

A585 Windy Harbour to Skippool Improvement Scheme

TR010035

6.8.4 ES Appendix 8.4: Bird Technical Appendix

APFP Regulation 5(2)(q)

Planning Act 2008

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

October 2018

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Infrastructure Planning

Planning Act 2008

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

**A585 Windy Harbour to Skippool
Improvement Scheme**
Development Consent Order 201[]

ES APPENDIX 8.4: BIRD TECHNICAL INDEX

Regulation Number:	Regulation 5(2)(a)
Planning Inspectorate Scheme Reference	TR010035
Application Document Reference	TR010035/APP/6.8.4
Author:	A585 Windy Harbour to Skippool Improvement Scheme Project Team, Highways England

Version	Date	Status of Version
Rev 0	October 2018	DCO submission

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1 INTRODUCTION

1.1 Background

1.1.1 This Bird Survey Report presents the methodology and results of a comprehensive ornithological baseline study in support of Highways England's proposed development of the A585 between Windy Harbour to Skippool (hereafter referred to as 'the Scheme').

1.1.2 This study was undertaken by Arcadis (UK) Limited on behalf of Highways England.

1.2 Aims and Objectives

1.2.1 The aim of this study was to obtain baseline desk study and field survey information with regard to the wintering, breeding and passage bird assemblages present within the Bird Survey Area (the Bird Survey Area is defined in Section 2.3). This included collecting information to determine the nature of activity for different bird species (i.e. foraging, commuting and/or roosting), and identify any wintering bird high-tide roosts within the Bird Survey Area.

1.3 Report Structure

1.3.1 This Bird Survey Report has been subdivided into the following sections:

- Section 1 and 2: provide the aims, objectives and methodologies adopted
- Section 3: presents the results of the desk study and field surveys
- Annex A: provides the survey information
- Annexes B to D: provide detailed tables of the survey results
- Annex E provides figures to accompany the report

2 METHODOLOGY

2.1 Introduction

2.1.1 This Section of the Report details the desk study sources and the field survey methodology.

2.2 Desk Study

2.2.1 A comprehensive desk study was carried out in 2016 and is detailed in the Extended Phase 1 Habitat Report (document reference TR010035/APP/6.8.1). As part of the desk study, a search was carried out to identify breeding, wintering and passage birds of nature conservation importance within the footprint of the Scheme options and wider environment. In accordance with the Design Manual for Roads and Bridges (DMRB; Highways Agency, 2008), a study area of up to 1km was used to obtain records of birds of nature conservation importance. This study area was extended to 2km for Internationally designated sites with birds as a qualifying feature.

2.2.2 Table 2-1 summaries the various sources of information utilised for the desk study in relation to birds. In particular, the study focused on birds associated with the nearby Morecambe Bay and Duddon Estuary Special Protection Area (SPA) and Morecambe Bay Ramsar site.

Table 2-1: Desk Study Data Sources

Source	Information obtained	Distance from Scheme (i.e. study area) (km)
Multi-Agency Geographic Information for the Countryside (MAGIC) (magic.defra.gov.uk)	The location of Internationally/Nationally designated sites (only including those for which birds are listed as a qualifying feature).	2
Lancashire Environment Record Network (LERN)	Records of protected and/or notable species dating back to 2005, and locations of non-statutory designated sites.	1
Fylde Bird Club	Bird records dating back to 2005	0.5
British Trust for Ornithology (BTO) Wetland Bird Survey (WeBS) Core Count Data	Data from 2 Core Count Zones (Skippool (within the study area) and the entire Morecambe Bay SPA to allow comparisons of bird numbers recorded within the study area (from Fylde Bird Club and field surveys) to the most recent population estimates for the SPA.	N/A
Ordnance Survey (OS) mapping and online aerial imagery	An online search for areas supporting potentially important water features or habitats that could be considered	1

Source	Information obtained	Distance from Scheme (i.e. study area) (km)
	suitable as functionally linked land. Habitat features suitable for breeding birds.	
Natural England	The swan and goose functional land Impact Risk Zone (IRZ) Geographic Information System (GIS) layer covering the north west of England.	N/A

2.3 Field Surveys

2.3.1 The Morecambe Bay and Duddon Estuary SPA and Morecambe Bay Ramsar site provide important habitats for both wintering and passage bird species, as well as some breeding bird species. A suite of surveys was therefore undertaken between mid-September 2016 and April 2018 to encompass the winter, breeding and spring/autumn passage periods. These are described in further detail below.

Consultation

2.3.2 Consultations regarding the scope of the ornithological surveys have been undertaken as the surveys have progressed since 2016. The scope of the surveys, as well as the survey methodologies used have been agreed in consultation with Natural England.

Defining the Field Survey Area

2.3.3 The survey area was defined by the potential impact pathways on ornithological receptors, and by the distance over which impacts might be experienced by birds utilising habitats which could be functionally-linked to the nearby Morecambe Bay and Duddon Estuary SPA and the Morecambe Bay Ramsar site (i.e. as far as the likely extent of biophysical change associated with the Scheme).

2.3.4 At the time of planning the field surveys, a northern route option remained a possibility (in addition to the final southern preferred option and an on-line option). The survey area (hereafter referred to as the 'Bird Survey Area') therefore represents the then three route corridors plus an approximate 500m buffer. Following discussions on the possible need to provide mitigation under a worst-case scenario, the overall survey area was extended to the south west in 2016-17, to include an area of land identified from aerial images that may represent potential mitigation land. It was determined after the first year of survey that this area would not be used for mitigation and therefore surveys were not extended beyond the 500m buffer in 2017-18. The Bird Survey Area therefore covered an area equivalent to 500m (or more) from the edge of the each of the route alignments, and as such, a larger area was surveyed than if only one route alignment was being considered.

2.3.5 Due to the large extent of the Bird Survey Area the land was split into 6 distinct areas. Only areas where suitable habitat was present were surveyed. Suitable habitat was identified through a review of OS mapping and online aerial imagery. The 6 survey areas are shown on Figure 8.4.1 in Annex E. In addition, to provide

additional spatial information, each of the 6 distinct areas were divided into smaller land parcels. The land parcels within each survey area are detailed in Table 2-2 and are also shown on Figure 8.4.1 in Annex E.

Table 2-2: Land Parcels

Area number	Land parcel number
1	1, 2, 3, 4, 5, 6
2	7, 8, 9, 10, 11
3	12, 13, 14, 15, 16
4	17, 18, 19, 20, 21
5	22, 23, 24, 25
6	26, 27, 28, 29

2.3.6 Details of the methodologies for the each of the bird surveys are presented in the following sections.

Wintering and Passage Bird Surveys

2.3.7 Field surveys were undertaken between mid-September 2016 and April 2017 and mid-September 2017 to mid-May 2018 to encompass the winter and spring/autumn passage periods. The timing of the autumn and spring passage periods can vary annually depending upon weather conditions. For the purposes of this Report, the autumn passage was considered to be the period September to mid-November, with spring passage occurring March to mid-May. Therefore, an overlap between the passage and winter periods occurs during October and November and again in March, so birds recorded during these months could relate to either period. Where larger numbers of birds were recorded during October/early November and/or during March, with lower numbers during the main winter months it was assumed that these birds were moving through the area on passage.

2.3.8 Given the relatively flat nature of the Bird Survey Area, it was not possible to locate vantage points (VPs) with a sufficient viewshed without hinderance from hedgerows and trees to enable an effective survey. It was originally planned that surveys would incorporate a combination of walked transect routes with shortened VP counts along the routes; however, it became clear when designing the surveys that VP counts were ineffective due to poor sightlines. Therefore, the survey effort focused on transect surveys, enabling full coverage of all suitable habitats within the Bird Survey Area. This approach was agreed in consultation with Natural England (meeting on 15 August 2017).

Transect Surveys

2.3.9 The transect surveys were carried out to identify the presence and distribution of foraging or roosting birds within the Bird Survey Area, particularly focusing on wintering wildfowl and waders. In order to do this, transect surveys were undertaken throughout the wintering and spring/autumn passage periods. The survey timings are set out in Table 2-3.

2.3.10 During each survey visit, the location of all waterfowl and wader species, as well as all other species of nature conservation concern (e.g. species listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended), species on the RSPB red or amber lists (Eaton *et al.*, 2015) and species listed in Section 42

of the Natural Environment and Rural Communities Act (NERC), 2006), were mapped and details of the species, number of birds and behaviour (i.e. foraging, roosting, loafing etc.) were recorded against Target Notes (TNs). The land parcel in which the birds were recorded was also noted. Although it was not considered necessary to detail the height of birds flying over during surveys, flight lines of significant flocks were mapped to inform the assessment of any regularly used commuting routes or patterns of activity.

Dusk and Dawn Surveys

2.3.11 Dusk and dawn surveys, as agreed during consultation with Natural England in December 2015, were conducted during the winter period (October 2016–March 2017 and October 2017–March 2018) in order to determine the importance of fields and saltmarsh within the Bird Survey Area as night roost and foraging sites for waterfowl and waders. The survey timings are set out in Table 2-3.

2.3.12 During each visit the location of all waterfowl and wader species were mapped and details of the species, number of birds and behaviour (i.e. foraging, roosting, loafing etc.) were recorded against TNs. The land parcel in which the birds were recorded was also noted.

Breeding Bird Surveys

2.3.13 Transect surveys were undertaken between April and June 2017 to encompass the breeding period.

Transect surveys

2.3.14 The transect surveys were carried out to identify the presence and distribution of breeding birds (i.e. nesting and foraging) within the Bird Survey Area. Survey timings are set out in Table 2-3.

2.3.15 The breeding bird survey methodology comprised a variation of the Breeding Bird Survey (BBS) methodology from the British Trust for Ornithology (BTO) involving three visits, in April, May and June (Gilbert, *et al.*, 1998).

2.3.16 During each survey, a predetermined transect route was walked, which enabled surveyors to approach all suitable habitats within the 6 survey areas to within 50m. Bird species of local and/or national nature conservation importance were mapped and recorded using standard BTO species and behaviour codes (Gilbert, *et al.*, 1998), to indicate whether the individual was likely to be breeding within the survey area. Clear evidence of breeding was defined by types of activity or signs, such as males singing and repeated alarm calls. The land parcel in which the birds were recorded was also noted. Species of nature conservation importance recorded included:

- Species that receive protection under Schedule 1 of the Wildlife and Countryside Act (1981, as amended)
- Species of Principal Importance listed under Section 41 of the NERC Act (2006)
- Birds that are on the Red or Amber lists of Birds of Conservation Concern (BoCC) in the UK (Eaton, *et al.*, 2015)

2.3.17 An inventory of all other species recorded was also produced for each survey visit.

2.4 Bird Survey Timings

2.4.1 The field surveys were undertaken as detailed in Table 2-3. Further details regarding the timing and frequency of transect surveys, as well as the associated weather conditions, are presented in Annex A.

Table 2-3: Survey Timings

Survey	Survey effort
Transect surveys (Autumn passage)	Weekly daytime visits between mid-September to November during the autumn passage period in 2016 and 2017.
Transects and dawn and dusk surveys (Winter)	Two daytime surveys and 1 dawn or dusk survey per month October 2016–March 2017 and October 2017 – March 2018 throughout the period that overwintering geese are active.
Transects (Spring)	Weekly daytime visits between March to mid-May in both 2017 and 2018 during the spring passage period.
Transects (Breeding)	One breeding bird survey visit per month April–June 2017.

2.4.2 Surveys were timed to take place across a variety of weather conditions and tidal states to obtain a representative picture of bird numbers and activity. The dusk surveys were timed to be completed one hour after sunset and the dawn surveys commenced one hour before sunrise.

3 RESULTS

3.1 Introduction

3.1.1 The results of the desk study and field surveys are described below and should be read in conjunction with Annexes A to D.

3.2 Designated Sites

3.2.1 Three statutory designated sites (for which birds are either the primary reason for the designation, or form part of the overall citation for the site) were identified within the Desk Study Area (refer to Section 2.2).

3.2.2 In addition, a further 4 non-statutory designated sites (for which birds are listed as a feature of the site) were identified within the Desk Study Area.

3.2.3 The designated sites are outlined in Table 3-1. The table includes the reason for designation as well as the distance and direction of the designated sites from the Scheme. The statutory designated sites are shown on Figure 8.4.2 of Annex E.

Table 3-1: Summary of Designated Sites with Bird Features

Site name	Reason for designation	Distance (m) and direction from Scheme
Statutory designated sites		
Morecambe Bay and Duddon Estuary SPA (which includes marine components)	<p>Morecambe Bay and the Duddon Estuary qualifies as an SPA under Article 4.1 of the Directive 79/409/EEC (as now codified by Directive 2009/147/EC) by supporting populations of European importance of the following species listed on Annex I of the Directive:</p> <p>During the breeding season: Little Tern Sandwich Tern Common tern</p> <p>Overwinter: Bar-tailed godwit Golden plover</p> <p>This site also qualifies under Article 4.2 of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species:</p> <p>During the breeding season: Herring gull Lesser black-backed gull</p> <p>On passage: Ringed plover Sanderling</p>	340 north

Site name	Reason for designation	Distance (m) and direction from Scheme
	<p>Over winter: Little egret Curlew Dunlin Ruff Black-tailed godwit Bar-tailed godwit Grey plover Knot Oystercatcher Pink-footed goose Pintail Redshank Shelduck Turnstone</p> <p>The area qualifies under Article 4.2 of the Directive (79/409/EEC) by regularly supporting at least 20,000 seabirds. Assemblage qualification: a seabird assemblage of international importance.</p> <p>During the breeding season, the area regularly supports 40, 672 individual seabirds including: herring gull, lesser black-backed gull, little tern and sandwich tern.</p> <p>The area qualifies under Article 4.2 of the Directive (79/409/EEC) by regularly supporting at least 20,000 waterfowl. Assemblage qualification: A wetland of international importance.</p> <p>Over winter, the area regularly supports 266,751 individual waterfowl (5-year peak mean for 2009-10-2013/14) including: great crested grebe, bar-tailed godwit, pink-footed goose, shelduck, pintail, oystercatcher, grey plover, knot, dunlin, curlew, golden plover, turnstone, black-tailed godwit, cormorant, wigeon, teal, mallard, eider, goldeneye, red-breasted merganser, ringed plover, lapwing, sanderling, redshank, and whimbrel.</p>	
<p>Morecambe Bay Ramsar site</p>	<p>Ramsar Criterion 4: By supporting plant and/or animal species at a critical stage in their life cycles or providing refuge during adverse conditions. The site is staging area for migrating waterfowl including internationally important numbers of ringed plover.</p>	<p>340 north</p>

Site name	Reason for designation	Distance (m) and direction from Scheme
	<p>Ramsar Criterion 5: By regularly supporting 20,000 or more waterbirds. Supports assemblages of international importance: 223,709 waterfowl in winter.</p> <p>Ramsar Criterion 6: Regularly supports 1% of the individuals in a population of one species or sub-species of water bird.</p> <p>During the breeding season: Lesser black-backed gull Herring gull Sandwich tern</p> <p>On passage (peak counts spring/autumn): Cormorant Shelduck Pintail Eider Oystercatcher Ringed plover Grey plover Sanderling Curlew Redshank Turnstone Lesser black-backed gull</p> <p>Over winter (peak counts): Great crested grebe Pink-footed goose Wigeon Goldeneye Red-breasted merganser Golden plover Lapwing Knot Dunlin Bar-tailed godwit</p>	
Wyre Estuary Site of Special Scientific Interest (SSSI)	Ornithological interest (nationally important for wintering and passage black-tailed godwit, wintering turnstone and for wintering teal in times of hard weather); intertidal habitats including saltmarsh (Natural England, 1995).	340 north

Site name	Reason for designation	Distance (m) and direction from Scheme
Non-statutory designated sites		
Morecambe Bay Important Bird Area (IBA)	Wintering and passage wildfowl and waders, and breeding wildfowl, gulls and terns of outstanding importance (BirdLife International, 2015).	340 north
Skippool Marsh and Thornton Bank Biological Heritage Site (BHS)	The principal habitats on site comprise un-grazed saltmarsh and relict woodland. The site supports a diverse bird assemblage.	Adjacent north
Shard Bridge Field Ditch BHS	The site comprises a longitudinal hollow and ditch supporting saltmarsh vegetation which drains into the immediately adjacent River Wyre and Morecambe Bay and Duddon Estuary SPA. It measures approximately 0.35ha, is flooded by saline water during very high tides and is notable for the occurrence of Long-Stalked Orache <i>Atriplex longipes</i> , a nationally scarce plant. The site supports a diverse bird assemblage.	900 north
River Wyre –Upper Tidal Section	The site comprises a tidal 3km length of the River Wyre with associated mudflats, saltmarsh and grassland, extending to the boundary of the Wyre Estuary SSSI. The site partially overlaps with the Morecambe Bay and Duddon Estuary SPA The site supports a diverse bird assemblage	530 north

3.3 **Passage and Wintering Bird Survey 2016–2018**

3.3.1 The results of the 2016 to 2018 Spring/Autumn passage and wintering bird surveys are described in the following sections. Detailed results tables for the SPA/ Ramsar site species are provided in Annex B.

Morecambe Bay and Duddon Estuary SPA and Ramsar Site Qualifying Species

3.3.2 Sixteen Morecambe Bay and Duddon Estuary SPA and Ramsar site qualifying species (designated for peak counts during the winter, on passage or both) were recorded during the passage and winter bird transect surveys in 2016/17, and 15 qualifying species were recorded in 2017/18. These species comprised: pink-footed goose, shelduck, curlew, black-tailed godwit, knot, dunlin, oystercatcher, redshank, ringed plover (2016 / 17 only), golden plover, little egret, lapwing, wigeon, red-breasted merganser, cormorant and lesser black-backed gull. Table 3-2 provides details of the peak counts for the 16 SPA/Ramsar site species recorded during the winter and passage bird surveys (combining the transect and dawn and dusk survey results).

3.3.3 Table 3-2 shows the peak count of birds recorded on the ground on each survey date (i.e. birds utilising the habitats within the Bird Survey Area that could be affected by the Scheme). Where a higher peak count was recorded in flight rather than on the ground, this has also been included in brackets for information to show that birds were present in the area but were not recorded on the ground within the Bird Survey Area. The table is also split by the 6 Bird Survey Areas (described in paragraph 2.3.5 and shown on Figure 8.4.1 in Annex E to show where the birds have been recorded to provide spatial context to the data.

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Table 3-2: Peak Count of Foraging / Roosting Waterfowl During Autumn Passage and Wintering Bird Surveys (September 2016 to April 2017 and September 2017 to April 2018)¹

Species	Qualifying feature	Area	Peak Count on Ground (Peak count in flight is included in brackets where greater than on ground only)																
			September		October		November		December		January		February		March		April		
			2016	2017	2016	2017	2016	2017	2016	2017	2016	2017	2017	2018	2017	2018	2017	2018	2017
Pink-footed goose	Winter/ passage	1			(28)		8 (190)		3,400		90 (140)				1 (43)	6			
		2		70	(300)	41	(111)		1,500	60	500 (4,000+)	160		600				(44)	
		3	1		(180)	530	(28)		165 (205)		300	400				18		475	
		4			(150)		(55)				800	2,500							
		5					(95)		(190)		(425)	134						(1)	
		6					267	0	100	165		300 (330)		(35)	55		7,500		
Lapwing	Ramsar site qualifying feature only (winter)	1			100 (500)		90		1		40		52	350	54		280	2	
		2					1 (9)	4	9			50					35	1	
		3	100 (400)		257	146	48		150	20	45 (800)	250	320						
		4	800	26	126		530	11	7	3	450	82	200		1		2	1	
		5	35	45	24	320	10	7	2 (4)	200	55	5		3			(1)		
		6	16 (400)	420	240	253	120	615	800	668	600	700	35	200			40	20	
Curlew	Winter/ passage	1			11		124		46	7									
		2	1		6 (12)		29						(1)		7	7	(13)		
		3	14	17	45	14	8		180+	3	5		53		1	45	15 (33)	10	
		4	15 (78)	10	5 (9)		37		1		1 (3)		30 (105)	45	10	47	17	14	
		5	15		8	2	38	5	1	120		1				4		18	
		6	35	45	30	132	40	6		201	40	400	100+	150	63	50	64	20	
Little egret	Winter	1					(1)								1	1	2		
		2							7				(1)	1	1	1	(1)		
		3	5		1		2		(1)			8	(1)		1	1	1		
		4	9	7			1			1	1		1		3		2		
		5				3		3	2	3	1	1	(1)		5	1	3		
		6	11	9	3	9	2	1		5	1				1	1	1	3	
Shelduck	Winter/ passage	1													9	2	2	2	
		2													1 (2)		4	5	
		3	1		6				(2)	5		5	10		4	4	3	7	
		4											1		2 (8)	3	2	4	
		5								4		2	2		4 (7)	2	2	7	
		6			4	2	11	42		15		70	2	79	7	11	15	6	
Oystercatcher	Winter passage	1													2	2	3	2	
		2													3	2	2	2	
		3									1				7	2	5	4	

¹ peak counts that are in brackets indicate birds in flight where this was greater than the number recorded on the ground

Species	Qualifying feature	Area	Peak Count on Ground (Peak count in flight is included in brackets where greater than on ground only)															
			September		October		November		December		January		February		March		April	
			2016	2017	2016	2017	2016	2017	2016	2017	2017	2018	2017	2018	2017	2018	2017	2018
		4			35										2	2	3	4
		5					1								2	2		2
		6			(5)		11			5			21	1	2	8	2	7
Redshank	Winter/ passage	1					(1)	1	71						51	5	(2)	1
		2																
		3	2 (4)		20	2	12		2	45	4	34	4		22	8	7 (50)	7
		4	30	1	55	50	33	2	21		52		1		12	8	10	2
		5												1		7		
		6	32	42	5	72	11	24	3	120	2	25		30	8	24	28	43
Lesser black-backed gull	Winter/ passage	1	5		6	3	1		2			1		5		1	25	
		2					(2)					(2)		2 (6)	2	(120)	7	
		3	3		5				2		1		(1)	4 (9)	4	(1)		
		4	22	1		7	1	1			3	1	5		40	16	36	10
		5	3				3						1		1 (3)		2	12
		6	130	85	10	20	1	8		5	20	0	2	3	5 (23)	30	15	20
Dunlin	Winter/ passage	1																
		2																
		3																1
		4	27		15		34		33									
		5																
		6		9	15			6		50		30		250	1	400		
Black-tailed godwit	Winter/ passage	1							6									
		2																
		3																1
		4														1		
		5											5	(39)				
		6																73
Knot	Winter/ passage	1																
		2																
		3																
		4	1															
		5																
		6	170															
Cormorant	Ramsar site qualifying feature only (passage)	1							(1)		1							
		2							(1)		(1)		1	2	3	1		
		3	3		3	3		3	1	13			6	12	1	6	3	
		4	8		1						(1)	1			2	1	1	
		5			(1)						1		2		4		3	
		6	3		2		5		2	1	1	1		7	1	1	2	
Red-breasted merganser	Winter/ passage	1																
		2																
		3			2													
		4												1				
		5																
		6																

Species	Qualifying feature	Area	Peak Count on Ground (Peak count in flight is included in brackets where greater than on ground only)															
			September		October		November		December		January		February		March		April	
			2016	2017	2016	2017	2016	2017	2016	2017	2017	2018	2017	2018	2017	2018	2017	2018
Wigeon	Winter/ passage	1							60									
		2																
		3			35					60	(36)	5						
		4															2	
		5			(11)	6		6										
		6		28		76	20	109	20	63		67		20		140		
Golden plover	Winter/ passage	1					(11)						70					
		2																
		3																
		4	200			140					(25)							
		5										3						
		6		170	32	397				250		250		100				
Ringed plover	Winter/ passage	1																
		2																
		3					1											
		4																
		5																
		6					1											

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3.3.4 The sections below provide further details of the distribution of the qualifying features of Morecambe Bay and Duddon Estuary SPA / Ramsar site recorded during the winter/passage surveys. The land parcels described in Section 2.3 have been used to provide additional spatial information, where necessary.

