Meridian Solar Farm

EN010169

Volume 6

Environmental Statement

6.3 ES Appendix 9-6: Grid Connection Route Wintering Bird Survey Report 2023-2024

APFP Regulation 5(2)(a)

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

March 2026

This report was issued with the Preliminary Environmental Information Report (PEIR) (April 2025) and uses the Scheme terminology and extents defined at that stage. Since the preparation of the PEIR, there have been minor updates to the Scheme, however, these do not impact on the conclusions of this report.

Contents

Abbreviations and Acronyms

The following list is compiled of the abbreviations and acronyms used throughout this report:

Term	Definition
BAP	Biodiversity Action Plan
BoCC	Birds of Conservation Concern
CBC	Common Bird Census
CWS	County Wildlife Site
DCO	Development Consent Order
EIA	Environmental Impact Assessment
HRA	Habitat Regulations Assessment
IIWS	Internationally Important Wildlife Site
LNR	Local Nature Reserve
LWS	Local Wildlife Site
NNR	National Nature Reserve
NPPF	National Planning Policy Framework
NPS	National Policy Statement
NSIP	Nationally Significant Infrastructure Project
PoC	Point of Connection
SAC	Special Area of Conservation
SINC	Sites of Importance for Nature Conservation
SPA	Special Protection Area
SPI	Species of Principal Importance
SSSI	Site of Special Scientific Interest
VP	Vantage Point
WeBS	Wetland Bird Survey
WBS	Winter Bird Survey
WBBS	Waterways Breeding Bird Surveys

Executive Summary

Temple was commissioned by Meridian Solar Farm Limited in October 2023 to carry out a suite of wintering bird Vantage Point surveys to provide baseline ecological data.

The intention is that the results of these surveys will be incoporated into the Environmental Impact Assessment (EIA),as part of the Development Consent Order (DCO) application.

Vantage Point surveys were undertaken at seven locations to ascertain whether any species of conservation interest where present within the area from which the Grid Connection would be selected (the Initial Grid Connection Routing Study Area). Monthly visits were made between November 2023 and March 2024 in line with current best practice. The main findings were as follows:

- A total of 37 species were recorded during the surveys including seven Primary Focal Species;
- Most of the movements were east to west across the Grid Connection Study Area;
- Birds were recorded in the less than 10m height band-, the 10-25m height band and the 25-50m height band. One large flock of golden plover were recorded in the 50-75m height band (considered to be the risk zone), mute swan, were also recorded in the risk zone;
- No species listed in the citations for the IIWS were recorded during the surveys; and
- The main areas of activity were around the south-east corner of the Grid Connection Study Area.

Consideration therefore needs to be given to ensure that areas occupied by Primary Focal Species to avoid significant effects as a consequence of the proposed Grid Connection. The information contained within this report will be used to inform the design of the Scheme and the subsequent mitigation strategy as part of the EIA and DCO application.

1 Introduction

BACKGROUND

1.1 Temple was commissioned by Meridian Solar Farm Limited in October 2023 to carry out a suite of scoping Vantage Point Surveys to inform the selection of the Grid Connection Route associated with the Meridian Solar Farm, Lincolnshire.

1.2 This data will be used to inform the evolving design of the Scheme and scope of further surveys as part of a DCO Application, under the Planning Act 2008. The survey covered land within the Grid Connection Potential Cable Routing Area (the 'Study Area') and extended to a 1km radius within the surrounding landscape (henceforth referred to as 'the Survey Area'), as shown in Appendix 1, Figure A1.1. A feasibility study was initially undertaken to determine suitable locations for the Vantage Points (VP) (Temple 2023).

SCOPE OF THE REPORT

1.3 This report details the methods and findings of the wintering Vantage Point surveys undertaken by Temple between November 2023 and March 2024. The aim of the survey was to identify and categorise the species moving into and out of the Survey Area and to map the flight paths and height of notable bird populations, (referred to as Primary Focal Species) which included:

- qualifying species of local statutory and non-statutory nature conservation designations, and qualifying species of Internationally Important Wildlife Sites (IIWS); and
- Wildlife and Countryside Act 1981 (as amended), Schedule 1 species.

1.4 The data gathered focussed on the use of the Grid Connection and surrounding areas potentially affected by the proposed Grid Connection as well as identifying key areas to avoid as part of route selection and design evolution.

1.5 This report has been prepared with reference to best practice guidance published by the Chartered Institute for Ecology and Environmental Management (CIEEM, 2017

and 2018) and as detailed in British Standard 42020:2013 Biodiversity – Code of Practice for Biodiversity and Development (BSI, 2013).

SITE CONTEXT AND STATUS

1.6 The Meridian Solar Farm Scheme consists of three elements, the PV Area, the Grid Connection Corridors, and the Inter-Array Areas. The PV Area, which would house the PV Areas, co-located BESS, on-site substations and associated supporting infrastructure is approximately 1,100ha in size and is centred on Ordnance Survey National Grid reference TF 29441 19897, approximately 12km west of Wisbech and 11km south of Holbeach. At the time of the commission, the Grid Connection Route had not been determined, however a Study Area had been identified, which covered the width of the PV Area to a point of connection (PoC) at the proposed 400kV National Grid Weston March substation, north of Weston (Appendix 1, Figure A1.1). The Inter-Array Areas will be subject to a separate appraisal.

1.7 The Study Area and the associated Survey Area comprised arable farmland, ditches and isolated pockets of plantation woodland, a small number of hedgerows, small parcels of scrub. Landscape features within the vicinity consist of steep man-made agricultural drainage ditches typically bordering arable field boundaries with isolated pockets of plantation. There are several small towns and villages within the Survey Area.

SCHEME DESCRIPTION

1.8 The Scheme would comprise the construction, operation (including maintenance) and decommissioning of a solar PV electricity generating facility with associated infrastructure including co-located Battery Energy Storage System (BESS) within a PV Area (Appendix 1, Figure 1). An Inter-Array would link the separate land parcels that form the PV Area. A Grid Connection from the PV Area would run approximately 13km north towards a point of connection (PoC) to the proposed Weston Marsh National Grid substation to the north of Weston, which is the subject of this report.

RELEVANT LEGISLATION AND PLANNING POLICY

1.9 The following key pieces of nature conservation legislation are relevant to this appraisal. A more detailed description of legislation is provided in Appendix 4:

- The Conservation of Habitats and Species Regulations 2017 (as amended);
- Wildlife and Countryside Act 1981 (as amended);
- Natural Environment and Rural Communities Act 2006; and
- Environment Act 2021.

1.10 The Overarching National Policy Statement (NPS) for Energy (EN-1), National Policy Statement for Renewable Energy Infrastructure (EN-3) and National Policy Statement for Electricity Networks Infrastructure (EN-5) set out the Government's energy policy, the need for new infrastructure and guidance for determining an application for a DCO. The NPSs include specific criteria and issues which should be covered by applicants' assessments of the effects of their scheme, and how the decision maker should consider these impacts. For example, NPS (EN-3), paragraph 2.4.2, which underlines the importance of good design for energy infrastructure in design of the project to mitigate impacts such as noise and effects on ecology.

1.11 The National Planning Policy Framework (NPPF) (Department for Levelling Up, Housing and Communities, 2023) requires local authorities to avoid and minimise impacts on biodiversity and should provide net gains in biodiversity when taking planning decisions.

1.12 Other planning policies at the local level which are of relevance to this development include the South-East Lincolnshire Local Plan (2019) and the Lincolnshire BAP.

2 Methodology

DESKTOP STUDY

2.1 A search was made on MAGIC (MAGIC, 2023) for statutory designated sites relating to birds within 15km of the Survey Area. In line with professional judgment, a 15km buffer was chosen in relation to IIWS, including Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Ramsar sites, given the scale and nature of the works and potential impact pathways for qualifying species of the IIWS. A search of up to 2km was made for other statutory designated sites including Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR) and Local Nature Reserves (LNR).

2.2 Ornithological data for a 15km buffer was obtained from the Greater Lincolnshire Nature Partnership, the local Biological Records Centre. This buffer was chosen given the nature of the Scheme, including the Grid Connection, and the proximity to IIWS.

FIELD SURVEY

2.3 The Vantage Point (VP) Surveys were undertaken by a team of surveyors, all proficient in bird identification, survey techniques and VP methodology (Table 2.1 below).

Table 2.1: Ornithological Surveyors

Grade	Qualification	CIEEM	Ornithological Experience
Principal Ecologist	BSc (Hons) & MSc	Pending MCIEEM	18 years
Principal Ecologist	BSc (Hons)	MCIEEM	15 years
Senior Ecologist	HND		15 Years
Senior Ecologist	BSc & MSc	Pending	10 years

Grade	Qualification	CIEEM	Ornithological Experience
		ACIEEM	
Consultant Ecologist	BSC (Hons)	MCIEEM	12 years
Consultant Ecologist	BSc (Hons) & MSc	Pending MCIEEM	10 years
Consultant Ecologist	BSc (Hons)	MCIEEM	8 years

2.4 This assessment was compiled by a Principal Ecologist and full member of CIEEM, with over 40 years ornithological experience.

2.5 The Scheme is located within a broad area of relatively homogeneous habitat and landscape character. At the time of surveys, access for Vantage Points was only available from Public Rights of Way and the Public Highway. Surveys were carried out using seven Vantage Points that afforded good views into the Survey Area. These are listed in Table 2.2 and shown in Appendix 1 Figure 1.

Table 2.2: VP Locations

Vantage Point	Location	PRoW	OS Grid
VP1	South of B1165, adjacent to Windcatch Farm.	Within highways boundary	TF 27473 21883
VP2	North of A151 (Weston Bypass) opposite Baytree Garden Centre. In the area of the proposed substation.	Within highways boundary	TF 28419 24950
VP3	Within highways boundary	Within highways boundary	TF 33431 19973
VP4	Along South Holland Main Drain.	Yes	TF 33055 15907
VP5	Along River Welland embankment, south of Cowpit.	Yes	TF 25769 16019
VP6	West of B1357, south of Moulton.	Within highways boundary	TF 30800 22848
VP7	Within Land Parcel G-1.02.	No	TF 36067 16688

2.6 Five survey visits were carried out between November 2023 and March 2024, with approximately four weeks between each visit.

2.7 The purpose of the VP surveys was to collate data to inform the evolving routing and design for the Grid Connection using a proportionate approach to data collection over a large area. Following route refinement, it will allow for an initial collision risk assessment of birds with proposed structures such as pylons and associated overhead lines and will inform the scope of further survey work where necessary. The surveys recorded levels of activity of bird species within the airspace of the proposed overhead line infrastructure that present a potential collision hazard. In addition, these surveys provide information on the use of land within the Survey Area that could provide important resources for wintering birds, acting as Functionally Linked Land in relation to IIWS, which could be subject to loss or disturbance as a result of the Grid Connection. This will also help to inform likely movement corridors for birds that could interact with the proposed overhead line infrastructure. Activity patterns of birds within the Survey Area may also inform the assessment of the potential consequences of displacement and habitat loss or fragmentation. The Survey Area was chosen to ensure that movements of birds were identified.

