-Europe and the European Union).

## 1.6 Designated Sites

### Ramsar

- 1.6.1 The Broadland is a designated Ramsar site approximately 1.7km east of the proposed route covering an area of 5488.41ha. Broadland is a low-lying wetland complex straddling the boundaries between east Norfolk and north Suffolk. The area includes the river valley systems of the Bure, Yare and Waveney and their major tributaries. The open distinctive landscape comprises a complex and interlinked mosaic of wetland habitats including open water, reedbeds, carr woodland, grazing marsh and fen meadow.
- 1.6.2 It qualifies for Ramsar designation under the following criteria (not a complete list, but relevant to this bird report)
- Criterion 6 - Species/populations occurring at levels of international importance including;

## A47 Blofield to North Burlingham Breeding Bird Survey

- Bewick's swan, (*Cygnus columbianus bewickii*) 196 individuals, representing an average of 2.4% of the GB population, wigeon (*Anas penelope*) 6769 individuals, representing an average of 1.6% of the GB population, gadwall (*Anas strepera*) 545 individuals, representing an average of 3.1% of the GB population and shoveler (*Anas clypeata*) 247 individuals, representing an average of 1.6% of the GB population.
- Noteworthy fauna; bird species currently occurring at levels of national importance, this includes;
  - Marsh harrier (*Circus aeruginosus*), coot (*Fulica atra*), cormorant (*Phalacrocorax carbo*), bittern (*Botaurus stellaris*), bean goose (*Anser fabalis*), white-fronted goose (*Anser albifrons*), teal (*Anas crecca*), pochard (*Aythya ferina*), smew (*Mergellus albellus*), hen harrier (*Circus cyaneus*), water rail (*Rallus aquaticus*) and ruff (*Philomachus pugnax*).

### Special Protection Area (SPA)

- 1.6.3 The Broadland is also a designated SPA and covers 5508ha. The area includes the river valley systems of the Bure, Yare and Waveney and their major tributaries. The distinctive open landscape comprises a complex and interlinked mosaic of wetland habitats including open water, reedbeds, carr woodland, grazing marsh and fen meadow.

This site qualifies under Article 4 of the Directive 2009/147/EC and listed in Annex II of Directive 92/43/EEC:

- Shoveler (231) wintering
- Wigeon (10,071) wintering
- Gadwall (240) wintering
- Hen harrier (22) wintering
- Bewick's swan (600) wintering
- Whooper swan, *Cygnus cygnus* (100) wintering
- Ruff (96) wintering
- Bittern (2) breeding
- Marsh harrier (16) breeding

This site also qualifies under Article 4.1 of the Directive (79/409/EEC) during the breeding season the area regularly supports:

- Bittern, at least 10% of the GB breeding population
- Marsh harrier, 10.2% of the GB

Over winter the area regularly supports:

- Hen harrier, 2.9 % of the GB population
- Bewick's swan, at least 8.2% of the GB population
- Whooper swan, 1.8% of the GB population

**A47 Blofield to North Burlingham  
Breeding Bird Survey**

- The site also qualifies under Article 4 of the Directive (79/409/EEC)
- Gadwall, 0.8% of the population



## 2 Desk Study Results

2.1.1 In works undertaken to date by Highways England, a single breeding bird survey was undertaken in July 2017 and the findings of this report are summarised below.

### 2.2 Previous Survey

2.2.1 A single survey was undertaken in July 2017 (over two days) during the breeding season recording their observations following standard methods of bird monitoring including the use of British Trust for Ornithology (BTO) species codes and symbols for bird activity (Bibby *et al.*, 2000)

2.2.2 This also included birds in flight on a suitable map, this was later uploaded to a Geographic Information System (GIS) map.

2.2.3 The aim of the survey was to determine which species were using the study area during the breeding season and to assess its importance for supporting populations of notable species including:

- Species protected under Schedule 1 of the Wildlife and Countryside Act (WCA) 1981;
- Species of Principal Importance for the purpose of conserving biodiversity covered under Section 41 (S41) of the Natural Environment and Rural Communities (NERC) Act 2006;
- Red and Amber listed Birds of Conservation Concern (BoCC) (Eaton *et al.*, 2015).

2.2.4 The survey recorded 35 species in total across they survey area (Table 1) between Blofield to North Burlingham. Of these, eight were BoCC Red list and four were BoCC Amber list.

**Table 1 Birds Recorded during the Breeding Bird Survey**

BTO Code	Common Name	Scientific Name	Count (notable species only)	Designation & Conservation Value
M	Mistle Thrush	<i>Turdus viscivorus</i>	5	BoCC Red
HS	House Sparrow	<i>Passer domesticus</i>	11	BoCC Red and NERC S41
L	Lapwing	<i>Vanellus vanellus</i>	2	BoCC Red and NERC S41
LI	Linnet	<i>Linaria cannabina</i>	5	BoCC Red and NERC S41
S	Skylark	<i>Alauda arvensis</i>	5	BoCC Red and NERC S41

**A47 Blofield to North Burlingham  
Breeding Bird Survey**

BTO Code	Common Name	Scientific Name	Count (notable species only)	Designation & Conservation Value
ST	Song Thrush	<i>Turdus philomelos</i>	2	BoCC Red and NERC S41
SG	Starling	<i>Sturnus vulgaris</i>	2	BoCC Red and NERC S41
Y	Yellowhammer	<i>Emberiza citrinella</i>	15	BoCC Red and NERC S41
K	Kestrel	<i>Falco tinnunculus</i>	4	BoCC Amber
SD	Stock Dove	<i>Columba oenas</i>	3	BoCC Amber
D	Dunnock	<i>Prunella modularis</i>	7	BoCC Amber and NERC S41
LB	Lesser black-backed Gull	<i>Larus fuscus</i>	1	BoCC Amber and NERC S41
BC	Blackcap	<i>Sylvia atricapilla</i>		BoCC Green
BT	Blue Tit	<i>Cyanistes caeruleus</i>		BoCC Green
C	Carrion Crow	<i>Corvus corone</i>		BoCC Green
CH	Chaffinch	<i>Fringilla coelebs</i>		BoCC Green
CC	Chiffchaff	<i>Phylloscopus collybita</i>		BoCC Green
CD	Collared Dove	<i>Streptopelia decaocto</i>		BoCC Green
GC	Goldcrest	<i>Regulus regulus</i>		BoCC Green
GO	Goldfinch	<i>Carduelis carduelis</i>		BoCC Green
GT	Great Tit	<i>Parus major</i>		BoCC Green
G	Green Woodpecker	<i>Picus viridis</i>		BoCC Green
GR	Greenfinch	<i>Chloris chloris</i>		BoCC Green
JD	Jackdaw	<i>Coloeus monedula</i>		BoCC Green
LT	Long-tailed Tit	<i>Aegithalos caudatus</i>		BoCC Green
MG	Magpie	<i>Pica pica</i>		BoCC Green
MH	Moorhen	<i>Gallinula chloropus</i>		BoCC Green
PH	Pheasant	<i>Phasianus colchicus</i>		BoCC Green
RL	Red-legged Partridge	<i>Alectoris rufa</i>		BoCC Green
SL	Swallow	<i>Hirundo rustica</i>		BoCC Green
TC	Treecreeper	<i>Certhia familiaris</i>		BoCC Green
WH	Whitethroat	<i>Sylvia communis</i>		BoCC Green
WP	Woodpigeon	<i>Columba palumbus</i>		BoCC Green
WR	Wren	<i>Troglodytes troglodytes</i>		BoCC Green

NERC S41 – National Environment of Rural Communities Act Section 41

BoCC Red – Birds of Conservation Concern Red List

BoCC Amber - Birds of Conservation Concern Amber List

BoCC Green - Birds of Conservation Concern Green List

## 2.3 Data Search

- 2.3.1 A data search from the National Biodiversity Network (NBN) Atlas returned 47,227 bird records from the proposed works buffer zone, however, due to licence restrictions, not all these records are able to be used for commercial purposes.
- 2.3.2 Those records which can be used for commercial purposes have been summarised in Table 2. Of these records, one was cited on the Wildlife and Countryside Act (1981) Schedule 1, three on the BoCC Red List and six on the BoCC Amber List.

**Table 2 Records of Bird Species and Designations**

Common Name	Scientific Name	Number of Records	Latest Sighting	Designations & Conservation Value
Blackbird	<i>Turdus merula</i>	68	2009	Birds Dir 2.2
Blue tit	<i>Cyanistes caeruleus</i>	17	2009	
Brambling	<i>Fringilla montifringilla</i>	2	2009	WCA1
Carrion crow	<i>Corvus corone</i>	1	2009	Birds Dir 2.2
Chaffinch	<i>Fringilla coelebs</i>	18	2009	
Coal tit	<i>Periparus ater</i>	7	2009	
Collared dove	<i>Streptopelia decaocto</i>	14	2009	Birds Dir 2.2
Common gull	<i>Larus canus</i>	1	2009	Birds Dir 2.2, BoCC Amber
Common swift	<i>Apus apus</i>	1	2011	Bern, BoCC Amber
Continental robin	<i>Erithacus rubecula</i>	19	2009	Bern
Dunnock	<i>Prunella modularis</i>	13	2009	Bern, NERC, BoCC Amber
Feral pigeon	<i>Columba livia</i>	1	2009	Birds Dir 2.1
French partridge	<i>Alectoris rufa</i>	1	2009	Birds Dir 2.1
Goldfinch	<i>Carduelis carduelis</i>	8	2009	Bern
Great spotted Woodpecker	<i>Dendrocopos major</i>	1	2009	Bern
Great tit	<i>Parus major</i>	16	2009	
Green woodpecker	<i>Picus viridis</i>	2	2009	Bern
Greenfinch	<i>Chloris chloris</i>	8	2009	Bern
Herring gull	<i>Larus argentatus</i>	1	2009	Birds Dir 2.2, NERC, BoCC Red, IUCN NT
House sparrow	<i>Passer domesticus</i>	29	2009	NERC, BoCC Red
Jackdaw	<i>Corvus monedula</i>	1	2009	Birds Dir 2.2

**A47 Blofield to North Burlingham  
Breeding Bird Survey**

Common Name	Scientific Name	Number of Records	Latest Sighting	Designations & Conservation Value
Jay	<i>Garrulus glandarius</i>	1	2009	Birds Dir 2.2
Long-tailed tit	<i>Aegithalos caudatus</i>	10	2009	
Magpie	<i>Pica pica</i>	4	2009	Birds Dir 2.2
Mallard	<i>Anas platyrhynchos</i>	1	2009	Bonn, Birds Dir 2.1, BoCC Amber
Marsh tit	<i>Poecile palustris</i>	3	N/A	NERC, BoCC Red
Pheasant	<i>Phasianus colchicus</i>	3	2009	Birds Dir 2.1
Pied/White wagtail	<i>Motacilla alba</i>	3	2009	Bonn, Birds Dir 2.2, BoCC Amber
Song thrush	<i>Turdus philomelos</i>	1	2009	Bonn, Birds Dir 1, LBAP
Starling	<i>Sturnus vulgaris</i>	24	2009	Birds Dir 2.2, BoCC Amber
Woodpigeon	<i>Columba palumbus</i>	19	2009	Birds Dir 2.1
Wren	<i>Troglodytes troglodytes</i>	4	2009	Bern

Bern – Bern Convention (1982)

Bonn – Bonn Convention (1979)

WCA1 – Wildlife and Countryside Act (1981) Schedule One

Birds Dir 2.1 & 2.2 – EC Directive on the Conservation of Wild Birds (791409/EEC)

NERC S41 – National Environment of Rural Communities Act Section 41

LBAP – Local Action Plan Speices

BoCC Red – Birds of Conservation Concern Red List

BoCC Amber - Birds of Conservation Concern Amber List

IUCN NT – IUCN Near Threatened Status (European Status)

## 3 Methodology

### 3.1 Field Survey

- 3.1.1 The site was visited on three occasions throughout the breeding bird season (April – June 2018) using the ‘look-see’ method (Gilbert *et al.*, 1998), where all birds observed using the site were counted. The survey method was broadly based on that of territory mapping (Bibby *et al.*, 2000) as used for the BTO Common Bird Census (CBC). Standard BTO species codes and symbols for bird activity were used to identify birds and denote activity, sex and age, where appropriate.
- 3.1.2 The criteria used in the assessment of breeding birds (Annex A) has been adapted from the standard criteria proposed by the European Ornithological Atlas Committee (EOAC) (1979) and are grouped into three categories;
- possible breeder e.g. birds observed in suitable habitat or singing male recorded.
  - probable breeder e.g. pair in suitable habitat, agitated behaviour or nest building
  - confirmed breeder e.g. recently fledged young observed, adult birds carrying food for young.
- 3.1.3 Birds that were not considered to be using the site for breeding were categorised as ‘non-breeders’ e.g. flying over the site, migrant, habitat not suitable.
- 3.1.4 The measure of “T- permanent territory (defended over at least 2 survey occasions)” (Annex A) was not used as a measure of probable breeding. This is due to doubts about the validity of this category as an indicator of ‘probable breeding’ as persistent song can indicate a pair, but for many species the males go quiet after pairing so a persistently singing male is likely to be unmated.
- 3.1.5 On each visit, the surveyor, an experienced ornithologist, used high power optical equipment to survey the open habitat whilst walking along a pre-determined transect (Annex B) route at a slow pace so that all birds could be located and recorded.
- 3.1.6 To provide a reasonable level of accuracy for determining the population status of the breeding birds on the site, three surveys were undertaken during the hours after dawn or prior to dusk. The transect included routes adjacent to boundaries to help reduce disturbance and detection rates on smaller more cryptic and elusive species. All the fields, ditches, waterbodies and woodland were surveyed for target bird species and the sightings were all recorded on a map.

**A47 Blofield to North Burlingham  
Breeding Bird Survey**

3.1.7 The number of species recorded in the area is a simple measure of diversity that can help indicate the importance at each season of the year. The areas importance in value can be determined by several factors including geographical location, diversity of habitats present and size. Fuller (1980) detail the diversity of criteria, for bird species diversity, as shown in the table below.

**Table 3 Bird species diversity criteria: The importance of an area based on the number of bird species recorded (Fuller 1980)**

National Importance	Regional Importance	County Importance	Local Importance
85+	70-84	50-69	25-49

3.1.8 Fuller’s criteria, plus professional judgement, have been used to assess the importance of the survey area for breeding birds. In addition to evaluating the area based on the breeding bird assemblages, consideration is given to the value of the area for the populations of individual key species that it supports. This was done by comparing the population present within the area survey area with national and country breeding populations for certain species. National population estimates have been referred to as published in Musgrove *et al.* (2013).

3.1.9 The conservation value of individual species can be measured by two separate approaches: nature conservation value and conservation status. The Chartered Institute of Ecology and Environmental Management (CIEEM) guidance on ecological impact assessment (CIEEM 2016), assesses nature conservation value within a geographical context. To attain each level of value, an ornithological resource or one of the features (species population or assemblage of species) should meet the criteria set out in Table 4 below. In some cases, professional judgement may be required to increase or decrease the allocation of specific value, based upon local knowledge.

**Table 4 Species value, terms and criteria**

Species Value	Selection Criteria
International	<p>A species which is part of the cited interest of an SPA and which regularly occurs in internationally or nationally important numbers.</p> <p>A species which is present in internationally important numbers (&gt;1% of international population).</p>
National	<p>A species which is part of the cited interest of a SSSI and which regularly occurs in nationally or regionally important numbers.</p> <p>A nationally important assemblage of breeding or over-wintering species.</p> <p>A species which is present in nationally important numbers (&gt;1% UK population). Rare breeding species (&lt;300 breeding pairs in the UK).</p>
Regional	<p>Species listed as Priority Species under Schedule 41 of the Natural Environment and Rural Communities (NERC) Act (2006), which are not covered above, and which regularly occurs in regionally important numbers.</p>

**A47 Blofield to North Burlingham  
Breeding Bird Survey**

Species Value	Selection Criteria
	<p>Species present in regionally important numbers (&gt;1% of regional population).</p> <p>Sustainable populations of species that are rare or scarce within a region.</p> <p>Species on the BoCC Red List and which regularly occurs in regionally important numbers.</p>
County	<p>Species listed as Priority Species under Schedule 41 of the Natural Environment and Rural Communities (NERC) Act (2006), which are not covered above and which regularly occurs in county important numbers</p> <p>Species present in county important numbers (&gt;1% of county population).</p> <p>Sustainable populations of species that are rare or scarce within a county, or listed as priority species for nature conservation under S41 of the NERC Act.</p> <p>A site designated for its county important assemblage of birds (e.g. a SINC Site).</p> <p>Species on the BoCC Red List and which regularly occur in county important numbers.</p>
District	<p>Species listed as Priority Species under Schedule 41 of the Natural Environment and Rural Communities (NERC) Act (2006), which are not covered above, and are rare in the locality or in the relevant Natural Area profile.</p> <p>Species present in numbers just short of county importance.</p> <p>Sustainable populations of species which are rare or scarce within the locality.</p> <p>A site whose designation falls just short for inclusion for its county important assemblage of birds (e.g. a SINC Site).</p> <p>Other species on the BoCC Red List and which are considered to regularly occur in district important numbers.</p>
Local	<p>Other species of conservation interest (e.g. all other species on the BoCC Red and Amber List and listed as Priority Species under Schedule 41 of the Natural Environment and Rural Communities (NERC) Act (2006) which are not covered above) regularly occurring in locally sustainable populations.</p>
Site	<p>All other BoCC Green-listed common and widespread species.</p>

## **A47 Blofield to North Burlingham Breeding Bird Survey**

- 3.1.10 At the county level for the Blofield to North Burlingham route, reference is made to the Norfolk Local Site Handbook – a guide to county wildlife sites (2013) whereby a local wildlife site, or county wildlife site (CWS) in this instance, can be assigned if it fulfils the select criteria.

### **3.2 Survey Constraints**

- 3.2.1 In areas of the survey, the sound of the nearby A47 made the audio identification of birds almost impossible. Birds were present in isolated areas adjacent to the main road, although were only picked up visually.
- 3.2.2 Access was granted onto private property and where possible access was along public rights of way surrounding the site. This is not considered to represent a significant limitation to the survey.
- 3.2.3 During survey one, weather conditions were not ideal, with low visibility caused by mist. Birds were mainly identified and recorded through audio location, with fewer birds recorded visually compared to surveys two and three.
- 3.2.4 There is potential for species to be missed or go unnoticed due to the nature of breeding bird surveys and possibilities of birds not vocalising and/or in dense vegetation. There is also potential to miss crepuscular species. During various other ecological surveys being undertaken in the area, casual sightings of crepuscular species were observed and they have been considered in the final assessment.
- 3.2.5 The details of this report will remain valid for a period of one year from the date of the survey, after which the validity of this assessment should be reviewed to determine whether further updates are necessary. Note that the recommendations within this report should be reviewed (and reassessed if necessary) should there be any changes to the red line boundary or development proposals upon which this report was based.



## 4 Field Survey Results

4.1.1 The field survey was undertaken between April 2018 and July 2018. All surveys were undertaken MMSJV, Consultant Ecologist Mike Youdale.

### 4.2 Survey Date and Conditions

**Table 5 Survey date and weather**

Survey Number	Date	Weather Conditions
Survey One	10th April	Misty, low visibility, 7 - 13 degrees
	11th April	Misty, low visibility, 6 - 9 degrees
	12th April	Misty, low visibility, 6-7 degrees
Survey Two	8th May	Good, clear, 8-26 degrees
	9th May	Good, clear, 10-20 degrees
	10th May	Good, clear, 10- 16 degrees
Survey Three	5 <sup>th</sup> June	Good, bright, 11-14 degrees
	6 <sup>th</sup> June	Good, clear, 11-18 degrees
	7 <sup>th</sup> June	Good, clear, 10 – 16 degrees

### 4.3 Bird Survey Records

4.3.1 In total 73 species were recorded during the breeding bird survey across the site between April and June 2018. A complete breakdown of species and total individuals recorded per survey can be found in Annex C. Full survey data sets can be provided on request.

#### Survey One

4.3.2 The table below summarises the total number of species which are cited under legislation outlined in chapter one. Some species are mentioned on more than one piece of legislation

4.3.3 A total of 49 species were observed;

**Table 6 Number of species observed with associated designations**

Designation	Number of Species
Bern Convention	11
Bonn Convention	2
Wildlife & Countryside Act (1981)	3
NERC Schedule 41	11
Birds Directive	24
BoCC 4 Red List	13
BoCC Amber List	5

**A47 Blofield to North Burlingham  
Breeding Bird Survey**

LBAP	5
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**Survey Two**

4.3.4 The table below summarises the total number of species which are cited under legislation outlined in chapter one. Some species are mentioned on more than one piece of legislation.

4.3.5 A total of 55 species were observed;

**Table 7 Number of species observed with associated designations**

Designation	Number of Species
Bern Convention	15
Bonn Convention	7
Wildlife & Countryside Act (1981)	3
Birds Directive	24
NERC Schedule 41	13
BoCC 4 Red List	11
BoCC Amber List	9
LBAP	5

**Survey Three**

4.3.6 The table below summarises the total number of species which are cited under legislation outlined in chapter one. Some species are mentioned on more than one piece of legislation.

4.3.7 A total of 52 species were observed;

**Table 8 Number of species observed with associated designations**

Designation	Number of Species
Bern Convention	14
Bonn Convention	3
Wildlife & Countryside Act (1981)	2
NERC Schedule 41	8
Birds Directive	21
BoCC 4 Red List	8
BoCC Amber List	9
LBAP	4

## **4.4 Disturbance Events**

4.4.1 Disturbance was recorded numerous points during the bird survey. The main disturbance events include the following;

Disturbance	Summary
Agriculture operations	Regular activities from ploughing, herbicide and fertiliser application, reseeding etc.
Bird scaring	Gas guns and scarecrows
Dog walkers	Present throughout various wooded areas
Gamekeeping	Shooting and Larsen traps

## 5 Results

- 5.1.1 A total of 73 species were recorded within the site boundary during the surveys, including 34 species that are listed on Wildlife and Countryside Act (1981) Schedule 1, NERC S41, LBAP priority species and/or feature on the BoCC Red and Amber lists. Full survey results are provided in Annex C.
- 5.1.2 Of the 73 species, 22 were confirmed as breeding. This was concluded through the identification on recently fledged young, adults visiting nests and adults carrying food.
- 5.1.3 20 species were considered probable breeders on the site. This was concluded through pairs observed in suitable breeding habitat, birds permanently on territories, agitated behaviour, nest building and courtship displays
- 5.1.4 12 species were considered as possibly breeding on site. This was concluded by birds either being observed in suitable breeding habitat or singing males present in suitable habitat
- 5.1.5 19 species were considered as non-breeders. This includes those flying over and species which were presumed to be still on migration.

