

Norfolk Vanguard Offshore Wind Farm

Appendix 23.4

Breeding Bird Surveys Report

Environmental Statement

Volume 3 - Appendices

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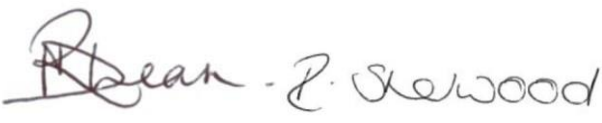
Environmental Impact Assessment Environmental Statement

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For and on behalf of Norfolk Vanguard Limited

Approved by: Ruari Lean, Rebecca Sherwood

Signed: 

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Norfolk Vanguard Breeding bird surveys

Report prepared by Norfolk Wildlife Services Ltd.
on behalf of Royal HaskoningDHV,
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1. Document details

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2. Executive Summary

2.1. The Extended Phase 1 Habitat Survey undertaken by Royal HaskoningDHV in February 2017 (Royal HaskoningDHV, 2017a) identified 6 habitat areas as being suitable for supporting notable breeding bird species.

2.2. The purpose of the surveys was to ascertain whether any notable bird species (i.e. notified species of a Site of Special Scientific Interest, red or amber listed Bird of Conservation Concern, Norfolk Biodiversity Action Plan species or species listed on Schedule 1 of the Wildlife and Countryside Act 1981[as amended]) were breeding at any of the sites and in what numbers.

2.3. Transect surveys were set up and carried out between May and August 2017 at 6 sites. Survey data, including sightings maps are included as separate documents under Appendix 2 (A through F). Methodologies were developed using guidance documents from Bibby *et al.* (2000) and Gregory, Gibbons and Donald (2004).

2.4. There was reduced access at three sites: Pigneys Wood BB04, Rush Meadows BB01 and River Wensum Floodplain BB06. Despite the reduced access, robust data was obtained from these three sites.

2.5. A number of notable bird species were recorded holding territories at all six sites surveyed.

2.6. In total 18 different species of Red and Amber listed Birds of Conservation Concern were recorded holding territories over the survey areas.

2.7. The greatest number of notable species (13) were recorded at Dillington Carr BB02 and the greatest number of different species holding territories (33) were recorded at the River Wensum Floodplain BB06.

2.8. Schedule 1 birds were recorded holding territories at two sites: Land to the south of Dillington Carr BB05 (Kingfisher) and River Wensum Floodplain BB06 (Barn owl).

2.9. Due to reduced access coverage at Pigneys Wood BB04, Rush Meadows BB01 and River Wensum Floodplain BB06 and lack of dawn/dusk surveys at all sites, it is recommended to check desktop records to ensure that no significant species have been under represented.

3. Introduction

3.1. Project background

3.1.1. Norfolk Vanguard is a proposed offshore wind farm being developed by Vattenfall Wind Power Limited (or an affiliate company), with a capacity of 1800MW, enough to power 1.3 million UK households. The offshore wind farm comprises two distinct areas, Norfolk Vanguard East (NV East) and Norfolk Vanguard West (NV West) and will be connected to the shore by offshore export cables installed within the provisional offshore cable corridor. The project will also require onshore infrastructure in order to connect the offshore wind farm to the National Grid at the existing National Grid substation at Necton, which in summary will comprise the following:

- Landfall;
- Cable relay station (if required);
- Underground cables;
- Onshore substation; and
- Extension to the existing Necton National Grid substation.

3.1.2. The location of the onshore electrical infrastructure is shown on Figure 1, Appendix A: of the Extended Phase 1 Habitat Survey Report (Royal HaskoningDHV, 2017a). Collectively the onshore electrical infrastructure is herein referred to as the 'onshore project area'.

3.1.3. During the development of the project, the onshore Scoping Area that was initially defined has been refined, to include three landfall options, associated cable relay search zones, as well as an onshore substation search zone in proximity to the Necton National Grid substation. A 200m wide cable corridor has been identified within which the buried cable will be located, and Horizontal Directional Drilling (HDD) zones and mobilisation zones have been identified along the cable corridor.

3.1.4. The surveys described within this report were designed and based on the onshore project area which was in use when the project Extended Phase 1 Habitat Survey was undertaken (February 2017). As the project design is further refined, these search zones will decrease in size, and the final options for the siting of infrastructure (i.e. one cable relay station, one landfall, one onshore substation) will be taken forward for the final Development Consent Order (DCO) application in June 2018.

3.2. Aim of report

3.2.1. As Norfolk Vanguard is a Nationally Significant Infrastructure Project (NSIP) an Environmental Impact Assessment (EIA) is required as part of a DCO application under the Planning Act 2008.

3.2.2. Norfolk Wildlife Services were appointed in late April 2017 to undertake additional ecological surveys to support this application as set out within the Survey Scope (Royal HaskoningDHV, 2017b).

3.2.3. The Extended Phase 1 Habitat Survey (Royal HaskoningDHV, 2017a) identified the potential for legally protected species located within the project area plus a 50m buffer surrounding the project area, and provided recommendations for further surveys required to characterise the ecological baseline for the project area.

3.3. Survey objective

3.3.1. To ascertain whether notable bird species (i.e. notified species of a Site of Special Scientific Interest, red or amber listed Bird of Conservation Concern, Norfolk Biodiversity Action Plan species or species listed on Schedule 1 of the Wildlife and Countryside Act 1981[as amended]) are breeding; in what numbers; and at what times of year within those habitat areas identified by the Extended Phase 1 Habitat Survey (Royal HaskoningDHV, 2017a) as being suitable for supporting notable breeding bird species.

3.4. Survey scope

3.4.1. Development of survey scope

3.4.1.1. A Scoping Report for the EIA (Royal HaskoningDHV, 2016) was submitted to the Secretary of State on 3 October 2016 and the response in the form of a Scoping Opinion (PINS, 2016) published on 11 November 2016. That Scoping Opinion included the consultation responses of Natural England and Norfolk County Council.

3.4.1.2. An Extended Phase 1 Habitat Survey of the onshore project area was undertaken during February 2017 (Royal HaskoningDHV, 2017a). The Extended Phase 1 Habitat Survey identified the potential for legally protected species located within the project area plus a 50m buffer surrounding the project area, and provided recommendations for further surveys required to characterise the ecological baseline for the project area. These recommendations were issued to stakeholders on 17 March 2017 for comment, as part of the project Evidence Plan Process. Feedback was received from Norfolk County Council and Natural England on the 23 March 2017 and 3 April 2017 respectively that the methodologies were appropriate and acceptable.

3.4.1.3. A Survey Scope detailing the surveys required in order to deliver the Extended Phase 1 Habitat Survey Report recommendations (Royal HaskoningDHV, 2017b) was produced in March 2017. The Survey Scope (set out in Section 3.4.2) was used to tender for delivery of ecological surveys required for the project. Norfolk Wildlife Services based the methodology on this Survey Scope in consultation with the client.

3.4.2. Survey scope

Survey Areas

3.4.2.1. The locations of the survey areas are shown in Appendix 1. Three SSSIs located within a precautionary 1km disturbance buffer of the project area are notified for the breeding bird assemblage they support. The sites are:

- Booton Common;
- Dillington Carr; and
- Dereham Rush Meadows.

3.4.2.2. A County Wildlife Site associated with Dillington Carr, Land South of Dillington Carr, extends into the project area.

3.4.2.3. In addition, there are no notified breeding birds associated with the River Wensum SSSI, however the Wensum valley is known to support a range of breeding birds along the habitats adjacent to the River. Coastal floodplain grazing marsh habitat has been identified along the habitats adjacent to the river within the survey area.

3.4.2.4. One Local Nature Reserve which includes suitable habitats for breeding birds, Pigney's Wood, is located within the project area.

3.4.2.5. Breeding bird surveys of the habitat areas identified above will be undertaken. This includes surveys of the statutory and non-statutory designated sites listed above, and the coastal floodplain grazing marsh adjacent to the River Wensum.

Methodology

3.4.2.6. A transect is required to survey each habitat / site. The transect must cover as much of site as possible, ensuring a route which gets you within 50m of every point within the site. The exact location of the transect will be determined by the survey team on site during the first transect survey.

3.4.2.7. The transect survey will be conducted following the methodology adapted from Bibby et al. (2000) and Gregory, Gibbons and Donald (2004). All birds observed or heard whilst walking the transect are to be recorded following the established British Trust for Ornithology (BTO) hierarchical coding scheme (Crick, 1992). This includes all species, not just those for which a site is designated or notified. Location of species within the survey area will also be recorded. Birds that are seen flying over the survey area (aerial species) are recorded separately. Individual birds should not be double-counted. The exact location of the transect will be determined by the survey team on site during the first transect survey.

3.4.2.8. This transect survey will be conducted approximately once a month within the period from April to August inclusive to provide a good degree of coverage over the breeding period (SNH, 2014). Exact dates for the survey should be determined based on the prevailing weather conditions and on landowner access restrictions. Surveys should not take place in heavy rain, poor visibility or strong wind. This survey should be undertaken during the morning (prior to midday), but avoiding the dawn chorus (when song activity is too concentrated).

3.4.2.9. All survey should be undertaken by experienced ornithologists, preferably members of the Chartered Institute of Ecology and Environmental Management (CIEEM). No species licences are required for these surveys.

3.5. Scoping of survey locations

3.5.1. The Extended Phase 1 Habitat Survey by Royal HaskoningDHV (Royal HaskoningDHV, 2017a) identified designated sites, which had associated need for breeding bird surveys. These sites were specified within the document: PB4476.003.041 Environmental Impact Assessment Phase 2 Ecological Surveys Scope 2017 (Royal HaskoningDHV, April 2017) and set out in Section 3.4.2 above. This includes surveys of the statutory and non-statutory designated sites listed below, and the coastal floodplain grazing marsh adjacent to the River Wensum Site of Special Scientific Interest (SSSI).

3.5.2. The survey locations consist of 6 survey sites. The location of these sites are shown in Appendix 1. The sites and rationale are summarised in Table 1.

Table 1 : Sites identified for bird surveys

Site	Designation	Relationship to study area	Features
Dereham Rush Meadows BB01	SSSI	Within 1km disturbance buffer of the project area	notified for the breeding bird assemblage
Dillington Carr BB02	SSSI	Within 1km disturbance buffer of the project area	notified for the breeding bird assemblage
Booton Common BB03	SSSI	Within 1km disturbance buffer of the project area	notified for the breeding bird assemblage
Pigney's Wood BB04	Local Nature Reserve (LNR)	Located within the project area.	Includes suitable habitats for breeding birds
Dillington Carr, Land South of Dillington Carr BB05	County Wildlife Site	Extends into the project area.	Includes suitable habitats for breeding birds

Site	Designation	Relationship to study area	Features
	(CWS)		
River Wensum BB06	SSSI	Includes suitable habitats for breeding birds	No notified breeding birds; Coastal floodplain grazing marsh habitat Includes suitable habitats for breeding birds

4. Methodology

4.1. Section 4.1 sets out the proposed survey protocol as agreed between Royal HaskoningDHV and Norfolk Wildlife Services prior to any field work commencing, and Section 4.2 sets out how the surveys were delivered in relation to the protocol and identifies any deviations or modifications that took place during the delivery phase.

4.1. Survey protocol

4.1.1. This Section details the proposed survey protocol as agreed between Royal HaskoningDHV and Norfolk Wildlife Services prior to any field work commencing.

Relevant guidance

4.1.2. The following guidance documents were informative to the development of the survey methodology:

- Bibby, C. J. (2000). Bird census techniques. Elsevier.
- Gregory, R. D., Gibbons, D. W., & Donald, P. F. (2004). Bird census and survey techniques. Bird ecology and conservation, 17-56.
- Crick (1992) British Trust for Ornithology (BTO) hierarchical coding scheme (within Bibby et al 2000).

Survey methodology

4.1.3. Breeding bird surveys will be undertaken at the sites identified above, based on a transect survey approach, following a methodology adapted from Bibby *et al.* (2000) and Gregory, Gibbons and Donald (2004). Field surveys will be carried out by Norfolk Wildlife Services based upon the supplied locations and methodology.

4.1.4. A transect will be laid out to maximise site coverage, ensuring access to within 50m of every point within the site wherever possible. The exact location of the transects will be determined and mapped by the survey team on site during the first transect survey.

4.1.5. All birds observed or heard on the transect will be recorded using British Trust for Ornithology (BTO) hierarchical coding scheme (Crick, 1992). All species and their locations will be recorded, not just those for which a site is designated or notified. Birds that are seen flying over the survey area (aerial species) will be recorded separately. Double-counting of individual birds should be avoided.

4.1.6. Transect surveys will be conducted approximately once a month within the period from April to August inclusive to provide a good degree of coverage over the breeding period (Scottish Natural Heritage, 2014).

4.1.7. Exact dates for the survey should be determined based on the prevailing weather conditions and on landowner access restrictions.

4.1.8. Surveys will be undertaken during the morning (prior to midday), but avoiding the dawn chorus when song activity is too concentrated.

4.1.9. Surveys will not take place in heavy rain, poor visibility or strong wind.

4.1.10. All surveys will be undertaken by experienced ornithologists.

4.1.11. No species licences are required for these surveys.

4.2. Survey delivery

4.2.1. This Section details how the surveys were delivered in relation to the agreed protocol, identifies any deviations or modifications that took place during the delivery phase and highlights survey limitations.

4.2.1. Survey methodology as delivered

Access to survey sites

4.2.1.1. The transect route maps as used are shown in Appendix 1. On one or two of the survey visits the transect route was reversed.

4.2.1.2. The identified transect routes allowed coverage of as much of the site as was safely practical given the habitats encountered. All transect routes were sufficient to allow surveyors to pass within 50m of every point (even where there were sections of the survey area that were difficult to physically access).

4.2.1.3. Some areas at Dereham Rush Meadows BB01, Pigney's Wood BB04 and River Wensum BB06 could not be safely accessed or easily viewed. Constraints on full access are detailed in Table 2.

Table 2 : Constraints on access for surveys

Location	Visit Date	Constraint from access on layout of sample transect
Rush Meadows BB01	All visits	The centre of the site is too wet to sample meaning that the transect route did not cover all points of the site within 50m. A number of dog legs were added to the main transect route which were walked when possible, and bird activity within the centre of the site noted from a static position
Dillington Carr BB02	07/08/2017	A small area in the north-west corner of the site was inaccessible on the last of the five surveys, as a result of a partially fallen tree and extensive nettle and scrub growth.
Booton Common BB03	All visits	Some sections of the extreme northern and western perimeters of the site were difficult to access due to unstable, wet ground and dense vegetation.
Pigneys Wood BB04	All visits	An area in the north-west corner of the site was closed for nesting birds for the duration of the surveys, so the survey route went to the south of this area. There were a couple of vantage points from the footpath to the scrapes and here particular attention was paid to locate unseen, calling species.
Land to the south of Dillington Carr BB05	All visits	Access to a small section of the extreme north-eastern perimeter of the site was restricted somewhat by dense vegetation.
River Wensum Floodplain BB06	All visits	No access was available at this site to the area north and east of the River Wensum on any of the five surveys. Therefore all species recorded on the survey maps in this area were identified from the opposite side of the river.

Survey effort

4.2.1.4. Transect surveys were conducted at least once a month between May and August inclusive as set out in Table 3. April visits were not completed due to survey programme delays outside of NWS' control. An additional survey was completed at all sites as soon as feasible to compensate for this limitation.

Table 3 : Dates by month for surveys

Location	MONTH					TOTAL
	April	May	June	July	August	
Rush Meadows BB01	N/A	05/05/2017 25/05/2017	16/06/2017	18/07/2017	11/08/2017	5
Dillington Carr BB02	N/A	11/05/2017 26/05/2017	10/06/2017	10/07/2017	07/08/2017	5
Booton Common BB03	N/A	12/05/2017 25/05/2017	12/06/2017	11/07/2017	04/08/2017	5

Location	MONTH					TOTAL
	April	May	June	July	August	
Pigneys Wood BB04	N/A	10/05/2017 28/05/2017	11/06/2017	09/07/2017	08/08/2017	5
Blackberry Farm, Dillington BB05	N/A	13/05/2017 24/05/2017	14/06/2017	12/07/2017	02/08/2017	5
River Wensum Floodplain BB06	N/A	18/05/2017	01/06/2017 15/06/2017	14/07/2017	08/08/2017	5

Timing and weather conditions

4.2.1.5. The weather conditions and timings during the surveys complied with those required by protocol and are given in Table 4.

4.2.1.6. All surveys were prior to midday, but avoided the dawn chorus.

Dates of surveys

4.2.1.7. Table 4 below provides a summary of the dates of surveys at all of the sites.

Table 4 : Dates, personnel and weather for bird surveys

Location	Visit Date	Visit Time	Visit No.	Weather	Temp (°C)	Surveyors
Rush Meadows BB01	05/05/2017	08:00 – 11:00	1	2/8 cloud cover, BWS 1, dry, good visibility	12	Ben Christie Jenny Christie
Rush Meadows BB01	25/05/2017	06:30-08:30	2	1/8 cloud cover, BWS 1, dry, excellent visibility	12	Ben Christie Jenny Christie
Rush Meadows BB01	16/06/2017	06:00-08:00	3	3/8 cloud cover, BWS 1, dry, excellent visibility	14	Ben Christie Jenny Christie
Rush Meadows BB01	18/07/2017	06:30-08:30	4	1/8 cloud cover, BWS 1, dry, excellent visibility	16	Ben Christie Jenny Christie
Rush Meadows BB01	11/08/2017	07:00-09:00	5	4/8 cloud cover, BWS 2, dry, excellent visibility	12	Ben Christie Jenny Christie
Dillington Carr BB02	11/05/2017	06:45-11:40	1	0/8 cloud cover, BWS 1-2, dry, visibility excellent,	19	Mick Saunt John Williamson
Dillington Carr BB02	26/05/2017	06:35-11:30	2	0/8 cloud cover, BWS 1-2, dry, visibility excellent	14 increasing to 22	Mick Saunt John Williamson
Dillington Carr BB02	10/06/2017	06:35-11:45	3	8/8 to 2/8 cloud cover, BWS 3-4, brief light rain shower, visibility good to very good	13 increasing to 21	Mick Saunt John Williamson
Dillington Carr BB02	10/07/2017	06:35-11:50	4	3/8 to 7/8 cloud cover, BWS 0-1, dry and humid, visibility good to very good	17 increasing to 22	Mick Saunt John Williamson
Dillington Carr BB02	07/08/2017	06:30-11:30	5	7/8 to 8/8 cloud cover, BWS 1-4, dry, visibility good	14 increasing to 19	Mick Saunt John Williamson
Booton Common BB03	12/05/2017	06:25-08:20	1	07/8 to 8/8 cloud cover, BWS 0-1, light spotting of rain, visibility murky	12	John Williamson Ben Christie Sally McColl

Location	Visit Date	Visit Time	Visit No.	Weather	Temp (°C)	Surveyors
Booton Common BB03	25/05/2017	05:45-07:55	2	0/8 cloud cover, BWS 0-1, dry, mist early morning visibility fair to very good	11 increasing to 14	John Williamson Mick Saunt
Booton Common BB03	12/06/2017	07:00-08:55	3	8/8 cloud cover, BWS 3-4, dry, visibility very good	12-13	John Williamson Mick Saunt
Booton Common BB03	11/07/2017	06:30-08:45	4	5/8 cloud cover, BWS 0-1, dry, visibility very good	14 increasing to 19	John Williamson Mick Saunt
Booton Common BB03	04/08/2017	06:35-08:45	5	4/8 cloud cover, BWS 3-4, dry, visibility very good	13 increasing to 18	John Williamson Mick Saunt
Pigneys Wood BB04	10/05/2017	08:45-11:00	1	1/8 cloud cover, BWS 2, sunny, very good visibility	10	Sally McColl Ben Christie
Pigneys Wood BB04	28/05/2017	06:30-09:00	2	3/8 cloud cover, BWS 3, sunny, very good visibility	15 increasing to 23	Sally McColl Mark Rudrum
Pigneys Wood BB04	11/06/2017	06:30-09:00	3	4/8 cloud cover, BWS 3, sunny, very good visibility	20	Sally McColl Mark Rudrum
Pigneys Wood BB04	09/07/2017	06:45-09:45	4	2/8 cloud cover, BWS 1, sunny, very good visibility	13 increasing to 21	Sally McColl Mark Rudrum
Pigneys Wood BB04	08/08/2017	06:30-08:45	5	6/8 cloud cover, BWS 1, sunny spells with light drizzle on occasions, visibility fair to good	17 increasing to 20	Sally McColl Ben Moore
Blackberry Farm, Dillington BB05	13/05/2017	06:30-09:20	1	4/8 to 6/8 cloud cover, BWS 1, some light spotting of rain, visibility fair/good	13	John Williamson Mick Saunt
Blackberry Farm, Dillington BB05	24/05/2017	06:30-09:05	2	5/8 cloud cover, BWS 0-1, dry, visibility excellent	12 increasing to 15	John Williamson Mick Saunt
Blackberry Farm, Dillington BB05	14/06/2017	06:00-08:55	3	8/8 to 3/8 cloud cover, BWS 0-1, dry, visibility excellent	13 increasing to 18	John Williamson Mick Saunt
Blackberry Farm, Dillington BB05	12/07/2017	07:30-11:25	4	8/8 to 4/8 cloud cover, BWS 1-2, dry with sunny spells, visibility fair	14 increasing to 17	John Williamson Mick Saunt
Blackberry Farm, Dillington BB05	02/08/2017	06:45-10:45	5	7/8 to 2/8 cloud cover, BWS 1-2, dry with sunny spells, visibility very good	14 increasing to 18	John Williamson Mick Saunt
River Wensum Floodplain BB06	18/05/2017	06:40-10:55	1	8/8 to 3/8 cloud cover, BWS 2-3, dry, visibility very good	10 increasing to 14	John Williamson Mick Saunt
River Wensum Floodplain BB06	01/06/2017	06:35-10:50	2	8/8 to 3/8 cloud cover, BWS 1-2, dry, visibility good to very good	14 increasing to 22	John Williamson Mick Saunt
River Wensum Floodplain BB06	15/06/2017	06:35-10:50	3	1/8 cloud cover, BWS 0-4, dry, visibility very good	13 increasing to 23	John Williamson Mick Saunt
River Wensum Floodplain BB06	14/07/2017	06:35-10:50	4	8/8 to 5/8 cloud cover, BWS 1-3, light drizzle at the start of survey, visibility fair to good	14 increasing to 20	John Williamson Mick Saunt

Location	Visit Date	Visit Time	Visit No.	Weather	Temp (°C)	Surveyors
River Wensum Floodplain BB06	08/08/2017	06:40-10:50	5	8/8 cloud cover, BWS 0-1, dry, visibility good	15 increasing to 18	John Williamson Mick Saunt

Personnel

4.2.1.8. All surveys were undertaken by experienced ornithologists, who are listed below in Table 5. Other named staff on surveys were safety workers.