3.3.5 It is normally considered by Statutory Nature Conservation Bodies (SNCBs) that if an area of land regularly and frequently supports 1% or greater of the total of the SPA/Ramsar site qualifying species population, then this is considered to be significant (Young and Shackleton, 2007). Records of SPA / Ramsar site qualifying species are detailed in the individual species accounts with further details provided in Annex B. Table 3-3 shows the 1% thresholds that have been taken from the 5-year peak means 2009/10–2013/14 for the Morecambe Bay and Duddon Estuary SPA citation, which is the most recent data for the region, and is considered the most appropriate numbers to use. The Ramsar site population figures have also been included in Table 3-3 where the species is a qualifying feature of the Ramsar site only.

Table 3-3: Qualifying Species Population and 1% Threshold

Species	Morecambe Bay and Duddon Estuary SPA population (2009/10–2013/14)	Ramsar site population (1998/9-2002/3)	1% threshold of the SPA / Ramsar site population
Pink-footed goose	15,648	3,665	156
Lapwing	N/A	16,492	165
Curlew	12,209	20,018 (passage)	122
Little egret	134	N/A	1
Shelduck	5,878	7,032 (passage)	59
Oystercatcher	55,888	66,577 (passage)	558
Redshank	11,133	N/A	111
Lesser black-backed gull	9,450	4,093 (passage)	94
Dunlin	26,982	26,416	269
Black-tailed godwit	2,413	N/A	24
Knot	32,739	66,335	327
Cormorant	N/A	967 (spring/autumn)	9

Species	Morecambe Bay and Duddon Estuary SPA population (2009/10–2013/14)	Ramsar site population (1998/9-2002/3)	1% threshold of the SPA / Ramsar site population
Red-breasted merganser	N/A	327	3
Wigeon	N/A	6,133	61
Ringed plover	1,049	1,041 (passage)	10
Golden plover	1,900	4,073 (wintering)	19

Pink-footed Goose (Autumn and Winter)

Desk Study

- 3.3.6 Information provided by LERN identified an area of approximately 145,000km² to the north of the River Wyre (of which a small proportion lies within 1km of the Scheme) is regularly used by pink-footed geese. At its closest point this area is 370m north of the Scheme. Records of pink-footed geese within the Desk Study Area were also provided by LERN; of these, 10 records were of flocks above the 1% population threshold. Fylde Bird Club also provided 14 records of pink-footed geese above the 1% population threshold, 5 of which were within Area 1, 2 records correlated to Area 5 and 1 record in Area 2. The remaining 6 records were associated with the estuary and adjacent habitats in Areas 4 and 6.
- 3.3.7 A review of Natural England’s swan and goose functional land Impact Risk Zone (IRZ) GIS (Geographic Information System) layer showed that a proportion of the Scheme lies within the IRZ. The farmland within and adjacent to the southern end of the Scheme is within the IRZ, and therefore has the potential to be functionally-linked to the Morecambe Bay and Duddon Estuary SPA/ Morecambe Bay Ramsar site. The northern end of the Scheme is not within the IRZ, is closer to existing centres of development and is considered unlikely to represent functionally-linked land. The IRZ is shown on Figure 8.4.3 (Sheet 1) in Annex E.

Field Surveys

- 3.3.8 Pink-footed geese were recorded throughout the wintering/passage bird surveys. A total of 103 observations were recorded during the 2016–17 surveys and 147 observations during the 2017-18 surveys. The majority of these records related to flocks flying over the survey area. All pink-footed goose foraging/roosting records are shown on Tables B1 and B2, in Annex B, and on Figure 8.4.3 (Sheet 1) in Annex E.
- 3.3.9 Table 3-4 shows the instances where 1% or greater of the of the Morecambe Bay and Duddon Estuary SPA population were recorded within the Bird Survey Area. The table also shows the land parcel within which each of the flocks were identified. These records are mapped on Figure 8.4.3 (Sheet 2) in Annex E. The

remaining records were either below the 1% threshold or were only observed in flight (as described in the following paragraphs).

Table 3-4: Foraging / Roosting Pink-Footed Goose Records Above 1% of SPA Population

Survey date	Number of birds	Area	Land parcel
Records within 300 m of construction area			
13/12/2016	1,500	2	11
18/01/2017	500	2	10
	260	2	10
28/03/2017	625	5	22
08/01/2018	160	2	8
09/01/2018	160	3	13
22/01/2018	400	3	13
05/02/2018	600	2	10
Records within wider bird survey area			
02/12/2016	1,400	1	3
09/12/2016	3,400	1	3
15/12/2016	165	6	28
18/01/2017	300	3	15
20/01/2017	800	4	17
25/01/2017	300	6	27
25/01/2017	250	6	27
03/10/2017	267	6	28
25/10/2017	530	3	12
09/01/2018	2,500	4	17
	220	3	13
23/01/2018	250	1	2
	400	2	7
08/03/2018	7500	6	28
13/03/2018	2000	6	28
19/03/2018	300	6	28
19/03/2018	2000	6	28
06/04/2018	475	3	15
10/04/2018	400	3	15
10/04/2018	400	3	15

3.3.10 During the first season of passage and winter surveys (2016-17), the number of pink-footed geese recorded within the Bird Survey Area peaked during December 2016 and January 2017, with 68 of the 103 records (including birds in flight) occurring during these two months. All records that comprised 1% or greater of the SPA population foraging or roosting within the Bird Survey Area were also recorded during December and January, including 2 large flocks of 3,400 and 1,500 birds in December (refer to Table 3-5). During the September, October and November 2016 surveys, very low numbers (1, 0 and 8 respectively) were recorded on the ground with larger flocks only recorded in flight, commuting over the Bird Survey Area. Only 2 observations of pink-footed goose were made

during the February survey, both of which related to birds in flight only with a flock of 41 birds and 35 birds recorded commuting through. There were 4 observations in March, 1 of which related to a flock of 625 birds foraging in Area 5 on 28 March 2017, the remaining 3 records were of either 1 or 2 birds foraging. There were 2 observations in April, with 5 birds recorded each time (refer to Table B-1 in Annex B).

- 3.3.11 During the second season of passage and winter surveys (2017-18), pink-footed geese were regularly recorded during October with 64 of the 147 observations (including birds in flight) occurring in this month. This included 2 records of foraging birds above the 1% threshold, comprising flocks of 267 birds and 530 birds. However, 58 of the October observations were recorded in flight only. The peak number of foraging birds within the farmland habitats occurred in January 2018 when 8 observations of flocks at or above the 1% threshold were recorded, with a peak count of 2,500 birds in Area 4. The highest number of birds were recorded in March 2018 with a peak-count of 7,500 (comprising a flock of 5,000 and 2,500 which joined together) and 2 further records of 2,000 birds and 1 flock of 300 birds were identified. These birds were all on the estuary in Area 6. Other large aggregations were recorded in February 2018, a single record of 600 birds within Area 2 was observed and in April two records, both in Area 3 comprised 400 and 475 birds (refer to Table B-2 in Annex B).

Summary

- 3.3.12 The bird survey results show that pink-footed geese are present within the Bird Survey Area throughout the passage and wintering periods. Flocks comprising birds at or above the 1% SPA threshold were most frequently recorded in Areas 2 and 3, coinciding with the eastern part of the Scheme (adjacent to the existing A585 road).
- 3.3.13 The bird surveys in Areas 1 and 5 did not identify any patterns of regular use by significant numbers of birds over the 2-year survey period. As such, whilst they do provide potentially suitable foraging habitat for pink-footed geese, the surveys have shown that the fields within these areas are only used on a sporadic and opportunistic basis. In addition, the large flocks which were recorded in Area 3 (2017-18) and Area 4 (2016-17), are beyond 300 m from the Scheme.

Curlew (Winter)

Desk Study

- 3.3.14 The desk study identified 21 records of curlew within the Desk Study Area. All of which were provided by Fylde Bird Club. LERN did not provide any records of curlew. Only 2 of the 21 records related to flocks at or above the 1% threshold. These comprised flocks of 208 and 161 birds. Both records related to fields to the south of Garstang Road East within Survey Area 1.

Field Surveys

- 3.3.15 Curlew were frequently recorded throughout the wintering/passage bird surveys. A total of 155 observations were recorded during the 2016–17 surveys, and 127 observations during the 2017-18 surveys. All curlew foraging/roosting records are shown on Tables B3 and B4, in Annex B, and on Figure 8.4.4 (Sheet 1) in Annex E.

3.3.16 Table 3-6 shows the instances where 1% or greater of the Morecambe Bay and Duddon Estuary SPA population were recorded foraging or roosting within the Bird Survey Area. The table also shows the land parcel within which each of the flocks were identified. These records are mapped on Figure 8.4.4 (Sheet 2) in Annex E with their corresponding target note number. The remaining records were all below the 1% threshold or were only observed in flight (as described in the following paragraphs).

Table 3-5: Foraging / Roosting Curlew Records 1% or Greater of SPA Population

Survey date	Number of birds	Area	Land parcel
Records within 300 m of construction area			
11/11/2016	124	1	5
19/12/2017	120	5	24
Records within wider bird survey area			
09/12/2016	180	3	16
04/10/2017	132	6	27
04/12/2017	142	6	27
05/12/2017	200	6	27
05/12/2017	201	6	27
23/01/2018	400	6	27
05/02/2018	150	6	28
19/02/2018	140	6	27

3.3.17 During the first season of passage and winter surveys (2016-17), the majority of the observations of curlew were associated with the River Wyre (Survey Area 6). The distribution of birds along the River Wyre was closely linked to the tidal state, with higher numbers of birds recorded at high tide. Only 2 of the records within the 2016-17 bird surveys related to flocks of 1% or greater of the Morecambe Bay and Duddon Estuary SPA population, comprising a flock of 124 birds in November within Survey Area 1, and a flock of 180 birds in December in Area 3. The remaining records were of sightings of flocks of less than 10 birds, with only a handful of sightings of over 50 birds (refer to Table B3 in Annex B and Figure 8.4.4 (Sheet 1) in Annex E).

3.3.18 Although overall fewer observations of curlew were recorded during the 2017-18 passage and wintering bird surveys, 8 of the records comprised flocks of above the 1% threshold population. Only 1 of these large flocks related to birds utilising farmland habitats (comprising 120 birds within Area 5 in December). The remaining records were all associated with the River Wyre (refer to Table B-4 in Annex B and Figure 8.4.4 (Sheet 2) in Annex E).

Summary

3.3.19 The bird survey results show that the majority of the curlew records across both survey seasons were associated with the River Wyre (Area 6) and immediately adjacent habitats. Only 2 flocks above the 1% SPA threshold were recorded utilising farmland habitat within Area 1 and Area 5. These survey results

correlated with the Fylde Bird Club data which also showed regular use by low number of birds, with only occasional presence of large flocks within farmland habitats.

Lapwing (Winter)

Desk Study

- 3.3.20 The desk study identified 25 records of lapwing within the Desk Study Area. One record was provided by LERN which related to 900 lapwing to the south of Garstang New Road at the eastern end of the Scheme (Area 1). Twenty-four records were provided by the Fylde Bird Club, of which 7 comprised flocks of above the 1% threshold population. Of these 7 large flocks, 6 were also associated with the farmland south of Garstang New Road (Area 1), with 1 record of 900 lapwing located to the east of Shard Bridge, on the River Wyre (Area 6).

Field Surveys

- 3.3.21 Lapwing were recorded throughout the passage and winter surveys. A total of 142 sightings were recorded during the 2016–17 surveys, and 102 during the 2017-18 surveys. All lapwing foraging/roosting records are shown on Tables B5 and B6, in Annex B, and on Figure 8.4.5 (Sheet 1) in Annex E.
- 3.3.22 Table 3-6 shows the instances where 1% or greater of the Ramsar site population were recorded within the Bird Survey Area. The table also shows the land parcel within which each of the flocks were identified. These records are mapped on Figure 8.4.5 (Sheet 2) in Annex E. The remaining records were all below the 1% threshold, or were only observed in flight (as described in the following paragraphs).

Table 3-6: Foraging / Roosting Lapwing Records 1% or Greater of Ramsar Population

Survey date	Number of birds	Survey area	Land parcel
Records within 300 m of construction area			
23/09/2016	400	4	18
05/04/2017	280	1	5
03/10/2017	320	5	25
19/12/2017	200	5	25
Records within wider bird survey area			
23/09/2016	800	4	18
21/10/2016	257	6	28
21/10/2016	240	6	27
28/10/2016	250	6	28
16/11/2016	230	4	18
16/11/2016	530	6	27
02/12/2016	400	6	28
02/12/2016	800	6	27
02/12/2016	390	6	27
20/01/2017	600	6	27
25/01/2017	400	6	27

Survey date	Number of birds	Survey area	Land parcel
17/02/2017	200	6	27
17/02/2017	320	6	28
19/09/2017	248	6	28
26/09/2017	420	6	27
27/09/2017	260	6	28
27/09/2017	197	6	28
11/10/2017	253	6	26
25/10/2017	189	6	28
26/10/2017	222	4	18
26/10/2017	287	6	27
14/11/2017	615	6	27
16/11/2017	225	6	27
04/12/2017	200	6	28
05/12/2017	500	6	27
05/12/2017	668	6	27
18/12/2017	200	6	28
18/12/2017	200	6	27
18/12/2017	193	6	27
19/12/2017	350	6	27
19/12/2017	600	6	27
09/01/2018	250	6	29
09/01/2018	250	3	13
22/01/2018	700	6	27
23/01/2018	400	6	27
05/02/2018	350	1	5
05/02/2018	200	6	28
20/02/2018	308	6	27
20/02/2018	600	6	28

3.3.23 During the first season of passage and winter surveys (2016-2017), the majority of the records were associated with the River Wyre and adjacent habitats. Only 15 records related to flocks comprising 1% or greater of the Ramsar site populations, of which all but 1 were recorded on or immediately adjacent to the River Wyre (Survey Area 6). A single record of 280 lapwing was associated with farmland in Survey Area 1, however, this flock was recorded during April 2017 and therefore is likely to relate to birds on passage rather than the wintering bird population for which the Ramsar site is designated. The majority of records were of flocks below 55 birds with the vast majority of records within the farmland areas being of fewer than 10 birds (refer to Table B-5 in Annex B).

3.3.24 A similar pattern of behaviour was recorded during the 2017–18 passage and winter surveys, with the majority of records were associated with the River Wyre and adjacent habitats. Of the 102 observations, 28 related to flocks comprising 1% or greater of the threshold population, of which only 3 were associated with farmland close to the Scheme (with 2 records in Area 5 and 1 in Area 1) (refer to Table B-6 in Annex B).

Summary

3.3.25 Similarly to curlew, the majority of the lapwing records across both survey seasons were associated with the River Wyre and immediately adjacent habitats, with only 4 of the flocks above the 1% or greater threshold recorded using habitat other than the River Wyre.

[Little Egret](#)

Desk Study

3.3.26 LERN provided 6 records of little egret comprising between 1 to 3 birds between 2011 and 2013. Fylde Bird Club data included a large number of records comprising between 1 to 8 birds. The wintering populations of little egret have increased markedly in recent years with the species distribution gradually expanding northwards (Balmer *et al.*, 2013).

Field Surveys

3.3.27 Little egret were recorded in small numbers throughout the winter and passage period. All little egret records (including flight and foraging/roosting records) are shown on Tables B-7 and B-8, in Annex B, and on Figure 8.4.6 in Annex E.

3.3.28 Little egret were recorded on 64 occasions throughout the 2016-17 wintering and passage period of which 51 were recorded on the ground (Refer to Table B-7 in Annex B). Seventeen observations of between 1 to 5 birds were recorded in Area 5. There were 3 sightings of 1 or 2 birds in Area 1 and a further 2 records of 1 to 7 birds in Area 2. The remaining records all related to birds either on or immediately adjacent to the River Wyre (Area 6).

3.3.29 Little egret showed a similar pattern of activity in 2017-18 when 60 observations were recorded (all but one were ground records). Fourteen of the sightings of between 1 and 3 birds were within Area 5, 4 sightings of 1 or 2 birds were within Area 2 and there was 1 record of a single bird in Area 1. The remaining records all related to birds on the River Wyre in Area 6, or immediately adjacent habitats in Areas 3 and 4.

Summary

3.3.30 Given that 1 bird equates to 1% of the SPA population, all sightings would represent 1% of the SPA population. Therefore, the peak count of 11 birds in Area 6 (September 2016) equates to 8% of the SPA population. The majority of the records related to individual birds.

[Shelduck \(Autumn Passage and Winter\)](#)

Desk Study

3.3.31 LERN provided a single record for shelduck comprising a single bird recorded in February 2012. The Fylde Bird Club data included 29 records of shelduck between 2009 to 2015. None of the records comprised flocks above the 1% SPA population threshold with a peak count of 30 birds at Little Singleton in December 2012.

Field Surveys

3.3.32 Six observations of between 1 and 9 shelduck were recorded along the river during the 2016 autumn passage surveys in land parcels 27 and 28 (Area 6). A single shelduck was recorded outside of the estuarine habitats on the nearest pond to Windy Harbour Road junction, in land parcel 12 (Area 3).

- 3.3.33 Only 1 record comprising 2 shelduck was recorded during the 2017 autumn passage surveys. The birds were recorded on the River Wyre towards the eastern extent of the Scheme.
- 3.3.34 Small numbers of shelduck continued to be recorded throughout the 2016–17 winter period with a further 42 records of between 1 and 9 birds. Eleven of the records were located within close proximity to the Scheme with the remainder either within the estuary or on fields over 350m from the Scheme.
- 3.3.35 Eighty-six sightings of shelduck were recorded between mid-November 2017 to April 2018. Two flocks comprising 1% or greater of the SPA population (70 and 79 birds) were recorded in February 2018, both on the River Wyre near Shard Bridge. Of the remaining observations, 22 were within Areas 1, 2 and 5 which would be affected by the Scheme with a peak count of 7 birds. All of the other observations were within Area 6 on the River Wyre or in adjacent fields within Areas 3 and 4.

Summary

- 3.3.36 Throughout the survey period, there were two flocks of shelduck above the 1% threshold recorded during the winter/passage surveys in 2017-18 with a peak count of 79 birds. Both of these records were within the River Wyre. Inland, the largest flock recorded was 9 birds in Area 1 which equates to less than 0.2% of the SPA population. Therefore, overall, the habitats that would be affected by the Scheme are not considered to constitute functionally-linked land for shelduck.

Redshank (Passage and Winter)

Desk Study

- 3.3.37 LERN did not provide any desk study records for redshank. The Fylde Bird Club data included 21 records between 2008 to 2013. Two records were associated with 1% or greater of the SPA population with a peak count of 400+ birds in September 2008 at Skippool Creek and 140 birds on the River Wyre at Little Singleton in December 2009 (both in Area 6).

