

Welsh Government

**M4 Corridor around Newport**

Environmental Statement Volume 3:  
Appendix 10.28

Breeding Bird and Wader Survey  
2015

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At Issue | March 2016



**Breeding Bird and Breeding  
Wader Surveys**

**M4 Corridor around Newport**

For

**RPS**

Project No.: MRPS108/003

February 2016





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## 1. Summary

**1.1.1** RPS commissioned Thomson Ecology to undertake repeat breeding bird and breeding wader surveys during May and June 2015, within the footprint of the proposed M4 Corridor around Newport (M4CaN) between Castleton and Magor to inform the ecological baseline for Environmental Impact Assessment (EIA) of the Scheme. The EIA is reported in the M4CaN Environmental Statement (ES) of which this document is an appendix to the chapter on Ecology and Nature Conservation.

### 1.2 Breeding Bird Survey

**1.2.1** Three separate breeding bird survey visits were carried out during May and June 2015 to each of three survey areas defined by RPS within the proposed footprint, including a 500 m buffer from the footprint (BBS1 to BBS3 on Figure 1).

**1.2.2** Access restrictions limited most surveys to transects along public roads and footpaths. Much of each survey area could not therefore be viewed and surveyed by the standard methods originally proposed.

**1.2.3** Consequently, as a result of these access restrictions a modified version of the methodology for breeding bird survey as set out in Gilbert *et al.* (1998) was utilised. This methodology has been the standard technique used for monitoring the United Kingdom's common breeding birds since 1994 (Harris *et al.*, 2015).

**1.2.4** The breeding bird survey recorded a total of 46 species, of which 42 were considered to be confirmed, probable or possible breeding based on their behaviour.

### 1.3 Breeding Wader Survey

**1.3.1** Three separate breeding wader survey visits were carried out during May and June 2015 to each of four survey areas defined by RPS within the proposed footprint, including a 500 m buffer from the footprint (BSW1 to BSW4 on Figure 1).

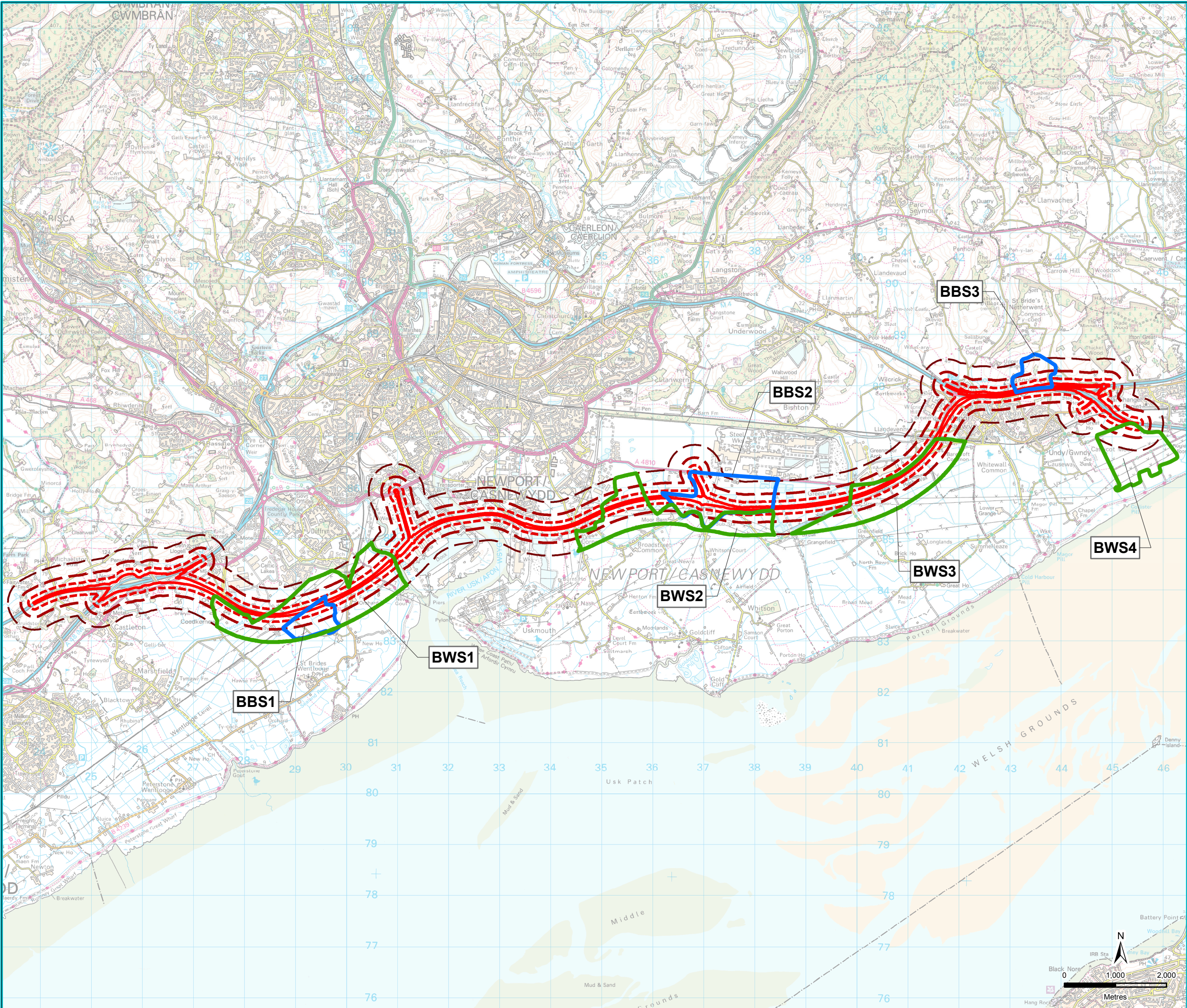
**1.3.2** Access restrictions largely limited the surveys to public roads and footpaths. Due to land access permissions, more fields were accessible on the second visit compared to the first and third visits.

**1.3.3** The surveys were carried out in accordance with the O'Brien and Smith (1992) method for censusing lowland breeding wader populations.

**1.3.4** Two wader species were recorded during the surveys: lapwing (*Vanellus vanellus*) and curlew (*Numenius arquata*); the latter was only recorded on the first visit in the easternmost survey area (BWS4 on Figure 1). Lapwing were recorded breeding in the westernmost (BWS1 on Figure 1) and easternmost survey areas (BWS4 on Figure 1), but not in the two central survey areas (BWS2 and BWS3 on Figure 1).



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Legend

- Breeding Wader Survey Areas
- Breeding Bird Survey Areas
- Scheme Outline
- Scheme Outline 100m Buffer
- Scheme Outline 250m Buffer
- Scheme Outline 500m Buffer

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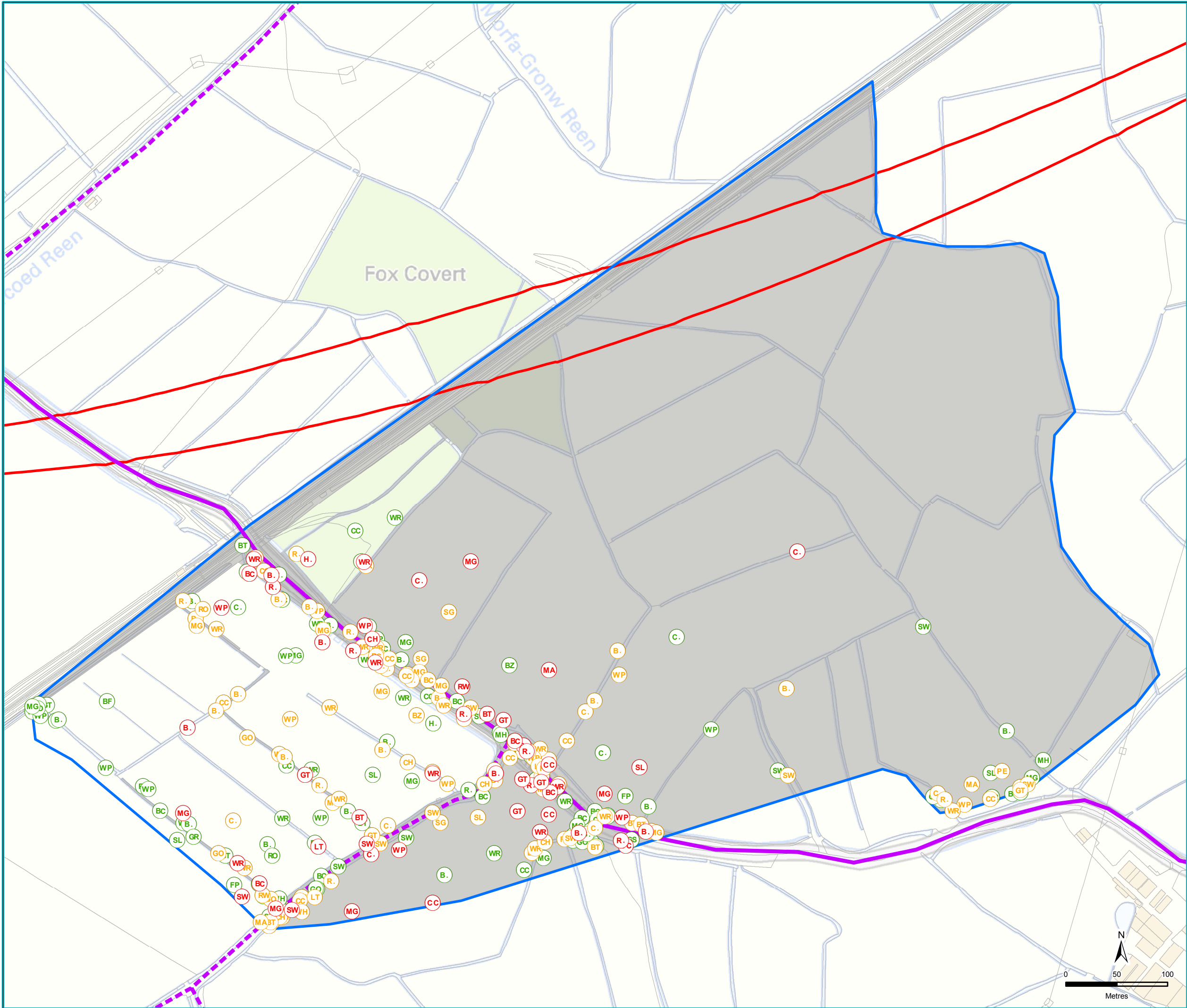
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Legend

Bird Species

- |                               |                           |
|-------------------------------|---------------------------|
| (B.) Blackbird                | (SW) Sedge Warbler        |
| (BC) Blackcap                 | (WH) Whitethroat          |
| (BF) Bullfinch                | (WP) Wood Pigeon          |
| (BT) Blue Tit                 | (WR) Wren                 |
| (BZ) Buzzard                  |                           |
| (C.) Carrion Crow             | <b>Visit Number</b>       |
| (CC) Chiffchaff               | 1                         |
| (CH) Chaffinch                | 2                         |
| (FP) Feral Pigeon             | 3                         |
| (GO) Goldfinch                | Driven                    |
| (GR) Greenfinch               | Footpath                  |
| (GS) Great Spotted Woodpecker | Breeding Bird Survey Area |
| (GT) Great Tit                | Scheme Outline            |
| (H.) Grey Heron               | No Access                 |
| (LT) Long-tailed Tit          |                           |
| (MA) Mallard                  |                           |
| (MG) Magpie                   |                           |
| (MH) Moorhen                  |                           |
| (PE) Peregrine                |                           |
| (R.) Robin                    |                           |
| (RO) Rook                     |                           |
| (RW) Reed Warbler             |                           |
| (SG) Starling                 |                           |
| (SL) Swallow                  |                           |

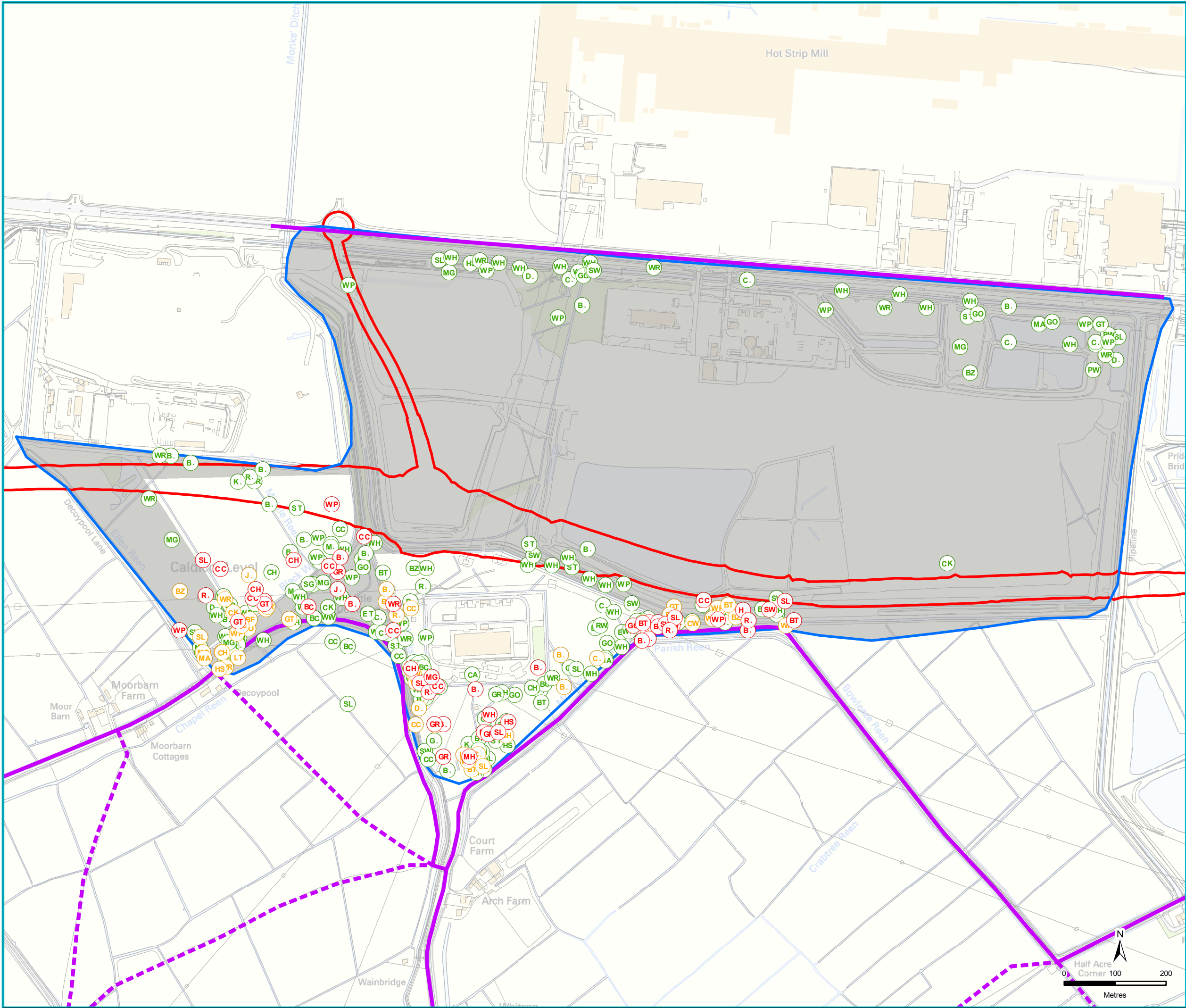
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Summary of Breeding  
Bird Survey Results  
- BBS1



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Legend

Bird Species

- |                         |                     |
|-------------------------|---------------------|
| (B.) Blackbird          | (PW) Pied Wagtail   |
| (BC) Blackcap           | (R.) Robin          |
| (BF) Bullfinch          | (RW) Reed Warbler   |
| (BT) Blue Tit           | (SD) Stock Dove     |
| (BZ) Buzzard            | (SG) Starling       |
| (C.) Carrion Crow       | (SL) Swallow        |
| (CA) Cormorant          | (ST) Song Thrush    |
| (CC) Chiffchaff         | (SW) Sedge Warbler  |
| (CH) Chaffinch          | (WH) Whitethroat    |
| (CK) Cuckoo             | (WP) Wood Pigeon    |
| (CW) Cetti's Warbler    | (WR) Wren           |
| (D.) Dunnock            | (WW) Willow Warbler |
| (ET) Little Egret       |                     |
| (G.) Green Woodpecker   |                     |
| (GO) Goldfinch          |                     |
| (GR) Greenfinch         |                     |
| (GT) Great Tit          |                     |
| (H.) Grey Heron         |                     |
| (HS) House Sparrow      |                     |
| (J.) Jay                |                     |
| (K.) Kestrel            |                     |
| (LT) Long-tailed Tit    |                     |
| (LW) Lesser Whitethroat |                     |
| (M.) Mistle Thrush      |                     |
| (MA) Mallard            |                     |
| (MG) Magpie             |                     |
| (MH) Moorhen            |                     |

Visit Number

- (1) 1  
(2) 2  
(3) 3

- (Purple line) Driven Access  
(Dashed purple line) Footpath  
(Blue outline) Breeding Bird Survey Area  
(Red outline) Scheme Outline  
(Grey fill) No Access

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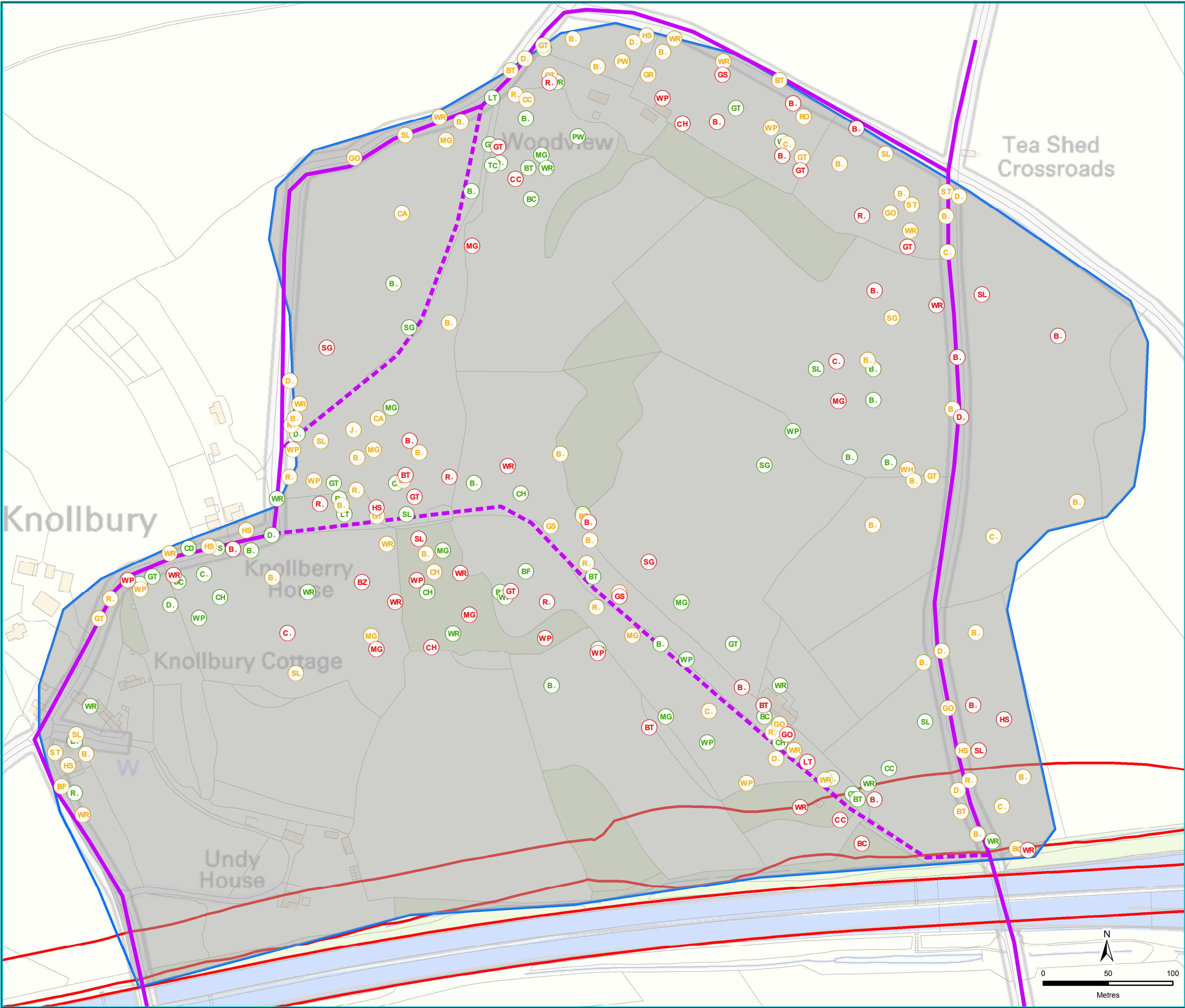
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RPS