Table 5 : Surveyor experience

Team member	Experience	Licenses & Memberships
Ben Christie	4 years' experience in ecological surveying including bats, reptiles, invertebrates & breeding birds	GradCIEEM
John Williamson	16 years' experience in ornithological surveying	Various Schedule 1 Licence for rare breeding birds
Michael Saunt	15 years' experience in ornithological surveying	
Sally McColl	10 years' experience of ecological surveying, including bats, reptiles & breeding birds	

4.2.2. Limitations

4.2.2.1. The lack of an April survey for the sites deviates from the survey scope as set out in the Extended Phase 1 Habitat Survey Report, but given that the sites were all surveyed during May seems unlikely to form a significant constraint. It may mean that some early singers such as mistle thrush, dunnock, bullfinch, lesser and great spotted woodpecker are underrepresented.

4.2.2.2. Limitations of coverage at specific sites and expected impacts are outlined in Table 6.

4.2.2.3. There were no significant constraints in relation to timings specified in the protocol. A lack of dusk and dawn surveys means that some diurnal or night singers may be under represented e.g. owls, nightjar, and nightingale.

Table 6 : Assessment of limitations for bird surveys

Location	Survey effort	Transect route access constraint impacts	Timing and weather conditions	Overall
Rush Meadows BB01	5 visits made, none in April, 2 in May	Low impact – Visibility across the site was good, however ground nesting wetland birds within the centre of the site maybe under represented e.g. water rail. Moderate impact - Woodland species within the carr to the north-west of the site may be under represented e.g. lesser spotted woodpecker.	Compliant with protocol	No significant constraints
Dillington Carr BB02	5 visits made, none in April, 2 in May	Lack of full access on 07/08/2017. No impacts – late in season so not likely to have an impact on nesting birds recorded. The revised chosen transect passed within 50m of all points in this area (including the perimeter) and here particular attention was paid to locate unseen, calling species.	Compliant with protocol	No significant constraints
Booton Common BB03	5 visits made, none in April, 2 in May	No impacts – as less than 50m from other parts of the transect route. Particular attention was paid in this area to identify any calling bird species that remained unseen.	Compliant with protocol	No significant constraints
Pigneys Wood BB04	5 visits made, none in April, 2 in May	Low impact - Ground nesting wetland birds maybe under represented e.g. coot	Compliant with protocol	No significant constraints
Land to the south of Dillington Carr BB05	5 visits made, none in April, 2 in May	No impacts – as less than 50m from other parts of the transect route. Particular attention was paid in this area to identify any calling bird species that remained unseen.	Compliant with protocol	No significant constraints
River Wensum Floodplain BB06	5 visits made, none in April, 2 in June	No access to northern/eastern bank. Low impact - Most of the area with no access was arable with low crop cover so viewing was not very restricted within this area. It was also possible to hear singing birds quite easily from the other side of the river.	Compliant with protocol	No significant constraints

5. Results

5.1. Survey data, including sightings maps are included as separate documents under the heading Appendix 2 (A through F).

5.2. A brief summary of total notable species (excluding flyovers) observed holding territories on each site are summarised in Table 7 below. A full list of species noted holding territories is summarised in Table 8.

5.3. A number of notable species were recorded at each site, including breeding Barn Owl at River Wensum Floodplain, and Kingfisher at land south of Dillington Carr.

5.4. A total of 18 different Red and Amber listed Birds of Conservation Concern, 4 LBAP species and 7 SSSI notifiable species were noted holding territories throughout the surveys.

Table 7 : Total species recorded and birds observed holding territories

Location	Species noted holding territories
Rush Meadows BB01	Bullfinch (BOCC, Amber) Dunnock (BOCC, Amber) Reed bunting (BOCC, Amber; LBAP ²) Reed warbler (SSSI ⁴) Song thrush (BOCC, Red; LBAP) Willow warbler (BOCC, Amber)
Dillington Carr BB02	Coot (SSSI) Cuckoo (BOCC, Red) Dunnock (BOCC, Amber) Gadwall (BOCC, Amber; SSSI) Great-crested Grebe (SSSI) Little Grebe (SSSI) Mallard (BOCC, Amber) Mistle Thrush (BOCC, Red) Moorhen (SSSI) Mute Swan (BOCC, Amber; SSSI) Reed Bunting (BOCC, Amber; LBAP) Song Thrush (BOCC, Red; LBAP) Stock Dove (BOCC, Amber)
Booton Common BB03	Dunnock (BOCC, Amber) Marsh Tit (BOCC, Red) Song Thrush (BOCC, Red; LBAP)
Pigneys Wood BB04	Cuckoo (BOCC, Red) Dunnock (BOCC, Amber) Mute swan (BOCC, Amber) Reed bunting (BOCC, Amber; LBAP) Song thrush (BOCC, Red; LBAP) Stock dove (BOCC, Amber)
Land to the south of Dillington Carr BB05	Bullfinch (BOCC, Amber) Cuckoo (BOCC, Red) Dunnock (BOCC, Amber) Kingfisher (BOCC, Amber; Schedule 1 ³) Linnet (BOCC, Red) Song Thrush (BOCC Red; LBAP) Spotted Flycatcher (BOCC, Red; LBAP) Willow warbler (BOCC, Amber) Yellowhammer (BOCC, Red)
River Wensum Floodplain BB06	Barn Owl (Schedule 1; SSSI; LBAP) Bullfinch (BOCC, Amber) Cuckoo (BOCC, Red) Dunnock (BOCC, Amber) Kestrel (BOCC, Amber) Linnet (BOCC, Red) Mallard (BOCC, Amber) Mute Swan (BOCC, Amber) Reed Bunting (BOCC, Amber; LBAP) Skylark (BOCC, Red; LBAP) Song Thrush (BOCC, Red; LBAP) Stock Dove (BOCC, Amber)

Table 8 : Total species recorded and birds observed holding territories

Location	Species noted holding territories	Total number of species recorded (holding territories)
Rush Meadows BB01	Blackbird Blackcap Blue tit Bullfinch (BOCC¹, Amber) Chaffinch Chiffchaff Coal tit Collared dove Dunnock (BOCC, Amber) Goldcrest Great tit Long-tailed tit Pheasant Reed bunting (BOCC, Amber; LBAP²) Reed warbler (SSSI⁴) Robin Song thrush (BOCC, Red; LBAP) Whitethroat Willow warbler (BOCC, Amber) Wood pigeon Wren	35 (21)
Dillington Carr BB02	Blackbird Blackcap Blue Tit Canada Goose Chaffinch Chiffchaff Common Buzzard Coot (SSSI) Cuckoo (BOCC, Red) Dunnock (BOCC, Amber) Egyptian Goose Gadwall (BOCC, Amber; SSSI) Goldcrest Great Spotted Woodpecker Great Tit Great-crested Grebe (SSSI) Grey Heron Little Grebe (SSSI) Mallard (BOCC, Amber) Mistle Thrush (BOCC, Red) Moorhen (SSSI) Mute Swan (BOCC, Amber; SSSI) Nuthatch Reed Bunting (BOCC, Amber; LBAP) Reed Warbler Robin Song Thrush (BOCC, Red; LBAP) Stock Dove (BOCC, Amber) Woodpigeon Wren	47 (30)

Location	Species noted holding territories	Total number of species recorded (holding territories)
Booton Common BB03	Blackbird Blackcap Blue Tit Chaffinch Chiffchaff Coal tit Collared Dove Dunnock (BOCC, Amber) Garden Warbler Goldcrest Great spotted woodpecker Great Tit Green Woodpecker Greenfinch Long-tailed tit Marsh Tit (BOCC, Red) Robin Song Thrush (BOCC, Red; LBAP) Woodpigeon Wren	29 (21)
Pigneys Wood BB04	Blackbird Blackcap Blue tit Common buzzard Carrion Crow Chaffinch Chiff chaff Coal tit Cuckoo (BOCC, Red) Dunnock (BOCC, Amber) Goldcrest Goldfinch Great tit Little grebe Long tailed tit Magpie Mute swan (BOCC, Amber) Reed bunting (BOCC, Amber; LBAP) Reed warbler Robin Sedge warbler Song thrush (BOCC, Red; LBAP) Stock dove (BOCC, Amber) Whitethroat Woodpigeon Wren	38 (26)

Location	Species noted holding territories	Total number of species recorded (holding territories)
Land to the south of Dillington Carr BB05	Blackbird Blackcap Blue Tit Bullfinch (BOCC, Amber) Chaffinch Chiffchaff Coal Tit Collared Dove Cuckoo (BOCC, Red) Dunnock (BOCC, Amber) Goldfinch Great tit Greenfinch Jay Kingfisher (BOCC, Amber; Schedule 1³) Linnet (BOCC, Red) Little Owl Long-tailed tit Magpie Pheasant Robin Sedge Warbler Song Thrush (BOCC Red; LBAP) Spotted Flycatcher (BOCC, Red; LBAP) Whitethroat Willow warbler (BOCC, Amber) Woodpigeon Wren Yellowhammer (BOCC, Red)	41 (29)
River Wensum Floodplain BB06	Barn Owl (Schedule 1; SSSI; LBAP) Blackbird Blackcap Blue Tit Bullfinch (BOCC, Amber) Common buzzard Carrion Crow Chaffinch Chiffchaff Cuckoo (BOCC, Red) Dunnock (BOCC, Amber) Egyptian Goose Great Spotted Woodpecker Great Tit Greylag Goose Kestrel (BOCC, Amber) Lesser Whitethroat Linnet (BOCC, Red) Long-tailed Tit Magpie Mallard (BOCC, Amber) Moorhen Mute Swan (BOCC, Amber) Pheasant Red-legged partridge Reed Bunting (BOCC, Amber; LBAP) Robin Skylark (BOCC, Red; LBAP) Song Thrush (BOCC, Red; LBAP) Stock Dove (BOCC, Amber) Whitethroat Woodpigeon Wren	42 (33)

¹ BOCC Birds of Conservation Concern

² LBAP Local Biodiversity Action Plan

³ Schedule 1 Wildlife and Countryside Act 1981 (Schedule 1)

⁴ SSSI : Mentioned within Site of Special Scientific Interest citation as part of designated feature of "breeding bird assemblage"

6. Conclusions

6.1. A number of notable bird species were recorded holding territories at all six sites surveyed.

6.2. In total 18 different species of Red and Amber listed Birds of Conservation Concern were recorded holding territories over the survey areas.

6.3. The greatest number of notable species (13) were recorded at Dillington Carr BB02 and the greatest number of different species holding territories (33) were recorded at the River Wensum Floodplain BB06.

6.4. Schedule 1 birds were recorded holding territories at two sites: Land to the south of Dillington Carr BB05 (Kingfisher) and River Wensum Floodplain BB06 (Barn owl).

6.5. Due to reduced access coverage at Pigneys Wood BB04, Rush Meadows BB01 and River Wensum Floodplain BB06 and lack of dawn/dusk surveys at all sites, it is recommended to check desktop records to ensure that no significant species have been under represented.

7. References

Bibby, C. J. (2000). Bird census techniques. Elsevier.

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Gregory, R. D., Gibbons, D. W., & Donald, P. F. (2004). Bird census and survey techniques. Bird ecology and conservation, 17-56.

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Royal HaskoningDHV (2016). *Norfolk Vanguard Offshore Wind Farm Environmental Impact Assessment Scoping Report*. [Doc Ref PB4476-102-001]. Royal HaskoningDHV, Edinburgh.

Royal HaskoningDHV (2017). *Norfolk Vanguard Offshore Wind Farm Extended Phase 1 Habitat Survey Report* (Document ref: PB4476-003-040)

Appendix 1: Bird Survey Locations and Transect Route Maps

Figure 1: Bird survey location – Rush Meadows BB01

Bird Surveys



Figure 2: Bird survey transect route – Rush Meadows BB01

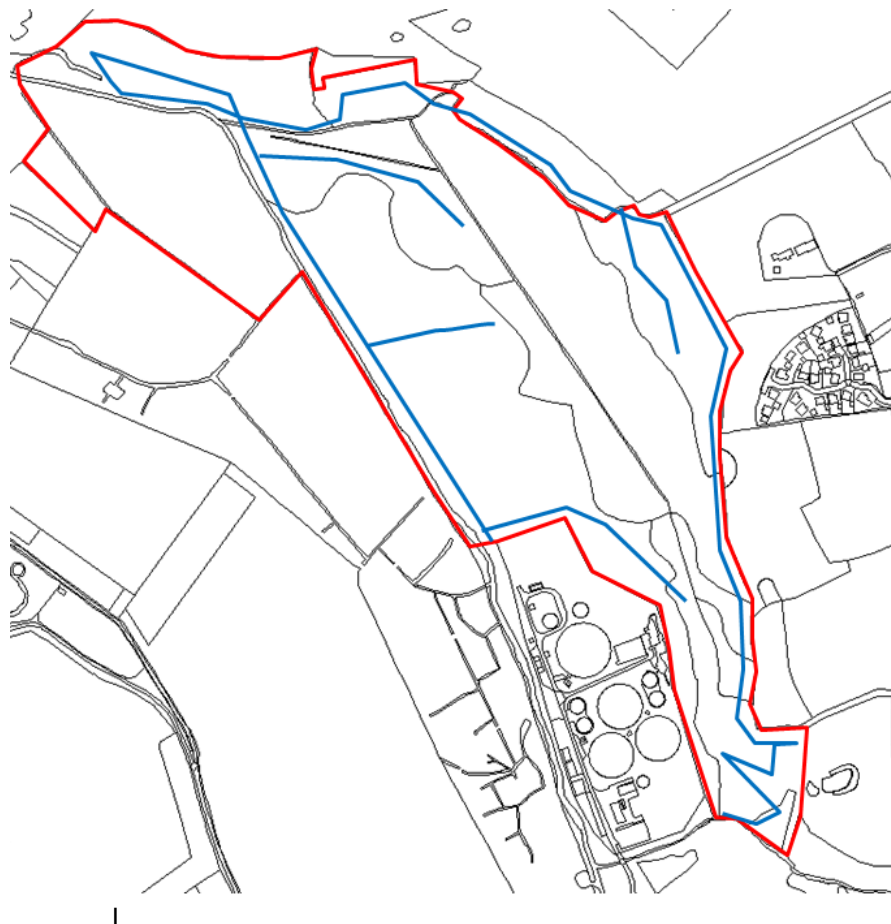


Figure 3: Bird survey location – Dillington Carr BB02

Bird Surveys

BB002 Dillington Carr

 BB002 - Dillington Carr
 Central GR: TF970158
 Postcode: NR19 2QG

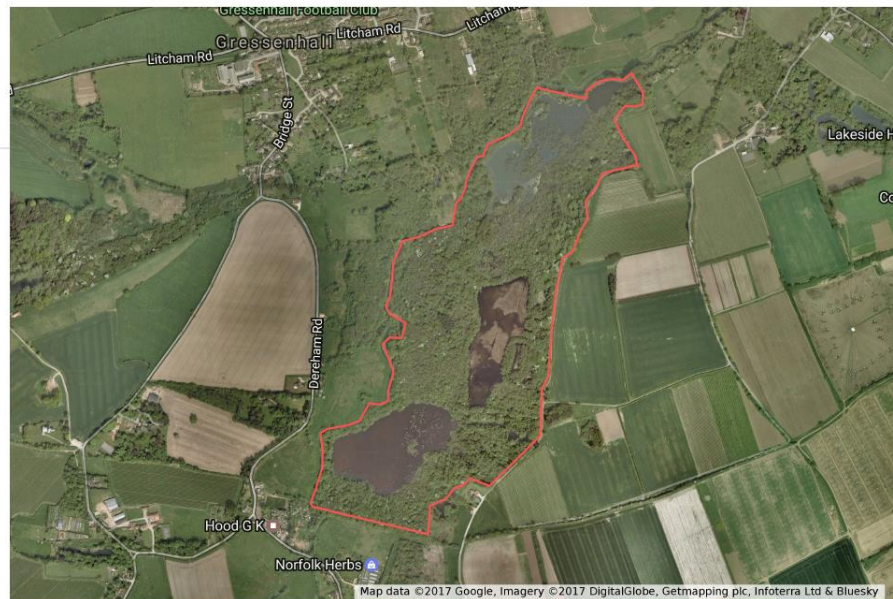


Figure 4: Bird survey transect route – Dillington Carr BB02



Figure 5: Bird survey location – Booton Common BB03

Bird Surveys



Figure 6: Bird survey transect route – Booton Common BB03

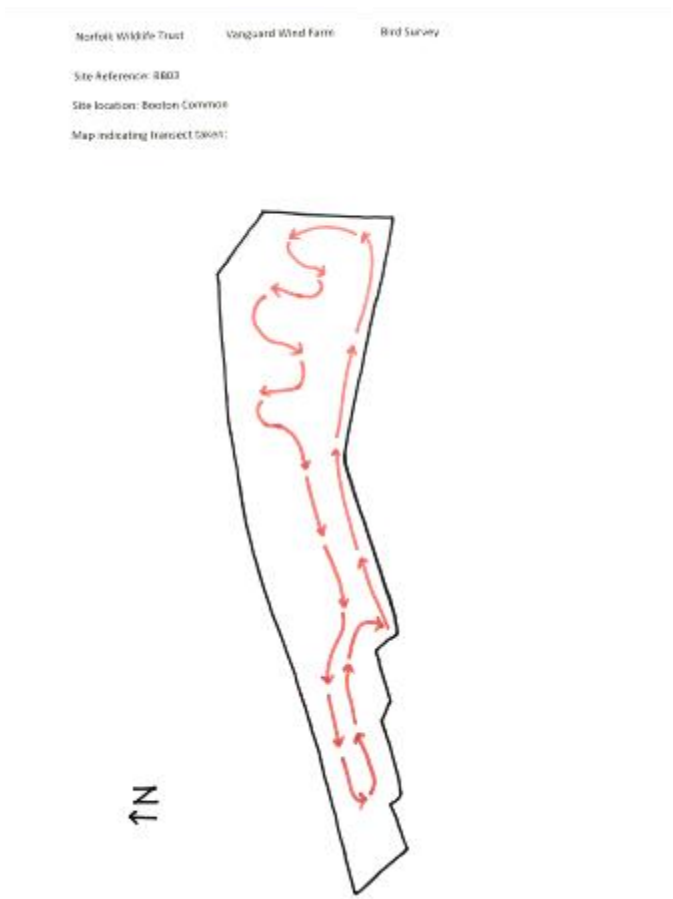


Figure 7: Bird survey location – Pigney's Wood BB04

Bird Surveys

BB004 Pigney's Wood



BB004 Pigney's Wood
Central Grid Ref: TG294321
Post Code: NR28 0SH



Figure 8: Bird survey transect route – Pigney's Wood BB04

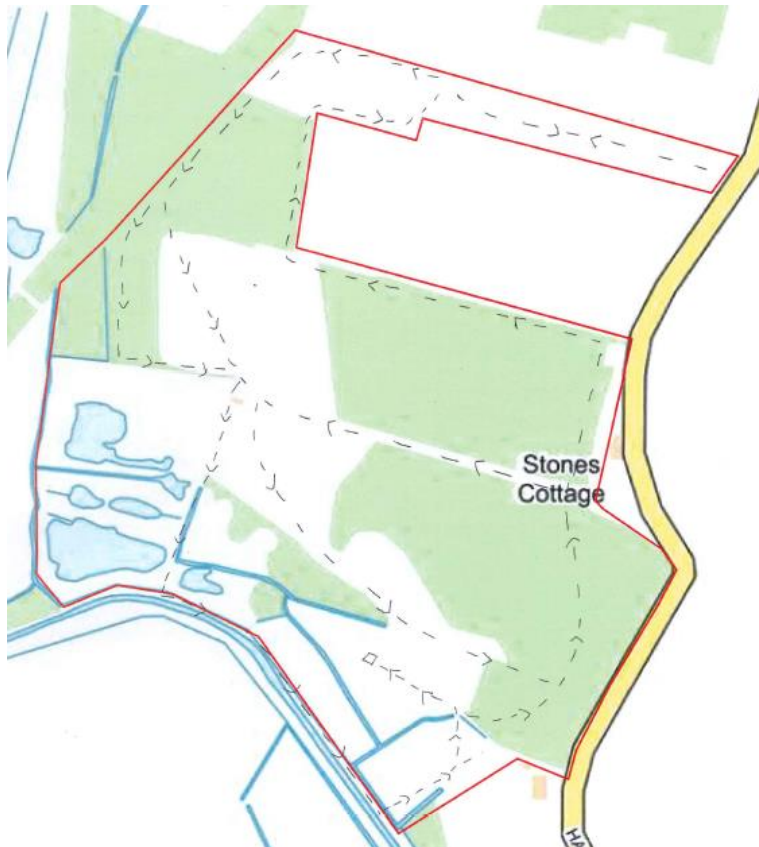


Figure 9: Bird survey location – Dillington Carr, Land South of Dillington Carr BB05

Bird Surveys



Figure 10: Bird survey transect route – Dillington Carr, Land South of Dillington Carr BB05