Field Surveys

- 3.3.38 Redshank were recorded foraging and roosting on the River Wyre and the adjacent estuarine habitats on each of the 2016 autumn passage survey visits. All of the records were observed within Areas 4 and 6 (land parcels 18, 19, 27, 28 and 29). Redshank distribution was influenced by the tidal state with birds foraging along the sections of the river mudflats exposed by the tidal retreat. A peak count of 55 birds was recorded during the survey visit on 28 October 2016. Two smaller flocks of 11 and 20 birds were also observed foraging on the exposed muddy banks of the river during this visit along with a small number of records of between 1 and 11 birds. Numbers fluctuated throughout the 2016 autumn passage surveys dependent on the tidal state with the larger flocks being recorded during mid-high tide; however, none were 1% or greater of the SPA population.
- 3.3.39 A similar distribution was recorded during the 2017 autumn passage surveys with all redshank observations occurring along the River Wyre or on Skippool Creek at the northern extent of the Scheme. A peak flock size of 71 birds was recorded on 18 October 2017 on the northern bank of the River Wyre, with a further 2 flocks of 41 and 50 birds observed at the mouth of Skippool Creek on 17

October. During the two visits in September 2017, 6 flocks ranging from 22 to 42 with the remaining 37 records comprising fewer than 18 birds with most relating to 1–5 birds. Again, none were 1% or greater of the SPA population.

- 3.3.40 Redshank were also present throughout the remainder of the winter period and spring passage with 110 records from mid-November 2016 to April 2017, although none were 1% or greater of the SPA population. The majority of the sightings related to birds on or immediately adjacent to the estuary, north of the Scheme. Only 6 records related to birds utilising fields inland with 5 records from land parcel 3, comprising 1 record of 71 and 1 record of 51 birds with the remaining records fewer than 6 birds, foraging on the permanent flash of the arable farmland; and 1 record of 4 birds to the east within land parcel 4. All the records within these fields were over 650 m to the south of the Scheme.
- 3.3.41 During the winter and spring passage surveys from mid-November 2017 to April 2018, there were 122 observations of redshank. One of the recordings related to 120 birds which is just over 1% of the SPA redshank population, this flock was recorded on the estuary close to Shard Bridge. All of the remaining sightings were of fewer than 55 birds. Six records related to birds within Area 5 with a peak count in this area of 7 birds and 4 records related to birds in Area 1 with a peak count of 5 birds. All of the remaining observations of redshank were within Area 6 on the River Wyre or within Areas 3 and 4 in close proximity to the estuary.

Summary

- 3.3.42 Despite the relatively large number of records of redshank throughout the 2-year survey period, there was only one flock above the 1% or greater threshold recorded during the winter/passage surveys (the peak count of 120 birds in Area 6 equates to 1.1% of the SPA population). Within fields closer to the Scheme, a peak count of 71 birds (0.6% of the SPA population) was recorded in Area 1.

Oystercatcher (Autumn Passage and Winter)

Desk Study

- 3.3.43 LERN did not provide any desk study records for oystercatcher. Fylde Bird Club data identified 16 records between 2009 and 2013 with a peak count of 21 birds on the River Wyre at Little Singleton.

Field Surveys

- 3.3.44 Oystercatcher was observed on 4 occasions during the 2016 autumn passage surveys. Two of the observations were of birds flying over the river. A peak count of 35 birds, was seen foraging on the edge of Skippool Creek and the saltmarsh on the south bank of the river between land parcel 18 and 27. A second flock of 11 birds was observed on the north bank of the estuary in land parcel 27.
- 3.3.45 A single oystercatcher was recorded in Area 5, close to the Scheme during the November 2017 passage surveys. There were no other observations of oystercatcher during the 2017 autumn passage surveys.
- 3.3.46 Oystercatcher was observed sporadically throughout the early winter period with no records in December 2016, 1 record in January 2017 and 2 records in February 2017 (including a single flock of 21 birds). Forty-two records of oystercatcher were recorded in March 2017 although these generally related to

between 1 and 3 birds with a single record of 7 birds being the peak count. The majority of these sightings were again related to the estuary.

- 3.3.47 A similar pattern as recorded in 2017-18 with a single record of 5 birds from December 2017, no records in January 2018 and 6 records of between 1 and 6 birds in February 2018. There were 35 records in March 2018, 1 record related to 8 birds with the remaining records being of 1-4 birds. A further 33 records were identified in April 2018 again comprising small numbers of birds with a peak count of 7 birds. Only 8 of the total number of records were within habitats that could be affected by the Scheme.

Summary

- 3.3.48 Throughout the survey period, there were no flocks of oystercatcher above the 1% or greater threshold recorded during the winter/passage surveys (the peak count of 21 birds equates to less than 0.1% of the SPA population). The majority of records were related to the estuary and adjacent habitats.

Golden plover (Autumn Passage and Winter)

Desk Study

- 3.3.49 LERN provided a single record for golden plover comprising a single bird recorded in August 2013. The Fylde Bird Club data included 4 records of golden plover between 2009 to 2015. Only 1 record comprised a flock above the 1% or greater SPA population threshold with a peak count of 33 birds at Shard Bridge Farm in September 2013.

Field Surveys

- 3.3.50 Four observations of golden plover were recorded during the 2016/2017 autumn passage and winter surveys, 2 of which related to birds in flight. The remaining 2 records related to foraging or roosting birds and both comprised 1% or greater of the SPA population. A flock of 200 birds was recorded on the edge of the River Wyre in Area 4 (Land Parcel 18) in September 2016 and 32 birds overserved within the Estuary in Land Parcel 27 (Area 6) recorded in October 2016.
- 3.3.51 Seventeen sightings of golden plover were recorded between end-September 2017 to March 2018, 12 of which related to flocks of 1% or greater of the SPA population. Only 1 flock comprising 1% or greater of the SPA population (70 birds) was recorded away from the River Wyre with 70 birds recorded in Area 1 (Land Parcel 5) in February 2018. The remaining 11 records comprising flocks of 1% or greater were all within Land Parcels 27 or 28 in Area 6. Three of the remaining observations, were within Areas 5 which would be affected by the Scheme; however, a peak count of 3 birds was recorded in this location. The other two small flocks were within Area 6 on the River Wyre.

Summary

- 3.3.52 Throughout the survey period, there were 14 flocks of shelduck above the 1% or greater threshold recorded during the winter/passage surveys with a peak count of 397 birds. All but one of these records were within the River Wyre. Inland, the largest flock recorded was 70 birds in Area 1, over 300 m from the Scheme. Only 3 flocks of 2 or 3 birds were recorded utilising habitats in Area 5 which could be affected by the Scheme.

Lesser Black-backed Gull (Autumn Passage and Winter)

Desk Study

- 3.3.53 LERN did not provide any desk study records for lesser black-backed gull. Fylde Bird Club provided 11 records between 2011 and 2015 with a peak count of 30 birds at Little Singleton in April 2011.

Field Surveys

- 3.3.54 Lesser black-backed gull was recorded throughout the Bird Survey Area during the 2016 autumn passage survey visits, with a peak count of 130 being observed on the estuary, west of Shard Bridge, during the first survey visit on 23 September 2016. The remaining records from the autumn related to between 1 and 22 birds with only 3 records (of fewer than 3 birds) close to the Scheme in land parcels 23 and 5.
- 3.3.55 During the 2017 autumn passage period, a peak count of 85 birds was observed, again on the estuary west of Shard Bridge. Two sightings of 3 birds were within Area 1 and close to the Scheme with the remaining observations of between 1 and 32 birds being on or adjacent to the estuary.
- 3.3.56 A further 132 lesser black-backed gull sightings were recorded during the 2016–17 winter period and spring passage, over half of which related to birds in flight within the Bird Survey Area, including 1 record of 120 birds flying over in April 2017. A peak count of 40 birds was recorded on 2 occasions during the March surveys with both records associated with Area 4. The remaining records were for individuals or small flocks of below 20 birds with the majority of foraging records associated with the estuary and adjacent habitats.
- 3.3.57 Fifty-two records of lesser black-backed gull were identified during the winter period and spring passage in 2017-18. The majority of the records were again associated with the estuary and adjacent habitats with a peak count of 30 birds in land parcel 27. A small number of birds were recorded in Areas 1, 2 and 5, close to the Scheme, with a peak count of 25 birds within Area 1 recorded in April 2018.

Summary

- 3.3.58 Throughout the survey period, there was only 1 flock of lesser black-backed gull above the 1% threshold recorded on the ground during the winter/passage surveys (the peak count of 130 birds in survey area 6 equates to 1.3% of the SPA population). The remaining records of lesser black-backed gull were all below the 1% threshold.

Cormorant (Autumn)

Desk Study

- 3.3.59 LERN provided 1 record of a single juvenile cormorant in February 2014. Fylde Bird Club provided 3 records between 2011 and 2014 with a peak count of 3 birds recorded at Little Singleton in June 2011.

Field Surveys

- 3.3.60 Cormorant were recorded throughout the 2016 autumn passage survey visits foraging within the Bird Survey Area. They were closely associated with the river and estuarine habitats, with all but 1 of the 18 records of foraging, roosting or wing-spreading cormorant being observed in land parcels 18, 27 and 28. The

peak count of 8 cormorant was recorded on 30 September 2016 at the point where Skippool Creek meets the River Wyre within land parcel 18 (Area 4).

3.3.61 Cormorant were not recorded during the 2017 autumn passage surveys.

Summary

3.3.62 Throughout the survey period, there were no flocks of cormorant above the 1% threshold recorded during passage surveys (the peak count of 8 birds equates to 0.8% of the SPA population). A peak count of 13 birds was recorded during the winter within Area 3 to the north of the eastern end of the Scheme. The majority of records were related to the estuary and adjacent habitats.

Dunlin, Black-tailed Godwit, Knot, Red-breasted Merganser, Wigeon and Ringed Plover

Desk Study

3.3.63 LERN did not provide any desk study records for these species. Fylde Bird Club records included 2 records, including 1 of over 1,500 birds at Skippool Creek in August 2008; 2 records of black-tailed godwit with a peak count of 10 birds on the Wyre Estuary at Little Singleton in March 2010; 1 record of 12 knot at Little Singleton in October 2009; and 2 records of approximately 20 wigeon from Little Singleton in October 2012 and November 2013.

Field Surveys

3.3.64 All of these species were recorded sporadically in small numbers throughout the 2 seasons of winter and passage surveys.

3.3.65 Dunlin were recorded 28 times, all within Areas 3, 4 and 6 on or immediately adjacent to the estuary. A peak count of 400 was recorded on one occasion in March 2018 (1.48% of the SPA population). All remaining sightings were below 1% of the SPA population with the majority of the observations being below 50 birds.

3.3.66 Wigeon were recorded 39 times, with a peak count of 60 birds (0.9% of the SPA population) in Area 1. A small number of larger flocks (7 records of between 63–140, and therefore over 1% of the SPA population) were recorded on the estuary in Land Parcel 28 during the 2017/18 winter.

3.3.67 Black-tailed godwit (also designated for supporting a nationally important population on the River Wyre SSSI citation) were recorded on 6 occasions throughout the 2-year survey period. Once within Area 1 (6 birds, 0.1% of the SPA population), once within Area 4 with a single bird identified in Land Parcel 17, twice within Area 5, with a flock of 5 birds records on the ground in Land Parcel 25 and a flock of 39 birds flying though and twice within Area 6 with 1 flock of 73 recorded on the Estuary in Land Parcel 27.

3.3.68 A single flock of 170 knot (0.5% of the SPA population) was observed in Area 1 during the survey on 23 September 2016. Knot were not recorded during the 2017-18 surveys.

3.3.69 Ringed plover was recorded on 2 occasions, both in November 2016, with a single bird recorded in Area 3 and another individual recorded in Area 6. Ringed plover was not recorded during the 2017-18 surveys.

3.3.70 Finally, a single sighting of 2 red-breasted merganser (0.6% of the SPA population) was recorded in Area 6 on 7 October 2016. Red-breasted merganser was not recorded during the 2017-18 surveys.

Summary

3.3.71 Throughout the survey period, none of these species were utilising farmland habitats in numbers above the 1% threshold populations.

Overwintering Waterbird Assemblage

3.3.72 In addition to the individual qualifying features (discussed above), the waterbird assemblage is also a qualifying feature of both the Morecambe Bay and Duddon Estuary SPA and Morecambe Bay Ramsar site, as outlined in Table 3-7.

Field Surveys

3.3.73 Birds which could make up the waterbird assemblage associated with Morecambe Bay and Duddon Estuary SPA and Morecambe Bay Ramsar site were recorded throughout the winter surveys. A total of 41 species was recorded during the 2016–2017 surveys, and a total of 37 species was recorded during the 2017–2018 winter bird surveys. These are listed in Table 3-7.

Table 3-7: Waterbird Species Recorded During the Wintering Bird Surveys (date in brackets where only recorded during one season)

Species			
Barnacle goose	Goldeneye (2017/18)	Lesser black-backed gull	Redshank
Black-headed gull	Goosander	Little egret	Ringed plover (2016/17)
Black-tailed godwit	Great Black-backed gull	Little grebe (2016/17)	Shelduck
Canada goose (2016/17)	Green sandpiper	Mallard	Shoveler (2017/18)
Common gull	Greenshank	Manx shearwater (2016/17)	Snipe
Common sandpiper (2017/18)	Greylag goose	Mediterranean gull (2016/17)	Teal
Coot (2016/17)	Grey plover (2017/18)	Moorhen (2016/17)	White-fronted goose
Cormorant	Herring gull	Mute swan	Whimbrel (2017/18)
Curlew	Jack snipe (2016/17)	Oystercatcher	Whooper swan
Dunlin	Kingfisher	Pink-footed goose	Wigeon
Gadwall	Knot (2016/17)	Pintail (2017/18)	Woodcock (2017/18 only)
Golden plover	Lapwing	Red-breasted merganser (2016/17)	Yellow legged gull (2016/17)

3.3.74 Excluding those species already discussed as individual qualifying species,

above, the field survey results indicate that the majority of birds which would constitute the waterbird assemblage were recorded utilising the River Wyre and adjacent habitats (Area 6). The largest aggregations of birds were recorded on the mudflats adjacent to the River.

- 3.3.75 The peak count of each species within each survey area across each season of survey was used to provide an indication of the level of use of the habitats across the site by species that form the waterbird assemblage. Table 3-8 shows the species recorded and their peaks counts by survey area.

Table 3-8: Peak Count of all Waterbird Species by Survey Area (total in brackets excludes 1% or greater flocks of pink-footed goose, curlew and lapwing)

Area	Species	Peak Count 2016-17	Peak Count 2017-18
1	Cormorant	1	
	Curlew	124	7
	Little Egret	1	1
	Gadwall	2	
	Greylag Goose	2	7
	Grey Heron	1	
	Golden Plover		70
	Lapwing	100	350
	Mallard	140	30
	Mute Swan	4	2
	Oystercatcher	2	2
	Pink-footed Goose	3,400	250
	Redshank	71	13
	Snipe	2	50
	Shelduck	9	2
	Teal	7	30
	Wigeon	60	
Woodcock		1	
	Total Area 1	3,926 (402)	814 (214)
2	Cormorant	3	2
	Canada Goose	1	
	Curlew	29	13
	Little Egret	7	2
	Greylag Goose		15
	Grey Heron	1	
	Lapwing	9	50
	Mallard	200	133
	Moorhen	1	
	Mute Swan	10	2
	Oystercatcher	3	2
	Pink-footed Goose	1,500	600
	Snipe	11	11
	Shelduck	1	5
Teal	45	28	
Woodcock		1	
	Total Area 2	1,821 (321)	862 (262)
3	Cormorant	6	
	Canada Goose	18	6
	Curlew	180	45
	Dunlin		8
	Little Egret	2	8
	Gadwall	3	
	Greylag Goose	8	44
	Grey Heron	1	
	Lapwing		250
	Mallard	100	38
	Jack Snipe	1	
Kingfisher	1		

Area	Species	Peak Count 2016-17	Peak Count 2017-18
	Little Grebe	1	
	Moorhen	2	
	Mute Swan		2
	Manx Shearwater	2	
	Oystercatcher	2	2
	Pink-footed Goose	300	530
	Redshank	6	45
	Snipe	7	20
	Shelduck	2	7
	Teal	150	280
	Whimbrel		1
	White-fronted Goose		1
	Wigeon		60
	Total Area 3	792 (312)	1,347 (567)
4	Cormorant	2	1
	Coot	1	
	Black-tailed Godwit		1
	Curlew	37	47
	Little Egret	3	7
	Greylag Goose		79
	Kingfisher		1
	Lapwing	230	146
	Mallard	6	18
	Mute Swan		2
	Oystercatcher	2	4
	Pink-footed Goose	800	2,500
	Pintail		1
	Redshank	12	50
	Snipe	1	18
	Shelduck	2	4
	Teal		12
	Whimbrel		1
Woodcock	1	5	
	Total Area 4	1,097 (67)	2,892 (392)
5	Cormorant	4	
	Coot	1	
	Black-tailed Godwit		5
	Curlew	38	120
	Little Egret	5	3
	Gadwall		6
	Greylag Goose		14
	Grey Heron	1	
	Golden Plover		3
	Lapwing	24	320
	Mallard	27	25
	Moorhen	2	
	Oystercatcher	2	6
	Pink-footed Goose	625	134
	Pintail		2
Redshank		7	
Snipe	6	4	

Area	Species	Peak Count 2016-17	Peak Count 2017-18
	Shelduck	4	7
	Shoveler		4
	Teal	22	93
	Whooper Swan		5
	Wigeon		6
	Woodcock	2	1
	Total Area 5	763 (138)	765 (325)
6	Barnacle Goose	1	1
	Bittern		1
	Cormorant	5	
	Canada Goose	160	
	Black-tailed Godwit		73
	Common Sandpiper		2
	Curlew	100	400
	Dunlin	34	400
	Little Egret	3	9
	Goosander	1	
	Greylag Goose	38	198
	Greenshank	1	1
	Goldeneye		6
	Golden Plover	32	397
	Grey Plover		100
	Green Sandpiper		1
	Grey Heron	1	
	Jack Snipe	1	
	Lapwing	800	700
	Mallard	38	60
	Mute Swan		2
	Oystercatcher	35	8
	Pink-footed Goose	300	7,500
	Redshank	55	120
	Red-breasted Merganser	2	
	Ringed Plover	1	
	Snipe	8	3
	Shelduck	11	79
	Teal	80	70
	Whimbrel		12
White-fronted Goose	50		
Wigeon	35	140	
Total Area 6	1,792 (692)	10,283 (1,683)	

Summary

- 3.3.76 The combined peak count of each species of waterbird present within each of the Bird Survey Areas, exceeded 1% of the SPA assemblage (i.e. 2,667 birds), in only 1 of the 6 survey areas during the 2016–17 winter bird surveys. Area 1 showed a total of 3,926. This combined peak count included a peak count of 3,500 pink-footed geese in December 2016.
- 3.3.77 During the 2017-18 surveys, the combined peak count exceeded 1% of the SPA assemblage in Areas 4 (2,892) and 6 (10,2083), again due to the presence of

large pink-footed goose flocks recorded within these areas (2,500 in Area 4 and 7,500 in Area 6).

Nationally Important Species Recorded During Spring / Autumn Passage and Winter Bird Surveys

- 3.3.78 In addition to the SPA/ Ramsar site species described above, three waterbird species are also listed on the Wyre SSSI citation due to supporting nationally important populations. These comprise black-tailed godwit, turnstone and teal (during periods of hard weather). Black-tailed godwit are also a qualifying species of the SPA and as such are described in more detail in paragraph 3.3.74. Turnstone were not recorded during the bird surveys.
- 3.3.79 Teal were recorded across the survey area during both survey seasons. Peak counts of teal are provided within Table 3-8 as this species also forms part of the wintering bird assemblage associated with the SPA/Ramsar sites. The majority of the teal flocks identified away from the river during both wintering and passages seasons were closely linked to the presence of ponds with the largest flocks identified in Land Parcels 23 (93 birds), 24 (25 birds) and 12 (280 birds) either on or adjacent to ponds.

Other Species Recorded During Spring / Autumn Passage and Winter Bird Surveys

- 3.3.80 Twenty-six other notable species or Birds of Conservation Concern (Eaton *et al* 2009 and / or species listed on Section 41 of the NERC Act) were also recorded during the autumn / spring passage and winter bird surveys. Table 3-9, below, shows the peak count for each of these species during each of the two survey seasons within each of the Bird Survey Areas along with their conservation status.