**Table 9 All species recorded, their designation, conservation value, breeding status on site and status within Norfolk.**

Common Name	Scientific Name	Designation	Conservation Status	Breeding Status	Status in Norfolk <sup>1</sup>
Barn Owl	<i>Tyto alba</i>	Bern, WCA 1, LBAP	N/A	Probable	Resident
Blackbird	<i>Turdus merula</i>	Birds Dir 2.2	N/A	Confirmed	Common resident
Blackcap	<i>Sylvia atricapilla</i>	N/A	N/A	Probable	Summer breeder
Black-headed Gull	<i>Chroicocephalus ridibundus</i>	Birds Dir 2.2	BoCC Amber	Non-breeding	Summer breeder
Blue Tit	<i>Cyanistes caeruleus</i>	N/A	N/A	Confirmed	Breeding resident
Bullfinch	<i>Pyrrhula pyrrhula</i>	NERC,	BoCC Amber	Probable	Resident
Buzzard	<i>Buteo buteo</i>	Bonn	N/A	Confirmed	Passage migrant, small, increasing breeding population

<sup>1</sup> Taken from the Norfolk Bird & Mammal Report 2002, published by Norfolk and Norwich Naturalist Society, Castle Museum, Norwich, NR1 3JU. Accessible from [http://norfolknaturalists.org.uk/wp/wp-content/uploads/2017/02/BMR-2002-transactionsofno3622norf\\_page\\_001-252.pdf](http://norfolknaturalists.org.uk/wp/wp-content/uploads/2017/02/BMR-2002-transactionsofno3622norf_page_001-252.pdf)

**A47 Blofield to North Burlingham  
Breeding Bird Survey**

Common Name	Scientific Name	Designation	Conservation Status	Breeding Status	Status in Norfolk <sup>1</sup>
Carrion Crow	<i>Corvus corone</i>	Birds Dir 2.2	N/A	Confirmed	Resident
Chaffinch	<i>Fringilla coelebs</i>	N/A	N/A	Confirmed	Common resident
Chiffchaff	<i>Phylloscopus collybita</i>	N/A	N/A	Probable	Common summer breeder
Coal Tit	<i>Parus ater</i>	N/A	N/A	Confirmed	Breeding resident
Collared Dove	<i>Streptopelia decaocto</i>	Birds Dir 2.2	N/A	Probable	Common resident
Dunnock	<i>Prunella modularis</i>	Bern, NERC	BoCC Amber	Confirmed	Common resident
Rock/Feral Pigeon	<i>Columba livia</i>	Birds Dir 2.1	N/A	Confirmed	Resident
Fieldfare	<i>Turdus pilaris</i>	Birds Dir 2.2, WCA 1	BoCC Red	Non-breeding	Passage migrant, winter visitor
Garden Warbler	<i>Sylvia borin</i>	N/A	N/A	Possible	Summer breeder
Goldcrest	<i>Regulus regulus</i>	N/A	N/A	Probable	Resident breeder
Goldfinch	<i>Carduelis carduelis</i>	Bern	N/A	Confirmed	Common resident
Great Black-backed Gull	<i>Larus marinus</i>	Birds Dir 2.2	BoCC Amber	Non-breeding	Non-breeding summer visitor
Great Spotted Woodpecker	<i>Dendrocopos major</i>	Bern	N/A	Possible	Common resident
Great Tit	<i>Parus major</i>	N/A	N/A	Confirmed	Common breeding resident
Green Woodpecker	<i>Picus viridis</i>	Bern	N/A	Possible	Resident
Greenfinch	<i>Chloris chloris</i>	Bern	N/A	Probable	Common resident
Grey Heron	<i>Ardea cinerea</i>	N/A	N/A	Non-breeding	Resident
Grey Partridge	<i>Perdix perdix</i>	Bird Dir 2.1, NERC, LBAP	BoCC Red	Probable	Resident
Helmeted Guineafowl	<i>Numida meleagris</i>	N/A	N/A	N/A	N/A
Herring Gull	<i>Larus argentatus</i>	Birds Dir 2.2, NERC,	BoCC Red, IUCN NT	Non-breeding	Increasing breeder
Hobby	<i>Falco subbuteo</i>	Bern, BONN, WCA 1	N/A	Non-breeding	Scarce but increasing migratory breeder

**A47 Blofield to North Burlingham  
Breeding Bird Survey**

Common Name	Scientific Name	Designation	Conservation Status	Breeding Status	Status in Norfolk <sup>1</sup>
House Martin	<i>Delichon urbicum</i>	Bern	BoCC Amber	Probable	Common migratory breeder
House Sparrow	<i>Passer domesticus</i>	NERC,	BoCC Red	Probable	Common but declining resident
Jackdaw	<i>Coloeus monedula</i>	Birds Dir 2.2	N/A	Confirmed	Common resident
Jay	<i>Garrulus glandarius</i>	Birds Dir 2.2	N/A	Probable	Common resident
Kestrel	<i>Falco tinnunculus</i>	N/A	BoCC Amber	Confirmed	Resident breeder
Lapwing	<i>Vanellus vanellus</i>	Birds Dir 2.2, NERC,	BoCC Red	Probable	Declining breeder
Lesser Black-backed Gull	<i>Larus fuscus</i>	Birds Dir 2.2	BoCC Amber	Non-breeding	Migratory breeder
Lesser Whitethroat	<i>Sylvia curruca</i>	N/A	N/A	Possible	Summer breeder
Linnet	<i>Linaria cannabina</i>	Bern, NERC,	BoCC Red	Probable	Common resident
Long-tailed Tit	<i>Aegithalos caudatus</i>	N/A	N/A	Confirmed	Common resident breeder
Magpie	<i>Pica pica</i>	Birds Dir 2.2	N/A	Possible	Common resident
Mallard	<i>Anas platyrhynchos</i>	Bonn, Birds Dir 2.1	BoCC Amber	Confirmed	Widespread resident
Marsh Harrier	<i>Circus aeruginosus</i>	Bonn, Birds Dir 1, WCA 1	BoCC Amber	Non-breeding	Increasing migrant breeder
Mistle Thrush	<i>Turdus viscivorus</i>	Birds Dir 2.2	BoCC Red	Probable	Common resident
Nuthatch	<i>Sitta europaea</i>	N/A	N/A	Possible	Breeding resident, probably in decline
Pheasant	<i>Phasianus colchicus</i>	Birds Dir 2.1	N/A	Confirmed	Common introduced resident
Subspp. Green Pheasant	<i>Phasianus versicolor</i>	N/A	N/A	N/A	N/A
Pied Wagtail	<i>Motacilla alba</i>	Bern	N/A	Confirmed	Common breeding resident
Quail	<i>Coturnix coturnix</i>	Bonn, Birds Dir 2.2, WCA 1	BoCC Amber	Presumed released	Sporadic breeder
Red Kite	<i>Milvus milvus</i>	Bonn, Birds Dir 1, WCA 1	IUCN NT	Non-breeding	Increasing visitor, birds

**A47 Blofield to North Burlingham  
Breeding Bird Survey**

Common Name	Scientific Name	Designation	Conservation Status	Breeding Status	Status in Norfolk <sup>1</sup>
					from British reintroduction scheme occur
Red-legged Partridge	<i>Alectoris rufa</i>	Birds Dir 2.1	N/A	Confirmed	Common introduced resident
Redwing	<i>Turdus iliacus</i>	Birds Dir 2.2, WCA 1	BoCC Red, IUCN NT	Non-breeding	Passage migrant and winter visitor
Reed Bunting	<i>Emberiza schoeniclus</i>	Bern, NERC, LBAP	BoCC Amber	Possible	Resident
Robin	<i>Erithacus rubecula</i>	Bern	N/A	Confirmed	Common resident
Rook	<i>Corvus frugilegus</i>	Birds Dir 2.2	N/A	Probable	Common resident
Shelduck	<i>Tadorna tadorna</i>	Bern, Bonn	BoCC Amber	Non-breeding	Widespread breeder
Skylark	<i>Alauda arvensis</i>	Birds Dir 2.2, NERC, LBAP	BoCC Red	Probable	Resident
Snipe	<i>Gallinago gallinago</i>	Bonn, Birds Dir 2.1	BoCC Amber	Non-breeding	Declining breeder
Song Thrush	<i>Turdus philomelos</i>	Birds Dir 2.2, NERC, LBAP	BoCC Red	Probable	Common resident, recently decreasing
Sparrowhawk	<i>Accipiter nisus</i>	Bonn, Birds Dir 2.1	N/A	Possible	Common resident
Starling	<i>Sturnus vulgaris</i>	Birds Dir 2.2, NERC,	BoCC Red	Confirmed	Common resident
Stock Dove	<i>Columba oenas</i>	Birds Dir 2.2	BoCC Amber	Probable	Resident
Swallow	<i>Hirundo rustica</i>	Bern	N/A	Confirmed	Common migratory breeder
Swift	<i>Apus apus</i>	Bern, LBAP	BoCC Amber	Possible	Common migratory breeder
Treecreeper	<i>Certhia familiaris</i>	N/A	N/A	Possible	Widespread woodland resident
Turtle Dove	<i>Streptopelia turtur</i>	Bonn, Birds Dir 2.2, NERC, LBAP	BoCC Red, IUCN VU	Possible	Migratory breeder, recent decline
Whitethroat	<i>Sylvia communis</i>	N/A	N/A	Confirmed	Summer breeder

**A47 Blofield to North Burlingham  
Breeding Bird Survey**

Common Name	Scientific Name	Designation	Conservation Status	Breeding Status	Status in Norfolk <sup>1</sup>
White Wagtail	<i>Motacilla alba</i>	Bern	N/A	No-breeding	Migrant
Woodlark	<i>Lullula arborea</i>	Birds Dir 1, NERC, LBAP	N/A	Non-breeding	Uncommon migratory breeder, recently increasing
Woodcock	<i>Scolopax rusticola</i>	Birds Dir 2.1,	BoCC Red	Non-breeding	Breeder, particularly in the Brecks
Woodpigeon	<i>Columba palumbus</i>	Birds Dir 2.1	N/A	Confirmed	Resident
Wren	<i>Troglodytes troglodytes</i>	Bern	N/A	Probable	Very common resident
Yellow Wagtail	<i>Motacilla flava</i>	Bern, NERC,	BoCC Red	Possible	Declining migratory breeder
Yellowhammer	<i>Emberiza citrinella</i>	Bern, NERC,	BoCC Red	Probable	Once common resident, currently in decline

**Designation**

Bern – Bern Convention (1982)

Bonn – Bonn Convention (1979)

WCA1 – Wildlife and Countryside Act (1981) Schedule One

Birds Dir 2.1 & 2.2 – EC Directive on the Conservation of Wild Birds (791409/EEC)

NERC – National Environment of Rural Communities Act Section 41

LBAP – Local Biodiversity Action Plan Speices

**Conservation Status**

BoCC Red – Birds of Conservation Concern Red List

BoCC Amber - Birds of Conservation Concern Amber List

IUCN VU – IUCN Vulnerable Status (European Status)

IUCN NT – IUCN Near Threatened Status (European Status)



## 6 Assessment and Recommendations

### 6.1 Bird Assemblage Value

- 6.1.1 The overall assemblage of bird species recorded on site are largely typical of the range of habitats which predominate across the site. These species are partially characterised by hedgerow, woodland, scrub and agricultural habitat. Most of the species recorded are considered as common breeding species within the region (Table 9).
- 6.1.2 Fuller (1980) devised a standard where the importance of an area can be assessed by the number of bird species recorded (Table 3). The species list for the whole site was 73, of which 54 were confirmed as breeding, or are either probably or possibly breeding on site. This places the site within the range of **county importance**.

### 6.2 Species Level Value

- 6.2.1 Most of the species recorded are resident, common breeders or migratory breeders within the region. Due to this the site is considered at species level, no more than **local conservation value**.
- 6.2.2 There were exceptions with house sparrow, lapwing, nuthatch, snipe, song thrush, turtle dove, yellow wagtail and yellowhammer all considered declining breeding species within the county.
- 6.2.3 There were no Ramsar cited species recorded during the surveys, and a single SPA cited breeding species, Marsh Harrier, was observed on one occasion although it was classified as non-breeding as it was just flying to the north of the buffer zone of the proposed works.

### 6.3 Impacts of Habitat Change/Loss

- 6.3.1 The impact on breeding bird species across the site arising from the effects of the proposed works is based upon an understanding of each species' precise requirements for foraging and nesting.
- 6.3.2 The species recorded on site that are considered most vulnerable to the impacts of the proposed works are 19 species which are listed under the NERC Act S41 and listed on the Birds of Conservation Concern, Red and Amber list. The habitat requirements, species status during the surveys and nature conservation value are summarised in Table 9. In addition, residual impacts arising from the proposed works through habitat loss or change have also been assessed for these species.

**A47 Blofield to North Burlingham  
Breeding Bird Survey**

**Table 10 Habitat requirements and nature conservation value of WCA 1, NERC and BoCC Red & Amber list species of confirmed, probable or possible breeding.**

Species	Habitat Requirements	Survey Account	Nature Conservation Value <sup>2</sup>	Unmitigated Impacts	Suggested Mitigation	Residual Impact <sup>3</sup>
Barn Owl	Associated with open countryside, along field edges, riverbanks and roadside verges. Main food source is field voles although will take various small mammals and small birds.	A single bird was witnessed entering a nesting box during the first survey. A single adult was seen hunting in proximity to the nest box on the third survey A further Barn Owl survey was carried out on 5 <sup>th</sup> July (see 6.9)	Local	Removal of potential foraging habitat. Increase in road size and speed may impact those birds which are commuting across the existing road which could increase likelihood of road casualties on current breeding pairs.	To mitigate for loss of habitat, suitable compensatory rough grassland should be provided off site (exact location to be discussed further). Adjacent to this land, the provision of nest boxes should be provided offsite. In addition, high hedges or lines of closely-spaced trees should be planted next to the road on both sides to force the owl to fly higher over the road.	Neutral/Slight adverse
Bullfinch	Breed mainly in broad-leaved woodland, but also common in dense hedgerow and thickets. Adult birds are vegetarian although invertebrates are important for fledglings.	A pair was observed on the third survey in an area of suitable breeding habitat	Local	Loss of hedgerow sections and scrub habitat within the site which currently offers nesting habitat.	Where possible, scrub habitat will be retained, particularly along boundaries edges. To compensate where nesting habitat is removed, suitable areas should be re-planted with native, seed and fruit bearing species to help the colonisation into other parts.	Neutral

<sup>2</sup> Based on criteria set out in Table 4 and professional judgement.

<sup>3</sup> Assumes that any suggested or proposed mitigation, compensation or enhancements are undertaken in full.

**A47 Blofield to North Burlingham  
Breeding Bird Survey**

Species	Habitat Requirements	Survey Account	Nature Conservation Value <sup>2</sup>	Unmitigated Impacts	Suggested Mitigation	Residual Impact <sup>3</sup>
Dunnock	Commonly invades a wide variety of scrub grown situations. Has adapted to field hedgerows, farms, railway embankments, parks, gardens and vacant urban land. Feeds mainly on insects but small seeds are an important winter food.	Birds were recorded on all three visits.	Local	Loss of hedgerow and scrub areas within the site which currently offers nesting habitat Loss of arable land will reduce suitable foraging habitat	Where possible scrub habitat will be retained, across the site. Where this is not possible, further woodland planting will continue to provide sufficient nesting habitat.	Slight adverse
Grey Partridge	Traditionally found in lowland arable fields, but can also be found in permeant rushy pastures. Mainly seed eaters with invertebrates more commonly consumed in the summer.	A pair were recorded on the first survey in a winter game crop of sweetcorn. The surrounding habitat is suitable for breeding.	Local	Loss of arable fields resulting in removal of breeding habitat and foraging habitat.	None suggested. Due to the requirements for arable fields, it is not possible to compensate for the loss of this type of habitat. Therefore, the grey partridge is inevitably to be lost as a breeding species on site.	Adverse
House Martin	Often associated with urbanised areas such as towns and villages, often nesting in the eaves of buildings. Feed on aerial insects	Birds were recorded on the second and third survey.	Local	N/A	None suggested. No buildings are to be affected by the proposed works, and therefore nesting site will remain available.	Neutral
House Sparrow	Often associated with humans, will avoid dense vegetation. Usually avoid arable crops and areas lacking in shrubs and trees other than during feeding.	Birds were recorded on all three visits.	Local	Loss of scrub and hedgerow habitat across the site which currently offers nesting habitat.	Hedgerows should be retained where possible. Where hedgerows are to be removed, supplementary planting should be undertaken. House sparrow specific nest boxes should be installed in suitable habitat to compensate initial loss	Neutral/Slight beneficial

**A47 Blofield to North Burlingham  
Breeding Bird Survey**

Species	Habitat Requirements	Survey Account	Nature Conservation Value <sup>2</sup>	Unmitigated Impacts	Suggested Mitigation	Residual Impact <sup>3</sup>
Lapwing	Breeds on preferably moist open lowland ground. Often associates with farmland preferring spring sown crops. Feed on worms and invertebrates	Birds were recorded on the first and second visit.	Local	Loss of potential nesting habitat through the loss of arable fields and grassland areas.	None suggested. Due to their requirements for open grassland or arable fields, it is not possible to compensate for the loss of this type of habitat. Due to the loss of this habitat across the site lapwing is inevitably to be lost as a breeding species.	Adverse
Linnet	Found on commons, heathland, rough ground, farm hedges, saltmarshes and urbanised areas near parks and gardens. Mainly seed eaters, with invertebrates being consumed during the summer	Birds were recorded on all three visits.	Local	Removal of scrub, hedgerow with reduce nesting habitat across the site. The loss of arable land will reduce foraging habitat.	Where possible scrub habitat and boundary hedgerows will be retained, across the site. Where this is not possible, further woodland planting will continue to provide sufficient nesting habitat. During works, seed rich set aside should be provided along field margins to compensate loss of foraging habitat	Neutral/Slight adverse
Mallard	Commonly found in suitable wetland habitats and urban areas such as parks.	Birds were recorded on all three visits.	Local	Loss of wetland areas across the site will reduce both foraging and nesting habitat.	None suggested. The reduction in wetland areas across the site will reduce breeding, although mallards are currently using ponds created in farmsteads, although hybridisation is occurring with domestic breeds of mallard.	Neutral
Mistle Thrush	Commonly found in woodland and woodland edge, farmland,	Birds were recorded on all three visits.	Local	Loss of woodland edge and parkland will reduce nesting and foraging habitat.	Where possible trees and woodland edges will be retained. Where this is not possible further	Neutral/Slight adverse

**A47 Blofield to North Burlingham  
Breeding Bird Survey**

Species	Habitat Requirements	Survey Account	Nature Conservation Value <sup>2</sup>	Unmitigated Impacts	Suggested Mitigation	Residual Impact <sup>3</sup>
	parkland and gardens. Nesting in trees more than 2m.				woodland planting will help to continue to provide suitable nesting habitat.	
Reed Bunting	Mainly breeds in farmland and wetland habitats including, ditch edges, crops and set aside. Young are fed solely on invertebrates until they fledge.	Birds were recorded on the first and second visit.	Local	Loss of hedgerow habitat with reduce nesting habitat and the loss of arable land will remove foraging habitat	Boundary hedgerows should be retained where possible. Where this is not possible, supplementary hedgerow planting will be required along new field boundaries. The loss of arable land cannot be compensated and this will reduce suitable foraging habitat.	Slight adverse.
Skylark	Ground nesting species which prefer open farmland habitats where short, sparse vegetation provides cover and foraging habitat. Feeds on plant and animal product with insect being especially important in the summer.	Birds were recorded on all three visits.	Local	Loss of arable areas where species are currently breeding.	None suggested. Due to their requirements for open grassland or arable fields, it is not possible to compensate for the loss of this type of habitat. Due to the loss of habitat, skylark will inevitably decline in breeding numbers. This loss can be reduced through the provision of skylark plots in the remaining arable fields.	Adverse
Song Thrush	Often associated with thick hedgerows, native woodland and damp ground, including grazed pasture. Main food source is worms and snails when insect larvae and berry crops are not available.	Birds were recorded on all three visits.	Local	Loss of hedgerows across site which currently offers nesting habitat.	Where possible scrub habitat and hedgerows will be retained, across the site. Where this is not possible, further woodland planting will continue to provide sufficient nesting habitat.	Neutral

**A47 Blofield to North Burlingham  
Breeding Bird Survey**

Species	Habitat Requirements	Survey Account	Nature Conservation Value <sup>2</sup>	Unmitigated Impacts	Suggested Mitigation	Residual Impact <sup>3</sup>
Starling	During the breeding season the species will concentrate where small cavities are present, both naturally and man-made. Invertebrates are an important food source for young.	Birds were recorded on all three visits.	Local	Loss of foraging habitat across the site and removal of trees with suitable nest cavities.	If trees are to be removed across site, the provision of nest boxes on retained trees will present the species with suitable nesting opportunities. Suitable woodland planting should also be undertaken to compensate for the loss of trees	Slight positive
Stock Dove	Often breed in parkland, along woodland edges, near quarries and cliffs. Using nesting cavities in rotten trees and bird boxes.	Birds were recorded on all three visits.	Local	Removal of trees with potential nesting cavities. Loss of foraging habitat across the site.	Large trees with suitable nesting cavities are to be retained. Where this is not possible suitable nest boxes should be placed in trees which have been retained. The reduction of arable land will affect the foraging habitat for this species and cannot be compensated.	Slight adverse
Swift	Nesting high in eaves of old houses, churches, and areas where birds can drop from the nest into the air.	Birds were recorded during the third survey.	Local	N/A	As swifts are considered a LBAP species, mitigation for this species is based on a conservation value. Nesting cavities should be erected on suitable building adjacent to the new road and to any new structure build during the process of the works.	Neutral (See 6.8.2)
Turtle Dove	Breed mainly in tall mature hedges, areas of scrub or woodland edge with thick scrub	A single male was singing in optimal breeding habitat on the second survey.	Local	Loss of hedges and areas of woodland reduce potential nesting habitat	Stands of tall wooded areas should be avoided and retained. Where this is not possible, tall hedges and wooded areas should	Neutral/adverse

**A47 Blofield to North Burlingham  
Breeding Bird Survey**

Species	Habitat Requirements	Survey Account	Nature Conservation Value <sup>2</sup>	Unmitigated Impacts	Suggested Mitigation	Residual Impact <sup>3</sup>
	layer. Most require nesting habitat to be over four meters tall.				be replanted in suitable locations, and left to grow to the height of 4 meters, with an understory of thick scrub maintained.	
Yellow Wagtail	Prefer damp habitats such as wet meadows, grazing marshes, river valleys although there has been an increase in the use of arable habitats with oil-seed rape, legumes and root crops being favoured.	Individuals were recording in good breeding habitat during the second survey.	Local	Removal of arable land reducing nesting habitat and foraging habitat	None suggested. The loss of arable lands across the site will inevitably affect both foraging and breeding habitat for this species.	Adverse
Yellowhammer	Traditionally based on edges of open areas or forest and scrub. Breeding sites extend extensively across cultivated land with hedges and plantations. Feeds mainly on seeds, with an increase in invertebrates during the summer.	Birds were recorded on all three surveys.	Local	The loss of arable fields will greatly reduce the foraging opportunities. Removal of hedgerows will also reduce the nesting opportunities.	The loss of arable fields will reduce foraging habitat for this species, this can be compensated by the provision of seed rich set aside along new field margins. Breeding habitat can be maintained through the retained of hedgerows. If this is not possible, the supplementary planting of new hedgerows adjacent to new field margins will compensate the initial loss of foraging habitat.	Neutral/Adverse

6.3.3 Impacts to other species that are breeding on site, or showing possible or probably breeding activity, are expected to be no greater than those listed in Table 10.

## **6.4 Impact of Habitat Change/Loss on Other Species.**

- 6.4.1 It is identified that a nest used by a pair of kestrel will be lost during the construction works (approximate grid ref TG 372098). The provision of a kestrel box in an area of suitable habitat is erected to compensate this loss.
- 6.4.2 The impacts of the loss of hedgerow will remove both shelter, foraging and nesting habitat for a range of common species not previously mentioned in Table 10. Due to this, supplementary planting of boundary hedgerows should be undertaken to compensate for the loss of habitat.

## **6.5 Construction Impacts**

- 6.5.1 Construction operations could disturb bird species of nature conservation interest using the site for roosting, foraging, breeding and loafing. All birds, their nests and eggs are protected by law and it is an offence, with certain exceptions, to intentionally:
- Kill, injure or take any wild bird;
  - Take damage or destroy the nest of any wild bird while it is in use or being built;
  - Take or destroy the egg of any wild bird.

It is assumed that construction operations will be occurring throughout the breeding season and disturbance from these activities may lead to nest desertion or the avoidance of the area. This can also reduce the suitability of retained areas of hedgerows, scrub and woodland edges.

- 6.5.2 Where a bird nest has been identified, a suitable buffer zone should be maintained around these areas to reduce disturbance. The conservation value of the species and legal designations should be considered to ensure a suitable buffer zone is provided.
- 6.5.3 Ground clearance should ideally be phased across the site, this should include the staggering of vegetation removal. This process will enable some habituation from breeding species which will help minimise the effect of works on the breeding population across the site. Although breeding success is predicted to be reduced, it is unlikely to affect the local conservation status of the breeding birds on site.

## **6.6 Operational Impacts**

- 6.6.1 Birds are generally considered likely to be affected by an increase in use of the area by traffic and can be particularly susceptible to noise from the new road.



## **A47 Blofield to North Burlingham Breeding Bird Survey**

- 6.6.2 Barn owl are considered most likely to be affected by the new road design due to their proximity to the existing A47. Studies have found that 90% of all barn owl mortalities are from major roads such as dual carriageways (Barn Owl Trust 2012). By following the mitigation outlined in Table 10, this will reduce the potential for traffic collisions.
- 6.6.3 Post work monitoring of the site should be undertaken to establish whether the road is increasing road casualties and a breeding bird survey is recommended to establish whether there has been a reduction in population size from the works. If a reduction is observed, further mitigation will be required.