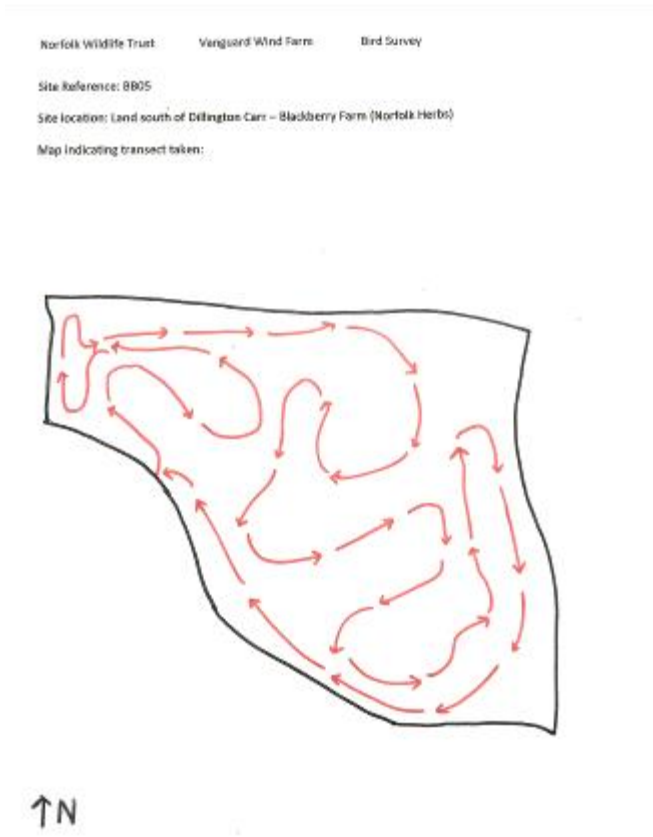


Figure 11: Bird survey location – River Wensum Floodplain BB06

Bird Surveys

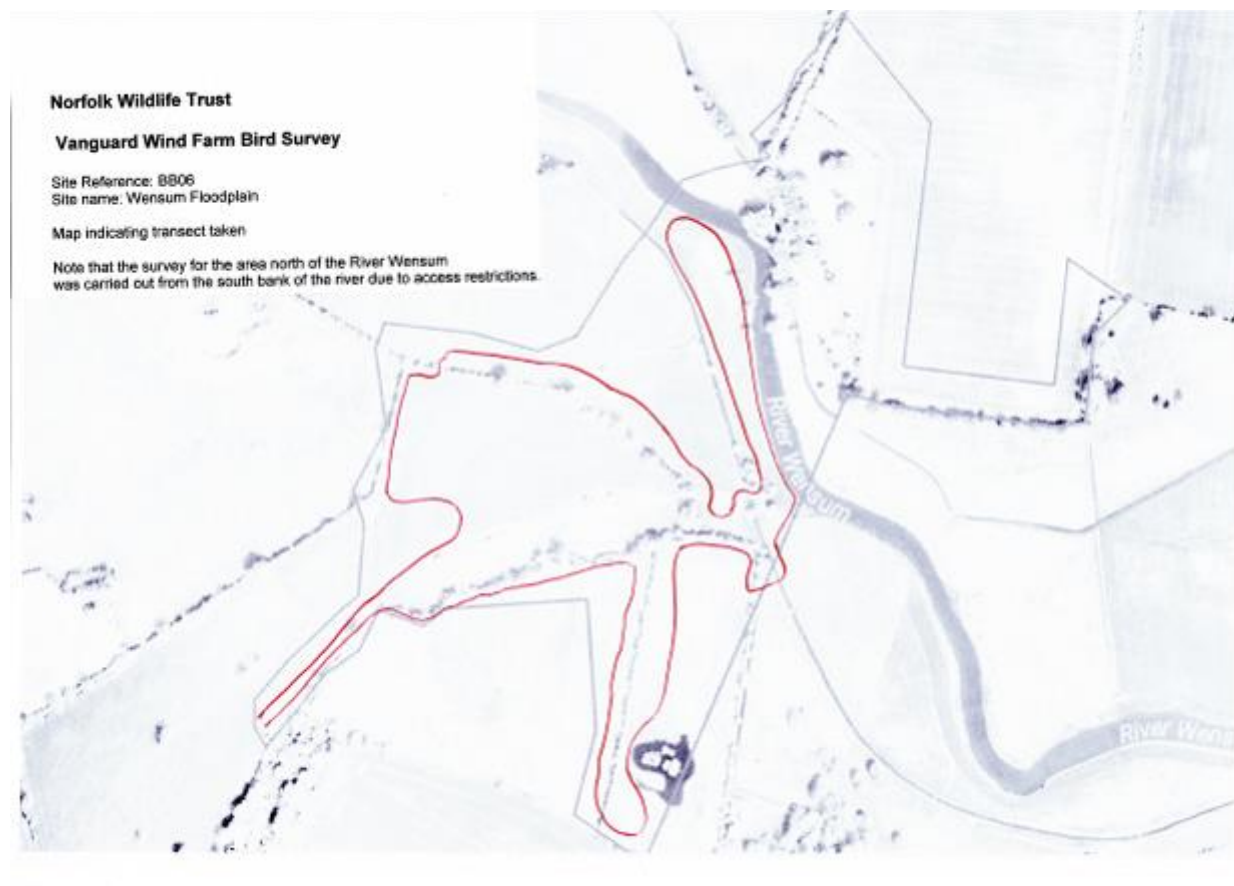
BB006 Wensum floodplain



BB006 Wensum floodplain
Central Grid Ref: TG040176
Post Code: NR20 3EP



Figure 12: Bird survey transect route – River Wensum Floodplain BB06





Norfolk Vanguard Breeding bird Appendix 2A: BB01 data

Report prepared by Norfolk Wildlife Services Ltd.
on behalf of Royal HaskoningDHV,
December 2017

Reference: 2016/131.2

Appendix 2: Results – data sheets and maps
Rush Meadows BB01

**NWS Breeding
Bird Survey
Form**

Site Ref (BB00X)	BB001	Notes:
Site Location	Rush Meadows	
Date	05/05/2017	
Visit Number	1	
Surveyor	BC	
Temperature	12	
Weather (Cloud, Wind Rain, Visibility)	2/8 CC, BWS 1, good, dry	
Time start	08:00	BST
Time finish	11:00	BST

2-digit BTO code	Species		Comments	Confirmed territories	Total number
CC		Chiffchaff			5
CH		Chaffinch			1
WP		Woodpigeon		1	6
WW		Willow warbler			3
WR		Wren			10
BC		Blackcap			3
B.		Blackbird			3
GC		Goldcrest			1
D.		Dunnock			2
R.		Robin			5
WH		Whitethroat			1
MH		Moorhen			1
C.		Crow			2
G.		Green woodpecker			1
BF		Bullfinch			2
GT		Great tit			3
BT		Blue tit			3
SN		Snipe			1
SL		Swallow			5
ET		Little egret			1
RW		Reed warbler			1
CT		Coal tit			1

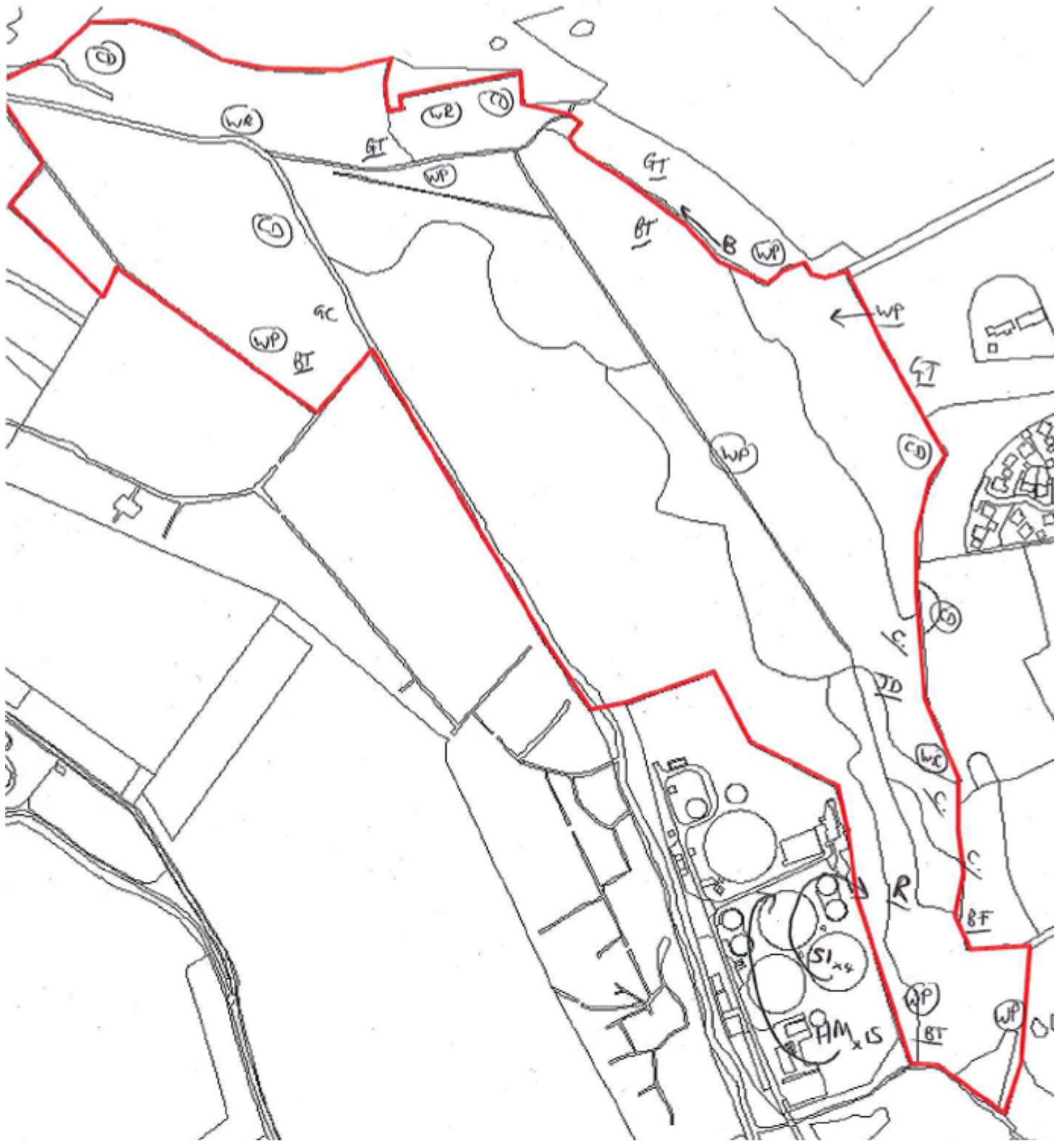
LT		Long-tailed tit	Fledged young being fed	1	5
CD		Collared dove			2
GS		Great spotted woodpecker			1
BZ		Buzzard			1
PH		Pheasant			2
RB		Reed bunting	Paired male	1	1

**NWS Breeding
Bird Survey
Form**

Site Ref (BB00X)	BB001	Notes:
Site Location	Rush Meadows	
Date	25/05/2017	
Visit Number	2	
Surveyor	BC	
Temperature	12	
Weather (Cloud, Wind Rain, Visibility)	1/8 CC, BWS 1, dry, excellent	
Time start	06:30	BST
Time finish	08:30	BST

2-digit BTO code	Species		Comments	Confirmed territories	Total number
CC		Chiffchaff		4	4
CH		Chaffinch		1	1
WP		Woodpigeon		10	11
WW		Willow warbler		1	1
WR		Wren		10	10
BC		Blackcap		3	6
B.		Blackbird		2	7
GC		Goldcrest		4	4
D.		Dunnoch		1	1
R.		Robin		10	10
WH		Whitethroat		1	1
RO		Rook			1
C.		Carrion Crow			6
BF		Bullfinch		1	1
GT		Great tit		1	3
BT		Blue tit		2	5
ST		Song thrush		3	4
SG		Starling			40
NH		Nuthatch			1
RW		Reed warbler		1	2
CT		Coal tit		1	1
LT		Long-tailed tit		1	1

CD		Collared dove		3	3
PH		Pheasant		1	2
RB		Reed bunting	Male, not singing		1



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**NWS Breeding
Bird Survey
Form**

Site Ref (BB00X)	BB001	Notes:
Site Location	Rush Meadows	
Date	16/06/2017	
Visit Number	3	
Surveyor	BC	
Temperature	14	
Weather (Cloud, Wind Rain, Visibility)	3/8 CC, BWS 1, dry, excellent	
Time start	06:00	BST
Time finish	08:00	BST

2-digit BTO code	Species		Comments	Confirmed territories	Total number
HM		House martin			6
WH		Whitethroat		1	1
D		Dunnock		1	1
BT		Blue tit		1	1
RB		Reed bunting		1	1
C		Carrion crow			2
WR		Wren		9	9
B		Blackbird		2	4
RB		Robin		5	6
PH		Pheasant		1	1
JD		Jackdaw			2
BC		Blackcap		2	2
WP		Wood pigeon		4	5
GC		Goldcrest		5	5
CH		Chaffinch		1	2
ST		Song thrush		1	1
GS		Great spotted woodpecker			1
CC		Chiffchaff		2	2
GT		Great tit		1	3
CD		Collared dove		2	2
WW		Willow warbler		1	1



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**NWS Breeding
Bird Survey
Form**

Site Ref (BB00X)	BB001	Notes:
Site Location	Rush Meadows	
Date	18/07/2017	
Visit Number	4	
Surveyor	BC	
Temperature	16	
Weather (Cloud, Wind Rain, Visibility)	1/8 CC, BWS 1, dry, excellent	
Time start	06:30	BST
Time finish	08:30	BST

2-digit BTO code	Species		Comments	Confirmed territories	Total number
WR		Wren		3	4
WP		Woodpigeon		7	8
GO		Goldfinch			7
BT		Blue tit			2
GT		Great tit			3
B		Blackbird			3
BC		Blackcap		3	3
GC		Goldcrest		1	1
BF		Bullfinch			2
PH		Pheasant			1
MH		Moorhen			1
ST		Song thrush		1	1
C		Carrion crow			4
CC		Chiffchaff		1	1
CD		Collared dove		5	5

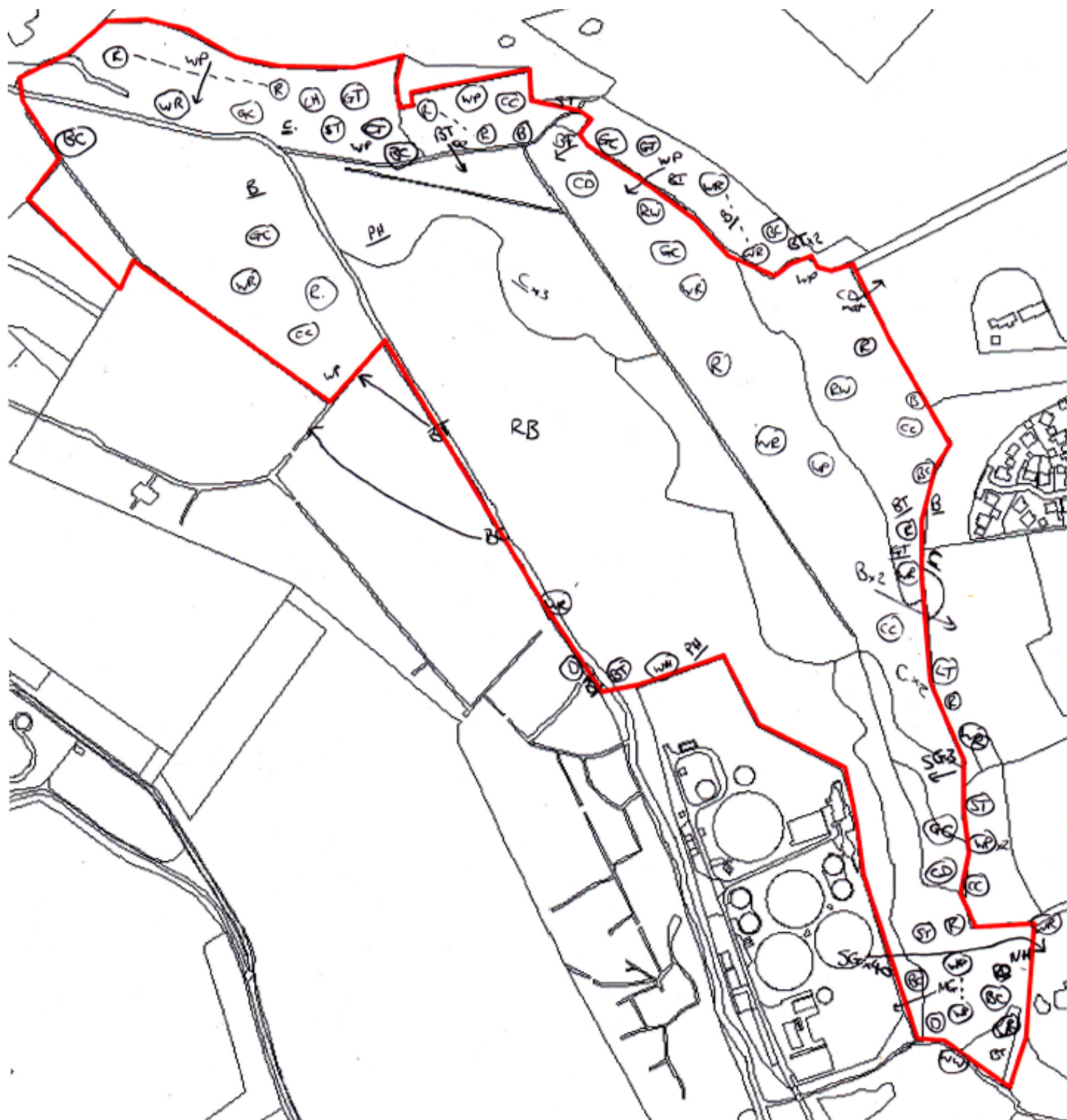


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**NWS Breeding
Bird Survey
Form**

Site Ref (BB00X)	BB001	Notes:
Site Location	Rush Meadows	
Date	11/08/2017	
Visit Number	5	
Surveyor	BC	
Temperature	12	
Weather (Cloud, Wind Rain, Visibility)	4/8 CC, BWS 2, dry, excellent	
Time start	07:00	BST
Time finish	09:00	BST

2-digit BTO code	Species		Comments	Confirmed territories	Total number
WR		Wren		3	3
WP		Woodpigeon		7	7
BT		Blue tit			3
GT		Great tit			3
B		Blackbird			1
R		Robin			1
GC		Goldcrest			1
BF		Bullfinch			1
C		Carrion crow			3
CD		Collared dove		5	5
JD		Jackdaw			1
SI		Swift	Feeding above sewerage works		4
HM		House martin	Feeding above sewerage works		15



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Norfolk Vanguard Breeding bird Appendix 2B: BB02 data

Report prepared by Norfolk Wildlife Services Ltd.
on behalf of Royal HaskoningDHV,
December 2017

Reference: 2016/131.2

Appendix 2: Results – data sheets and maps
Dillington Carr BB02

Bird Survey Form		
Site Ref (BB00X)	BB02 - Visit 1 of 5	Notes:
Site location	Dillington Carr	
Date	11/05/2017	
Surveyor(s)	Mick Saunt	John Williamson
Temperature	19 degrees C	
Weather	1-2 S; 0/8 cloud; Vis excellent	Bright sun
Time start	06.45	BST
Time finish	11.40	BST

2-digit BTO code	Species	Comments	Confirmed territories	Total number
GT	Great Tit	1 Singing male	1	7
WR	Wren	16 Singing males	16	16
R.	Robin	9 Singing males	9	9
WP	Woodpigeon	5 Singing males	5	42
J.	Jay			3
MH	Moorhen			9
B.	Blackbird	10 Singing males	10	10
CC	Chiffchaff	2 Singing males	2	2
KF	Kingfisher			1
BC	Blackcap	10 singing males	10	11
CH	Chaffinch		10	14
CO	Coot	Nest on N lake	1	4
MA	Mallard	Female + 4 ducklings	1	17
CA	Cormorant	Loafing in trees		9
ET	Little Egret			1
GA	Gadwall			7
GG	Great-crested Grebe		1	2
LG	Little Grebe	7 Singing males	7	7
BH	Black-headed Gull	on S lake		3
LB	Lesser Black-backed Gull	on S lake		8
H.	Grey Heron			3
CN	Common Tern	Fishing on S lake		1
GS	Great-spotted Woodpecker			4
RW	Reed Warbler	7 Singing males	7	7
BT	Blue Tit			4
MT	Marsh Tit			1
SD	Stock Dove	1 Singing male	1	1

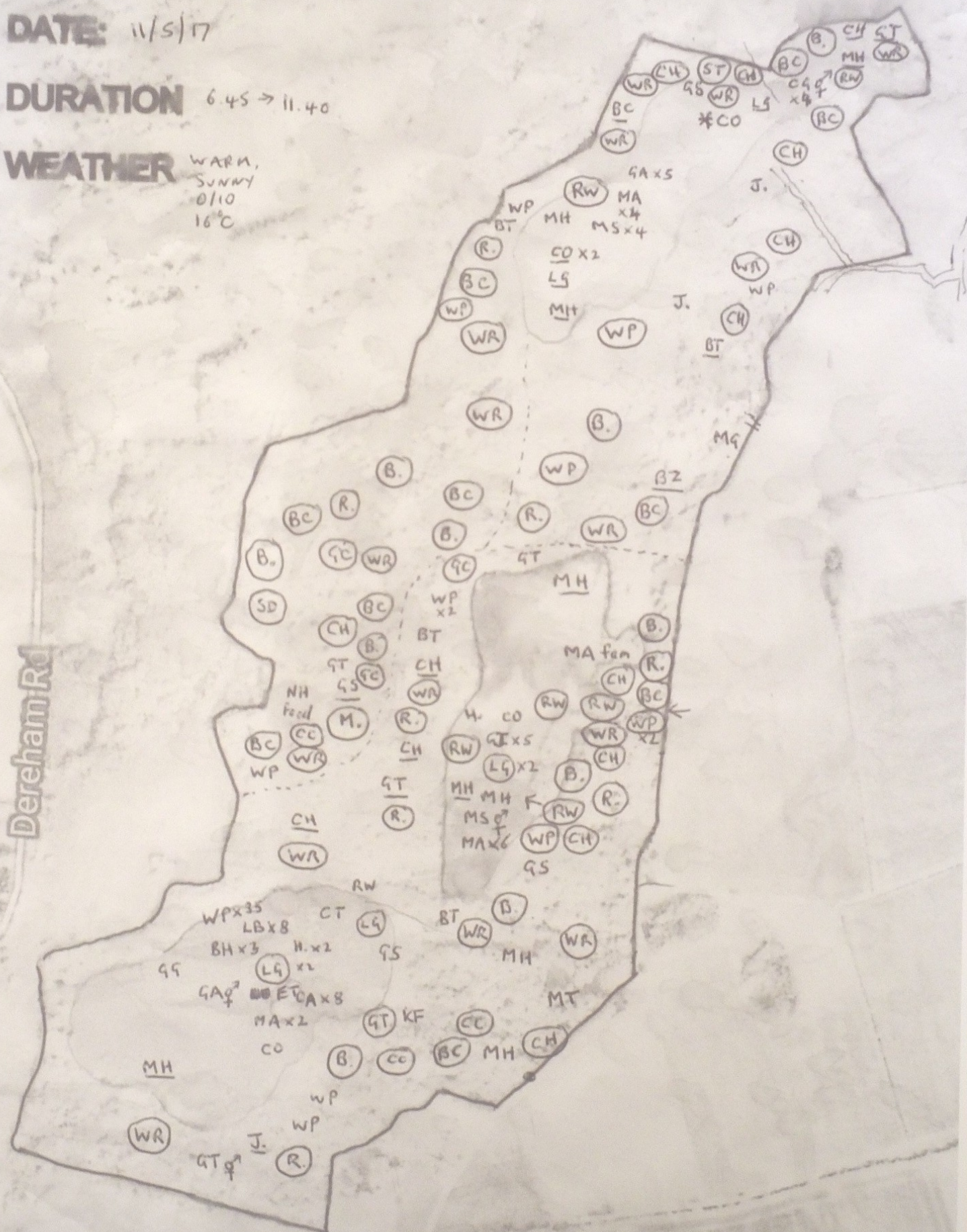
GC	Goldcrest	3 Singing males	3	3
NH	Nuthatch	Carrying food	1	1
MS	Mute Swan		3	8
GJ	Greylag Goose			5
M.	Mistle Thrush	1 Singing male	1	1
BZ	Common Buzzard		1	1
MG	Magpie			1
ST	Song Thrush	1 Singing male	1	1
CG	Canada Goose		2	4
	Flyovers			
H.	Grey Heron			2
WP	Wood Pigeon			73
C.	Carrion Crow			7
RO	Rook			18
JK	Jackdaw			4
CN	Common Tern			5
GJ	Greylag Goose			2
BZ	Common Buzzard			1
SD	Stock Dove			2