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Table 3-9: Peak Count of Important Bird Species Recorded During the Passage and Winter Bird Surveys

Species recorded	Conservation status (see Annex D)					Peak bird count per survey area, per year (September to April)											
						Area 1		Area 2		Area 3		Area 4		Area 5		Area 6	
	Red List	Amber List	Sch. 1	NERC Act	LBAP	2017	2018	2017	2018	2017	2018	2017	2018	2017	2018	2017	2018
Hen Harrier (<i>Circus cyaneus</i>)	✓			✓	✓	1											
Peregrine (<i>Falco peregrinus</i>)			✓							1	2						1
Kestrel (<i>Falco tinnunculus</i>)		✓			✓	1		1	2	1	2	1	1		1	1	1
Stock Dove (<i>Columba oenas</i>)		✓				8	40	2	5	2	2		2		1		2
Tawny Owl (<i>Strix aluco</i>)		✓								1							
Barn Owl (<i>Tyto alba</i>)			✓				2				1				1		
Kingfisher (<i>Alcedo atthis</i>)		✓	✓			1				1			1				
Marsh tit (<i>Poecile palustris</i>)	✓							2		1							
Skylark (<i>Alauda arvensis</i>)	✓			✓	✓	6	2	2	3	3	5	4	6	2		7	5
House Martin (<i>Delichon urbicum</i>)		✓						4	20	3					13		
Grasshopper Warbler (<i>Locustella naevia</i>)	✓			✓	✓							1		2			
Starling (<i>Sturnus vulgaris</i>)	✓			✓	✓	200	1,500	200	1,100	150	2	450	85	70	350	25	12
Fieldfare (<i>Turdus pilaris</i>)	✓					140	8		400	50	25	1	1	5	7	2	
Song Thrush (<i>Turdus philomelos</i>)	✓			✓	✓	2	2	1	13	3	1	1	6	7	2	1	2
Redwing (<i>Turdus iliacus</i>)	✓					20	35	30	200	90	61	110	7	17	50		15
Mistle Thrush (<i>Turdus viscivorus</i>)	✓						1	1	4	2	1	3	2	1	1		
Dunnock (<i>Prunella modularis</i>)		✓		✓	✓	1	3	2	2	3	1	2	2	1	2		1
House Sparrow (<i>Passer domesticus</i>)	✓			✓	✓	20		20		4	20		4				
Tree Sparrow (<i>Passer montanus</i>)	✓			✓	✓			2	2	6	12		17		10		2
Grey Wagtail (<i>Montacilla cinerea</i>)	✓					2	1	3	2	2	1		1		3	1	
Meadow Pipit (<i>Anthus pratensis</i>)		✓			✓	16	100	8	39	65	8	6	9	11	80	9	4
Linnet (<i>Carduelis cannabina</i>)	✓			✓	✓	8	30		15	1	4	1	1	2	2	15	
Bullfinch (<i>Pyrrhula pyrrhula</i>)		✓		✓				2		1							5
Reed Bunting (<i>Emberiza schoeniclus</i>)		✓		✓	✓	1		2		1	10	2	3	1	2	1	5
Number of species recorded						15	12	16	14	20	16	12	16	11	15	9	11

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3.3.81 A range of species were recorded across the survey area with Area 6 showing the lowest species diversity in terms of other important bird species. Survey Area 3 had the highest number of species recorded across both survey seasons although Areas 1 and 2 appeared to support larger numbers of individual species such as starling, fieldfare and redwing which forage in groups over the winter period.

3.3.82 In addition, 38 other bird species typical of the hedgerow, scrub or farmland habitats present within the Bird Survey Area were also recorded during the winter/passage bird surveys. A full list of the other bird species recorded during the winter/passage surveys is presented in Annex C.

3.4 Breeding Bird Survey

3.4.1 The results of the 2017 breeding bird surveys are described in the following sections. Detailed results tables are provided in Annex D.

Morecambe Bay and Duddon Estuary SPA and Ramsar Site Qualifying Species

3.4.2 Two Morecambe Bay and Duddon Estuary SPA qualifying species were observed during the 2017 breeding bird transect surveys: herring gull and lesser black-backed gull. Table 3-10 shows the peak counts of each of the qualifying species recorded during the breeding bird surveys and the time of day (dusk or dawn) during which the survey was undertaken.

Table 3-10: Peak Count of Qualifying Species During Breeding Bird Surveys

Species	Qualifying feature	Peak count		
		April	May	June
Herring gull	Morecambe Bay and Duddon Estuary SPA/ Criterion 6 Ramsar site species (during breeding season)	17 (dusk)	3 (dawn)	1 (dawn)
Lesser black-backed gull		7 (dusk)	5 (dawn)	22 (dawn)

Herring Gull

Desk Study

3.4.3 Fylde Bird Club provided 6 records of herring gull within 500m of the Scheme during the breeding season (between 2011 and 2015). The records related to between 1 and 4 birds with no confirmed breeding birds identified.

Field Surveys

3.4.4 Herring gull were recorded on 26 occasions during the breeding bird surveys, 10 of which related to birds flying over the Bird Survey Area rather than utilising habitats on the ground.

3.4.5 Herring gull were recorded foraging or roosting during each survey visit throughout the breeding season. All but 2 of the observations related to either 1, 2 or 3 birds. The remaining 2 records related to 13 birds foraging/roosting on the banks of the River Wyre to the east of land parcel 29 and 9 birds utilising low-lying waterlogged ground to forage in land parcel 24: both recorded during the April 2017 surveys.

3.4.6 The abundance of herring gulls recorded utilising the Bird Survey Area decreased throughout the breeding season: 10 records of between 1 to 13 birds

in April, 5 records of between 1 to 3 birds in May and 1 record of a single bird in June (Table D-1 in Annex D). No confirmed nesting sites were recorded during the surveys.

Summary

- 3.4.7 The breeding bird surveys indicate that the Bird Survey Area is only utilised by herring gulls in small numbers and on a sporadic basis for foraging during the breeding season.

Lesser black-backed Gull

Desk Study

- 3.4.8 Fylde Bird Club provided 9 records of lesser black-backed gull within 500m of the Scheme during the breeding season (between 2011 and 2015). The records related to between 1 and 30 birds. No confirmed sightings of breeding activity were recorded.

Field Surveys

- 3.4.9 Lesser black-backed gull were observed on 20 occasions during the breeding season, 1 of which related to birds flying over the Bird Survey Area (Table D-2 in Annex D). All but 6 of the observations related to birds utilising the estuarine habitats along the River Wyre. The majority of the observations related to small groups of between 1 to 5 birds. A flock of 7 was recorded in April on the River Wyre east of land parcel 29. In June, 2 flocks of 11 and 22 birds were recorded foraging on the River Wyre at Skippool Creek in land parcel 27. No confirmed nesting sites were recorded during the surveys.

Summary

- 3.4.10 The breeding bird surveys indicate that the survey area is only utilised by lesser black-backed gulls in small numbers and on a sporadic basis for foraging during the breeding season, with the riverine habitats most frequently used.

Schedule 1 Species

Desk Study

- 3.4.11 The desk study identified records of a small number of Schedule 1 species. LERN provided 6 records for barn owl, 2 of which related to possible breeding records in April and May 2011. The only other Schedule 1 species record provided by LERN comprised a single record of peregrine in August 2012 with no indication that this species may have been breeding.

Field Surveys

- 3.4.12 Barn owl have been recorded within the Bird Survey Area, and two potential nesting/roosting sites have been identified, the closest of which was over 200m from the Scheme boundary.
- 3.4.13 A single green sandpiper was observed in June (14th June 2017) on the exposed mudflats within land parcel 28. Green sandpiper, a species which occurs as a winter visitor to UK freshwater habitats, is likely to have been an early arrival on passage and used the mudflats and surrounding estuarine habitats of the river to forage. Due to a single observation of green sandpiper during the breeding season and their low breeding density for the UK (1–2 pairs), it is concluded that

no green sandpiper were breeding within the bird survey area. There were no records of green sandpiper provided by LERN, or Fylde Bird Club during the breeding season.

3.4.14 No other Schedule 1 species were recorded during the breeding season surveys.

Summary

3.4.15 Although a small number of Schedule 1 species have been recorded within the Bird Survey Area, none are considered likely to be breeding within or adjacent to the Scheme.

Other Species

3.4.16 Twenty-six other notable species (i.e. Birds of Conservation Concern (Eaton *et al* 2015) and/or species listed on Section 41 of the NERC Act) were recorded during the breeding bird transect surveys. Of these 26 species, 10 were considered likely to be breeding within the Bird Survey Area and the other 16 species were considered likely to be breeding elsewhere and to be using the Bird Survey Area as a foraging resource. Table 3-11 shows the peak count for each of these species, their potential breeding status within the Bird Survey Area, and their conservation status.

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Table 3-11: Peak Count of Important Bird Species Recorded During the Breeding Bird Surveys

Species recorded	Conservation status (see Annex D)				Peak bird count per survey area (April to June 2017)					Breeding status
	Red List	Amber List	Sch. 1	NERC Act	Area 1	Area 2	Area 3	Area 4	Area 5	
Mute Swan (<i>Cygnus olor</i>)		✓						3 (June)		U
Greylag Goose (<i>Anser anser</i>)		✓			6 (April)	12 (May)	19 (April)		16 (May)	L
Shelduck (<i>Tadorna tadorna</i>)		✓			20 (May)			11 (June)		L
Eurasian Teal (<i>Anas crecca</i>)		✓			3 (April)	4 (April)			12 (April)	L
Mallard (<i>Anas platyrhynchos</i>)		✓			33 (April)	64 (April)	41 (April)	21 (May)	17 (May)	C
Kestrel (<i>Falco tinnunculus</i>)		✓			1 (April)		1 (June)		2 (All)	P
Oystercatcher (<i>Haematopus ostralegus</i>)		✓			8 (June)					U
Lapwing (<i>Vanellus vanellus</i>)	✓			✓	12 (June)					U
Curlew (<i>Numenius arquata</i>)	✓			✓	2 (May)					U
Green Sandpiper (<i>Tringa ochropus</i>)		✓	✓				1 (June)			U
Redshank (<i>Tringa totanus</i>)		✓			16 (April)					P
Snipe (<i>Gallinago gallinago</i>)		✓					1 (April)			U
Black-headed Gull (<i>Chroicocephalus ridibundus</i>)		✓						3 (June)		U
Herring Gull (<i>Larus argentatus</i>)	✓			✓	3 (April)	2 (April)	18 (April)	19 (April)	11 (April)	P
Stock Dove (<i>Columba oenas</i>)		✓					2 (April)	1 (May)		P
Skylark (<i>Alauda arvensis</i>)	✓			✓	5 (May)	2 (June)	9 (May)	4 (May)		C
House Martin (<i>Delichon urbicum</i>)		✓				17 (June)				P
Willow Warbler (<i>Phylloscopus trochilus</i>)		✓			1 (June)	2 (May)	3 (May)		3 (May)	L
Grasshopper Warbler (<i>Locustella naevia</i>)	✓			✓			1 (May)	1 (May)		P
Starling (<i>Sturnus vulgaris</i>)	✓			✓	6 (April)	2 (May)	5 (April)		3 (May)	P
Song Thrush (<i>Turdus philomelos</i>)	✓			✓	3 (May)	6 (June)	6 (June)	4 (May/June)	7 (May)	L
Mistle Thrush (<i>Turdus viscivorus</i>)	✓				1 (May)	2 (June)		4 (May)	1 (May)	L
Spotted Flycatcher (<i>Muscicapa striata</i>)	✓			✓					1 (June)	U
Duncock (<i>Prunella modularis</i>)		✓		✓	2 (May)	4 (May)	13 (May)	3 (April)	9 (May)	L
House Sparrow (<i>Passer domesticus</i>)	✓			✓		7 (June)	1 (June)	9 (June)	4 (May)	L
Tree Sparrow (<i>Passer montanus</i>)	✓			✓			4 (June)		2 (May)	L
Meadow Pipit (<i>Anthus pratensis</i>)		✓					1 (May)	1 (May)		L
Linnet (<i>Carduelis cannabina</i>)	✓			✓	3 (May)	12 (May)				P
Yellowhammer (<i>Emberiza citrinella</i>)	✓			✓			1 (June)			P
Reed Bunting (<i>Emberiza schoeniclus</i>)		✓		✓			12 (May)	6 (June)	2 (June)	P

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- 3.4.17 Thirty-four other bird species typical of the farmland and scrub were also recorded during the breeding bird surveys. A full list of the other bird species recorded is presented in Table D-3, Annex D.
- 3.4.18 The results of the breeding bird surveys identified that all of the survey areas supported a diverse assemblage of bird species associated with the farmland and estuarine habitats within the Bird Survey Area.
- 3.4.19 The farmland and accompanying hedgerows within Areas 1 to 5 represented the most valuable foraging and nesting habitats for farmland species, such as tree sparrow, yellowhammer and linnet. Although ground-nesting bird species, such as meadow pipit (2 single observations) and skylark (peak count 9 in May), were observed, only small numbers were recorded suggesting the habitat within the Bird Survey Area was less suitable for ground nesting birds. A variety of gulls, waterfowl and waders were also recorded throughout the breeding season surveys, with the peak counts occurring within Area 1, although no signs of these species breeding within the survey area were recorded

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5 ABBREVIATIONS

BBS	Breeding Bird Survey
BTO	British Trust for Ornithology
DMRB	Design Manual for Roads and Bridges
LERN	Lancashire Environment Record Network
GIS	Geographic Information System
HRA	Habitats Regulations Assessment
IRZ	Impact Risk Zone
MAGIC	Multi-Agency Geographic Information for the Countryside
NERC	Natural Environment and Rural Communities
OS	Ordnance Survey
SPA	Special Protection Area
SNCB	Statutory Nature Conservation Bodies
TN	Target Note
VP	Vantage Point
WeBS	Wetland Bird Surveys

ANNEX A – Survey Timings and Weather

Key to Tables A-1 to A-5:

Season

P = Passage: September to October and March to April

W = Winter: October – March

Visibility

0 = Poor (<500m)

1 = Moderate (0.5 -1.5 km)

2 = Good (1.5 – 3 km)

3 = Excellent >3km)

Precipitation:

R = Rain 0 = None

S = 1 = Drizzle/mist

Snow 2 = Light showers

3 = Heavy showers

Table A- 1: Wintering and passage bird survey timings - Area 1:

Date	Winter/ passage	Start	Finish	Tide	Temp (°C)	Wind Speed (Beaufort)	Wind Direction	Visibility	Cloud Cover (8ths)	Precipitation
23/09/2016	P	13:05	14:30	Mid	16	2-3	S	3	1	0
30/09/2016	P	11:30	13:05	High	11	2-3	W	2	4	R = 3
07/10/2016	W/P	11:15	13:30	Mid	11	3-4	E	3	8	R = 1
21/10/2016	W/P	11:15	12:50	Low	10	0	-	3	4	0
28/10/2016	W/P	10:15	12:15	High	13	1	NW	3	8	0
11/11/2016	W	08:34	10:10	High	2	0	-	3	2	0
16/11/2016	W	06:15	08:40	Low	11	5	SW	1	8	R = 2
25/11/2016	W	08:25	10:15	High	1	0	-	3	0	0
02/12/2016	W	08:35	10:15	Mid	9	0	-	3	8	0
09/12/2016	W	08:25	10:15	Mid	10	1	SW	3	8	0
13/12/2016	W	15:45	17:40	Mid	9	4	SE	2	8	R = 2
18/01/2017	W	11:29	13:20	Mid	9	2	E	3	8	0
19/01/2017	W	07:35	09:10	Mid	6	0	-	2	8	0
26/01/2017	W	10:03	11:01	High	0.5	4	S	2	8	0
17/02/2017	W	13:03	14:39	Mid	11	1	S	3	6	0
03/03/2017	W/P	11:20	12:46	Mid	7	3	SE	2	8	R = 2
13/03/2017	W/P	11:15	13:05	High	10	4	W	2	8	0
22/03/2017	W/P	07:00	08:45	Mid	5	3	SE	0	8	R = 2
29/03/2017	W/P	05:20	07:05	Mid/Low	10	1	S	0	8	R = 2
30/03/2017	W/P	09:04	11:45	Mid	14	3	S	3	8	R = 2
05/04/2017	P	11:30	14:30	Mid	13	5	W	3	4	R = 1
12/04/2017	P	19:00	21:45	Low/Mid	11	5	No data	3	2	0
12/04/2017	P	15:50	18:00	Mid	15	5	S	3	3	0
19/04/2017	P	15:30	17:30	Mid	18	2	SW	3	8	0
27/04/2017	P	16:04	17:56	Mid	14	4	W	3	3	0

Table A- 2: Wintering and passage bird survey timings - Area 2

Date	Winter/ passage	Start	Finish	Tide	Temp (°C)	Wind Speed (Beaufort)	Wind Direction	Visibility	Cloud Cover (8ths)	Precipitation
23/09/2016	P	10:50	12:00	Low	16	2-3	S	3	3	0
30/09/2016	P	09:30	11:15	Mid	10	2-3	W	2-3	5	R = 3
07/10/2016	W/P	09:10	10:52	Mid	11	3-4	E	3	8	R = 1
14/10/2016	W/P	09:30	11:00	High	11	2-3	E	3	2	0
21/10/2016	W/P	09:10	10:40	Low	8	0	-	3	6	0
28/10/2016	W/P	09:25	10:42	High	12	3	NW	3	8	0
11/11/2016	W	08:50	10:15	High	3	1	S	2	0	0
17/11/2016	W	08:40	10:10	Low	-1	1	NE	3	0	0
25/11/2016	W	08:40	10:10	High	-1	1	NE	3	0	0
02/12/2016	W	8:50	10:20	Mid	8	0	-	1	8	0
09/12/2016	W	08:35	11:40	Mid	11	1	S	2	8	0
13/12/2016	W	15:50	17:07	Mid	9	2	S	1	8	0
19/01/2017	W	09:53	11:55	Mid	8	0	-	2	8	0
20/01/2017	W	07:36	09:17	Mid	7	0	-	1	8	0
25/01/2017	W	10:40	12:20	Mid	6	0	-	3	0	0
16/02/2017	W	13:25	15:00	Mid	10	5	SW	2	7	0
02/03/2017	W/P	10:10	12:10	Mid	8	2	No data	3	1	0
17/03/2017	W/P	11:22	13:22	Mid/High	9	6	SW	3	8	R = 1
20/03/2017	W/P	11:00	12:30	Mid	8	4	W	1	8	0
28/03/2017	W/P	05:30	07:01	Mid/Low	4	2	SE	3	1	0
29/03/2017	W/P	08:30	10:20	Mid	11	1	S	1	8	R = 2
05/04/2017	P	11:00	13:45	Mid/Low	11	4	W	3	4	0
12/04/2017	P	15:40	17:50	Mid	15	5	No data	3	1	0
18/04/2017	P	19:00	21:00	Mid	10	1	-	3	8	0
19/04/2017	P	15:32	17:24	Mid/High	13	2	SW	3	8	0
27/04/2017	P	16:00	18:00	Mid	14	5	S	3	5	0

Table A- 3: Wintering and passage bird survey timings - Area 3

Date	Winter/ passage	Start	Finish	Tide	Temp (°C)	Wind Speed (Beaufort)	Wind Direction	Visibility	Cloud Cover (8ths)	Precipitation
23/09/2016	P	10:23	14:50	Low	No data	No data	No data	No data	No data	No data
30/09/2016	P	09:30	11:20	Mid	12	1	W	3	7	R = 3
07/10/2016	W/P	08:58	11:15	Low	15	2	W	3	8	0
07/10/2016	W/P	09:20	11:20	Low	14	3	E	2	8	0
14/10/2016	W/P	09:15	12:15	High	15	2	E	2	7	0
21/10/2016	W/P	08:05	09:59	Low	9	1	SE	3	6	0
28/10/2016	W/P	09:26	11:20	High	13	0-1	-	3	8	0
11/11/2016	W	08:45	No data	High	No data	1	SE	3	1	0
11/11/2016	W	10:25	11:00	Mid	6	1-2	NW	0	0	0
17/11/2016	W	06:20	09:09	Low	5	6	SW	2	6	R = 3
25/11/2016	W	10:35	12:30	Mid	1.5	1	NE	3	0	0
02/12/2016	W	08:50	11:49	Mid	7	0-2	NE	3	8	0
02/12/2016	W	10:25	11:05	Mid	9	0	-	3	8	0
09/12/2016	W	08:35	No data	Mid	12	0	-	2	8	R = 1-2
15/12/2016	W	06:40	08:40	Low	9	0	-	2	8	0
18/01/2017	W	07:19	10:30	Mid	8	0	-	2	8	0
19/01/2017	W	09:50	12:30	Mid	9	0	-	2	8	0
26/01/2017	W	09:36	13:22	Mid	1	2	S	2	7	0
17/02/2017	W	15:10	16:40	High	11	2	S	2	7	0
02/03/2017	W/P	12:13	12:45	Mid	8	2	No data	3	1	0
17/03/2017	W/P	11:30	13:45	Mid/High	9	6	SW	2	8	R = 2
21/03/2017	W/P	08:30	10:15	Mid	6	6	W	2	4	0
29/03/2017	W/P	08:26	11:19	Mid	11	1	S	2	8	R = 2
30/03/2017	W/P	05:16	08:04	Mid/Low	13	3	S	3	7	0
06/04/2017	P	15:30	17:20	Low/Mid	10	2	No data	3	8	0
11/04/2017	P	10:00	12:34	Mid/High	10	3	W	3	6	0
19/04/2017	P	13:00	15:40	Mid	13	3	W	3	8	0

Date	Winter/ passage	Start	Finish	Tide	Temp (°C)	Wind Speed (Beaufort)	Wind Direction	Visibility	Cloud Cover (8ths)	Precipitation
27/04/2017	P	19:00	21:45	Low/Mid	11	3	S	3	5	0
28/04/2017	P	11:15	12:50	Mid	8	0	-	3	8	R = 1

Table A- 4: Wintering and passage bird survey timings - Area 4

Date	Winter/ passage	Start	Finish	Tide	Temp (°C)	Wind Speed (Beaufort)	Wind Direction	Visibility	Cloud Cover (8ths)	Precipitation
23/09/2016	P	No data	No data	No data	No data	No data	No data	No data	No data	No data
30/09/2016	P	09:50	11:57	High	No data	No data	No data	No data	No data	No data
07/10/2016	W/P	No data	No data	No data	No data	No data	No data	No data	No data	No data
14/10/2016	W/P	No data	No data	No data	No data	No data	No data	No data	No data	No data
21/10/2016	W/P	10:45	12:25	Mid	12	1	SE	2	6	0
28/10/2016	W/P	11:00	12:00	Mid	13	2	SW	2	8	0
11/11/2016	W	10:05	11:34	Mid	2	0	-	3	2	0
16/11/2016	W	06:20	09:02	Low	8	6	NW	1	8	0
25/11/2016	W	09:50	11:32	Mid	5	0	-	3	0	0
02/12/2016	W	09:50	11:34	Mid	6	0	-	2	2	0
09/12/2016	W	09:48	12:17	Mid	12	0	-	2	8	0
12/12/2016	W	03:00	04:16	Low	11	0	-	No data	8	No data
12/12/2016	W	15:31	16:21	Low	12	1	SE	2	5	R = 1-2
20/01/2017	W	09:30	11:45	Mid	6	2	S	1-2	5	0
25/01/2017	W	10:22	12:26	Mid	7	0-3	W	3	0	0
26/01/2017	W	07:29	09:25	Mid	-2	2	S	2	8	0
16/02/2017	W	13:24	15:47	Mid/High	8	4-5	E	3	7	0-1
17/02/2017	W	17:10	18:10	Mid	12	1	S	2	7	0
01/03/2017	W/P	10:05	12:22	Mid/High	5	3	E	3	8	0
17/03/2017	W/P	09:00	10:40	Mid	7	4	W	1	8	R = 2
20/03/2017	W/P	10:56	13:06	Mid	9	3	W	3	8	0
21/03/2017	W/P	05:03	07:05	Mid	5	4	SW	2	4	0
28/03/2017	W/P	09:02	11:10	Mid	6	2	SE	3	0	0
04/04/2017	P	12:00	16:30	Low/Mid	12	3	W	3	2	0
05/04/2017	P	05:45	09:25	Mid	10	4	W	3	4	0
11/04/2017	P	10:30	No data	Mid	10	3	W	3	6	0
18/04/2017	P	15:28	17:36	Mid	10	1	-	3	8	0