### **6.7 Mitigation Measures**

- 6.7.1 All nesting birds, their nests and fledgling young are protected under the Wildlife and Countryside Act, 1981 (as amended). To avoid disturbance to breeding birds, any woody vegetation will be removed prior to the bird-breeding season (March to September inclusive).
- 6.7.2 Where vegetation removal is not possible outside the breeding season the site will be checked prior to removal of vegetation, or whilst any other groundworks occur that may disturb breeding species (e.g. dunnocks in hedgerows, skylarks in open field areas), by an experienced ecologist. If active nests are found, areas will be left untouched and suitably buffered from works until all birds have fledged. Specific advice will be provided prior to undertaking the clearance.
- 6.7.3 To prevent disturbance to off-site habitats, areas around the site boundary should be buffered where possible.

### **6.8 Mitigation and Conservation Compensation**

- 6.8.1 In addition to those enhancements noted above in Table 10, other enhancements that should be integrated into the development proposals include the erection of a mixture of nest box types such as hole-fronted boxes for blue tit and great tit and open fronted boxes for robin.
- 6.8.2 Specifically designed swift boxes should be erected on suitable building adjacent to the road. Swift are considered a local action plan species and an Amber listed species of concern and therefore, action to be undertaken as conservation compensation.
- 6.8.3 To limit the severity of habitat loss for Skylark, it is recommended that skylark plots should be placed in suitable arable land to compensate for loss of habitat. These plots consist of undrilled areas in winter cereal crops with a minimum size of 16m<sup>2</sup> and 3m wide (eg. 4x4m or 3x6m). This is also proved to benefit Yellow Wagtail and numerous other insect feeding species.

**A47 Blofield to North Burlingham  
Breeding Bird Survey**

6.8.4 A mixture of more specialised boxes such as tawny owl (*Strix aluco*), kestrel and stock dove should be placed in existing established boundary habitats.

## 6.9 Barn Owl Survey

6.9.1 It was concluded that due to the presence of barn owl during the breeding bird survey, a targeted barn owl survey was required to further the knowledge of this species across the site. The addition of this survey will help to ensure that comprehensive mitigation measures are outlined to ensure the potential residual impact is minimised.

6.9.2 A single barn owl survey was undertaken by MMSJV Principal Ecologist Diane Wood and Consultant Ecologist Mike Youdale on 5<sup>th</sup> July 2018. This survey inspected three barn owl nest boxes across the site, and suitable nesting habitat in the form of barns. Landowners were also interviewed to help develop the understanding of the location and distribution of the species across the site.

6.9.3 The three barn owl boxes were located at;

Box Number	Grid Reference
One	TG 36062 10344 (Home Farm)
Two	TG 36220 10308 (Home Farm)
Three	TG 37772 10463 (Burlingham Lodge)

6.9.4 The suitable buildings were located at;

Farm Location	Grid Reference
Poplar Farm	TG 35814 09900 & TG 35828 09912
Home Farm	TG 36172 10331
St Peters Church Ruins	TG 36839 10053
Nelson Place	TG 37389 10197

6.9.5 In nest box one, five eggs were present and a single female was disturbed from the box. On inspection, the five eggs were cold and were not being incubated and therefore, this nest had failed. Evidence in the box indicate owls are still roosting in the box during the day. On speaking to the landowner, barn owl regularly breed and fledge young from box one, but have never bred in box two since it was erected.

6.9.6 There were no eggs or chicks observed in nest box two or three. Nest box two had signs of occasional use, however there was no fresh pellets inside the box with a very thin layer of nest debris. The owner also stated that barns owl were very rarely seen in the barn, unlike box one. Nest box three appeared to have fledged a brood of jackdaw, with the box being filled heavily with sticks and jackdaw feather and eggshell present inside the box.

6.9.7 Poplar farm buildings were inspected but no sign of barn owl activity was

**A47 Blofield to North Burlingham  
Breeding Bird Survey**

observed. The landowner stated that a pair of barn owl use to breed on the farm but have not done so for many years.

- 6.9.8 Home farm is the location of two of the three nest boxes and barn owls are known to breed on this farm. The buildings were inspected to establish a better understanding of roosting sites, although no signs were found in any of the accessible barns. The landowner stated during the winter months, barn owls visit the barns more frequently, but were very rarely seen during the breeding season.
- 6.9.9 St Peters Church ruins has been used for breeding in the past according to local land owners and ornithologists however, the site has not been used for breeding for several years. On inspection of the church, fresh pellets (from that morning) were observed and recent pellets, no more than one weeks old, were located on a wooden beam in the old entranceway of the church. Adjacent to this beam an old nest site was observed, although this site had not been used for several years. Throughout the church, barn owl pellets were discovered ranging from approximately 6 months to more than three year old pellets. In the south east corner of the building a large quantity of nest debris was present on the floor. Above this, a large ledge which could contain a historical nest was identified, although due to the height of this ledge, approximately 25m, the ledge could not be accessed. The evidence in this church would suggest that barn owls are still using this church as a roosting area, although are no longer breeding in the ruins. There is a large stand of ivy *Hedera helix* covering the north east section of the church and it is highly likely that barns owls will also be roosting within the stand of ivy. It is also considered that the ivy would be highly suitable as a nest site for barn owl, although no evidence of breeding was observed during the survey.
- 6.9.10 Nelson Place was surveyed due to its proximity to nest box three. There is one barn on site which is open sided with another barn being closed and inaccessible. The open sided barn held no signs of barn owl and it can be concluded that barn owls are not using this barn to roost.

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**A47 Blofield to North Burlingham  
Breeding Bird Survey**

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## Annex A – Assessment of Breeding Status Codes

Breeding Status evidence can be broken down into four sections, each with their own codes:

### **Confirmed breeder**

DD – distraction display or injury feigning  
UN – used nest or eggshells found from this season  
FL – recently fledged young or downy young  
ON – adults entering or leaving nest-site in circumstances indicating occupied nest  
FF – adult carrying faecal sac or food for young  
NE – nest containing eggs  
NY – nest with young seen or heard

**Probable breeder** - Evidence accumulated during the survey indicates that the bird species is breeding on site.

P – pair in suitable nesting habitat  
T – permanent territory (defended over at least 2 survey occasions)  
D – courtship and display  
N – visiting probable nest site  
A – agitated behaviour  
I – brood patch of incubating bird (from bird in hand)  
B – nest building or excavating nest-hole

**Possible breeder** - Evidence accumulated during the survey indicates that the bird species could be breeding on site, but the evidence is less conclusive than that obtained for probable breeders.

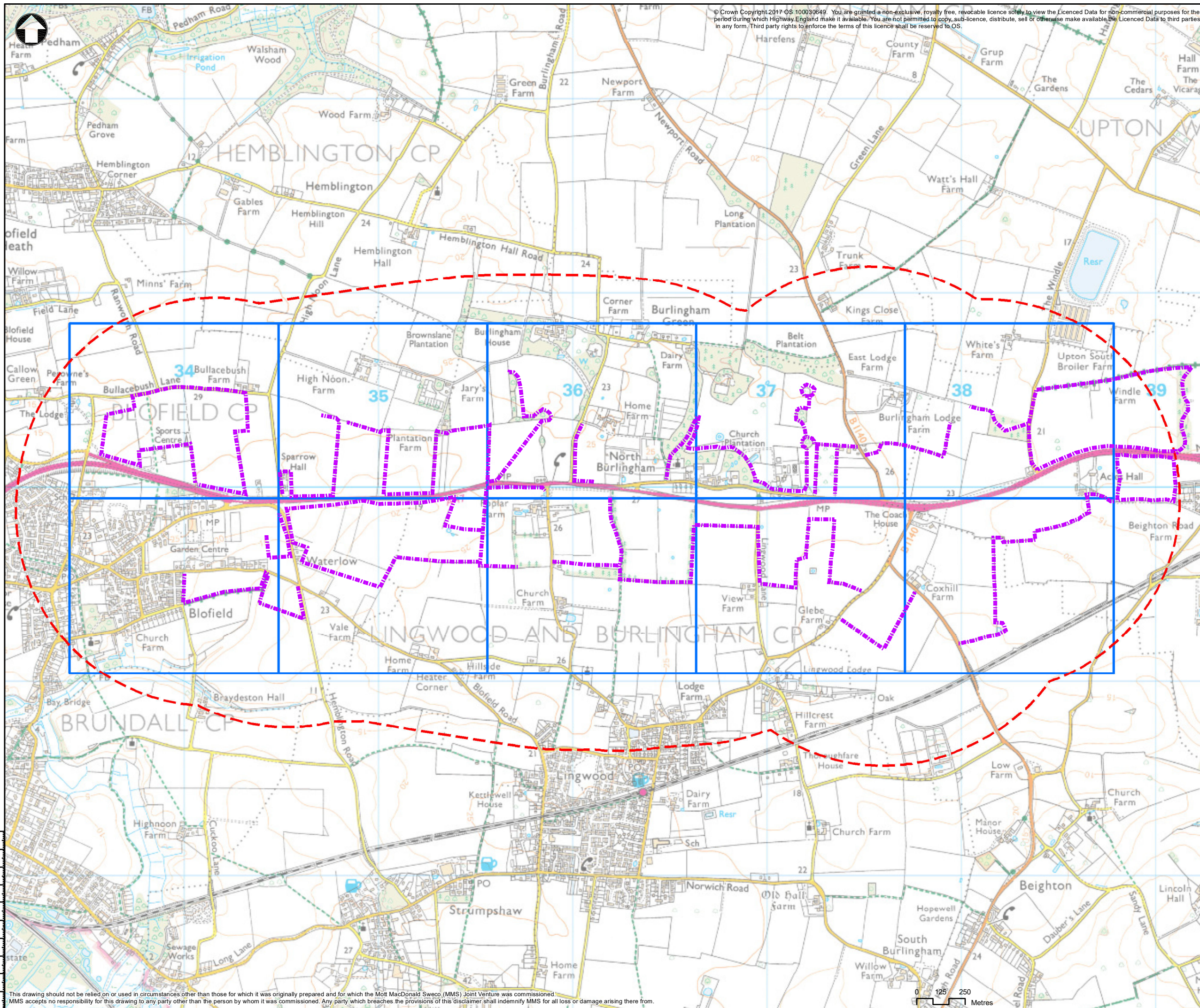
H – observed in suitable nesting habitat  
S – singing male

### **Non-breeder**

F – flying over  
M – migrant  
U – summering non-breeder  
UH – observed in unsuitable nesting habitat

## Annex B – BBS Transect Routes



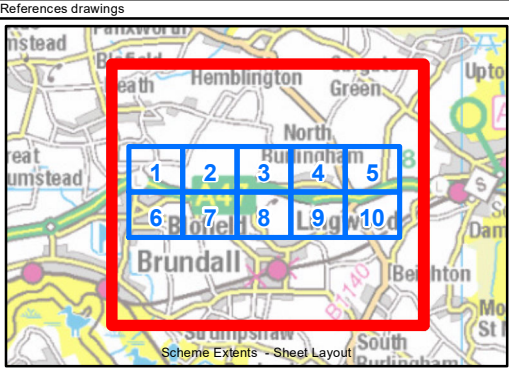


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Key to symbols

- Proposed Scheme Area
- Proposed Scheme 1km Study Area
- Transects

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P01	01/09/18	FOR INFORMATION	AC	MY	MY
REV.	DATE	AMENDMENT DETAILS	ORIG	CHK'D	APP'D

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Tel: +44 (0)113 262 0000

Client

Drawing Status	FOR INFORMATION	Subsidiarity	S2
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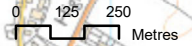
Project Title  
A47 - Blofield to North Burlingham

Drawing Title  
Annex B - Transect Routes

Scale	1:18,281.41	Designed	Youldale, Mike	Drawn	Corcoran, Ant	Checked	Youldale, Mike	Approved	Youldale, Mike
Original Size	A3	Date	01/06/18	Date	24/08/18	Date	01/09/18	Date	01/09/18

Drawing Number	HE551490	Originator	MMSJV	Volume	EBD	Project Ref. No.	HE551490
000	- RP - LB -	00008				Revision	P01
Location		Type		Role	Number		

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## Annex C – Full Survey Results

Species List	Scientific Name	Designation	Conservation Status	Survey One	Survey Two	Survey Three
Barn Owl	<i>Tyto alba</i>	Bern, WCA 1		1	0	1
Blackbird	<i>Turdus merula</i>	Birds Dir 2.2		63	83	70
Blackcap	<i>Sylvia atricapilla</i>			14	44	20
Black-headed Gull	<i>Chroicocephalus ridibundus</i>	Birds Dir 2.2	BoCC Amber	0	0	4
Blue Tit	<i>Cyanistes caeruleus</i>			103	75	87
Bullfinch	<i>Pyrrhula pyrrhula</i>	NERC	BoCC Amber	0	0	2
Buzzard	<i>Buteo buteo</i>	Bonn		4	7	7
Carrion Crow	<i>Corvus corone</i>	Birds Dir 2.2		45	58	46
Chaffinch	<i>Fringilla coelebs</i>			103	83	83
Chiffchaff	<i>Phylloscopus collybita</i>			14	12	6
Coal Tit	<i>Periparus ater</i>			0	0	3
Collared Dove	<i>Streptopelia decaocto</i>	Birds Dir 2.2		1	4	2
Dunnock	<i>Prunella modularis</i>	Bern, NERC	BoCC Amber	10	23	12
Rock/Feral Pigeon	<i>Columba livia</i>	Birds Dir 2.1		0	6	2
Fieldfare	<i>Turdus pilaris</i>	Birds Dir 2.2, WCA 1	BoCC Red	14	0	0
Garden Warbler	<i>Sylvia borin</i>			0	0	1
Goldcrest	<i>Regulus regulus</i>			2	1	3
Goldfinch	<i>Carduelis carduelis</i>	Bern		46	97	92
Great Black-backed Gull	<i>Larus marinus</i>	Birds Dir 2.2	BoCC Amber	0	0	7
Great Spotted Woodpecker	<i>Dendrocopos major</i>	Bern		2	3	1
Great Tit	<i>Parus major</i>			51	24	47
Green Woodpecker	<i>Picus viridis</i>	Bern		0	1	0
Greenfinch	<i>Chloris chloris</i>	Bern		20	12	19
Grey Heron	<i>Ardea cinerea</i>			0	0	1
Grey Partridge	<i>Perdix perdix</i>	Bird Dir 2.1, NERC,	BoCC Red	2	0	0
Helmeted Guineafowl	<i>Numida meleagris</i>			0	6	0
Herring Gull	<i>Larus argentatus</i>	Birds Dir 2.2, NERC,	BoCC Red	6	8	3

**A47 Blofield to North Burlingham  
Breeding Bird Survey**

Species List	Scientific Name	Designation	Conservation Status	Survey One	Survey Two	Survey Three
Hobby	<i>Falco subbuteo</i>	Bern, BONN, WCA 1		0	0	1
House Martin	<i>Delichon urbicum</i>	Bern	BoCC Amber	0	3	12
House Sparrow	<i>Passer domesticus</i>	NERC,	BoCC Red	26	43	43
Jackdaw	<i>Coloeus monedula</i>	Birds Dir 2.2		5	18	48
Jay	<i>Garrulus glandarius</i>	Birds Dir 2.2		8	4	2
Kestrel	<i>Falco tinnunculus</i>			1	8	3
Lapwing	<i>Vanellus vanellus</i>	Birds Dir 2.2, NERC,	BoCC Red	7	2	0
Lesser Black-backed Gull	<i>Larus fuscus</i>	Birds Dir 2.2	BoCC Amber	17	6	1
Lesser Whitethroat	<i>Sylvia curruca</i>			0	3	2
Linnet	<i>Linaria cannabina</i>	Bern, NERC,	BoCC Red	9	16	6
Long-tailed Tit	<i>Aegithalos caudatus</i>			24	15	6
Magpie	<i>Pica pica</i>	Birds Dir 2.2		2	4	2
Mallard	<i>Anas platyrhynchos</i>	Bonn, Birds Dir 2.1	BoCC Amber	16	15	5
Marsh Harrier	<i>Circus aeruginosus</i>	Bonn, Birds Dir 1, WCA 1	BoCC Amber	0	1	0
Mistle Thrush	<i>Turdus viscivorus</i>	Birds Dir 2.2	BoCC Red	2	4	3
Nuthatch	<i>Sitta europaea</i>			1	0	0
Pheasant	<i>Phasianus colchicus</i>	Birds Dir 2.1		44	33	19
Subssp. Green Pheasant	<i>Phasianus versicolor</i>			2	1	3
Pied Wagtail	<i>Motacilla alba</i>	Bern		6	18	8
Quail	<i>Coturnix coturnix</i>	Bonn, Birds Dir 2.2, WCA 1	BoCC Amber	0	60	0
Red Kite	<i>Milvus milvus</i>	Bonn, Birds Dir 1, WCA 1		0	1	0
Red-legged Partridge	<i>Alectoris rufa</i>	Birds Dir 2.1		31	59	36
Redwing	<i>Turdus iliacus</i>	Birds Dir 2.2, WCA 1	BoCC Red	70	0	0
Reed Bunting	<i>Emberiza schoeniclus</i>	Bern, NERC,	BoCC Amber	8	2	0
Robin	<i>Erithacus rubecula</i>	Bern		51	40	35
Rook	<i>Corvus frugilegus</i>	Birds Dir 2.2		3	9	0
Shelduck	<i>Tadorna tadorna</i>	Bern, Bonn	BoCC Amber	0	5	0

**A47 Blofield to North Burlingham  
Breeding Bird Survey**

Species List	Scientific Name	Designation	Conservation Status	Survey One	Survey Two	Survey Three
Skylark	<i>Alauda arvensis</i>	Birds Dir 2.2, NERC,	BoCC Red	35	14	14
Snipe	<i>Gallinago gallinago</i>	Bonn, Birds Dir 2.1		6	0	0
Song Thrush	<i>Turdus philomelos</i>	Birds Dir 2.2, NERC,	BoCC Red	9	10	13
Sparrowhawk	<i>Accipiter nisus</i>	Bonn, Birds Dir 1		0	0	1
Starling	<i>Sturnus vulgaris</i>	Birds Dir 2.2, NERC,	BoCC Red	15	37	44
Stock Dove	<i>Columba oenas</i>	Birds Dir 2.2	BoCC Amber	4	6	9
Swallow	<i>Hirundo rustica</i>	Bern		0	21	27
Swift	<i>Apus apus</i>	Bern	BoCC Amber	0	0	12
Treecreeper	<i>Certhia familiaris</i>			1	0	0
Turtle Dove	<i>Streptopelia turtur</i>	Bonn, Birds Dir 2.2, NERC,	BoCC Red	0	1	0
Whitethroat	<i>Sylvia communis</i>			0	13	14
White Wagtail	<i>Motacilla alba</i>	Bern		0	1	0
Woodark	<i>Lullula arborea</i>	Birds Dir 1, NERC		0	1	0
Woodcock	<i>Scolopax rusticola</i>	Birds Dir 2.1,	BoCC Red	3	0	0
Woodpigeon	<i>Columba palumbus</i>	Birds Dir 2.1		271	396	692
Wren	<i>Troglodytes troglodytes</i>	Bern		26	27	54
Yellow Wagtail	<i>Motacilla flava</i>	Bern, NERC,	BoCC Red	0	3	0
Yellowhammer	<i>Emberiza citrinella</i>	Bern, NERC,	BoCC Red	14	25	17





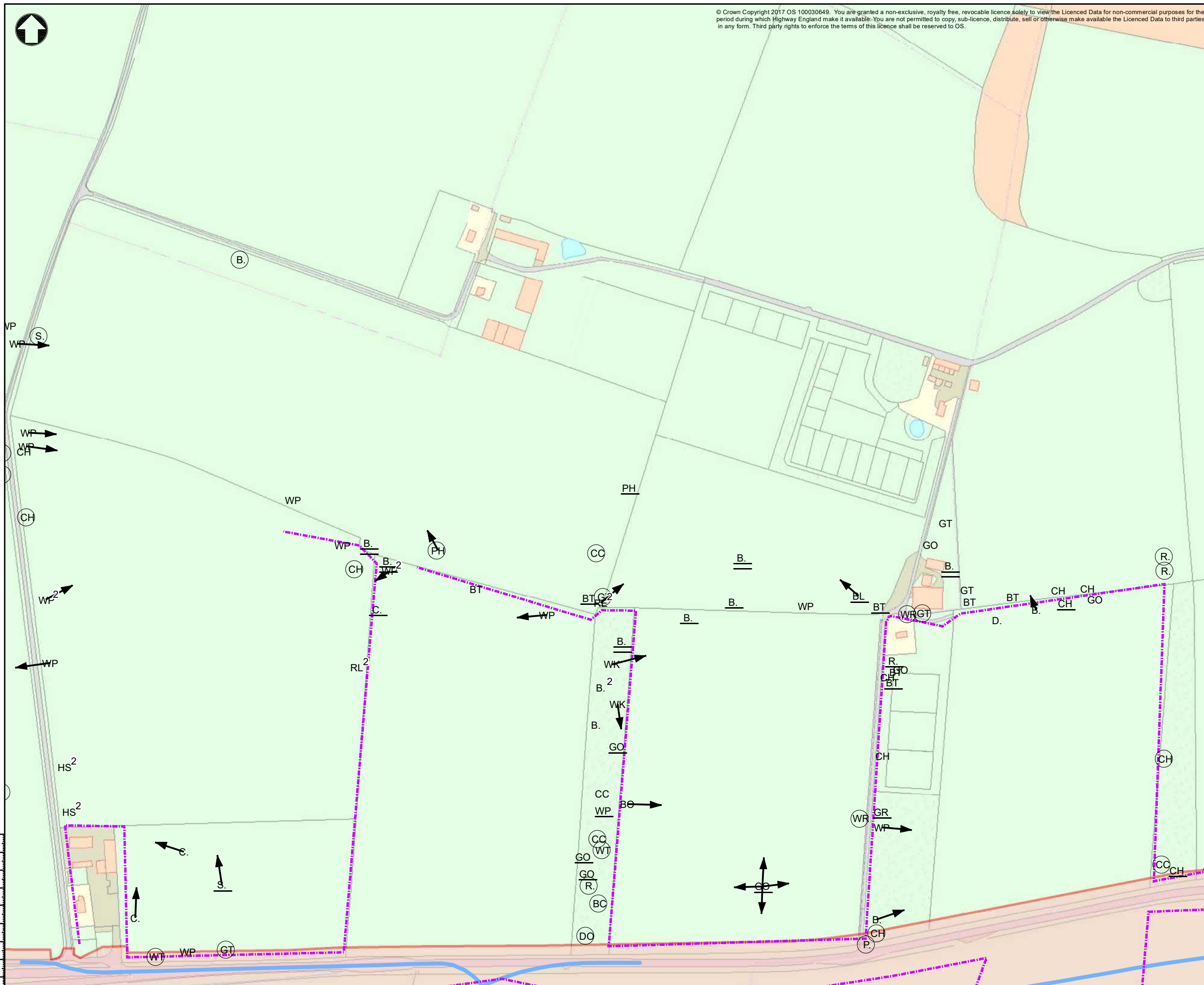
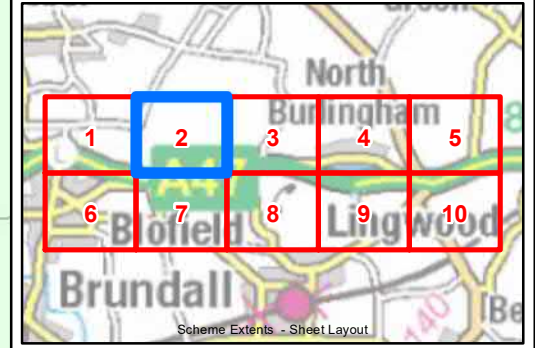
- Proposed Road Alignment
- Proposed Scheme Area
- Proposed Scheme 1km Study Area
- Transects

- Bird Activity**
- on Adult Sitting
  - Aggressive Encounter
  - Alarm Calls
  - Calling
  - f Carrying Food
  - mat Carrying Nest Mat
  - In Song
  - \* Occupied Nest
  - Occupied Nest -Provided
  - Flight Path
- Sex**
- Female
  - Male
  - juve Juvenile
  - Pair

For BTO bird species codes please refer to:  
[https://www.bto.org/sites/default/files/u16/downloads/forms\\_instructions/bto\\_bird\\_species\\_codes.pdf](https://www.bto.org/sites/default/files/u16/downloads/forms_instructions/bto_bird_species_codes.pdf)