Figure Number  
2b

Figure Title  
Summary of Breeding  
Bird Survey Results  
- BBS2

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Legend

Bird Species

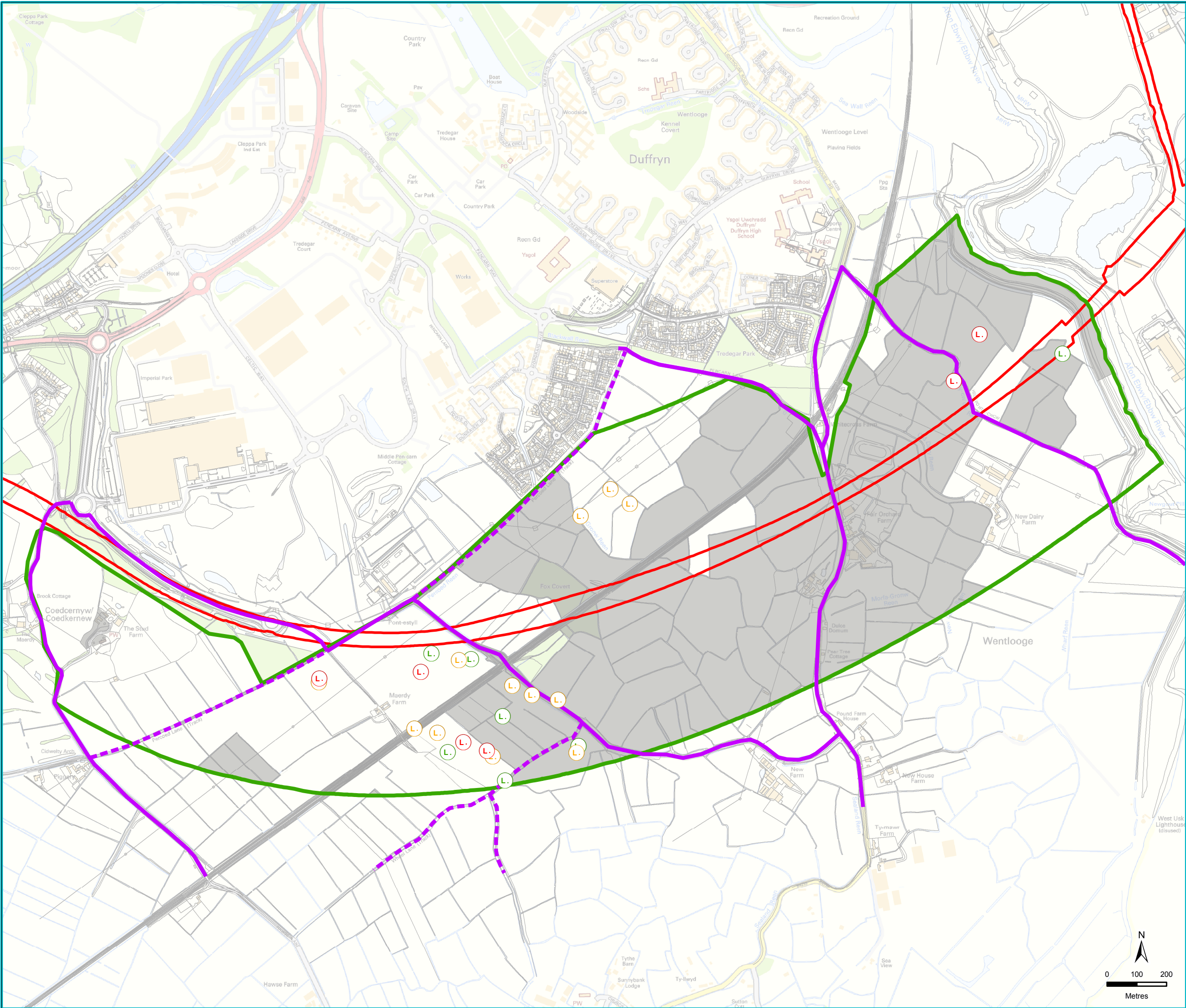
- |                               |                             |
|-------------------------------|-----------------------------|
| (B.) Blackbird                | (TS) Tree Sparrow           |
| (BC) Blackcap                 | (WH) Whitethroat            |
| (BF) Bullfinch                | (WP) Wood Pigeon            |
| (BT) Blue Tit                 | (WR) Wren                   |
| (BZ) Buzzard                  |                             |
| (C.) Carrion Crow             | <b>Visit Number</b>         |
| (CA) Cormorant                | ○ 1                         |
| (CC) Chiffchaff               | ○ 2                         |
| (CD) Collared Dove            | ○ 3                         |
| (CH) Chaffinch                | — Driven                    |
| (D.) Dunnock                  | - - - Footpath              |
| (GO) Goldfinch                | □ Breeding Bird Survey Area |
| (GR) Greenfinch               | □ Scheme Outline            |
| (GS) Great Spotted Woodpecker | ■ No                        |
| (GT) Great Tit                |                             |
| (HS) House Sparrow            |                             |
| (J.) Jay                      |                             |
| (LT) Long-tailed Tit          |                             |
| (MG) Magpie                   |                             |
| (PW) Pied Wagtail             |                             |
| (R.) Robin                    |                             |
| (RO) Rook                     |                             |
| (SG) Starling                 |                             |
| (SL) Swallow                  |                             |
| (ST) Song Thrush              |                             |
| (TC) Treecreeper              |                             |

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Figure Number		2c	
Figure Title			
Summary of Breeding Bird Survey Results - BBS3			



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Legend

Bird Species

(L.) Lapwing

Visit Number

1

2

3

Driven Access

Footpath Access

Ground Nesting Wader Survey Areas

Scheme Outline

No Access

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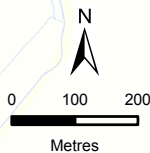
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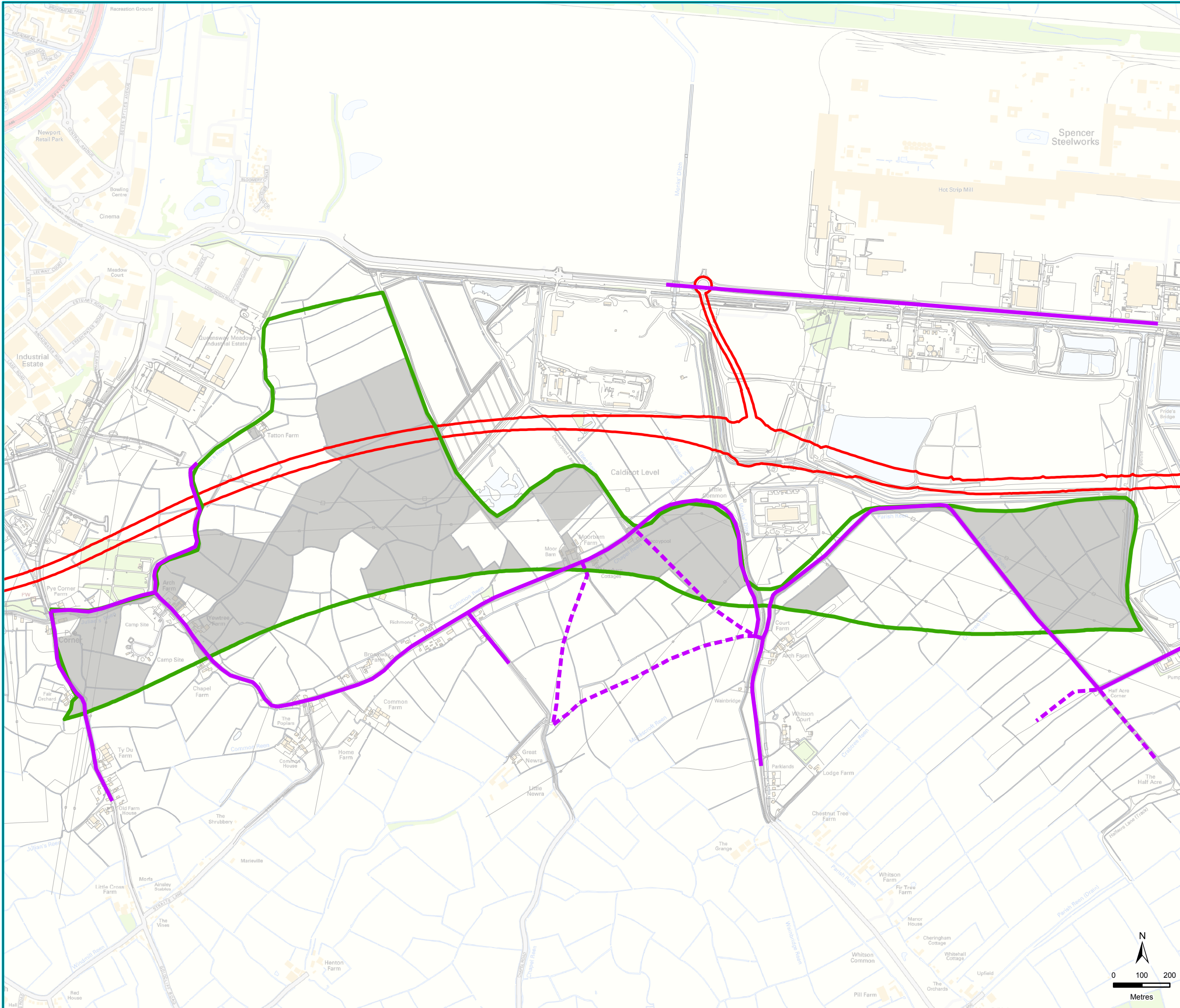
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2d






Figure Title  
Summary of Breeding  
Wader Survey Results  
- BWS1

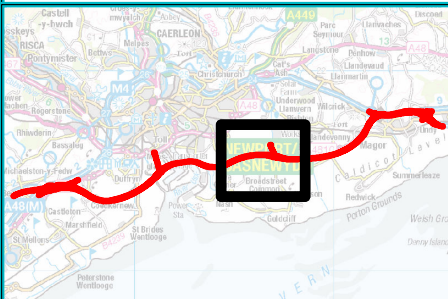






### Legend

 Driven  
 Footpath  
 Scheme Outline  
 Ground Nesting Wader Survey Areas  
 No Access



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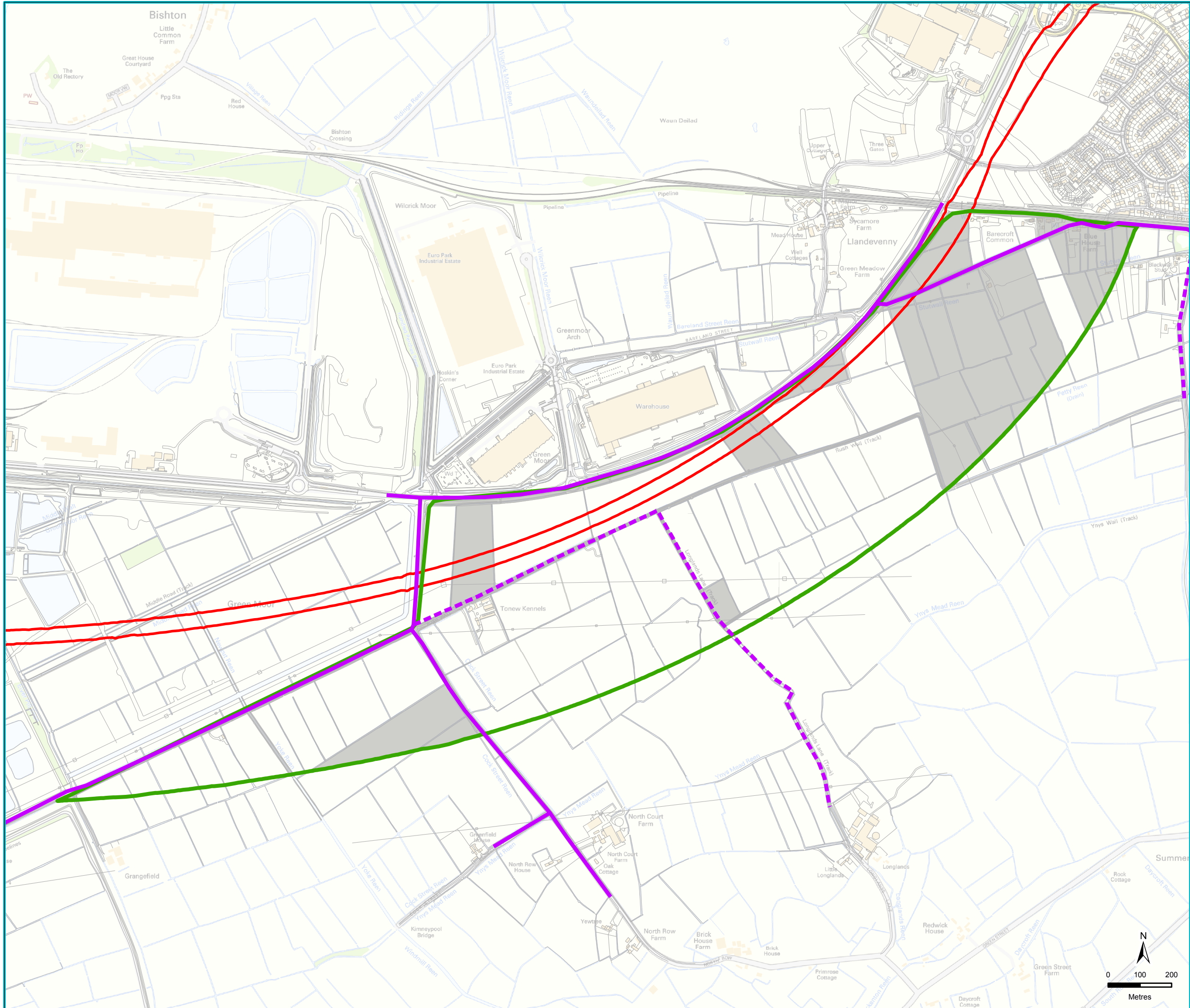
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Figure Title

Summary of Breeding  
Wader Survey Results  
- BWS2



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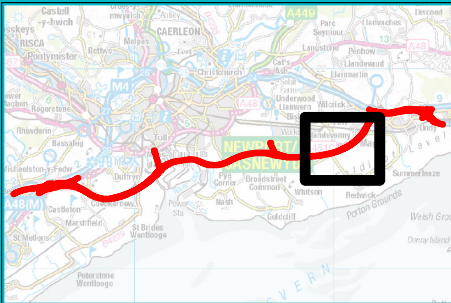




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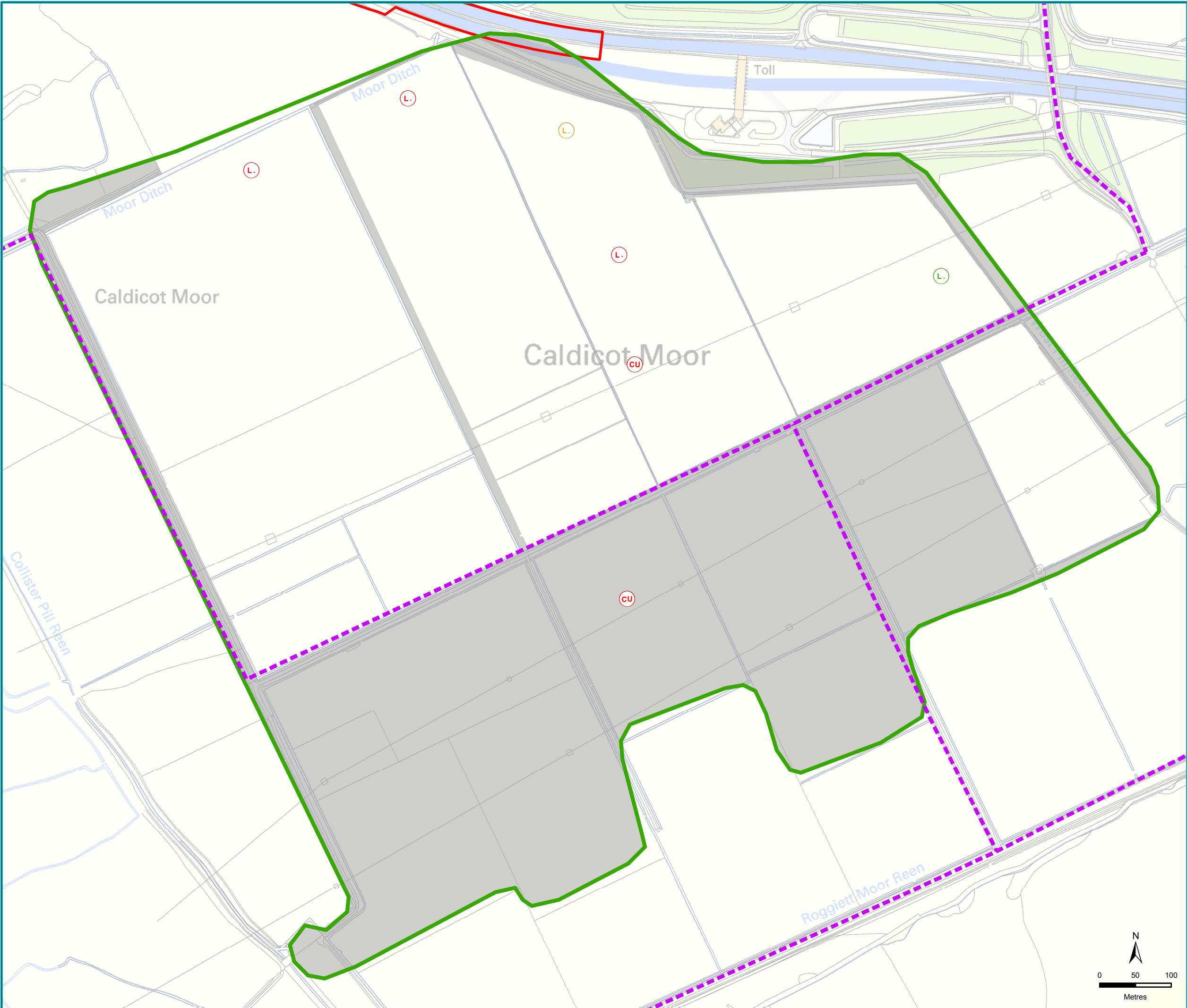
- Driven
- Footpath
- Scheme Outline
- Ground Nesting Wader Survey Areas
- No Access



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Figure Title			
Summary of Breeding Wader Survey Results - BWS3			



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Legend

**Bird Species**

(CU) Curlew

(L.) Lapwing

**Visit Number**

1

2

3

Footpath Access

Ground Nesting Wader Survey Areas

Scheme Outline

No Access

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Figure Number	
2g	
Figure Title	
Summary of Breeding Wader Survey Results - BWS4	

## 2. Introduction

### 2.1 Development Background

- 2.1.1 The Welsh Government proposes to build a new section of motorway to the south of Newport, Gwent and the proposals are known as M4 Corridor around Newport (M4CaN) and would hereafter be referred to as “the Scheme”. The new section of motorway would be located between Castleton to the west and Magor to the east extending approximately 23 km west to east (see Figure 1).

### 2.2 Ecology Background

- 2.2.1 Breeding bird surveys were undertaken by Arup in 2014, using a methodology adapted from the Breeding Bird Survey methodology described in Bibby *et al.* (2000) and Gilbert *et al.* (1998). The survey included “*eight breeding bird transects... designed to be representative of the predominant habitats suitable for breeding bird assemblages, and aimed to be evenly distributed along the corridor of land that forms the study area*”. The transects were undertaken three times between April and June 2014, at least two weeks apart. During the surveys, 75 species were recorded, of which 52 species were considered likely to be breeding based on their behaviour.

### 2.3 The Brief and Objectives

- 2.3.1 RPS commissioned Thomson Ecology on 1<sup>st</sup> May 2015 to undertake repeat breeding bird surveys and breeding wader surveys of selected transects previously surveyed by Arup in 2014. The brief was to include the following:

#### *Breeding Bird Survey*

- Survey of breeding birds based on walked transects within the three areas defined by RPS on the plan attached at Schedule 4 (email attachment 9<sup>th</sup> April 2015; Fig. 8235-0010-05 Figure 8 breeding birds).
- Survey to be carried out on three occasions during the period between April and June inclusive.
- Survey to be carried out in accordance with the method for Breeding Bird Survey (BBS) as set out in Bird Monitoring Methods (Gilbert *et al.*, 1998).
- A monthly report of data to be provided following completion of field survey.
- A factual report of survey including plans of bird records for each survey for each transect, (including transect route, and species and behaviours recorded) and overall summary plan for each transect to be completed by the end of July 2015.

#### *Breeding Wader Survey*

- Survey of breeding waders to be carried out to cover the areas defined on the plan at Schedule 4 (email attachment 9<sup>th</sup> April 2015; Fig. 8235-0010-05 Figure 8 breeding birds).
- Survey to be carried out on three occasions during the period between April and June inclusive (final visit to be completed before 18 June).

- Survey to be carried out in accordance with the O'Brien and Smith (1992) method for censusing lowland breeding wader populations as set out in Bird Monitoring Methods (Gilbert *et al.*, 1998).
- A monthly report of data to be provided following completion of field survey.
- A factual report of survey including plans of bird records for each survey for each transect (including transect route, and species and behaviours recorded), and overall summary plan for each transect to be completed by the end of July 2015.

## 2.4 Limitations

**2.4.1** Due to access restrictions, both the breeding bird surveys and breeding wader surveys were mostly restricted to transect routes along public roads and footpaths, the parts of the survey area where access was not permitted are shaded in grey, see Figures 2a to 2g, (and in Annex A Figures 3a to 3g, 4a to 4g and 5a to 5g). These limitations meant that much of the survey areas could not be surveyed. The standard breeding bird survey methodology could not therefore be followed, as this method requires two parallel transects spaced 500 m apart to be walked in each 1 km square surveyed (Gilbert *et al.*, 1998). A modified survey methodology was used that followed public access routes, and field boundaries where possible. The surveyors recorded birds as far as possible from the transect route, the distance of which varied with local conditions and weather. Therefore, the survey results only provide an indication of the extent of the breeding bird populations in the survey areas.

**2.4.2** The surveys were carried out during May and June 2015. No surveys were carried out during April as access was not available at that time. Breeding birds vary in detectability over short time periods, so some species may have finished singing by May. Resident species especially sing early in the spring (Bibby *et al.*, 2000) and so may have been under-recorded. Warblers also have brief song periods and then become quieter after mating. Some of these species may also be under-recorded.

**2.4.3** Access restrictions resulted in much of the breeding wader survey areas not being surveyed. A survey visit in April as recommended in Gilbert *et al.*, (1998) was not implemented as the surveys did not begin until May as access was not available.

**2.4.4** Weather conditions were generally good for surveying. Rain on 29<sup>th</sup> May 2015 was not considered to affect the results of the breeding wader survey on this day.

## 2.5 Surveyors

**2.5.1** The surveys were led by George Watola BSc MSc MCIEEM, who has over 25 years' experience of carrying out bird surveys in the UK and internationally. The survey team included Jennifer Care BSc MSc Grad CIEEM, Crona McMonagle BSc MSc Grad CIEEM, Emily Wallace BSc MSc Grad CIEEM and Chris Wildblood BSc MSc Grad CIEEM who are all experienced ornithologists.

### 3. Methodology

**3.1.1** The vernacular names, scientific names and taxonomic order of birds mentioned in this report follows the British List (BOU, 2015).

#### 3.2 Breeding Bird Survey

**3.2.1** Three breeding bird survey visits were undertaken during May and June 2015 within each of the three repeat survey areas, as defined by RPS. The three breeding bird survey areas are numbered from west to east as BBS1, BBS2 and BBS3 (see Figure 1).

**3.2.2** Transect routes were defined that followed public access roads and paths in each survey area, and where access was permitted transects were undertaken in fields. The transect routes followed on each visit and the areas where access was permitted are indicated on the figures (see Annex A Figures 3a to 3c, 4a to 4c, and 5a to 5c), with the transects carried out on permissible public roads labelled as 'Driven Access' and the transects on public footpaths labelled as 'Footpath Access'.

**3.2.3** All surveys began an hour after dawn (Bibby *et al.*, 2000) and finished at 12:00. All accessible field perimeters, paths, hedgerows and woodland were surveyed on the transect routes. The surveyor walked at a slow pace recording all bird activity. They also stopped approximately every 100 - 200 m to scan for and count the birds present, following the guidelines in Bibby *et al.* (2000). All birds were recorded, with the exception of flying large gulls.

**3.2.4** During each breeding bird survey, the location and species of all birds encountered (including both those seen and those heard) were recorded on a mobile mapper using standard British Trust for Ornithology (BTO) symbols. A single record could include either an individual, a pair, a family group or a flock of birds. Additional information was recorded on bird behaviour using standardised breeding activity codes (Hagemeijer and Blair, 1997); based on the activity recorded species were categorised as confirmed breeding, probable breeding, possible breeding or non-breeding. Details of breeding activities in each category are given in Annex B.

**3.2.5** The dates and the weather conditions recorded during the breeding bird surveys are shown in Table 1. On Visit 3, further access became available during a three-day period at BBS2.



Table 1: Breeding Bird Survey Dates and General Weather Conditions for the three survey visits in May and June 2015.