Date	Winter/ passage	Start	Finish	Tide	Temp (°C)	Wind Speed (Beaufort)	Wind Direction	Visibility	Cloud Cover (8ths)	Precipitation
28/04/2017	P	12:40	14:25	Mid	8	2	NE	1	1	0

Table A- 5: Wintering and passage bird survey timings - Area 5

Date	Winter/ passage	Start	Finish	Tide	Temp (°C)	Wind Speed (Beaufort)	Wind Direction	Visibility	Cloud Cover (8ths)	Precipitation
23/09/2016	P	No data	No data	No data	No data	No data	No data	No data	No data	No data
30/09/2016	P	12:15	14:15	High	No data	No data	No data	No data	No data	No data
07/10/2016	W/P	No data	No data	No data	No data	No data	No data	No data	No data	No data
14/10/2016	W/P	No data	No data	No data	No data	No data	No data	No data	No data	No data
21/10/2016	W/P	09:15	10:45	Low	12	2	N	2	2	0
28/10/2016	W/P	09:00	10:50	Mid	13	7	SE	1	8	0
11/11/2016	W	08:50	10:04	High	8	0	-	3	1	0
21/11/2016	W	06:45	07:55	Low	3	2	NW	3	8	0
25/11/2016	W	08:28	09:42	High	1	0	-	3	0	0
02/12/2016	W	08:37	09:43	Mid	5	0	-	2	8	0
09/12/2016	W	08:24	09:44	Mid	12	2	S	2	8	R = 0-1
14/12/2016	W	15:30	No data	Mid	11	3	SE	3	1	0
20/01/2017	W	09:35	10:48	Mid	6	2	S	1-2	6	0
25/01/2016	W	07:44	09:10	Mid	-1	0	-	3	0	0
26/01/2016	W	11:11	12:22	Mid	0.5	3	S	2	8	0
16/02/2017	W	16:20	18:05	Mid	9	3	E	2	7	0
17/02/2017	W	13:10	14:30	Mid	11	2	S	2	8	0
01/03/2017	W/P	08:34	11:40	Mid	11	1	-	3	5	R = 2
17/03/2017	W/P	08:22	09:25	Low/Mid	7	4	E	3	8	R = 2
21/03/2017	W/P	08:20	09:50	Mid	6.5	5	SW	3	3	0
22/03/2017	W/P	05:20	06:40	High/Mid	4	3	E	1	8	R = 2
28/03/2017	W/P	08:55	10:15	Mid	6	2	SE	1	0	0
05/04/2017	P	08:30	10:20	Mid	10	5	SW	2	1	0
06/04/2017	P	18:30	21:00	Mid/High	10	1	-	3	8	0
11/04/2017	P	08:50	10:05	Mid	10	3	E	2	3	0
18/04/2017	P	15:30	17:30	Mid	12	1	-	3	3	0
28/04/2017	P	11:15	12:35	Mid	7	3	NE	1	1	0

ANNEX B – Passage and Wintering Bird Survey Results (qualifying species)

Table B- 1: Pink-footed goose records (2016-2017)

Date	Area	Number of birds	Comment
30/09/2016	3	1	
11/11/2016	1	8	
17/11/2016	6	1	
25/11/2016	1	7	
02/12/2016	1	1400	
02/12/2016	1	25	
02/12/2016	1	3	
09/12/2016	1	3400	Feeding in autumn sown cereal. 1000 were flushed
09/12/2016	6	0	Unknown number landed to roost
13/12/2016	2	1500	Estimate, low light
15/12/2016	3	165	Leaving roost flying SW to NE 80-150m
18/01/2017	3	300	Roosting/foraging in two adjacent fields
18/01/2017	2	500	Landed
18/01/2017	2	260	Landed
18/01/2017	1	90	
20/01/2017	4	800	Foraging
26/01/2017	2	90	
25/01/2017	6	300	Grazing in field possibly lured by decoys present
25/01/2017	6	250	Grazing in fields possibly lured by decoys present
02/03/2017	6	2	
22/03/2017	1	1	Foraging

Table B- 2: Pink-footed goose records (2017-2018)

Date	Survey Area	Number of birds	Comment
20/09/2017	2	70	
04/10/2017	6	267	
13/10/2017	2	41	
18/10/2017	6	1	
25/10/2017	3	530	530 estimate 200M SE of marker
28/11/2017	6	100	Dusk
19/12/2017	2	60	
08/01/2018	2	160	
08/01/2018	4	1600	Incidental record. Landowner says first time in two years.
09/01/2018	3	160	
09/01/2018	3	220	
09/01/2018	4	2500	feeding in field, more landed when counting
09/01/2018	5	134	
22/01/2018	3	400	
23/01/2018	1	250	
23/01/2018	2	400	
23/01/2018	2	35	
05/02/2018	2	600	
05/02/2018	6	55	
05/02/2018	6	1	
06/02/2018	4	78	
19/02/2018	1	2	
20/02/2018	3	450	
20/02/2018	3	65	Seen landing in fields
08/03/2018	1	6	
08/03/2018	6	5000	
08/03/2018	6	2500	total flock size over 7500 birds
12/03/2018	6	6	day
13/03/2018	6	2000	dawn
13/03/2018	6	10	dawn
19/03/2018	6	300	day
19/03/2018	6	2000	day
27/03/2018	3	18	day
27/03/2018	6	3	day
06/04/2018	3	475	day
10/04/2018	3	400	day

Table B- 3: Curlew records (2016 - 2017)

Date	Survey Area	Number of birds	Date	Survey Area	Number of birds	Date	Survey Area	Number of birds
23/09/2017	3	1	28/10/2017	5	3	16/02/2018	4	1
23/09/2017	6	35	28/10/2017	5	2	16/02/2018	6	30
23/09/2017	4	3	28/10/2017	5	1	17/02/2017	3	28
23/09/2017	4	2	11/11/2017	1	14	17/02/2017	3	7
23/09/2017	4	2	11/11/2017	1	124	17/02/2017	3	42
23/09/2017	4	15	11/11/2017	2	4	17/02/2017	3	53
23/09/2017	5	2	11/11/2017	2	29	17/02/2017	4	1
23/09/2017	5	1	11/11/2017	6	2	17/02/2017	4	9
30/09/2017	3	2	11/11/2017	3	8	17/02/2017	4	30
30/09/2017	3	14	11/11/2017	6	40	17/02/2017	6	100
30/09/2017	3	5	11/11/2017	5	2	01/03/2017	4	1
30/09/2017	3	10	11/11/2017	5	1	01/03/2017	4	1
30/09/2017	3	1	11/11/2017	5	5	01/03/2017	4	1
30/09/2017	3	1	17/11/2017	2	2	01/03/2017	6	2
30/09/2017	3	1	17/11/2017	4	2	01/03/2017	6	1
30/09/2017	3	2	17/11/2017	4	2	01/03/2017	6	20
30/09/2017	4	1	17/11/2017	4	2	01/03/2017	6	1
30/09/2017	4	1	17/11/2017	4	11	01/03/2017	6	54
30/09/2017	4	1	17/11/2017	4	25	02/03/2017	3	1
30/09/2017	5	15	17/11/2017	4	27	02/03/2017	3	1
07/10/2017	3	1	17/11/2017	4	37	02/03/2017	6	63
07/10/2017	3	4	25/11/2017	6	2	02/03/2017	6	13
07/10/2017	3	2	25/11/2017	6	8	17/03/2017	4	1
07/10/2017	3	1	25/11/2017	6	1	17/03/2017	6	1
07/10/2017	3	28	25/11/2017	6	1	17/03/2017	6	1
07/10/2017	3	1	25/11/2017	6	11	20/03/2017	2	3
07/10/2017	4	1	25/11/2017	6	16	20/03/2017	6	8
07/10/2017	4	1	25/11/2017	2	1	20/03/2017	4	1
07/10/2017	5	8	25/11/2017	3	3	20/03/2017	4	1
07/10/2017	5	1	25/11/2017	4	2	20/03/2017	4	2
07/10/2017	5	1	25/11/2017	4	1	21/03/2017	3	1
14/10/2017	2	6	25/11/2017	5	6	21/03/2017	3	1
14/10/2017	6	30	25/11/2017	5	2	21/03/2017	4	9
14/10/2017	3	1	25/11/2017	5	38	21/03/2017	4	10
14/10/2017	3	15	25/11/2017	5	30	21/03/2017	4	2
14/10/2017	6	5	02/12/2017	3	16	28/03/2017	4	1
14/10/2017	4	1	02/12/2017	3	35	28/03/2017	4	2
14/10/2017	5	1	02/12/2017	3	9	28/03/2017	2	7
21/10/2017	2	6	02/12/2017	4	1	04/04/2017	4	1
21/10/2017	3	3	02/12/2017	4	1	04/04/2017	4	5
21/10/2017	3	45	02/12/2017	5	1	04/04/2017	4	3
21/10/2017	3	3	09/12/2017	1	46	04/04/2017	6	5
21/10/2017	3	14	09/12/2017	3	180	06/04/2017	6	64
21/10/2017	3	10	13/12/2017	1	1	11/04/2017	3	2
21/10/2017	3	1	13/12/2017	1	1	11/04/2017	3	4
21/10/2017	4	5	15/12/2017	3	1	11/04/2017	4	17
21/10/2017	6	1	15/12/2017	3	8	11/04/2017	6	1
28/10/2017	1	11	18/01/2018	6	1	19/04/2017	3	1
28/10/2017	3	5	25/01/2018	4	1	19/04/2017	3	2
28/10/2017	3	23	25/01/2018	6	40	19/04/2017	6	1
28/10/2017	4	1	26/01/2018	3	4	28/04/2017	3	15
28/10/2017	5	1	26/01/2018	3	5			

Table B- 4: Curlew records (2017-2018)

Date	Survey Area	Number of birds	Date	Survey Area	Number of birds	Date	Survey Area	Number of birds
19/09/2017	6	10	04/12/2017	6	142	08/03/2018	3	45
19/09/2017	6	3	04/12/2017	6	1	08/03/2018	3	11
21/09/2017	5	0	05/12/2017	6	200	08/03/2018	6	31
22/09/2017	3	17	05/12/2017	6	201	08/03/2018	6	2
22/09/2017	3	2	18/12/2017	3	3	08/03/2018	2	1
22/09/2017	6	1	18/12/2017	6	48	12/03/2018	3	43
22/09/2017	6	3	18/12/2017	6	81	12/03/2018	4	47
26/09/2017	4	10	18/12/2017	6	0	12/03/2018	6	1
26/09/2017	6	45	18/12/2017	6	2	13/03/2018	3	12
27/09/2017	3	2	19/12/2017	5	5	13/03/2018	6	5
27/09/2017	6	5	19/12/2017	5	120	13/03/2018	6	3
27/09/2017	6	0	19/12/2017	6	61	19/03/2018	3	5
04/10/2017	3	2	08/01/2018	6	3	19/03/2018	4	1
05/10/2017	6	1	08/01/2018	6	4	19/03/2018	4	21
05/10/2017	6	132	08/01/2018	6	2	19/03/2018	6	1
11/10/2017	3	14	08/01/2018	6	41	20/03/2018	5	1
11/10/2017	6	3	08/01/2018	6	2	26/03/2018	6	1
11/10/2017	6	1	09/01/2018	5	1	26/03/2018	6	1
12/10/2017	6	1	09/01/2018	5	1	26/03/2018	6	2
12/10/2017	6	4	09/01/2018	6	50	26/03/2018	6	4
12/10/2017	6	1	23/01/2018	6	400	27/03/2018	3	2
18/10/2017	6	31	05/02/2018	6	150	27/03/2018	4	6
24/10/2017	5	2	05/02/2018	6	76	27/03/2018	4	16
25/10/2017	6	2	06/02/2018	4	22	27/03/2018	4	2
25/10/2017	6	1	06/02/2018	4	45	05/04/2018	6	1
26/10/2017	6	3	06/02/2018	6	3	06/04/2018	3	2
31/10/2017	3	4	06/02/2018	6	1	06/04/2018	4	5
31/10/2017	6	1	06/02/2018	6	2	06/04/2018	4	3
31/10/2017	6	2	06/02/2018	6	5	06/04/2018	4	14
31/10/2017	6	1	19/02/2018	4	2	06/04/2018	6	1
01/11/2017	5	5	19/02/2018	6	140	06/04/2018	6	2
01/11/2017	6	7	20/02/2018	6	1	10/04/2018	3	10
02/11/2017	5	1	20/02/2018	6	11	10/04/2018	4	8
02/11/2017	5	1	20/02/2018	6	3	10/04/2018	4	4
14/11/2017	6	1	20/02/2018	6	3	10/04/2018	6	1
14/11/2017	6	7	20/02/2018	6	50	10/04/2018	6	20
15/11/2017	6	2	20/02/2018	6	12	16/04/2018	4	4
16/11/2017	6	6	21/02/2018	2	13	16/04/2018	4	1
16/11/2017	6	1	07/03/2018	2	7	16/04/2018	6	1
16/11/2017	6	0	07/03/2018	4	15	26/04/2018	4	2
28/11/2017	6	1	07/03/2018	5	4	26/04/2018	5	18
04/12/2017	1	7	07/03/2018	5	4			
04/12/2017	1	7	07/03/2018	6	50			

Table B- 5: Lapwing records (2016-2017)

Date	Survey Area	Number of birds	Date	Survey Area	Number of birds	Date	Survey Area	Number of birds
23/09/2016	1	3	11/11/2016	4	14	26/01/2017	1	40
23/09/2016	3	1	11/11/2016	4	41	25/01/2017	4	3
23/09/2016	3	2	11/11/2016	6	84	25/01/2017	4	0
23/09/2016	4	400	11/11/2016	6	7	25/01/2017	6	35
23/09/2016	4	8	16/11/2016	1	100	25/01/2017	4	400
23/09/2016	4	800	16/11/2016	4	230	25/01/2017	6	51
23/09/2016	6	16	16/11/2016	4	20	16/02/2017	6	2
30/09/2016	3	100	16/11/2016	4	530	16/02/2017	6	1
30/09/2016	3	50	17/11/2016	3	2	16/02/2017	5	0
30/09/2016	3	25	21/11/2016	5	1	16/02/2017	5	0
30/09/2016	4	10	21/11/2016	5	1	16/02/2017	5	0
30/09/2016	4	0	21/11/2016	5	10	17/02/2017	4	8
30/09/2016	4	90	21/11/2016	5	5	17/02/2017	4	200
30/09/2016	4	48	25/11/2016	1	80	17/02/2017	1	52
30/09/2016	4	78	25/11/2016	1	90	17/02/2017	3	62
30/09/2016	4	40	25/11/2016	2	1	17/02/2017	3	25
30/09/2016	4	93	25/11/2016	3	1	17/02/2017	3	31
30/09/2016	5	35	25/11/2016	6	7	17/02/2017	3	100
07/10/2016	1	100	25/11/2016	6	25	17/02/2017	3	320
07/10/2016	1	36	25/11/2016	6	81	01/03/2017	4	1
07/10/2016	1	25	25/11/2016	6	21	03/03/2017	1	1
07/10/2016	6	6	25/11/2016	6	46	03/03/2017	1	54
07/10/2016	6	82	25/11/2016	6	21	13/03/2017	1	19
07/10/2016	3	43	02/12/2016		400	22/03/2017	1	2
07/10/2016	3	45	02/12/2016	6	155	22/03/2017	1	4
07/10/2016	4	126	02/12/2016		1	22/03/2017	1	1
07/10/2016	4	12	02/12/2016	6	1	22/03/2017	1	1
07/10/2016	5	24	02/12/2016	6	800	29/03/2017	1	1
14/10/2016	6	70	02/12/2016	4	7	29/03/2017	1	1
14/10/2016	3	20	02/12/2016	6	390	29/03/2017	1	1
14/10/2016	6	30	02/12/2016	5	2	30/03/2017	1	6
14/10/2016	6	2	09/12/2016		4	30/03/2017	1	1
14/10/2016	4	20	09/12/2016	3	8	30/03/2017	1	2
14/10/2016	6	10	09/12/2016	3	130	05/04/2017	1	280
21/10/2016	3	77	13/12/2016	1	1	05/04/2017	1	4
21/10/2016	3	257	13/12/2016	1	0	05/04/2017	1	1
21/10/2016	3	8	13/12/2016	1	1	11/04/2017	6	20
21/10/2016	6	240	13/12/2016	1	1	18/04/2017	4	2
21/10/2016	6	97	13/12/2016	1	1	18/04/2017	4	1
21/10/2016	6	92	13/12/2016	2	0	18/04/2017	4	2
28/10/2016	3	250	13/12/2016	2	9	19/04/2017	1	3
28/10/2016	3	10	14/12/2016	5	1	19/04/2017	1	1
28/10/2016	3	63	14/12/2016	5	1	19/04/2017	1	1
28/10/2016	4	55	15/12/2016	3	0	19/04/2017	1	3
28/10/2016	4	31	15/12/2016	3	1	27/04/2017	1	2
11/11/2016	1	90	15/12/2016	3	34	27/04/2017	2	35
11/11/2016	6	120	18/01/2017	3	45			
11/11/2016	3	20	20/01/2017	6	600			

Table B- 6: Lapwing records (2017-2018)

Date	Survey Area	Number of birds	Date	Survey Area	Number of birds
19/09/2017	4	26	05/12/2017	6	668
19/09/2017	4	9	18/12/2017	4	3
19/09/2017	6	44	18/12/2017	6	1
19/09/2017	6	21	18/12/2017	6	200
20/09/2017	6	248	18/12/2017	6	193
21/09/2017	5	45	18/12/2017	6	200
22/09/2017	6	4	18/12/2017	6	20
26/09/2017	4	49	19/12/2017	5	200
26/09/2017	6	420	19/12/2017	6	350
27/09/2017	6	260	19/12/2017	6	600
27/09/2017	6	197	19/12/2017	6	103
27/09/2017	6	36	08/01/2018	2	50
27/09/2017	6	110	08/01/2018	5	1
27/09/2017	6	28	08/01/2018	5	5
03/10/2017	5	320	08/01/2018	6	3
05/10/2017	4	146	08/01/2018	6	14
05/10/2017	6	50	08/01/2018	6	2
05/10/2017	6	80	09/01/2018	3	1
11/10/2017	6	7	09/01/2018	3	250
12/10/2017	6	253	09/01/2018	3	5
17/10/2017	4	110	09/01/2018	3	9
17/10/2017	4	60	09/01/2018	3	34
17/10/2017	4	60	09/01/2018	6	38
17/10/2017	6	23	09/01/2018	6	68
17/10/2017	6	130	09/01/2018	6	130
18/10/2017	6	20	09/01/2018	6	250
18/10/2017	6	15	22/01/2018	2	20
18/10/2017	6	21	22/01/2018	6	700
25/10/2017	6	189	22/01/2018	2	20
26/10/2017	6	222	23/01/2018	4	82
26/10/2017	6	287	23/01/2018	6	400
26/10/2017	6	57	05/02/2018	1	350
31/10/2017	6	91	05/02/2018	6	200
01/11/2017	6	60	05/02/2018	6	2
02/11/2017	5	7	06/02/2018	5	3
14/11/2017	6	37	06/02/2018	6	27
14/11/2017	6	64	06/02/2018	6	40
14/11/2017	6	615	06/02/2018	6	110
15/11/2017	6	77	19/02/2018	6	12
15/11/2017	6	1	20/02/2018	6	308
16/11/2017	4	2	20/02/2018	6	600
16/11/2017	4	1	20/02/2018	6	120
16/11/2017	4	1	20/02/2018	6	80
16/11/2017	4	11	08/03/2018	6	40
16/11/2017	6	225	13/03/2018	6	30
16/11/2017	6	3	26/03/2018	6	3
29/11/2017	2	4	05/04/2018	1	1
04/12/2017	6	83	11/04/2018	1	2
04/12/2017	6	200	17/04/2018	1	1
05/12/2017	5	15	26/04/2018	2	1
05/12/2017	6	500	26/04/2018	4	1

Table B- 7: Little egret records (2016-2017)