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References drawings



P01	01/09/18	FOR INFORMATION	AC	MY	MY
REV.	DATE	AMENDMENT DETAILS	ORIG	CHKD	APPD

**Mott MacDonald Sweco**

Grove House  
Mansion Gate Drive  
Leeds  
LS7 4DN  
Tel: +44 (0)113 262 0000

Client

Drawing Status	FOR INFORMATION	Suitability	S2
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Project Title  
A47 - Blofield to North Burlington

Drawing Title  
Breeding Bird Survey Species Map  
Survey 1  
Page 2 of 10

Scale	1:3,500	Designed	Youdale, Mike	Drawn	Corcoran, Ant	Checked	Youdale, Mike	Approved	Youdale, Mike
Original Size	A3	Date	01/06/18	Date	24/08/18	Date	01/09/18	Date	01/09/18

Drawing Number	HE551490 - MMSJV	Originator	MMSJV	Volume	EBD	Project Ref. No.	HE551490
000	- RP - LB -	00005				Revision	P01











**Key to symbols**

- Proposed Road Alignment
- Proposed Scheme Area
- Proposed Scheme 1km Study Area
- Transects

**Bird Activity**

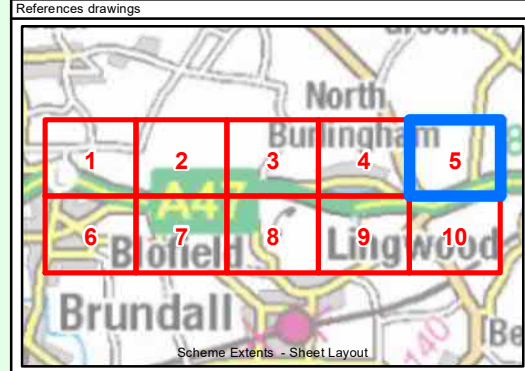
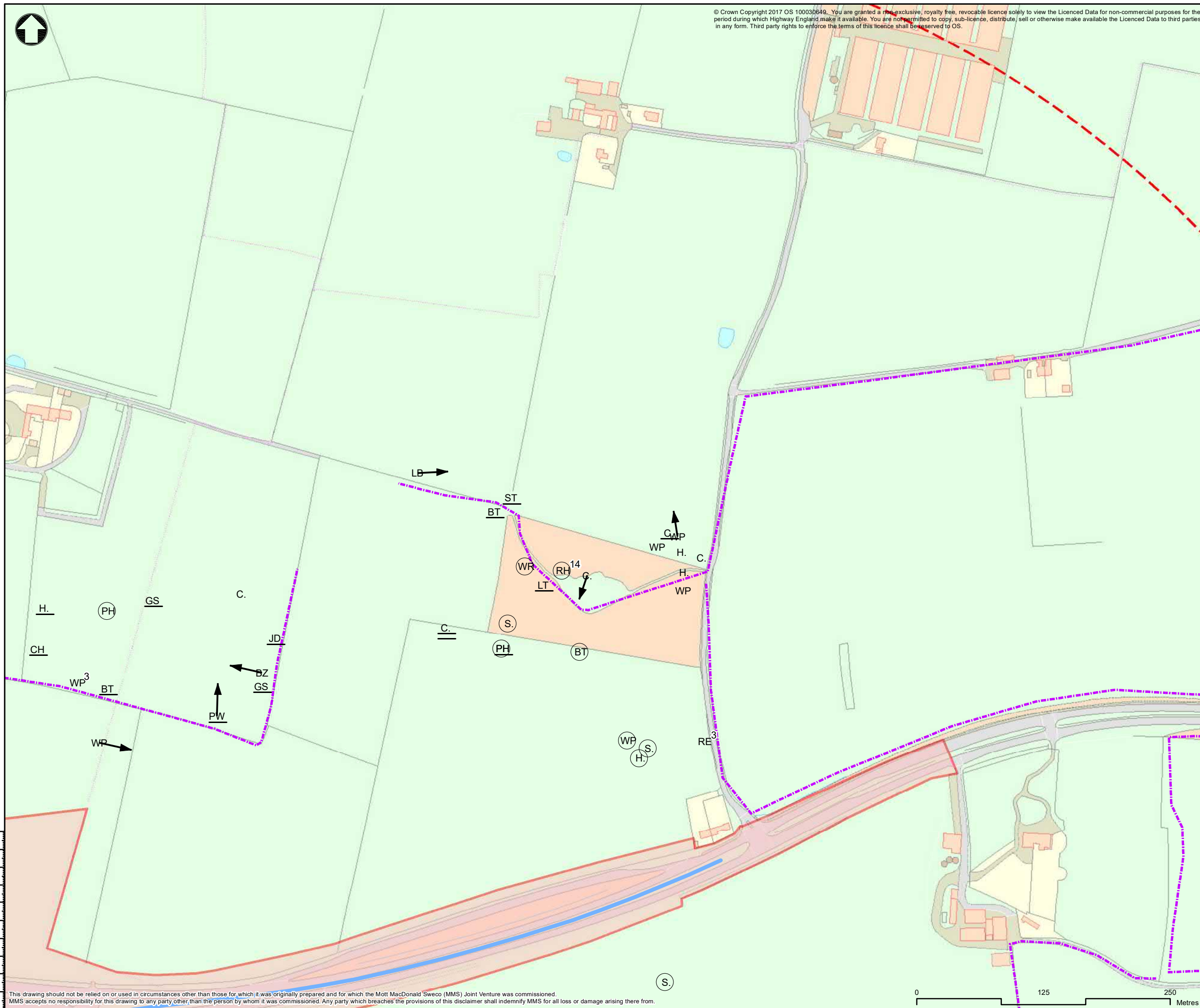
- on Adult Sitting
- Aggressive Encounter
- Alarm Calls
- Calling
- f ood Carrying Food
- mat Carrying Nest Mat
- In Song
- Occupied Nest
- Occupied Nest -Provided
- Flight Path

**Sex**

- Female
- Male
- juve Juvenile
- Pair

For BTO bird species codes please refer to:  
[https://www.bto.org/sites/default/files/u16/downloads/forms\\_instructions/bto\\_bird\\_species\\_codes.pdf](https://www.bto.org/sites/default/files/u16/downloads/forms_instructions/bto_bird_species_codes.pdf)

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REV.	DATE	AMENDMENT DETAILS	ORIG	CHKD	APPD

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Mansion Gate Drive  
Leeds  
LS7 4DN  
Tel: +44 (0)113 262 0000

Client

Drawing Status	FOR INFORMATION	Suitability	S2
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Project Title  
A47 - Blofield to North Burlington

Drawing Title  
Breeding Bird Survey Species Map  
Survey 1  
Page 5 of 10

Scale	1:3,500	Designed	Youdale, Mike	Drawn	Corcoran, Ant	Checked	Youdale, Mike	Approved	Youdale, Mike
Original Size	A3	Date	01/06/18	Date	24/08/18	Date	01/09/18	Date	01/09/18

Drawing Number	HE 551490	Originator	MMSJV	Volume	EBD	Project Ref. No.	HE551490
000	- RP - LB -	00005				Revision	P01



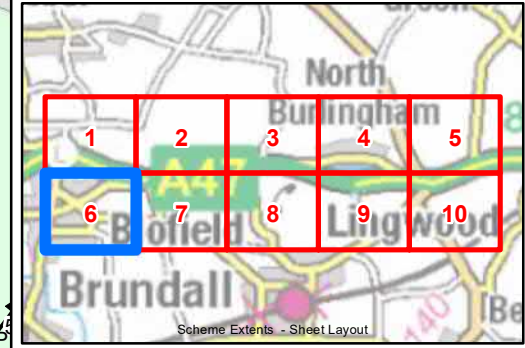
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- Key to symbols**
- Proposed Road Alignment
  - Proposed Scheme Area
  - Proposed Scheme 1km Study Area
  - - - Transects
- Bird Activity**
- on — Adult Sitting
  - ✖ Aggressive Encounter
  - = Alarm Calls
  - Calling
  - f — Carrying Food
  - mat — Carrying Nest Mat
  - In Song
  - \* Occupied Nest
  - Occupied Nest -Provided
  - Flight Path
- Sex**
- ♀ Female
  - ♂ Male
  - juve Juvenile
  - ♂♀ Pair

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[https://www.bto.org/sites/default/files/u16/downloads/forms\\_instructions/bto\\_bird\\_species\\_codes.pdf](https://www.bto.org/sites/default/files/u16/downloads/forms_instructions/bto_bird_species_codes.pdf)

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REV.	DATE	AMENDMENT DETAILS	ORIG	CHKD	APPD

**Mott MacDonald Sweco**

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Leeds  
LS7 4DN  
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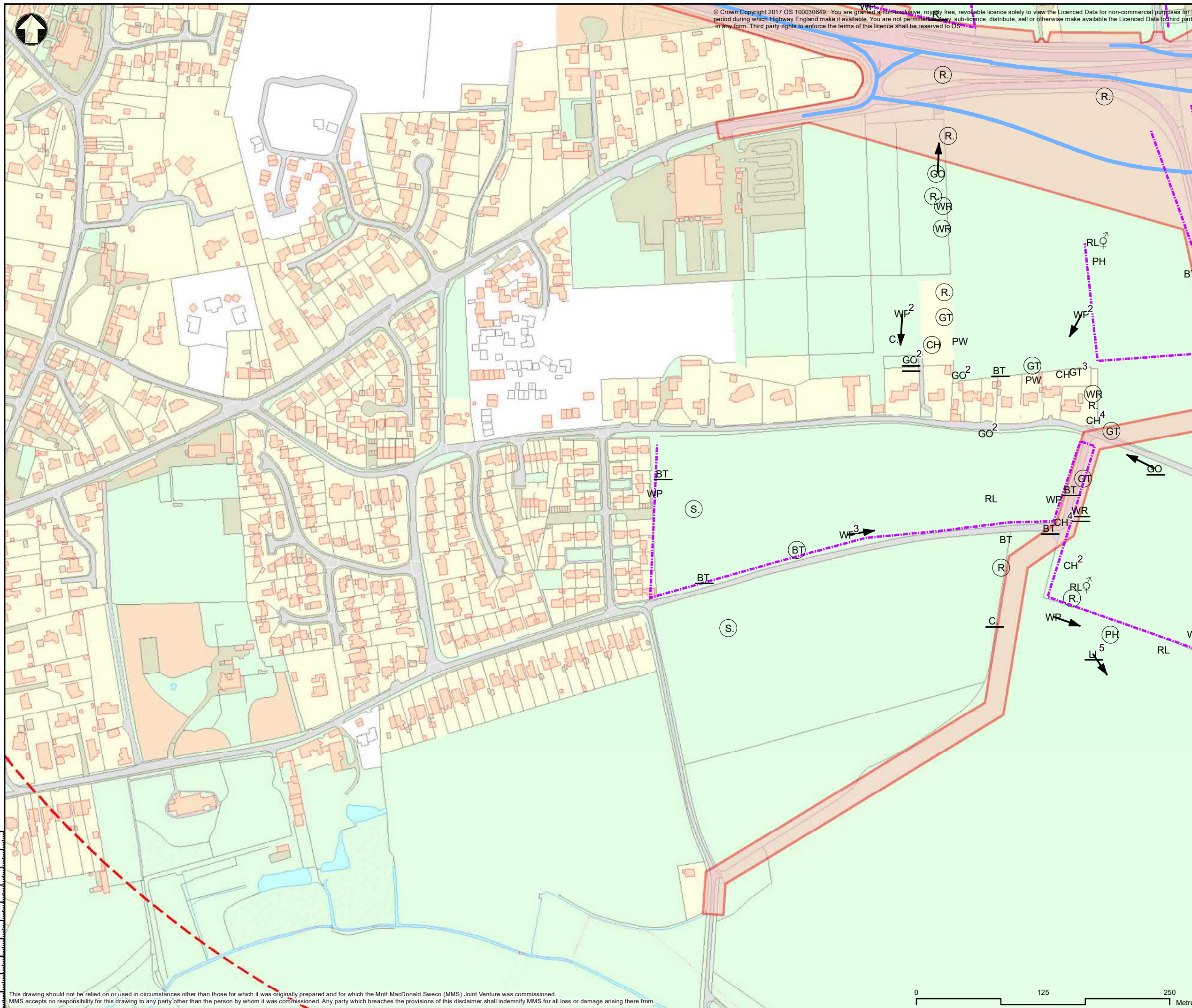
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Project Title: A47 - Blofield to North Burlington

Drawing Title: Breeding Bird Survey Species Map Survey 1  
Page 6 of 10

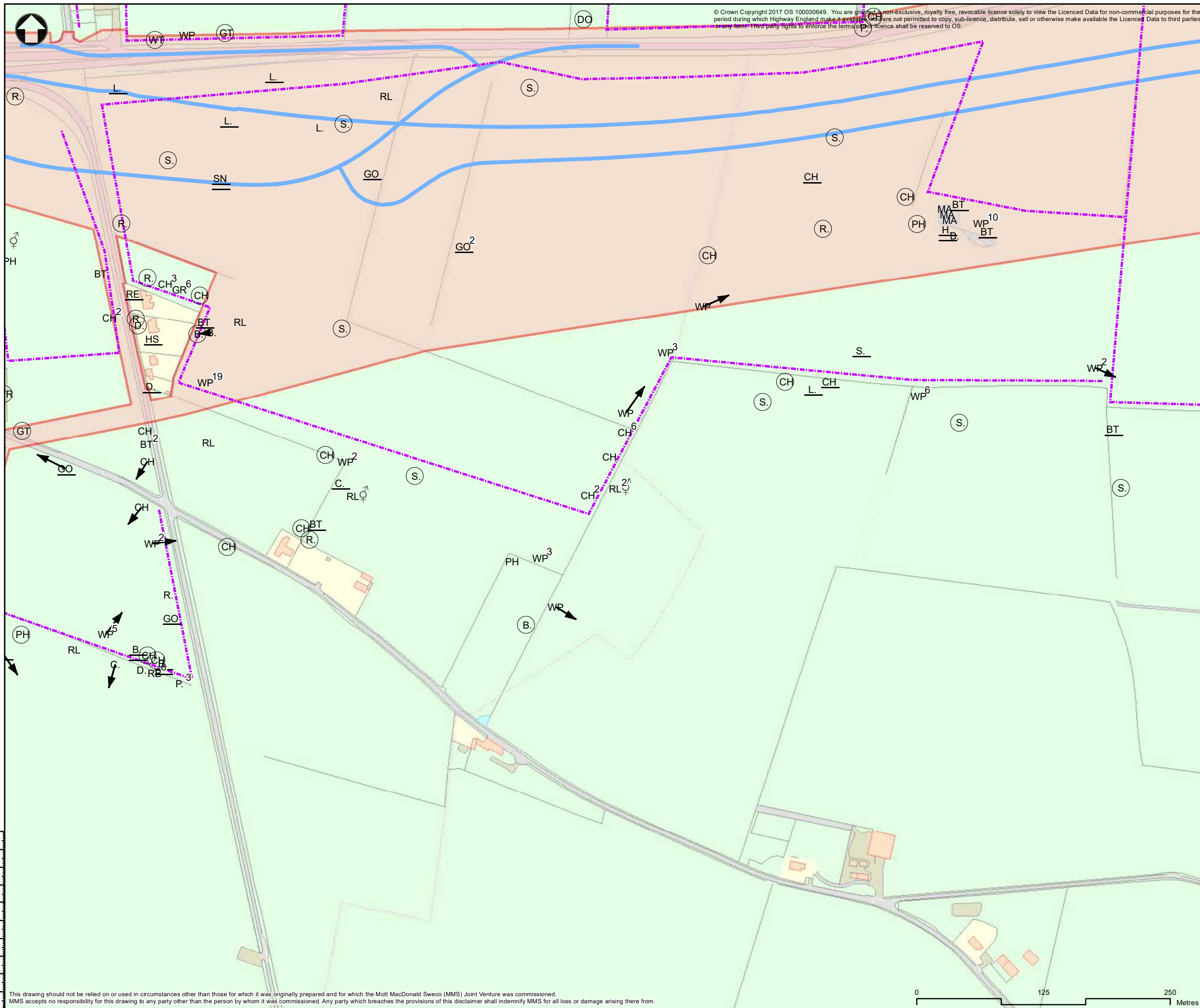
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Original Size: A3	Date: 01/06/18	Date: 24/08/18	Date: 01/09/18	Date: 01/09/18

Drawing Number: HE551490	Originator: MMSJV	Volume: EBD	Project Ref. No: HE551490
000	- RP - LB -	00005	Revision: P01



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**Key to symbols**

- Proposed Road Alignment
- Proposed Scheme Area
- Proposed Scheme 1km Study Area
- Transects

**Bird Activity**

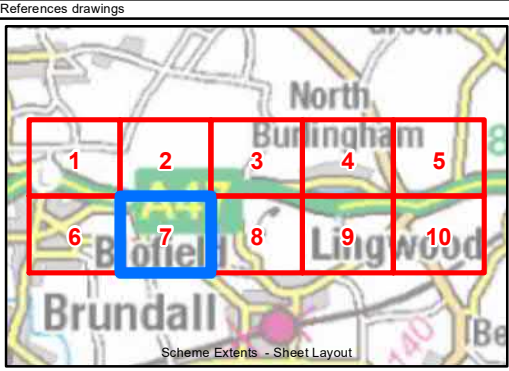
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- ✳ Aggressive Encounter
- ≡ Alarm Calls
- Calling
- f ood Carrying Food
- mat Carrying Nest Mat
- In Song
- \* Occupied Nest
- ⊠ Occupied Nest -Provided
- ➔ Flight Path

**Sex**

- ♀ Female
- ♂ Male
- juve Juvenile
- ♀♂ Pair

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[https://www.bto.org/sites/default/files/u16/downloads/forms\\_instructions/bto\\_bird\\_species\\_codes.pdf](https://www.bto.org/sites/default/files/u16/downloads/forms_instructions/bto_bird_species_codes.pdf)

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REV.	DATE	AMENDMENT DETAILS	ORIG	CHKD	APPD

**Mott MacDonald Sweco**

Grove House  
Mansion Gate Drive  
Leeds  
LS7 4DN  
Tel: +44 (0)113 262 0000

Client

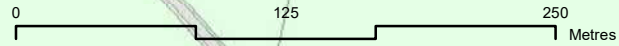
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Project Title  
A47 - Blofield to North Burlingham

Drawing Title  
Breeding Bird Survey Species Map  
Survey 1  
Page 7 of 10

Scale	1:3,500	Designed	Youdale, Mike	Drawn	Corcoran, Ant	Checked	Youdale, Mike	Approved	Youdale, Mike
Original Size	A3	Date	01/06/18	Date	24/08/18	Date	01/09/18	Date	01/09/18

Drawing Number HE PIN	Originator	Volume	Project Ref. No.
HE551490 - MMSJV	- EBD -		HE551490
000	- RP - LB -	00005	Revision
Location	Type	Role	Number
			P01



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**Key to symbols**

- Proposed Road Alignment
- Proposed Scheme Area
- Proposed Scheme 1km Study Area
- Transects

**Bird Activity**

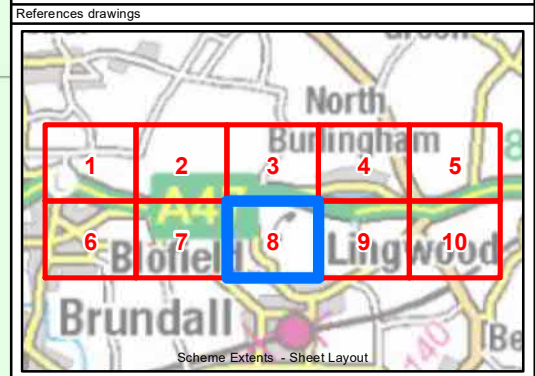
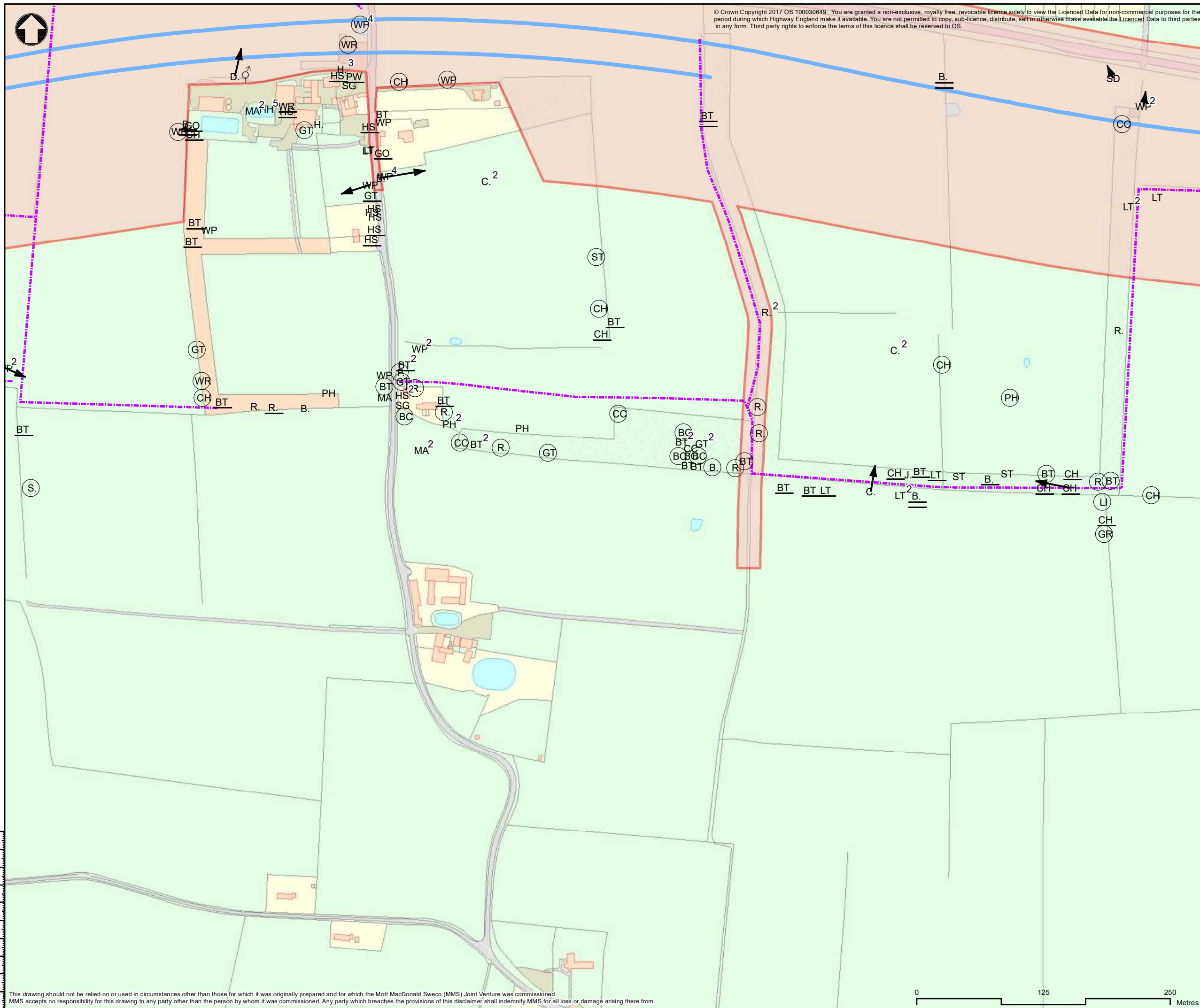
- on Adult Sitting
- ✱ Aggressive Encounter
- ≡ Alarm Calls
- Calling
- f ood Carrying Food
- mat Carrying Nest Mat
- In Song
- \* Occupied Nest
- ⊠ Occupied Nest -Provided
- ➔ Flight Path

**Sex**

- ♀ Female
- ♂ Male
- juve Juvenile
- ♂♀ Pair

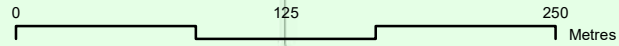
For BTO bird species codes please refer to:  
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REV.	DATE	AMENDMENT DETAILS	ORIG	CHKD	APPD
<b>Mott MacDonald Sweco</b>			Grove House Mansion Gate Drive Leeds LS7 4DN Tel: +44 (0)113 262 0000		
Drawing Status: FOR INFORMATION			Suitability: S2		
Project Title: A47 - Blofield to North Burlington					
Drawing Title: Breeding Bird Survey Species Map Survey 1 Page 8 of 10					
Scale: 1:3,500	Designed: Youdale, Mike	Drawn: Corcoran, Ant	Checked: Youdale, Mike	Approved: Youdale, Mike	
Original Size: A3	Date: 01/06/18	Date: 24/08/18	Date: 01/09/18	Date: 01/09/18	
Drawing Number: HE551490 - MMSJV		Originator: MMSJV		Project Ref. No: HE551490	
000		- RP - LB - 00005		Revision: P01	