Visit Number	Date	Weather Conditions
Visit 1	12 <sup>th</sup> May	Light rain at first, later overcast
Visit 2	27 <sup>th</sup> May	Sunny, light winds
Visit 3	8 <sup>th</sup> - 10 <sup>th</sup> June	Sunny on 8 <sup>th</sup> ; cloudy on 9 <sup>th</sup> and 10 <sup>th</sup>

### 3.3 Breeding Wader Survey

- 3.3.1** The four breeding wader survey areas as defined by RPS were numbered from west to east as BWS1, BWS2, BWS3 and BWS4 (Figure 1). Three survey visits were undertaken in each of the four survey areas during May and June 2015 on the dates shown in Table 2.
- 3.3.2** The survey methodology followed that of O'Brien and Smith (1992) method for censusing lowland breeding wader populations as set out in Bird Monitoring Methods (Gilbert *et al.*, 1998) as much as access restrictions allowed. The first recommended visit was not carried out within the specified period of 15<sup>th</sup> April to 30<sup>th</sup> April as the contract was not signed until the 1<sup>st</sup> May.
- 3.3.3** Transect routes were defined that followed public access roads and paths in each survey area, and where access was permitted transects were undertaken in fields. The routes followed on each visit and the areas where access was permitted are indicated on the figures (see Annex A, Figures 3d to 3g, 4d to 4g, and 5d to 5g), with the transects carried out on permissible public roads labelled as 'Driven Access' and the transects on public footpaths labelled as 'Footpath Access'.
- 3.3.4** During each breeding wader survey the location and species of the five wader species being surveyed for were recorded on a mobile mapper using standard British Trust for Ornithology (BTO) symbols. Additional information was recorded on bird behaviour using standardised breeding activity codes (Hagemeijer and Blair, 1997); based on the activity recorded species were categorised as confirmed breeding, probable breeding, possible breeding or non-breeding. Details of activities in each category are given in Annex B.
- 3.3.5** The five waders surveyed for were lapwing (*Vanellus vanellus*), curlew (*Numenius arquata*), redshank (*Tringa totanus*), oystercatcher (*Haematopus ostralegus*) and common snipe (*Gallinago gallinago*). The species selected were those included in the O'Brien and Smith (1992) methodology.
- 3.3.6** The dates and the weather conditions recorded during the breeding wader surveys are shown in Table 2.

Table 2: Breeding Wader Survey Dates and General Weather Conditions for the three survey visits in May and June 2015.

Visit Number	Date	Weather Conditions
Visit 1	7 <sup>th</sup> & 8 <sup>th</sup> May	Sunny
Visit 2	28 <sup>th</sup> & 29 <sup>th</sup> May	Sunny on 28 <sup>th</sup> ; Rain on 29 <sup>th</sup>
Visit 3	9 <sup>th</sup> & 10 <sup>th</sup> June	Cloudy on 9 <sup>th</sup> and 10 <sup>th</sup>

## 4. Results

### 4.1 Breeding Bird Survey

- 4.1.1** For each bird seen or heard, their species, behaviour and the number of occurrences of each behaviour were recorded. The breeding status of each bird species as assessed from their behaviour for each of the three breeding bird survey areas is presented in Annex C.
- 4.1.2** The location of all records for all birds on each survey visit and at each survey area, the transect routes which were followed on each visit and the areas where access was permitted are shown in Annex A, Figures 3a to 3c, 4a to 4c, and 5a to 5c. The proportions of the areas surveyed varied between visits dependent on the level of access that was permitted. The transect routes that were taken on each visit varied slightly due to the different access permissions; the routes taken each visit are shown on their respective figures. The total records for all three survey visits for each survey area are provided in Figures 2a to 2c.
- 4.1.3** A total of forty-six species were recorded across the site over the three survey visits, of which forty-two species were recorded to be confirmed, probable or possible breeding.
- 4.1.4** Twenty species were confirmed breeding in at least one survey area on at least one survey visit, including two red listed,<sup>1</sup> Section 42<sup>2</sup> species; house sparrow (*Passer domesticus*) and song thrush (*Turdus philomelos*) and one amber listed<sup>3</sup> species; whitethroat (*Sylvia communis*).
- 4.1.5** Other species confirmed breeding that are not species of conservation concern and include; sedge warbler (*Acrocephalus schoenobaenus*), buzzard (*Buteo buteo*), goldfinch (*Carduelis carduelis*), woodpigeon (*Columba palumbus*), carrion crow (*Corvus corone*), rook (*Corvus frugilegus*), blue tit (*Cyanistes caeruleus*), great spotted woodpecker (*Dendrocopos major*), robin (*Erithacus rubecula*), chaffinch (*Fringilla coelebs*), moorhen (*Gallinula chloropus*), swallow (*Hirundo rustica*), pied wagtail (*Motacilla alba*), great tit (*Parus major*), chiffchaff (*Phylloscopus collybita*), magpie (*Pica pica*), and blackbird (*Turdus merula*).
- 4.1.6** Three species were probably breeding on site following the criteria set out in Annex B, including amber listed<sup>3</sup>, Section 42<sup>2</sup> species bullfinch (*Pyrrhula pyrrhula*) and amber listed<sup>3</sup> blackcap (*Sylvia atricapilla*), and reed warbler (*Acrocephalus scirpaceus*) which is not of conservation concern.
- 4.1.7** Nineteen species were recorded which were possibly breeding on site as they were recorded in suitable habitat, including Cetti's warbler (*Cettia cetti*) which is listed on Schedule 1 of the

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<sup>1</sup> On the red list of birds of conservation concern in the UK (Eaton *et al*, 2009)

<sup>2</sup> Listed as a species of principal importance for nature conservation in Wales under Section 42 of the Natural Environment and Rural Communities Act (2006)

<sup>3</sup> On the amber list of birds of conservation concern in the UK (Eaton *et al*, 2009)

Wildlife and Countryside Act (1981), as amended. This species was observed in suitable habitat, not displaying any other behaviours that would result in a higher certainty of breeding, but it is worth noting that this species is very sedentary and would more than likely be breeding near-by. There were also four species listed on Section 42 including two red list species; tree sparrow (*Passer montanus*) and starling (*Sturnus vulgaris*), and two amber species; dunnoek (*Prunella modularis*) and kestrel (*Falco tinnunculus*).

**4.1.8** Other possibly breeding species recorded include amber listed mallard (*Anas platyrhynchos*), stock dove (*Columba oenas*), green woodpecker (*Picus viridis*) and mistle thrush (*Turdus viscivorus*) and ten species which are not listed as birds of conservation concern; long-tailed tit (*Aegithalos caudatus*), treecreeper (*Certhia familiaris*), greenfinch (*Chloris chloris*), feral pigeon (*Columba livia*), cuckoo (*Cuculus canorus*), jay (*Garrulus glandarius*), willow warbler (*Phylloscopus trochilus*) collared dove (*Streptopelia decaocto*), lesser whitethroat (*Sylvia curruca*) and wren (*Troglodytes troglodytes*).

**4.1.9** A summary of species confirmed, probable or possible breeding on site is given in the table in Section 5.1.

**4.1.10** Four of the species recorded were not in suitable breeding habitat and did not display any behaviours indicating breeding (non-breeding); grey heron (*Ardea cinerea*), little egret (*Egretta garzetta*), cormorant (*Phalacrocorax carbo*), and peregrine (*Falco peregrinus*). The latter was recorded carrying food but this may have been prey for itself and so it is not used as an indication of breeding behaviour.

**4.1.11** A total of 819 individual bird records were registered: 258 records within survey area BBS1, 320 records within survey area BBS2 and 241 records within survey area BBS3. On the visits, 166 records were registered on the first visit, 266 records on the second, and 387 records on the third visit.

## **4.2 Breeding Wader Survey**

**4.2.1** Access restrictions largely limited the surveys to public roads and footpaths, although on the second visit more fields were accessible compared to the first and third visits. The location of all records for all birds on each survey visit within each survey area and the areas where access was permitted are shown on Annex A Figures 3d to 3g, 4d to 4g, and 5d to 5g. The total records for all three survey visits for each survey area are provided in Figures 2d to 2g. Annex D presents tables showing breeding waders recorded, breeding status, behaviours and number of records of each behaviour in BWS1 and BWS4 in May and June 2015.

**4.2.2** Two wading bird species were recorded: lapwing and curlew. Lapwing were confirmed breeding in survey area BWS1 and possible breeding in BWS4. Curlew were possibly breeding in survey area BWS4. No breeding waders were recorded in survey areas BWS2 and BWS3.

**4.2.3** Both species are listed as species of principal importance for nature conservation under Section 42 of the Natural Environment and Rural Communities Act (2006); lapwing is also on the red list of birds of conservation concern, and curlew is amber listed.

## 5. Conclusion

### 5.1 Breeding Bird Survey

**5.1.1** Forty-six bird species were recorded during the breeding bird survey. Forty-two species were considered to be confirmed, probably or possibly breeding, based on observed behaviour. The methodology used for survey was not designed to allow for territory mapping and so population size could not be estimated. However, Table 3 gives the likely importance of a breeding population based on the following criteria.

- **International:** species that are listed as a reason for designation of a Special Area of Conservation (SAC) or Special Protection Area (SPA).
- **National:** species that are listed as a reason for designation of a Site of Special Scientific Interest (SSSI), species listed on Schedule 1 of the Wildlife and Countryside Act (1981), as amended.
- **County:** Local Biodiversity Action Plan species, birds of conservation concern (red and amber listed).
- **Local:** all other species.

Table 3: Summary of species confirmed, probable and possible breeding and breeding population importance

Common Name	Species Name	Conservation Status	Status in Survey Areas	Breeding population importance
<b>National</b>				
Cetti's warbler	<i>Cettia cetti</i>	WCA Sch 1	Possible breeding	National
<b>County</b>				
Whitethroat	<i>Sylvia communis</i>	Amber list	Confirmed breeding	County
House sparrow	<i>Passer domesticus</i>	Red list, NERC S42	Confirmed breeding	County
Song thrush	<i>Turdus philomelos</i>	Red list, NERC S42	Confirmed breeding	County
Bullfinch	<i>Pyrrhula pyrrhula</i>	Amber list, NERC S42	Probable breeding	County
Mallard	<i>Anas platyrhynchos</i>	Amber list	Possible breeding	County
Stock dove	<i>Columba oenas</i>	Amber list	Possible breeding	County
Green woodpecker	<i>Picus viridis</i>	Amber list	Possible breeding	County
Mistle thrush	<i>Turdus viscivorus</i>	Amber list	Possible breeding	County
Kestrel	<i>Falco tinnunculus</i>	Amber list, NERC S42	Possible breeding	County

Common Name	Species Name	Conservation Status	Status in Survey Areas	Breeding population importance
Dunnock	<i>Prunella modularis</i>	Amber list, WCA S42	Possible breeding	County
Tree sparrow	<i>Passer montanus</i>	Red list, NERC S42	Possible breeding	County
Starling	<i>Sturnus vulgaris</i>	Red list, NERC S42	Possible breeding	County
<b>Local</b>				
Sedge warbler	<i>Acrocephalus schoenobaenus</i>	-	Confirmed breeding	Local
Buzzard	<i>Buteo buteo</i>	-	Confirmed breeding	Local
Goldfinch	<i>Carduelis carduelis</i>	-	Confirmed breeding	Local
Woodpigeon	<i>Columba palumbus</i>	-	Confirmed breeding	Local
Carrion crow	<i>Corvus corone</i>	-	Confirmed breeding	Local
Rook	<i>Corvus frugilegus</i>	-	Confirmed breeding	Local
Blue tit	<i>Cyanistes caeruleus</i>	-	Confirmed breeding	Local
Great spotted woodpecker	<i>Dendrocopos major</i>	-	Confirmed breeding	Local
Robin	<i>Erithacus rubecula</i>	-	Confirmed breeding	Local
Chaffinch	<i>Fringilla coelebs</i>	-	Confirmed breeding	Local
Moorhen	<i>Gallinula chloropus</i>	-	Confirmed breeding	Local
Swallow	<i>Hirundo rustica</i>	-	Confirmed breeding	Local
Pied wagtail	<i>Motacilla alba</i>	-	Confirmed breeding	Local
Great tit	<i>Parus major</i>	-	Confirmed breeding	Local
Chiffchaff	<i>Phylloscopus collybita</i>	-	Confirmed breeding	Local
Magpie	<i>Pica pica</i>	-	Confirmed breeding	Local
Blackbird	<i>Turdus merula</i>	-	Confirmed breeding	Local
Blackcap	<i>Sylvia atricapilla</i>	-	Probable breeding	Local
Reed warbler	<i>Acrocephalus scirpaceus</i>	-	Probable breeding	Local
Long-tailed tit	<i>Aegithalos caudatus</i>	-	Possible breeding	Local
Treecreeper	<i>Certhia familiaris</i>	-	Possible breeding	Local
Greenfinch	<i>Chloris chloris</i>	-	Possible breeding	Local
Feral pigeon	<i>Columba livia</i>	-	Possible breeding	Local
Cuckoo	<i>Cuculus canorus</i>	-	Possible breeding	Local
Jay	<i>Garrulus glandarius</i>	-	Possible breeding	Local



Common Name	Species Name	Conservation Status	Status in Survey Areas	Breeding population importance
Collared dove	<i>Streptopelia decaocto</i>	-	Possible breeding	Local
Lesser whitethroat	<i>Sylvia curruca</i>	-	Possible breeding	Local
Wren	<i>Troglodytes troglodytes</i>	-	Possible breeding	Local
Willow warbler	<i>Phylloscopus trochilus</i>	-	Possible breeding	Local

## 5.2 Breeding Wader Survey

5.2.1 Lapwing were found breeding in the westernmost and easternmost survey areas, BWS1 and BWS4 respectively. There were only two records of curlew, on Visit 1 in survey area BWS4. Wading bird species are summarised in Table 4.

Table 4: Summary of wading bird species confirmed, probable and possible breeding and breeding population importance

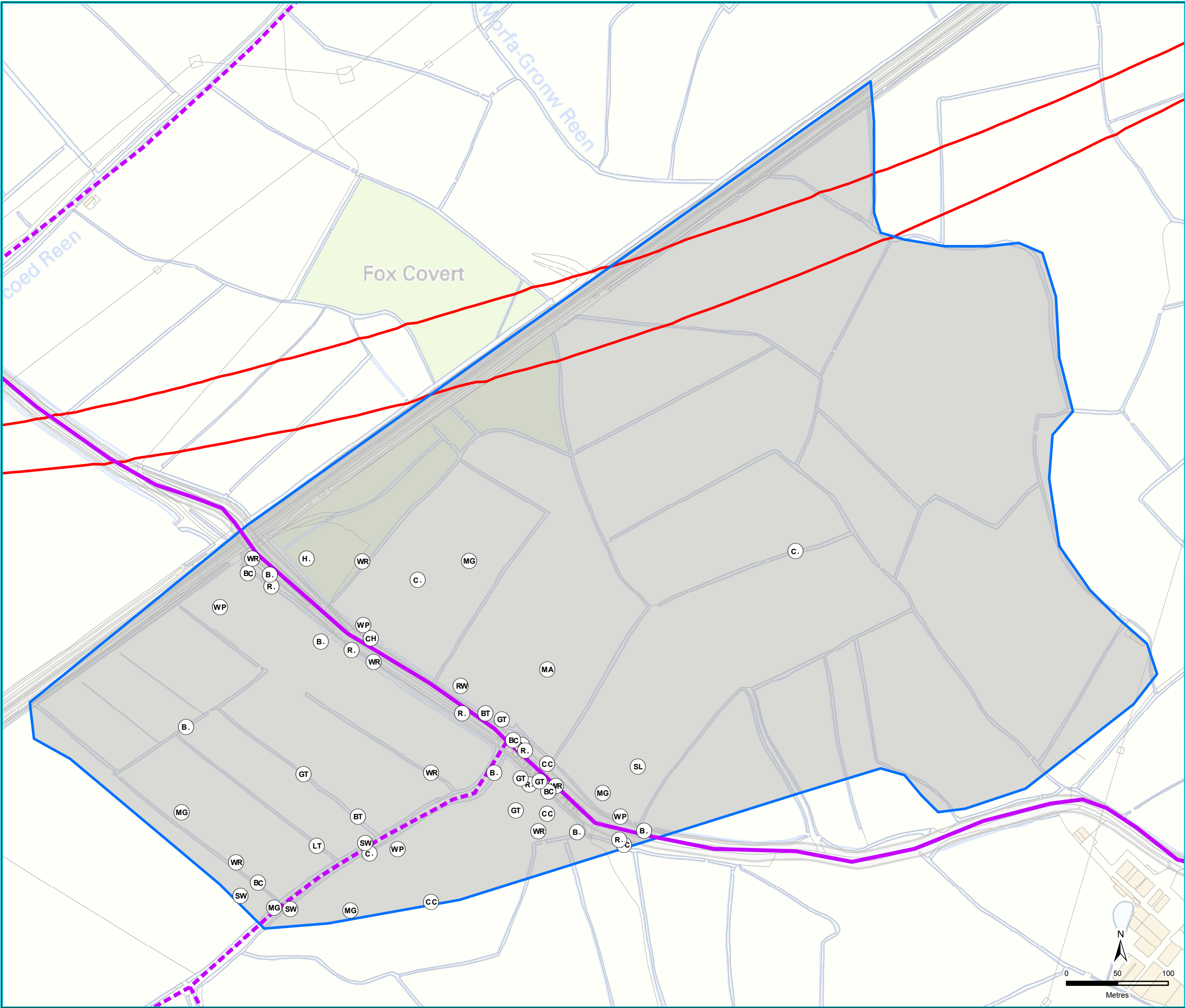
Common Name	Species Name	Conservation Status	Status in Survey Areas	Breeding population importance
<b>County</b>				
Lapwing	<i>Vanellus vanellus</i>	Red list, NERC S42	Probable breeding	County
Curlew	<i>Numenius arquata</i>	Amber list, NERC S42	Possible breeding	County

## 6. References

- 6.1.1 Bibby, C. J., Burgess, N. D. and Hill, D. A. (2000). *Bird Census Techniques*. Academic Press, London.
- 6.1.2 British Ornithologists' Union (BOU) (2015). *The British List: The Official List of Bird Species Recorded in Britain*.
- 6.1.3 Eaton M.A., Brown A.F., Noble, D.G., Musgrove, A.J., Aebischer, N.J., Gibbons, D.W., Evans, A., and Gregory, R.D. (2009) Birds of Conservation Concern 3: the population status of birds in the United Kingdom, Channel Islands and the Isle of Man. *British Birds* 102, pp296-341
- 6.1.4 European Commission (1979) *Birds Directive 79/409/EEC as amended*
- 6.1.5 Gilbert, G., Gibbons, D. W. and Evans, J. (1998). *Bird Monitoring Methods: A Manual of Techniques for Key UK Species*. RSPB, Sandy.
- 6.1.6 Harris, S.J., Massimino, D., Newson, S.E., Eaton, M.A., Balmer, D.E., Noble, D.G., Musgrove, A.J., Gillings, S., Procter, D. & Pearce-Higgins, J.W. (2015) *The Breeding Bird Survey 2014*. BTO Research Report 673. British Trust for Ornithology, Thetford.
- 6.1.7 Hagemeyer, W.J.M. and Blair, M (1997) *The EBCC Atlas of European Breeding Birds: Their Distribution and Abundance*. Poyser
- 6.1.8 HM Government (1981) *Wildlife and Countryside Act as amended*
- 6.1.9 HM Government (2006) *Natural Environment and Rural Communities (NERC) Act*
- 6.1.10 O'Brien, M. & Smith, K.W. (1992) Changes in the status of waders breeding on wet lowland grassland in England and Wales between 1982 and 1989. *Bird Study* 39: 165-176.

## Annex A - Figures

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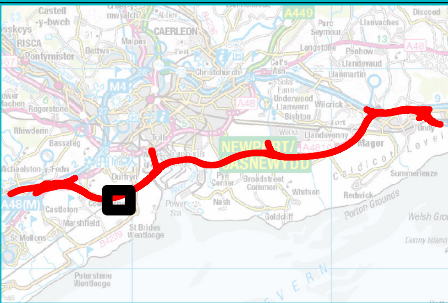


Legend

Bird Species

- (B.) Blackbird
- (BC) Blackcap
- (BT) Blue Tit
- (C.) Carrion Crow
- (CC) Chiffchaff
- (CH) Chaffinch
- (GT) Great Tit
- (H.) Grey Heron
- (LT) Long Tailed Tit
- (MA) Mallard
- (MG) Maggie
- (R.) Robin
- (RW) Reed Warbler
- (SL) Swallow
- (SW) Sedge Warbler
- (WP) Wood Pigeon
- (WR) Wren

- [Red Outline] Scheme Outline
- [Blue Outline] Breeding Bird Survey Area
- [Grey Fill] No Access
- [Purple Line] Driven Access
- [Dashed Purple Line] Footpath Access