2.8 Methodologies for these surveys were based on NatureScot (Scottish Natural Heritage) guidance[1] on survey methods to inform onshore windfarm development assessments, which has been adapted to be appropriate to overhead lines. These methods were subject to minor modification (reduced in hours) given the scale of the area and the intention to refine the Study Area to avoid negative impacts on birds as far as possible. The level of collision with overhead lines is presumed to be dependent on the level of flight activity over the propped route and the ability of the birds to detect and avoid these lines. Birds that collide with overhead lines are likely

[1] Scottish Natural Heritage (2017). *Recommended bird survey methods to inform impact assessment of onshore wind farms*, Version 2.

to be killed or fatally injured. This may, in turn, affect the maintenance of bird populations.

2.9 The purpose of vantage point watches was to collect data that will enable estimates to be made of:

- The time spent flying over the Survey Area;
- The relative use of different parts of the Survey Area; and
- The proportion of flying time spent within different flight bands.

2.10 Each VP was subject to one three-hour survey visit per month equalling a total of 15 hours at each location. Three hours of survey were carried out at each location, as this was considered proportionate for the scale of the works and the intended use of these data.

2.11 Each visit was carried out by a pair of competent surveyors, both of whom are an experienced field ornithologist to allow for full visibility of the viewshed[2] and recording of simultaneous movements of multiple birds / flocks. At each survey location, the VP was located in the same place with the same viewshed on each survey visit, with the exception of VP5 which was relocated slightly to avoid flooding. Birds were recorded within an envelope of at least 200m from the VP location and up to 500m where topographical conditions allowed. Visits to each VP were alternated between morning and afternoon, (whenever possible) starting within one hour after dawn or finishing within one hour before dusk.

2.12 Surveys proceeded in inclement weather as it is important to record bird activity and behaviour in a range of conditions. However, surveys were avoided where visibility was less than 1km for prolonged periods (either from mist, heavy rain or low cloud-base), or in high winds (over Beaufort 5) as these conditions are likely to significantly impair the ability to record bird activity and is likely to impede bird activity.

[2] The term used to define the area visible from a defined vantage point.

2.13 Weather conditions were recorded at least hourly, or more often if there were significant changes noted. Any disturbance events liable to affect the behaviour of birds within the viewshed, such as farming activities, people walking or low-flying aircraft, were also recorded.

2.14 Target species, referred to as 'Primary Focal Species', included qualifying features of the IIWS, and those which could present a collision risk with the Grid Connection (see Table 2.3 below).

Table 2.3: Primary Focal Species

Species	Scientific Name	IIWS Qualifying Species	Collision Risk
barn owl	*Tyto alba*		Yes
Bewick's swan	*Cygnus columbianus*	Yes	Yes
black-tailed godwit	*Limosa limosa*	Yes	
Brent goose	*Branta bernicla*	Yes	Yes
crane	*Grus grus*		Yes
garganey	*Spatula querquedula*	Yes	
hen harrier	*Circus cyaneus*		Yes
lapwing	*Vanellus vanellus*	Yes	Yes
marsh harrier	*Circus aeruginosus*		Yes
osprey	*Pandion haliaetus*		Yes
pintail	*Anas acuta*	Yes	
redshank	*Tringa totanus*	Yes	
shelduck	*Tadorna tadorna*	Yes	
snipe	*Gallinago gallinago*	Yes	
teal	*Anas crecca*	Yes	
whooper swan	*Cygnus cygnus*		Yes

2.15 Primary Focal Species were recorded for the duration they were in flight within view, with time of detection and flight duration also recorded. The route of flight was

plotted in the field onto 1:25 000 scale Ordnance Survey base maps. Bird flight height was estimated at the point of detection, and then at 15 second intervals, thereafter, using five height categories determined to correlate with the anticipated pylon cable heights (see Table 2.4). Height band 4 corresponds to the top of the proposed pylons and sag of the cables, with band 5 added as precautionary measure to allow for flexibility in design. The height bands were based on initial information provided by the Applicant.

Table 2.4: Height bands for records bird species

Height band 1	Height band 2	Height band 3	Height band 4	Height band 5
<10m	10-25m	25-50m	50-75m	>75m

2.16 The number and activity of Secondary Species (i.e. all species not listed as Primary Focal Species) were recorded in 15-minute periods throughout the vantage point surveys. Perched birds and birds on waterbodies were recorded once only on arrival. Thereafter, only flying birds and newly noticed perching/swimming birds were included in the activity summaries. Observing and recording Primary Focal Species took priority over Secondary Species activity summaries. Secondary species are not considered within this report.

Survey Details

2.17 The times, dates and weather conditions of all survey visits are detailed in

2.18 Table 2.5, below. Where a range is given, this refers to changes in condition from the start to the end of the survey.

Table 2.5: Vantage Point survey dates and times

Transect	Date	Start Time	Temperature (˚C)	Cloud Cover Oktas	Wind Beaufort Scale	Rain	Comment
VP1	28/11/2023	12:50	5 -7	0 -1	2	None	Mostly clear sky, sunny, dry, light breeze. Open landscape, arable fields, multiple telegraph poles/power cables, drainage ditches.
	21/12/2023	08:15	11 - 12	8 - 7	9 - 8	Drizzle - None	V. strong gusts
	16/01/2024	08:15	-2 -1	6 - 8	2 - 1	None	Sunny, light wind, light flurry of snow, ground hard frost
	13/02/2024	09:50	6 - 8	8	3 - 2	None - Moderate	Cold, damp
	13/03/2024	08:00	12 - 17	8	6	None	Arable, ploughed, cover crops, some wet scrapes
VP2	29/11/2023	07:50	-2 - 1	1 - 0	1	None	Sunshine, little cloud, slight breeze, frost. Arable fields, some trees around properties, scattered trees and some woodland plus a small copse. Drainage ditches, some with reeds, very little field-boundary set-aside.
	21/12/2023	13:00	11 - 9	4 - 5	10 - 9	None	

Transect	Date	Start Time	Temperature (˚C)	Cloud Cover Oktas	Wind Beaufort Scale	Rain	Comment
	16/01/2024	13:15	3 - 4	3 - 6	3 - 4	None	Sunny
	13/02/2024	13:50	8	8	2	Moderate - Heavy	Cold damp, has been raining persistently since 11 am approx. Heavy rain developing from 15:00.
	13/03/2024	11:40	14	8	6 - 7	None	Ploughed fields, reed lined ditches
VP3	29/11/2023	12:50	3 - 2	0 - 1	1	None	Unbroken sunshine, mostly clear sky, little wind, dry. Open landscape, recently ploughed arable fields, drainage ditches, sparse trees in linear arrangements or around properties.
	22/12/2023	11:15	11-10	7	5	Drizzle	
	16/01/2024	08:30	1	5	3 - 2	Drizzle - None	Cold, light snow shower, arable, cover crop, hedgerow, small copse, ditches.
	13/02/2024	08:15	6 - 4	8	3 - 2	None - Drizzle	Bird scarer nearby repeated booms. Light rain around 10:45
	12/03/2024	07:15	6.7 - 8	8	2 - 3	Drizzle - Moderate	Persistent rain and poor visibility for the duration of the survey.
VP4	22/11/2023	07:45	6 - 7	7	3	None	Cold, agricultural landscape.

Transect	Date	Start Time	Temperature (˚C)	Cloud Cover Oktas	Wind Beaufort Scale	Rain	Comment
	15/12/2023	08:00	6 - 7	8 - 7	4 - 3	None	
	17/01/2024	12:45	1 - 2	4 - 6	3	None	
	23/02/2024	13:30	8	4 - 5	4 - 5	None	Busy day at the shooting club adjacent to VP4. Lots of gun fire, causing disturbance to birds.
	13/03/2024	14:00	14.2 - 14.9	8 - 7	2 - 4	None	
VP5	21/11/2023	08:00	7 - 8	8 -7	4	Drizzle - Moderate	Agricultural. Long spell of rain mid survey.
	14/12/2023	13:15	7	4 - 5	3	None	
	17/01/2024	08:30	0 - 1	9 - 7	2 - 3	None	Ground frost
	23/02/2024	08:30	3 - 6	1 - 2	2 - 4	None	Field flooding due to heavy recent rain.
	13/03/2024	07:18	12.0 - 14.6	8 - 5	1 - 3	None	View over flooding, floodwater showing signs of receding (300mm) since Feb visit.

Transect	Date	Start Time	Temperature (˚C)	Cloud Cover Oktas	Wind Beaufort Scale	Rain	Comment
VP6	30/11/2023	07:48	-2 - 1.5	6 - 3	4 - 2	None - Drizzle	Slight shower/light drizzle. Sunny periods, variable amounts of cloud, scattered showers of rain/sleet, variable breeze. Open landscape, arable fields, drainage ditches, scattered trees on the edge of a village.
	22/12/2023	08:00	10 - 11	8 - 7	5	2 - None	
	16/01/2024	13:20	3 - 0	3 - 4	3 - 2	None	Arable with ditches scattered hedgerow and tree lines.
	13/02/2024	11:15	6	8	3 - 4	Drizzle	
	12/03/2024	14:40	13.4 - 14.6	8 - 7	2 - 3	None - Drizzle	
VP7	23/11/2023	07:30	8 - 9	7 - 1	4 - 6	None	Excellent conditions, agricultural landscape. Gusty winds.
	15/12/2023	14:45	7 - 6	7 - 8	3	None	
	17/01/2024	08:40	0	6 - 5	1 - 2	None	
	14/02/2024	09:40	12 - 13	8 - 7	3	None - Drizzle	Damp felt mild

Transect	Date	Start Time	Temperature (˚C)	Cloud Cover Oktas	Wind Beaufort Scale	Rain	Comment
	15/03/2024	07:30	12	7 - 5	5	None	

2.19 Upon completion of the surveys, information obtained from each visit was transferred to a separate map and digitised using ArcGIS software.

NOMENCLATURE

2.20 Common names only are used throughout the text of this report, with scientific names for all species included in Appendix 4. The naming convention follows the Natural History Museums species dictionary (2023).

LIMITATIONS AND SURVEY CONSTRAINTS

2.21 Every effort has been made to provide robust and comprehensive data. However, the following limitations apply:

- Surveys were broadly restricted to using public rights of way for access. However, given the relative homogeneity of the habitats within the landscape and the open flat character, this still allows for extensive lines of sight. This is deemed to result in a robust representation of the usage of the landscape by wintering species within the Survey Area and is not considered a limitation;

- Individual birds and different bird species vary in their behaviour and detectability, and it is unlikely that registrations were detected for all birds during each survey visit. Nevertheless, it is considered that the majority of the wintering bird activity was recorded over the course of the surveys (using professional judgement) and the data collected is therefore considered sufficiently robust;

- The Vantage Point surveys were conducted on a monthly basis with three hours per survey. This is considered proportionate to the scale of the Study Area and the intended purpose of the data collected and is not seen as a limitation.

- Weather conditions for the December visits to VP1 and VP2 were exceptionally windy, and the results from these surveys have only been included for completeness, but will reflect a drop in usage of the Study Area as a result. Time

constraints (due to the Christmas period) did not permit rescheduling the surveys.

- The commission for the surveys was received in October, so it was not possible to undertake any VP Surveys until November. Given the purpose of the surveys, coupled with the species present, this is not considered to be a limitation.

3 Results

DESKTOP STUDY

Statutory Designated Sites

3.1 The following IIWS, for which the qualifying species including wintering or breeding birds, lie within 15km of the Study Area (refer to Table 3.1 for details and Appendix 1, Figure 2 for the locations of these sites):

- Nene Washes Ramsar site and SPA; and
- The Wash Ramsar site and SPA.