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**Key to symbols**

- Proposed Road Alignment
- Proposed Scheme Area
- Proposed Scheme 1km Study Area
- Transects

**Bird Activity**

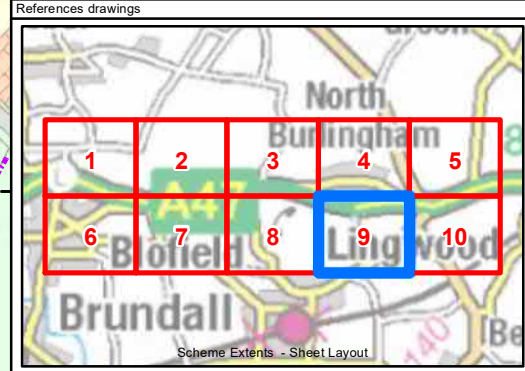
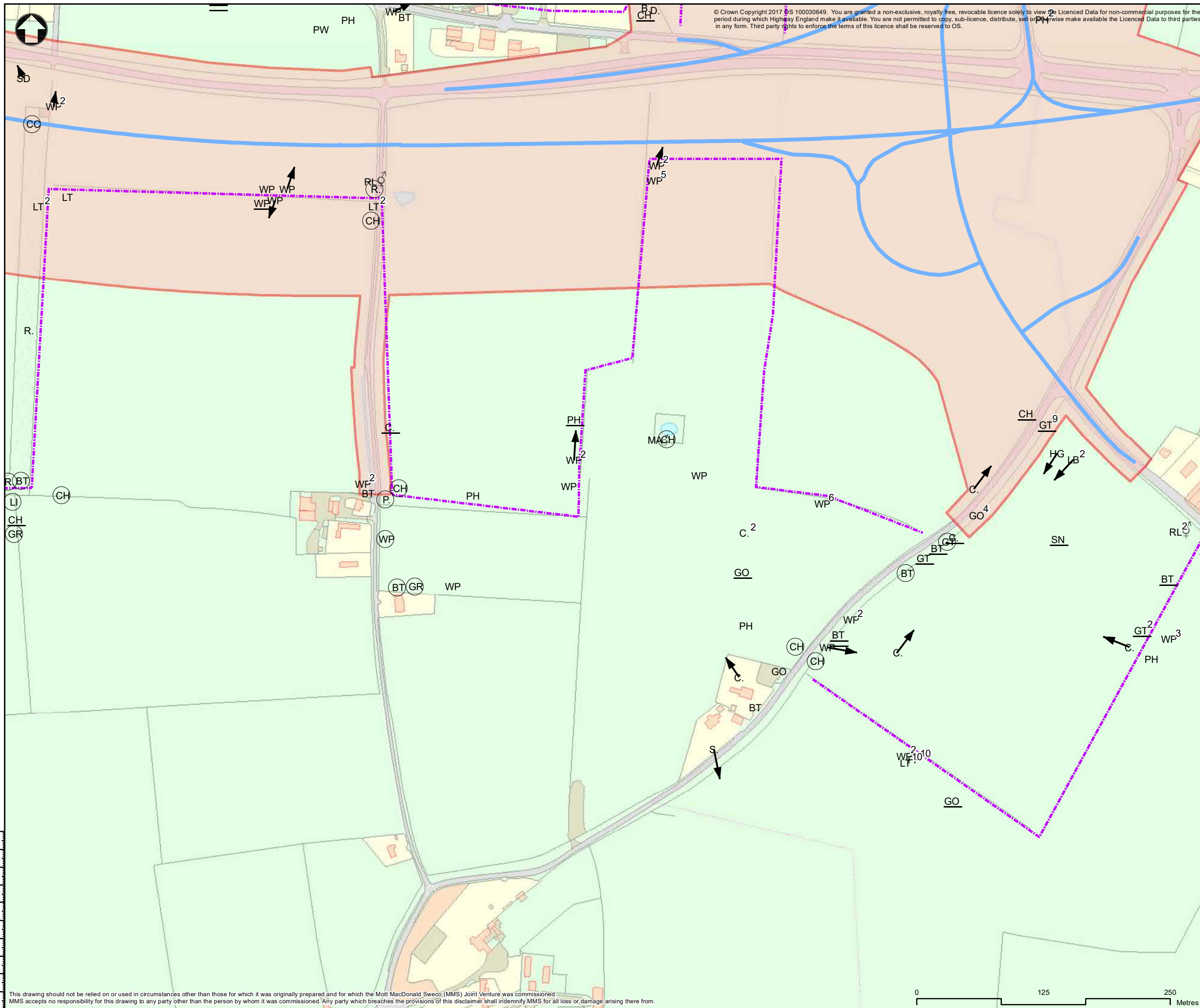
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- Aggressive Encounter
- Alarm Calls
- Calling
- Carrying Food
- Carrying Nest Mat
- In Song
- Occupied Nest
- Occupied Nest -Provided
- Flight Path

**Sex**

- Female
- Male
- Juvenile
- Pair

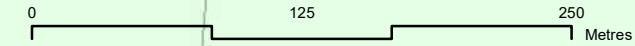
For BTO bird species codes please refer to:  
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P01	01/09/18	FOR INFORMATION	AC	MY	MY
REV.	DATE	AMENDMENT DETAILS	ORIG	CHKD	APPD
<b>Mott MacDonald Sweco</b>			Grove House Mansion Gate Drive Leeds LS7 4DN Tel: +44 (0)113 262 0000		
Drawing Status: FOR INFORMATION			Suitability: S2		
Project Title: A47 - Blofield to North Burlington					
Drawing Title: Breeding Bird Survey Species Map Survey 1 Page 9 of 10					
Scale: 1:3,500	Designed: Youdale, Mike	Drawn: Corcoran, Ant	Checked: Youdale, Mike	Approved: Youdale, Mike	
Original Size: A3	Date: 01/06/18	Date: 24/08/18	Date: 01/09/18	Date: 01/09/18	
Drawing Number: HE551490	Originator: MMSJV	Volume: EBD	Project Ref. No: HE551490		Revision: P01
000	- RP - LB -	00005	Location   Type   Role   Number		

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**Key to symbols**

- Proposed Road Alignment
- Proposed Scheme Area
- Proposed Scheme 1km Study Area
- Transects

**Bird Activity**

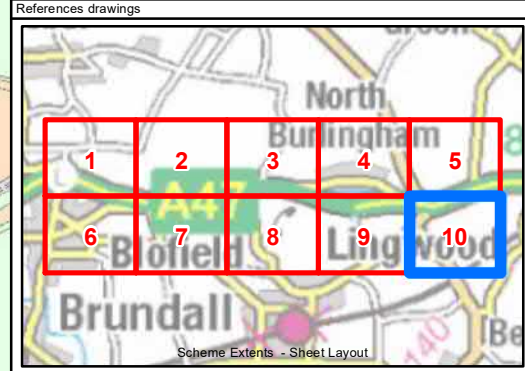
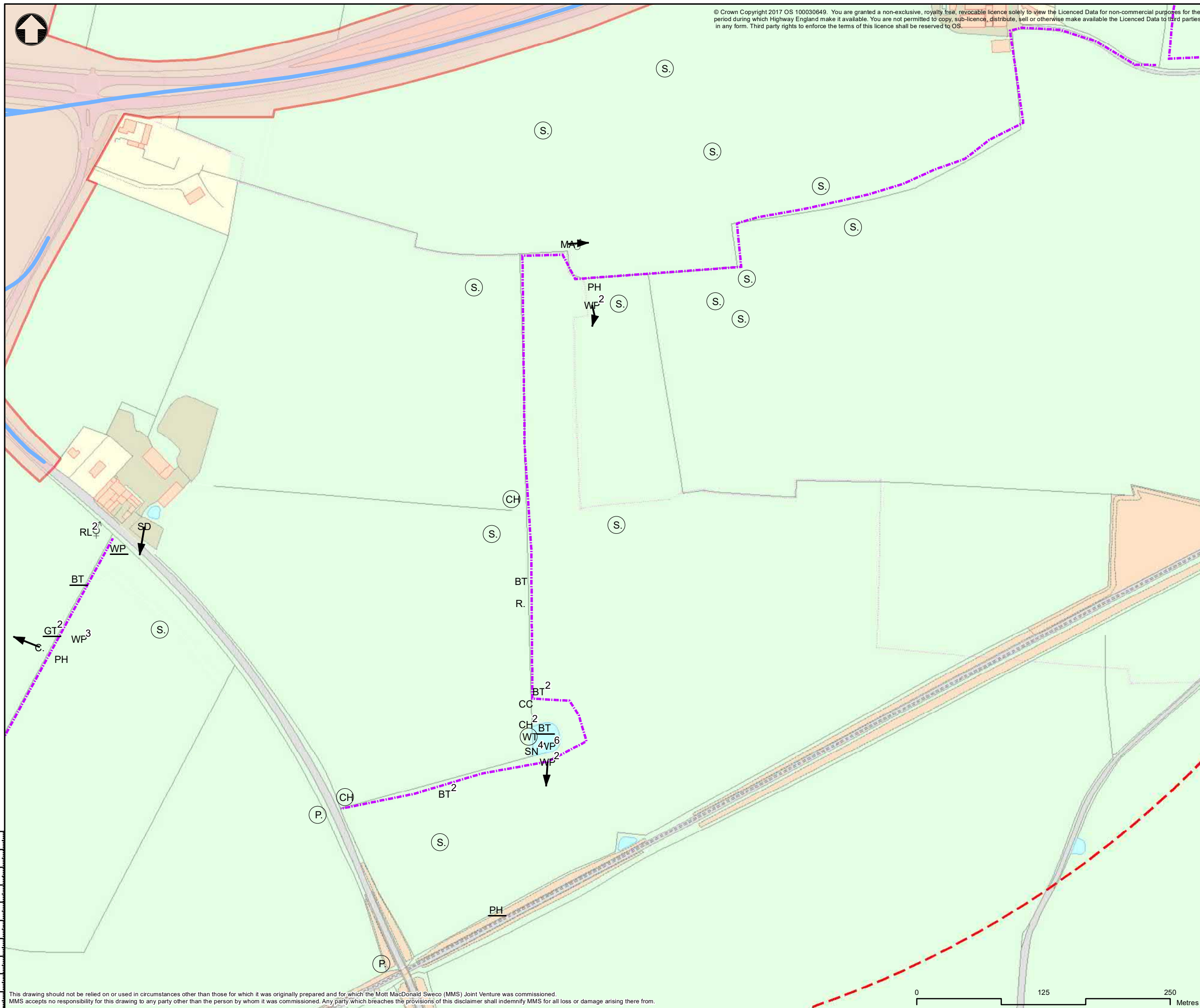
- on Adult Sitting
- Aggressive Encounter
- Alarm Calls
- Calling
- f Carrying Food
- mat Carrying Nest Mat
- In Song
- Occupied Nest
- Occupied Nest -Provided
- Flight Path

**Sex**

- Female
- Male
- juv Juvenile
- Pair

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REV.	DATE	AMENDMENT DETAILS	ORIG	CHKD	APPD

**Mott MacDonald Sweco**

Grove House  
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LS7 4DN  
Tel: +44 (0)113 262 0000



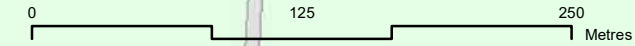
Drawing Status	FOR INFORMATION	Suitability	S2
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Project Title  
A47 - Blofield to North Burlington

Drawing Title  
Breeding Bird Survey Species Map  
Survey 1  
Page 10 of 10

Scale	1:3,500	Designed	Youdale, Mike	Drawn	Corcoran, Ant	Checked	Youdale, Mike	Approved	Youdale, Mike
Original Size	A3	Date	01/06/18	Date	24/08/18	Date	01/09/18	Date	01/09/18

Drawing Number	HE PIN	Originator	Volume	Project Ref. No.
HE551490	MMSJV	EBD		HE551490
000	- RP - LB -	00005		Revision
Location	Type	Role	Number	P01









**Key to symbols**

- Proposed Road Alignment
- Proposed Scheme Area
- Proposed Scheme 1km Study Area
- Transects

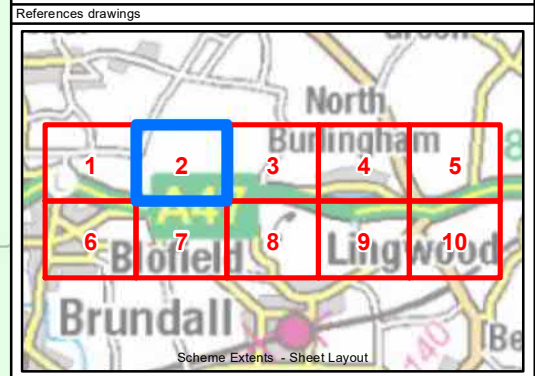
**Bird Activity**

- on Adult Sitting
- Aggressive Encounter
- Alarm Calls
- Calling
- f ood Carrying Food
- mat Carrying Nest Mat
- In Song
- Occupied Nest
- Occupied Nest -Provided
- Flight Path

**Sex**

- Female
- Male
- juve Juvenile
- Pair

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REV.	DATE	AMENDMENT DETAILS	ORIG	CHKD	APPD

**Mott MacDonald Sweco**

Grove House  
 Mansion Gate Drive  
 Leeds  
 LS7 4DN  
 Tel: +44 (0)113 262 0000

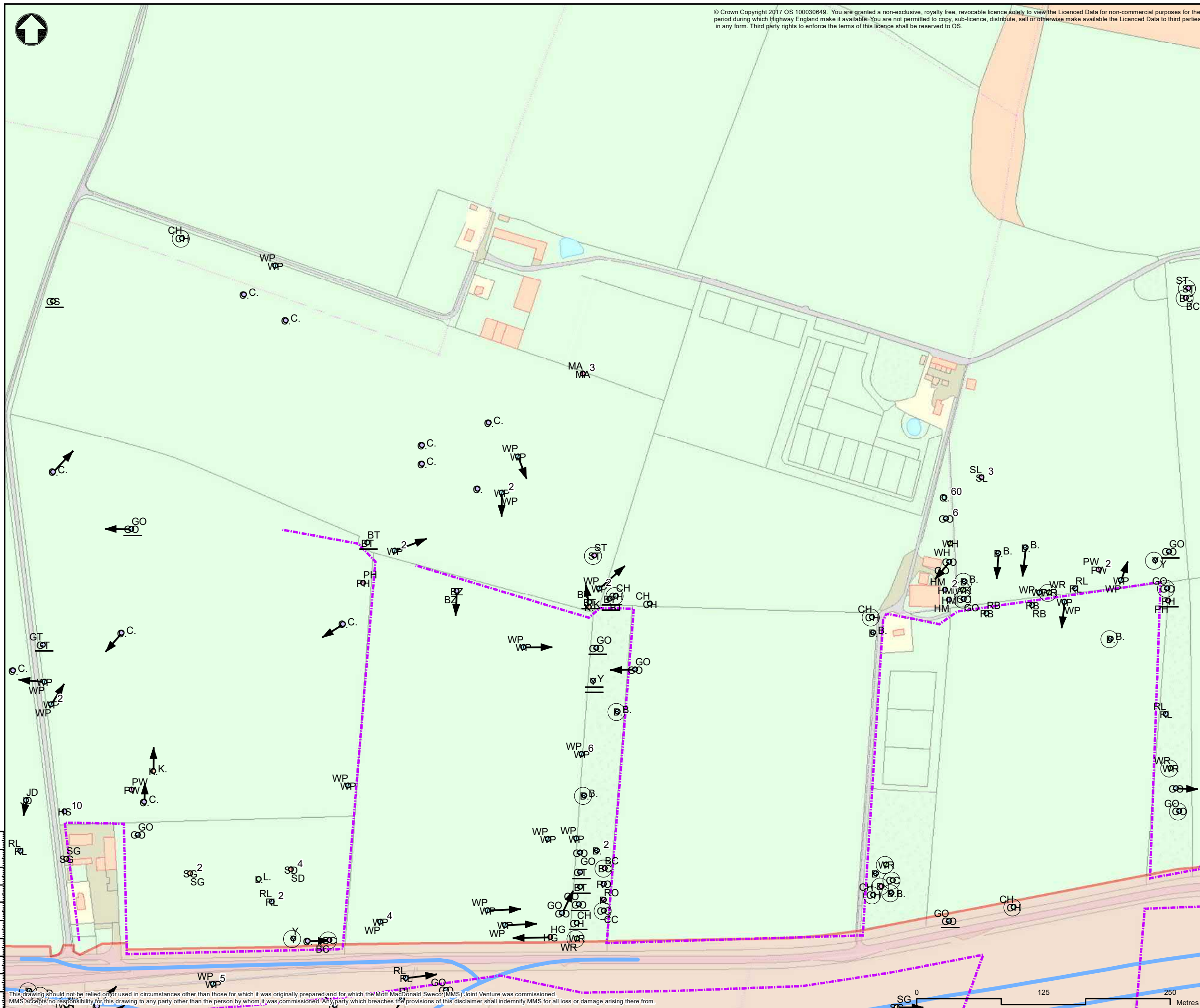
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Drawing Status	FOR INFORMATION	Suitability	S2
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Project Title  
**A47 - Blofield to North Burlingham**

Drawing Title  
**Breeding Bird Survey Species Map Survey 2**  
 Page 2 of 10

Scale	1:3,500	Designed	Youldale, Mike	Drawn	Corcoran, Ant	Checked	Youldale, Mike	Approved	Youldale, Mike
Original Size	A3	Date	01/06/18	Date	24/08/18	Date	01/09/18	Date	01/09/18
Drawing Number	HE551490 - MMSJV	Originator	MMSJV	Volume	EBD	Project Ref. No.		HE551490	
000	- RP - LB -	00006		Revision		P01			



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**Key to symbols**

- Proposed Road Alignment
- Proposed Scheme Area
- Proposed Scheme 1km Study Area
- Transects

**Bird Activity**

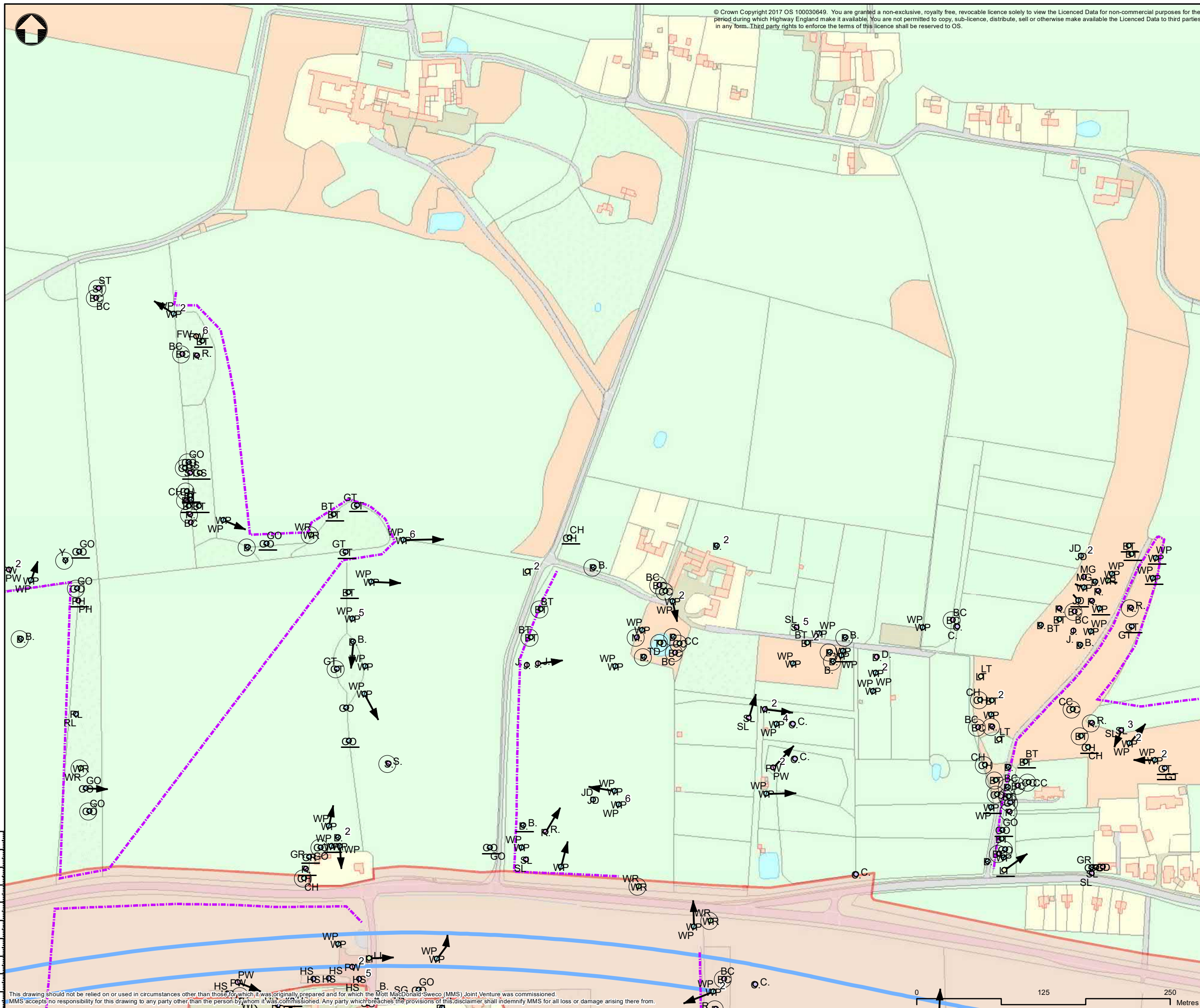
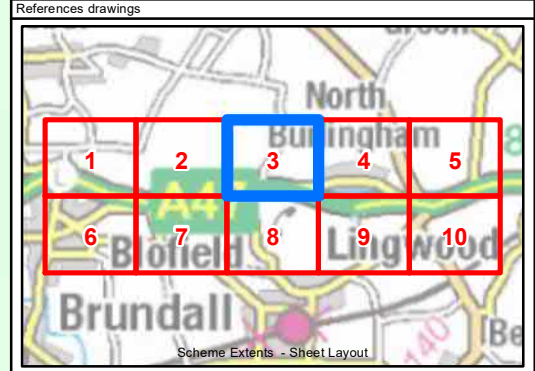
- on Adult Sitting
- Aggressive Encounter
- Alarm Calls
- Calling
- f ood Carrying Food
- mat Carrying Nest Mat
- In Song
- Occupied Nest
- Occupied Nest -Provided
- Flight Path

**Sex**

- Female
- Male
- Juvenile
- Pair

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REV.	DATE	AMENDMENT DETAILS	ORIG	CHKD	APPD
<b>Mott MacDonald Sweco</b> <small>Grove House Mansion Gate Drive Leeds LS7 4DN Tel: +44 (0)113 262 0000</small>			Client		
			Drawing Status: FOR INFORMATION Suitability: S2		
Project Title: A47 - Blofield to North Burlingham					
Drawing Title: Breeding Bird Survey Species Map Survey 2 Page 3 of 10					
Scale: 1:3,500	Designed: Youdale, Mike	Drawn: Corcoran, Ant	Checked: Youdale, Mike	Approved: Youdale, Mike	
Original Size: A3	Date: 01/06/18	Date: 24/08/18	Date: 01/09/18	Date: 01/09/18	
Drawing Number: HE551490 - MMSJV	Originator: EBD	Volume: -	Project Ref. No: HE551490		Revision: P01
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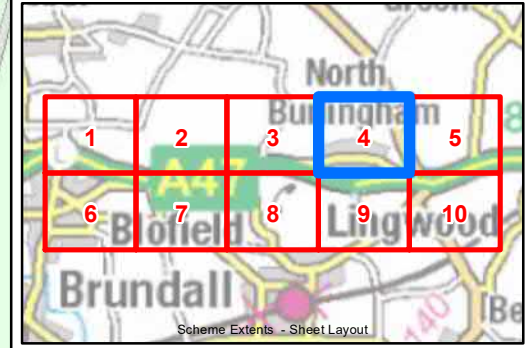
- Proposed Road Alignment
- Proposed Scheme Area
- Proposed Scheme 1km Study Area
- - - Transects