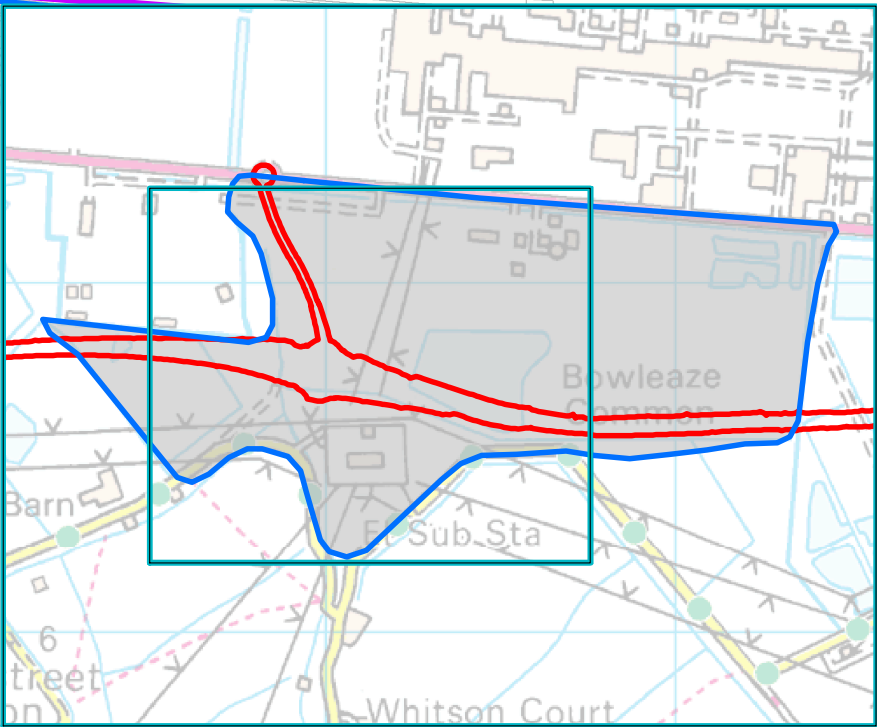
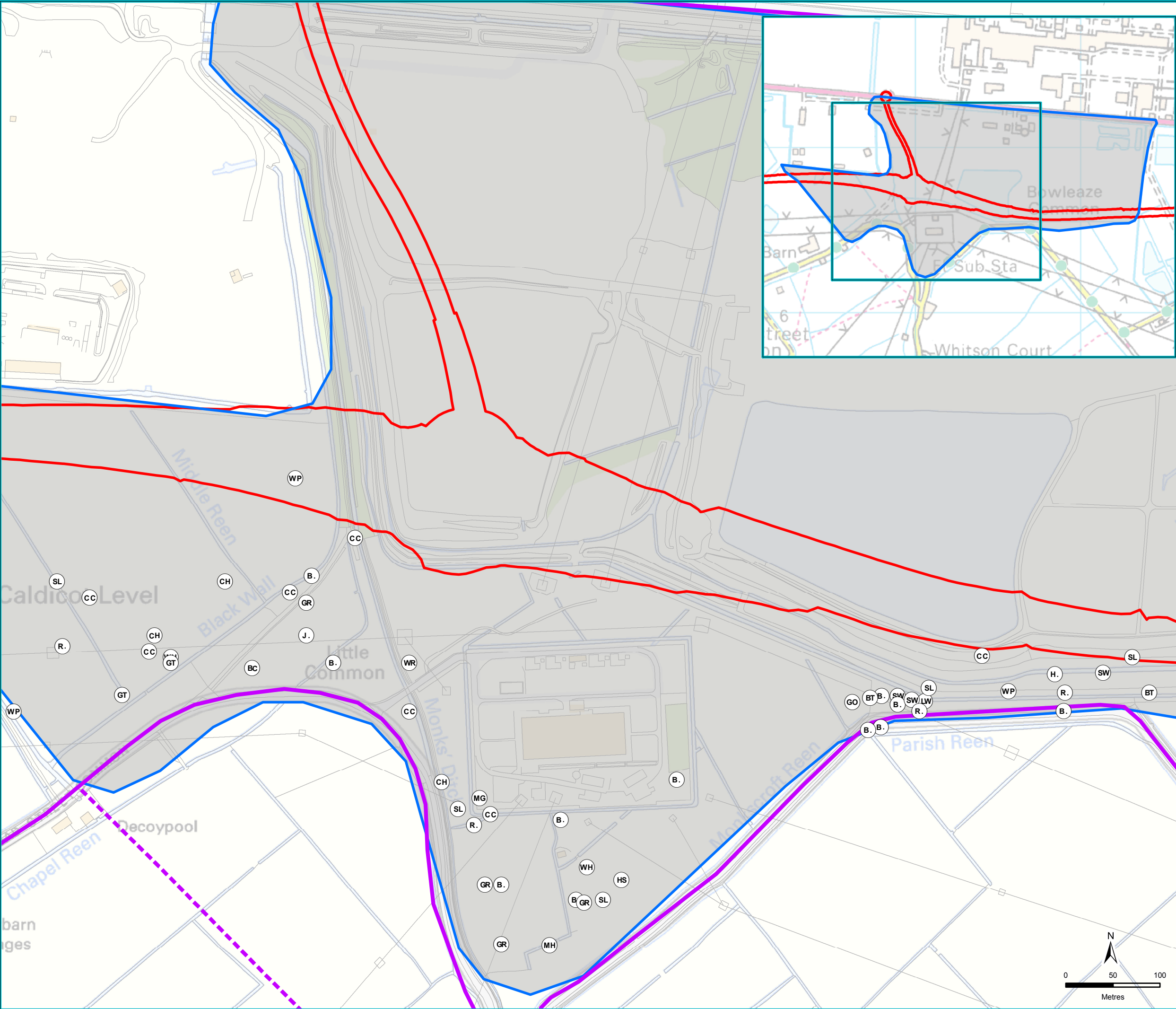



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Figure Title			

Breeding Bird Survey  
Results - BBS1 Visit 1



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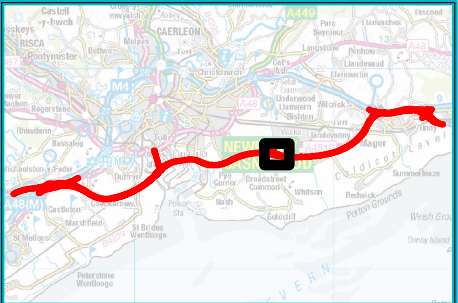


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Legend

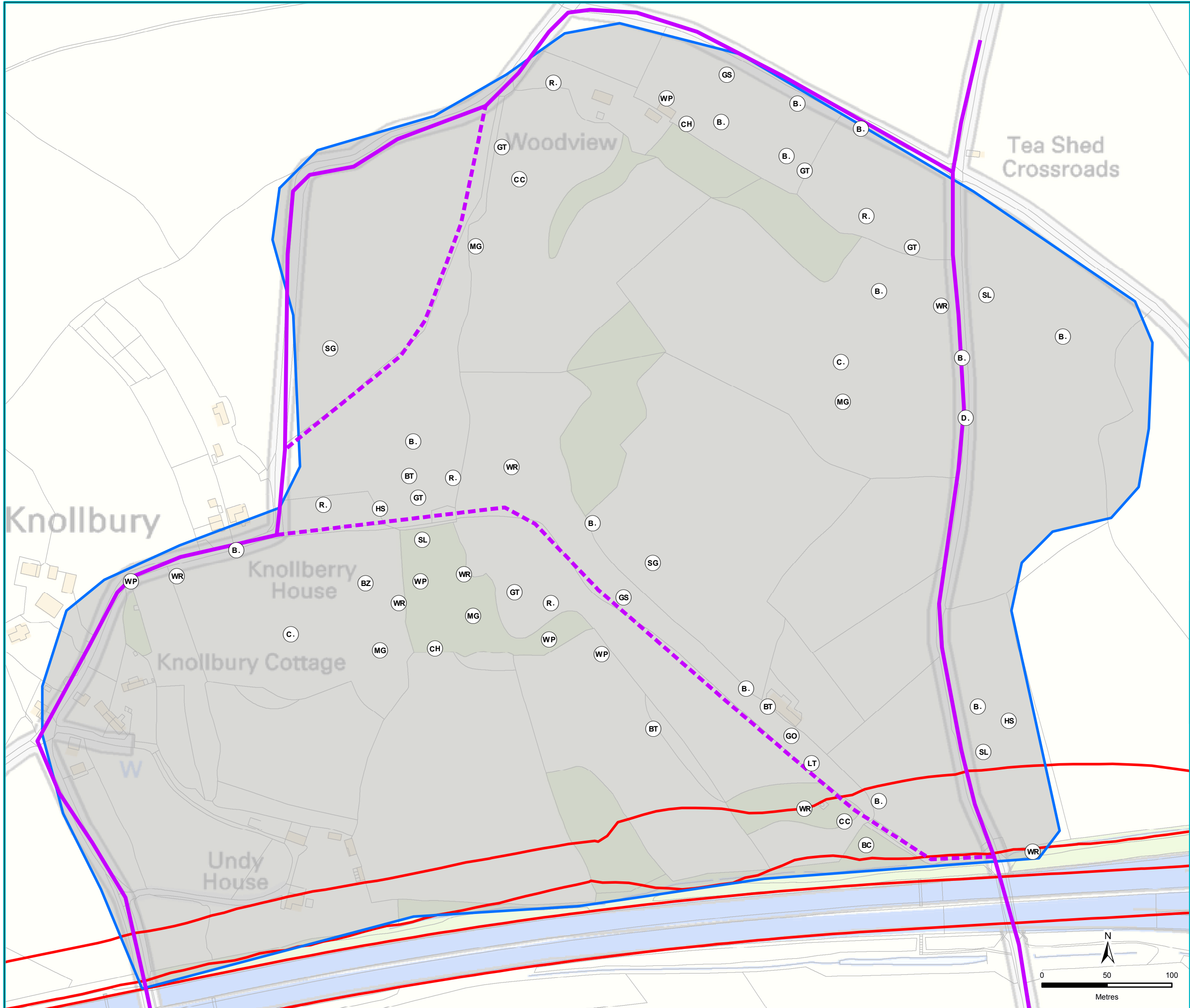
**Bird Species**

(B.)	Blackbird	Driven Access
(BC)	Blackcap	Footpath Access
(BT)	Blue Tit	
(CC)	Chiffchaff	
(CH)	Chaffinch	
(GO)	Goldfinch	
(GR)	Greenfinch	
(GT)	Great Tit	
(H.)	Grey Heron	
(HS)	House Sparrow	
(J.)	Jay	
(LW)	Lesser Whitethroat	
(MG)	Magpie	
(MH)	Moorhen	
(R.)	Robin	
(SL)	Swallow	
(SW)	Sedge Warbler	
(WH)	Whitethroat	
(WP)	Wood Pigeon	
(WR)	Wren	
[Red Outline]	Scheme Outline	
[Blue Outline]	Breeding Bird Survey Area	
[Grey Area]	No Access	



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Legend

**Bird Species**

- (B.) Blackbird
- (BC) Blackcap
- (BT) Blue Tit
- (BZ) Buzzard
- (C.) Carrion Crow
- (CC) Chiffchaff
- (CH) Chaffinch
- (D.) Dunnock
- (GO) Goldfinch
- (GS) Great Spotted Woodpecker
- (GT) Great Tit
- (HS) House Sparrow
- (LT) Long Tailed Tit
- (MG) Magpie
- (R.) Robin
- (SG) Starling
- (SL) Swallow
- (WP) Wood Pigeon
- (WR) Wren

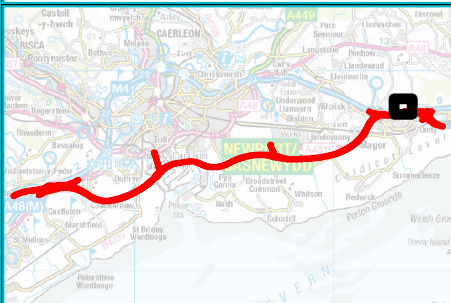
— Driven Access

- - Footpath Access

Scheme Outline

Breeding Bird Survey Area

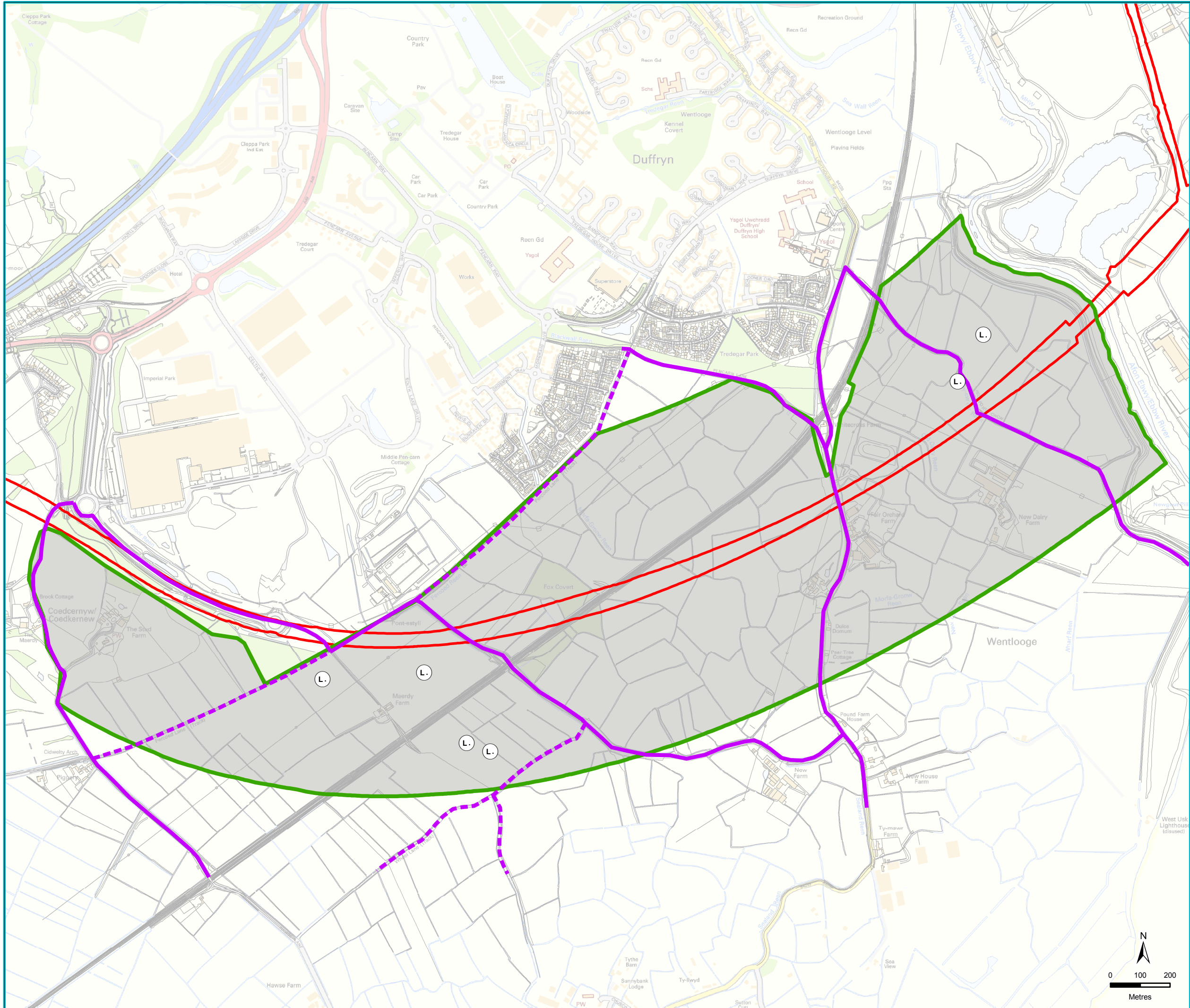
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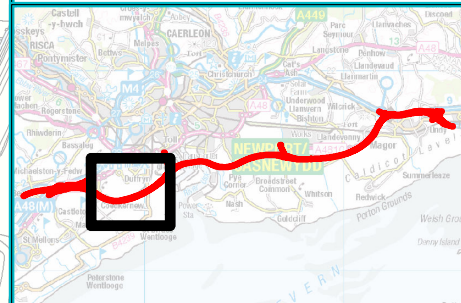
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Breeding Bird Survey Results - BBS3 Visit 1			



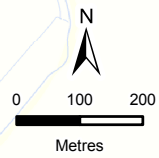
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- Legend
- Bird Species**
- L. Lapwing
- Access**
- Driven Access
  - - Footpath Access
- Other Features**
- Scheme Outline
  - Ground Nesting Wader Survey Areas
  - No Access

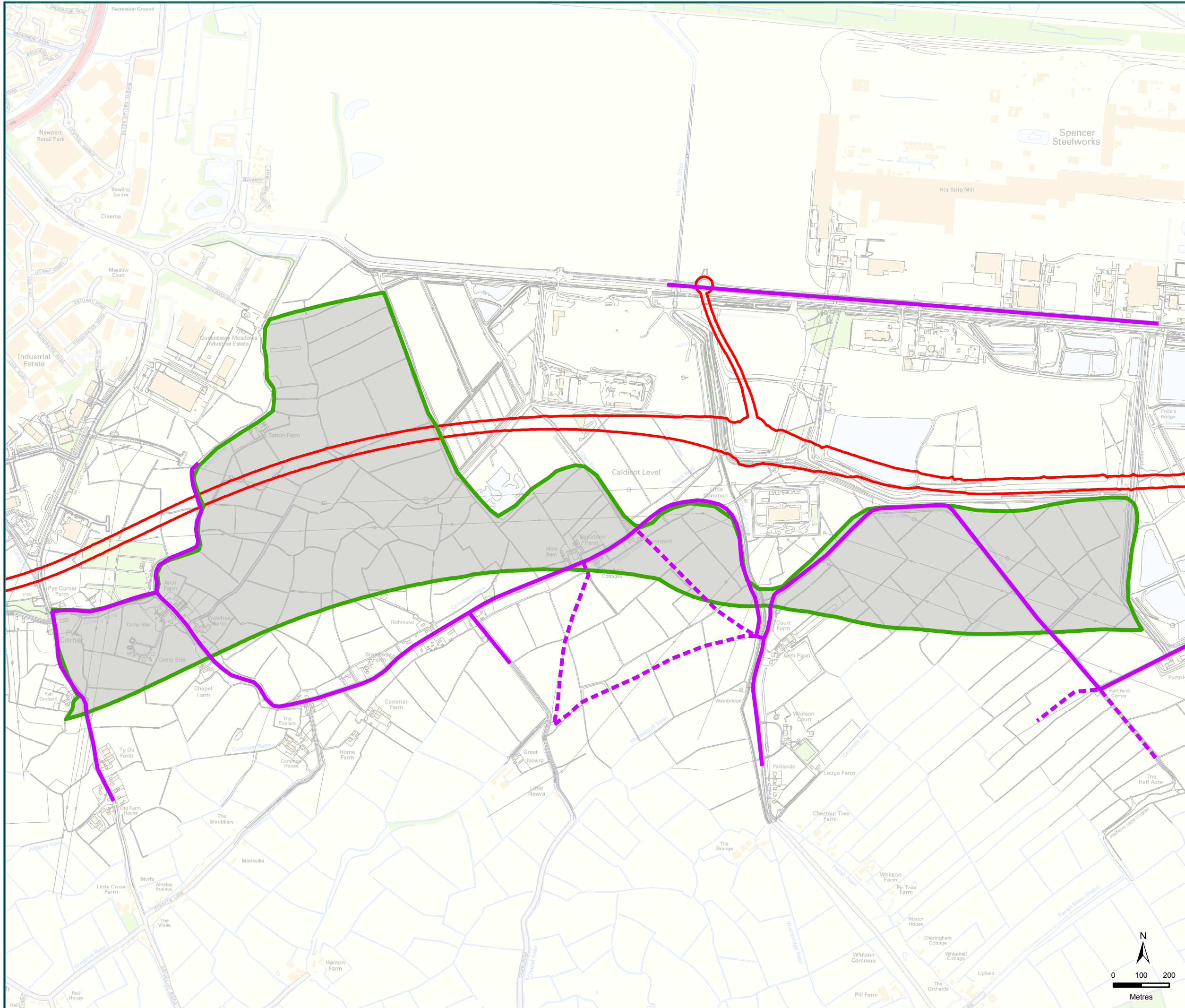


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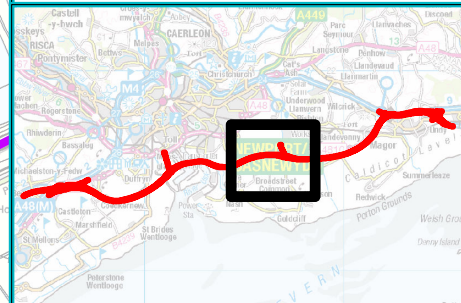




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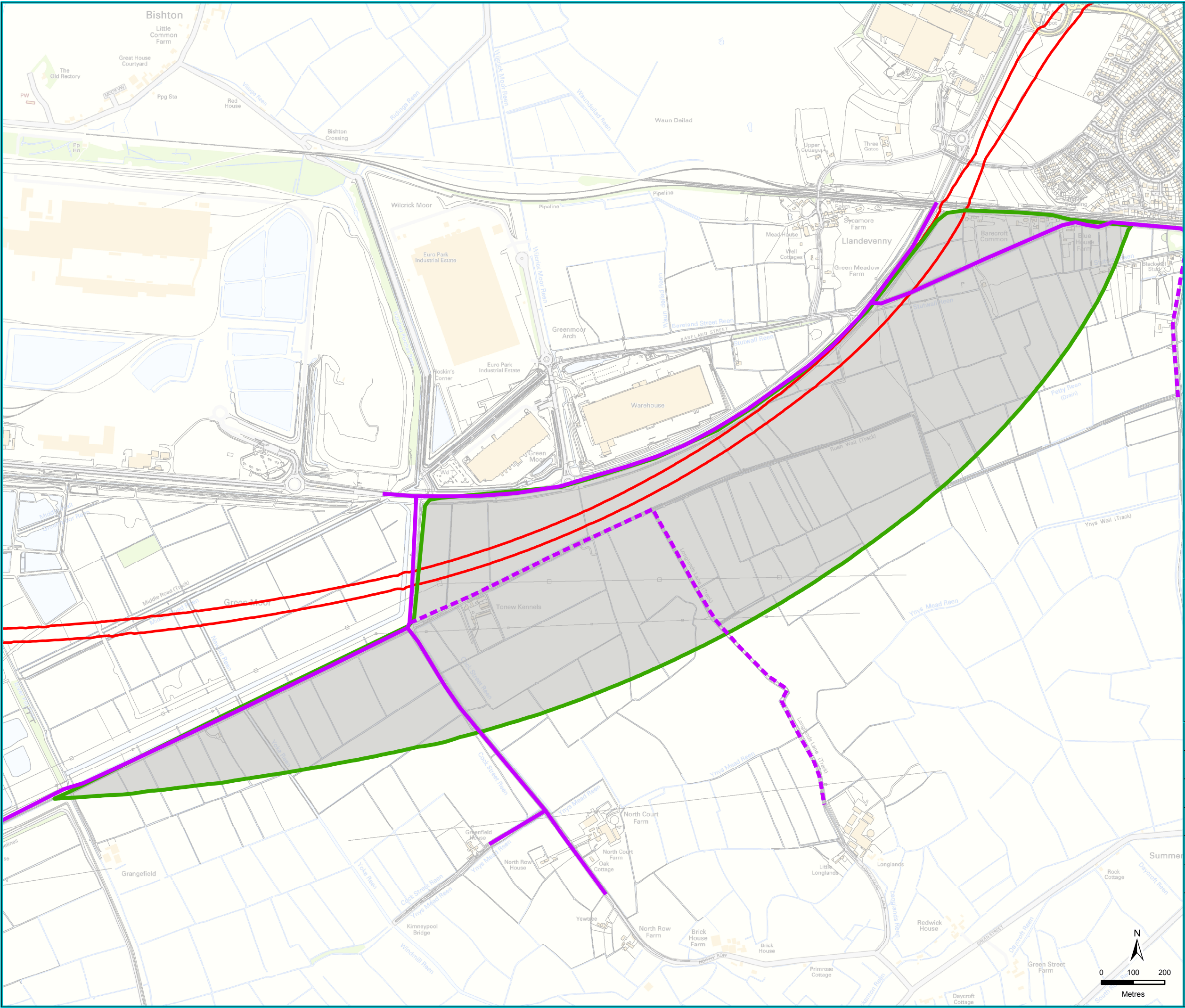


- Legend
- Driven
  - Footpath
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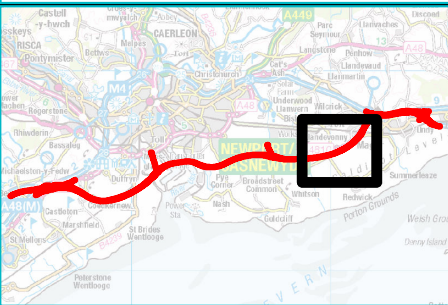
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Breeding Wader Survey Results - BWS2 Visit 1			





### Legend

- Driven
- - - Footpath
- Scheme Outline
- Ground Nesting Wader Survey Areas
- No Access