3.2 There are no SSSI or other statutory sites for nature conservation within a 2km buffer of the Study Areas.

Table 3.1: International Designated sites within 15km of the Study Area

Site Name	Distance and Orientation from Site	Ornithological Qualifying features/Description
The Nene Washes Ramsar site	13.5km south	The Site qualifies under Ramsar criterion 6: Bewick's swan and pintail (wintering). Populations of black-tailed godwit have been proposed for possible future consideration as qualifying species.
The Nene Washes SPA	13.5km south	Article 4.1 of the EC Birds Directive by regularly supporting, in winter, an internationally important wintering population of Bewick's swan. Article 4.2 by supporting, in winter, nationally important wintering populations of wigeon, teal, gadwall and shoveler.
The Wash Ramsar	10km north-east	The Site qualifies under Ramsar criterion 5: assemblages of international importance, species peak counts in winter. Criterion 6: oystercatcher, grey plover, knot, sanderling, curlew, redshank, turnstone, pink-footed goose, dark-bellied brent goose, shelduck, pintail, dunlin, bar-tailed godwit, golden plover, lapwing (wintering) Black-tailed godwit and ringed plover have been identified subsequent to designation for possible future consideration as qualifying species.
The Wash SPA	10km north-east	Article 4.1 of the EC Bird Directive by regularly supporting nationally important breeding numbers of

Site Name	Distance and Orientation from Site	Ornithological Qualifying features/Description
		little tern and common terns, plus nationally important numbers of Bewick's swans in the winter. Article 4.2 by supporting, in winter, internationally important wintering populations of dark-bellied brent geese, pink-footed goose, shelduck, pintail, oystercatcher, grey plover, sanderling, knot, dunlin, bar-tailed godwit, curlew, redshank and turnstone. In addition, the site supports nationally important wintering populations of wigeon, goldeneye, gadwall and common scoter and black-tailed godwit

Species Data

3.3 The desk-top study for bird records returned 942 records of 41 notable species. Table 3.2 provides a summary of the desk-top study for the Primary Focal Species. The full data search results are contained in the Winter Bird Survey 2023 – 2024 Report (Temple 2024).

3.4 A heat map showing the distribution of all the desktop study records for the 15km buffer from the Study Area is contained in Appendix 1; Figure A1.3

Table 3.2: Summary of Desk-top Data for Primary Focal Species

Common Name	No of Records	Last Year Recorded
barn owl	53	2021
Bewick's swan	15	2021
black-tailed godwit	1	2007
Canada goose	18	2021
crane	1	2011
greylag goose	78	2021
hen harrier	6	2020
lapwing	131	2021
red kite	13	2021

Common Name	No of Records	Last Year Recorded
redshank	13	2019
whooper swan	40	2021

SITE HABITATS

3.5 The Survey Area predominantly comprised agricultural land, mainly used for crop production (cereal, root crop and brassicas); with field boundaries consisting of a network of ditches and hedgerows. There are several small towns and villages within the Survey Area.

FIELD SURVEY

3.6 A total of 37 species were recorded during the surveys, including seven Primary Focal Species. Table 3.3 shows the total times spent by Primary Focal Species, expressed as number of birds multiplied by the number of seconds in the view shed, from each of the Vantage Points. A list of the species recorded during the surveys provided in Appendix 4, including the numbers for each VP and peak counts.

Table 3.3: Flight Duration (number of birds x seconds) of Primary Focal Species

Species	VP1	VP2	VP3	VP4	VP5	VP6	VP7
barn owl				60			
common buzzard	60	10	240	175	420	555	70
golden plover			91,380	30,405	732,255	52,320	40,530
mute swan							560
pink-footed goose					60		
red kite				240	390		
white-fronted goose					480		

Species	VP1	VP2	VP3	VP4	VP5	VP6	VP7
whooper swan			23,300	6,550	1,200		2020

PRIMARY FOCAL SPECIES RECORDED WITHIN THE SURVEY AREA

Barn owl

3.7 A single barn owl was recorded from VP4 for 60 seconds on the 17 January 2024. The bird was flying in the lower height band, below the risk of collision.

Buzzard

3.8 Buzzards were recorded from all VPs on most surveys. Usually just as singles, but two birds were seen together on two occasions. Most of the activity was of birds flying within the lower height bands. Approximately 33% of the flight time was above 10m. Table 3.4 shows the bird/seconds per flight band. At VP7, birds spent 33% of their time in risk zone, which accounted for less than 2% of the time for the species overall.

Table 3.4: Buzzard Flight Durations

VP	<10m	10-25m	25-50m	50-75m	>75m	TOTAL
VP1	60					60
VP2	10					10
VP3	540					540
VP4	75	100				175
VP5		420				420
VP6	555					555
VP7		60	30			90

Golden Plover

3.9 Golden plover were recorded from VPs 3-7 on most surveys as they commuted to and from feeding areas or where disturbed whilst feeding. The largest count was of approximately 3000 on the 13 March 2024, in the vicinity of VP5, which spent 240

seconds in the 25-50m height band. On the 13 March a flock of 18 birds spent 165 seconds within the 50-75m height band. Flocks in excess of 100 were recorded from VPs3-7. Almost 10% of the flight time in VP4 was spent within the Risk Zone, this equates to 1% of the total flight times. Table 3.5 shows the bird/seconds per flight band.

Table 3.5: Golden Plover Flight Durations

VP	<10m	10-25m	25-50m	50-75m	>75m	TOTAL
VP1						
VP2						
VP3		150,180				150,180
VP4	12,600	6,180	8,655	**2,970**		30,405
VP5	9,105	3,150	720,000			732,255
VP6	3,150		49,170			52,320
VP7		600	39,930			40,530

Mute Swan

3.10 The maximum count of mute swans was of 12 birds from VP7 on the 15 March 2024 in the 50-75m height band for 40 seconds. This equates to approximately 86% of the flight time. Mute swan was only recorded from VP7. Table 3.6 shows the bird/seconds per flight band.

Table 3.6: Mute Swan Flight Durations

VP	<10m	10-25m	25-50m	50-75m	>75m	TOTAL
VP7			80	**480**		560

Pink-footed goose

3.11 Two pink-footed geese were recorded from VP5 on 21st November 2023. The birds spent 30 seconds in the 10-25m height band, below the risk of collision.

Red kite

3.12 Recorded from VP4 and VP5 as shown in Table 3.7 below, with all flights below the collision risk band.

Table 3.7: Red Kite Flight Duration

VP	<10m	10-25m	25-50m	50-75m	>75m	TOTAL
VP4			240			240
VP5		240	150			390

White-fronted Goose

3.13 Sixteen white-fronted geese were seen from VP5 on the 14 February, when they spent 30 seconds in the less than 10m zone before landing. The birds are considered to be using the landscape for foraging, but only sporadically.

Whooper swan

3.14 Whooper swan were recorded from VPs 3, 4, 5 and 7 on the November, December and January surveys, with a maximum count of 22 birds from VP3 on the 16 January in the 25-50m height band. Whooper swan was also recorded foraging on the arable fields around VP4 and 7. Table 3.6 shows the bird/seconds per flight band. No birds were observed within the collision risk band.

Table 3.8: Whooper Swan Flight Durations

VP	<10m	10-25m	25-50m	50-75m	>75m	TOTAL
VP1						
VP2						
VP3			3,300			3,300
VP4	2,850	3,700				6,550
VP5	180	35				215
VP6						

VP	<10m	10-25m	25-50m	50-75m	>75m	TOTAL
VP7	1,620		400			2,020

4 Discussion And Conclusion

OVERVIEW

4.1 The Desktop data shows a higher concentration of birds along the western and northern side of the Site, although is, in part, due to a number of waterbodies and areas regularly visited by local birdwatchers.

4.2 Seven of the Primary Focal Species were found to be utilising the areas within the VP viewsheds for commuting, with the most activity around the south-east of the Survey Area. The majority of observations were in the 25-50m height band, therefore below the presumed height of the lower cables (50-75m).

4.3 Only two species were recorded flying only in the lower height band; barn owl, and a party of white-fronted geese that later landed.

4.4 Birds recorded flying with the 50-75m band was restricted to 18 golden plover that spent just under 3 minutes circling in the view shed from VP4. A single buzzard spent

4.5 None of the wintering species observed in the Survey Area are listed as qualifying features for the Nene Washes SPA / Ramsar site, or the Wash SPA / Ramsar site.

CONCLUSIONS

4.6 The use of the west side of the Study Area is likely to reduce collision risk. VPs 1 and 2 only had buzzard recorded in them, but not within the risk zone. The cluttered landscape (with existing power and communications overhead lines) would account for the low numbers of birds in the area. Geese and swans tend to avoid cluttered landscapes to facilitate landing and taking flight.

4.7 Birds were only recorded flying in the risk zones of the viewsheds from VP4 and VP7. These were also the areas, along with that around VP5, were wildfowl were recorded foraging during the winter surveys. The area around VP5 was subjected to flooding from River Welland, which, given recent climatic changes, could be a regular feature.

4.8 Shooting and the use of bird scarers did not appear to have any influence on bird activity in the viewsheds for VP3 and 4.

4.9 Regardless of route selection, consideration should be given to the use of Bird Flight Divertors on the transmission lines as a preventative measure, otherwise it is likely that a full suite of surveys to total 72 hrs of observations at each vantage point will be required over a 12-month period.

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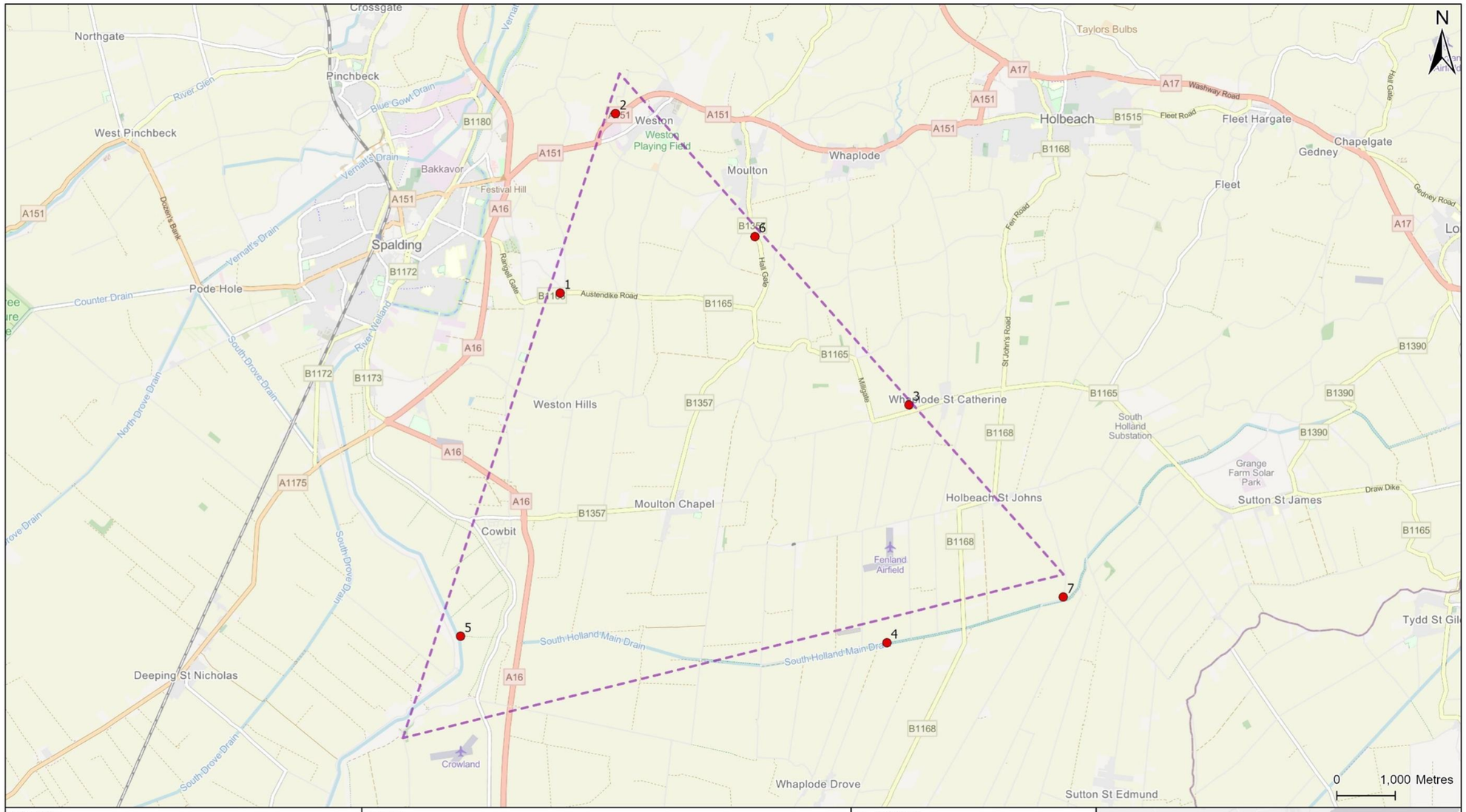
Appendix 1: Scheme Maps