Date	Survey Area	Number of birds
23/09/2016	3	5
23/09/2016	6	1
23/09/2016	4	1
23/09/2016	4	9
30/09/2016	6	11
07/10/2016	3	1
21/10/2016	3	1
28/10/2016	6	3
11/11/2016	6	2
11/11/2016	3	2
11/11/2016	4	1
17/11/2016	6	1
17/11/2016	6	1
17/11/2016	4	1
25/11/2016	6	1
25/11/2016	6	1
13/12/2016	2	7
14/12/2016	5	1
14/12/2016	5	2
20/01/2017	4	1
20/01/2017	6	1
20/01/2017	5	1
17/2/2017	4	1
17/2/2017	4	1
01/03/2017	5	5
01/03/2017	4	3
01/03/2017	6	1
02/03/2017	2	1
03/03/2017	1	1
17/3/2017	5	3
17/3/2017	5	1
17/3/2017	5	3
20/3/2017	6	1
21/3/2017	3	1
21/3/2017	5	1
22/3/2017	5	2
22/3/2017	1	1
28/3/2017	4	1
28/3/2017	5	1
4/4/2017	4	1
4/4/2017	6	1
5/4/2017	1	2
5/4/2017	5	1
5/4/2017	5	1
5/4/2017	5	3
11/4/2017	3	1
11/4/2017	5	1
11/4/2017	5	1
18/4/2017	4	2
18/4/2017	5	2
28/4/2017	5	1

Table B- 8: Little egret records (2017-2018)

Date	Survey Area	Number of birds	Date	Survey Area	Number of birds
19/09/2017	4	7	19/03/2018	6	1
22/09/2017	6	1	20/03/2018	5	1
26/09/2017	6	9	26/03/2018	6	1
27/09/2017	6	1	26/03/2018	6	1
04/10/2017	6	9	05/04/2018	6	1
05/10/2017	6	1	05/04/2018	6	1
10/10/2017	5	1	06/04/2018	6	1
11/10/2017	3	1	10/04/2018	6	1
12/10/2017	6	1	10/04/2018	6	1
18/10/2017	6	2	16/04/2018	6	1
24/10/2017	5	2	16/04/2018	6	3
24/10/2017	5	3	27/04/2018	6	1
24/10/2017	5	1			
25/10/2017	6	1			
31/10/2017	6	1			
31/10/2017	6	1			
14/11/2017	6	1			
15/11/2017	6	1			
15/11/2017	6	1			
15/11/2017	6	2			
16/11/2017	6	2			
16/11/2017	6	1			
29/11/2017	5	3			
29/11/2017	5	3			
29/11/2017	5	2			
04/12/2017	5	3			
05/12/2017	4	1			
05/12/2017	5	2			
05/12/2017	6	1			
05/12/2017	6	1			
05/12/2017	6	5			
18/12/2017	6	1			
18/12/2017	6	1			
19/12/2017	4	1			
19/12/2017	5	1			
09/01/2018	3	8			
22/01/2018	6	3			
23/01/2018	5	1			
05/02/2018	2	1			
20/02/2018	4	2			
20/02/2018	5	2			
20/02/2018	6	1			
21/02/2018	2	2			
07/03/2018	2	1			
08/03/2018	1	1			
12/03/2018	5	1			
13/03/2018	2	1			

ANNEX C – Winter Bird Surveys – Other Species Recorded

Table C-1: Other bird species recorded during winter bird surveys

Species Recorded	
Canada goose (<i>Branta canadensis</i>)	Long-tailed Tit (<i>Aegithalos caudatus</i>)
Red-legged partridge (<i>Alectoris rufa</i>)	Chiffchaff (<i>Phylloscopus collybita</i>)
Pheasant (<i>Phasianus colchicus</i>)	Nuthatch (<i>Sitta europaea</i>)
Grey heron (<i>Ardea cinerea</i>)	Treecreeper (<i>Certhis familiaris</i>)
Sparrowhawk (<i>Accipiter nisus</i>)	Wren (<i>Troglodytes troglodytes</i>)
Buzzard (<i>Buteo buteo</i>)	Blackbird (<i>Turdus merula</i>)
Moorhen (<i>Gallinula chloropus</i>)	Robin (<i>Erithacus rubecula</i>)
Coot (<i>Fulica atra</i>)	Stonechat (<i>Saxicola rubicola</i>)
Feral pigeon (<i>Columba livia</i>)	Grey Wagtail (<i>Motacilla cinerea</i>)
Wood pigeon (<i>Columba palumbus</i>)	Pied Wagtail (<i>Motacilla alba</i>)
Collared Dove (<i>Streptopelia decaocto</i>)	Chaffinch (<i>Fringilla coelebs</i>)
Tawny Owl (<i>Strix aluco</i>)	Greenfinch (<i>Chloris chloris</i>)
Great Spotted Woodpecker (<i>Dendrocopos major</i>)	Goldfinch (<i>Carduelis carduelis</i>)
Magpie (<i>Pica pica</i>)	
Jay (<i>Garrulus glandarius</i>)	
Jackdaw (<i>Corvus monedula</i>)	
Rook (<i>Corvus frugilegus</i>)	
Carrion Crow (<i>Corvus corone</i>)	
Raven (<i>Corvus corax</i>)	
Goldcrest (<i>Regulus regulus</i>)	
Blue Tit (<i>Cyanistes caeruleus</i>)	
Great Tit (<i>Parus major</i>)	
Coal Tit (<i>Periparus ater</i>)	
Swallow (<i>Hirundo rustica</i>)	

ANNEX D – Breeding Bird Survey Results (qualifying species)

Table D-1: Herring gull records (2017)

Date	Area	Number of birds
05/04/2017	6	3
05/04/2017	6	2
05/04/2017	5	9
05/04/2017	4	2
05/04/2017	4	1
06/04/2017	5	1
06/04/2017	5	1
06/04/2017	6	13
12/04/2017	1	2
12/04/2017	1	1
09/05/2017	4	3
09/05/2017	4	1
09/05/2017	6	1
09/05/2017	6	2
09/05/2017	4	1
14/06/2017	3	1

Table D-2: Lesser black-backed gull records (2017)

Date	Area	Number of birds
05/04/2017	4	3
05/04/2017	6	1
05/04/2017	6	3
06/04/2017	5	2
06/04/2017	6	7
02/05/2017	2	3
02/05/2017	3	2
09/05/2017	5	5
09/05/2017	4	1
09/05/2017	6	2
09/05/2017	6	4
09/05/2017	6	1
09/05/2017	6	2
13/06/2017	4	1
13/06/2017	4	11
13/06/2017	4	22
13/06/2017	4	1
13/06/2017	4	2
13/06/2017	5	3
14/06/2017	3	9

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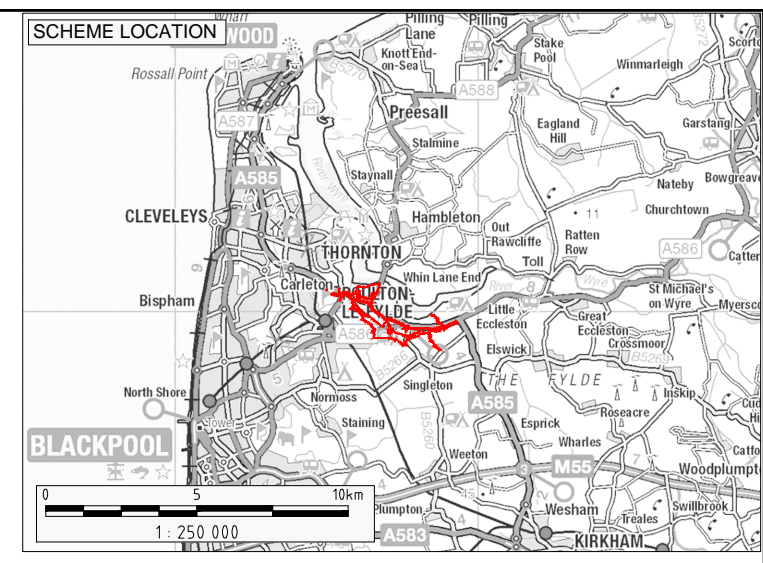
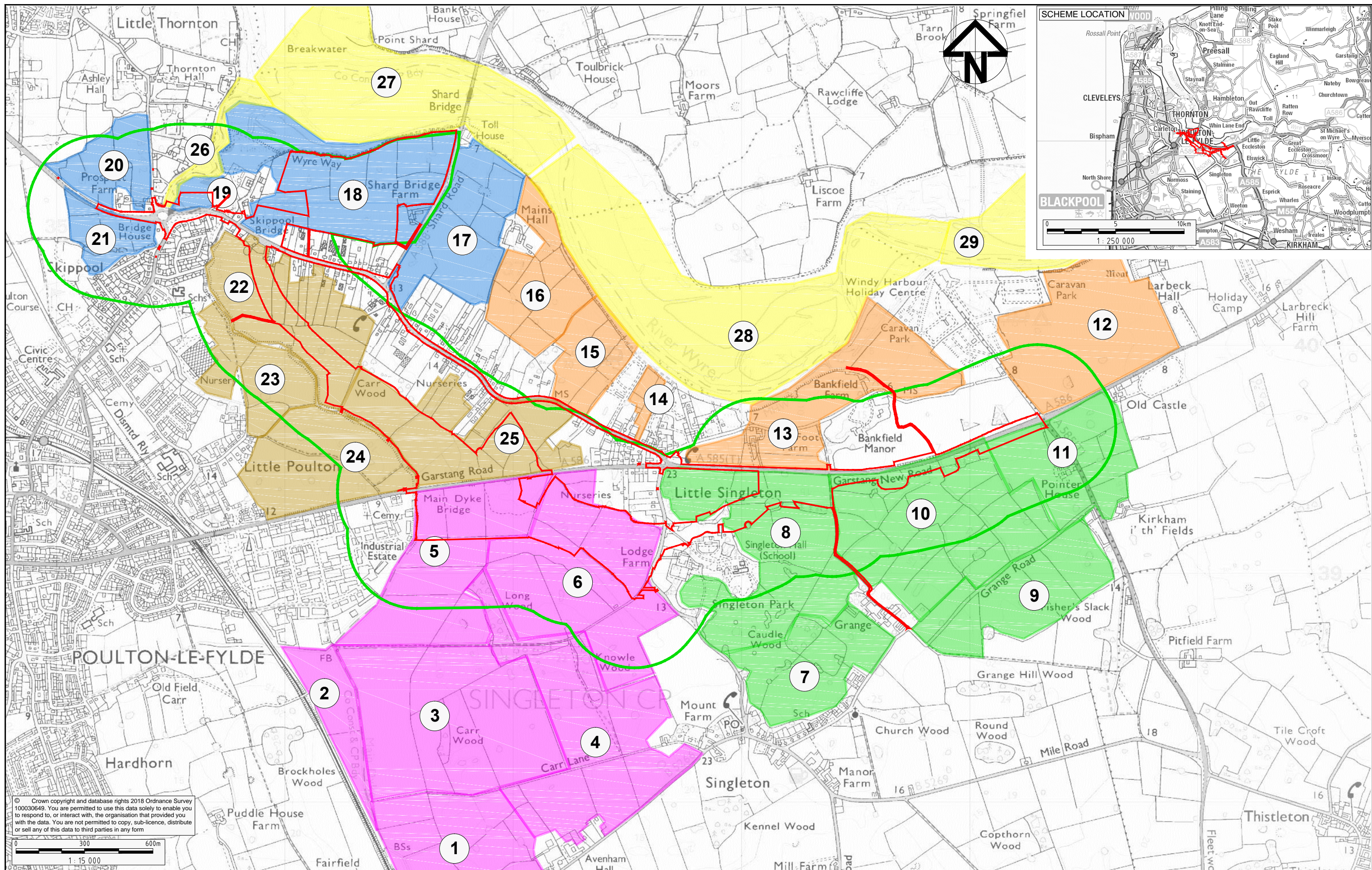
Table D-3: Other bird species recorded during breeding season and peak count

Species recorded	Bird count per survey area (April to June 2017)														
	Survey area 1			Survey area 2			Survey area 3			Survey area 4			Survey area 5		
	April	May	June	April	May	June	April	May	June	April	May	June	April	May	June
Canada Goose (<i>Branta canadensis</i>)	2			2				7	13	1					
Red-legged Partridge (<i>Alectoris rufa</i>)						1									
Pheasant (<i>Phasianus colchicus</i>)				3		4				2			1		1
Grey Heron (<i>Ardea cinerea</i>)									2	2	2	5			
Common Buzzard (<i>Buteo buteo</i>)								2		2	2	2			2
Moorhen (<i>Gallinula chloropus</i>)	2			3				6		3		3			3
Coot (<i>Fulica atra</i>)				1				1		6		3			
Feral pigeon (<i>Columba livia</i>)										1		2			
Wood pigeon (<i>Columba palumbus</i>)			34	9		6			62			39			50
Collared Dove (<i>Streptopelia decaocto</i>)												1			
Great Spotted Woodpecker (<i>Dendrocopos major</i>)						2		2						1	
Magpie (<i>Pica pica</i>)	1	1	3			5		8	7	7	9	20	6	5	8
Jay (<i>Garrulus glandarius</i>)				2		1									
Jackdaw (<i>Corvus monedula</i>)	21					7			9	4		6	1		15
Rook (<i>Corvus frugilegus</i>)		11		21		17					6	9	1	43	15
Carrion Crow (<i>Corvus corone</i>)	11			3		9			18	36		6	7		12
Goldcrest (<i>Regulus regulus</i>)						3			1						1
Blue Tit (<i>Cyanistes caeruleus</i>)				2		7			18	6		5	3		20
Great Tit (<i>Parus major</i>)	2	4	2	5	4	2		15	12	27	6	1	8	13	7
Coal Tit (<i>Periparus ater</i>)						21									
Long-tailed Tit (<i>Aegithalos caudatus</i>)					2			1	10	2	2		1		10
Chiffchaff (<i>Phylloscopus collybita</i>)						1		9	9		2	1		2	4
Blackcap (<i>Sylvia atricapilla</i>)			1			3		9	8			2			2
Whitethroat (<i>Sylvia communis</i>)		2	1		3	4			2		6	3		14	11
Sedge Warbler (<i>Acrocephalus</i>)			2					1	1		2		1		5

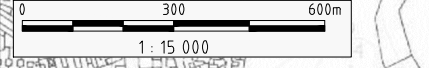
Species recorded	Bird count per survey area (April to June 2017)														
	Survey area 1			Survey area 2			Survey area 3			Survey area 4			Survey area 5		
	April	May	June	April	May	June	April	May	June	April	May	June	April	May	June
<i>schoenobaenus</i>)															
Nuthatch (<i>Sitta europaea</i>)															1
Treecreeper (<i>Certhis familiaris</i>)						1									
Wren (<i>Troglodytes troglodytes</i>)	15	10		14	8	11		40	47	16	20	17	12	38	39
Blackbird (<i>Turdus merula</i>)	10	14		28	6	5		25		25		19	16		21
Robin (<i>Erithacus rubecula</i>)	2		2	11		2			9	2		7	7		8
Pied Wagtail (<i>Motacilla alba</i>)			2			2						1	3		
Chaffinch (<i>Fringilla coelebs</i>)	3		16	5		7			21	11		12	6		11
Greenfinch (<i>Chloris chloris</i>)						1		1	5		3	2			2
Goldfinch (<i>Carduelis carduelis</i>)				6		4			4	13		15	2		3

ANNEX E – Drawings

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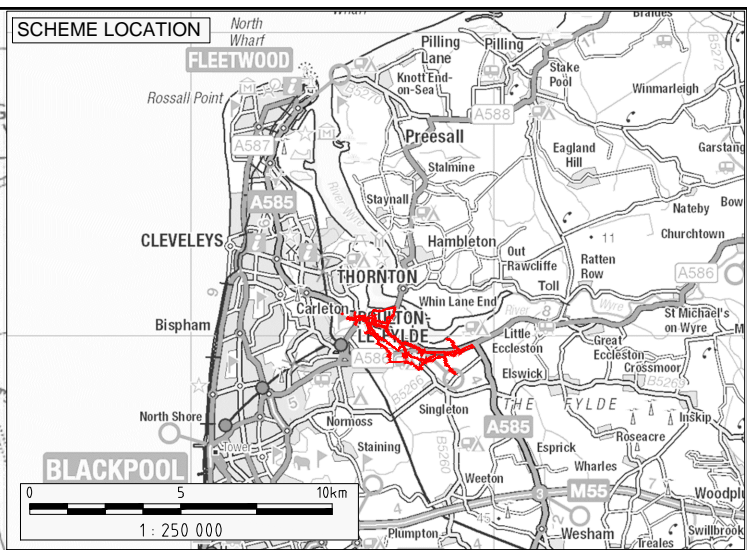
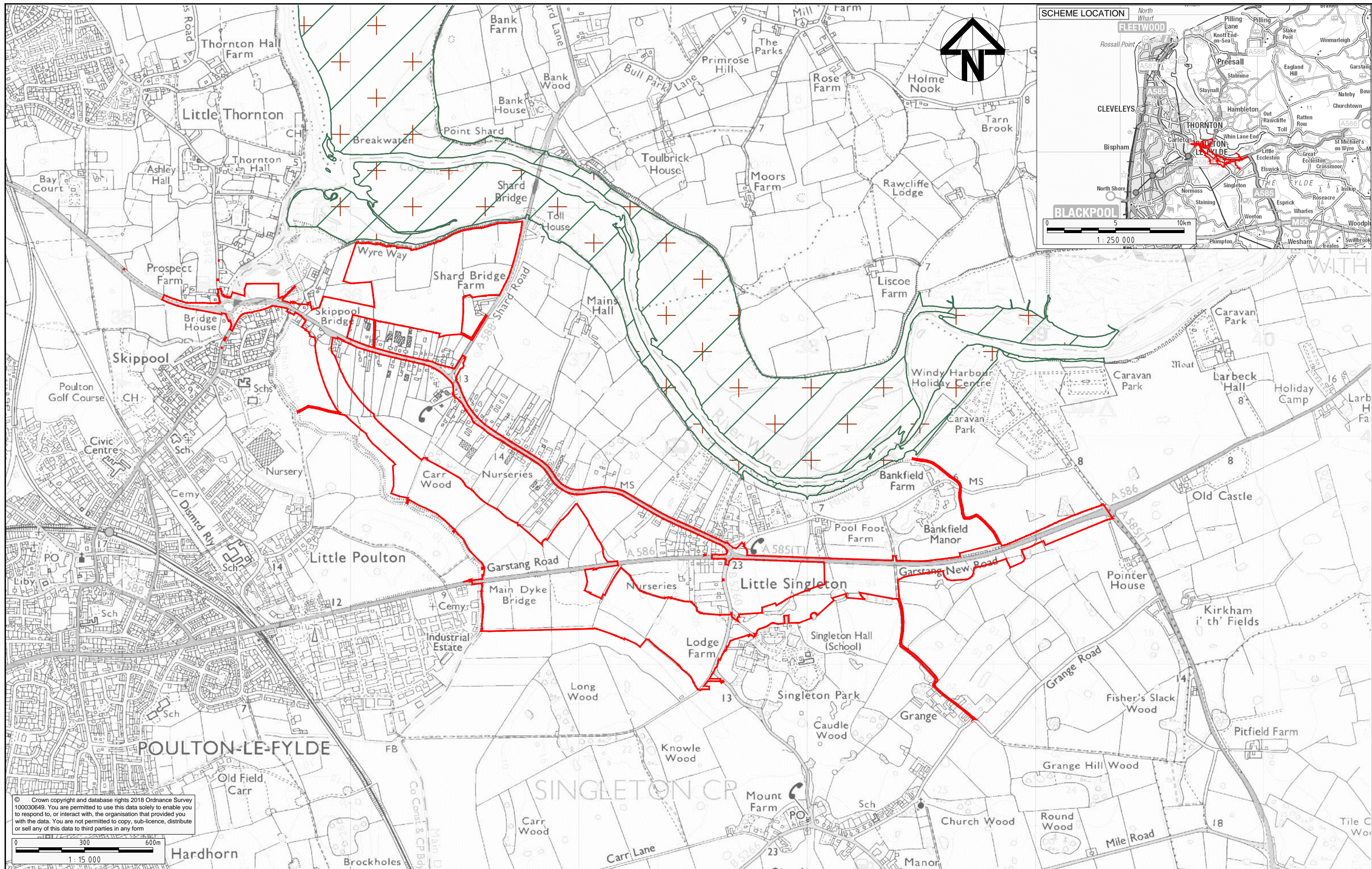
KEY:	
	Draft Order Limits
	Construction Area 300m Buffer
	Land Parcel Number
	Bird Survey Area 1
	Bird Survey Area 2
	Bird Survey Area 3
	Bird Survey Area 4
	Bird Survey Area 5
	Bird Survey Area 6

Rev	Status	Rev. Date	Purpose of revision	Drawn	Check'd	Appr'd
0	S8	OCT18	S8 - DCO SUBMISSION	JN	KB	NH

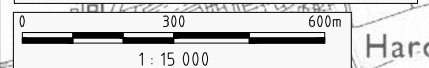


Client
Project A585 WINDY HARBOUR TO SKIPPOOL IMPROVEMENT SCHEME
Drawing Title ENVIRONMENTAL STATEMENT REGULATION 5(2)(a) ORNITHOLOGY REPORT: SCHEME LOCATION, SURVEY AREAS AND LAND PARCEL NUMBERS

Status	Revision
S8 - DCO SUBMISSION	0
Scale 1:8 000 @ A3	Date OCT 2018
Drawn By J.NORMAN	
Checked By K.BURROWS	
Approved By N.HENDERSON	
PINS No. TR010035	FIGURE A8.4.1
Drawing number HE548643-A585-EAC-SZ_GN000-DR-L-3035	



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KEY:

- Draft Order Limits
- Morecambe Bay Ramsar Site
- Morecambe Bay and Duddon Estuary Special Protection Area (SPA) and Morecambe Ramsar Site

Rev	Status	Rev. Date	Purpose of revision	Drawn	Check'd	Appr'd
0	S8	OCT18	S8 - DCO SUBMISSION	JN	KB	NH