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Drawn	Checked
KM	AC

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Client **RPS**

Figure Number 3f

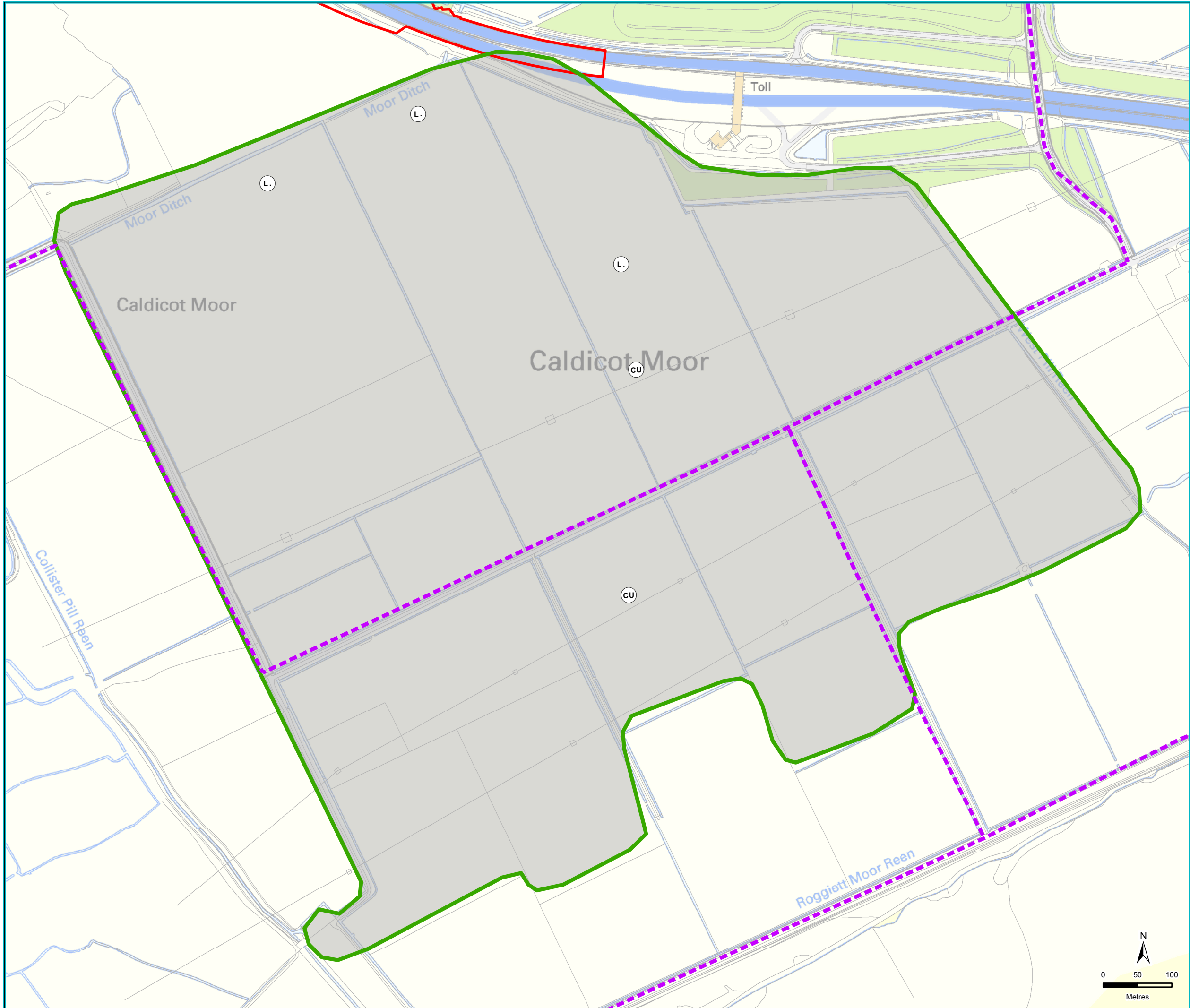
Figure Title

Breeding Wader Survey  
Results - BWS3 Visit 1

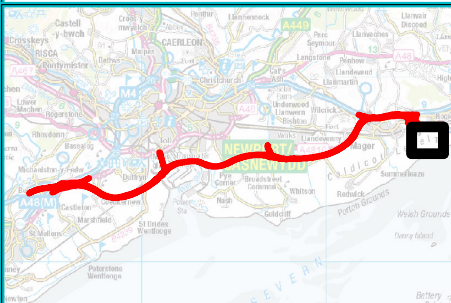
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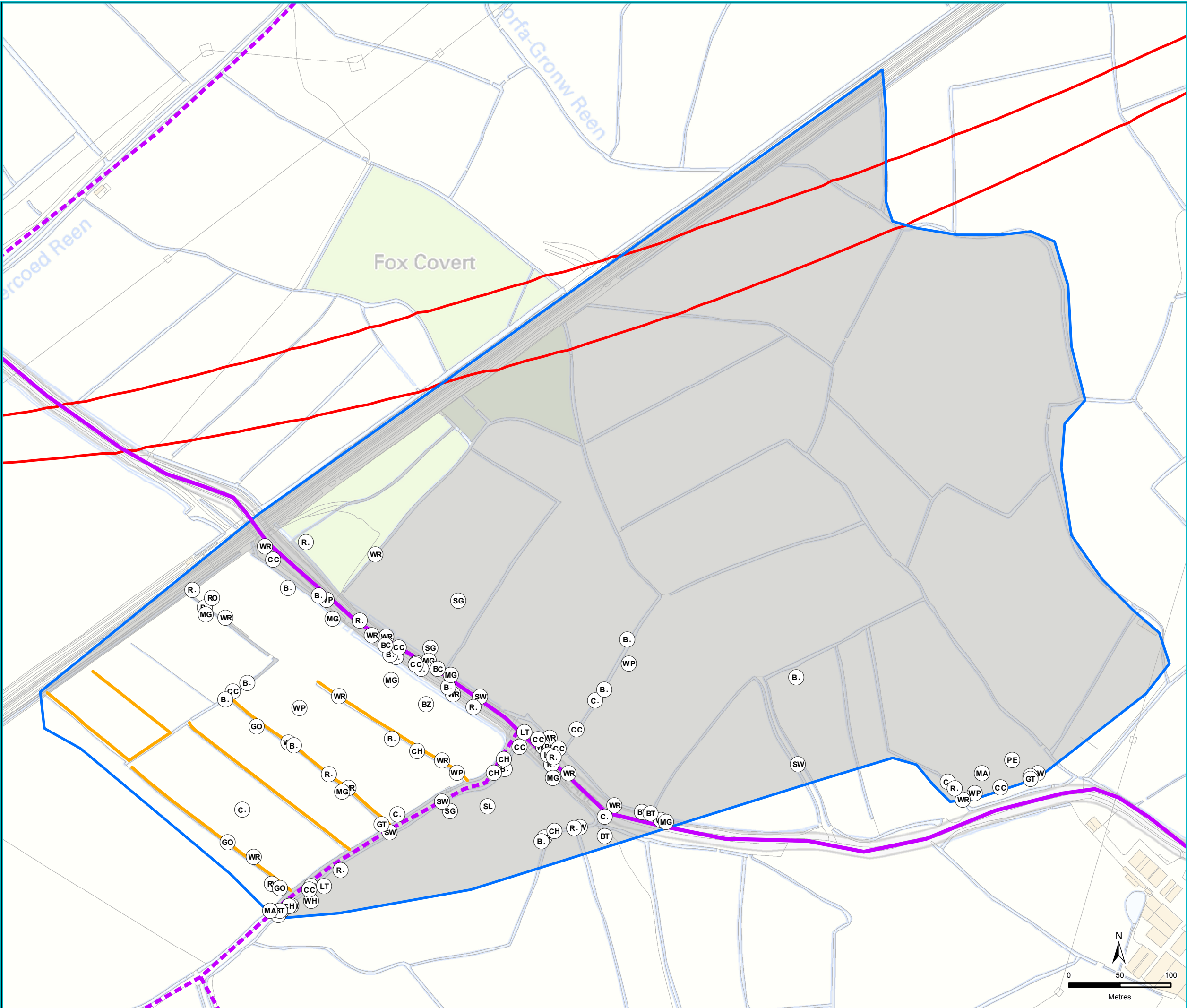
- Legend
- Bird Species**
- (CU) Curlew
  - (L.) Lapwing
- Access**
- Driven Access
  - Footpath
  - Scheme Outline
  - Ground Nesting Wader Survey Areas
  - No Access



Drawing Ref		MRPS108/18851/1	
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Date	24/06/2015	Date	24/06/2015
Client		RPS	
Figure Number		3g	
Figure Title			
Breeding Wader Survey Results - BWS4 Visit 1			



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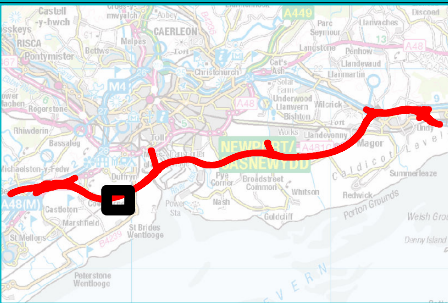
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Legend

Bird Species

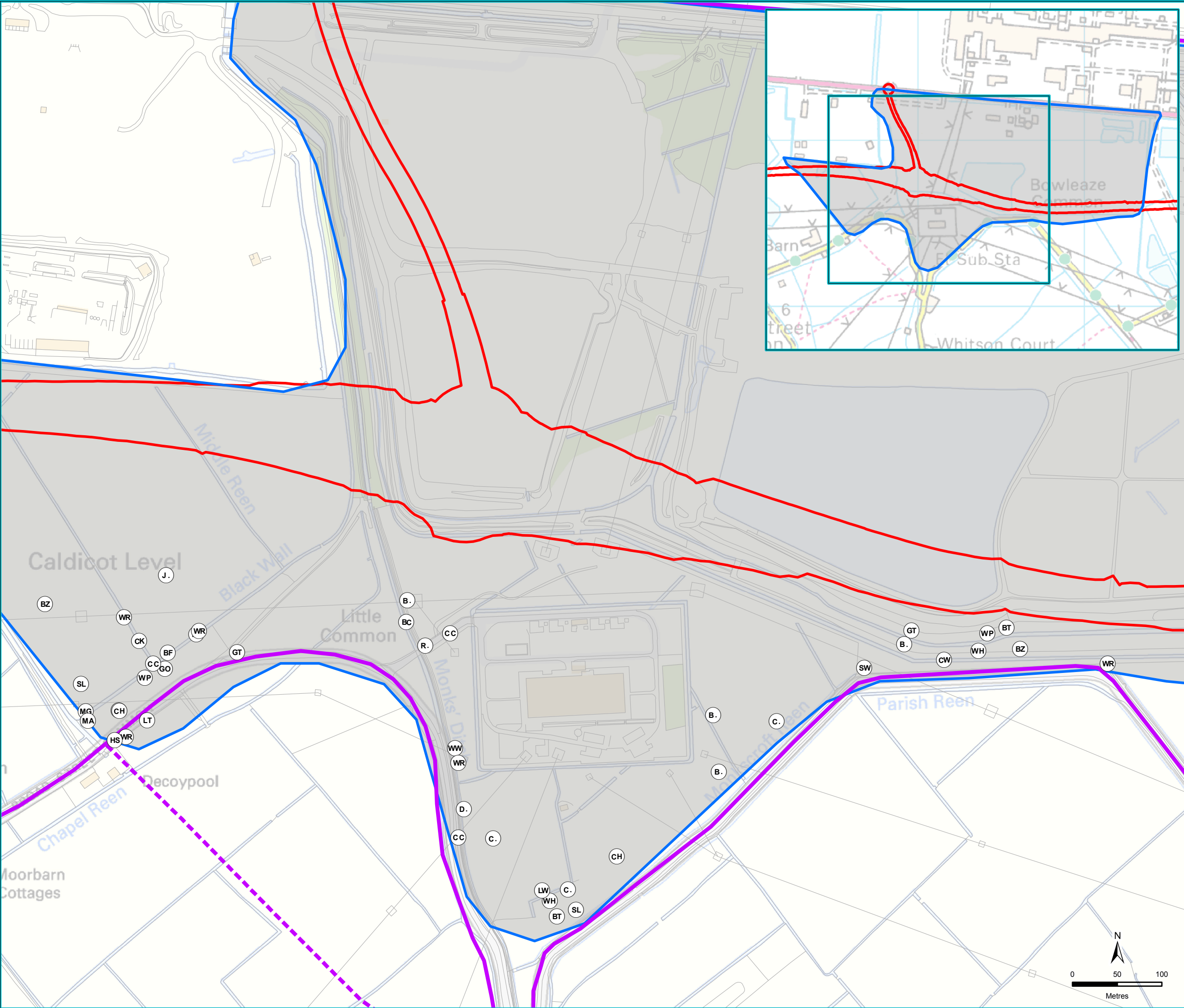
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|----------------------|---------------------------|
| (B.) Blackbird       | (RW) Reed Warbler         |
| (BC) Blackcap        | (SG) Starling             |
| (BT) Blue Tit        | (SL) Swallow              |
| (BZ) Buzzard         | (SW) Sedge Warbler        |
| (C.) Carrion Crow    | (WH) Whitethroat          |
| (CC) Chiffchaff      | (WP) Wood Pigeon          |
| (CH) Chaffinch       | (WR) Wren                 |
| (GO) Goldfinch       |                           |
| (GT) Great Tit       |                           |
| (LT) Long Tailed Tit | Field Transect            |
| (MA) Mallard         | Driven Access             |
| (MG) Magpie          | Footpath Access           |
| (PE) Peregrine       | Breeding Bird Survey Area |
| (R.) Robin           | Scheme Outline            |
| (RO) Rook            | No Access                 |




Drawing Ref MRPS108/18852/1	
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Client RPS	
Figure Number 4a	
Figure Title Breeding Bird Survey Results - BBS1 Visit 2	



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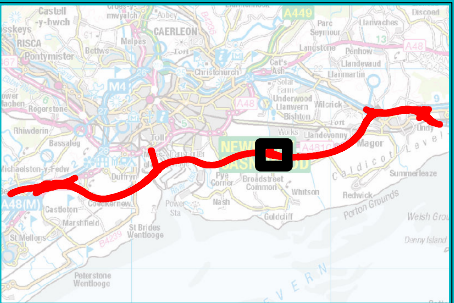


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Legend

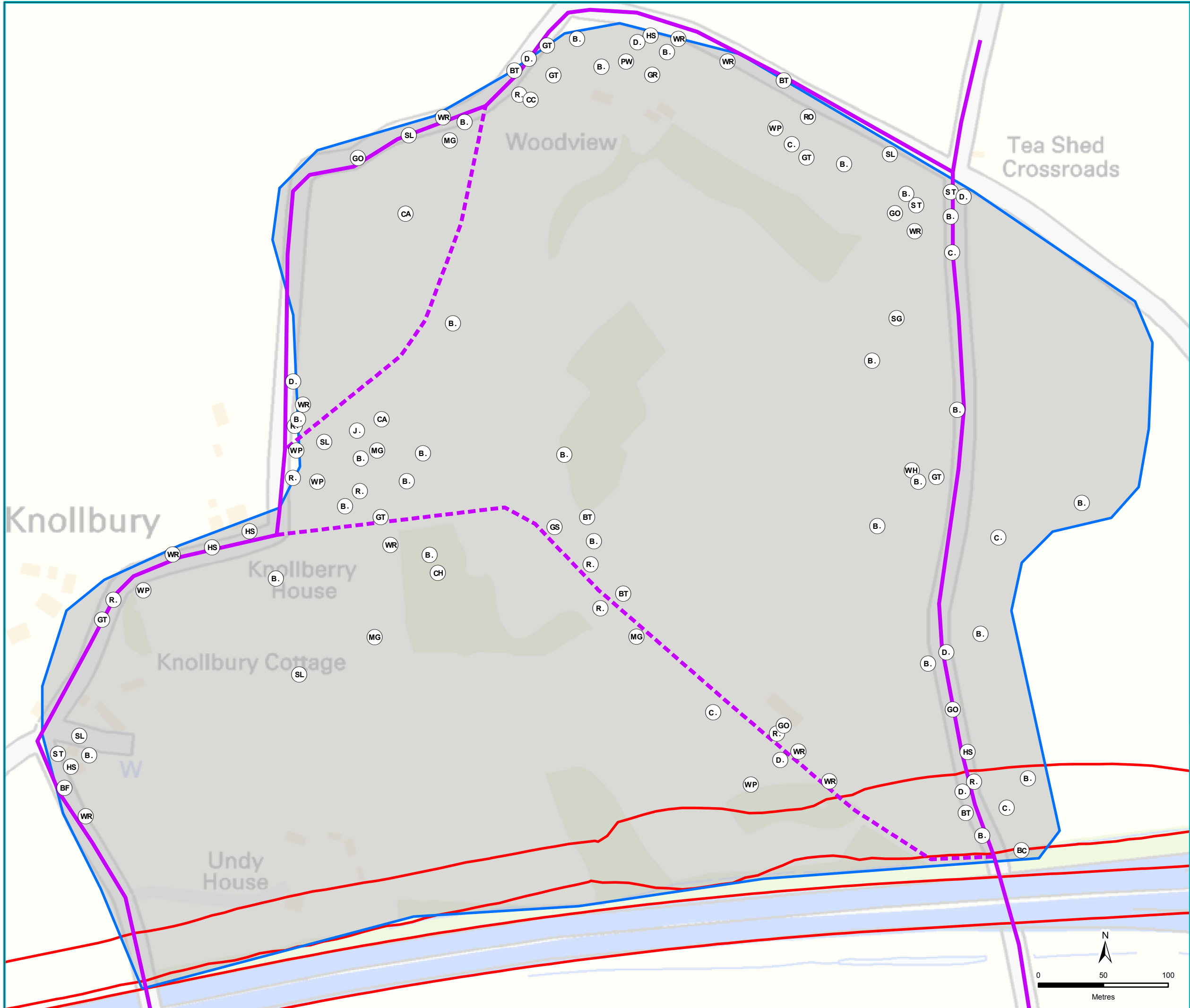
**Bird Species**

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(BC) Blackcap	(R.) Robin
(BF) Bullfinch	(SL) Swallow
(BT) Blue Tit	(SW) Sedge Warbler
(BZ) Buzzard	(WH) Whitethroat
(C.) Carrion Crow	(WP) Wood Pigeon
(CC) Chiffchaff	(WR) Wren
(CH) Chaffinch	(WW) Willow Warbler
(CK) Cuckoo	Driven Access
(CW) Cetti's Warbler	Footpath Access
(D.) Dunnock	Scheme Outline
(GO) Goldfinch	Breeding Bird Survey Area
(GT) Great Tit	No Access
(HS) House Sparrow	
(J.) Jay	
(LT) Long Tailed Tit	
(LW) Lesser Whitethroat	
(MA) Mallard	

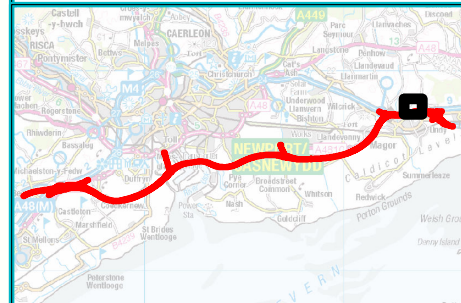


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Client	
RPS	
Figure Number	
4b	
Figure Title	
Breeding Bird Survey Results - BBS2 Visit 2	

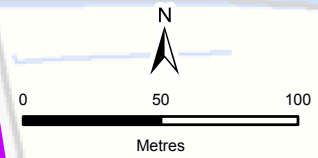
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Legend		
Bird Species		
(B.) Blackbird	(SL) Swallow	
(BC) Blackcap	(ST) Song Thrush	
(BF) BF	(WH) Whitethroat	
(BT) Blue Tit	(WP) Wood Pigeon	
(C.) Carrion Crow	(WR) Wren	
(CA) Cormorant	Driven Access	
(CC) Chiffchaff	Footpath Access	
(CH) Chaffinch	Scheme Outline	
(D.) Dunnock	Breeding Bird Survey Area	
(GO) Goldfinch	No Access	
(GR) Greenfinch		
Great Spotted Woodpecker		
(GT) Great Tit		
(HS) House Sparrow		
(J.) Jay		
(MG) Magpie		
(PW) Pied Wagtail		
(R.) Robin		
(RO) Rook		
(SG) Starling		

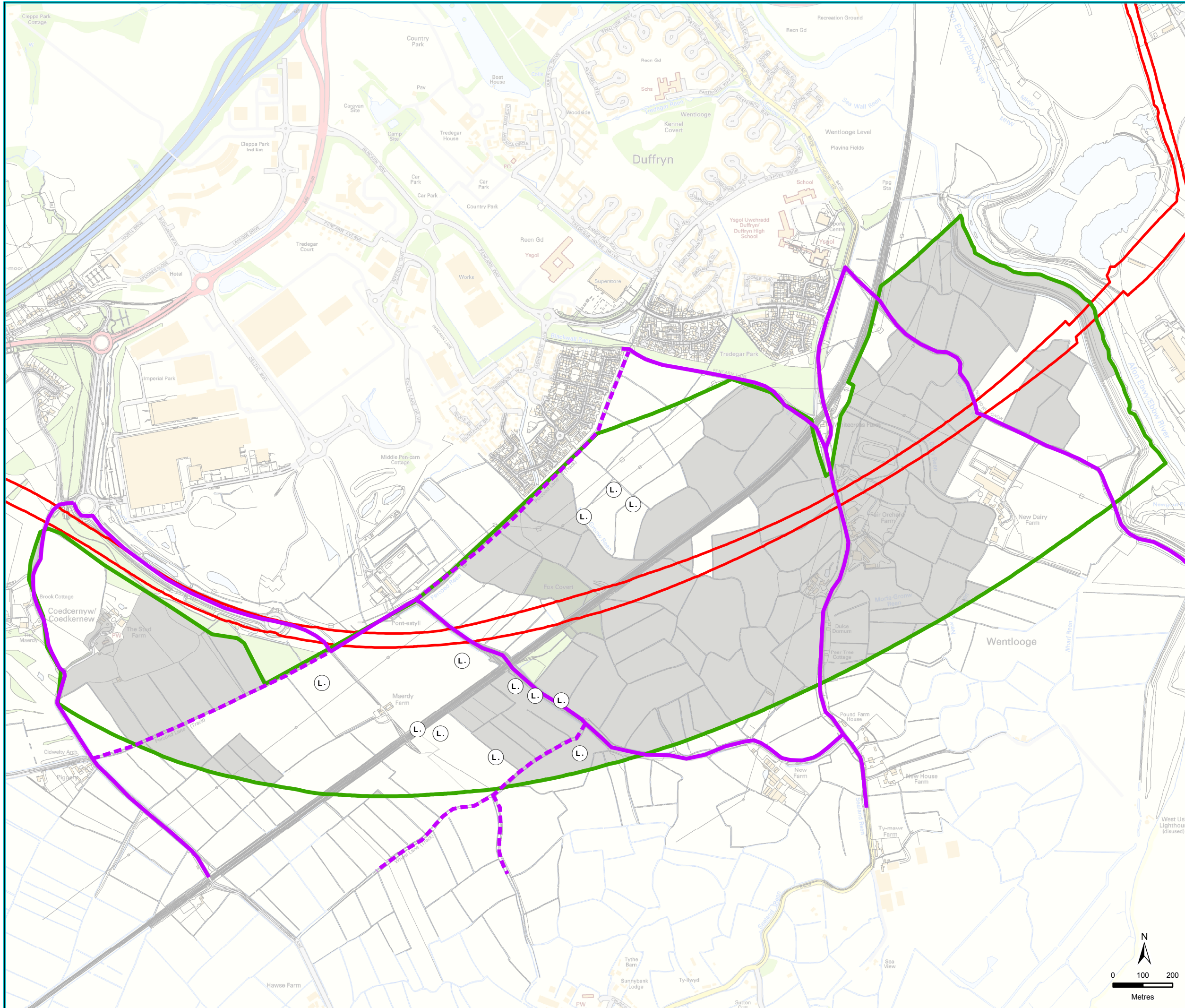


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Drawn	Checked	
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24/06/2015	24/06/2015	
Client		RPS
Figure Number		4c
Figure Title		Breeding Bird Survey Results - BBS3 Visit 2