Figure A1.1: Site Map Showing Location of the Grid Connection Study Area and locations of the VPs



Project Title: T7615 - Meridian Solar Farm			
Client: Meridian Solar Farm Ltd.			
Map Title: Location of Vantage Points			
Scale: 1:60,000	Version: 1.0	Drawn: GA	Reviewed: HJ

Legend
- Initial Grid Connection Routing Area
- Vantage Point

Date: 03/12/2024

temple
Temple Group Ltd., Temple Chambers,
3-7 Temple Avenue, London, EC4Y 0DT
Tel. 020 7394 3700

Figure A1.2: International Designated Sites, Local Designated Sites and Priority Habitats

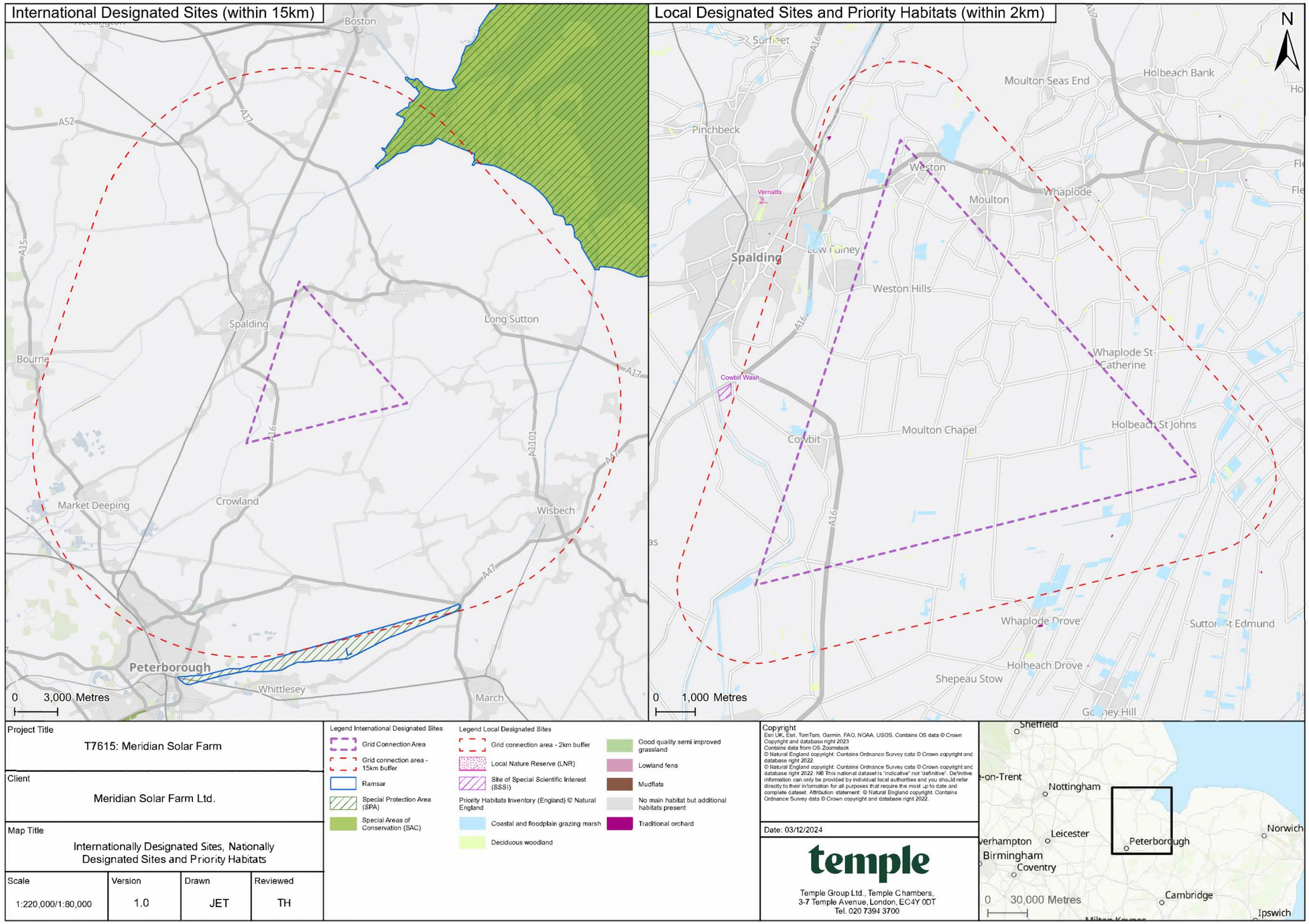
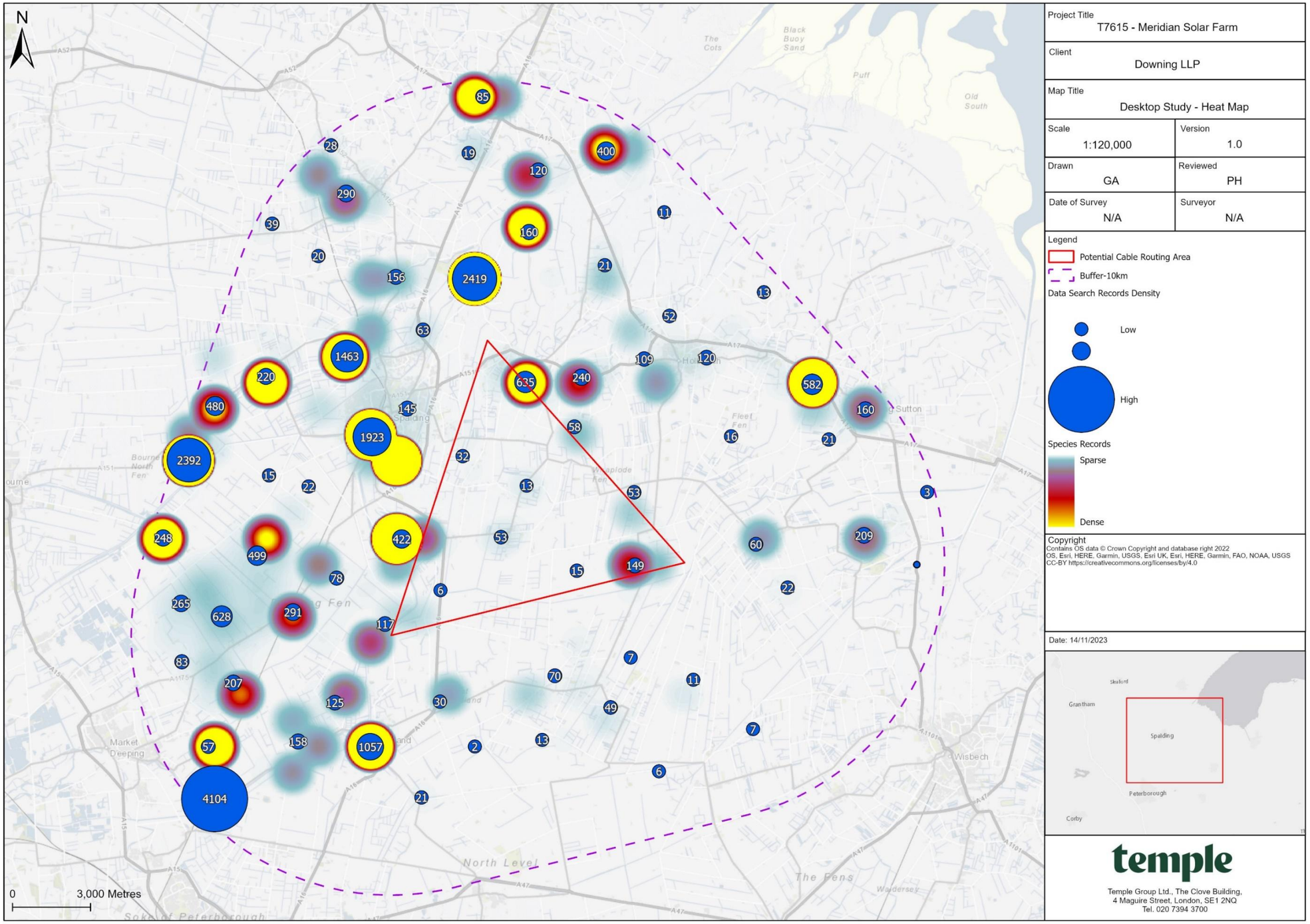


Figure A1.3: Heat Map Showing Species Density from The Desktop Data.



Appendix 2: Designated Sites Citations

EC Directive 79/409 on the conservation of wild birds: Special Protection Area

Nene Washes (Cambridgeshire)

The Nene Washes is an area of seasonally flooding grassland and grazing marsh in the lower reaches of the River Nene, Cambridgeshire. The boundaries of the site follows those of the Nene Washes (Whittlesey) SSSI.

The site qualifies under Article 4.1 of the EC Birds Directive by regularly supporting, in winter, an internationally important wintering population of Bewick's swan *Cygnus columbarius bewickii* (1,300 individuals: over 7% of the north-west European population wintering population: average of peak counts for the five year period 1987/88 to 1991/92).

Nene Washes qualifies also under Article 4.2 by supporting, in summer, in recent years, nationally important breeding populations of regularly occurring migratory species: 25 pairs of gadwall *Anas strepera* (5% of British): five pairs of garganey *Anas querquedula (10%* of British), 36 pairs of shoveler *A. clypeata* (3% of British), and 16 pairs of black-tailed godwits *Limosa limosa* (30% of British), as well as several other rare birds.