DILLINGTON CARR - BR02

DATE: 11/5/17

DURATION 6.45 → 11.40

WEATHER WARM,
Sunny
0/10
16°C



Bird Survey Form		
Site Ref (BB00X)	BB02 - Visit 2 of 5	Notes: Surveyed from N to S
Site location	Dillington Carr	
Date	26/05/2017	
Surveyor(s)	Mick Saunt	John Williamson
Temperature	14 → 22 °C	
Weather	SE 1-2; 0/8 cloud; vis excellent	No precipitation
Time start	06.35	BST
Time finish	11.30	BST

2-digit BTO code	Species	Comments	Confirmed territories	Total number
ST	Song Thrush	1 Singing male	1	1
GA	Gadwall			1
WP	Woodpigeon	16 Singing males	16	41
R.	Robin	15 Singing males	15	15
B.	Blackbird	12 Singing males	12	17
RW	Reed Warbler	5 Singing males	5	5
MH	Moorhen			6
CO	Coot	Nest	1	10
RB	Reed Bunting	1 Singing male	1	1
GS	Great Spotted Woodpecker			3
J.	Jay			5
SD	Stock Dove	2 Singing males	2	3
CA	Cormorant			1
H.	Grey Heron	8 nests	7	10
MS	Mute Swan			3
GJ	Greylag Goose			1
BC	Blackcap	11 Singing males	13	14
CH	Chaffinch	8 Singing males	8	11
CC	Chiffchaff	5 Singing males	5	5
WR	Wren	22 Singing males	22	24
CK	Cuckoo	1 Singing male	1	1
BT	Blue Tit	1 Pair	1	6
KF	Kingfisher			1
MA	Mallard			12
LG	Little Grebe	4 Calling males	4	4
GC	Goldcrest	4 Singing males	4	4
C.	Carrion Crow			1
D.	Dunnock	Carrying food	1	1
GT	Great Tit	Carrying food	1	4
MT	Marsh Tit			1

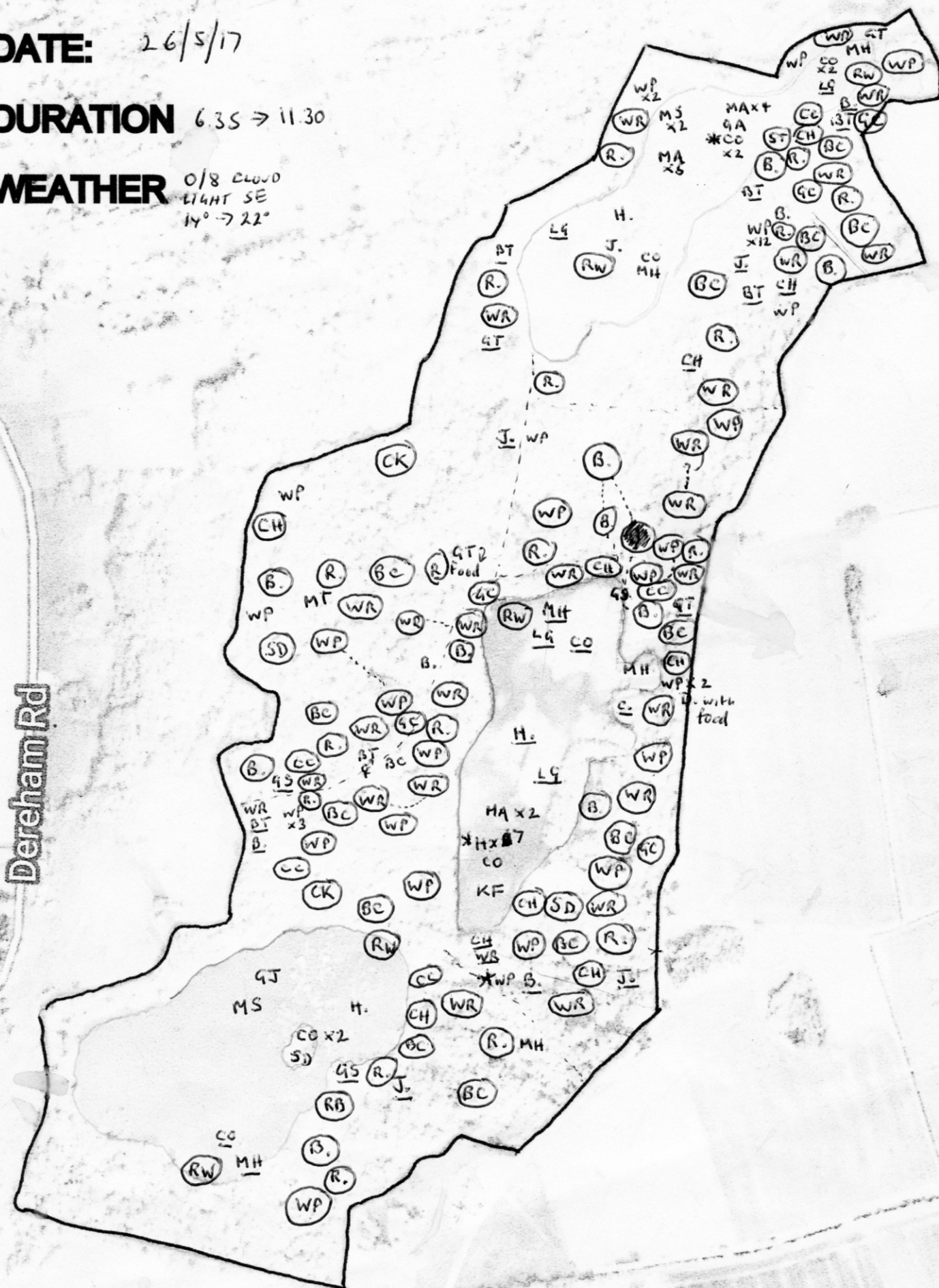
Flyovers				
SD	Stock Dove			7
RO	Rook			8
C.	Carion Crow			8
MA	Mallard			6
WP	Woodpigeon			31
JD	Jackdaw			5
CK	Cuckoo	Different from bird in S section of site		1
GS	Great Spotted Woodpecker			1
M.	Mistle Thrush			1
SH	Sparrowhawk			1
BZ	Buzzard			1

DILLINGTON CARR - BB02

DATE: 26/5/17

DURATION 6.35 → 11.30

WEATHER 0/8 CLOUD
LIGHT SE
14° → 22°



Bird Survey Form		
Site Ref (BB00X)	BB02 - Visit 3 of 5	Notes:
Site location	Dillington Carr	
Date	10/06/2017	
Surveyor(s)	Mick Saunt	John Williamson
Temperature	13 → 21°C	
Weather	Wind SW 3-4; Cloud 8/8 → 2/8; Visibility good → very good	Brief, light rain shower early a.m.
Time start	06.35	BST
Time finish	11.45	BST

2-digit BTO code	Species	Comments	Confirmed territories	Total number
CK	Cuckoo	1 singing male	1	1
WR	Wren	17 singing males + 1 carrying food	18	20
WP	Woodpigeon	14 singing males	14	28
B.	Blackbird	7 singing males	7	15
BT	Blue Tit	Family party	1	9
MG	Magpie			1
CO	Coot	2 family parties plus one nest	3	15
MH	Moorhen	Lone well grown juvenile	1	9
H.	Grey Heron			3
EG	Egyptian Goose	Pair	1	2
MA	Mallard	Female and 4 ducklings	1	15
CN	Common Tern			2
MS	Mute Swan	Pair with 2 cygnets	1	9
CC	Chiffchaff	5 singing males	5	5
BZ	Buzzard			3
NH	Nuthatch	Adult and 2 juvs	1	3
MT	Marsh Tit			1
BC	Blackcap	9 singing males	9	12
CH	Chaffinch	2 singing males	2	4
KF	Kingfisher			1
GS	Great Spotted Woodpecker	Pair together	1	3
SD	Stock Dove	1 singing male	1	1
R.	Robin	11 singing males	11	12
LG	Little Grebe	Pair plus 2 nests	3	11
C.	Carrion Crow			7
ST	Song Thrush	1 singing male	1	2
GC	Goldcrest	1 singing male	1	2

GT	Great Tit	Family party	1	12
GA	Gadwall	Pair	1	2
BF	Bullfinch			1
HY	Hobby			1
LB	Lesser Black-backed Gull			3
CA	Cormorant			6
RB	Reed Bunting	Singing male	1	1
J.	Jay			4
Flyovers				
BZ	Buzzard			1
J.	Jay			1
WP	Woodpigeon			16
RO	Rook			18
SD	Stock Dove			1
B.	Blackbird			1
C.	Carrion Crow			5
JD	Jackdaw			1
SI	Swift			1

DILLINGTON CARR - BB02 VISIT ③

DATE:

10/6/17

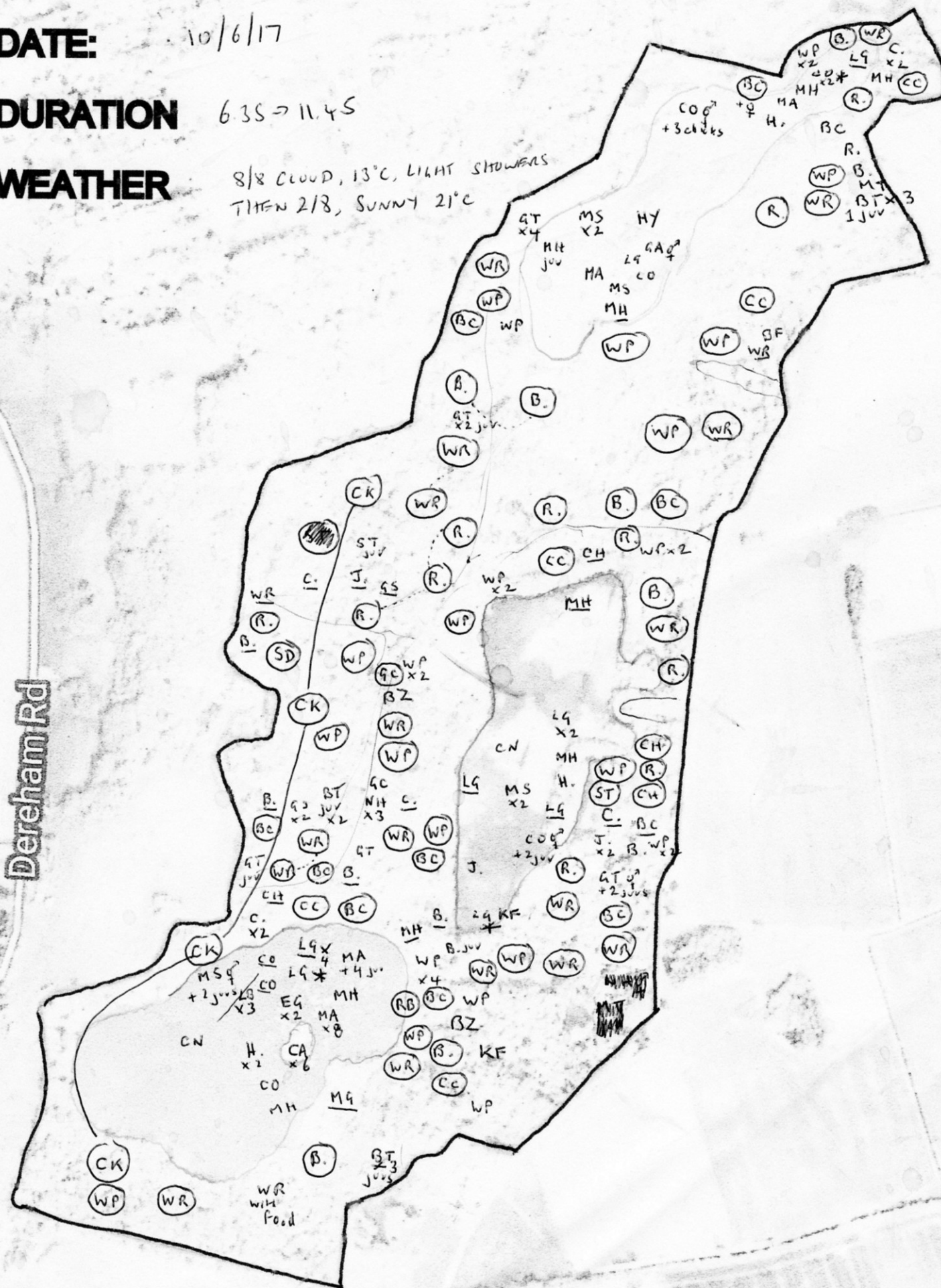
DURATION

6.35 → 11.45

WEATHER

8/8 CLOUD, 13°C, LIGHT SHOWERS
THEN 2/8, SUNNY 21°C

Dereham Rd



Bird Survey Form		
Site Ref (BB00X)	BB02 - Visit 4 of 5	Notes:
Site location	Dillington Carr	
Date	10/07/2017	
Surveyor(s)	Mick Saunt	John Williamson
Temperature	17 → 22°C	
Weather	0-1 NE; 3/8 → 7/8 cloud; humid early a.m.; vis good → v. good	No rain
Time start	06.35	BST
Time finish	11.50	BST

2-digit BTO code	Species	Comments	Confirmed territories	Total number
WP	Woodpigeon	18 singing males	18	29
B.	Blackbird	1 singing male; adult & juvenile	2	12
MS	Mute Swan			4
BC	Blackcap	3 singing males; 1 family party	4	8
MH	Moorhen	Family party	1	10
MA	Mallard	Family party	1	20
LG	Little Grebe			6
H.	Grey Heron	Adult & 2 juveniles at nest	1	6
BT	Blue Tit	2 family parties	2	10
CA	Cormorant			9
WR	Wren	5 singing males	5	9
C.	Carrion Crow			3
BZ	Buzzard	2 juveniles food begging	1	2
J.	Jay			4
CC	Chiffchaff	1 singing male	1	3
GS	Great Spotted Woodpecker			3
G.	Green Woodpecker			1
NH	Nuthatch			1
CH	Chaffinch	1 singing male	1	2
SD	Stock Dove	2 singing males	2	2
CO	Coot			6
RW	Reed Warbler	2 singing males	2	2
GC	Goldcrest			1
D.	Dunnock			1
GT	Great Tit	Family party	1	2
MT	Marsh Tit			2
MG	Magpie			2

GA	Gadwall			2
ST	Song Thrush	1 singing male	1	2
BH	Black-headed Gull			3
Flyovers				
MA	Mallard			2
BH	Black-headed Gull			2
LB	Lesser Black-backed Gull			4
C.	Carrion Crow			6
WP	Woodpigeon			11
SD	Stock Dove			1
JD	Jackdaw			3
GO	Goldfinch			4
M.	Mistle Thrush			1
SI	Swift			1

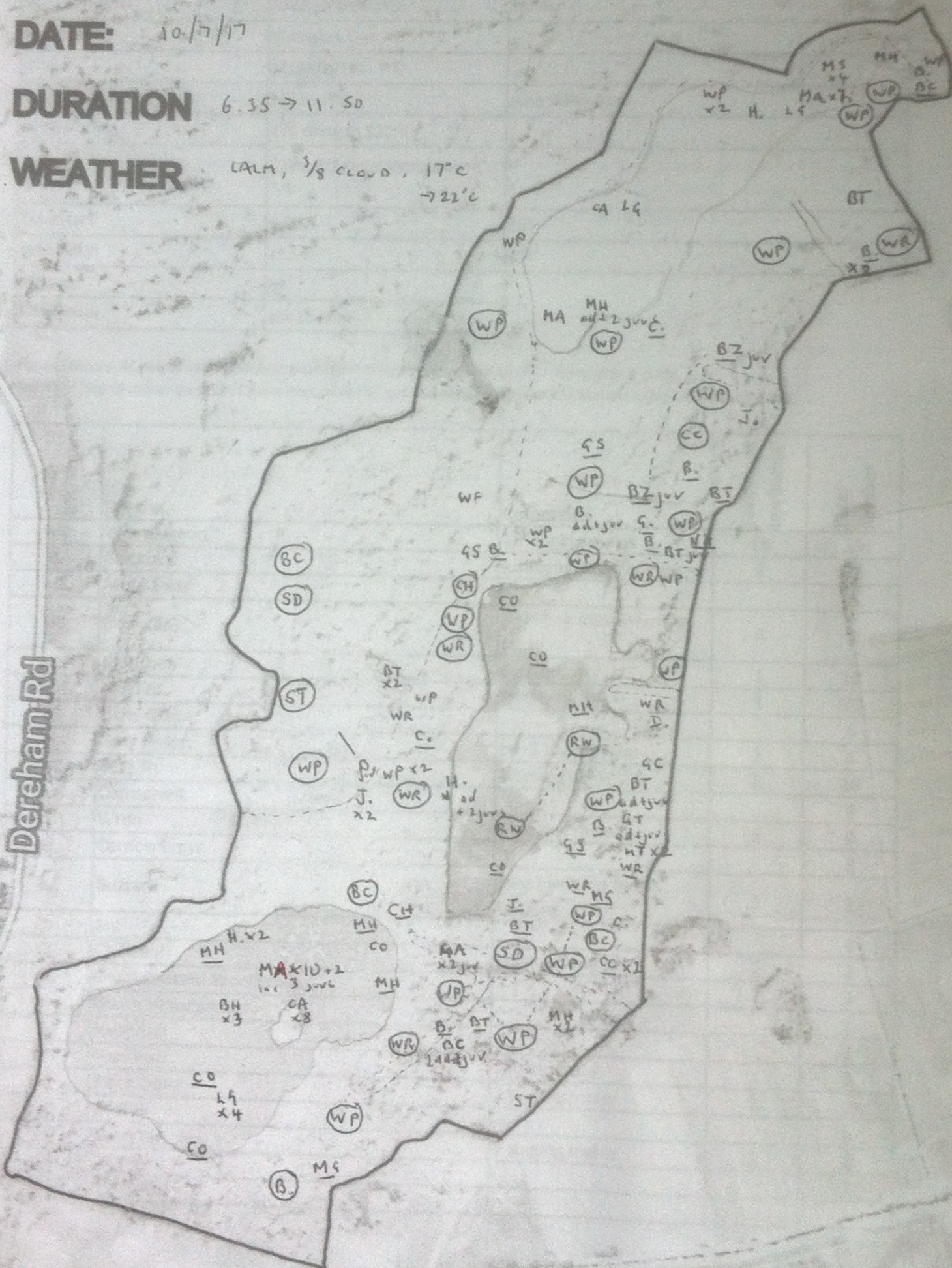
DILLINGTON CARR - BB02 VISIT (4)

DATE: 10/7/17

DURATION 6.35 → 11.50

WEATHER CALM, $\frac{3}{8}$ CLOUD, 17°C
→ 22°C

Dereham Rd



Bird Survey Form		
Site Ref (BB00X)	BB02 - Visit 5 of 5	Notes: Dense undergrowth creating access problems in NW corner
Site location	Dillington Carr	
Date	07/08/2017	
Surveyor(s)	Mick Saunt	John Williamson
Temperature	14 → 19°C	
Weather	1-2 SW increasing 3-4; 7/8 → 8/8 cloud; Visibility good	No precipitation
Time start	06.30	BST
Time finish	11.30	BST

2-digit BTO code	Species	Comments	Confirmed territories	Total number
WP	Woodpigeon	15 singing males; 1 nest	16	26
WR	Wren	2 singing males	2	4
R.	Robin	4 singing males	4	5
BZ	Buzzard	Adult & 2 juveniles	1	3
SD	Stock Dove	1 singing male	1	1
MH	Moorhen	1 juvenile	1	7
B.	Blackbird	Adult & 1 juvenile	1	9
KF	Kingfisher	2 adults		2
C.	Carrion Crow			4
GA	Gadwall			9
CO	Coot			1
LG	Little Grebe			4
MS	Mute Swan			4
H.	Grey Heron			1
CC	Chiffchaff			2
M.	Mistle Thrush			1
BF	Bullfinch			4
NH	Nuthatch			2
PH	Pheasant			1
BT	Blue Tit			6
MT	Marsh Tit			4
J.	Jay			7
CH	Chaffinch			1
TC	Treecreeper			2
GS	Great Spotted Woodpecker			1
G.	Green Woodpecker			1
BC	Blackcap			3