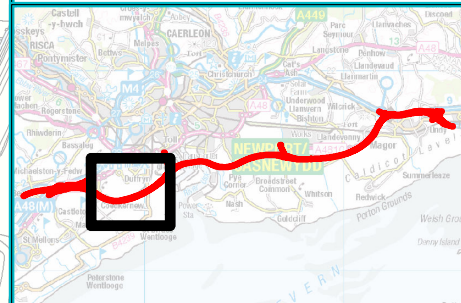




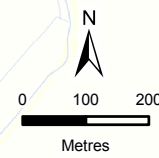
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- Legend
- Bird Species**
- L. Lapwing
  - Driven Access
  - - Footpath Access
  - ▭ Scheme Outline
  - ▭ Ground Nesting Wader Survey Areas
  - ▭ No Access

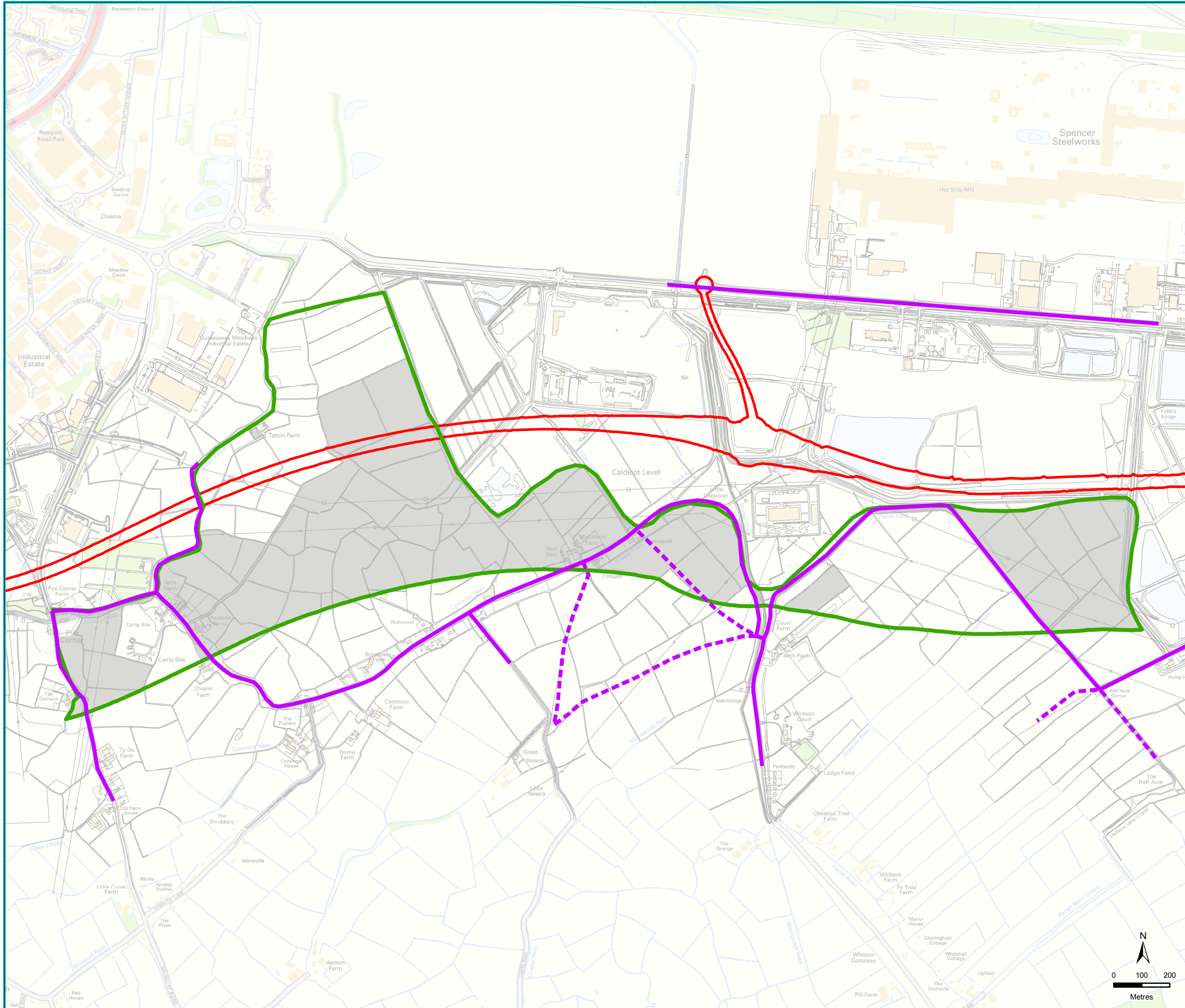


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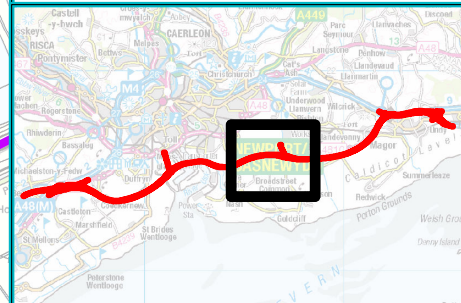




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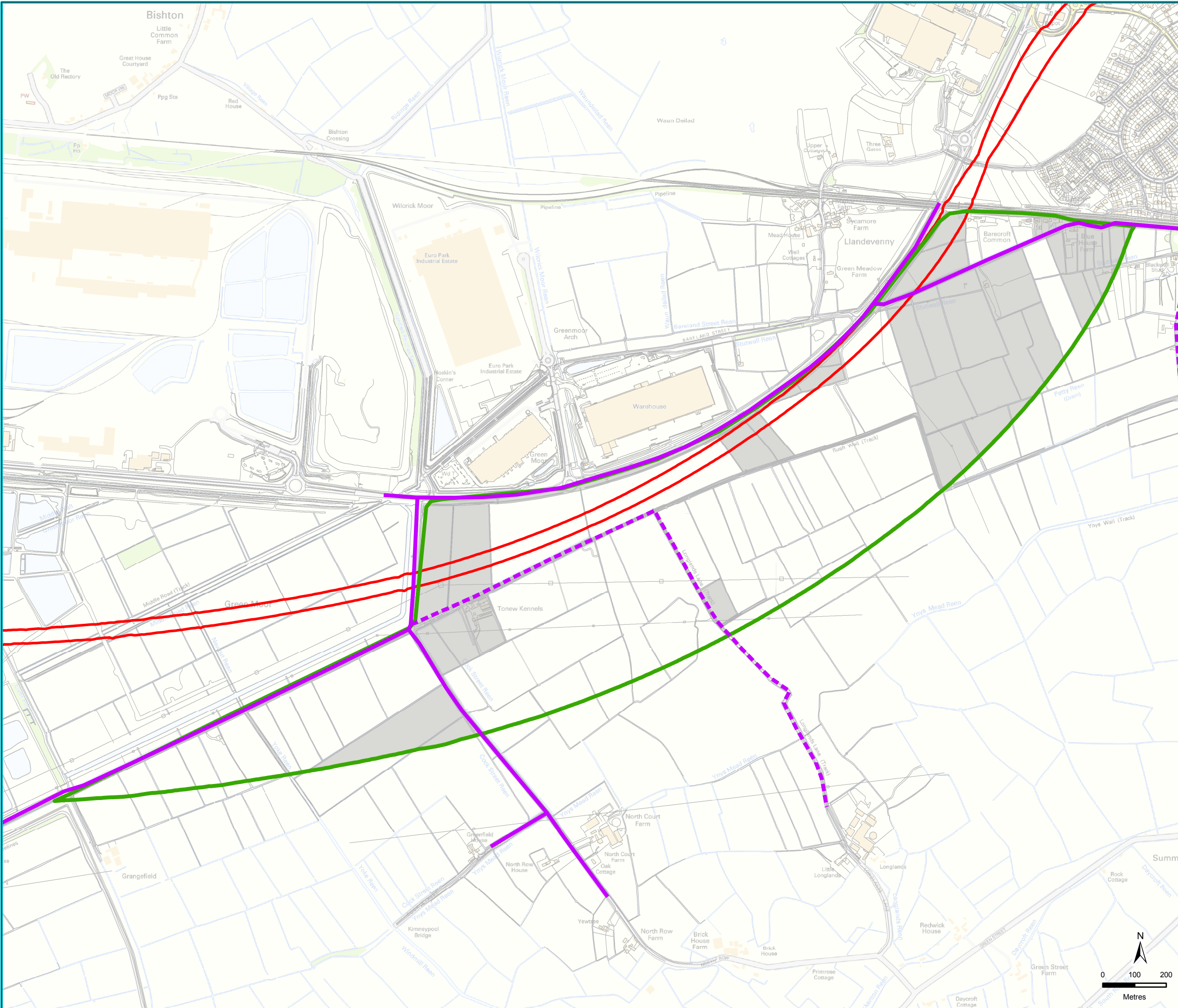







- Legend
- Driven
  - Footpath
  - Scheme Outline
  - Ground Nesting Wader Survey Areas
  - No Access

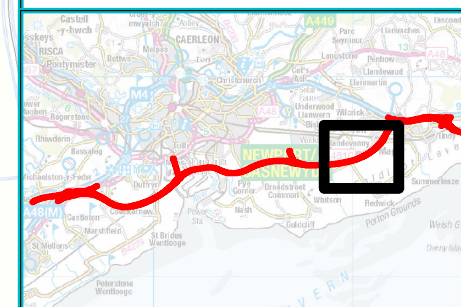


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Client		RPS	
Figure Number		4e	
Figure Title		Breeding Wader Survey Results - BWS2 Visit 2	





 Driven  
 Footpath  
 Scheme Outline  
 Ground Nesting Wader Survey Areas  
 No Access

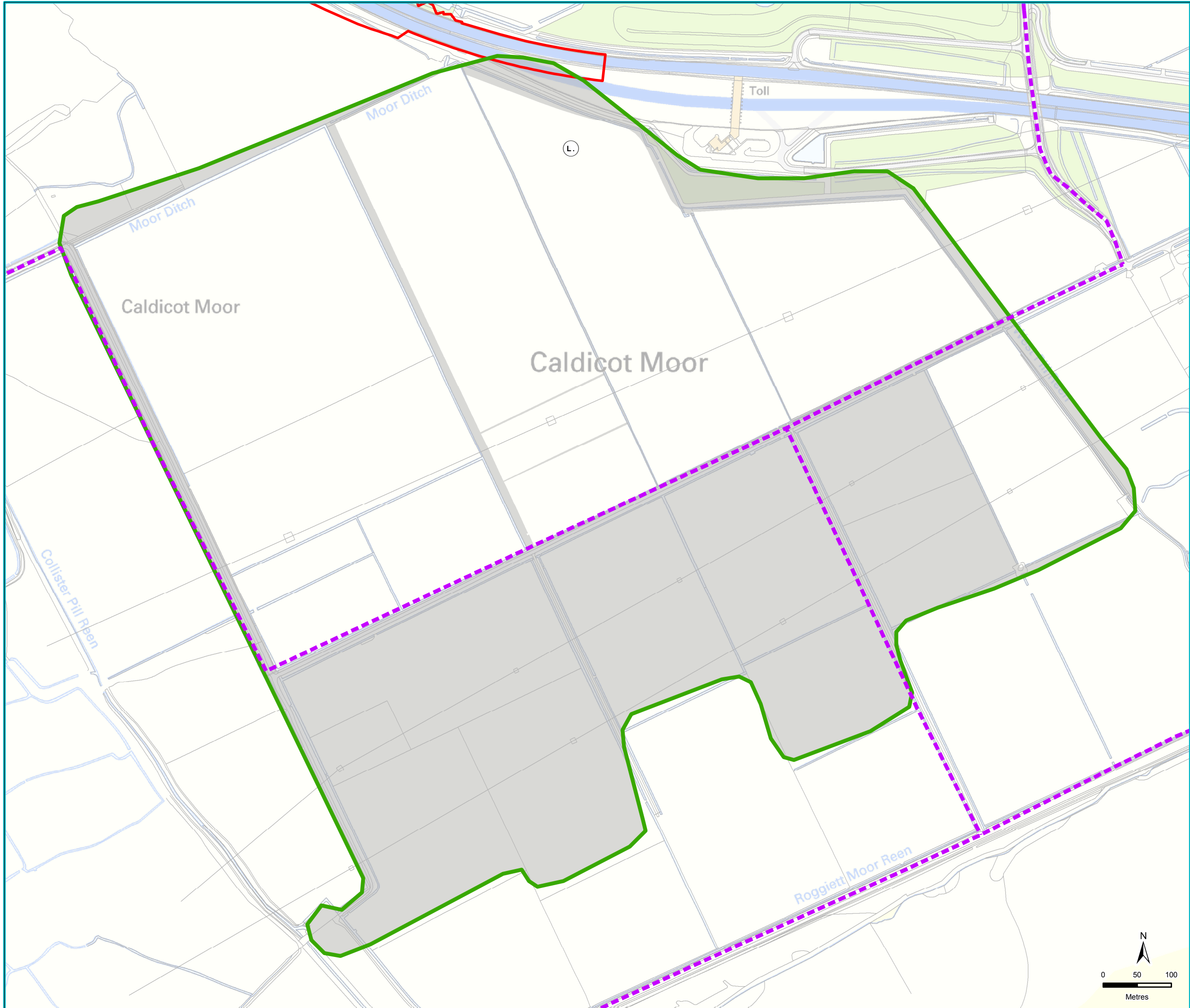


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Figure Number	4f		
Figure Title			

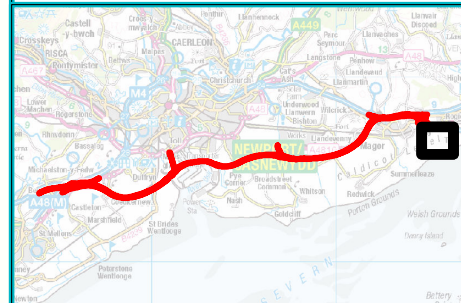
## Breeding Wader Survey Results - BWS3 Visit 2



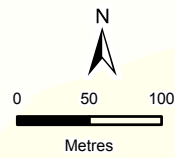
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- Legend
- Bird Species**
- Ⓛ. Lapwing
  - Driven Access
  - - Footpath Access
  - ▭ Scheme Outline
  - ▭ Ground Nesting Wader Survey Areas
  - ▭ No Access

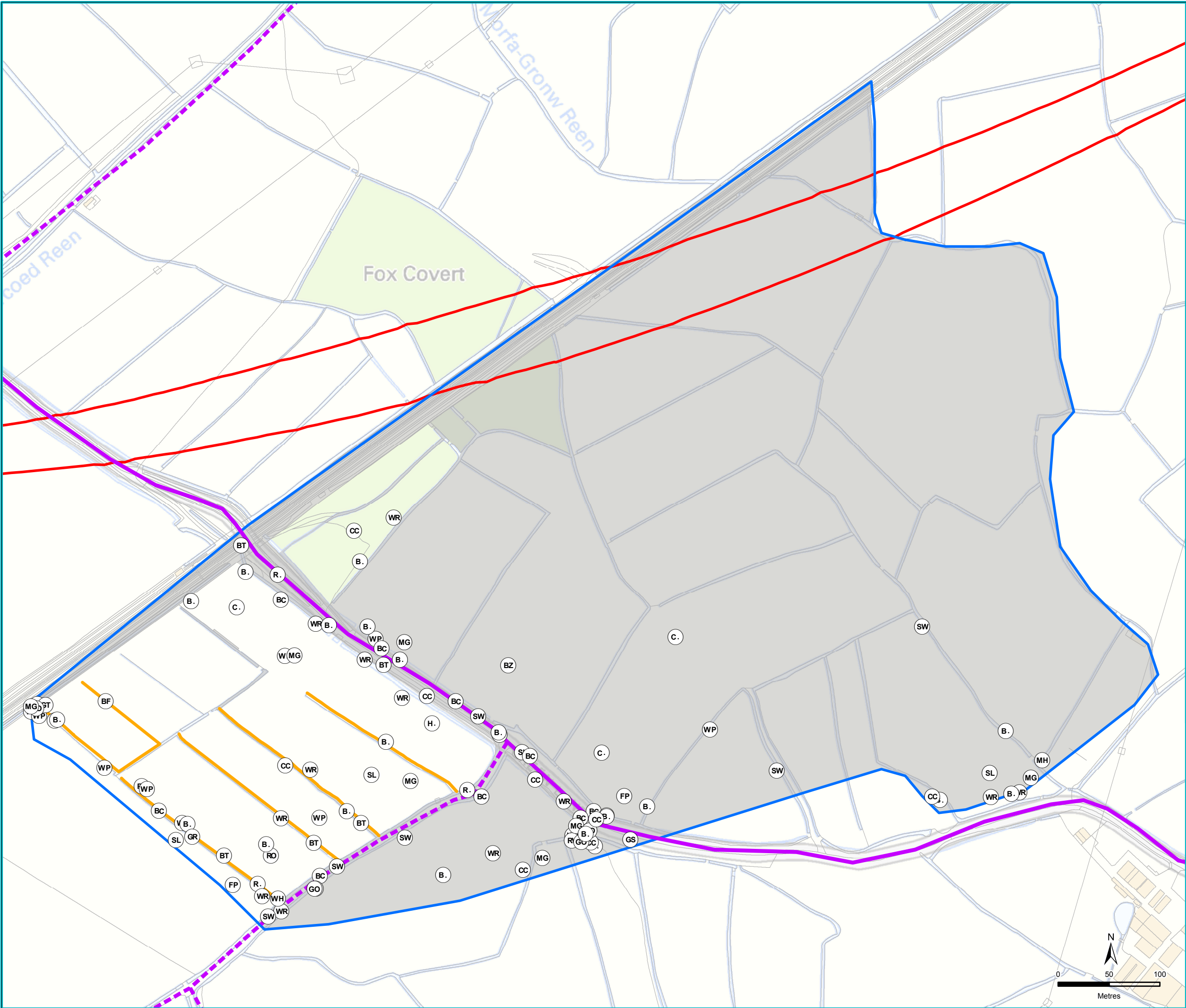


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Figure Number		4g	
Figure Title			
Breeding Wader Survey Results - BWS4 Visit 2			





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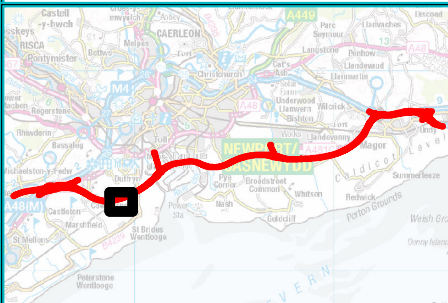
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Legend

Bird Species

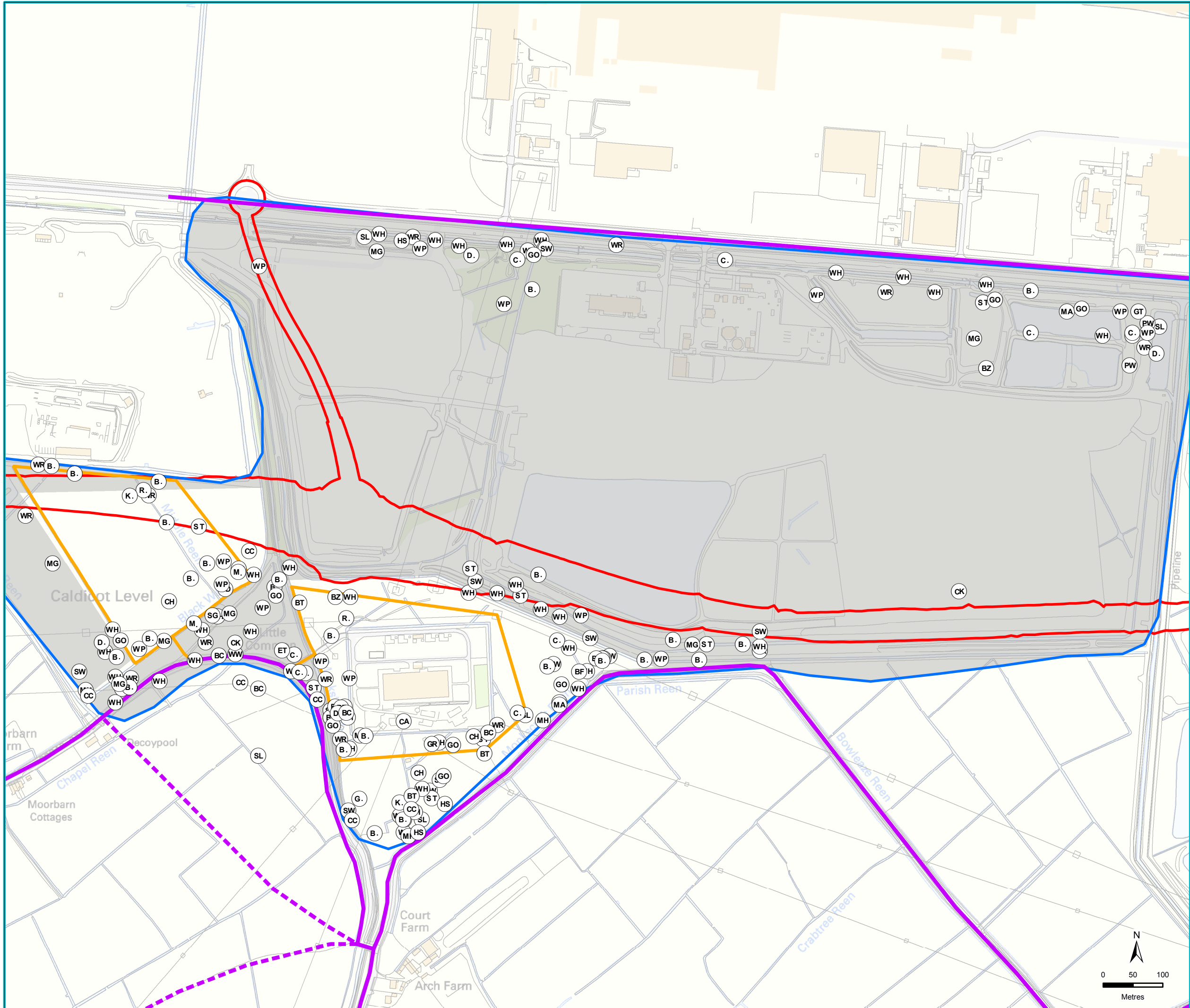
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|-------------------------------|---------------------------|
| (B.) Blackbird                | (MH) Moorhen              |
| (BC) Blackcap                 | (R.) Robin                |
| (BF) BF                       | (RO) Rook                 |
| (BT) Blue Tit                 | (RW) Reed Warbler         |
| (BZ) Buzzard                  | (SL) Swallow              |
| (C.) Carrion Crow             | (SW) Sedge Warbler        |
| (CC) Chiffchaff               | (WH) Whitethroat          |
| (FP) Feral Pigeon             | (WP) Wood Pigeon          |
| (GO) Goldfinch                | (WR) Wren                 |
| (GR) Greenfinch               | Field                     |
| (GS) Great Spotted Woodpecker | Transect                  |
| (GT) Great Tit                | Driven                    |
| (H.) Grey Heron               | Access                    |
| (MG) Magpie                   | Footpath                  |
|                               | Access                    |
|                               | Breeding Bird Survey Area |
|                               | Scheme Outline            |
|                               | No Access                 |