The site further qualifies under Article 4.2 by supporting, in winter, nationally important wintering populations of five migratory species (average peak counts for the most recent five year period for which data is available (1984/5 - 1985/86 and 1988/89 - 1990/91): 3,640 wigeon *Anas penelope* (over 1 % of the British wintering population): 980 teal *A. crecca* (1% of British), 95 gadwall *Anas strepera* (over 1% of British): 440 Pintail *Anas acuta* (over 1% of British) and 110 shoveler *Anas clypeata* (over 1% of British).

The Nene Washes is also of importance for a diverse assemblage of breeding birds of wet grasslands, including: redshank *Tringa totanus*, snipe *Gallinago gallinago*, lapwing *Vanellus vanellus*, mute swan *Cygnus olor*, sedge warbler *Acrocephalus shoenobaenus* and yellow wagtail *Motacilla flava.* The site has an important role in maintaining the range of several of these species which have been affected by changes in habitat elsewhere in Britain.

Also notable is an assemblage of wintering waterfowl including, in addition to species listed above, mute swan, whooper swan *C. cygnus*, mallard *Anas platyryhnchus,* pochard *Aythya ferina*, tufted duck *Aythya fuligula*, shelduck *Tadorna tadorna* and coot *Fulica atra.* A wide range of raptors occur through the year on the Nene Washes, including merlin *Falco columbarius*, hobby *F. subbuteo.* peregrine *F. peregrinus*, marsh harrier *Circus aeruginosus*, hen harrier *C. cyaneus*, sparrowhawk *Accipiter nisus*, short-eared owl *Asio flammeus*, long-eared owl *A. otus*, and barn owl *Tyto alba.*

During severe winter weather elsewhere, the Nene Washes can assume even greater national and international importance as wildfowl and waders from many other areas arrive, attracted by the relatively mild climate, compared with continental European areas, and the abundant food resources available. It can also assume greater importance at times on deep flooding on the nearby Ouse Washes when it holds displaced birds.

The continued international importance of this site is dependant on the maintenance of a winter flooding regime and a high, but controlled summer water table.

SPA Citation
DAS June 1992

Information Sheet on Ramsar Wetlands (RIS)

Categories approved by Recommendation 4.7 (1990), as amended by Resolution VIII.13 of the 8th Conference of the Contracting Parties (2002) and Resolutions IX.1 Annex B, IX.6, IX.21 and IX. 22 of the 9th Conference of the Contracting Parties (2005).

Notes for compilers:

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.

2. Further information and guidance in support of Ramsar site designations are provided in the *Strategic Framework for the future development of the List of Wetlands of International Importance* (Ramsar Wise Use Handbook 7, 2nd edition, as amended by COP9 Resolution IX.1 Annex B). A 3rd edition of the Handbook, incorporating these amendments, is in preparation and will be available in 2006.

3. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Secretariat. Compilers should provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of all maps.

1. Name and address of the compiler of this form:

FOR OFFICE USE ONLY.

DD MM YY

Designation date | Site Reference Number

Joint Nature Conservation Committee
Monkstone House
City Road
Peterborough
Cambridgeshire PE1 1JY
UK
Telephone/Fax: +44 (0)1733 – 562 626 / +44 (0)1733 – 555 948
Email: RIS@JNCC.gov.uk

2. Date this sheet was completed/updated:
Designated: 05 March 1993

3. Country:
UK (England)

4. Name of the Ramsar site:
Nene Washes

5. Designation of new Ramsar site or update of existing site:

This RIS is for: Updated information on an existing Ramsar site

6. For RIS updates only, changes to the site since its designation or earlier update:

a) Site boundary and area:

** Important note: If the boundary and/or area of the designated site is being restricted/reduced, the Contracting Party should have followed the procedures established by the Conference of the Parties in the Annex to COP9 Resolution IX.6 and provided a report in line with paragraph 28 of that Annex, prior to the submission of an updated RIS.

b) Describe briefly any major changes to the ecological character of the Ramsar site, including in the application of the Criteria, since the previous RIS for the site:

7. Map of site included:

Refer to Annex III of the *Explanatory Notes and Guidelines*, for detailed guidance on provision of suitable maps, including digital maps.

a) A map of the site, with clearly delineated boundaries, is included as:

i) **hard copy** (required for inclusion of site in the Ramsar List): *yes* ✓ -or- *no* □;
ii) **an electronic format** (e.g. a JPEG or ArcView image) Yes
iii) **a GIS file providing geo-referenced site boundary vectors and attribute tables** *yes* ✓ -or- *no* □;

b) Describe briefly the type of boundary delineation applied:

e.g. the boundary is the same as an existing protected area (nature reserve, national park etc.), or follows a catchment boundary, or follows a geopolitical boundary such as a local government jurisdiction, follows physical boundaries such as roads, follows the shoreline of a waterbody, etc.

The site boundary is the same as, or falls within, an existing protected area.

For precise boundary details, please refer to paper map provided at designation

8. Geographical coordinates (latitude/longitude):

52 34 41 N 00 04 33 W

9. General location:

Include in which part of the country and which large administrative region(s), and the location of the nearest large town.

Nearest town/city: Peterborough

The site extends for 21 km east from Peterborough, in eastern England.

Administrative region: Cambridgeshire; City of Peterborough

10. Elevation (average and/or max. & min.) (metres): **11. Area** (hectares): 1517.49

Min. 1
Max. 6
Mean 2

12. General overview of the site:

Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

This site is an extensive area of seasonally-flooding wet grassland (washland) of importance for national and international populations of breeding and wintering waders and wildfowl. During severe winter weather elsewhere, the site can attract waterfowl from other areas due to its relatively mild climate (compared with continental Europe) and abundant food resources available. The site is also notable for the diversity of plant and associated animal life within its network of dykes.

13. Ramsar Criteria:

Circle or underline each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11).

2, 6

14. Justification for the application of each Criterion listed in 13 above:

Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

Ramsar criterion 2

The site supports an important assemblage of nationally rare breeding birds. In addition, a wide range of raptors occur through the year. The site also supports several nationally scarce plants, and two vulnerable and two rare British Red Data Book invertebrate species have been recorded.

Ramsar criterion 6 – species/populations occurring at levels of international importance.

Qualifying Species/populations (as identified at designation):

Species with peak counts in winter:

Tundra swan , *Cygnus columbianus bewickii*, NW Europe	694 individuals, representing an average of 2.3% of the population (5 year peak mean 1998/9-2002/3)

Species/populations identified subsequent to designation for possible future consideration under criterion 6.

Species with peak counts in spring/autumn:

Black-tailed godwit , *Limosa limosa islandica*, Iceland/W Europe	482 individuals, representing an average of 1.3% of the population (5 year peak mean 1998/9-2002/3 - spring peak)

Species with peak counts in winter:

Northern pintail , *Anas acuta*, NW Europe	1848 individuals, representing an average of 3% of the population (5 year peak mean 1998/9-2002/3)

Contemporary data and information on waterbird trends at this site and their regional (sub-national) and national contexts can be found in the Wetland Bird Survey report, which is updated annually. See www.bto.org/survey/webs/webs-alerts-index.htm.

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15. Biogeography (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

a) biogeographic region:

Atlantic

b) biogeographic regionalisation scheme (include reference citation):

Council Directive 92/43/EEC

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16. Physical features of the site:

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

Soil & geology	acidic, basic, neutral, clay, alluvium, peat
Geomorphology and landscape	lowland, floodplain
Nutrient status	eutrophic
pH	circumneutral
Salinity	fresh
Soil	mainly organic
Water permanence	usually seasonal / intermittent

Summary of main climatic features	Annual averages (Cambridge, 1971–2000) (www.metoffice.com/climate/uk/averages/19712000/sites/cambridge.html) Max. daily temperature: 14.1° C Min. daily temperature: 6.1° C Days of air frost: 41.9 Rainfall: 553.5 mm Hrs. of sunshine: 1501.2

General description of the Physical Features:

The Nene Washes are an extensive area of seasonally-flooding wet grassland ('washland') lying along the River Nene.

17. Physical features of the catchment area:

Describe the surface area, general geology and geomorphological features, general soil types, general land use, and climate (including climate type).

The Nene Washes are an extensive area of seasonally-flooding wet grassland ('washland') lying along the River Nene.

18. Hydrological values:

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

Flood water storage / desynchronisation of flood peaks

19. Wetland types:

Human-made wetland, Inland wetland

Code	Name	% Area
4	Seasonally flooded agricultural land	100

20. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site, and the ecosystem services of the site and the benefits derived from them.

A mixture of largely arable land and agriculturally-improved, floristically-poor grassland. The latter being dominated by species such as *Elymus repens*, *Poa trivialis* and *Deschampsia cespitosa*. Areas of more structurally-diverse grassland exist containing a range of grasses, sedges and rushes. Species of frequent occurrence include *Eleocharis palustris*, *Glyceria fluitans*, *Glyceria maxima*, *Phalaris arundinacea*, *Alopecurus geniculatus* and *Juncus effusus*. A couple of small semi-natural grassland areas are also present. The washlands are used for the seasonal uptake of floodwaters and traditionally, cattle grazing in summer months. The mosaic of rough grassland and wet pasture provide a variety of habitats for breeding and feeding birds. Many of the ditches hold a rich flora and several nationally scarce plants including fringed water-lily *Nymphoides peltata*, hair-like pondweed *Potamogeton trichoides* and marsh dock *Rumex palustris*.

Ecosystem services

21. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in **12**. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Nationally important species occurring on the site.

Higher Plants.
Nymphoides peltata, *Potamogeton trichoides*, *Rumex palustris*, *Potamogeton friesii*, *Alisma lanceolatum*, *Hordeum marinum*.

22. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in **12**. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Birds

Species currently occurring at levels of national importance:

Species with peak counts in winter:

Whooper swan , *Cygnus cygnus*, Iceland/UK/Ireland	80 individuals, representing an average of 1.3% of the GB population (5 year peak mean 1998/9-2002/3)
Eurasian wigeon , *Anas penelope*, NW Europe	9651 individuals, representing an average of 2.3% of the GB population (5 year peak mean 1998/9-2002/3)
Eurasian teal , *Anas crecca*, NW Europe	2015 individuals, representing an average of 1% of the GB population (5 year peak mean 1998/9-2002/3)
Northern shoveler , *Anas clypeata*, NW & C Europe	343 individuals, representing an average of 2.3% of the GB population (5 year peak mean 1998/9-2002/3)
Common pochard , *Aythya ferina*, NE & NW Europe	1795 individuals, representing an average of 3% of the GB population (5 year peak mean 1998/9-2002/3)
European golden plover , *Pluvialis apricaria apricaria*, P. a. altifrons Iceland & Faroes/E Atlantic	2949 individuals, representing an average of 1.1% of the GB population (5 year peak mean 1998/9-2002/3)
Ruff , *Philomachus pugnax*, Europe/W Africa	98 individuals, representing an average of 14% of the GB population (5 year peak mean 1998/9-2002/3)

Species Information

Nationally important species occurring on the site.

Invertebrates.
Valvata macrostoma, *Agabus undulatus*, *Libellula fulva*, *Anasimyia interpuncta*.

23. Social and cultural values:

Describe if the site has any general social and/or cultural values e.g. fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values.