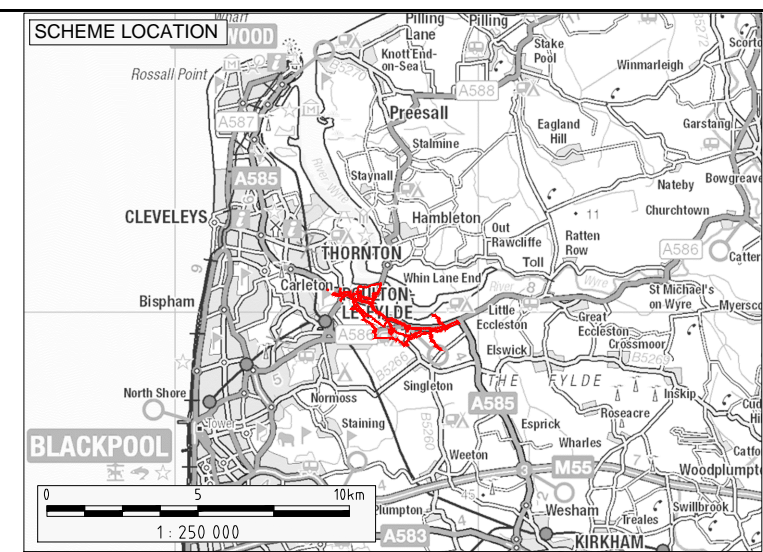
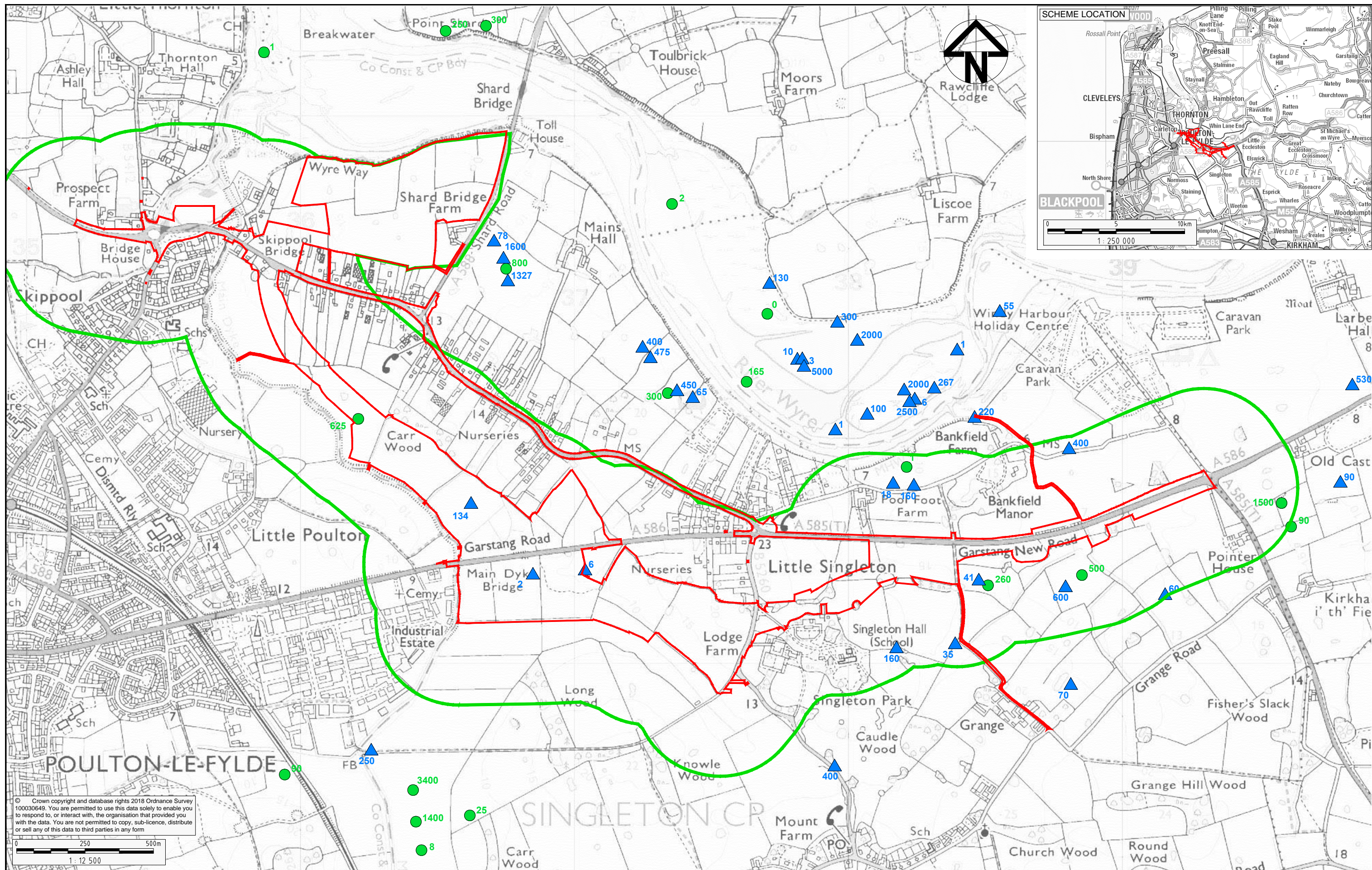


Client
Project
Drawing Title

A585 WINDY HARBOUR TO SKIPPOOL IMPROVEMENT SCHEME

ENVIRONMENTAL STATEMENT REGULATION 5(2)(a) ORNITHOLOGY REPORT: DESIGNATED SITES (STATUTORY AND NON-STATUTORY)

Status	Revision
S8 - DCO SUBMISSION	0
Scale	Date
1:15 000 @ A3	OCT 2018
Drawn By	Checked By
J.NORMAN	K.BURROWS
Approved By	
N.HENDERSON	
PINS No.	FIGURE
TR010035	A8.4.2
Drawing number	
HE548643-A585-EAC-SZ_GN000-DR-L-3036	



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0 250 500m
 1:12 500

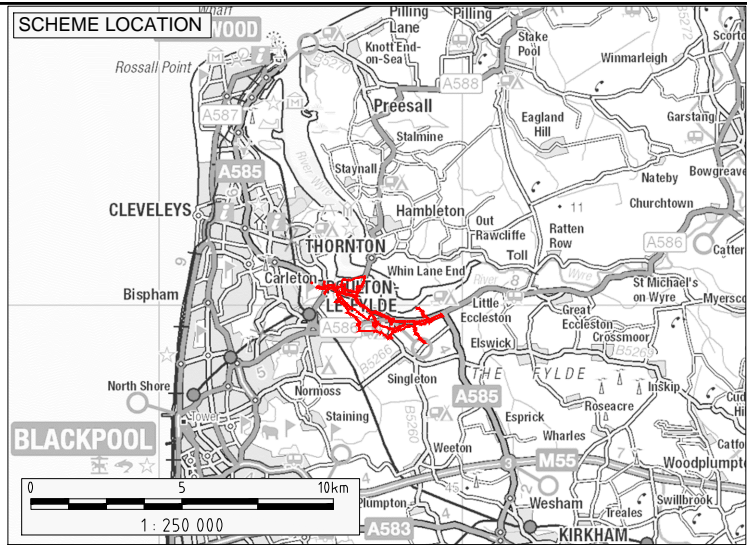
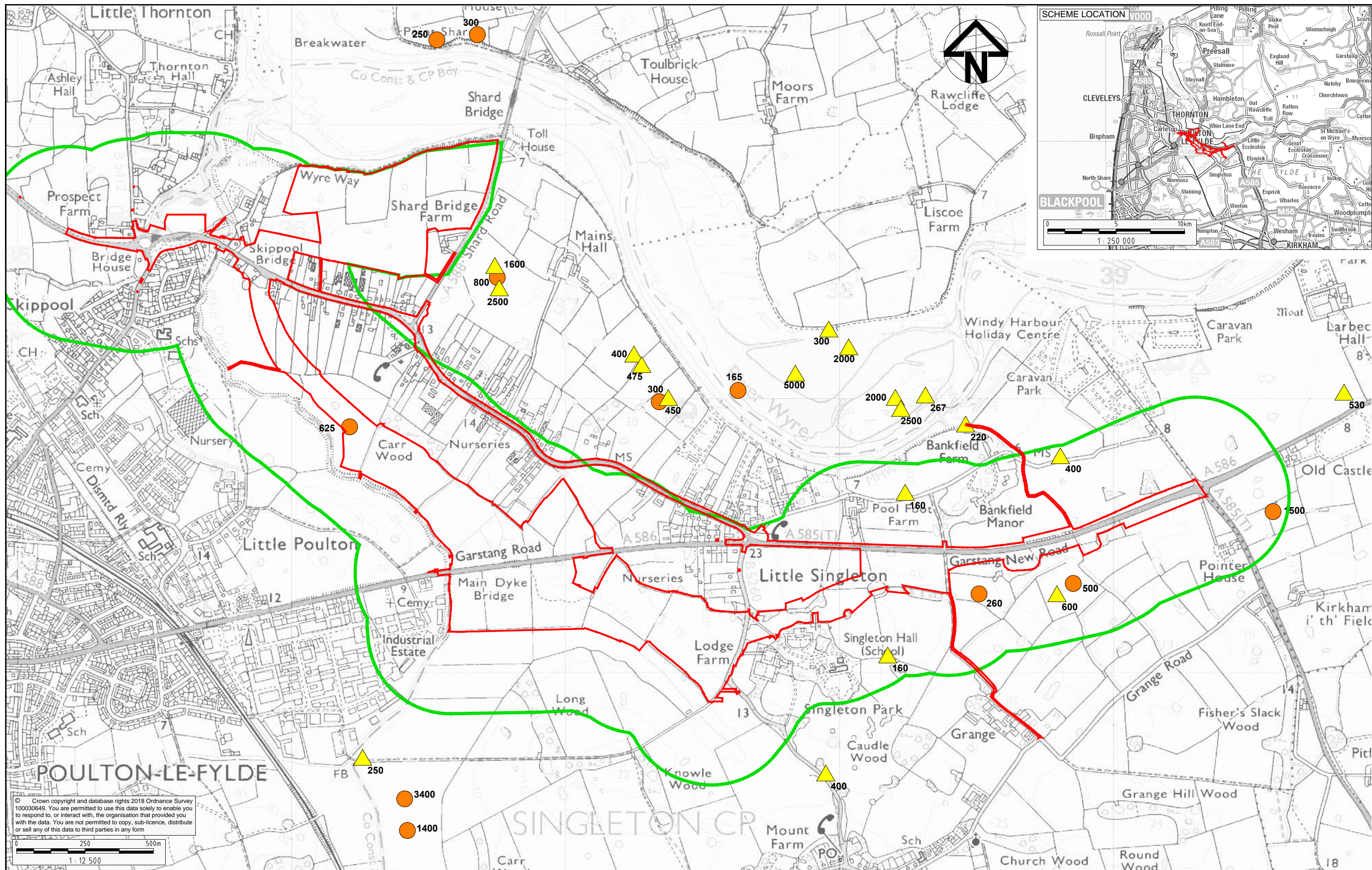
KEY:			
	Draft Order Limits		2016-2017 Location and Number of Birds
	300m Construction Buffer		2017-2018 Location and Number of Birds



Client
 Project **A585 WINDY HARBOUR TO SKIPPOOL IMPROVEMENT SCHEME**
 Drawing Title **ENVIRONMENTAL STATEMENT REGULATION 5(2)(a)**
 PINK-FOOTED GOOSE GROUND RECORDS SHEET 1 OF 2

Status		Revision	
S8 - DCO SUBMISSION		0	
Scale	1:12 500 @ A3	Date	OCT 2018
Drawn By	J.NORMAN		
Checked By	K.BURROWS		
Approved By	N.HENDERSON		
PINS No.	TR010035	FIGURE A8.4.3	
Drawing number	HE548643-A585-EAC-SZ_GN_000-DR-L-3037		

Rev	Status	Rev. Date	Purpose of revision	Drawn	Check'd	Appr'd
0	S8	OCT18	S8 - DCO SUBMISSION	JN	KB	NH



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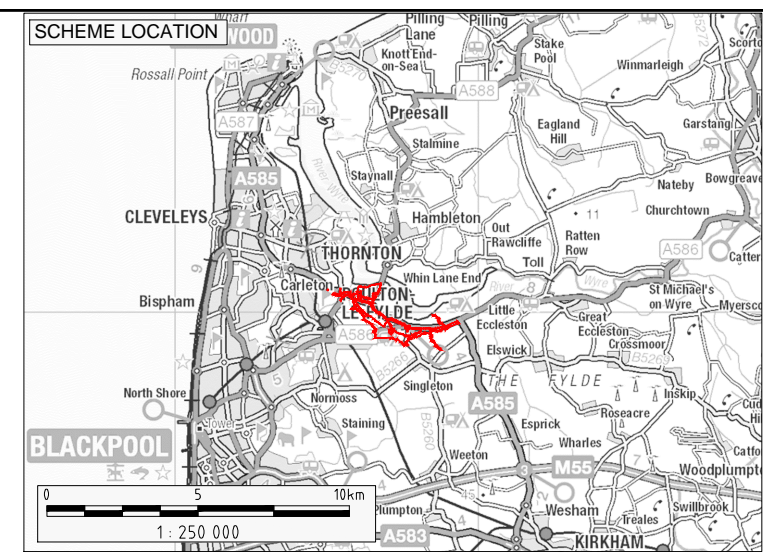
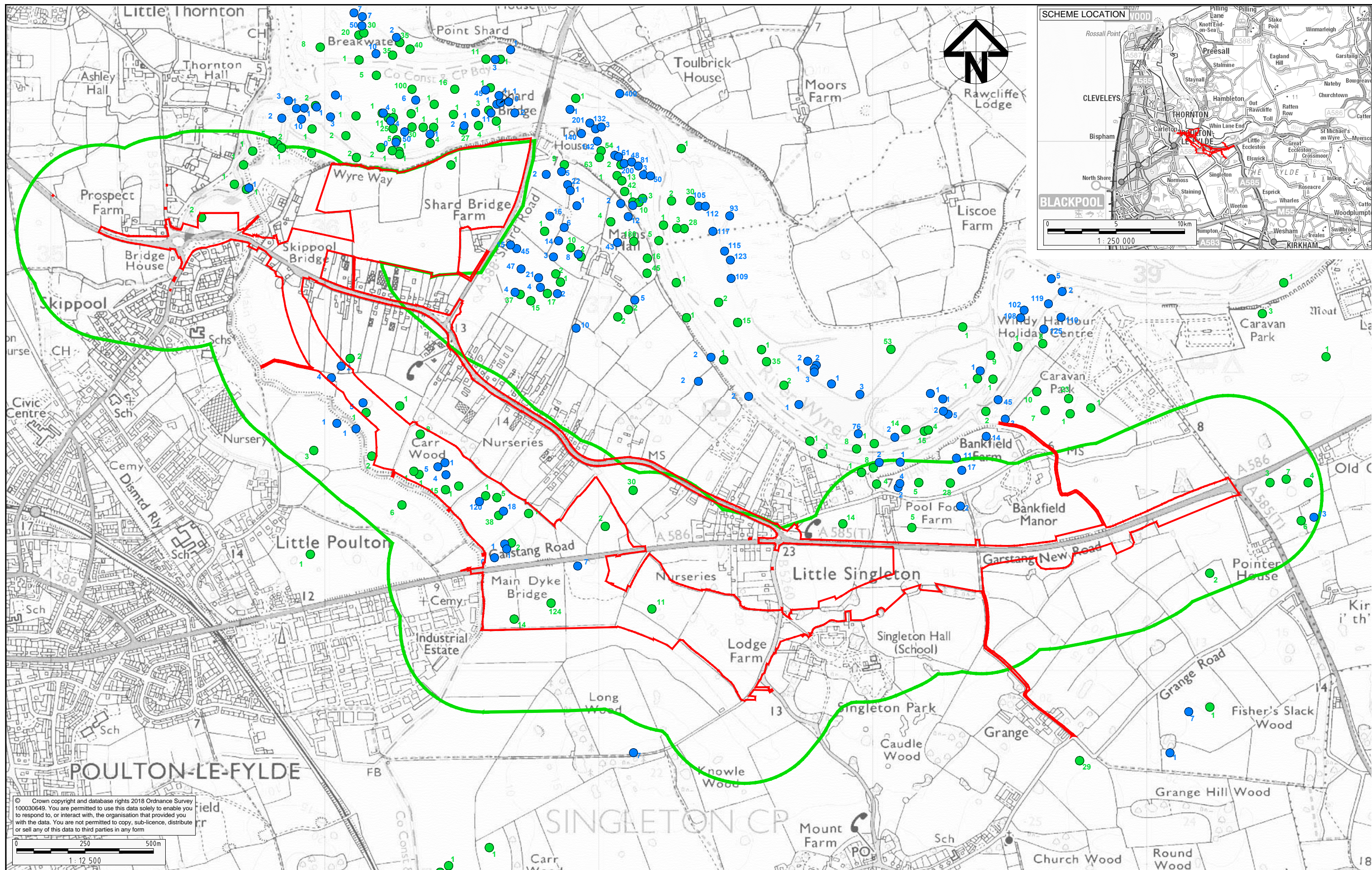
KEY:	
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	300m Construction Buffer
	2016-2017 Location and Number of Birds Recorded 1% Threshold Records Only (ie>156)
	2017-2018 Location and Number of Birds Recorded 1% Threshold Records Only (ie>156)



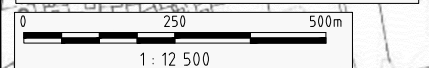
Client
Project A585 WINDY HARBOUR TO SKIPPOOL IMPROVEMENT SCHEME
Drawing Title ENVIRONMENTAL STATEMENT REGULATION 5(2)(a)
PINK-FOOTED GOOSE GROUND RECORDS (1% SPA POPULATION RECORDS)
SHEET 2 OF 2

Status	S8 - DCO SUBMISSION	Revision	0
Scale	1:12 500 @ A3	Date	OCT 2018
Drawn By	J.NORMAN	Checked By	K.BURROWS
Approved By	N.HENDERSON	PINS No.	TR010035
FIGURE	A8.4.3	HE548643-A585-EAC-SZ_GN_000-DR-L-3037	

Rev	Status	Rev. Date	Purpose of revision	Drawn	Check'd	Appr'd
0	S8	OCT18	S8 - DCO SUBMISSION	JN	KB	NH



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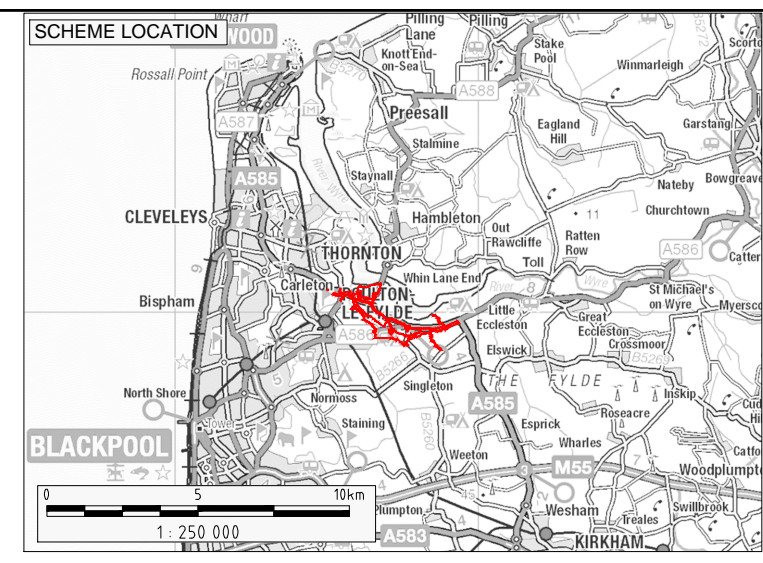
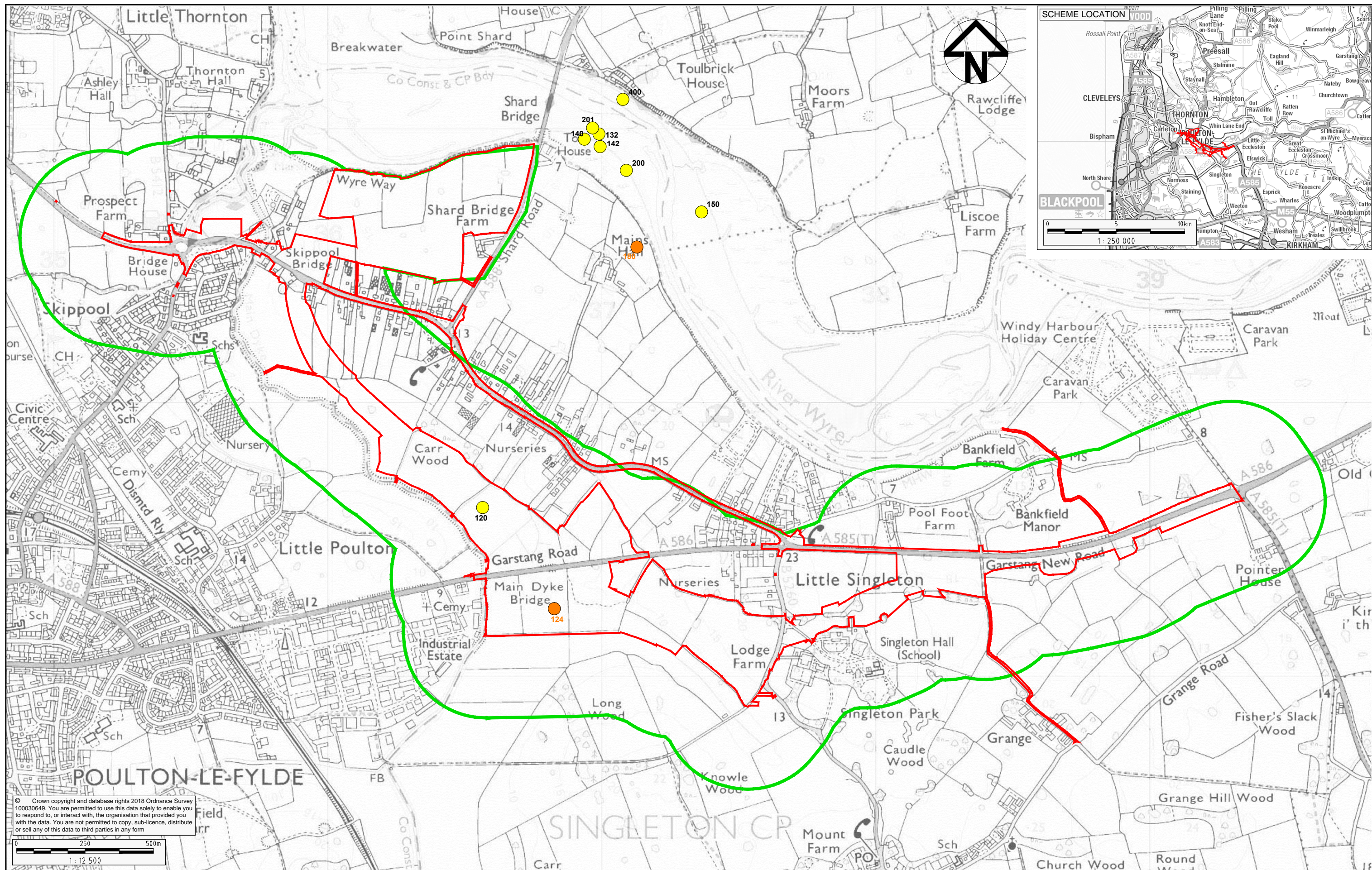
KEY:			
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	300m Construction Buffer		2017-2018 Location and Number of Birds Recorded