Drawing Ref		MRPS108/18857/1	
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Date	25/06/2015	Date	25/06/2015
Client		RPS	
Figure Number		5a	
Figure Title		Breeding Bird Survey Results - BBS1 Visit 3	



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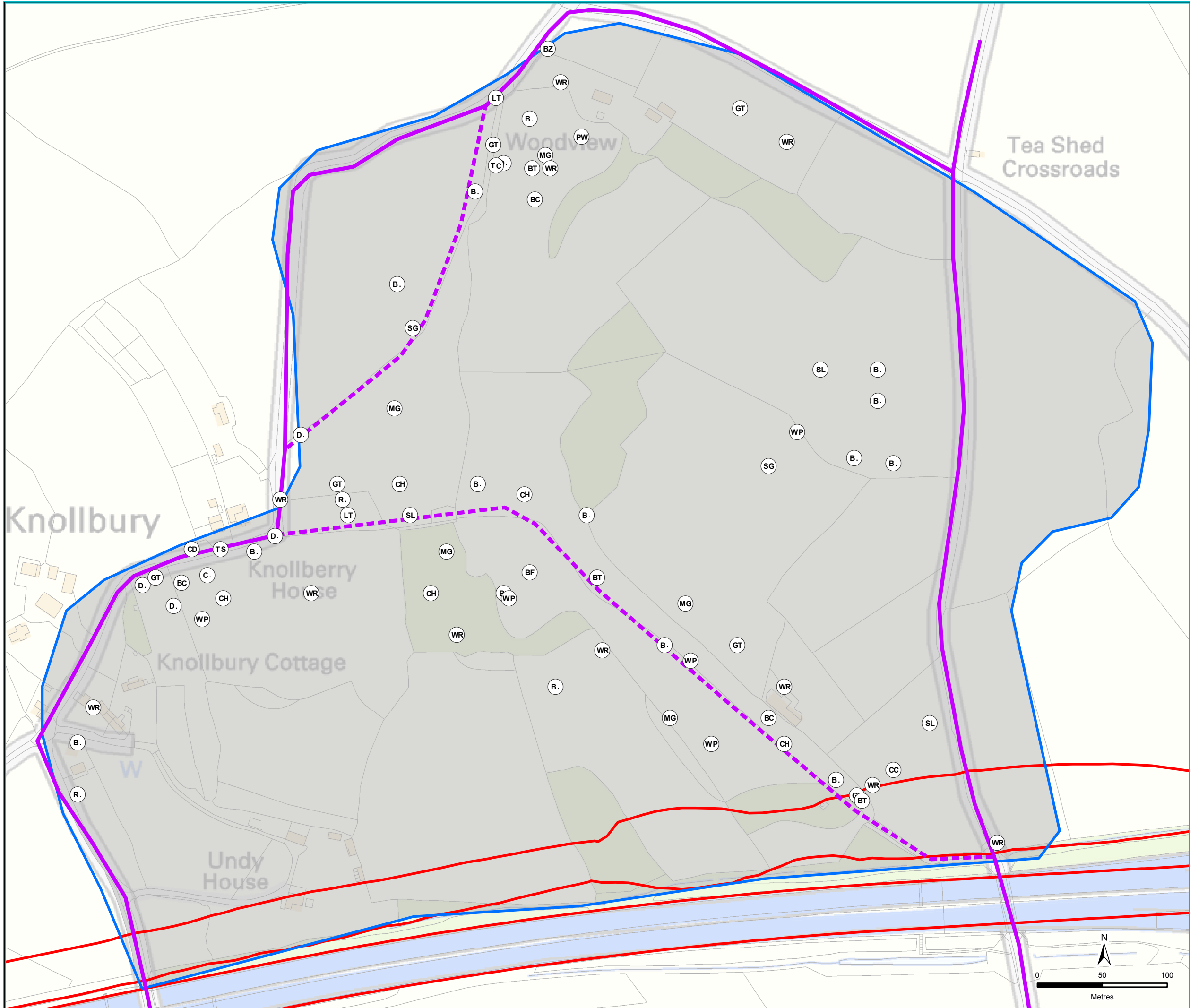
Legend

**Bird Species**

(B.) Blackbird	(MH) Moorhen
(BC) Blackcap	(PW) Pied Wagtail
(BF) BF	(R.) Robin
(BT) Blue Tit	(RW) Reed Warbler
(BZ) Buzzard	(SD) Stock Dove
(C.) Carrion Crow	(SG) Starling
(CA) Cormorant	(SL) Swallow
(CC) Chiffchaff	(ST) Song Thrush
(CH) Chaffinch	(SW) Sedge Warbler
(CK) Cuckoo	(WH) Whitethroat
(D.) Dunnock	(WP) Wood Pigeon
(ET) Little Egret	(WR) Wren
(G.) Green Woodpecker	(WW) Willow Warbler
(GO) Goldfinch	Field Transect
(GR) Greenfinch	Driven Access
(GT) Great Tit	Footpath Access
(HS) House Sparrow	Scheme Outline
(K.) Kestrel	Breeding Bird Survey Area
(M.) Mistle Thrush	No Access
(MA) Mallard	
(MG) Magpie	

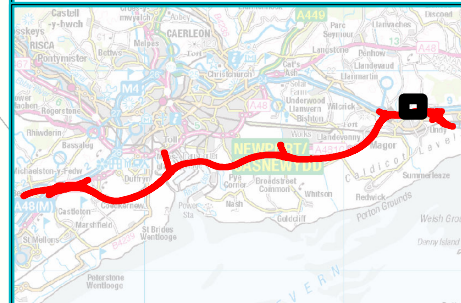
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Client	
RPS	
Figure Number	
5b	
Figure Title	
Breeding Bird Survey Results - BBS2 Visit 3	

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Legend

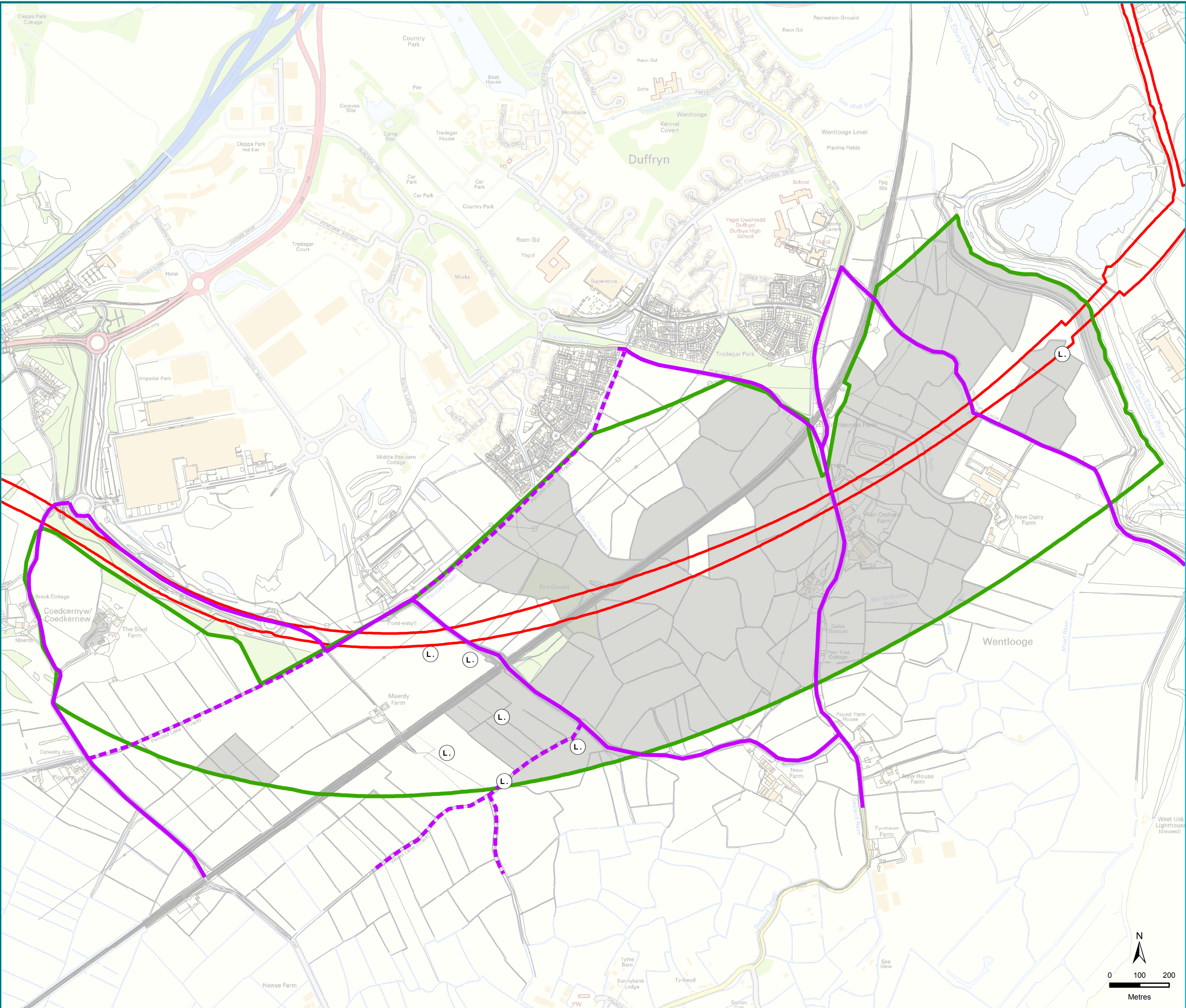
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(BC)	Blackcap	—	Footpath Access
(BF)	BF	—	Scheme Outline
(BT)	Blue Tit	—	Breeding Bird Survey Area
(BZ)	Buzzard	—	No Access
(C.)	Carrion Crow		
(CC)	Chiffchaff		
(CD)	Collared Dove		
(CH)	Chaffinch		
(D.)	Dunnock		
(GT)	Great Tit		
(LT)	Long-tailed Tit		
(MG)	Magpie		
(PW)	Pied Wagtail		
(R.)	Robin		
(SG)	Starling		
(SL)	Swallow		
(TC)	Treecreeper		
(TS)	Tree Sparrow		
(WP)	Wood Pigeon		
(WR)	Wren		



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Figure Number		5c	
Figure Title			
Breeding Bird Survey Results - BBS3 Visit 3			



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Legend

Bird Species

(L.) Lapwing

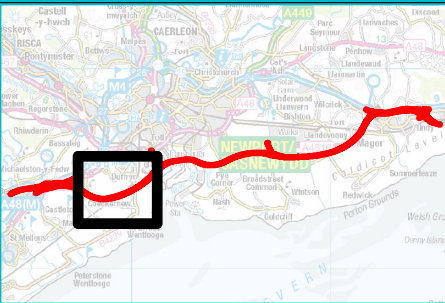
— Driven Access

- - - Footpath Access

— Ground Nesting Wader Survey Areas

— Scheme Outline

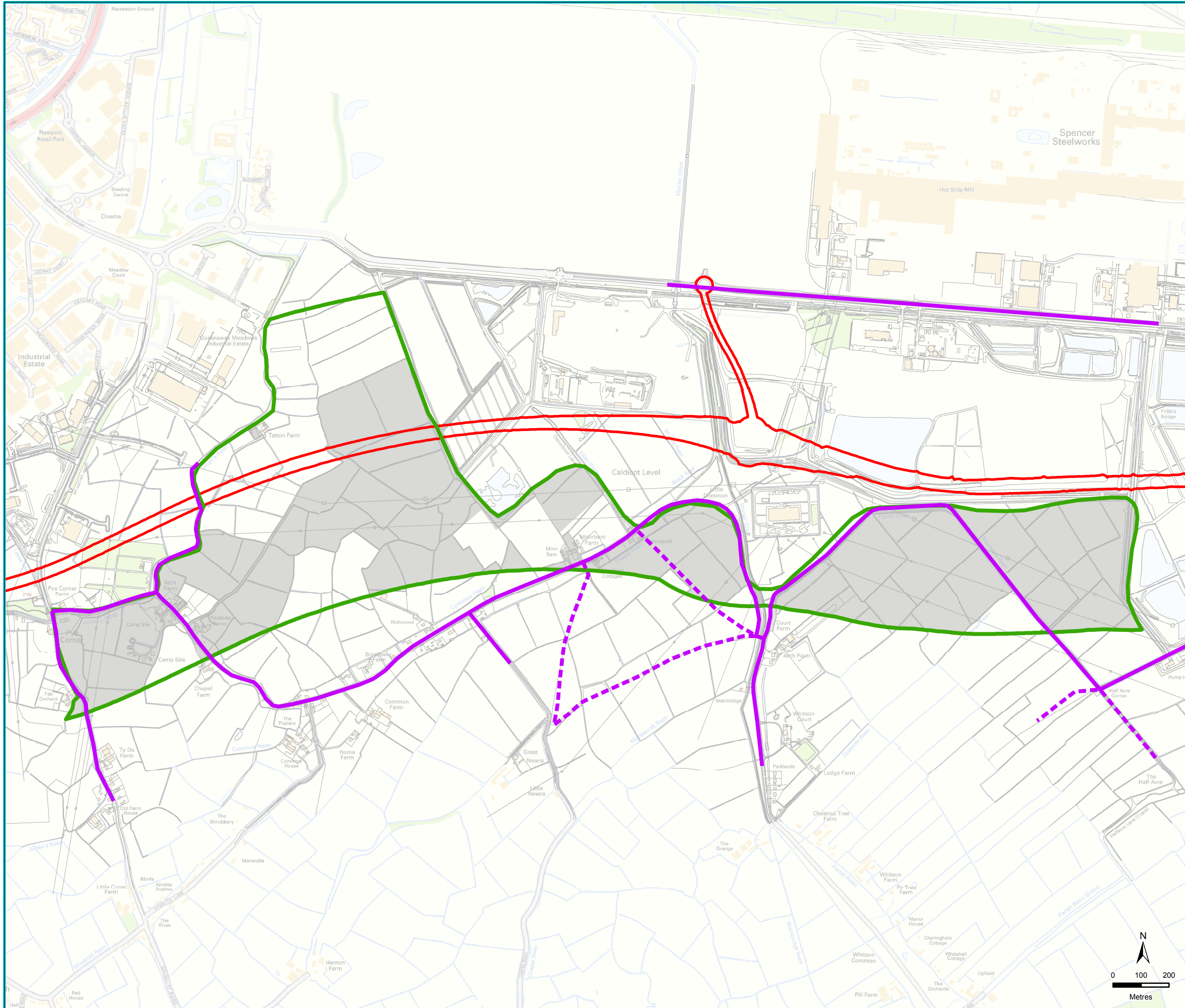
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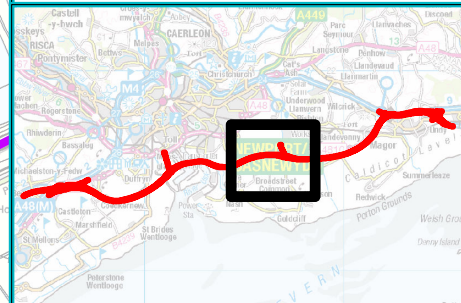
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Date 25/06/2015		Date 25/06/2015	
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Figure Number		5d	
Figure Title			
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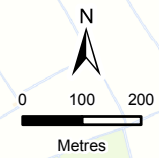
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- Legend
- Driven
  - Footpath
  - Scheme Outline
  - Ground Nesting Wader Survey Areas
  - No Access

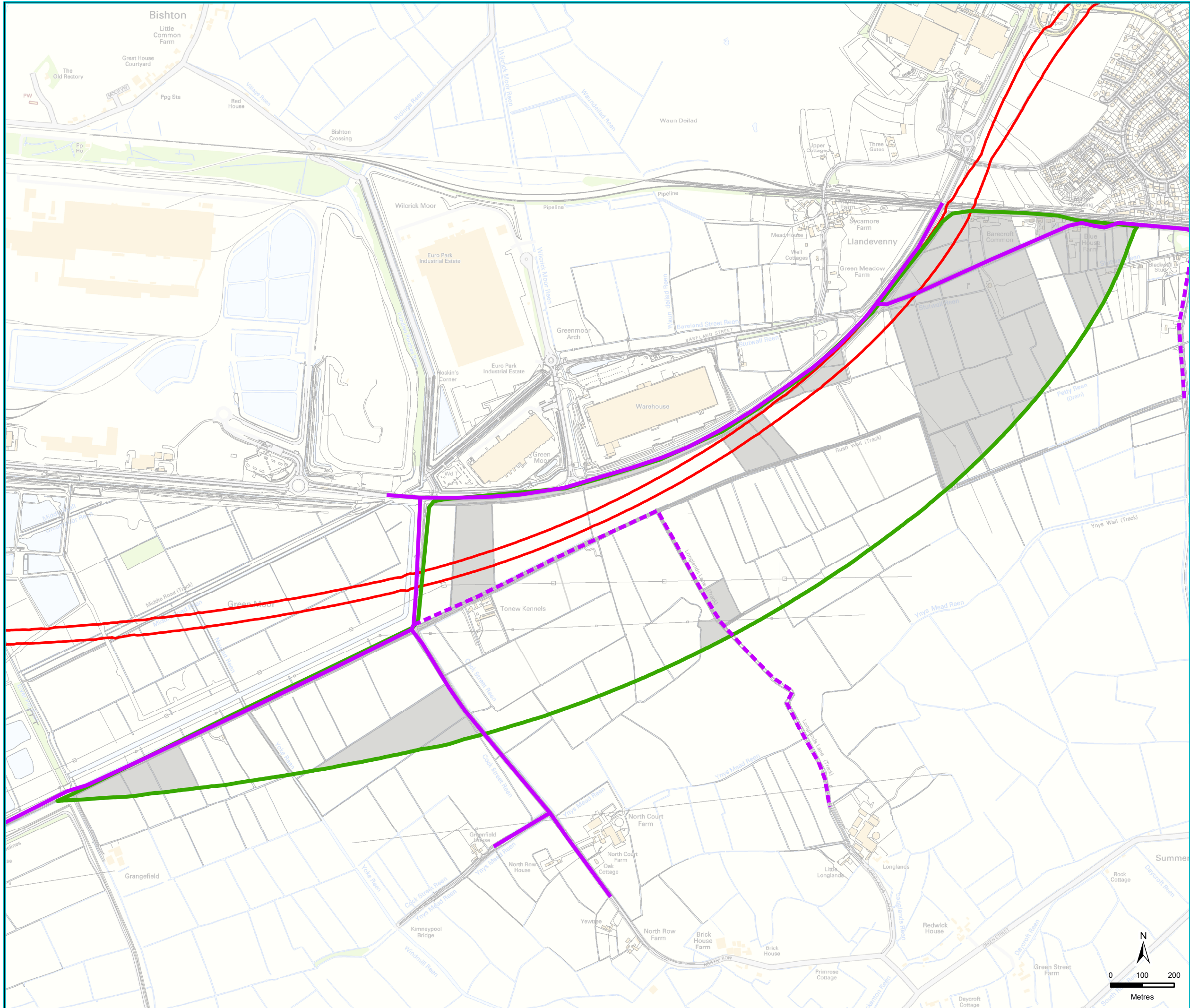


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Figure Number		5e	
Figure Title			
Breeding Wader Survey Results - BWS2 Visit 3			

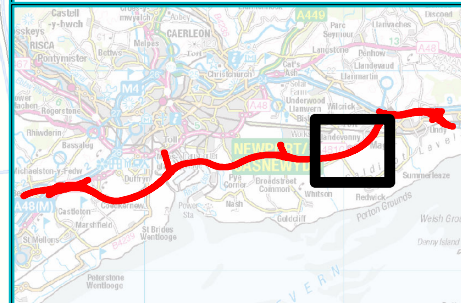




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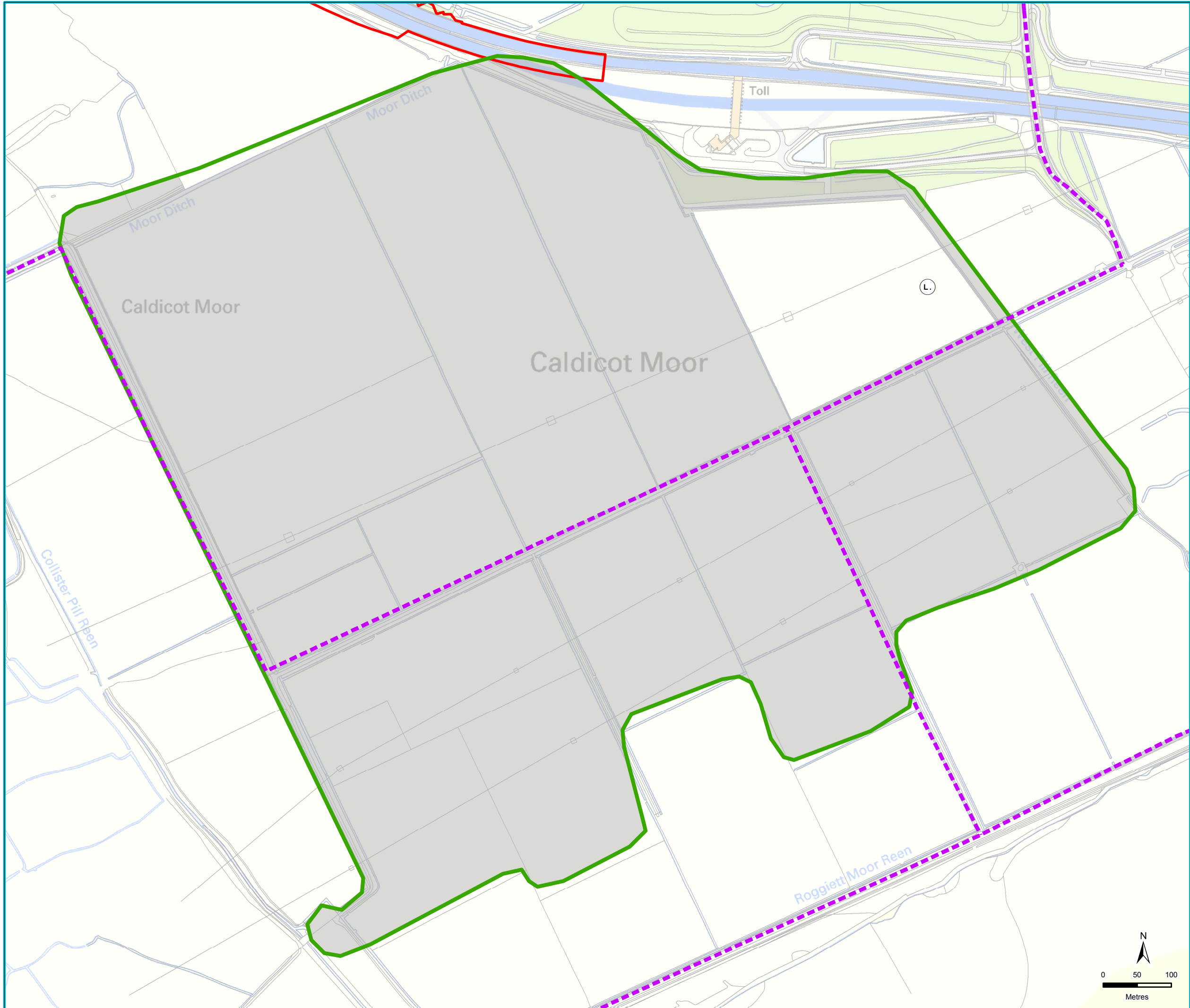
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- Driven
  - Footpath
  - Scheme Outline
  - Ground Nesting Wader Survey Areas
  - No Access



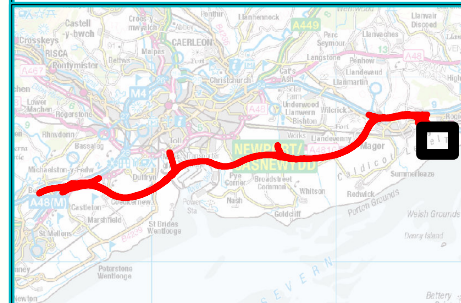
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Client		RPS	
Figure Number		5f	
Figure Title		Breeding Wader Survey Results - BWS3 Visit 3	



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- Legend
- Bird Species**
- (L.) Lapwing
  - Driven Access
  - Footpath Access
  - Scheme Outline
  - Ground Nesting Wader Survey Areas
  - No Access



Drawing Ref		MRPS108/18861/1	
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Drawn	AC	Checked	NS
Date	25/06/2015	Date	25/06/2015
Client		RPS	
Figure Number		5g	
Figure Title			
Breeding Wader Survey Results - BWS4 Visit 3			



## Annex B - Breeding Activity Status

Table B1: Definitions of breeding activity status

Breeding Status	Activity Observed
Confirmed breeding	Distraction-display or injury feigning
	Used nest or eggshells found (occupied or laid within period of survey)
	Recently fledged young (nidicolous species) or downy young (nidifugous species)
	Occupied nest
	Adult carrying faecal sac or food for young
	Nest containing eggs
	Nest with young seen or heard
Probable breeding	Nest building or excavating nest-hole
	Brood patch on adult examined in the hand, suggesting incubation
	Agitated behaviour or anxiety calls from adults

Breeding Status	Activity Observed
	Visiting probable nest site
	Courtship and display
	Pair observed in suitable nesting habitat in breeding season
Possible breeding	Singing male present (or breeding calls heard) in breeding season in suitable breeding habitat
	Species observed in breeding season in suitable nesting habitat
Non-breeding	Species observed but suspected to be summering non-breeder
	Species observed but suspected to be still on migration
	Flying over

## Annex C - Breeding Activity Status (Bird Species Recorded)

Table C1: Bird Species Recorded, Breeding Status, Behaviours and Number of Records of each Behaviour in Survey Area BBS1 during the three survey visits in May and June 2015.