Aesthetic
Livestock grazing
Non-consumptive recreation
Sport hunting

b) Is the site considered of international importance for holding, in addition to relevant ecological values, examples of significant cultural values, whether material or non-material, linked to its origin, conservation and/or ecological functioning? No

If Yes, describe this importance under one or more of the following categories:

i) sites which provide a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland:

ii) sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland:

iii) sites where the ecological character of the wetland depends on the interaction with local communities or indigenous peoples:

iv) sites where relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland:

24. Land tenure/ownership:

Ownership category	On-site	Off-site
Non-governmental organisation (NGO)	+	
Private	+	+
Private	+	+

25. Current land (including water) use:

Activity	On-site	Off-site
Nature conservation	+	
Recreation	+	
Permanent arable agriculture	+	+
Permanent pastoral agriculture	+	+
Hay meadows	+	
Flood control	+	
Transport route		+

26. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects:

Explanation of reporting category:

1. *Those factors that are still operating, but it is unclear if they are under control, as there is a lag in showing the management or regulatory regime to be successful.*
2. *Those factors that are not currently being managed, or where the regulatory regime appears to have been ineffective so far.*

NA = Not Applicable because no factors have been reported.

Adverse Factor Category	Reporting Category	Description of the problem (Newly reported Factors only)	On-Site	Off-Site	Major Impact?
No factors reported	NA				

For category 2 factors only.

What measures have been taken / are planned / regulatory processes invoked, to mitigate the effect of these factors?
Is the site subject to adverse ecological change? NO

27. Conservation measures taken:

List national category and legal status of protected areas, including boundary relationships with the Ramsar site; management practices; whether an officially approved management plan exists and whether it is being implemented.

Conservation measure	On-site	Off-site
Site/ Area of Special Scientific Interest (SSSI/ASSI)	+	
Special Protection Area (SPA)	+	
Land owned by a non-governmental organisation for nature conservation	+	
Management agreement	+	
Site management statement/plan implemented	+	
Special Area of Conservation (SAC)	+	

b) Describe any other current management practices:

The management of Ramsar sites in the UK is determined by either a formal management plan or through other management planning processes, and is overseen by the relevant statutory conservation agency. Details of the precise management practises are given in these documents.

28. Conservation measures proposed but not yet implemented:

e.g. management plan in preparation; official proposal as a legally protected area, etc.

No information available

29. Current scientific research and facilities:

e.g. details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

Fauna.

Numbers of migratory and wintering wildfowl and waders are monitored annually as part of the national Wetland Birds Survey (WeBS) organised by the British Trust for Ornithology, Wildfowl & Wetlands Trust, the Royal Society for the Protection of Birds and the Joint Nature Conservation Committee.

Annual breeding bird survey.

30. Current communications, education and public awareness (CEPA) activities related to or benefiting the site:

e.g. visitor centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

Occasional guided walks are provided by RSPB warden.

31. Current recreation and tourism:

State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

Wildfowling and sport hunting annually from September to February.

32. Jurisdiction:

Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept. of Agriculture/Dept. of Environment, etc.

Head, Natura 2000 and Ramsar Team, Department for Environment, Food and Rural Affairs, European Wildlife Division, Zone 1/07, Temple Quay House, 2 The Square, Temple Quay, Bristol, BS1 6EB

33. Management authority:

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

Site Designations Manager, English Nature, Sites and Surveillance Team, Northminster House, Northminster Road, Peterborough, PE1 1UA, UK

34. Bibliographical references:

Scientific/technical references only. If biogeographic regionalisation scheme applied (see **15** above), list full reference citation for the scheme.

Site-relevant references

Cranswick, PA, Waters, RJ, Musgrove, AJ & Pollitt, MS (1997) *The Wetland Bird Survey 1995–96: wildfowl and wader counts*. British Trust for Ornithology, Wildfowl and Wetlands Trust, Royal Society for the Protection of Birds & Joint Nature Conservation Committee, Slimbridge

Environment Agency (1996) *Nene Washes water level management plan. Draft*. Environment Agency

Folkard, N, Ausden, M & Kitchen, C (1998) *Conservation management of the Nene Washes RSPB Reserve*. Royal Society for the Protection of Birds, Sandy

McLeod, CR, Yeo, M, Brown, AE, Burn, AJ, Hopkins, JJ & Way, SF (eds.) (2004) *The Habitats Directive: selection of Special Areas of Conservation in the UK*. 2nd edn. Joint Nature Conservation Committee, Peterborough. www.jncc.gov.uk/SACselection

Musgrove, AJ, Pollitt, MS, Hall, C, Hearn, RD, Holloway, SJ, Marshall, PE, Robinson, JA & Cranswick, PA (2001) *The Wetland Bird Survey 1999–2000: wildfowl and wader counts*. British Trust for Ornithology, Wildfowl and Wetlands Trust, Royal Society for the Protection of Birds & Joint Nature Conservation Committee, Slimbridge. www.wwt.org.uk/publications/default.asp?PubID=14

Shirt, DB (ed.) (1987) *British Red Data Books: 2. Insects*. Nature Conservancy Council, Peterborough

Stewart, A, Pearman, DA & Preston, CD (eds.) (1994) *Scarce plants in Britain*. Joint Nature Conservation Committee, Peterborough

Stroud, DA, Chambers, D, Cook, S, Buxton, N, Fraser, B, Clement, P, Lewis, P, McLean, I, Baker, H & Whitehead, S (eds.) (2001) *The UK SPA network: its scope and content*. Joint Nature Conservation Committee, Peterborough (3 vols.) www.jncc.gov.uk/UKSPA/default.htm

Please return to: **Ramsar Secretariat, Rue Mauverney 28, CH-1196 Gland, Switzerland**
Telephone: **+41 22 999 0170** • Fax: **+41 22 999 0169** • email: **ramsar@ramsar.org**

EC Directive 79/409 on the conservation of wild birds: Special Protection Area

The Wash (Norfolk & Lincolnshire)

The Wash is numerically the most important area in Britain for wintering waterfowl, taking waders and wildfowl together. It is also the most important area in Britain in early autumn for moulting waders. The Wash is important also to certain wintering passerines, to breeding waders and terns, and to certain seabirds.

The Wash qualifies under Article 4(1) because it supports 30 breeding pairs of little terns *Sterna albifrons* (2% of the British population) and 220 pairs of common terns *Sterna hirundo* (2%); and because it supports 130 Bewick's swans *Cygnus cygnus* (3%) in winter.

The Wash qualifies under Article 4(2) as au internationally important wetland by supporting in winter an average of 163,000 waders and also 51,000 wildfowl; and because it supports on average the following internationally important numbers of individual species: 17,000 dark-bellied brent geese *Branta bernicla bernicla* (12% of the European wintering population), 7,300 pinkfooted geese *Anser brachyrhynchus* (7%), 16,000 shelducks *Tadorna tadorna* (12%), 1,700 pintails *Anas acuta* (2%), 24,000 oystercatchers *Haematopus ostralegus* (3%), 5,500 grey plovers *Pluvialis squatarola* (7%), 500 sanderlings *Calidris alba* (3%), 7,500 knots *Calidris canutus* (21%) 29,000 dunlins *Calidris alpina* (1%) 8,200 bar-tailed godwits *Limosa lapponica* (1%), 3,700 curlews *Numenius arquata* (1%), 4,331 redshanks *Tringa totanus* (5%) and 980 turnstones *Arenaria interpres* (2%).

In addition the site qualifies because of its national importance to other migratory birds. Wintering birds include 3,900 wigeon *Anas penelope* (2% of the British wintering population), 220 goldeneye *Bucephala clangula* (1%), 130 gadwall *Anas strepera* (3%), 830 common scoters *Melanitta nigra* (2%), 260 black-tailed godwits *Limosa limosa* (6%) and probably several gull species (*Larus*). Important populations of wintering passerines are also supported.

The salt-marshes support a diverse breeding bind population, including over 4,000 pairs of black-headed gulls *Larus ridibundus* (2%), shelducks and numerous wader species. Breeding redshanks occur at exceptionally high densities, and the breeding population of this species is undoubtedly of national importance although its exact size is still being assessed.

Information Sheet on Ramsar Wetlands (RIS)

Categories approved by Recommendation 4.7 (1990), as amended by Resolution VIII.13 of the 8th Conference of the Contracting Parties (2002) and Resolutions IX.1 Annex B, IX.6, IX.21 and IX. 22 of the 9th Conference of the Contracting Parties (2005).

Notes for compilers:

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.

2. Further information and guidance in support of Ramsar site designations are provided in the *Strategic Framework for the future development of the List of Wetlands of International Importance* (Ramsar Wise Use Handbook 7, 2nd edition, as amended by COP9 Resolution IX.1 Annex B). A 3rd edition of the Handbook, incorporating these amendments, is in preparation and will be available in 2006.

3. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Secretariat. Compilers should provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of all maps.

1. Name and address of the compiler of this form:

FOR OFFICE USE ONLY.

DD MM YY

Designation date | Site Reference Number

Joint Nature Conservation Committee
Monkstone House
City Road
Peterborough
Cambridgeshire PE1 1JY
UK
Telephone/Fax: +44 (0)1733 – 562 626 / +44 (0)1733 – 555 948
Email: RIS@JNCC.gov.uk

2. Date this sheet was completed/updated:
Designated: 30 March 1988

3. Country:
UK (England)

4. Name of the Ramsar site:
The Wash

5. Designation of new Ramsar site or update of existing site:

This RIS is for: Updated information on an existing Ramsar site

6. For RIS updates only, changes to the site since its designation or earlier update:

a) Site boundary and area:

** Important note: If the boundary and/or area of the designated site is being restricted/reduced, the Contracting Party should have followed the procedures established by the Conference of the Parties in the Annex to COP9 Resolution IX.6 and provided a report in line with paragraph 28 of that Annex, prior to the submission of an updated RIS.

b) Describe briefly any major changes to the ecological character of the Ramsar site, including in the application of the Criteria, since the previous RIS for the site:

7. Map of site included:

Refer to Annex III of the *Explanatory Notes and Guidelines*, for detailed guidance on provision of suitable maps, including digital maps.

a) A map of the site, with clearly delineated boundaries, is included as:

i) **hard copy** (required for inclusion of site in the Ramsar List): *yes* ✓ -or- *no* □;
ii) **an electronic format** (e.g. a JPEG or ArcView image) Yes
iii) **a GIS file providing geo-referenced site boundary vectors and attribute tables** *yes* ✓ -or- *no* □;

b) Describe briefly the type of boundary delineation applied:

e.g. the boundary is the same as an existing protected area (nature reserve, national park etc.), or follows a catchment boundary, or follows a geopolitical boundary such as a local government jurisdiction, follows physical boundaries such as roads, follows the shoreline of a waterbody, etc.

The site boundary is the same as, or falls within, an existing protected area.

For precise boundary details, please refer to paper map provided at designation

8. Geographical coordinates (latitude/longitude):

52 56 16 N 00 17 12 E

9. General location:

Include in which part of the country and which large administrative region(s), and the location of the nearest large town.

Nearest town/city: King's Lynn

The Wash is located on the east coast of England between the coastal towns of Hunstanton in north Norfolk and Skegness in Lincolnshire.

Administrative region: Lincolnshire; Norfolk

10. Elevation (average and/or max. & min.) (metres): **11. Area** (hectares): 62211.66

Min. -3
Max. 4
Mean 0

12. General overview of the site:

Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

The Wash is the largest estuarine system in Britain. It is fed by the rivers Witham, Welland, Nene and Great Ouse. There are extensive saltmarshes, intertidal banks of sand and mud, shallow waters and deep channels. It is the most important staging post and over-wintering site for migrant wildfowl and wading birds in eastern England. It supports a valuable commercial fishery for shellfish and also an important nursery area for flatfish. It holds one of the North Sea's largest breeding populations of common seal *Phoca vitulina* and some grey seals *Halichoerus grypus*. The sublittoral area supports a number of different marine communities including colonies of the reef-building polychaete worm *Sabellaria spinulosa*.