- Bird Activity**
- on Adult Sitting
  - ✱ Aggressive Encounter
  - ≡ Alarm Calls
  - Calling
  - f ood Carrying Food
  - mat Carrying Nest Mat
  - In Song
  - \* Occupied Nest
  - ⊠ Occupied Nest -Provided
  - ➔ Flight Path
- Sex**
- ♀ Female
  - ♂ Male
  - juve Juvenile
  - ♂♀ Pair

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References drawings



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REV.	DATE	AMENDMENT DETAILS	ORIG	CHKD	APPD

**Mott MacDonald Sweco**

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Mansion Gate Drive  
Leeds  
LS7 4DN  
Tel: +44 (0)113 262 0000

Client

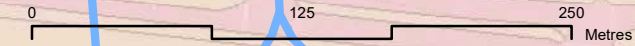
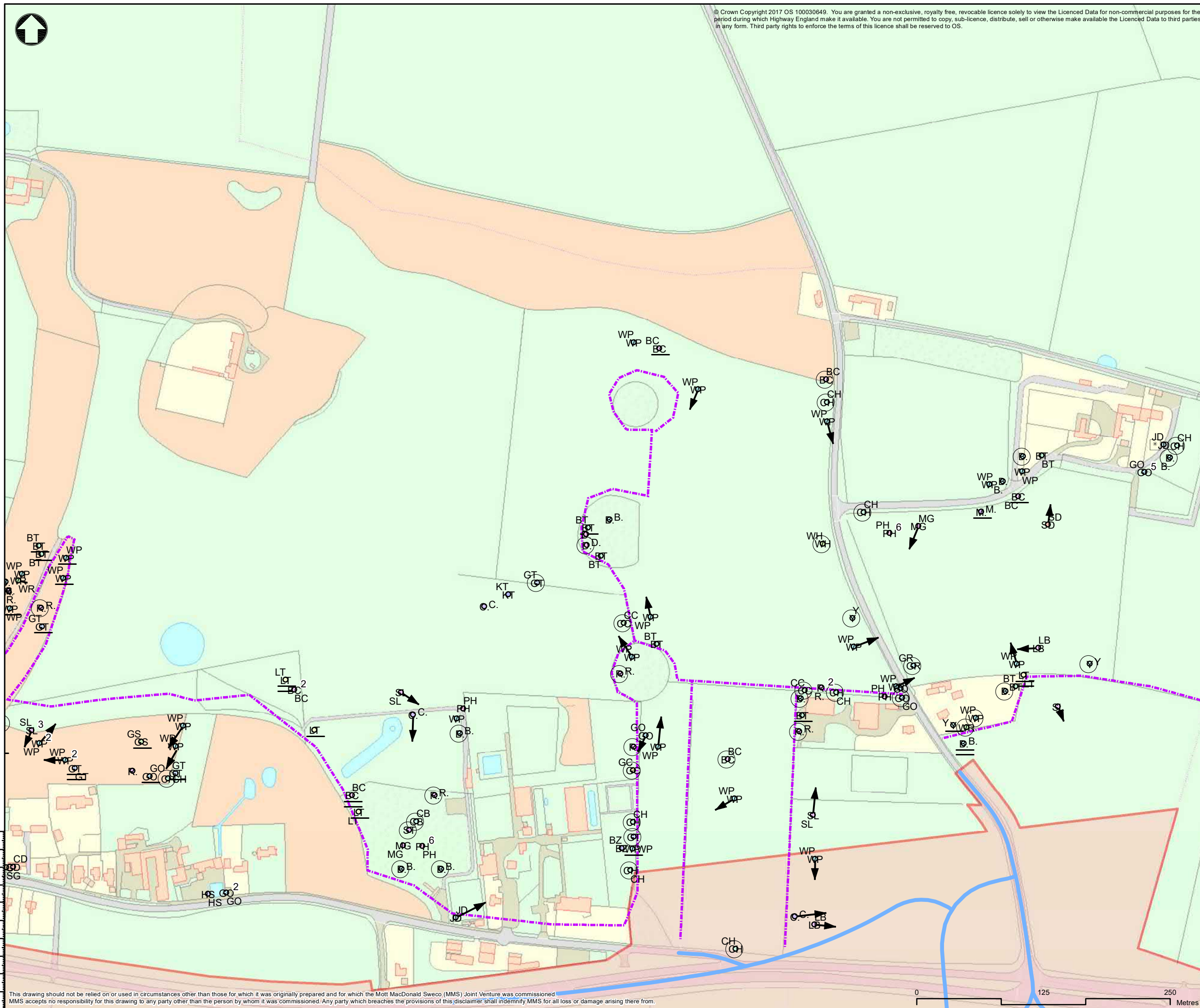
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Project Title  
A47 - Blofield to North Burlingham

Drawing Title  
Breeding Bird Survey Species Map  
Survey 2  
Page 4 of 10

Scale	1:3,500	Designed	Youdale, Mike	Drawn	Corcoran, Ant	Checked	Youdale, Mike	Approved	Youdale, Mike
Original Size	A3	Date	01/06/18	Date	24/08/18	Date	01/09/18	Date	01/09/18

Drawing Number	HE551490 - MMSJV	Originator	EBD	Volume		Project Ref. No.	HE551490
000	- RP - LB -	00006				Revision	P01

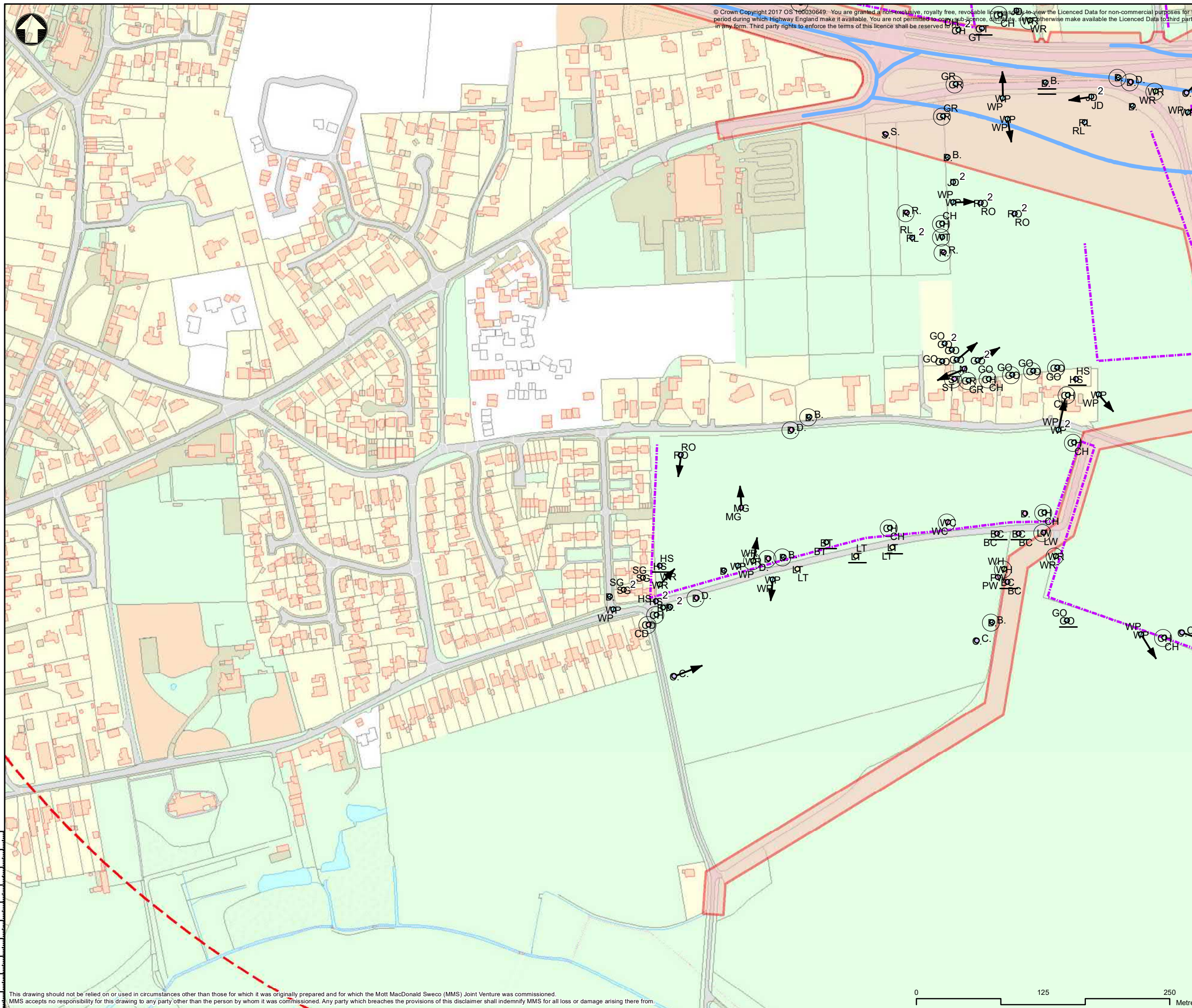








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**Key to symbols**

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- Proposed Scheme 1km Study Area
- Transects

**Bird Activity**

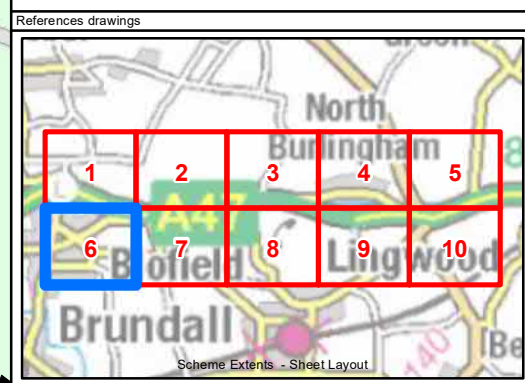
- on Adult Sitting
- Aggressive Encounter
- Alarm Calls
- Calling
- Carrying Food
- Carrying Nest Mat
- In Song
- Occupied Nest
- Occupied Nest -Provided
- Flight Path

**Sex**

- Female
- Male
- Juvenile
- Pair

For BTO bird species codes please refer to:  
[https://www.bto.org/sites/default/files/u16/downloads/forms\\_instructions/bto\\_bird\\_species\\_codes.pdf](https://www.bto.org/sites/default/files/u16/downloads/forms_instructions/bto_bird_species_codes.pdf)

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P01	01/09/18	FOR INFORMATION	AC	MY	MY
REV.	DATE	AMENDMENT DETAILS	ORIG	CHKD	APPD

**Mott MacDonald Sweco**

Grove House  
Mansion Gate Drive  
Leeds  
LS7 4DN  
Tel: +44 (0)113 262 0000



Drawing Status: FOR INFORMATION  
Suitability: S2

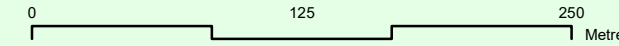
Project Title: A47 - Blofield to North Burlington

Drawing Title: Breeding Bird Survey Species Map Survey 2  
Page 6 of 10

Scale: 1:3,500	Designed: Youdale, Mike	Drawn: Corcoran, Ant	Checked: Youdale, Mike	Approved: Youdale, Mike
Original Size: A3	Date: 01/06/18	Date: 24/08/18	Date: 01/09/18	Date: 01/09/18

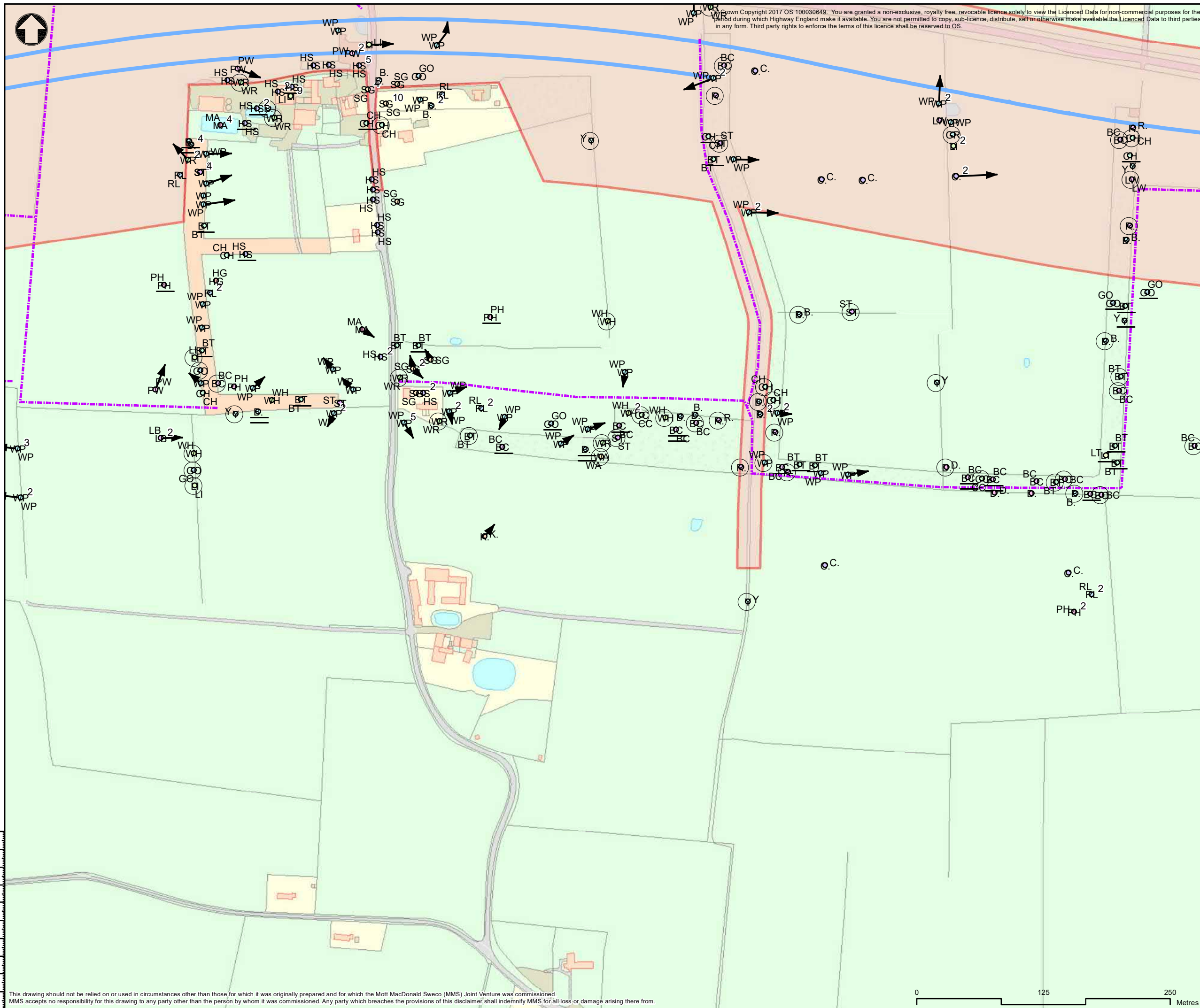
Drawing Number: HE551490	Originator: MMSJV	Volume: EBD	Project Ref. No: HE551490
000	- RP - LB -	00006	Revision: P01

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**Key to symbols**

- Proposed Road Alignment
- Proposed Scheme Area
- Proposed Scheme 1km Study Area
- - - Transects

**Bird Activity**

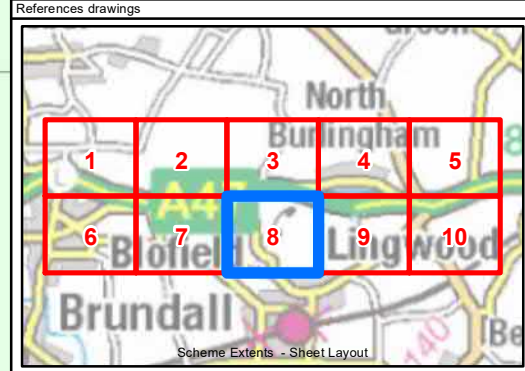
- on Adult Sitting
- ✱ Aggressive Encounter
- ≡ Alarm Calls
- Calling
- f food Carrying Food
- mat Carrying Nest Mat
- In Song
- \* Occupied Nest
- ⊠ Occupied Nest -Provided
- ➔ Flight Path

**Sex**

- ♀ Female
- ♂ Male
- juve Juvenile
- ♂♀ Pair

For BTO bird species codes please refer to:  
[https://www.bto.org/sites/default/files/u16/downloads/forms\\_instructions/bto\\_bird\\_species\\_codes.pdf](https://www.bto.org/sites/default/files/u16/downloads/forms_instructions/bto_bird_species_codes.pdf)

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P01	01/09/18	FOR INFORMATION	AC	MY	MY
REV.	DATE	AMENDMENT DETAILS	ORIG	CHKD	APPD

**Mott MacDonald Sweco**

Grove House  
Mansion Gate Drive  
Leeds  
LS7 4DN  
Tel: +44 (0)113 262 0000



Drawing Status: FOR INFORMATION      Suitability: S2

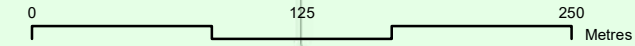
Project Title: A47 - Blofield to North Burlington

Drawing Title: Breeding Bird Survey Species Map Survey 2  
Page 8 of 10

Scale: 1:3,500	Designed: Youdale, Mike	Drawn: Corcoran, Ant	Checked: Youdale, Mike	Approved: Youdale, Mike
Original Size: A3	Date: 01/06/18	Date: 24/08/18	Date: 01/09/18	Date: 01/09/18

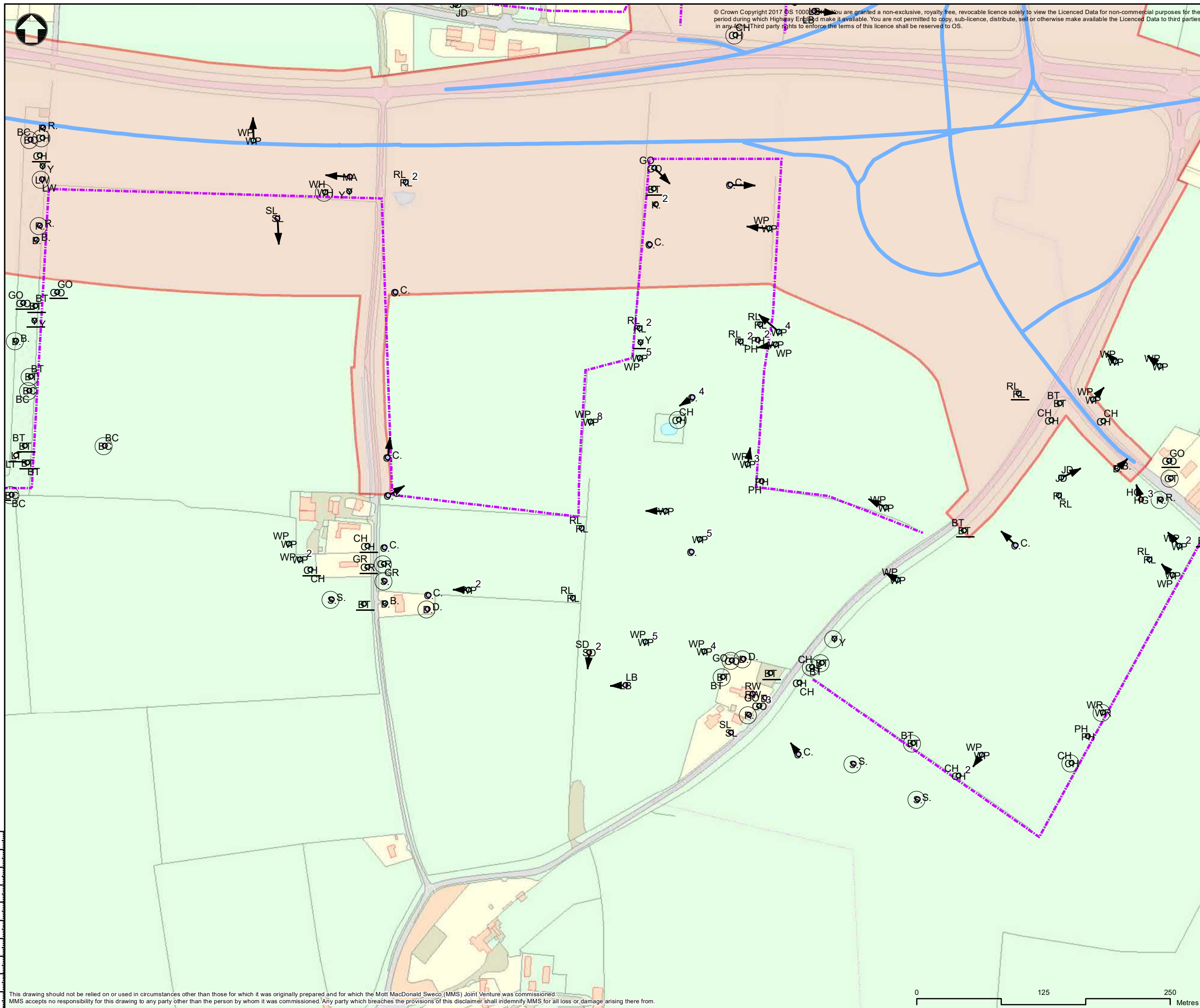
Drawing Number: HE551490	Originator: MMSJV	Volume: EBD	Project Ref. No: HE551490
000	- RP - LB -	00006	Revision: P01

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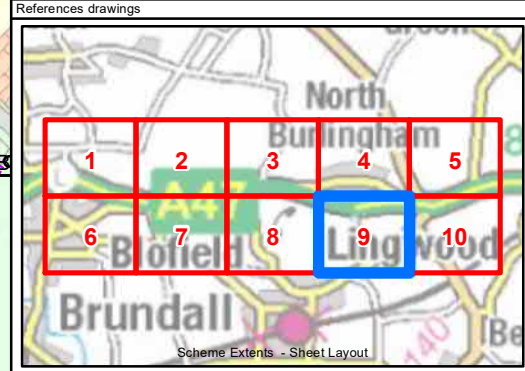


- Key to symbols**
- Proposed Road Alignment
  - Proposed Scheme Area
  - Proposed Scheme 1km Study Area
  - Transects

- Bird Activity**
- on Adult Sitting
  - ✱ Aggressive Encounter
  - ≡ Alarm Calls
  - Calling
  - f ood Carrying Food
  - mat Carrying Nest Mat
  - In Song
  - \* Occupied Nest
  - ⊠ Occupied Nest -Provided
  - ➔ Flight Path
- Sex**
- ♀ Female
  - ♂ Male
  - juve Juvenile
  - ♂♀ Pair

For BTO bird species codes please refer to:  
[https://www.bto.org/sites/default/files/u16/downloads/forms\\_instructions/bto\\_bird\\_species\\_codes.pdf](https://www.bto.org/sites/default/files/u16/downloads/forms_instructions/bto_bird_species_codes.pdf)

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P01	01/09/18	FOR INFORMATION	AC	MY	MY
REV.	DATE	AMENDMENT DETAILS	ORIG	CHKD	APPD

**Mott MacDonald Sweco**

Grove House  
Mansion Gate Drive  
Leeds  
LS7 4DN  
Tel: +44 (0)113 262 0000

Client

Drawing Status	FOR INFORMATION	Suitability	S2
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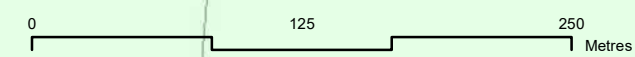
Project Title  
**A47 - Blofield to North Burlingham**





Drawing Title  
**Breeding Bird Survey Species Map  
 Survey 2  
 Page 9 of 10**

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Original Size	A3	Date	01/06/18	Date	24/08/18	Date	01/09/18	Date	01/09/18








Drawing Number	HE 551490 - MMSJV	Originator	MMSJV	Volume	EBD	Project Ref. No.	HE551490
000	- RP - LB -	00006				Revision	P01

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-  Proposed Road Alignment
-  Proposed Scheme Area
-  Proposed Scheme 1km Study Area
-  Transects

**Bird Activity**

- on Adult Sitting
-  Aggressive Encounter
-  Alarm Calls
-  Calling
- f ood Carrying Food
- mat Carrying Nest Mat
-  In Song
-  Occupied Nest
-  Occupied Nest -Provided
-  Flight Path