Common Name	Species Name	Conservation Status	Status in Survey Areas	Behaviour	Number of Records		
					Visit1	Visit 2	Visit 3
Mallard	<i>Anas platyrhynchos</i>	Amber list	Possible breeding	Species observed in suitable habitat	1	2	-
Grey heron	<i>Ardea cinerea</i>	-	Non-breeding	Flying over	1	-	1
Buzzard	<i>Buteo buteo</i>	-	Confirmed breeding	Species observed in suitable habitat	-	1	-
				Fledged young	-	-	1
Moorhen	<i>Gallinula chloropus</i>	-	Possible breeding	Species observed in suitable habitat	-	-	2
Feral pigeon	<i>Columba livia</i>	-	Possible breeding	Species observed in suitable habitat	-	-	2
Woodpigeon	<i>Columba palumbus</i>	-	Possible breeding	Species observed in suitable habitat	4	4	7
				Singing male	-	1	-



Common Name	Species Name	Conservation Status	Status in Survey Areas	Behaviour	Number of Records		
					Visit1	Visit 2	Visit 3
Great spotted woodpecker	<i>Dendrocopos major</i>	-	Possible breeding	Drumming male	-	-	1
Peregrine	<i>Falco peregrinus</i>	WCA Sch 1, Birds Directive Annex 1	Non-breeding	Adult carrying food	-	1	-
Magpie	<i>Pica pica</i>	-	Probable breeding	Species observed in suitable habitat	4	3	8
				Flying over	1	-	-
				Agitated behaviour	-	2	-
				Visiting probable nest site	-	1	-
Rook	<i>Corvus frugilegus</i>	-	Confirmed breeding	Fledged young	-	-	1
Carrion crow	<i>Corvus corone</i>	-	Possible breeding	Species observed in suitable habitat	2	5	3
				Adult carrying food	1	-	-
Blue tit	<i>Cyanistes caeruleus</i>	-	Confirmed breeding	Species observed in suitable habitat	2	2	3
				Fledged young	-	-	2

Common Name	Species Name	Conservation Status	Status in Survey Areas	Behaviour	Number of Records		
					Visit1	Visit 2	Visit 3
				Occupied nest	-	1	-
				Adult carrying food	-	1	-
Great tit	<i>Parus major</i>	-	Confirmed breeding	Species observed in suitable habitat	4	1	1
				Adult carrying food for young	1	1	-
				Pair observed in suitable habitat	-	1	-
Swallow	<i>Hirundo rustica</i>	Amber list	Possible breeding	Species observed in suitable habitat	1	1	4
Long-tailed tit	<i>Aegithalos caudatus</i>	-	Possible breeding	Species observed in suitable habitat	1	3	-
Chiffchaff	<i>Phylloscopus collybita</i>	-	Confirmed breeding	Singing male	4	7	5
				Fledged young	-	1	-
				Visiting probable nest site	-	1	-
				Species observed in suitable habitat	-	-	3

Common Name	Species Name	Conservation Status	Status in Survey Areas	Behaviour	Number of Records		
					Visit1	Visit 2	Visit 3
Blackcap	<i>Sylvia atricapilla</i>	Amber list	Probable breeding	Singing male	4	1	2
				Species observed in suitable habitat	-	-	4
				Pair observed in suitable habitat	-	1	-
				Visiting probable nest site	-	-	4
Whitethroat	<i>Sylvia communis</i>	Amber list	Possible breeding	Singing male	-	1	-
				Species observed in suitable habitat	-	-	1
Sedge warbler	<i>Acrocephalus schoenobaenus</i>	-	Possible breeding	Singing male	3	6	2
				Species observed in suitable habitat	-	-	4
Reed warbler	<i>Acrocephalus scirpaceus</i>	-	Probable breeding	Species observed in suitable habitat	1	-	-
				Pair observed in suitable habitat	-	-	1



Common Name	Species Name	Conservation Status	Status in Survey Areas	Behaviour	Number of Records		
					Visit1	Visit 2	Visit 3
				Singing male	-	2	-
Wren	<i>Troglodytes troglodytes</i>	-	Possible breeding	Singing male	7	8	8
				Species observed in suitable habitat	-	7	7
Starling	<i>Sturnus vulgaris</i>	Red list, NERC S42	Possible breeding	Species observed in suitable habitat	-	3	-
Blackbird	<i>Turdus merula</i>	-	Possible breeding	Species observed in suitable habitat	6	5	4
				Agitated behaviour indicating nest nearby	-	-	1
				Occupied nest	-	-	1
				Adult carrying food	-	-	1
				Singing male	1	6	11
Robin	<i>Erithacus rubecula</i>	-	Probable breeding	Singing male	5	9	3
				Species observed in suitable habitat	1	1	2
				Visiting probable nest site	-	-	1

Common Name	Species Name	Conservation Status	Status in Survey Areas	Behaviour	Number of Records		
					Visit1	Visit 2	Visit 3
Chaffinch	<i>Fringilla coelebs</i>	-	Probable breeding	Singing male	1	2	-
				Pair observed in suitable habitat	-	1	-
Bullfinch	<i>Pyrrhula pyrrhula</i>	Amber list, NERC S42	Possible breeding	Species observed in suitable habitat	-	-	1
Greenfinch	<i>Chloris chloris</i>	-	Possible breeding	Species observed in suitable habitat	-	-	1
Goldfinch	<i>Carduelis carduelis</i>	-	Confirmed breeding	Species observed in suitable habitat	-	2	2
				Singing male	-	-	1
				Fledged young	-	-	1

Table C2: Bird Species Recorded, Breeding Status, Behaviours and Number of Records of each Behaviour in BBS2 in May and June 2015.

Common Name	Species Name	Conservation Status	Status in Survey Areas	Behaviour	Number of Records		
					Visit 1	Visit 2	Visit 3
Mallard	<i>Anas platyrhynchos</i>	Amber list	Possible breeding	Species observed in suitable habitat	-	1	2
Cormorant	<i>Phalacrocorax carbo</i>	-	Non-breeding	Flying over	-	-	1
Little egret	<i>Egretta garzetta</i>	Amber list, Birds Directive Annex 1	Non-breeding	Flying over	-	-	1
Grey heron	<i>Ardea cinerea</i>	-	Non-breeding	Flying over	1	-	-
Buzzard	<i>Buteo buteo</i>	-	Possible breeding	Species observed in suitable habitat	-	1	2
Moorhen	<i>Gallinula chloropus</i>	-	Confirmed breeding	Species observed in suitable habitat	1	-	2
				Fledged young	-	-	1
Stock dove	<i>Columba oenas</i>	Amber list	Possible breeding	Species observed in suitable habitat	-	-	2
Woodpigeon	<i>Columba palumbus</i>	-	Confirmed breeding	Species observed in suitable habitat	3	1	13
				Occupied nest	-	1	-



Common Name	Species Name	Conservation Status	Status in Survey Areas	Behaviour	Number of Records		
					Visit 1	Visit 2	Visit 3
				Pair observed in suitable habitat	-	1	-
				Building nest	-	-	1
Cuckoo	<i>Cuculus canorus</i>	-	Possible breeding	Species observed in suitable habitat	-	-	1
				Singing male	-	1	1
Green woodpecker	<i>Picus viridis</i>	Amber list	Possible breeding	Species observed in suitable habitat	-	-	1
Kestrel	<i>Falco tinnunculus</i>	Amber list, NERC S42	Possible breeding	Species observed in suitable habitat	-	-	2
Magpie	<i>Pica pica</i>	-	Confirmed breeding	Species observed in suitable habitat	1	1	9
				Nest with young	-	1	-
				Nest-building	-	1	-
Jay	<i>Garrulus glandarius</i>	-	Possible breeding	Species observed in suitable habitat	1	1	-

Common Name	Species Name	Conservation Status	Status in Survey Areas	Behaviour	Number of Records		
					Visit 1	Visit 2	Visit 3
Rook	<i>Corvus frugilegus</i>	-	Possible breeding	Species observed in suitable habitat	-	1	-
Carrion crow	<i>Corvus corone</i>	-	Confirmed breeding	Species observed in suitable habitat	-	3	7
				Fledged young	-	-	1
Blue tit	<i>Cyanistes caeruleus</i>	-	Confirmed breeding	Species observed in suitable habitat	2	1	4
				Adult carrying food	-	1	-
				Fledged young	-	-	2
Great tit	<i>Parus major</i>	-	Confirmed breeding	Species observed in suitable habitat	2	1	1
				Occupied nest	-	1	-
Swallow	<i>Hirundo rustica</i>	-	Confirmed breeding	Species observed in suitable habitat	3	2	5
				Flying over	1	-	-
				Courtship and display	1	-	-



Common Name	Species Name	Conservation Status	Status in Survey Areas	Behaviour	Number of Records		
					Visit 1	Visit 2	Visit 3
Cetti's warbler	<i>Cettia cetti</i>	WCA Sch 1	Possible breeding	Species observed in suitable habitat	-	1	-
Long-tailed tit	<i>Aegithalos caudatus</i>	-	Possible breeding	Species observed in suitable habitat	-	1	-
Chiffchaff	<i>Phylloscopus collybita</i>	-	Possible breeding	Species observed in suitable habitat	1	1	3
				Singing male	5	3	4
Willow warbler	<i>Phylloscopus trochilus</i>	-	Possible breeding	Singing male	-	1	1
Blackcap	<i>Sylvia atricapilla</i>	Amber list	Probable breeding	Species observed in suitable habitat	-	1	2
				Singing male	-	-	2
				Pair observed in suitable habitat	1	-	-
Lesser whitethroat	<i>Sylvia curruca</i>	-	Possible breeding	Species observed in suitable habitat	1	-	-
				Singing male	-	1	-

Common Name	Species Name	Conservation Status	Status in Survey Areas	Behaviour	Number of Records		
					Visit 1	Visit 2	Visit 3
Whitethroat	<i>Sylvia communis</i>	Amber list	Confirmed breeding	Species observed in suitable habitat	2	1	28
				Adult carrying food	-	1	5
				Singing male	-	-	2
Sedge warbler	<i>Acrocephalus schoenobaenus</i>	-	Confirmed breeding	Species observed in suitable habitat	3	1	8
				Adult carrying food	-	-	1
Reed warbler	<i>Acrocephalus scirpaceus</i>	-	Possible breeding	Species observed in suitable habitat	-	-	1
Wren	<i>Troglodytes troglodytes</i>	-	Possible breeding	Species observed in suitable habitat	1	-	5
				Singing male	-	7	14
Starling	<i>Sturnus vulgaris</i>	Red list	Non-breeding	Flying over	-	-	1
Blackbird	<i>Turdus merula</i>	-	Confirmed breeding	Species observed in suitable habitat	8	4	22
				Pair observed in suitable habitat	-	1	-



Common Name	Species Name	Conservation Status	Status in Survey Areas	Behaviour	Number of Records		
					Visit 1	Visit 2	Visit 3
				Singing male	1	3	4
				Visiting probable nest site	-	1	-
				Agitated Behaviour	1	-	-
				Adult carrying food	-	-	2
Song thrush	<i>Turdus philomelos</i>	Red list, NERC S42	Confirmed breeding	Species observed in suitable habitat	-	-	5
				Adult carrying food	-	-	4
Mistle thrush	<i>Turdus viscivorus</i>	Amber list	Possible breeding	Species observed in suitable habitat	-	-	2
Robin	<i>Erithacus rubecula</i>	-	Confirmed breeding	Species observed in suitable habitat	1	-	-
				Fledged young	-	-	1
				Singing male	3	4	2
Dunnoek	<i>Prunella modularis</i>	Amber list, NERC S42	Possible breeding	Species observed in suitable habitat	-	1	4

Common Name	Species Name	Conservation Status	Status in Survey Areas	Behaviour	Number of Records		
					Visit 1	Visit 2	Visit 3
House sparrow	<i>Passer domesticus</i>	Red list, NERC S42	Possible breeding	Species observed in suitable habitat	1	1	3
Pied wagtail	<i>Motacilla alba</i>	-	Confirmed breeding	Species observed in suitable habitat	-	-	1
				Fledged young	-	-	1
Chaffinch	<i>Fringilla coelebs</i>	-	Confirmed breeding	Species observed in suitable habitat	3	4	2
				Occupied nest	-	1	-
				Pair observed in suitable habitat	-	1	-
				Singing male	-	-	3
Bullfinch	<i>Pyrrhula pyrrhula</i>	Amber list, NERC S42	Possible breeding	Species observed in suitable habitat	-	1	2
Greenfinch	<i>Chloris chloris</i>	-	Possible breeding	Species observed in suitable habitat	4	-	1
Goldfinch	<i>Carduelis carduelis</i>	-	Possible breeding	Species observed in suitable habitat	1	2	9



Table C3: Bird Species Recorded, Breeding Status, Behaviours and Number of Records of each Behaviour in BBS3 in May and June 2015

Common Name	Species Name	Conservation Status	Status in Survey Areas	Behaviour	Number of Records		
					Visit 1	Visit 2	Visit 3
Cormorant	<i>Phalacrocorax carbo</i>	-	Non-breeding	Flying over	-	2	-
Buzzard	<i>Buteo buteo</i>	-	Possible breeding	Species observed in suitable habitat	1	-	1
Woodpigeon	<i>Columba palumbus</i>	-	Possible breeding	Species observed in suitable habitat	5	3	5
				Singing male	-	2	-
Collared dove	<i>Streptopelia decaocto</i>	-	Possible breeding	Species observed in suitable habitat	-	-	1
Great spotted woodpecker	<i>Dendrocopos major</i>	-	Confirmed breeding	Species observed in suitable habitat	1	1	-
				Adult carrying food	1	-	-
Magpie	<i>Pica pica</i>	-	Possible breeding	Species observed in suitable habitat	2	4	5

Common Name	Species Name	Conservation Status	Status in Survey Areas	Behaviour	Number of Records		
					Visit 1	Visit 2	Visit 3
Jay	<i>Garrulus glandarius</i>	-	Possible breeding	Species observed in suitable habitat	-	1	-
Rook	<i>Corvus frugilegus</i>	-	Possible breeding	Species observed in suitable habitat	-	1	-
Carrion crow	<i>Corvus corone</i>	-	Probable breeding	Species observed in suitable habitat	2	5	1
				Pair observed in suitable habitat	-	-	1
Blue tit	<i>Cyanistes caeruleus</i>	-	Confirmed breeding	Species observed in suitable habitat	3	3	2
				Occupied nest	-	1	-
				Pair observed in suitable habitat	-	1	-
				Singing male	-	-	1
Great tit	<i>Parus major</i>	-	Confirmed breeding	Species observed in suitable habitat	3	4	3
				Nest with young	-	-	1
				Fledged young	-	1	-

Common Name	Species Name	Conservation Status	Status in Survey Areas	Behaviour	Number of Records		
					Visit 1	Visit 2	Visit 3
				Adult carrying food	1	1	-
				Singing male	-	-	2
Swallow	<i>Hirundo rustica</i>	Amber list	Probable breeding	Species observed in suitable habitat	3	4	3
				Pair observed in suitable habitat	-	1	-
Long-tailed tit	<i>Aegithalos caudatus</i>	-	Possible breeding	Species observed in suitable habitat	1	-	2
Chiffchaff	<i>Phylloscopus collybita</i>	-	Possible breeding	Singing male	1	1	1
Blackcap	<i>Sylvia atricapilla</i>	Amber list	Possible breeding	Species observed in suitable habitat	-	1	2
				Singing male	1	-	1
Whitethroat	<i>Sylvia communis</i>	Amber list	Possible breeding	Species observed in suitable habitat	-	1	-
Treecreeper	<i>Certhia familiaris</i>	-	Possible breeding	Species observed in suitable habitat	-	-	1



Common Name	Species Name	Conservation Status	Status in Survey Areas	Behaviour	Number of Records		
					Visit 1	Visit 2	Visit 3
Wren	<i>Troglodytes troglodytes</i>	-	Possible breeding	Species observed in suitable habitat	2	2	1
				Singing male	5	8	10
Starling	<i>Sturnus vulgaris</i>	Red list, NERC S42	Possible breeding	Species observed in suitable habitat	1	1	2
Blackbird	<i>Turdus merula</i>	-	Confirmed breeding	Species observed in suitable habitat	11	19	13
				Singing male	1	1	2
				Occupied nest	-	1	-
				Nest with eggs	1	-	-
				Adult carrying food	-	5	-
				Pair observed in suitable habitat	-	1	-
Song thrush	<i>Turdus philomelos</i>	Red list, NERC S42	Confirmed breeding	Species observed in suitable habitat	-	2	-
				Adult carrying food	-	1	-

Common Name	Species Name	Conservation Status	Status in Survey Areas	Behaviour	Number of Records		
					Visit 1	Visit 2	Visit 3
Robin	<i>Erithacus rubecula</i>	-	Confirmed breeding	Species observed in suitable habitat	4	6	1
				Singing male	1	-	1
				Fledged young	-	1	-
				Adult carrying food	-	2	-
Dunnock	<i>Prunella modularis</i>	Amber list, NERC S42	Possible breeding	Species observed in suitable habitat	1	6	5
				Singing male	-	1	-
House sparrow	<i>Passer domesticus</i>	Red list, NERC S42	Confirmed breeding	Species observed in suitable habitat	2	4	-
				Fledged young	-	1	-
Tree sparrow	<i>Passer montanus</i>	Red list, NERC S42	Possible breeding	Species observed in suitable habitat	-	-	1
Pied wagtail	<i>Motacilla alba</i>	-	Possible breeding	Species observed in suitable habitat	-	1	1

Common Name	Species Name	Conservation Status	Status in Survey Areas	Behaviour	Number of Records		
					Visit 1	Visit 2	Visit 3
Chaffinch	<i>Fringilla coelebs</i>	-	Probable breeding	Species observed in suitable habitat	1	-	-
				Singing male	1	-	5
				Pair observed in suitable habitat	-	1	-
Bullfinch	<i>Pyrrhula pyrrhula</i>	Amber list, NERC S42	Probable breeding	Species observed in suitable habitat	-	-	1
				Nest building	-	1	-
Greenfinch	<i>Chloris chloris</i>	-	Possible breeding	Species observed in suitable habitat	-	1	-
Goldfinch	<i>Carduelis carduelis</i>	-	Possible breeding	Species observed in suitable habitat	1	4	-

Birds Directive Annex 1 - Species listed on Annex 1 of EC Birds Directive

WCA Sch 1 - Species listed on Schedule 1 of the Wildlife and Countryside Act (1981), as amended

NERC S42 - Species of Principal Importance in Wales under Section 42 of the Natural Environment and Rural Communities Act (2006)



## Annex D - Breeding Activity Status (Breeding Wader Recorded)

Table D1: Breeding Waders Recorded, Breeding Status, Behaviours and Number of Records of each Behaviour in BWS1 in May and June 2015.

Common Name	Species Name	Conservation Status	Status in Survey Areas	Behaviour	Number of Records		
					Visit 1	Visit 2	Visit 3
Lapwing	<i>Vanellus vanellus</i>	Red list, NERC S42	Confirmed breeding	Pair observed in suitable habitat	3	3	1
				Species observed in suitable habitat	-	8	1
				Visiting probable nest site	1	-	-
				Flying over	2	1	-
				Fledged young	-	-	1
				Distraction display	-	-	3

Table D2: Breeding Waders Recorded, Breeding Status, Behaviours and Number of Records of each Behaviour in BWS4 in May and June 2015.

Common Name	Species Name	Conservation Status	Status in Survey Areas	Behaviour	Number of Records		
					Visit 1	Visit 2	Visit 3
Lapwing	<i>Vanellus vanellus</i>	Red list, NERC S42	Probable breeding	Species observed in suitable habitat	1	1	1
				Pair observed in suitable habitat	2	-	-
Curlew	<i>Numenius arquata</i>	Amber list, NERC S42	Possible breeding	Species observed in suitable habitat	2	0	0