13. Ramsar Criteria:

Circle or underline each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11).

1, 3, 5, 6

14. Justification for the application of each Criterion listed in 13 above:

Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

Ramsar criterion 1

The Wash is a large shallow bay comprising very extensive saltmarshes, major intertidal banks of sand and mud, shallow water and deep channels.

Ramsar criterion 3

Qualifies because of the inter-relationship between its various components including saltmarshes, intertidal sand and mud flats and the estuarine waters. The saltmarshes and the plankton in the estuarine water provide a primary source of organic material which, together with other organic matter, forms the basis for the high productivity of the estuary.

Ramsar criterion 5

Assemblages of international importance:

Species with peak counts in winter:
292541 waterfowl (5 year peak mean 1998/99-2002/2003)

Ramsar criterion 6 – species/populations occurring at levels of international importance.

Qualifying Species/populations (as identified at designation):

Species with peak counts in spring/autumn:	
Eurasian oystercatcher , *Haematopus ostralegus ostralegus*, Europe & NW Africa -wintering	15616 individuals, representing an average of 1.5% of the population (5 year peak mean 1998/9-2002/3)
Grey plover , *Pluvialis squatarola*, E Atlantic/W Africa -wintering	13129 individuals, representing an average of 5.3% of the population (5 year peak mean 1998/9-2002/3 - spring peak)
Red knot , *Calidris canutus islandica*, W & Southern Africa (wintering)	68987 individuals, representing an average of 15.3% of the population (5 year peak mean 1998/9-2002/3)
Sanderling , *Calidris alba*, Eastern Atlantic	3505 individuals, representing an average of 2.8% of the population (5 year peak mean 1998/9-2002/3)
Eurasian curlew , *Numenius arquata arquata*, N. a. arquata Europe (breeding)	9438 individuals, representing an average of 2.2% of the population (5 year peak mean 1998/9-2002/3)
Common redshank , *Tringa totanus totanus*,	6373 individuals, representing an average of 2.5% of the population (5 year peak mean 1998/9-2002/3)
Ruddy turnstone , *Arenaria interpres interpres*, NE Canada, Greenland/W Europe & NW Africa	888 individuals, representing an average of 1.7% of the GB population (5 year peak mean 1998/9-2002/3)
Species with peak counts in winter:	
Pink-footed goose , *Anser brachyrhynchus*, Greenland, Iceland/UK	29099 individuals, representing an average of 12.1% of the population (5 year peak mean 1998/9-2002/3)
Dark-bellied brent goose, *Branta bernicla bernicla*,	20861 individuals, representing an average of 9.7% of the population (5 year peak mean 1998/9-2002/3)

Common shelduck , *Tadorna tadorna*, NW Europe	9746 individuals, representing an average of 3.2% of the population (5 year peak mean 1998/9-2002/3)
Northern pintail , *Anas acuta*, NW Europe	431 individuals, representing an average of 1.5% of the GB population (5 year peak mean 1998/9-2002/3)
Dunlin , *Calidris alpina alpina*, W Siberia/W Europe	36600 individuals, representing an average of 2.7% of the population (5 year peak mean 1998/9-2002/3)
Bar-tailed godwit , *Limosa lapponica lapponica*, W Palearctic	16546 individuals, representing an average of 13.7% of the population (5 year peak mean 1998/9-2002/3)

Species/populations identified subsequent to designation for possible future consideration under criterion 6.

Species with peak counts in spring/autumn:

Ringed plover , *Charadrius hiaticula*, Europe/Northwest Africa	1500 individuals, representing an average of 2% of the population (5 year peak mean 1998/9-2002/3)
Black-tailed godwit , *Limosa limosa islandica*, Iceland/W Europe	6849 individuals, representing an average of 19.5% of the population (5 year peak mean 1998/9-2002/3)

Species with peak counts in winter:

European golden plover , *Pluvialis apricaria apricaria*, P. a. altifrons Iceland & Faroes/E Atlantic	22033 individuals, representing an average of 2.3% of the population (5 year peak mean 1998/9-2002/3)
Northern lapwing , *Vanellus vanellus*, Europe - breeding	46422 individuals, representing an average of 1.3% of the population (5 year peak mean 1998/9-2002/3)

Contemporary data and information on waterbird trends at this site and their regional (sub-national) and national contexts can be found in the Wetland Bird Survey report, which is updated annually. See www.bto.org/survey/webs/webs-alerts-index.htm.
See Sections 21/22 for details of noteworthy species
Details of bird species occuring at levels of National importance are given in Section 22

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15. Biogeography (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

a) biogeographic region:
Atlantic

b) biogeographic regionalisation scheme (include reference citation):
Council Directive 92/43/EEC

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16. Physical features of the site:

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

Soil & geology	cobble, gravel, biogenic reef, neutral, shingle, sand, mud, clay, nutrient-rich, sedimentary, limestone

Geomorphology and landscape	lowland, coastal, shingle bar, subtidal sediments (including sandbank/mudbank), intertidal sediments (including sandflat/mudflat), enclosed coast (including embayment), estuary, lagoon
Nutrient status	eutrophic
pH	circumneutral
Salinity	saline / euhaline
Soil	mainly mineral
Water permanence	usually permanent
Summary of main climatic features	Annual averages (Marham, 1971–2000) (www.metoffice.com/climate/uk/averages/19712000/sites/marham.html) Max. daily temperature: 13.8° C Min. daily temperature: 5.7° C Days of air frost: 51.9 Rainfall: 621.3 mm Hrs. of sunshine: 1536.6

General description of the Physical Features:

The Wash is the largest estuarine system in the UK. It is fed by the rivers Witham, Welland, Nene and Great Ouse that drain much of the east Midlands of England. The Wash comprises very extensive saltmarshes, major intertidal banks of sand and mud, shallow waters and deep channels. The eastern end of the site includes low chalk cliffs at Hunstanton.

To the north, the coastal habitats of The Wash are continuous with Gibraltar Point, whilst to the east The Wash adjoins the North Norfolk Coast.

17. Physical features of the catchment area:

Describe the surface area, general geology and geomorphological features, general soil types, general land use, and climate (including climate type).

The Wash is the largest estuarine system in the UK. It is fed by the rivers Witham, Welland, Nene and Great Ouse that drain much of the east Midlands of England. The Wash comprises very extensive saltmarshes, major intertidal banks of sand and mud, shallow waters and deep channels. The eastern end of the site includes low chalk cliffs at Hunstanton.

To the north, the coastal habitats of The Wash are continuous with Gibraltar Point, whilst to the east The Wash adjoins the North Norfolk Coast.

18. Hydrological values:

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

No special values known

19. Wetland types:

Marine/coastal wetland

Code	Name	% Area
A	Shallow marine waters	51.7
G	Tidal flats	41
H	Salt marshes	7.2
E	Sand / shingle shores (including dune systems)	0.03
J	Coastal brackish / saline lagoons	0.03

20. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site, and the ecosystem services of the site and the benefits derived from them.

The intertidal flats of the Wash form one of the largest intertidal areas in Britain and these are predominantly sandy. The flats support high concentrations of marine worms and shellfish. There is an abundant growth of algae and high concentrations of marine invertebrates which provides a food source for over 300,000 wintering wildfowl and supports an important fishery and seal colony. Extensive saltmarshes fringe the bay but much of the older and botanically more diverse saltmarsh has been lost due to a long history of land-claim. Higher level marshes are characterised by *Elytrigia atherica*, *Atriplex portulacoides*, *Suaeda maritima* and *Limonium vulgare*. Where the saltmarsh has been grazed by cattle and wildfowl, there may be extensive lawns of *Puccinellia* spp. Abundant *Aster tripolium* occurs at lower levels whilst *Salicornia* spp. and *Spartina anglica* are the principal colonising species.

Ecosystem services

21. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in **12**. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Nationally important species occurring on the site.

Higher plants.

Salicornia spp.

22. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in **12**. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Birds

Species currently occurring at levels of national importance:

Species regularly supported during the breeding season:

Lesser black-backed gull , *Larus fuscus graellsii*, W Europe/Mediterranean/W Africa	1378 apparently occupied nests, representing an average of 1.2% of the GB population (Seabird 2000 Census)
Common tern , *Sterna hirundo hirundo*, N & E Europe	152 pairs, representing an average of 1.4% of the GB population (Count as at 1993)
Little tern , *Sterna albifrons albifrons*, W Europe	33 pairs, representing an average of 1.6% of the GB population (5 year mean 1992-1996)

Species with peak counts in spring/autumn:

Great cormorant , *Phalacrocorax carbo carbo*, NW Europe	367 individuals, representing an average of 1.5% of the GB population (5 year peak mean 1998/9-2002/3)
Pied avocet , *Recurvirostra avosetta*, Europe/Northwest Africa	422 individuals, representing an average of 12.4% of the GB population (5 year peak mean 1998/9-2002/3)
Ruff , *Philomachus pugnax*, Europe/W Africa	25 individuals, representing an average of 3.5% of the GB population (5 year peak mean 1998/9-2002/3)
Whimbrel , *Numenius phaeopus*, Europe/Western Africa	191 individuals, representing an average of 6.3% of the GB population (5 year peak mean 1998/9-2002/3)

Common greenshank , *Tringa nebularia*, Europe/W Africa	376 individuals, representing an average of 62.9% of the GB population (5 year peak mean 1998/9-2002/3)
Lesser black-backed gull , *Larus fuscus graellsii*,	1993 individuals, representing an average of 3.2% of the GB population (5 year peak mean 1998/9-2002/3)
Species with peak counts in winter:	
Red-throated diver , *Gavia stellata*, NW Europe	55 individuals, representing an average of 1.1% of the GB population (5 year peak mean 1998/9-2002/3)
Bean goose , *Anser fabalis fabalis*, NW Europe - wintering	7 individuals, representing an average of 1.7% of the GB population (Source period not collated)
Greater white-fronted goose , *Anser albifrons albifrons*, NW Europe	100 individuals, representing an average of 1.7% of the GB population (Source period not collated)
Common eider , *Somateria mollissima mollissima*, NW Europe	1109 individuals, representing an average of 1.5% of the GB population (5 year peak mean 1998/9-2002/3)
Black (common) scoter , *Melanitta nigra nigra*,	1190 individuals, representing an average of 2.3% of the GB population (5 year peak mean 1998/9-2002/3)
Spotted redshank , *Tringa erythropus*, Europe/W Africa	54 individuals, representing an average of 39.7% of the GB population (5 year peak mean 1998/9-2002/3)
Black-headed gull , *Larus ridibundus*, N & C Europe	31403 individuals, representing an average of 1.8% of the GB population (5 year peak mean 1998/9-2002/3)

Species Information

Species occurring at levels of international importance.

Mammals.

Phoca vitulina

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23. Social and cultural values:

Describe if the site has any general social and/or cultural values e.g. fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values.