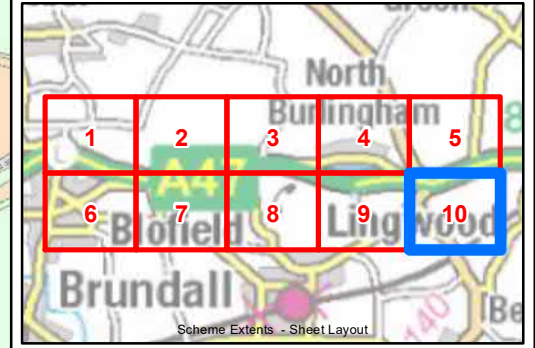
**Sex**

-  Female
-  Male
- juve Juvenile
-  Pair

For BTO bird species codes please refer to:  
[https://www.bto.org/sites/default/files/u16/downloads/forms\\_instructions/bto\\_bird\\_species\\_codes.pdf](https://www.bto.org/sites/default/files/u16/downloads/forms_instructions/bto_bird_species_codes.pdf)

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References drawings



P01	01/09/18	FOR INFORMATION	AC	MY	MY
REV.	DATE	AMENDMENT DETAILS	ORIG	CHKD	APPD

**Mott MacDonald Sweco**

Grove House  
Mansion Gate Drive  
Leeds  
LS7 4DN  
Tel: +44 (0)113 262 0000

Client

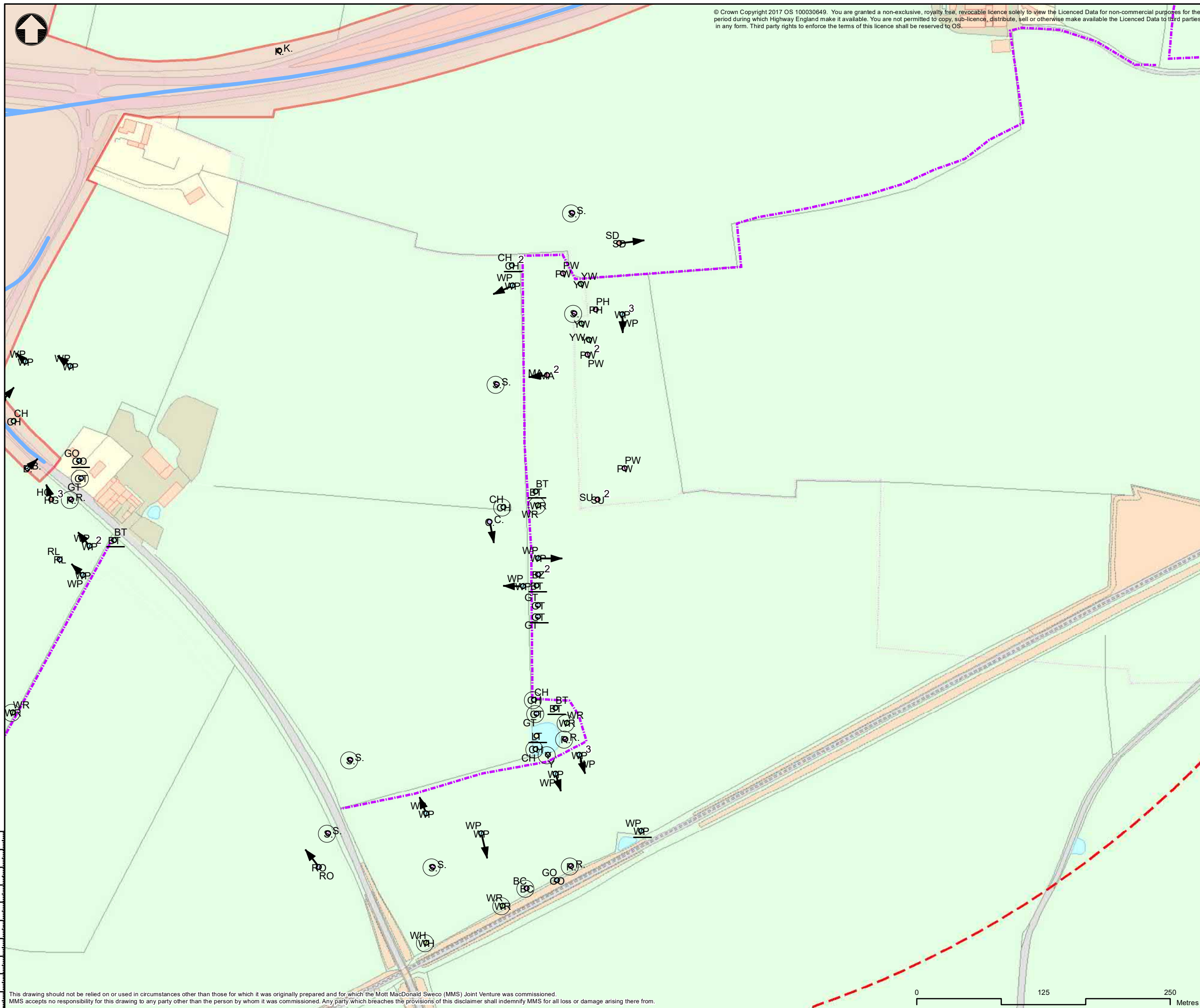
Drawing Status	FOR INFORMATION	Suitability	S2
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Project Title  
A47 - Blofield to North Burlingham

Drawing Title  
Breeding Bird Survey Species Map  
Survey 2  
Page 10 of 10

Scale	1:3,500	Designed	Youdale, Mike	Drawn	Corcoran, Ant	Checked	Youdale, Mike	Approved	Youdale, Mike
Original Size	A3	Date	01/06/18	Date	24/08/18	Date	01/09/18	Date	01/09/18

Drawing Number	HE 551490	Originator	MMSJV	Volume	EBD	Project Ref. No.	HE551490
000	- RP - LB -	00006				Revision	P01





**Key to symbols**

- Proposed Road Alignment
- Proposed Scheme Area
- Proposed Scheme 1km Study Area
- Transects

**Bird Activity**

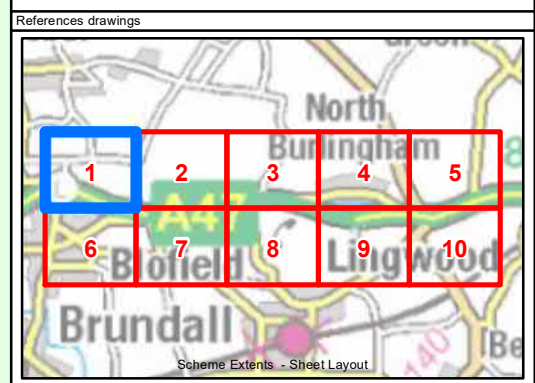
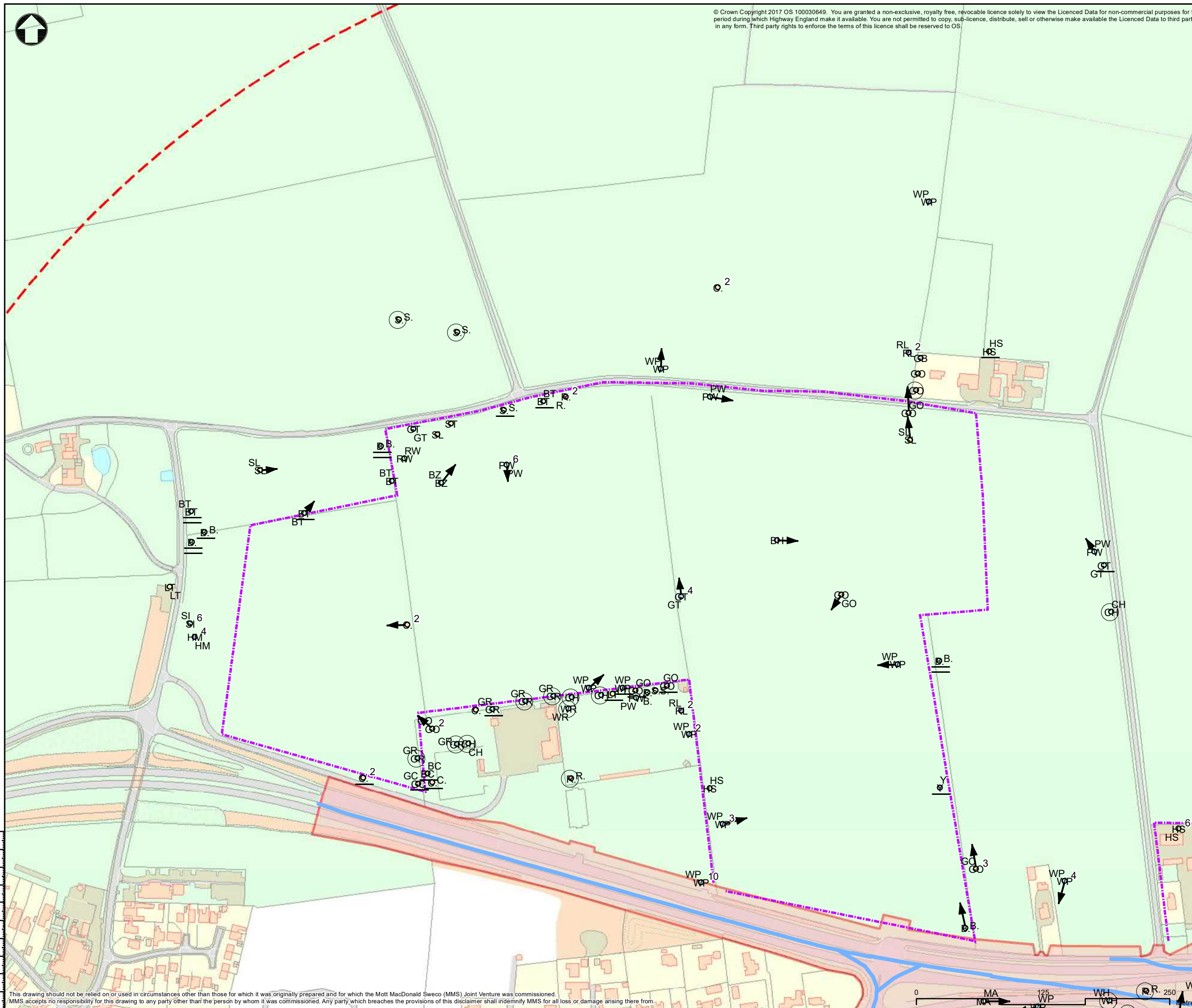
- on Adult Sitting
- Aggressive Encounter
- Alarm Calls
- Calling
- f Carrying Food
- mat Carrying Nest Mat
- In Song
- Occupied Nest
- Occupied Nest -Provided
- Flight Path

**Sex**

- Female
- Male
- juve Juvenile
- Pair





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[https://www.bto.org/sites/default/files/u16/downloads/forms\\_instructions/bto\\_bird\\_species\\_codes.pdf](https://www.bto.org/sites/default/files/u16/downloads/forms_instructions/bto_bird_species_codes.pdf)















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P01	01/09/18	FOR INFORMATION	AC	MY	MY
REV.	DATE	AMENDMENT DETAILS	ORIG	CHKD	APPD
<b>Mott MacDonald Sweco</b>			Grove House Mansion Gate Drive Leeds LS7 4DN Tel: +44 (0)113 262 0000		
Drawing Status: FOR INFORMATION			Suitability: S2		
Project Title: A47 - Blofield to North Burlingham					
Drawing Title: Breeding Bird Survey Species Map Survey 3 Page 1 of 10					
Scale	Designed	Drawn	Checked	Approved	
1:3,500	Youdale, Mike	Corcoran, Ant	Youdale, Mike	Youdale, Mike	
Original Size	Date	Date	Date	Date	
A3	01/06/18	24/08/18	01/09/18	01/09/18	
Drawing Number	Originator	Volume	Project Ref. No.		
HE551490 - MMSJV	- EBD -		HE551490		
000	- RP - LB -	00007	Revision		
Location			Type	Role	Number
					P01



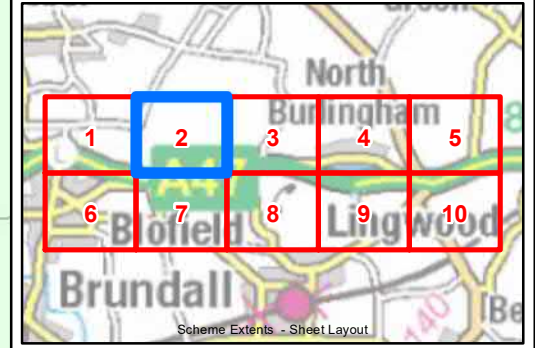
-  Proposed Road Alignment
-  Proposed Scheme Area
-  Proposed Scheme 1km Study Area
-  Transects

- Bird Activity**
- on  Adult Sitting
  -  Aggressive Encounter
  -  Alarm Calls
  -  Calling
  - f ood  Carrying Food
  - mat  Carrying Nest Mat
  -  In Song
  -  Occupied Nest
  -  Occupied Nest -Provided
  -  Flight Path
- Sex**
-  Female
  -  Male
  - juve  Juvenile
  -  Pair

For BTO bird species codes please refer to:  
[https://www.bto.org/sites/default/files/u16/downloads/forms\\_instructions/bto\\_bird\\_species\\_codes.pdf](https://www.bto.org/sites/default/files/u16/downloads/forms_instructions/bto_bird_species_codes.pdf)

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References drawings



P01	01/09/18	FOR INFORMATION	AC	MY	MY
REV.	DATE	AMENDMENT DETAILS	ORIG	CHKD	APPD

**Mott MacDonald Sweco**

Grove House  
Mansion Gate Drive  
Leeds  
LS7 4DN  
Tel: +44 (0)113 262 0000

Client

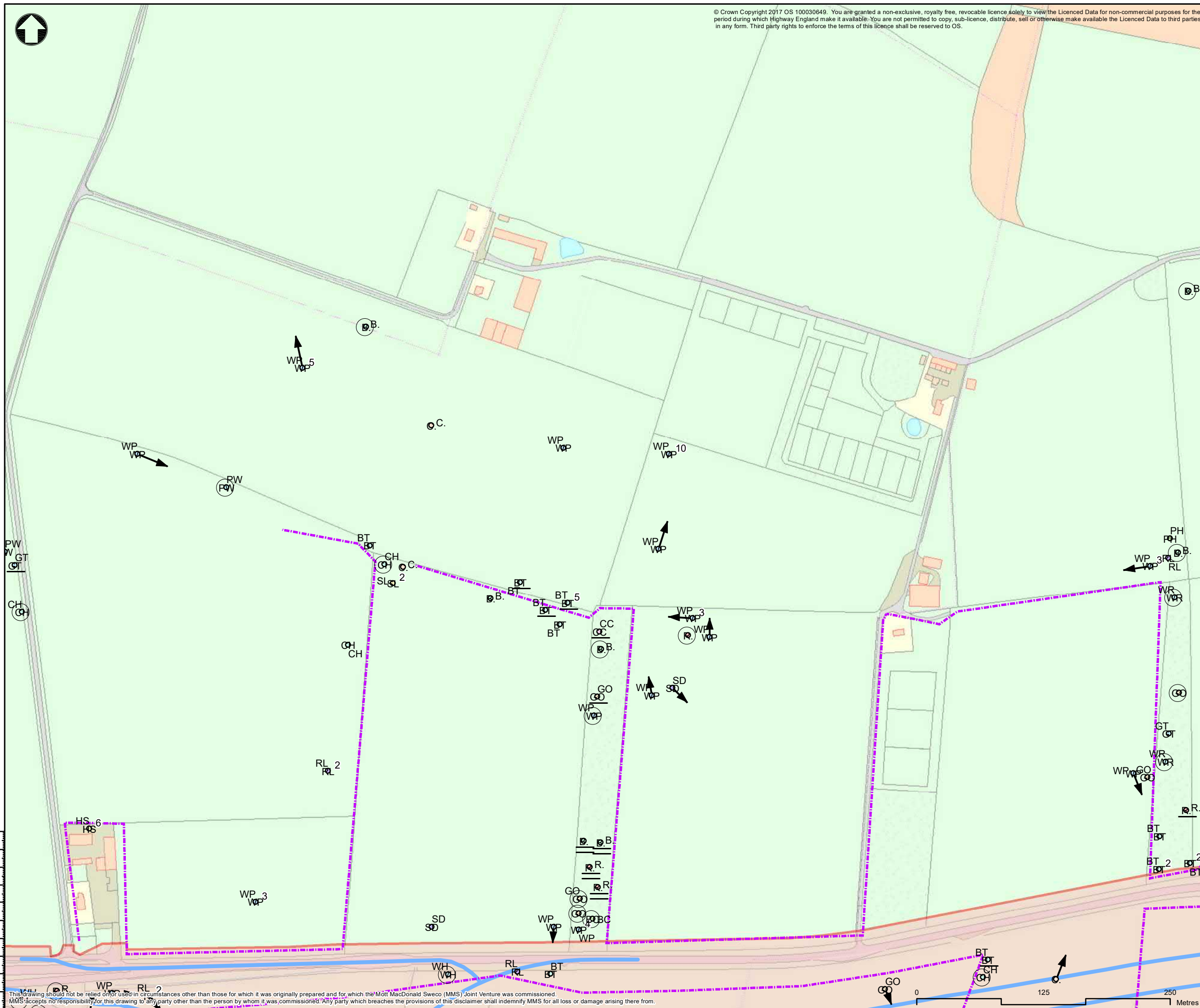
Drawing Status	FOR INFORMATION	Suitability	S2
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Project Title  
A47 - Blofield to North Burlingham

Drawing Title  
Breeding Bird Survey Species Map  
Survey 3  
Page 2 of 10

Scale	1:3,500	Designed	Youdale, Mike	Drawn	Corcoran, Ant	Checked	Youdale, Mike	Approved	Youdale, Mike
Original Size	A3	Date	01/06/18	Date	24/08/18	Date	01/09/18	Date	01/09/18

Drawing Number	HE551490	Originator	MMSJV	Volume	EBD	Project Ref. No.	HE551490
000	- RP - LB -	00007				Revision	P01
Location	Type	Role	Number				





**Key to symbols**

- Proposed Road Alignment
- Proposed Scheme Area
- Proposed Scheme 1km Study Area
- Transects

**Bird Activity**

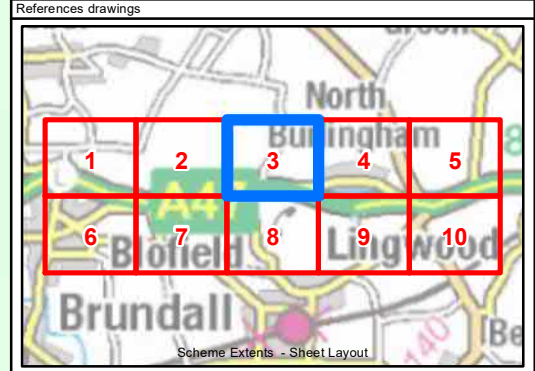
- on Adult Sitting
- Aggressive Encounter
- Alarm Calls
- Calling
- f Carrying Food
- mat Carrying Nest Mat
- In Song
- Occupied Nest
- Occupied Nest -Provided
- Flight Path

**Sex**

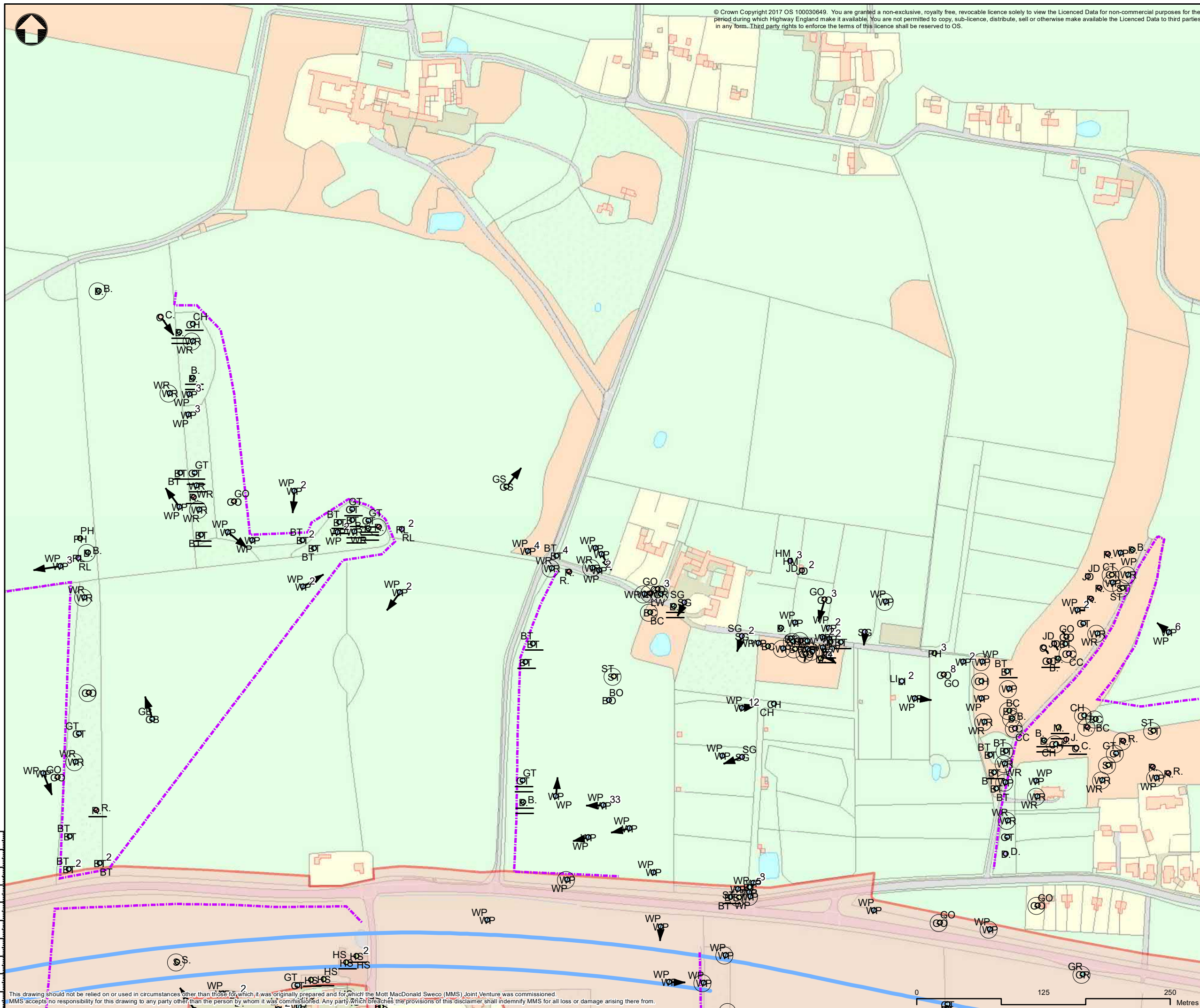
- Female
- Male
- Juvenile
- Pair

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P01	01/09/18	FOR INFORMATION	AC	MY	MY
REV.	DATE	AMENDMENT DETAILS	ORIG	CHKD	APPD
<b>Mott MacDonald Sweco</b> <small>Grove House Mansion Gate Drive Leeds LS7 4DN Tel: +44 (0)113 262 0000</small>					
Drawing Status		FOR INFORMATION	Suitability S2		
Project Title A47 - Blofield to North Burlingham					
Drawing Title Breeding Bird Survey Species Map Survey 3 Page 3 of 10					
Scale 1:3,500	Designed Youdale, Mike	Drawn Corcoran, Ant	Checked Youdale, Mike	Approved Youdale, Mike	
Original Size A3	Date 01/06/18	Date 24/08/18	Date 01/09/18	Date 01/09/18	
Drawing Number HE551490 - MMSJV		Originator - EBD -		Project Ref. No. HE551490	
000		- RP - LB - 00007		Revision P01	
Location		Type   Role   Number			



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**Key to symbols**

- Proposed Road Alignment
- Proposed Scheme Area
- Proposed Scheme 1km Study Area
- Transects