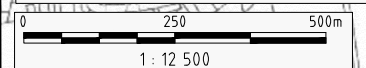
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Project A585 WINDY HARBOUR TO SKIPPOOL IMPROVEMENT SCHEME
Drawing Title ENVIRONMENTAL STATEMENT REGULATION 5(2)(a) ORNITHOLOGY REPORT: CURLEW GROUND RECORDS SHEET 1 OF 2

Status	S8 - DCO SUBMISSION	Revision	0
Scale	1:12 500 @ A3	Date	OCT 2018
Drawn By	J.NORMAN	Checked By	K.BURROWS
Approved By	N.HENDERSON		
PINS No.	TR010035	FIGURE	A8.4.4
Drawing number	HE548643-A585-EAC-SZ_GN_000-DR-L-3038		

Rev	Status	Rev. Date	Purpose of revision	Drawn	Check'd	Appr'd
0	S8	OCT18	S8 - DCO SUBMISSION	JN	KB	NH



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KEY:

- Draft Order Limits
- 300m Construction Buffer

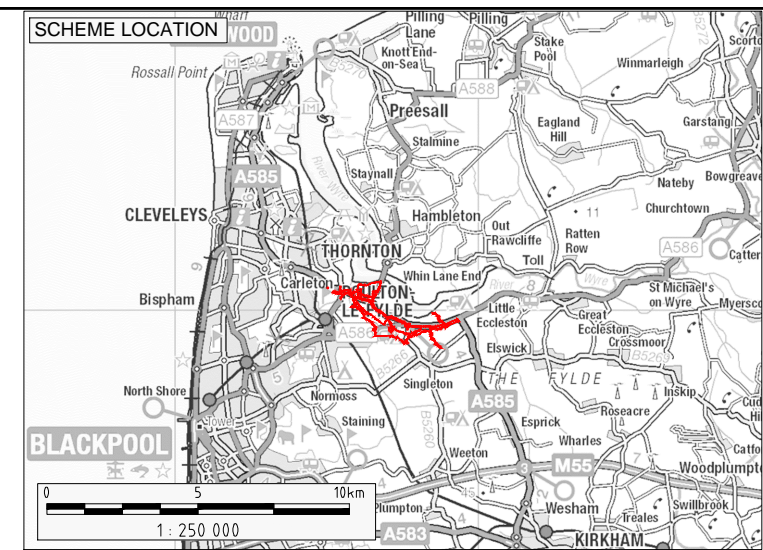
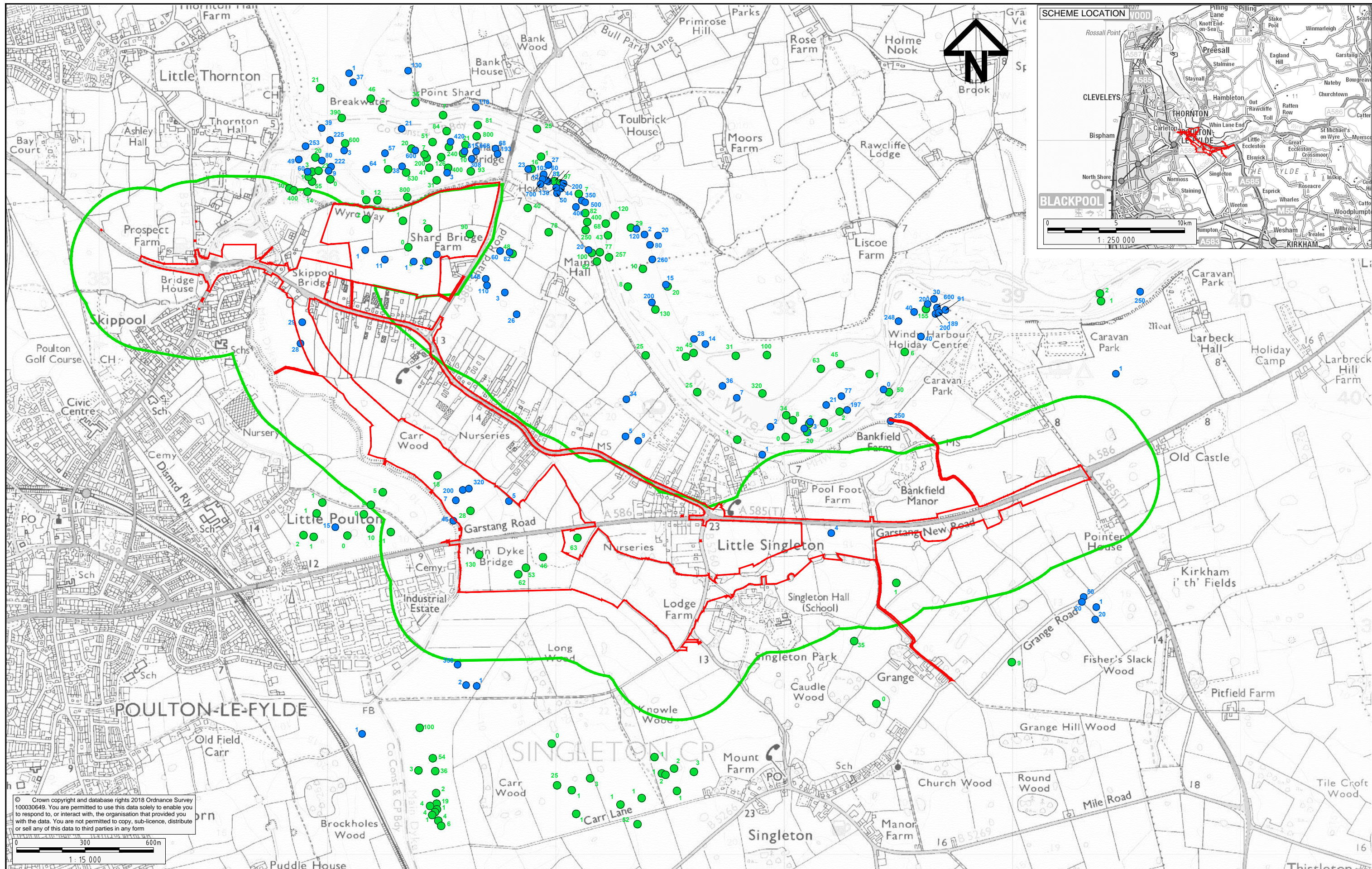
- 2016-2017 Location and Number of Birds - 1% Threshold Records Only (i.e.>122)
- 2017-2018 Location and Number of Birds - 1% Threshold Records Only (i.e.>122)



Client
Project A585 WINDY HARBOUR TO SKIPPOOL IMPROVEMENT SCHEME
Drawing Title ENVIRONMENTAL STATEMENT REGULATION 5(2)(a) ORNITHOLOGY REPORT: CURLEW GROUND RECORDS (1% SPA POPULATION RECORDS) SHEET 2 OF 2

Status	S8 - DCO SUBMISSION	Revision	0
Scale	1:12 500 @ A3	Date	OCT 2018
Drawn By	J.NORMAN	Checked By	K.BURROWS
Approved By	N.HENDERSON	PINS No.	TR010035
Drawing number	HE548643-A585-EAC-SZ_GN_000-DR-L-3038	FIGURE	A8.4.4

Rev	Status	Rev. Date	Purpose of revision	Drawn	Check'd	Appr'd
0	S8	OCT18	S8 - DCO SUBMISSION	JN	KB	NH



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0 300 600m
1:15 000

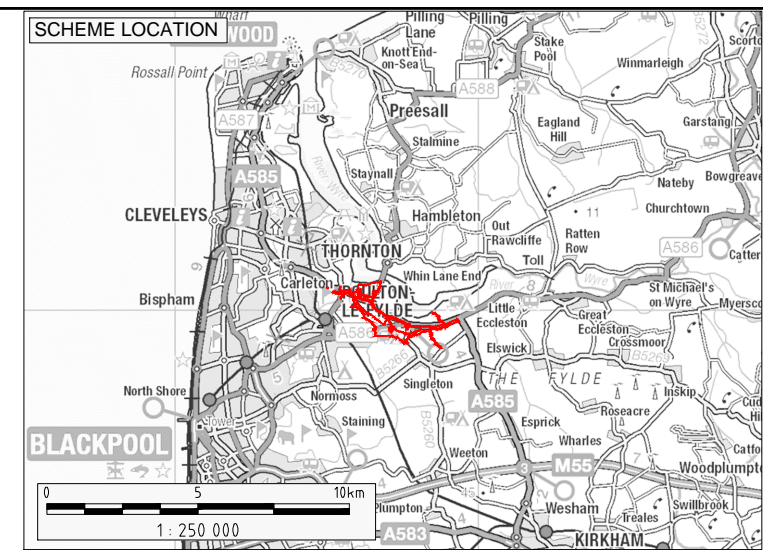
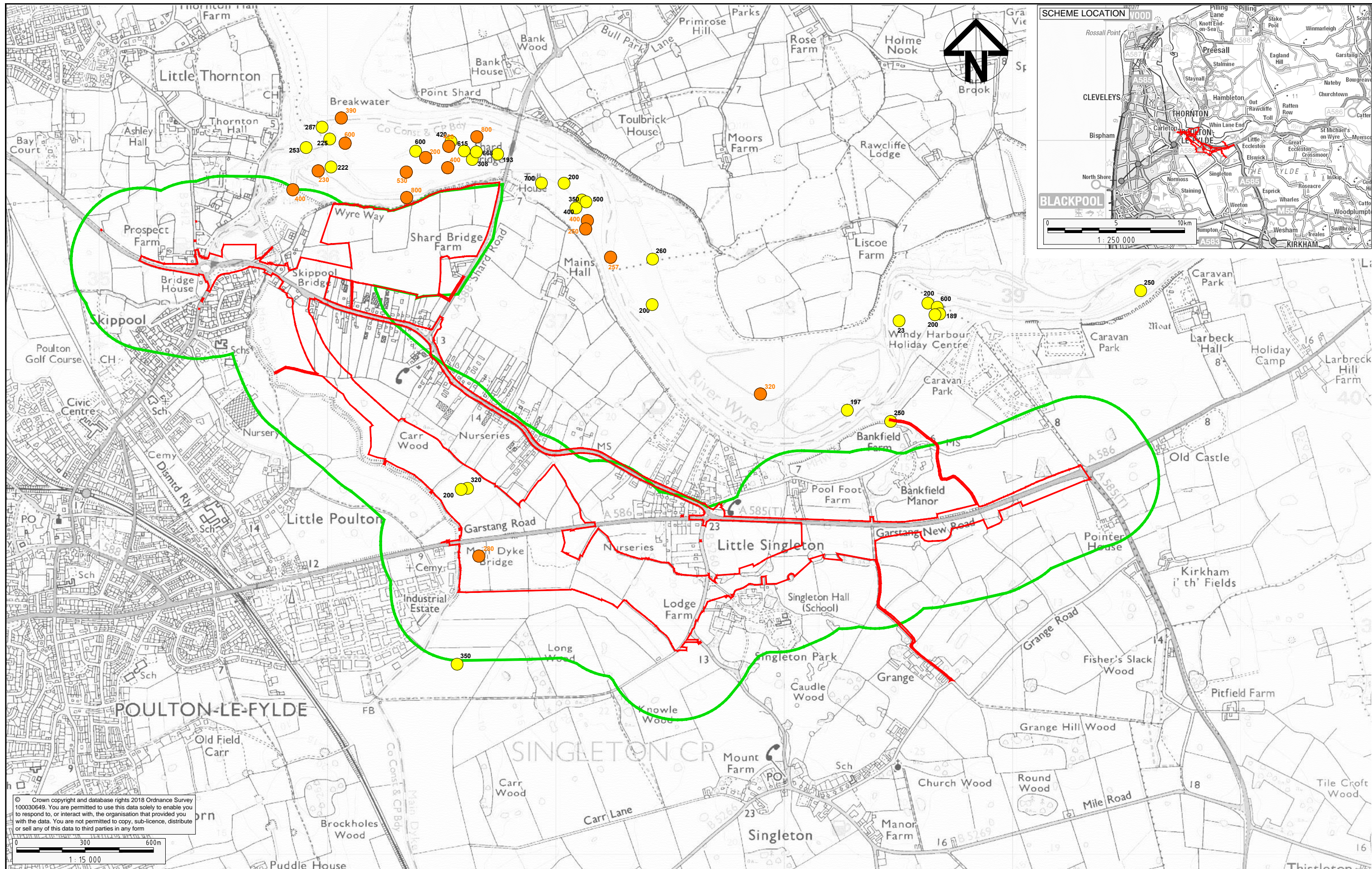
KEY:			
	Draft Order Limits		2016-2017 Location and Number of Birds Recorded
	300m Construction Buffer		2017-2018 Location and Number of Birds Recorded



Client
Project A585 WINDY HARBOUR TO SKIPPOOL IMPROVEMENT SCHEME
Drawing Title ENVIRONMENTAL STATEMENT REGULATION 5(2)(a) ORNITHOLOGY REPORT: LAPWING GROUND RECORDS SHEET 1 OF 2

Status	S8 - DCO SUBMISSION	Revision	0
Scale	1:15 000 @ A3	Date	OCT 2018
Drawn By	J.NORMAN	Checked By	K.BURROWS
Approved By	N.HENDERSON		
PINS No.	TR010035	FIGURE	A8.4.5
Drawing number	HE548643-A585-EAC-SZ_GN_000-DR-L-3039		

Rev	Status	Rev. Date	Purpose of revision	Drawn	Check'd	Apprv'd
0	S8	OCT18	S8 - DCO SUBMISSION	JN	KB	NH



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0 300 600m
1:15 000

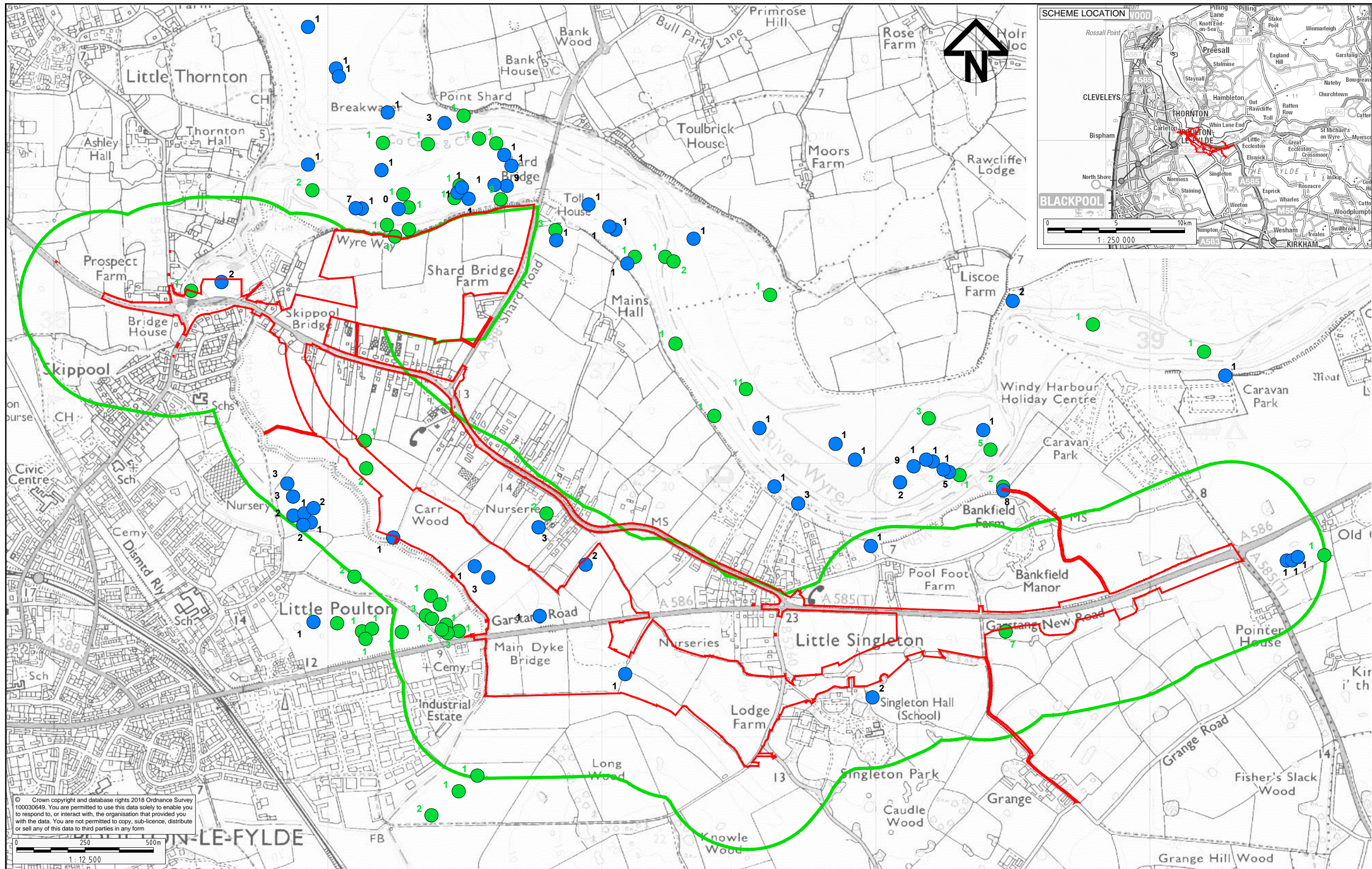
KEY:			
	Draft Order Limits		2016-2017 Location and Number of Birds - 1% Threshold Records Only (i.e.>165)
	300m Construction Buffer		2017-2018 Location and Number of Birds - 1% Threshold Records Only (i.e.>165)



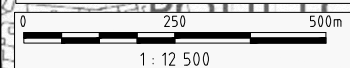
Client
Project A585 WINDY HARBOUR TO SKIPPOOL IMPROVEMENT SCHEME
Drawing Title ENVIRONMENTAL STATEMENT REGULATION 5(2)(a) ORNITHOLOGY REPORT: LAPWING GROUND RECORDS (1% RAMSAR SITE POPULATION RECORDS) SHEET 2 OF 2

Status	S8 - DCO SUBMISSION	Revision	0
Scale	1:15 000 @ A3	Date	OCT 2018
Drawn By	J.NORMAN	Checked By	K.BURROWS
Approved By	N.HENDERSON	PINS No.	TR010035
Drawing number	HE548643-A585-EAC-SZ_GN_000-DR-L-3039	FIGURE	A8.4.5

Rev	Status	Rev. Date	Purpose of revision	Drawn	Check'd	Appr'd
0	S8	OCT18	S8 - DCO SUBMISSION	JN	KB	NH



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KEY:

- Draft Order Limits
- 300m Construction Buffer
- 2016-2017 Location and Number of Birds Recorded
- 2017-2018 Location and Number of Birds Recorded

Rev	Status	Rev. Date	Purpose of revision	Drawn	Checked	Approved
0	S8	OCT18	S8 - DCO SUBMISSION	JN	KB	NH



Client
Project A585 WINDY HARBOUR TO SKIPPOOL IMPROVEMENT SCHEME
Drawing Title ENVIRONMENTAL STATEMENT REGULATION 5(2)(a) ORNITHOLOGY REPORT: LITTLE EGRET GROUND RECORDS

Status	Revision
S8 - DCO SUBMISSION	0
Scale 1:8 000 @ A3	Date OCT 2018
Drawn By J.NORMAN	
Checked By K.BURROWS	
Approved By N.HENDERSON	
PINS No. TR010035	FIGURE A8.4.6
Drawing number HE/PR/ Operator Volume Location Title Date Number	HE548643-A585-EAC-SZ_GN_000-DR-L-3040