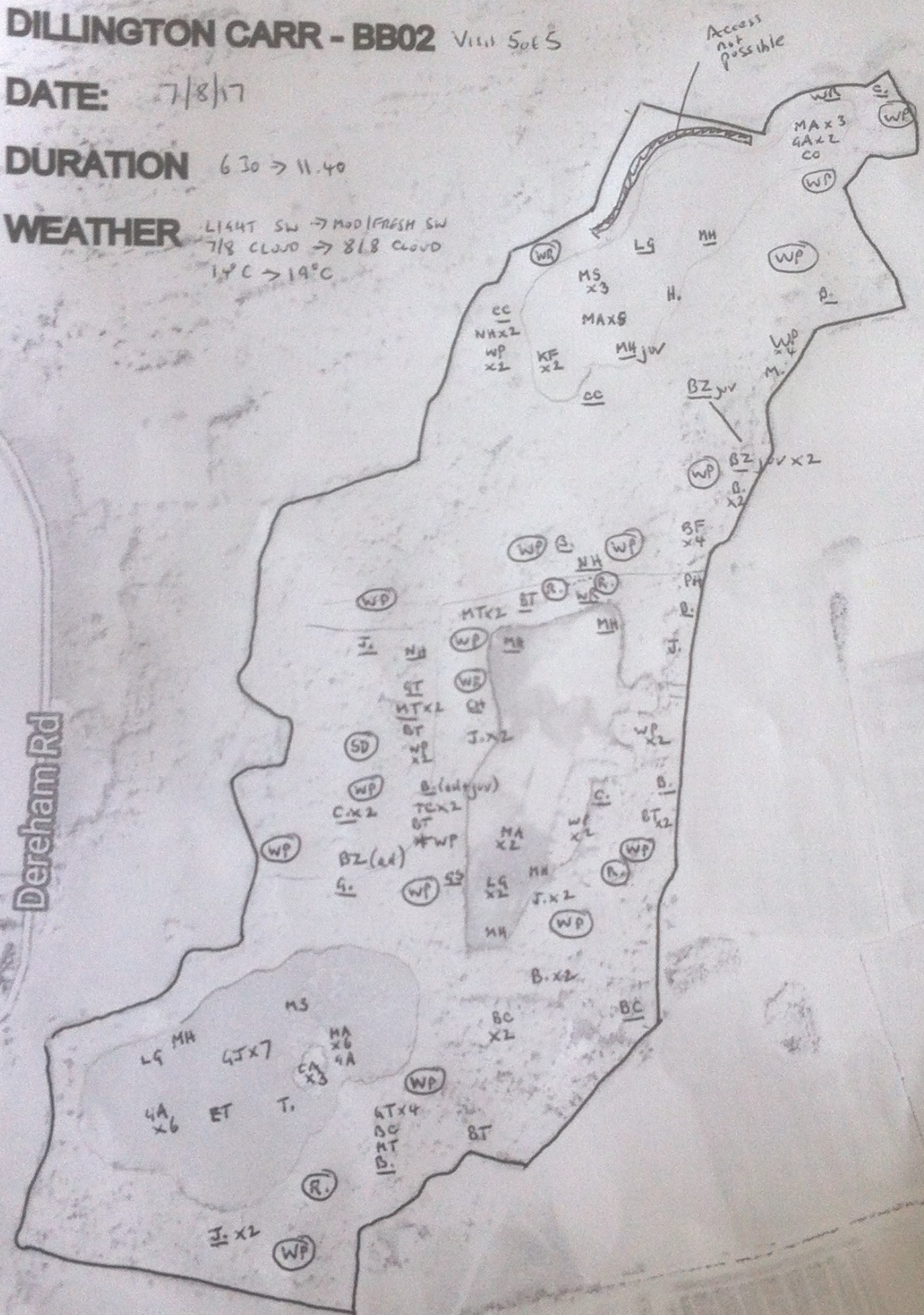
GJ	Greylag Goose			7
T.	Teal			1
ET	Little Egret			1
GT	Great Tit			4
MA	Mallard			13
	Flyovers			
C.	Carrion Crow			3
WP	Woodpigeon			11
JD	Jackdaw			1
BH	Black-headed Gull			11
HG	Herring Gull			1
GJ	Greylag Goose			5
LB	Lesser Black-backed Gull			1

DILLINGTON CARR - BB02 Vill. Sot S

DATE: 7/8/17

DURATION 6.30 → 11.40

WEATHER LIGHT SW → MOD/FRESH SW
7/8 CLOUD → 8/8 CLOUD
14°C → 19°C





Norfolk Vanguard Breeding bird Appendix 2C: BB03 data

Report prepared by Norfolk Wildlife Services Ltd.
on behalf of Royal HaskoningDHV,
December 2017

Reference: 2016/131.2

Appendix 2: Results – data sheets and maps
Booton Common BB03

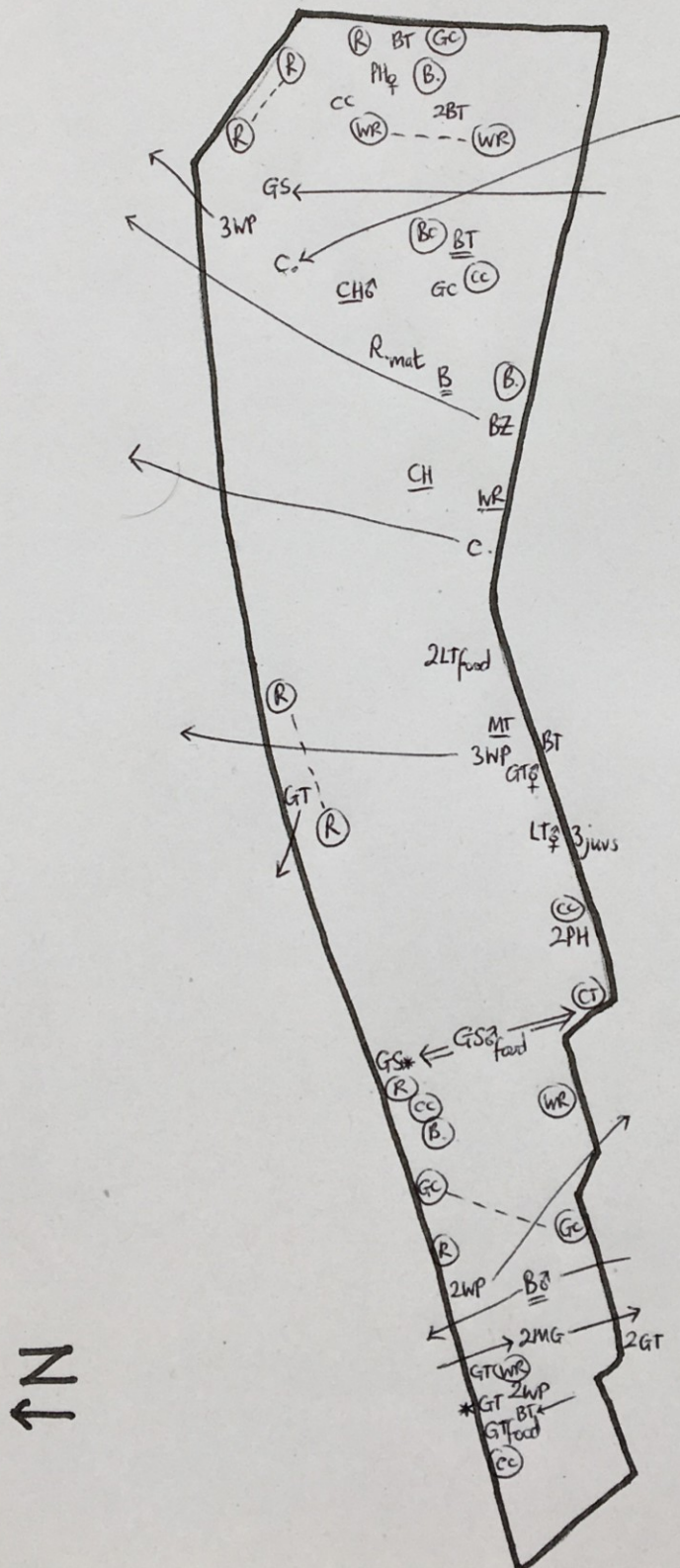
Bird Survey Form		
Site Ref (BB00X)	BB03 - Visit 1 of 5	Notes:
Site location	Booton Common	
Date	12/05/2017	
Surveyor(s)	John Williamson	Ben Christie & Sally McColl
Temperature	12° C	Humid
Weather	0-1 SSW; 7/8 → 8/8 cloud; Vis murky	Some light spotting of rain
Time start	06.25	BST
Time finish	08.20	BST

2-digit BTO code	Species	Comments	Confirmed territories	Total number
CT	Coal tit	Singing male	1	1
PH	Pheasant			3
CC	Chiffchaff	4 Singing males	4	5
LT	Long-tailed tit	Pair with 3 juvs; Pair carrying food into concealed nest	2	7
GT	Great tit	Pair carrying food into concealed nest	1	7
BT	Blue tit			6
WP	Woodpigeon			10
MT	Marsh tit			1
C.	Carrion crow			2
WR	Wren	4 Singing males	4	5
CH	Chaffinch			2
BZ	Common buzzard			1
B.	Blackbird	3 singing males	3	5
R.	Robin	6 singing males	6	8
GC	Goldcrest	3 singing males	3	4
BC	Blackcap	1 singing male	1	1
GS	Great spotted woodpecker	Male carrying food into nest hole	1	2
MG	Magpie			2
	Flyovers			
C.	Carrion crow			7
BZ	Common buzzard			1
SD	Stock dove			3
WP	Woodpigeon			10
B.	Blackbird			1
SI	Swift			2

Site Reference: BB03

Site location: Booton Common

Map indicating transect taken:



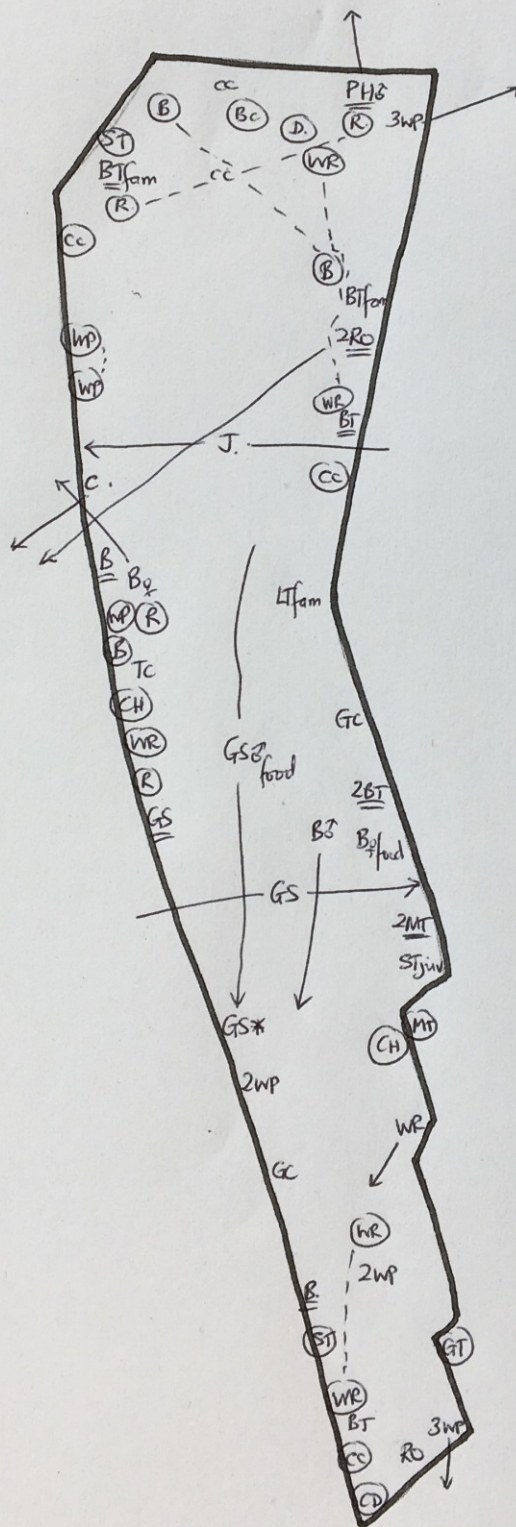
Bird Survey Form		
Site Ref (BB00X)	BB03	Notes:
Site location	Booton Common	
Date	25/05/2017	
Surveyor(s)	John Williamson	Michael Saunt
Temperature	11 → 14 °C	
Weather	0-1 SE; 0/8 cloud; vis v. good	NB: Mist early a.m., vis fair (quickly improving)
Time start	05.45	BST
Time finish	07.55	BST

2-digit BTO code	Species	Comments	Confirmed territories	Total number
ST	Song Thrush	2 singing males	2	3
MT	Marsh Tit	1 singing male	1	2
BT	Blue Tit	2 family parties	2	13
GC	Goldcrest			2
LT	Long-tailed Tit	1 family party	1	5
CC	Chiffchaff	3 singing males	3	5
WR	Wren	5 singing males	5	6
RO	Rook			3
B.	Blackbird	3 singing males	3	8
WP	Woodpigeon	3 singing males	3	10
R.	Robin	4 singing males	4	4
PH	Pheasant			1
D.	Duncock	1 singing male	1	1
BC	Blackcap	1 singing male	1	1
C.	Carrion Crow			1
J.	Jay			1
TC	Treecreeper			1
CH	Chaffinch	2 singing males	2	2
GS	Great Spotted Woodpecker		1	2
CD	Collared Dove	1 singing male	1	1
	Flyovers			
WP	Woodpigeon			5
C.	Carrion Crow			2
JD	Jackdaw			2
RO	Rook			2

Site Reference: BB03

Site location: Booton Common

Map indicating transect taken:



Bird Survey Form		
Site Ref (BB00X)	BB03	Notes:
Site location	Booton Common	
Date	12/06/2017	
Surveyor(s)	John Williamson	Michael Saunt
Temperature	12 → 13 °C	
Weather	3-4 SW; 8/8 cloud; vis v. good	
Time start	07.00	BST
Time finish	08.55	BST

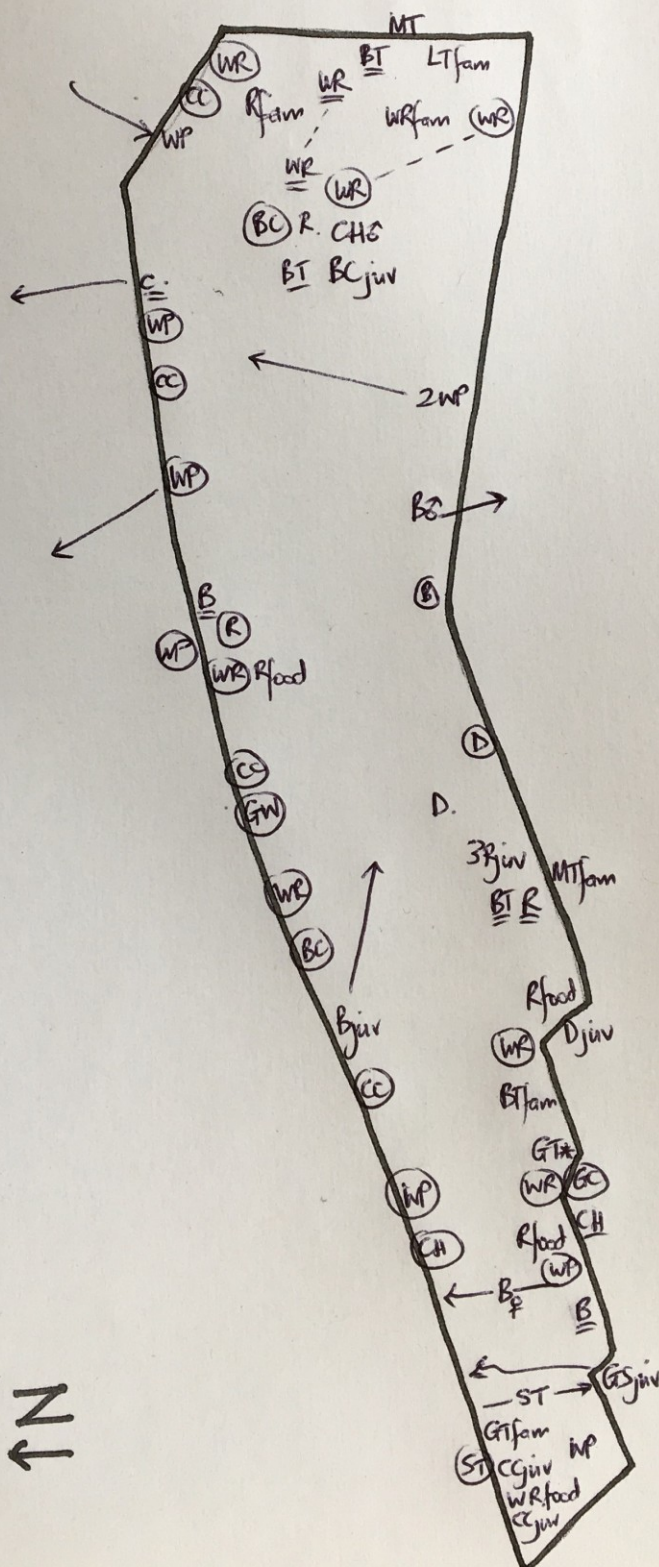
2-digit BTO code	Species	Comments	Confirmed territories	Total number
D.	Dunnock	1 singing male; 1 juvenile	1	3
R.	Robin	1 singing male; 3 family groups	4	13
BT	Blue Tit	1 family group	1	8
MT	Marsh Tit	1 family group	1	5
B.	Blackbird	1 singing male; 1 juvenile	2	5
WP	Woodpigeon	5 singing males	5	8
WR	Wren	7 singing males; 1 family group; 1 food carrying	9	12
LT	Long-tailed Tit	1 family group	1	5
BC	Blackcap	2 singing males; 1 juvenile	2	3
CH	Chaffinch	1 singing male	1	3
CC	Chiffchaff	4 singing males; 2 juveniles	5	6
C.	Carrion Crow			1
GW	Garden Warbler	1 singing male	1	1
ST	Song Thrush	1 singing male	1	2
GT	Great Tit	1 family group; 1 nest	2	5
GS	Great Spotted Woodpecker	1 juvenile	1	1
GC	Goldcrest	1 singing male	1	1
	Flyovers			
RO	Rook			6
H.	Grey Heron			1
C.	Carrion Crow			1
HM	House Martin			1
SI	Swift			6
MA	Mallard			1
SD	Stock Dove			2
SH	Sparrowhawk			1
HG	Herring Gull			1
WP	Woodpigeon			24

JD	Jackdaw			2
GR	Greenfinch			2
GS	Great Spotted Woodpecker			1

Site Reference: BB03

Site location: Booton Common

Map indicating transect taken:



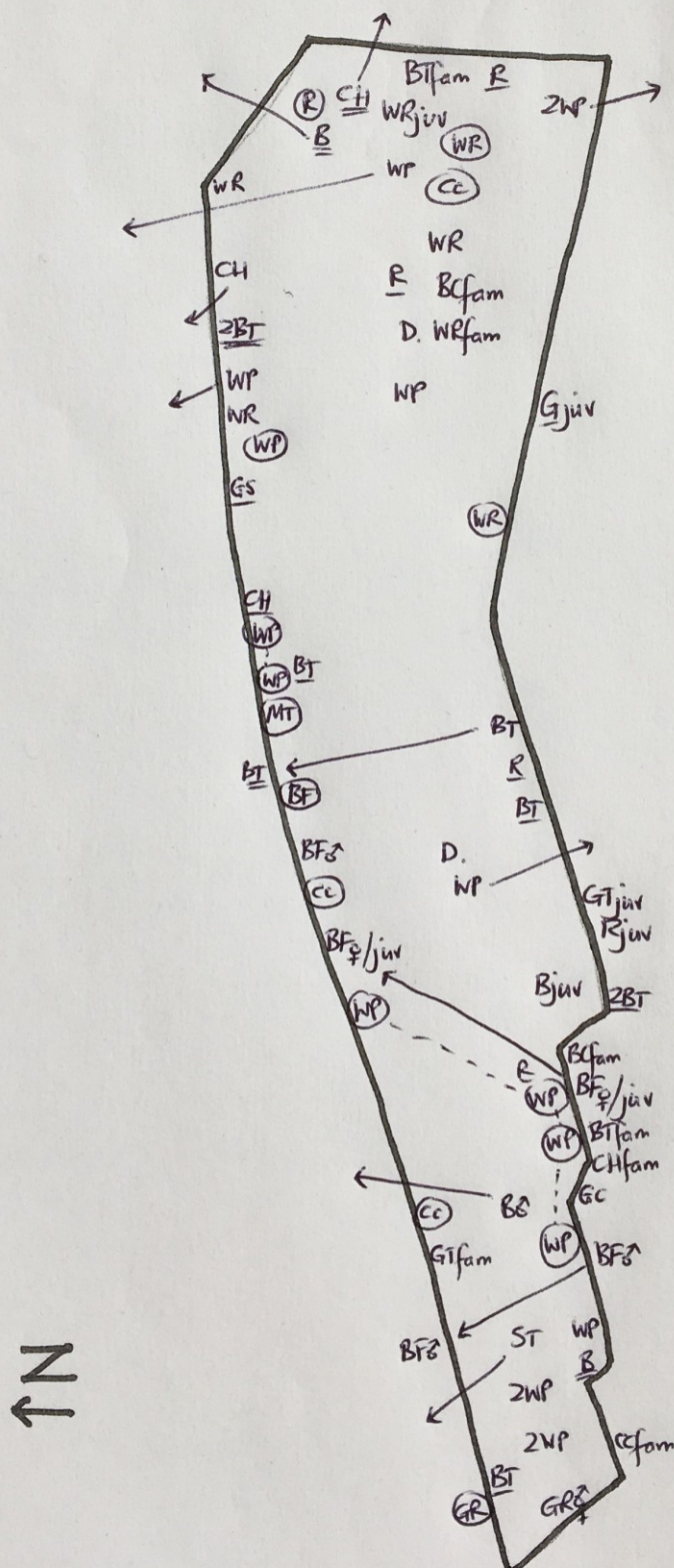
Bird Survey Form		
Site Ref (BB00X)	BB03 - Visit 4 of 5	Notes:
Site location	Booton Common	
Date	11/07/2017	
Surveyor(s)	John Williamson	Michael Saunt
Temperature	14 → 19 °C	
Weather	0-1 NE; 5/8 cloud; vis v. good	Rain shower early a.m., none during survey
Time start	06.30	BST
Time finish	08.45	BST

2-digit BTO code	Species	Comments	Confirmed territories	Total number
BT	Blue Tit	2 family groups	2	22
R.	Robin	Single juvenile	1	5
GT	Great Tit	1 family group; single juvenile	2	6
MT	Marsh Tit	1 singing male	1	1
B.	Blackbird	Single juvenile	1	4
WP	Woodpigeon	7 singing males	7	18
D.	Dunnock			2
WR	Wren	2 singing males; single juvenile	4	10
G.	Green Woodpecker	Single juvenile	1	2
BC	Blackcap	2 family groups	2	6
CC	Chiffchaff	3 singing males; 1 family group	4	7
CH	Chaffinch	1 family group	1	6
GS	Great Spotted Woodpecker			1
BF	Bullfinch	1 singing male; 1 family group	1	3
ST	Song Thrush			1
GR	Greenfinch	1 singing male	1	2
GC	Goldcrest			1
	Flyovers			
MS	Mute Swan			1
BH	Black-headed Gull			2
WP	Woodpigeon			13
SD	Stock Dove			4
BZ	Buzzard			1
JD	Jackdaw			2
HG	Herring Gull			1
MG	Magpie			1
OC	Oystercatcher			1
SL	Swallow			1
CN	Common Tern			1
SI	Swift			1

Site Reference: BB03

Site location: Booton Common

Map indicating transect taken:



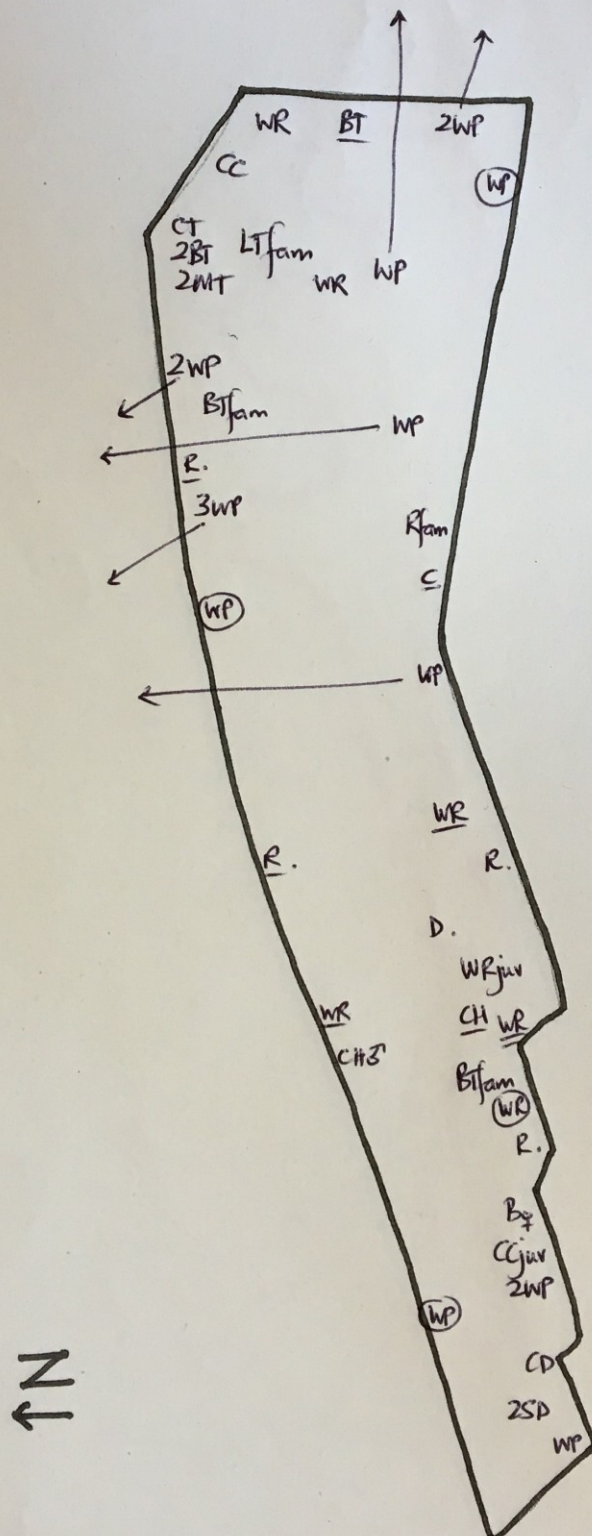
Bird Survey Form		
Site Ref (BB00X)	BB03 - Visit 5 of 5	Notes:
Site location	Booton Common	
Date	04/08/2017	
Surveyor(s)	John Williamson	Michael Saunt
Temperature	13 → 18 °C	
Weather	3-4 SW; 4/8 cloud; vis very good	No precipitation
Time start	06.35	BST
Time finish	08.45	BST

2-digit BTO code	Species	Comments	Confirmed territories	Total number
WR	Wren	1 singing male; 1 juvenile	2	7
CH	Chaffinch			2
D.	Dunnock			1
R.	Robin	1 family party	1	8
B.	Blackbird			1
WP	Woodpigeon	3 singing males	3	14
C.	Carrion Crow			1
BT	Blue Tit	2 family parties	2	10
CC	Chiffchaff	Single juvenile	1	2
CT	Coal Tit			1
MT	Marsh Tit			2
LT	Long-tailed Tit	1 family group	1	7
SD	Stock Dove			2
CD	Collared Dove			1
	Flyovers			
K.	Kestrel			1
JD	Jackdaw			3
C.	Carrion Crow			1
WP	Woodpigeon			1
SL	Swallow			2
BH	Black-headed Gull			2
GR	Greenfinch			1

Site Reference: BB03

Site location: Booton Common

Map indicating transect taken:





Norfolk Vanguard Breeding bird Appendix 2D: BB04 data

Report prepared by Norfolk Wildlife Services Ltd.
on behalf of Royal HaskoningDHV,
December 2017

Reference: 2016/131.2

Appendix 2: Results – data sheets and maps
Pigney's Wood BB04

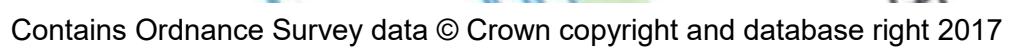
Bird Survey Form					
Site Ref (BB00X)		BB04 - Visit 1 of 5		Notes:	
Site location		Pigneys Wood			
Date		10/05/2017			
Surveyor(s)		Sally McColl		Ben Christie	
Temperature		10 °C			
Weather		1/8 cloud; BFS 2; Sunny		No rain	
Time start		08:45		BST	
Time finish		11:00		BST	
2-digit BTO code				Confirmed territories	Total number
	Species		Comments		
WP	Woodpigeon			5	12
CH	Chaffinch			4	8
D.	Dunnock			1	1
WR	Wren			9	13
GT	Great tit			3	5
R.	Robin			7	9
B.	Blackbird			4	7
LT	Long tailed tit			2	3
CC	Chiffchaff			8	8
GC	Goldcrest			5	5
BC	Blackcap			7	8
MG	Magpie		Flying through woodland		1
BZ	Buzzard		Flying overhead then landed in meadow by pond	1	2
C.	Carrion Crow				4
WH	Whitethroat			1	4
ST	Song thrush			1	1
BT	Blue tit			1	4
K.	Kestrel		Hovering		1
CK	Cuckoo			1	1
MS	Mute swan				2
CO	Coot				1
MH	Moorhen				1
J.	Jay		Flying through woodland		1
SW	Sedge warbler			5	5
RB	Reed bunting		Pair in tree	2	3
RW	Reed warbler			1	3
BF	Bullfinch				1

Flyovers					
WP	Woodpigeon				4
C.	Carrion crow				1

Bird Survey Form		
Site Ref (BB00X)	BB04 - Visit 2 of 5	Notes:
Site location	Pigneys Wood	
Date	28/05/2017	
Surveyor(s)	Sally McColl	Mark Rudrum
Temperature	15°C -23°C	
Weather	3/8 cloud; BFS 3; Sunny	No rain
Time start	06:30	BST
Time finish	09:00	BST

2-digit BTO code	Species	Comments	Confirmed territories	Total number
WP	Woodpigeon		4	16
CH	Chaffinch	1 adult feeding chicks in nest in carpark	6	2
D.	Dunnock			0
WR	Wren		9	9
GT	Great tit			5
R.	Robin		8	8
B.	Blackbird			7
LT	Long tailed tit			0
CC	Chiff chaff		9	9
GC	Goldcrest		2	2
BC	Blackcap		6	8
MG	Magpie			4
BZ	Buzzard	Being mobbed by 2 crows		1
C.	Carrion Crow	3 feeding on the ground; 1 perched in a tree; 2 mobbing a buzzard	2	6
WH	Whitethroat	1 carrying food	2	2
ST	Song thrush	1 singing then 2 flew off	2	4
BT	Blue tit	Young calling from nest in carpark	1	6
K.	Kestrel			0
CK	Cuckoo		1	1
MS	Mute swan			0
CO	Coot			1
MH	Moorhen			2
J.	Jay			3
SW	Sedge warbler	4 flitting about in the same location	1	5

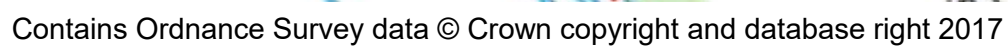
RB	Reed bunting				2
RW	Reed warbler			1	1
BF	Bullfinch		Possibly the same 2 birds - feeding on ground and in trees		5
ET	Little Egret		Flew off from reed area		1
KF	Kingfisher		Flew across reedbed into woodland		1
SD	Stock dove			1	3
GS	Great spotted woodpecker		Seen feeding young outside of site boundary		3
H.	Heron				1
CT	Coal tit		2 calling in different trees		2
Flyovers					
HG	Herring gull				2
SD	Stock doves				4
SI	Swift				2



Bird Survey Form		
Site Ref (BB00X)	BB04 - Visit 3 of 5	Notes:
Site location	Pigneys Wood	
Date	11/06/2017	
Surveyor(s)	Sally McColl	Mark Rudrum
Temperature	20°C	
Weather	4/8 cloud; BFS 3; Sunny	No rain
Time start	06:30	BST
Time finish	09:00	BST

2-digit BTO code	Species	Comments	Confirmed territories	Total number
WP	Woodpigeon	We scared a lot out of trees	3	26
CH	Chaffinch	1 adult and juvenile to NW; 1 adult and 1 juvenile near carpark	3	12
D.	Dunnock			1
WR	Wren	1 doing feeding flight	9	12
GT	Great tit	1 juvenile calling	1	1
R.	Robin		4	6
B.	Blackbird			5
LT	Long tailed tit	2 adults and 4 juvenile calling feeding in trees near carpark	1	6
CC	Chiff chaff	1 adult and 2 to NW	6	9
GC	Goldcrest			
BC	Blackcap		6	8
MG	Magpie			3
BZ	Buzzard	Pair gliding across the site and calling	1	2
C.	Carrion Crow			
WH	Whitethroat	Put 2 up separately from the ground as walking through N of site - presumed nesting	2	3
ST	Song thrush		3	3
BT	Blue tit	1 adult and at least 1 juvenile calling in centre of site	1	7
K.	Kestrel	In flight and hovering over meadow and reedbed		1

CK	Cuckoo			
MS	Mute swan	1 adult and 5 cygnets	1	6
CO	Coot			1
MH	Moorhen			
J.	Jay			2
SW	Sedge warbler		4	5
RB	Reed bunting	Flew and landed in a bush and started singing	1	1
RW	Reed warbler		1	1
BF	Bullfinch			1
ET	Little Egret			
KF	Kingfisher			
SD	Stock dove	Flew into woodland near reedbed		1
GS	Great spotted woodpecker			
H.	Heron			
CT	Coal tit			1
LG	Little grebe	1 adult and 2 juvenile	1	3
Flyovers				
C.	Carrion crow			2
SL	Swallow			1
SI	Swift			3
HM	House martin			3



**NWS Breeding Bird Survey
Form**

Site Ref (BB00X)	BB004	Notes:
Site Location	Pigneys Wood	
Date	9th July 2017	
Visit Number	4	
Surveyor	Sally McColl & Mark Rudrum	
Temperature	13 to 21 C	
Weather (Cloud, Wind Rain, Visibility)	2/8 cloud cover; BWS 1; Sunny	
Time start	06:45	
Time finish	09:45	BST

2-digit BTO code	Species		Comments	Confirmed territories	Total number
BT	Blue tit		family of c.4 (young seen) feeding in tree with CT family and GT family in centre of site; 2 blue tit families in oaks to north of site with other tits	3	18
BC	Blackcap			5	6
ST	Song thrush			1	1
WP	Woodpigeon		More heard singing, but think was some that flew and landed	4	26
J.	Jay		2 hopping in trees along centre of site		3
B.	Blackbird			2	5
K	Kestrel		1 seen perched in tree, then later hovering over site, assumed same bird		1
WR	Wren			2	4
BZ	Buzzard		1 calling and flying over site for survey period		1
CT	Coal tit		family of c.4 (young seen) feeding in tree with GT family and BT family in centre of site; 2 in tree to north of site with other tits; 1 family of c. 4 feeding in tree in woodland	3	10
GS	Great spotted woodpecker		1 calling and flying		1
D.	Dunnock				2
GO	Goldfinch		Family of goldfinch feeding on thistles	1	5
WH	White throat		2 in a tree to n of site; one in reedbed		3

			family of c.3 (young seen) feeding in tree with CT family and BT family in centre of site; adult and juvenile seen foraging in tree with other tits to n of site	2	7
GT	Great tit				
LT	Long tailed tit		14 long tailed tits scared out of tree by jay, likely several families; family of c. 6 feeding in oak to n of site with other tits	4	20
CH	Chaffinch		2 calling in tree to north of site - 1 adult, 1 juvenile	1	3
CC	Chiff chaff			2	2
C.	Carrion crow		5 feeding on bank and flew off when we arrived; 2, likely pair in dead trees	1	10
NT	Nuthatch		Calling in woodland		1
MG	Magpie				1
SD	Stock dove			1	1
CS	Collared dove				1
BF	Bullfinch				1
MH	Moorhen				2
RW	Reed warbler			2	2
SW	Sedge warbler			2	2
RB	Reed bunting		Although only calling was defending a territory on a bush	1	1
CA	Cormorant		3 flew along canal then into the site		3
GC	Goldcrest		1 seen feeding in pine		1
H.	Heron		1 seen flying in centre of site and another on edge of water		2
Flyovers					
HG	Herring gull		A group of 4 and a single		5
SI	Swift		3 flying over site separately		3



**NWS Breeding Bird
Survey Form**

Site Ref (BB00X)	BB004	Notes:
Site Location	Pigneys Wood	3 squirrels seen together in woodland
Date	8th August 2017	
Visit Number	5	
Surveyor	Sally McColl & Ben Moore	
Temperature	17 to 20 °C	
Weather (Cloud, Wind Rain, Visibility)	6/8 cloud cover; BWS 1; Sunny spells and light drizzle	
Time start	06:30	
Time finish	08:45	BST

2-digit BTO code	Species		Comments	Confirmed territories	Total number
BT	Blue tit		2 heard calling in trees in grassland - not seen likely family; 2 heard calling in trees to NW of site - not seen likely family; 2 heard calling in woodland to N - not seen likely family; several heard calling and seen in wet woodland - assume family; 2 calling in woodland - likely family; 4 calling in wetland - assume family	2	20
BC	Blackcap				1
ST	Song thrush		One singing near wetland	1	1
WP	Woodpigeon		Many calling and flying across site	10	30
J.	Jay		2 flew across grassland calling into a tree - likely pair		2
B.	Blackbird		Disturbed 5 together in wet woodland - assume family	1	8
K	Kestrel				
WR	Wren		All wrens alarming or singing - likely territories apart from 1 seen moving around	1	9
BZ	Buzzard		Calling over site - not seen		1
CT	Coal tit				
GS	Great spotted woodpecker		calling in woodland;		1
D.	Dunnock				
GO	Goldfinch		2 families at least in wetland	2	15
WH	White throat		2 seen carrying food, and chicks heard in bush near wetland	1	2
GT	Great tit		2 heard calling in trees to NW of site - not seen likely family; family of 3 observed in woodland to west; 2 calling in central meadow area - likely	1	8

			family		
LT	Long tailed tit		2 observed calling in NW of site - likely family; family in wet woodland; family in wetland	2	13
CH	Chaffinch		singing male in woodland; two calling in wet woodland - likely family; family of 6 in bushes around car park; one singing in woodland near carpark; one singing to south of site	4	11
CC	Chiff chaff				
C.	Carrion crow				3
NT	Nuthatch				
MG	Magpie		calling in woodland - likely pair; 3 magpies heard not seen - assume family	1	5
SD	Stock dove				
CS	Collared dove				
BF	Bullfinch				
MH	Moorhen				2
RW	Reed warbler				1
SW	Sedge warbler				2
RB	Reed bunting		1 pair in wetland; female seen calling then male seen feeding a juvenile near wetland	2	5
CA	Cormorant				
GC	Goldcrest				1
H.	Heron				
R.	Robin		One near car park; one alarming in central meadow - possible territory?; one alarming to east of site - possible territory?		4
Flyovers					
BH	Black headed gull		8 seen flying over, then 4 then odd individuals		16



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Norfolk Vanguard Breeding bird Appendix 2D: BB05 data

Report prepared by Norfolk Wildlife Services Ltd.
on behalf of Royal HaskoningDHV,
December 2017

Reference: 2016/131.2

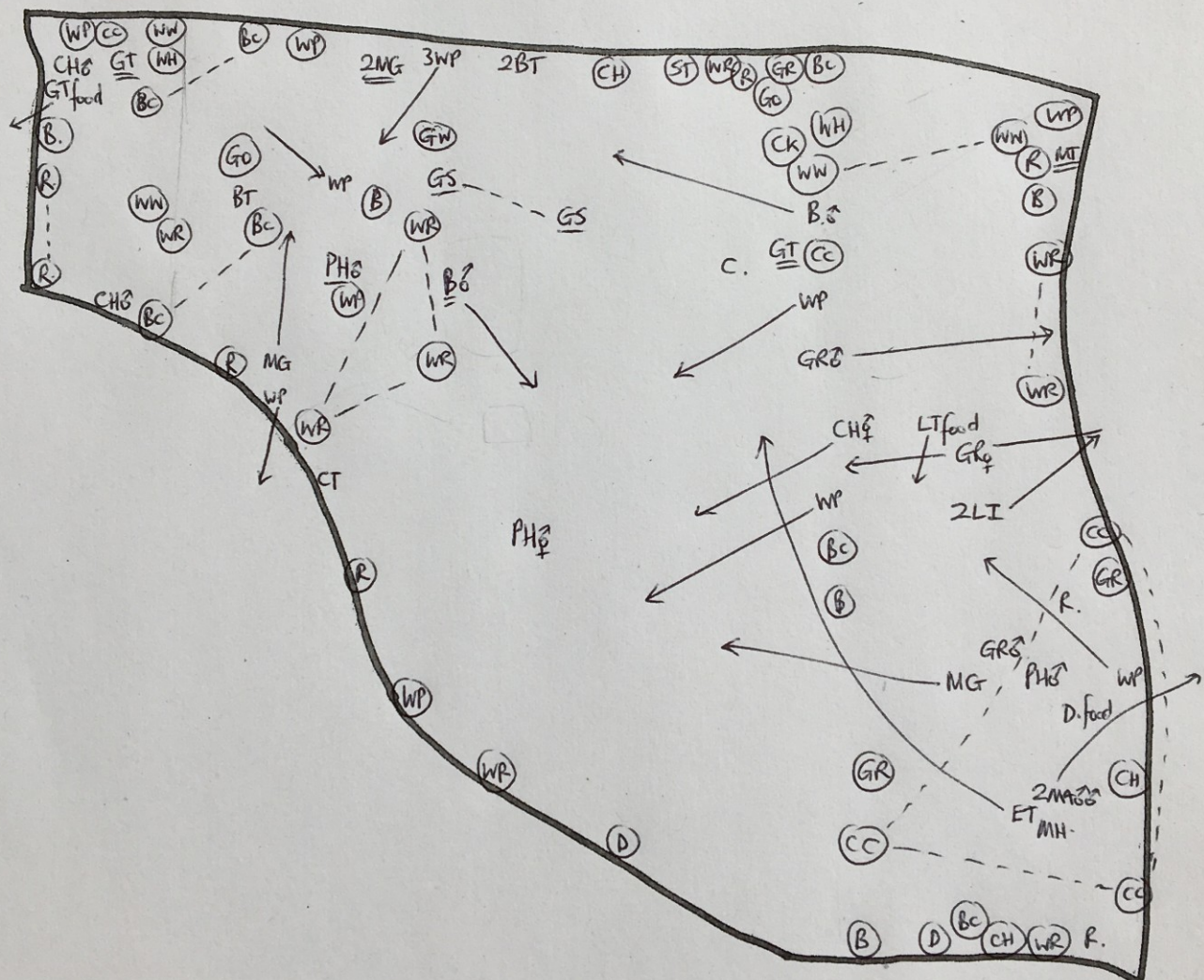
Appendix 2: Results – data sheets and maps
Blackberry Farm, Dillington BB05

Bird Survey Form		
Site Ref (BB00X)	BB05 - Visit 1 of 5	Notes:
Site location	Blackberry Farm, Dillington	
Date	13/05/2017	
Surveyor(s)	John Williamson	Mick Saunt
Temperature	13° C	Humid
Weather	0-1 SW; 4/8 → 6/8 cloud; Vis fair/good	Some light spotting of rain
Time start	06.30	BST
Time finish	09.20	BST

2-digit BTO code	Species	Comments	Confirmed territories	Total number
CT	Coal tit			1
WR	Wren	8 singing males	8	8
WP	Woodpigeon	5 singing males	5	13
R.	Robin	6 singing males	6	8
BC	Blackcap	7 singing males	7	7
CH	Chaffinch	3 singing males	3	7
B.	Blackbird	5 singing males	7	5
GT	Great tit	1 male carrying food	1	3
CC	Chiffchaff	5 singing males	5	5
WW	Willow warbler	4 singing males	4	4
WH	Whitethroat	2 singing males	2	2
MG	Magpie			4
BT	Blue tit			3
ST	Song thrush	1 singing male	1	1
GR	Greenfinch	3 singing males	3	6
GO	Goldfinch	2 singing males	2	2
MT	Marsh tit			1
D.	Dunnock	2 singing males; presumed male carrying food	3	3
PH	Pheasant			4
GS	Great spotted woodpecker	2 calling simultaneously		2
CK	Cuckoo	1 singing male	1	1
LT	Long-tailed tit	adult carrying food	1	1
MA	Mallard			2
MH	Moorhen			1
ET	Little egret			1
C.	Carrion crow			1

	Flyovers				
GO	Goldfinch				4
SG	Starling				3
LB	Lesser black-backed gull				1
EG	Egyptian goose				1
SL	Swallow				4
HG	Herring gull				3
C.	Carrion crow				4
MG	Magpie				2
WP	Woodpigeon				6
RO	Rook				11
JD	Jackdaw				3
SI	Swift				2
CH	Chaffinch				2
BZ	Common buzzard				1
H.	Grey heron				1

Map indicating transect taken:



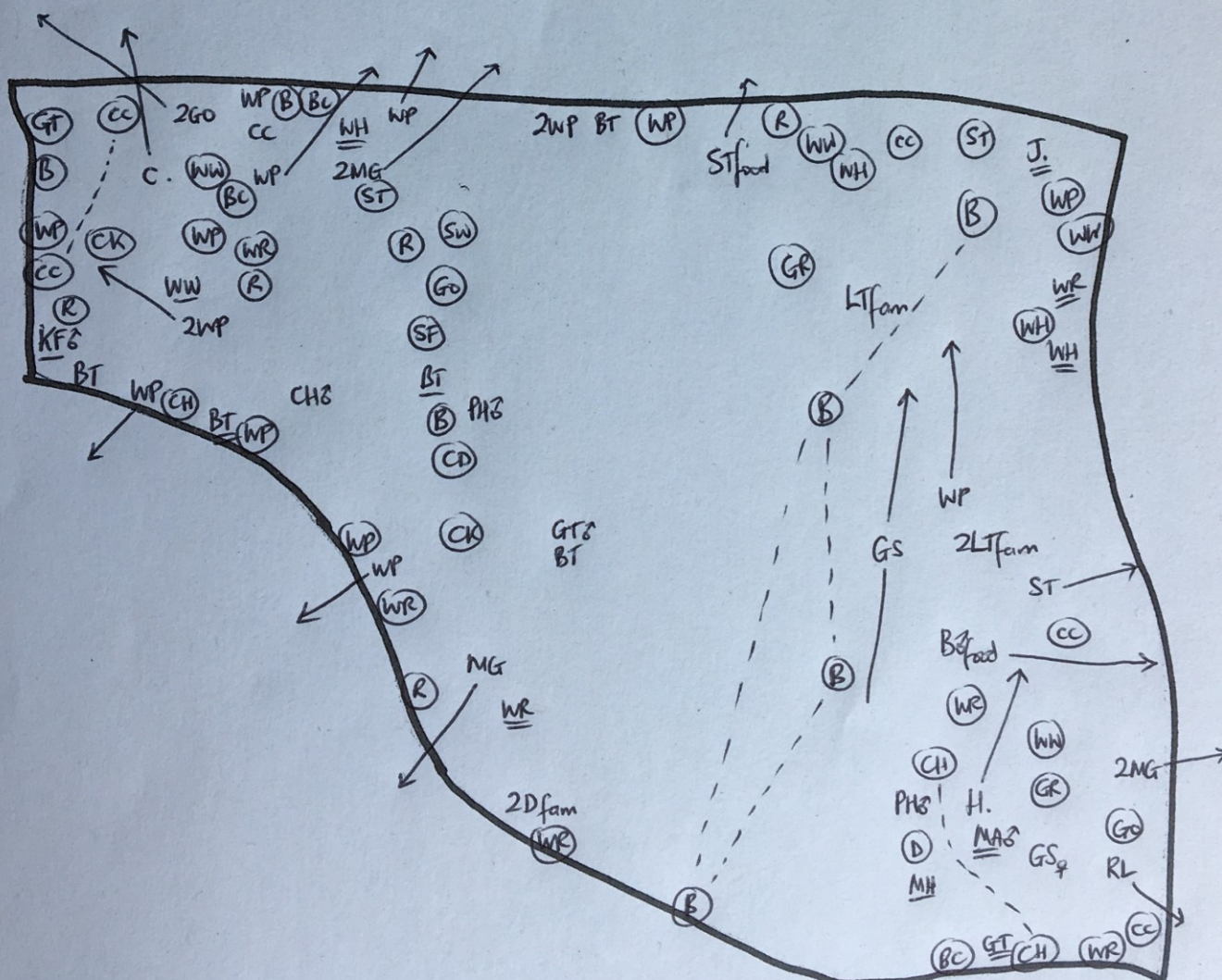
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Bird Survey Form		
Site Ref (BB00X)	BB05 - Visit 2 of 5	Notes:
Site location	Blackberry Farm, Dillington	
Date	24/05/2017	
Surveyor(s)	John Williamson	Michael Saunt
Temperature	12 → 15°C	
Weather	0-1 S; 5/8 cloud; vis excellent	No rain
Time start	06.30	BST
Time finish	09.05	BST

2-digit BTO code	Species	Comments	Confirmed territories	Total number
KF	Kingfisher	Male		1
R.	Robin	5 Singing males	5	5
CC	Chiffchaff	5 Singing males	5	6
WP	Woodpigeon	5 Singing males	5	8
CH	Chaffinch	3 Singing males	3	4
B.	Blackbird	7 singing males	8	8
GT	Great Tit	1 singing male	1	3
CK	Cuckoo	1 singing male	1	2
C.	Carrion Crow			1
GO	Goldfinch	2 singing males	2	4
WW	Willow Warbler	4 singing males	4	4
BC	Blackcap	3 singing males	3	3
WR	Wren	5 Singing males	5	7
WH	Whitethroat	2 singing males	2	4
MG	Magpie			5
ST	Song Thrush	2 singing males	3	4
SW	Sedge Warbler	1 singing male	1	1
SF	Spotted Flycatcher	1 singing male	1	1
BT	Blue Tit			5
PH	Pheasant			2
CD	Collared Dove	1 singing male	1	1
D.	Dunnoch	1 singing male	2	5
GR	Greenfinch	2 singing males	2	2
LT	Long-tailed Tit	2 family parties	2	10
GS	Great Spotted Woodpecker			2
MH	Moorhen			1

H.	Grey Heron			1
MA	Mallard			1
RL	Red-legged Partridge			1
J.	Jay			1
	Flyovers			
SL	Swallow			8
C.	Carrion Crow			5
GO	Goldfinch			2
CH	Chaffinch			2
JD	Jackdaw			9
WP	Woodpigeon			6
BT	Blue Tit			2
HG	Herring Gull			2
LB	Lesser Black-backed Gull			1
CD	Collared Dove			3
SG	Starling			5
GT	Great Tit			4
GR	Greenfinch			4
ET	Little Egret			1

Map indicating transect taken:



Bird Survey Form		
Site Ref (BB00X)	BB05 - Visit 3 of 5	Notes:
Site location	Blackberry Farm, Dillington	
Date	14/06/2017	
Surveyor(s)	John Williamson	Michael Saunt
Temperature	13 → 18°C	
Weather	0-1 SW; 8/8 → 3/8 cloud ; vis excellent	No rain
Time start	06.00	BST
Time finish	08.55	BST

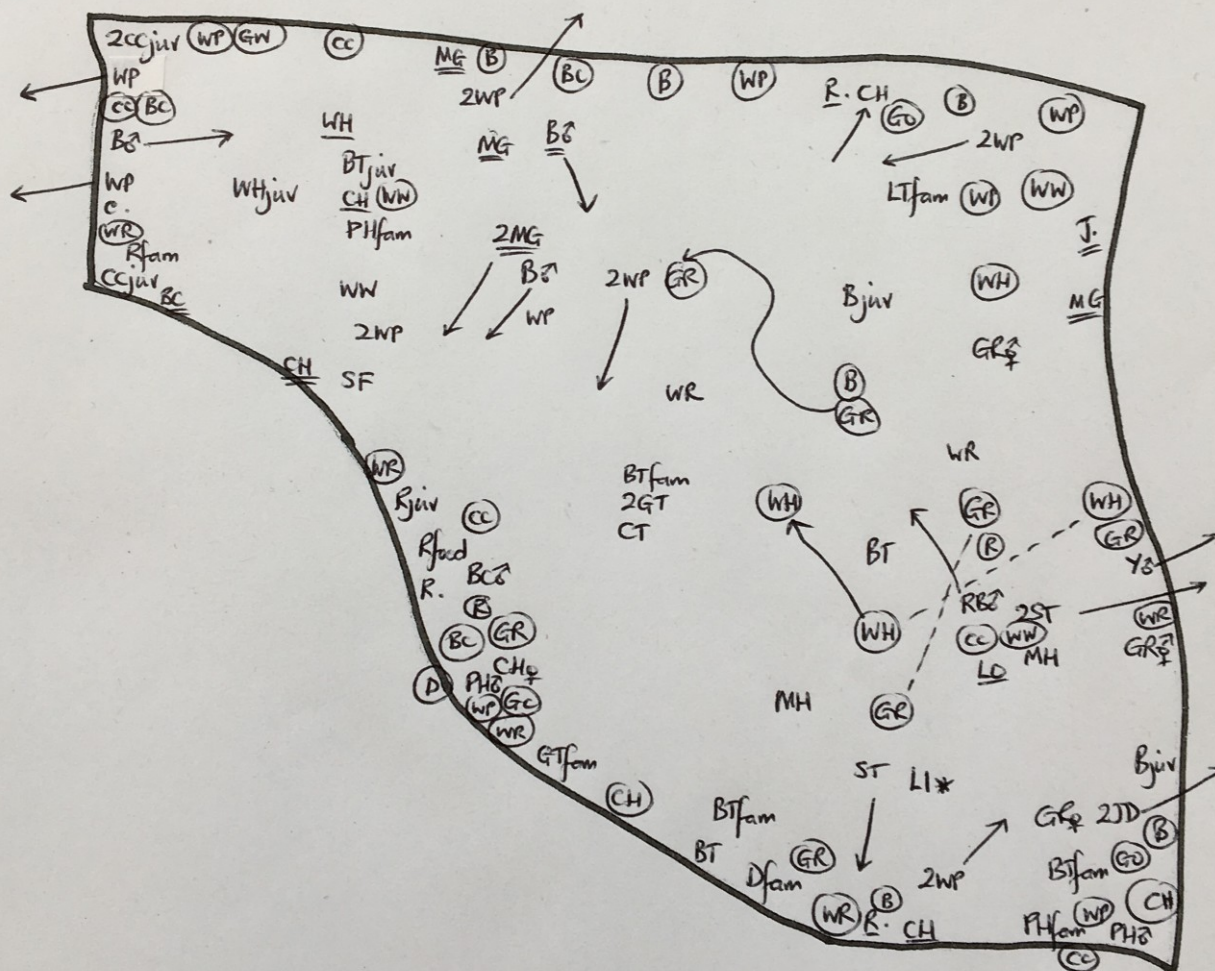
2-digit BTO code	Species	Comments	Confirmed territories	Total number
CC	Chiffchaff	5 singing males; 2 family parties	7	10
R.	Robin	2 singing males; 3 family parties	5	12
WR	Wren	5 singing males	5	7
C.	Carrion Crow			1
WP	Woodpigeon	6 singing males	6	14
B.	Blackbird	6 singing males; 2 juveniles	8	10
BC	Blackcap	3 singing males	3	5
GW	Garden Warbler	1 singing male	1	1
WH	Whitethroat	3 singing males; 1 juvenile	4	5
MG	Maggpie			5
CH	Chaffinch	2 singing males	2	6
GO	Goldfinch	2 singing males	2	2
LT	Long-tailed Tit	1 family party	1	6
WW	Willow Warbler	3 singing males	3	4
J.	Jay			1
GR	Greenfinch	3 singing males	3	7
Y.	Yellowhammer			1
RB	Reed Bunting			1
JD	Jackdaw			2
PH	Pheasant	2 family parties	2	11
BT	Blue Tit	3 family parties; 1 juvenile	4	14
D.	Dunnock	1 singing male; 1 family party	2	5

GT	Great Tit	1 family party	1	7
ST	Song Thrush			3
MH	Moorhen			2
CT	Coal Tit			1
GC	Goldcrest	1 singing male	1	1
MA	Mallard			
RL	Red-legged Partridge			
SF	Spotted Flycatcher	Collecting food	1	1
LO	Little Owl			1
LI	Linnet	Nest	1	2
	Flyovers			
GR	Greenfinch			2
BH	Black-headed Gull			1
WP	Woodpigeon			6
SD	Stock Dove			1
HG	Herring Gull			1
BT	Blue Tit			2
SL	Swallow			2
ET	Little Egret			1
LB	Lesser Black-backed Gull			3
SI	Swift			2
GO	Goldfinch			2
CD	Collared Dove			3
CH	Chaffinch			5
C.	Carrion Crow			3
GT	Great Tit			2
MA	Mallard			2

Site Reference: BB05

Site location: Land south of Dillington Carr – Blackberry Farm (Norfolk Herbs)

Map indicating transect taken:



↑N

Bird Survey Form		
Site Ref (BB00X)	BB05 - Visit 3 of 5	Notes:
Site location	Blackberry Farm, Dillington	
Date	12/07/2017	
Surveyor(s)	John Williamson	Michael Saunt
Temperature	14 → 17°C	
Weather	NNE 1-2, later NE 3-4; 8/8 → 4/8 cloud; Sunny spells mid a.m. onwards; vis fair, later v.good	Prolonged, at times heavy, overnight rain; No rain during survey
Time start	07.30	BST
Time finish	11.25	BST

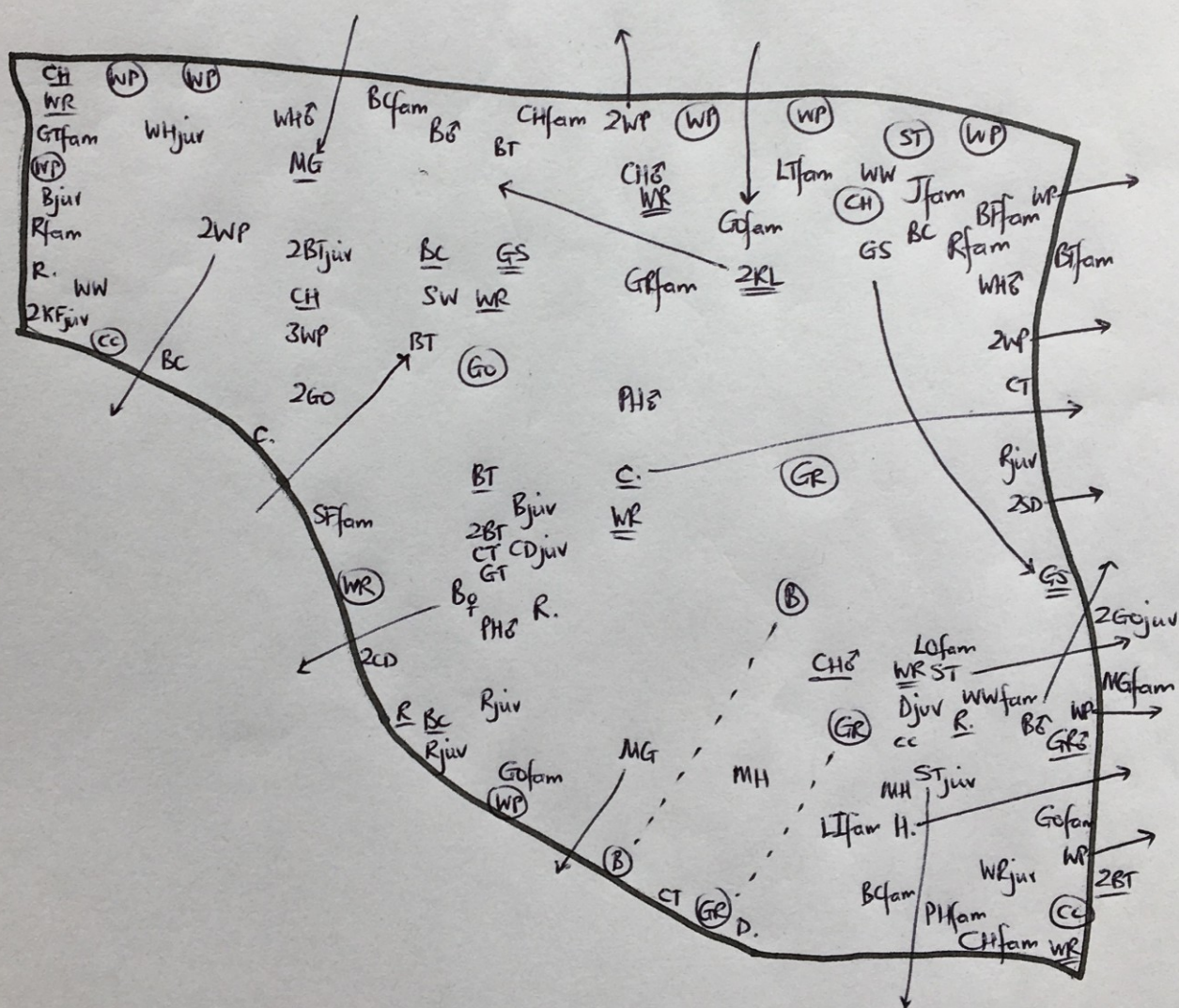
2-digit BTO code	Species	Comments	Confirmed territories	Total number
WR	Wren	1 singing male; 1 single juvenile	2	8
CC	Chiffchaff	2 singing males	2	3
BT	Blue Tit	2 family parties; 2 juveniles	3	15
WP	Woodpigeon	7 singing males	7	18
GO	Goldfinch	1 singing male; 3 family parties; 2 juveniles	6	15
GR	Greenfinch	2 singing males; 1 family party	3	7
MG	Magpie	1 family party	1	6
GS	Great Spotted Woodpecker			2
SD	Stock Dove			2
R.	Robin	3 family parties; 1 juvenile	1	13
CT	Coal Tit			3
WH	Whitethroat	1 single juvenile	1	3
BF	Bullfinch	1 family party	1	4
ST	Song Thrush	1 singing male; 1 juvenile	2	3
CH	Chaffinch	1 singing male; 2 family parties	3	10
BC	Blackcap	2 family parties	2	8
GT	Great Tit	1 family party	1	5
B.	Blackbird	1 singing male; 2 family parties	3	6
KF	Kingfisher	2 juveniles	1	2

C.	Carrion Crow			2
SF	Spotted Flycatcher	1 family party	1	4
CD	Collared Dove	1 juvenile	1	3
D.	Dunnoch	1 juvenile	1	2
PH	Pheasant	1 family party	1	6
H.	Grey Heron			1
MH	Moorhen			2
LI	Linnet	1 family party	1	4
WW	Willow Warbler	1 family party	1	5
RL	Red-legged Partridge			2
LO	Little Owl	1 family party	1	2
J.	Jay	1 family party	1	5
SW	Sedge Warbler			1
	Flyovers			
SI	Swift			8
SL	Swallow			4
SD	Stock Dove			2
HG	Herring Gull			3
LB	Lesser Black-backed Gull			1
JD	Jackdaw			6
ET	Little Egret			1
CH	Chaffinch			2
GR	Greenfinch			2
RO	Rook			8
CD	Collared Dove			2
GO	Goldfinch			2
WP	Woodpigeon			10
MA	Mallard			4
ET	Little Egret			1
H.	Grey Heron			2
BZ	Buzzard			2
EG	Egyptian Goose			4
BT	Blue Tit			2
GT	Great Tit			2
MS	Mute Swan			2
GJ	Greylag Goose			8
CN	Common Tern			1
OC	Oystercatcher			2
HY	Hobby			1
K.	Kestrel			1

Site Reference: BB05

Site location: Land south of Dillington Carr – Blackberry Farm (Norfolk Herbs)

Map indicating transect taken:



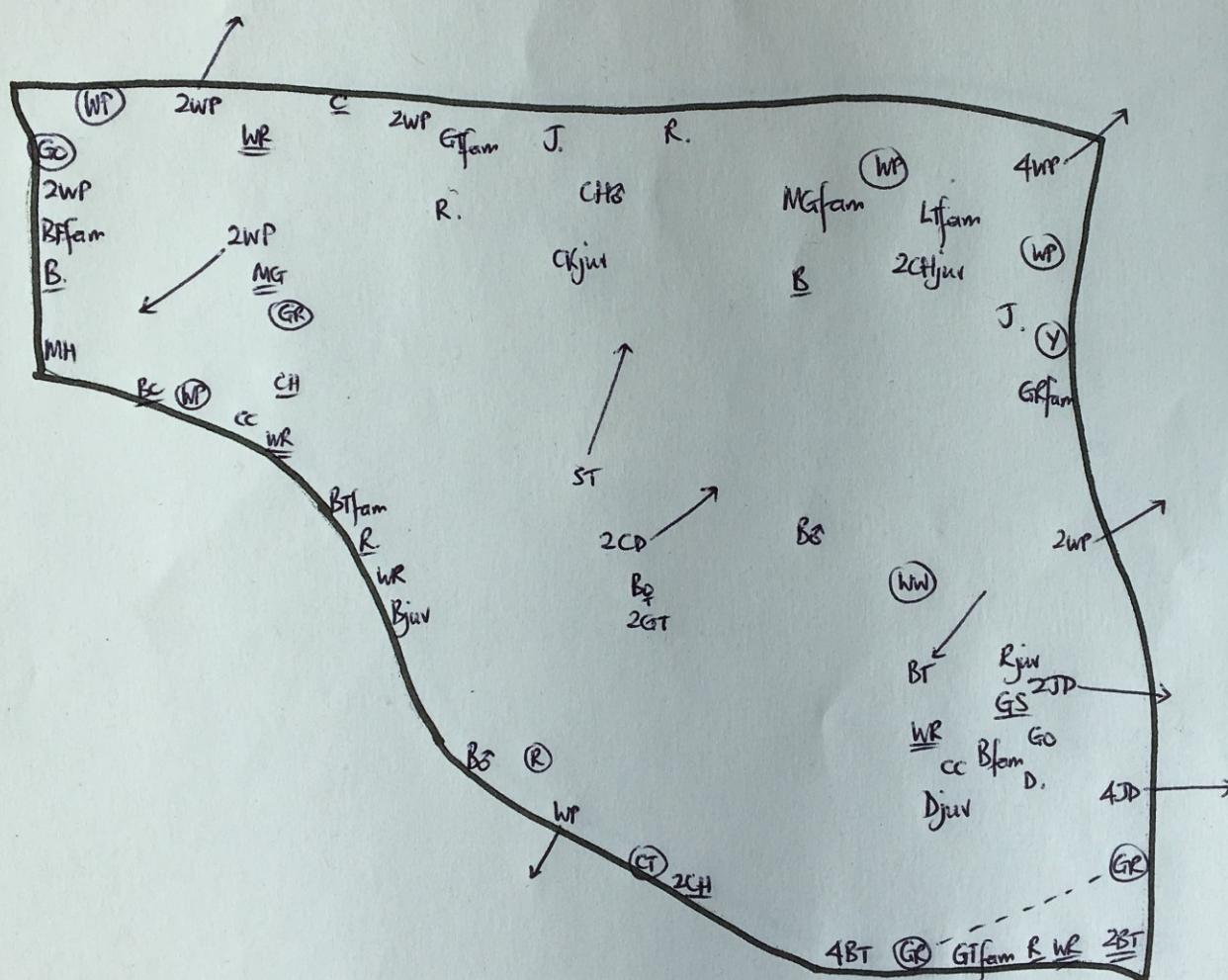
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Bird Survey Form		
Site Ref (BB00X)	BB05 - Visit 5 of 5	Notes:
Site location	Blackberry Farm, Dillington	
Date	02/08/2017	
Surveyor(s)	John Williamson	Michael Saunt
Temperature	14 → 18°C	
Weather	SW 1-2; 7/8 → 2/8 cloud; Prolonged sunny spells later; vis very good	No precipitation
Time start	06.45	BST
Time finish	10.45	BST

2-digit BTO code	Species	Comments	Confirmed territories	Total number
GO	Goldfinch	1 singing male	1	2
WP	Woodpigeon	3 singing males	3	18
BF	Bullfinch	1 family party	1	4
B.	Blackbird	1 juvenile	1	6
MH	Moorhen			1
BC	Blackcap			1
CC	Chiffchaff			2
WR	Wren			5
BT	Blue Tit	1 family party	1	11
R.	Robin	1 singing male; 1 juvenile	2	7
CT	Coal Tit	1 singing male	1	1
CH	Chaffinch	1 single juvenile	1	5
GR	Greenfinch	3 singing males; 1 family party	4	7
GT	Great Tit	2 family parties	2	10
JD	Jackdaw			6
Y.	Yellowhammer	1 singing male	1	1
J.	Jay			2
LT	Long-tailed Tit	1 family party	1	
MG	Magpie	1 family party	1	5
CK	Cuckoo	1 juvenile	1	1
ST	Song Thrush			1
CD	Collared Dove			2
D.	Dunnock	1 juvenile	1	2