**Bird Activity**

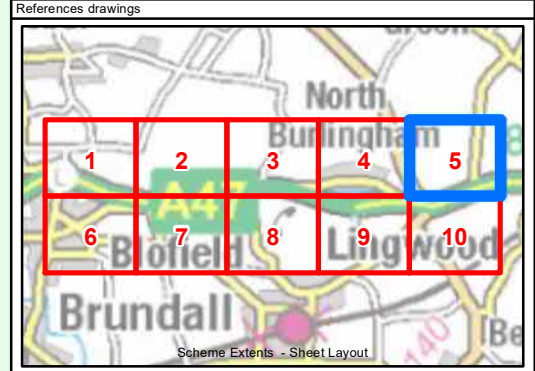
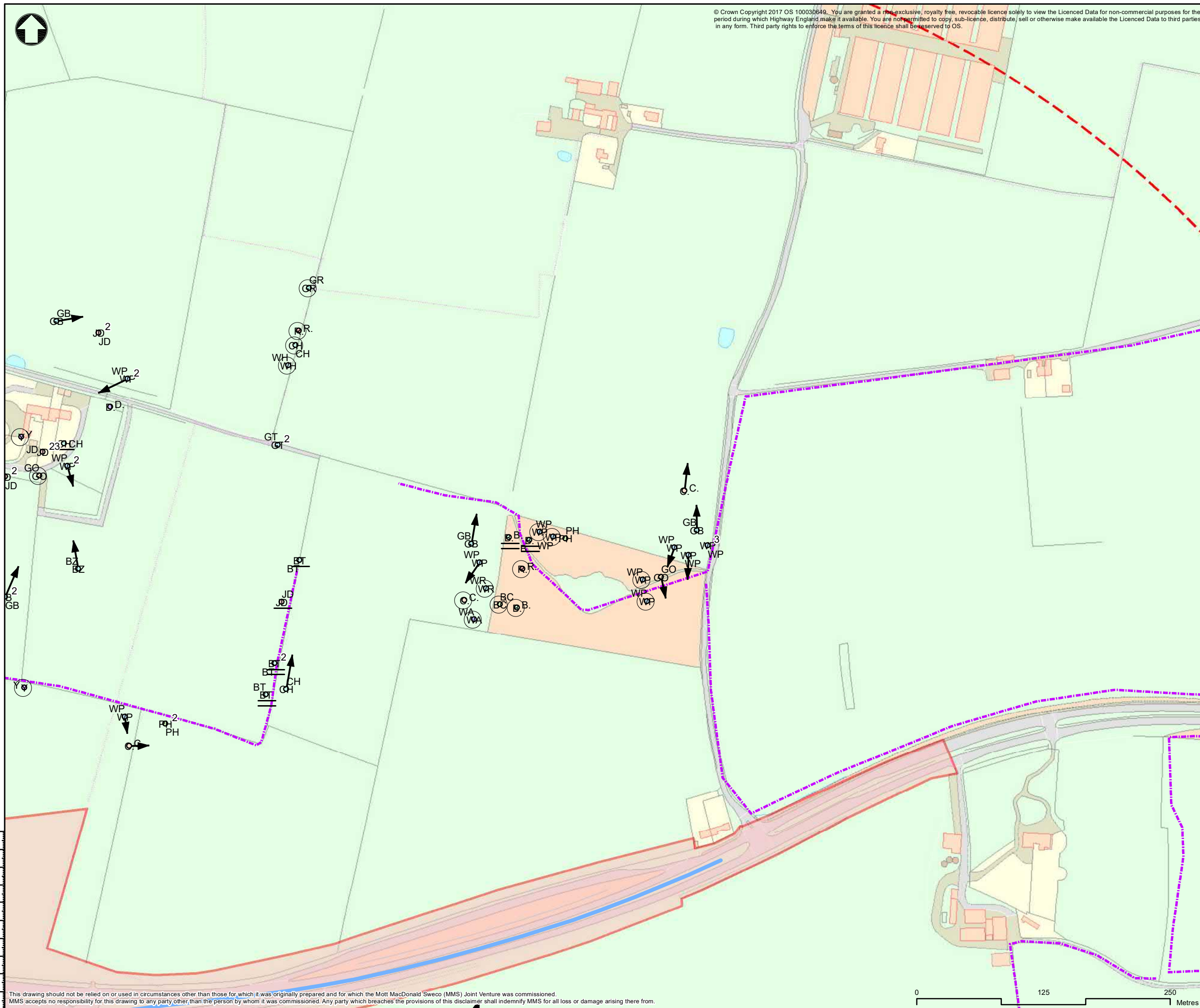
- on Adult Sitting
- Aggressive Encounter
- Alarm Calls
- Calling
- f ood Carrying Food
- mat Carrying Nest Mat
- In Song
- Occupied Nest
- Occupied Nest -Provided
- Flight Path

**Sex**

- Female
- Male
- juve Juvenile
- Pair

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P01	01/09/18	FOR INFORMATION	AC	MY	MY
REV.	DATE	AMENDMENT DETAILS	ORIG	CHKD	APPD

**Mott MacDonald Sweco**

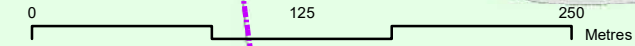
Grove House  
Mansion Gate Drive  
Leeds  
LS7 4DN  
Tel: +44 (0)113 262 0000



Drawing Status	FOR INFORMATION	Suitability	S2
Project Title	A47 - Blofield to North Burlington		

Drawing Title	Breeding Bird Survey Species Map Survey 3 Page 5 of 10			
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Scale	1:3,500	Designed	Youdale, Mike	Drawn	Corcoran, Ant	Checked	Youdale, Mike	Approved	Youdale, Mike
Original Size	A3	Date	01/06/18	Date	24/08/18	Date	01/09/18	Date	01/09/18
Drawing Number	HE551490	Originator	MMSJV	Volume	EBD	Project Ref. No.	HE551490		
000	- RP - LB -	00007	Revision			P01			





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**Key to symbols**

- Proposed Road Alignment
- Proposed Scheme Area
- Proposed Scheme 1km Study Area
- Transects

**Bird Activity**

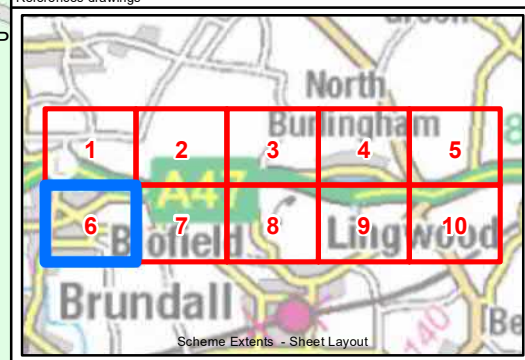
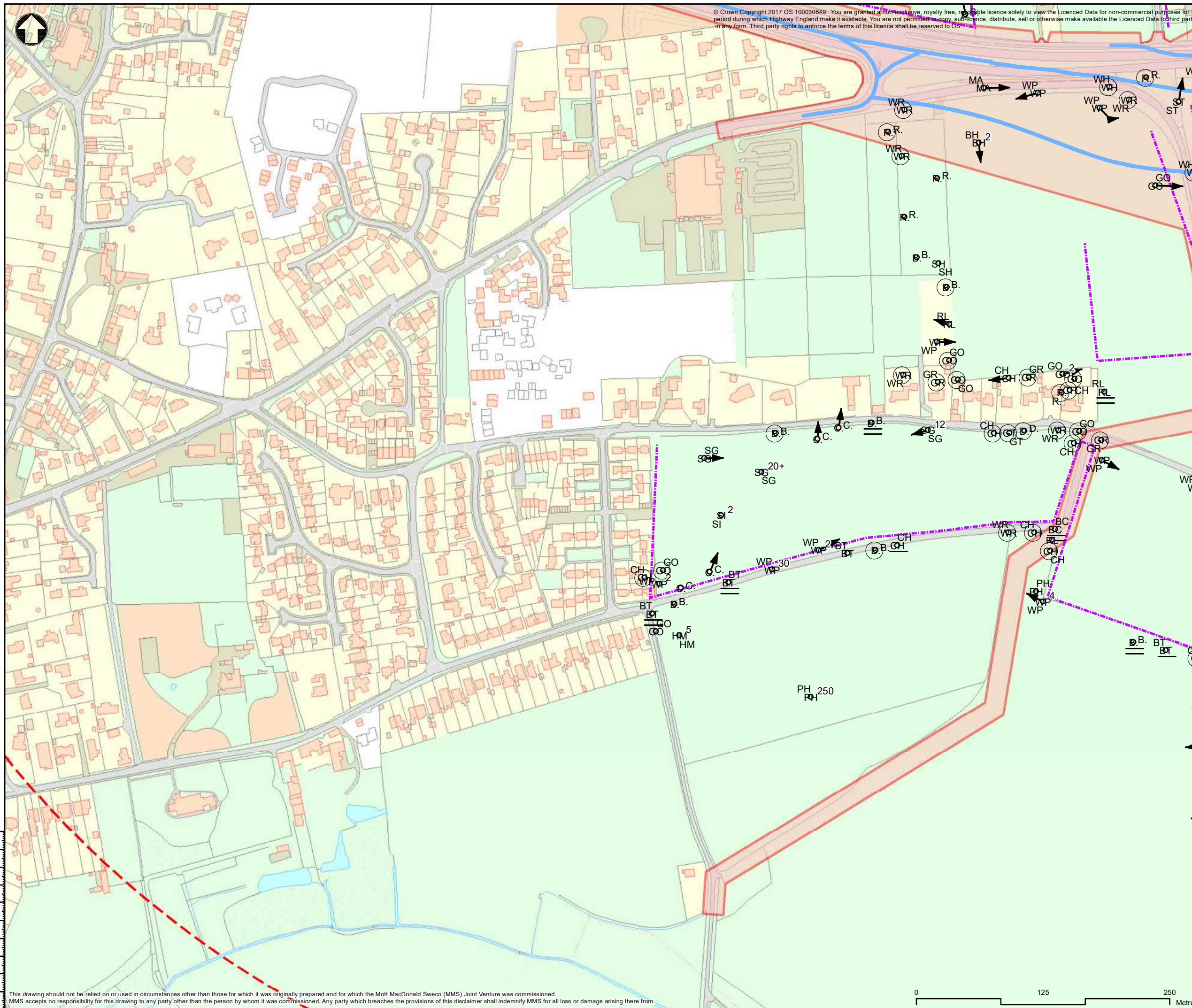
- on Adult Sitting
- Aggressive Encounter
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- Carrying Nest Mat
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- Occupied Nest -Provided
- Flight Path

**Sex**

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- Male
- Juvenile
- Pair

For BTO bird species codes please refer to:  
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P01	01/09/18	FOR INFORMATION	AC	MY	MY
REV.	DATE	AMENDMENT DETAILS	ORIG	CHKD	APPD
<b>Mott MacDonald Sweco</b>			Grove House Mansion Gate Drive Leeds LS7 4DN Tel: +44 (0)113 262 0000		



Drawing Status	FOR INFORMATION	Suitability	S2
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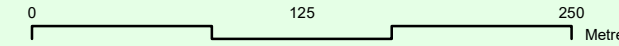
Project Title  
A47 - Blofield to North Burlington

Drawing Title  
Breeding Bird Survey Species Map  
Survey 3  
Page 6 of 10

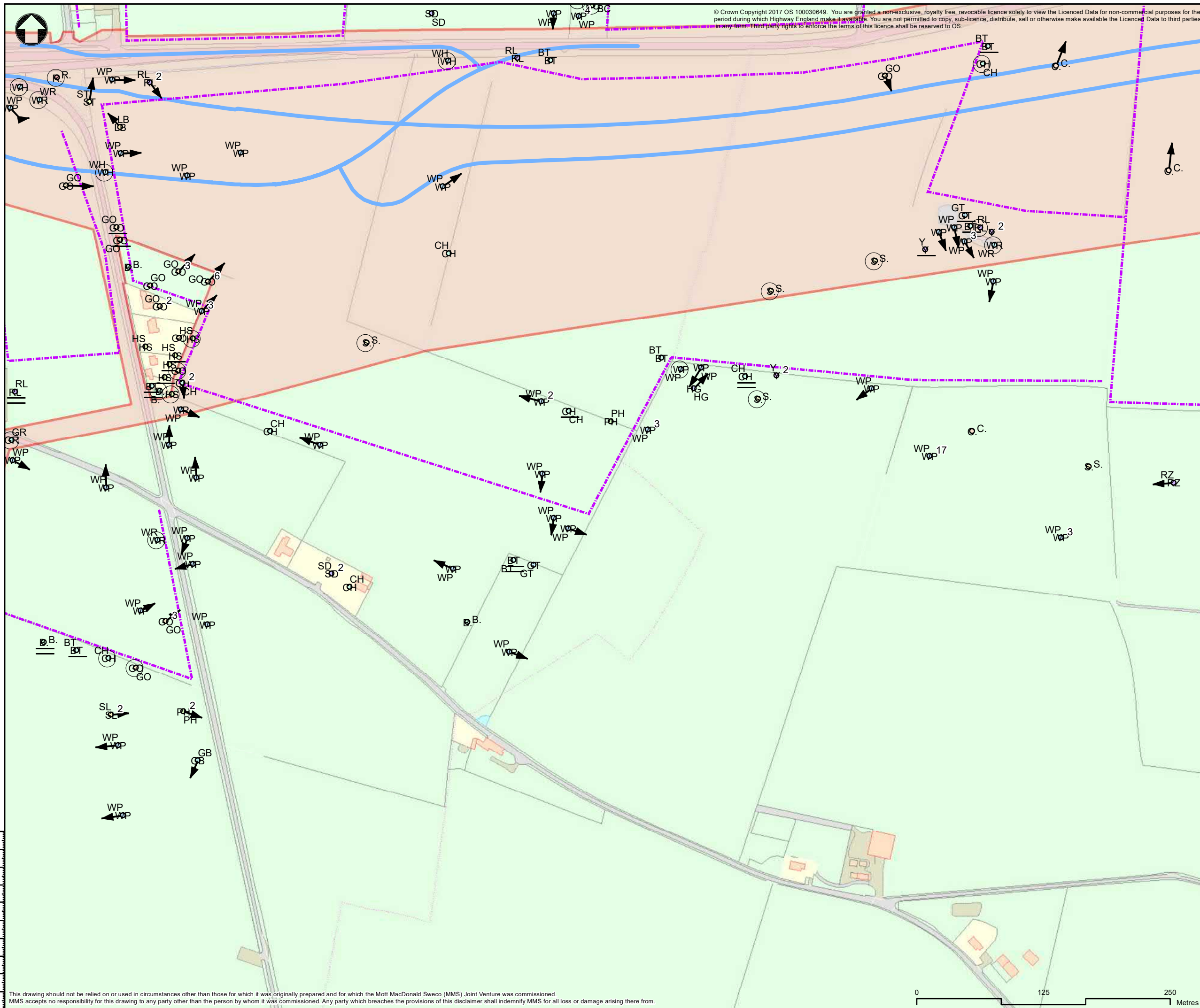
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Original Size	A3	Date	01/06/18	Date	24/08/18	Date	01/09/18	Date	01/09/18

Drawing Number	HE 551490	Originator	MMSJV	Volume	EBD	Project Ref. No.	HE551490
000	- RP - LB -	00007	Revision		P01		

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**Key to symbols**

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- Proposed Scheme Area
- Proposed Scheme 1km Study Area
- Transects

**Bird Activity**

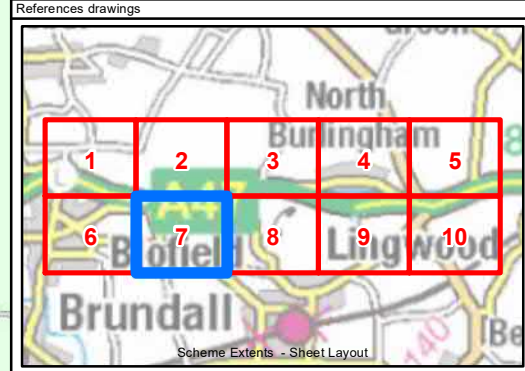
- on Adult Sitting
- ✱ Aggressive Encounter
- ≡ Alarm Calls
- Calling
- f ood Carrying Food
- mat Carrying Nest Mat
- In Song
- \* Occupied Nest
- ⊠ Occupied Nest -Provided
- ➔ Flight Path

**Sex**

- ♀ Female
- ♂ Male
- juve Juvenile
- ♂♀ Pair

For BTO bird species codes please refer to:  
[https://www.bto.org/sites/default/files/u16/downloads/forms\\_instructions/bto\\_bird\\_species\\_codes.pdf](https://www.bto.org/sites/default/files/u16/downloads/forms_instructions/bto_bird_species_codes.pdf)

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P01	01/09/18	FOR INFORMATION	AC	MY	MY
REV.	DATE	AMENDMENT DETAILS	ORIG	CHKD	APPD

**Mott MacDonald Sweco**

Grove House  
Mansion Gate Drive  
Leeds  
LS7 4DN  
Tel: +44 (0)113 262 0000

Client

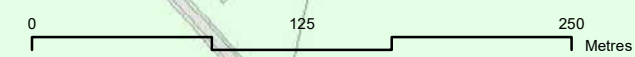
Drawing Status	FOR INFORMATION	Suitability	S2
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Project Title  
**A47 - Blofield to North Burlingham**

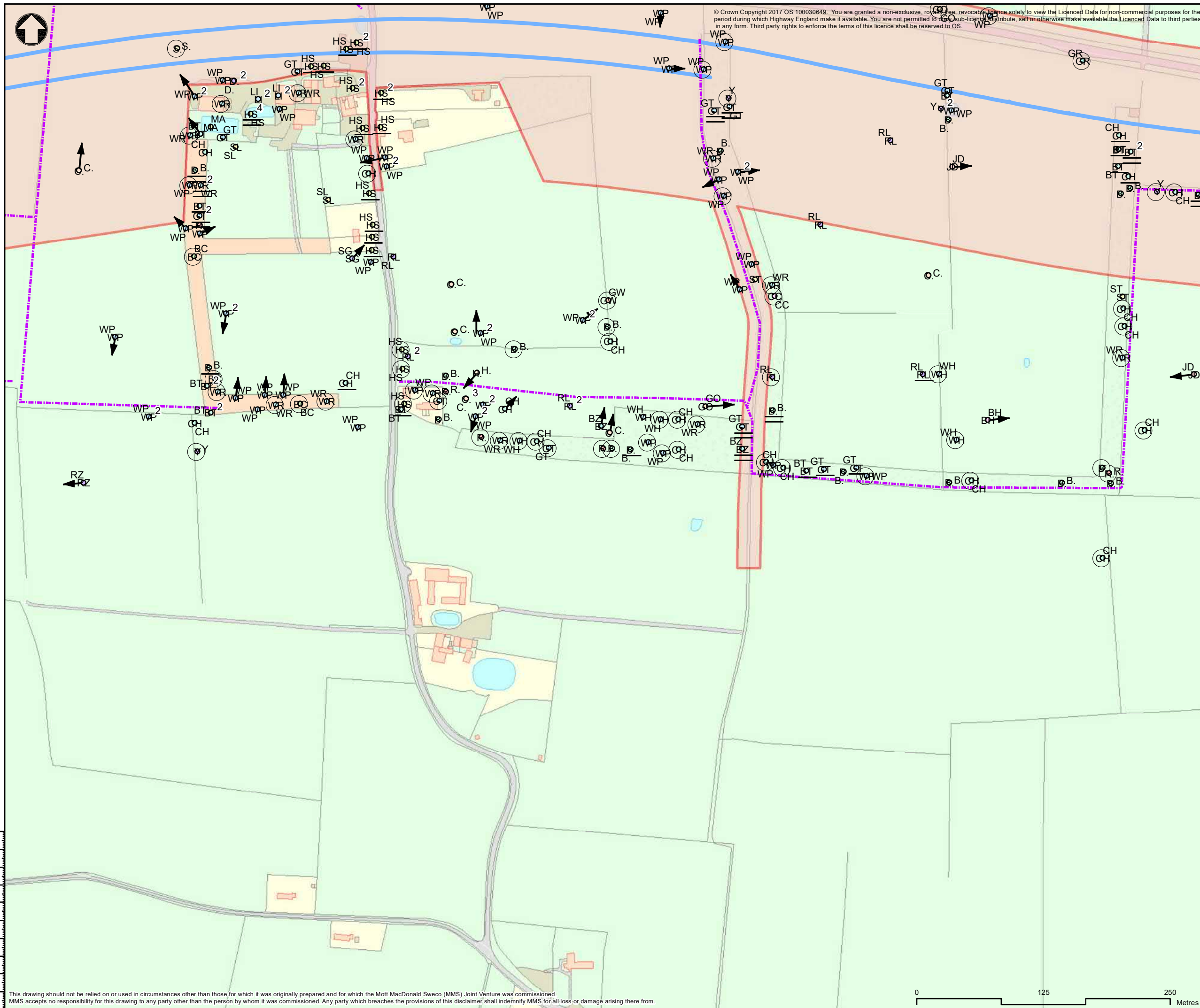
Drawing Title  
**Breeding Bird Survey Species Map  
 Survey 3  
 Page 7 of 10**

Scale	1:3,500	Designed	Youdale, Mike	Drawn	Corcoran, Ant	Checked	Youdale, Mike	Approved	Youdale, Mike
Original Size	A3	Date	01/06/18	Date	24/08/18	Date	01/09/18	Date	01/09/18

Drawing Number	HE PIN	Originator	Volume	Project Ref. No.
000	HE551490	MMSJV	EBD	HE551490
Location	- RP - LB -	00007	Revision	P01



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- Key to symbols**
- Proposed Road Alignment
  - Proposed Scheme Area
  - Proposed Scheme 1km Study Area
  - Transects

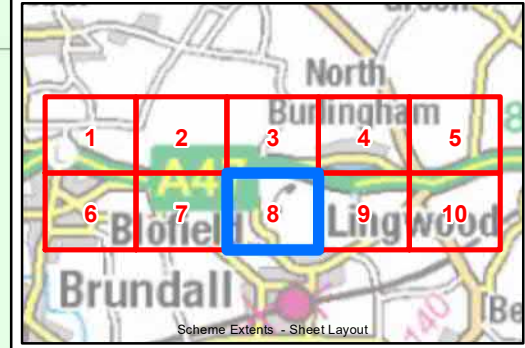
- Bird Activity**
- on Adult Sitting
  - ✱ Aggressive Encounter
  - ≡ Alarm Calls
  - Calling
  - f food Carrying Food
  - mat Carrying Nest Mat
  - In Song
  - \* Occupied Nest
  - ⊠ Occupied Nest -Provided
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- Sex**
- ♀ Female
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References drawings



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REV.	DATE	AMENDMENT DETAILS	ORIG	CHKD	APPD

**Mott MacDonald Sweco**  
 Grove House  
 Mansion Gate Drive  
 Leeds  
 LS7 4DN  
 Tel: +44 (0)113 262 0000



Drawing Status: FOR INFORMATION Suitability: S2

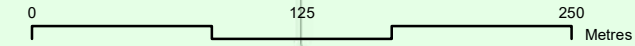
Project Title: A47 - Blofield to North Burlingham

Drawing Title: Breeding Bird Survey Species Map Survey 3 Page 8 of 10

Scale: 1:3,500	Designed: Youdale, Mike	Drawn: Corcoran, Ant	Checked: Youdale, Mike	Approved: Youdale, Mike
Original Size: A3	Date: 01/06/18	Date: 24/08/18	Date: 01/09/18	Date: 01/09/18

Drawing Number: HE551490 - MMSJV	Originator: EBD	Volume: EBD	Project Ref. No: HE551490
000	- RP - LB -	00007	Revision: P01

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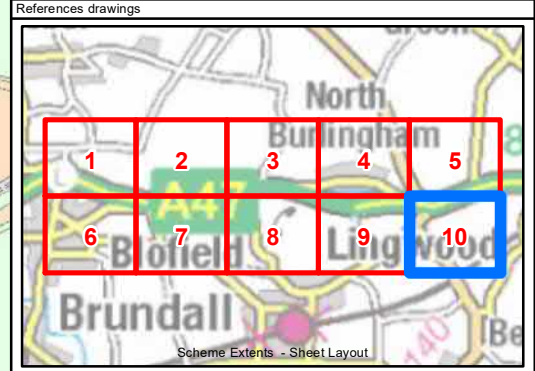




- Proposed Road Alignment
- Proposed Scheme Area
- Proposed Scheme 1km Study Area
- Transects

- Bird Activity**
- on Adult Sitting
  - ✱ Aggressive Encounter
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Drawing Status	FOR INFORMATION	Suitability	S2
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Project Title  
A47 - Blofield to North Burlingham

Drawing Title  
Breeding Bird Survey Species Map  
Survey 3  
Page 10 of 10

Scale	1:3,500	Designed	Youdale, Mike	Drawn	Corcoran, Ant	Checked	Youdale, Mike	Approved	Youdale, Mike
Original Size	A3	Date	01/06/18	Date	24/08/18	Date	01/09/18	Date	01/09/18

Drawing Number	HE PIN	Originator	Volume	Project Ref. No.
HE551490	MMSJV	EBD		HE551490
000	- RP - LB -	00007		Revision
Location	Type	Role	Number	P01