WW	Willow Warbler	1 singing male	1	1
GS	Great Spotted Woodpecker			1
	Flyovers			
M.	Mistle Thrush			1
SL	Swallow			3
HG	Herring Gull			1
LB	Lesser Black-backed Gull			1
GR	Greenfinch			4
H.	Grey Heron			1
SD	Stock Dove			2
G.	Green Woodpecker			1
WP	Woodpigeon			2
BT	Blue Tit			2
LI	Linnet			2
SI	Swift			2
BH	Black-headed Gull			4

Map indicating transect taken:



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Norfolk Vanguard Breeding bird Appendix 2F: BB06 data

Report prepared by Norfolk Wildlife Services Ltd.
on behalf of Royal HaskoningDHV,
December 2017

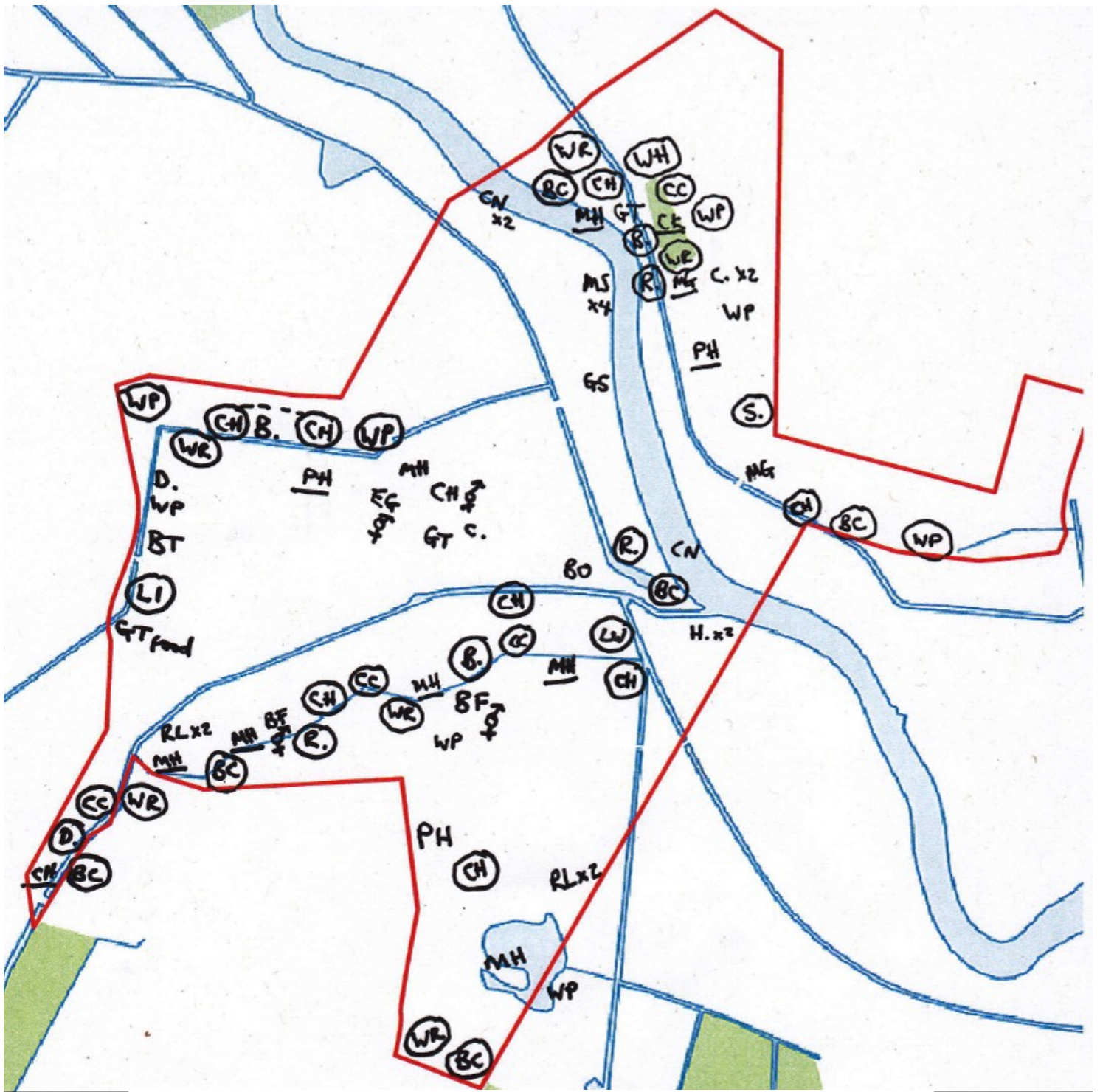
Reference: 2016/131.2

Appendix 2: Results – data sheets and maps
River Wensum Floodplain BB06

Bird Survey Form		
Site Ref (BB00X)	BB06 - Visit 1 of 5	Notes:
Site location	Wensum Floodplain	NB. Restricted access east of river
Date	18/05/2017	
Surveyor(s)	Mick Saunt	John Williamson
Temperature	10 → 14 °C	
Weather	8/8 → 3/8 cloud; ESE 2-3; Visibility very good	No rain
Time start	06.40	BST
Time finish	10.55	BST

2-digit BTO code	Species	Comments	Confirmed territories	Total number
BO	Barn Owl	Hunting. Nest 50m outside survey area	1	1
CH	Chaffinch	9 singing males	9	11
BC	Blackcap	6 singing males	6	6
D.	Dunnock	Singing male	1	2
CC	Chiffchaff	4 singing males	4	4
WR	Wren	6 singing males	6	6
MH	Moorhen			7
RL	Red-legged partridge	2 pairs	2	4
BF	Bullfinch	Pair	1	2
R.	Robin	3 singing males	3	3
WP	Woodpigeon	4 singing males	4	8
BT	Blue Tit	Pair feeding young in nest	1	3
GT	Great Tit	Male carrying food	1	4
B.	Blackbird	2 singing males	2	3
LI	Linnet	Singing male	1	1
PH	Pheasant	3 calling males	3	3
GJ	Greylag Goose	Pair	1	2
H.	Grey Heron			2
LW	Lesser whitethroat	Singing male	1	1
CN	Common Tern	3 fishing on river		3
EG	Egyptian Goose	Pair	1	2
C.	Carrion Crow			3
GS	Great spotted woodpecker			1
MS	Mute Swan			4
MG	Magpie			2

CK	Cuckoo	Calling male	1	1
S.	Skylark	Singing male	1	1
WH	Whitethroat	Singing male	1	1
SM	Sand Martin	Feeding over river		9
Flyovers				
JD	Jackdaw			4
WP	Woodpigeon			13
C.	Carrion Crow			13
SI	Swift			7
GJ	Greylag Goose			61
RO	Rook			18
LI	Linnet			4
GR	Greenfinch			2
MS	Mute Swan			5
OC	Oystercatcher			1
SL	Swallow			2
GA	Gadwall			1
EG	Egyptian Goose			1
GO	Goldfinch			3
BZ	Common buzzard			1
K.	Kestrel			1
MA	Mallard			3
SD	Stock Dove			1



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Bird Survey Form		
Site Ref (BB00X)	BB06 - Visit 2 of 5	Notes:
Site location	Wensum Floodplain	NB. Restricted access east of river
Date	01/06/2017	
Surveyor(s)	Mick Saunt	John Williamson
Temperature	14 → 22° C	
Weather	8/8 → 3/8 cloud; SE 1-2; vis good → v.good	No rain
Time start	06.35	BST
Time finish	10.50	BST

2-digit BTO code	Species	Comments	Confirmed territories	Total number
B.	Blackbird	2 singing males	2	5
RL	Red-legged Partridge			1
WP	Woodpigeon	4 singing males	4	52
CC	Chiffchaff	4 singing males	4	4
LT	Long-tailed Tit	2 family parties	2	37
CH	Chaffinch	4 singing males	4	9
GR	Greenfinch			3
MH	Moorhen			2
BT	Blue Tit	3 family parties	3	13
R.	Robin	5 singing males + juv	6	6
WR	Wren	8 singing males	8	8
H.	Grey Heron			3
D.	Duncock	1 singing male	1	1
LW	Lesser Whitethroat	1 singing male	1	1
BO	Barn Owl	Carrying prey	1	1
G.	Green Woodpecker			1
EG	Egyptian Goose	Pair	1	2
GT	Great Tit	Male carrying food	1	3
MG	Magpie			1
C.	Carrion Crow			8
GO	Goldfinch			2
CK	Cuckoo	1 singing male	1	1
CN	Common Tern			1
SD	Stock Dove	1 singing male	1	1
BC	Blackcap	1 singing male	1	1
PH	Pheasant	2 calling males	2	2
Flyovers				

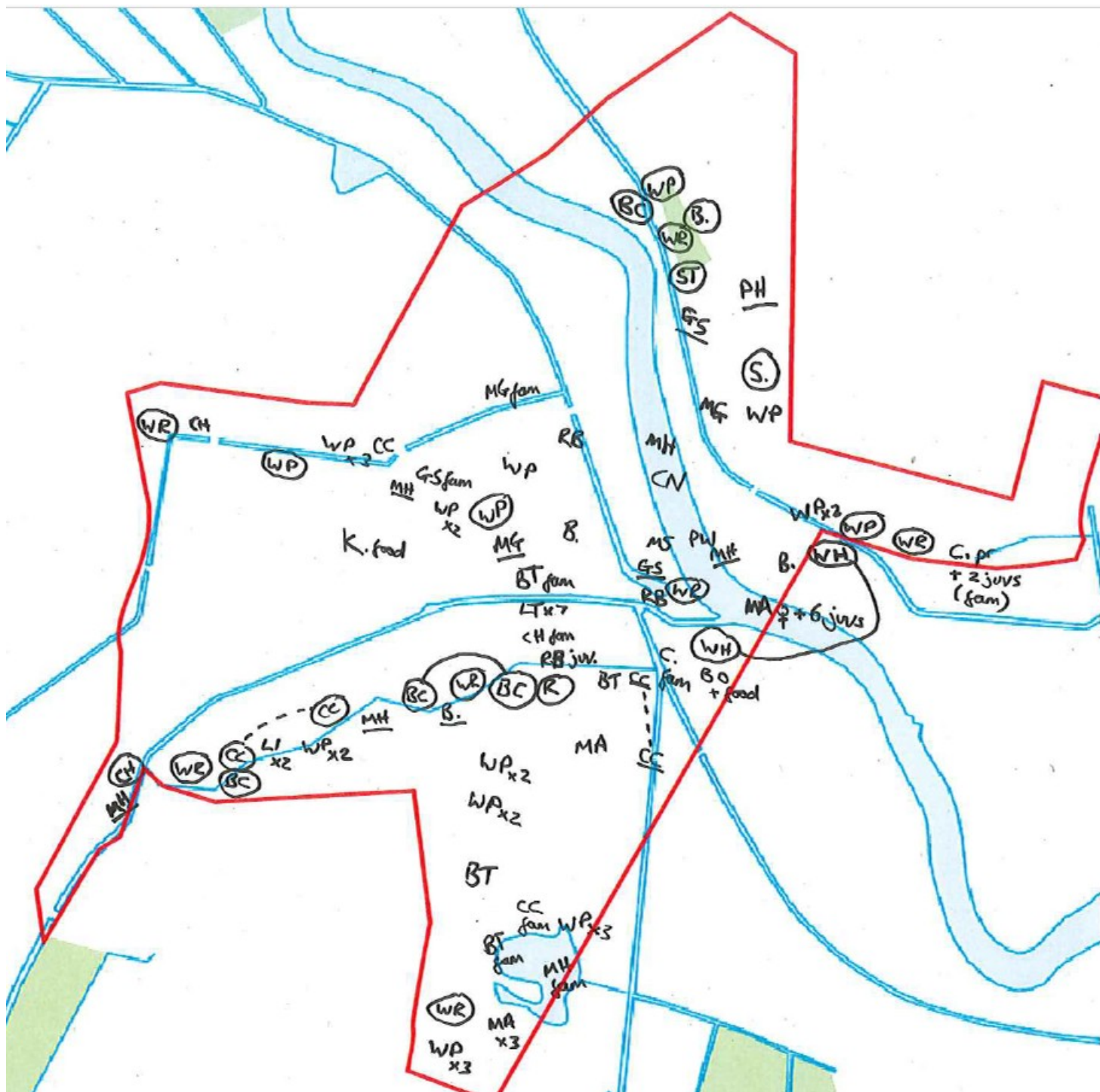
WP	Woodpigeon			30
SL	Swallow			4
JD	Jackdaw			17
SD	Stock Dove			6
SM	Sand Martin			21
BZ	Buzzard			1
C.	Carrion Crow			7
SI	Swift			6
GR	Greenfinch			2
CH	Chaffinch			5
GJ	Greylag Goose			7
BH	Black-headed Gull			9
MA	Mallard			3
HM	House Martin			4
RO	Rook			5
L.	Lapwing			2
MG	Magpie			1
LI	Linnet			5
GO	Goldfinch			2
MS	Mute Swan			1
K.	Kestrel			1



Bird Survey Form		
Site Ref (BB00X)	BB06 - Visit 3 of 5	Notes:
Site location	Wensum Floodplain	NB. Restricted access east of river
Date	15/06/2017	
Surveyor(s)	Mick Saunt	John Williamson
Temperature	13 → 23°C	
Weather	0-1 W → 3-4 W; 1/8 cloud; vis very good	No rain
Time start	06.35	BST
Time finish	10.50	BST

2-digit BTO code	Species	Comments	Confirmed territories	Total number
WP	Woodpigeon	4 singing males	4	25
MA	Mallard	Female plus 6 young	1	11
MH	Moorhen	Family party	1	8
BT	Blue Tit	2 family parties	2	7
CC	Chiffchaff	2 singing males; 2 family parties	4	8
CH	Chaffinch	1 singing male; 1 family party	2	5
WR	Wren	5 singing males	5	5
BC	Blackcap	3 singing males	3	3
LI	Linnet			2
B.	Blackbird	1 singing male	1	4
R.	Robin	1 singing male	1	1
RB	Reed Bunting	Lone juvenile	1	3
LT	Long-tailed Tit	Family party	1	7
C.	Carrion Crow	2 family parties	2	6
BO	Barn Owl	Hunting	1	1
GS	Great Spotted Woodpecker	Family party	1	4
K.	Kestrel	Carrying prey	1	1
WH	Whitethroat	1 singing male	1	1
PW	Pied Wagtail			1
MS	Mute Swan			1
CN	Common Tern	Fishing on river		1
MG	Magpie	Family party	1	4
S.	Skylark	1 singing male	1	1
PH	Pheasant	1 calling male	1	1
ST	Song Thrush	1 singing male	1	1

Flyovers				
RO	Rook			24
WP	Woodpigeon			14
SM	Sand Martin			16
SG	Starling			1
SI	Swift			13
JD	Jackdaw			5
H.	Grey Heron			3
C.	Carrion Crow			5
HM	House Martin			2
BH	Black-headed Gull			3
MA	Mallard			2
LB	Lesser Black-backed Gull			2
BZ	Common Buzzard			2
CG	Canada Goose			6
SL	Swallow			2
GO	Goldfinch			3
GT	Great Tit			1



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Bird Survey Form		
Site Ref (BB00X)	BB06 - Visit 4 of 5	Note: Restricted access north of the river
Site location	Wensum Floodplain	
Date	14/07/2017	
Surveyor(s)	Mick Saunt	John Williamson
Temperature	14 → 20°C	
Weather	SW 1-2, later 2-3 NW; initially 8/8 → 5/8 cloud; visibility fair → good	Spots of rain early a.m.
Time start	06.35	BST
Time finish	10.50	BST

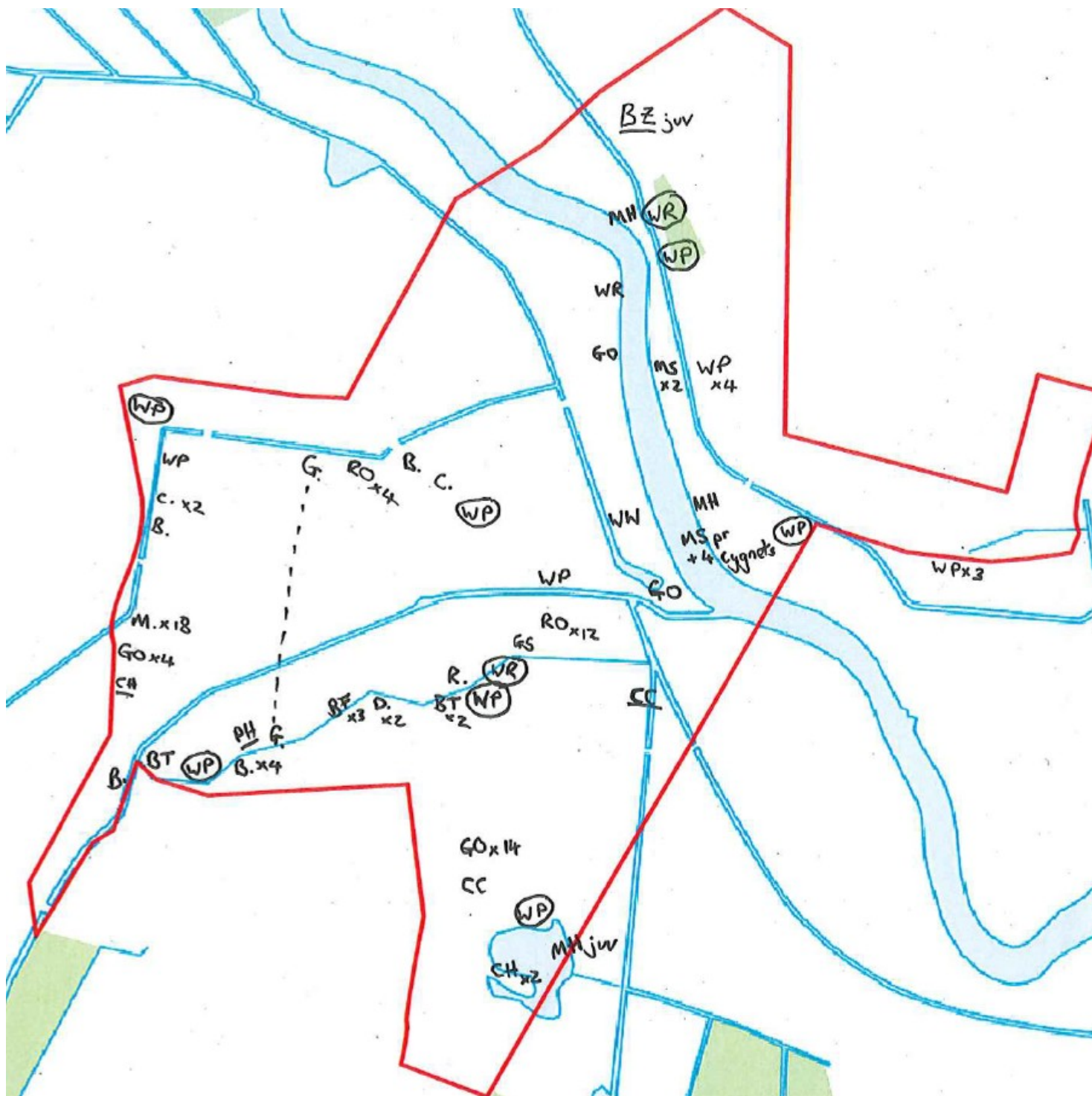
2-digit BTO code	Species	Comments	Confirmed territories	Total number
CC	Chiffchaff			4
WP	Woodpigeon	6 singing males	6	16
BC	Blackcap	1 singing male	1	2
MH	Moorhen	1 family party	1	4
BZ	Buzzard			1
CN	Common Tern			2
GO	Goldfinch			5
GJ	Greylag Goose			3
MS	Mute Swan			3
MA	Mallard			1
S.	Skylark	1 singing male	1	1
WR	Wren	3 Singing males	3	5
CH	Chaffinch			2
B.	Blackbird	1 singing male	1	2
D.	Dunnock			1
BT	Blue Tit			1
LI	Linnet			2
MG	Magpie			2
GS	Great Spotted Woodpecker			1
G.	Green Woodpecker			1
C.	Carrion Crow			1
GT	Great Tit	1 family party	1	4
GR	Greenfinch			1
WH	Whitethroat			1
Flyovers				
C.	Carrion Crow			5

SD	Stock Dove			14
WP	Woodpigeon			23
GB	Great Black-backed Gull			4
BZ	Buzzard			1
SM	Sand Martin			43
JD	Jackdaw			17
RO	Rook			5
HY	Hobby			1
BH	Black-headed Gull			4
ET	Little Egret			1
K.	Kestrel			2
HM	House Martin			28
GO	Goldfinch			1
GS	Great Spotted Woodpecker			1
MP	Meadow Pipit			1
HG	Herring Gull			1
SL	Swallow			3
GR	Greenfinch			1

Bird Survey Form		
Site Ref (BB00X)	BB06 - Visit 5 of 5	Notes: Restricted access north of the river
Site location	Wensum Floodplain	
Date	08/08/2017	
Surveyor(s)	Mick Saunt	John Williamson
Temperature	15 → 18°C	
Weather	0-1 SW; 8/8 cloud; vis. good	
Time start	06.40	BST
Time finish	10.50	BST

2-digit BTO code	Species	Comments	Confirmed territories	Total number
BZ	Buzzard	1 food-begging juvenile	1	1
WR	Wren	2 singing males	2	3
WP	Woodpigeon	7 singing males	7	16
MS	Mute Swan	2 adults & 4 cygnets	1	8
MH	Moorhen	Single juvenile	1	3
PH	Pheasant	1 calling male	1	1
GO	Goldfinch			20
WW	Willow Warbler			1
RO	Rook			16
C.	Carrion Crow			3
G.	Green Woodpecker			2
B.	Blackbird			7
CH	Chaffinch			3
CC	Chiffchaff			1
D.	Dunnock			2
BT	Blue Tit			2
R.	Robin			1
GS	Great Spotted Woodpecker			1
M.	Mistle Thrush			18
BF	Bullfinch			3
Flyovers				
JD	Jackdaw			15
WP	Woodpigeon			30
SM	Sand Martin			6
RO	Rook			13
L.	Lapwing			2

MA	Mallard			3
SD	Stock Dove			5
BZ	Buzzard			1
GO	Goldfinch			10
C.	Carrion Crow			3
MG	Magpie			1
GR	Greenfinch			2
GB	Great Black-backed Gull			9
H.	Grey Heron			2
SL	Swallow			17
BH	Black-headed Gull			7
CA	Cormorant			1
CH	Chaffinch			1
HG	Herring Gull			1
SI	Swift			2



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