Fisheries production
Livestock grazing
Non-consumptive recreation
Scientific research
Sport hunting
Transportation/navigation

b) Is the site considered of international importance for holding, in addition to relevant ecological values, examples of significant cultural values, whether material or non-material, linked to its origin, conservation and/or ecological functioning? No

If Yes, describe this importance under one or more of the following categories:

i) sites which provide a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland:

ii) sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland:

iii) sites where the ecological character of the wetland depends on the interaction with local communities or indigenous peoples:

iv) sites where relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland:

24. Land tenure/ownership:

Ownership category	On-site	Off-site
Non-governmental organisation (NGO)	+	+
Local authority, municipality etc.	+	+
National/Crown Estate	+	+
Private	+	+
Public/communal	+	+
Other	+	+

25. Current land (including water) use:

Activity	On-site	Off-site
Nature conservation	+	
Recreation	+	
Current scientific research	+	
Fishing: (unspecified)	+	
Fishing: commercial	+	+
Marine/saltwater aquaculture	+	
Gathering of shellfish	+	
Bait collection	+	
Arable agriculture (unspecified)		+
Permanent arable agriculture		+
Grazing (unspecified)	+	
Rough or shifting grazing	+	
Hunting: recreational/sport	+	+
Harbour/port	+	+
Flood control	+	+
Irrigation (incl. agricultural water supply)		+
Transport route	+	
Domestic water supply		+
Urban development		+
Non-urbanised settlements		+
Military activities	+	

26. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects:

Explanation of reporting category:

1. *Those factors that are still operating, but it is unclear if they are under control, as there is a lag in showing the management or regulatory regime to be successful.*
2. *Those factors that are not currently being managed, or where the regulatory regime appears to have been ineffective so far.*

NA = Not Applicable because no factors have been reported.

Adverse Factor Category	Reporting Category	Description of the problem (Newly reported Factors only)	On-Site	Off-Site	Major Impact?
No factors reported	NA				

For category 2 factors only. What measures have been taken / are planned / regulatory processes invoked, to mitigate the effect of these factors?
Is the site subject to adverse ecological change? NO

27. Conservation measures taken:

List national category and legal status of protected areas, including boundary relationships with the Ramsar site; management practices; whether an officially approved management plan exists and whether it is being implemented.

Conservation measure	On-site	Off-site
Site/ Area of Special Scientific Interest (SSSI/ASSI)	+	
National Nature Reserve (NNR)	+	
Special Protection Area (SPA)	+	
Land owned by a non-governmental organisation for nature conservation	+	
Management agreement	+	
Site management statement/plan implemented	+	
Other	+	+
Special Area of Conservation (SAC)	+	

b) Describe any other current management practices:

The management of Ramsar sites in the UK is determined by either a formal management plan or through other management planning processes, and is overseen by the relevant statutory conservation agency. Details of the precise management practises are given in these documents.

28. Conservation measures proposed but not yet implemented:

e.g. management plan in preparation; official proposal as a legally protected area, etc.

No information available

29. Current scientific research and facilities:

e.g. details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

Fauna.

Numbers of migratory and wintering wildfowl and waders are monitored annually as part of the national Wetland Birds Survey (WeBS) organised by the British Trust for Ornithology, Wildfowl & Wetlands Trust, the Royal Society for the Protection of Birds and the Joint Nature Conservation Committee.
Bird Studies by the Wash Wader Ringing Group.
Waterfowl and invertebrate ecology studies by the Centre for Ecology and Hydrology.
Seal population studies by the Sea Mammal Research Unit.
Annual monitoring of shellfish stocks by Eastern Sea Fisheries Joint Committee.

Environment.

Sediment types and distribution, processes, erosion, tides and currents have been studied by a variety of institutions and are expected to continue.
The shoreline and water quality is routinely monitored by the Environment Agency.
Land-Ocean Interaction Study by the Natural Environment Research Council (1992-98).

30. Current communications, education and public awareness (CEPA) activities related to or benefiting the site:

e.g. visitor centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

There are two field centres. Lincolnshire County Council run the Freiston field centre and Lincolnshire Wildlife Trust run the Gibraltar Point Field Station.

31. Current recreation and tourism:

State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

Activities, Facilities provided and Seasonality.

Land based recreation is chiefly limited to wildfowling, bird watching and walking along the sea banks around two-thirds of the site. The Peter Scott Walk between the outlets of the Rivers Nene and Great Ouse, has been promoted by the local authorities. Some access points to the shore have also been improved by local authorities. Snettisham Bird Reserve provides facilities for bird watching. Traditional beach recreational activities occur between Hunstanton and Snettisham.

Facilities for pleasure craft are limited to some mud berths and stage moorings on the tidal rivers and at the ports of Kings Lynn and Boston. The principal locations for sailing boats are found at the Skegness Yacht Club at Wainfleet and Snettisham Beach Sailing Club and Hunstanton.

Other water sports including windsurfing, water-skiing and power boats occur mainly at Hunstanton and Heacham on the Norfolk shore. Zoning of watercraft is managed by the local authority. Recreational activities are subject to the Wash Estuary Management Plan but are not generally seen as detrimental to the site.

32. Jurisdiction:

Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept. of Agriculture/Dept. of Environment, etc.

Head, Natura 2000 and Ramsar Team, Department for Environment, Food and Rural Affairs, European Wildlife Division, Zone 1/07, Temple Quay House, 2 The Square, Temple Quay, Bristol, BS1 6EB

33. Management authority:

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

Site Designations Manager, English Nature, Sites and Surveillance Team, Northminster House, Northminster Road, Peterborough, PE1 1UA, UK

34. Bibliographical references:

Scientific/technical references only. If biogeographic regionalisation scheme applied (see **15** above), list full reference citation for the scheme.

Site-relevant references

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Appendix 3: Legislation and Planning Policy

Important Notice: This section contains details of legislation applicable in England and Wales only (i.e. not including Scotland, the Isle of Man, Northern Ireland, the Republic of Ireland or the Channel Islands) and is provided for general guidance only. While every effort has been made to represent the current (at the time of writing) situation with respect to the UK's position outside of the EU and to ensure accuracy throughout, this section should not be relied upon as a definitive statement of the law.

Over the past few years, three important bills have been published which are intended to shape how growing pressures on the environment post-Brexit (post-transition period) are tackled. Both the Agriculture Bill and Fisheries Bill gained Royal Assent in November 2020 and are now the Agriculture Act 2020 and Fisheries Act 2020 respectively; and, more recently, the Environment Bill was passed into law in November 2021, becoming the Environment Act 2021. *N.B. as environment policy is a devolved matter, most of this Act applies to England only.*

LEGISLATION AFFORDED TO SITES AND HABITATS

Habitats and sites can be protected directly through the Wildlife & Countryside Act 1981 (as amended), The Conservation of Habitats and Species Regulations 2017 (as amended) and The 'Conservation of Offshore Marine Habitats and Species Regulations 2017 (as amended) through the notification, classification or designation of various protected sites as detailed below.

In addition, The Environment Act 2021 and the Water Framework Directive indirectly afford protection to non-designated habitats through the duties placed on public and private bodies to promote nature conservation and biodiversity, for example, the creation of Local Nature Recovery Strategies (LNRS) and associated Species Conservation and Protected Site strategies, and to reduce or avoid harmful activities. Many of these duties and targets form the basis for national and local planning policy and wider conservation strategies and are not covered in detail here.

STATUTORY SITE DESIGNATIONS: NATIONAL

Nationally important areas of special scientific interest, by reason of their flora, fauna, or geological or physiographical features, are notified by the countryside agencies as statutory **Sites of Special Scientific Interest** (SSSI) under the National Parks and Access to the Countryside Act 1949 and latterly the Wildlife & Countryside Act 1981 (as amended). As well as underpinning other national designations (such as **National Nature Reserves** which are declared by the countryside agencies under the same legislation), the system also provides statutory protection for terrestrial and coastal sites which are important within a European context (formerly referred to as part of the Natura 2000 network and recently amended to the National Site Network in line with the UK's departure from the EU) and globally (such as Wetlands of International Importance) - see subsequent sections for details of these designations. Improved provisions for the protection and management of SSSI have been introduced by the Countryside and Rights of Way Act 2000.

STATUTORY SITE DESIGNATIONS: INTERNATIONAL

Special Protection Areas (SPAs), together with **Special Areas of Conservation** (SACs) form the basis of the **National Site Network** (until recently, these were part of the Natura 2000 network whilst the UK was part of the EU). SPAs are identified and classified by the Government under the EC Birds Directive (Council Directive 2009/147/EC (formerly 79/409/EEC)) on the Conservation of Wild Birds) via the mechanisms set out in the Habitats Regulations (as applicable at the time of classification).

SPAs are areas of the most important habitat for rare (listed on Annex I of the Directive) and migratory birds within the European Union. Protection afforded SPAs in terrestrial areas and territorial marine waters out to 12 nautical miles (nm) is given by The Conservation of Habitats & Species Regulations 2017 (as amended). The Conservation of Offshore Marine Habitats and Species Regulations 2017 (as amended) provide a mechanism for the classification and protection of European Marine Sites or EMS (SPAs and SACs) in UK offshore waters (from 12-200nm).

SACs are identified and designated under the EC Habitats Directive (Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora) via the mechanisms set out in the Habitats Regulations (as applicable at the time of designation). These are areas which have been identified as best representing the range and variety of habitats and (non-bird) species listed on Annexes I and II to the Directive within the European Union. SACs in terrestrial areas and territorial marine waters out to 12 nautical miles are protected under The Conservation of Habitats & Species Regulations 2017 (as amended). The 'Conservation of Offshore Marine Habitats and Species Regulations 2017 (as amended) provide a mechanism for the designation and protection of European marine sites or EMS (SACs and SPAs) in UK offshore waters (from 12-200 nm).

Ramsar sites are listed under the Convention on Wetlands of International Importance, agreed in Ramsar, Iran, in 1971. The Convention covers all aspects of wetland conservation and wise use, in particular recognizing wetlands as ecosystems that are globally important for biodiversity conservation. Wetlands can include areas of marsh, fen, peatland or water and may be natural or artificial, permanent or temporary. Wetlands may also incorporate riparian and coastal zones adjacent to the wetlands. Ramsar sites are underpinned through prior notification as Sites of Special Scientific Interest (SSSI) and as such receive statutory protection under the Wildlife & Countryside Act 1981 (as amended) with further protection provided by the Countryside and Rights of Way (CRoW) Act 2000. Policy statements have been issued by the Government highlighting the special status of Ramsar sites. This effectively extends the level of protection to that afforded to sites in England and Wales which have been designated under the EC Birds and Habitats Directives as part of the Natura 2000 network and now the National Site Network (e.g. SACs and SPAs).

PLANNING POLICY

The National Planning Policy Framework (NPPF) replaced Planning Policy Statement 9 in 2012 and emphasises the need for sustainable development. The NPPF specifies the need for protection of designated sites and priority habitats and priority species. An emphasis is also made for the need for ecological networks via preservation, restoration and re-

creation (Ministry of Housing, Communities and Local Government, 2021). The protection and recovery of priority species (widely taken to mean (SPI under S41 of the NERC Act) is also listed as a requirement of planning policy. In determining planning application, planning authorities have a duty to conserve and enhance biodiversity by ensuring the following:

- Designated sites are protected from adverse harm;
- There is appropriate mitigation or compensation where significant harm cannot be avoided;
- Opportunities to incorporate biodiversity in and around developments are encouraged; and
- Planning permission is refused for development resulting in the loss or deterioration of irreplaceable habitats including aged or veteran trees and also ancient woodland.

Appendix 4: Primary Focal Species Summary

Table 1: Primary Focal Species Recorded

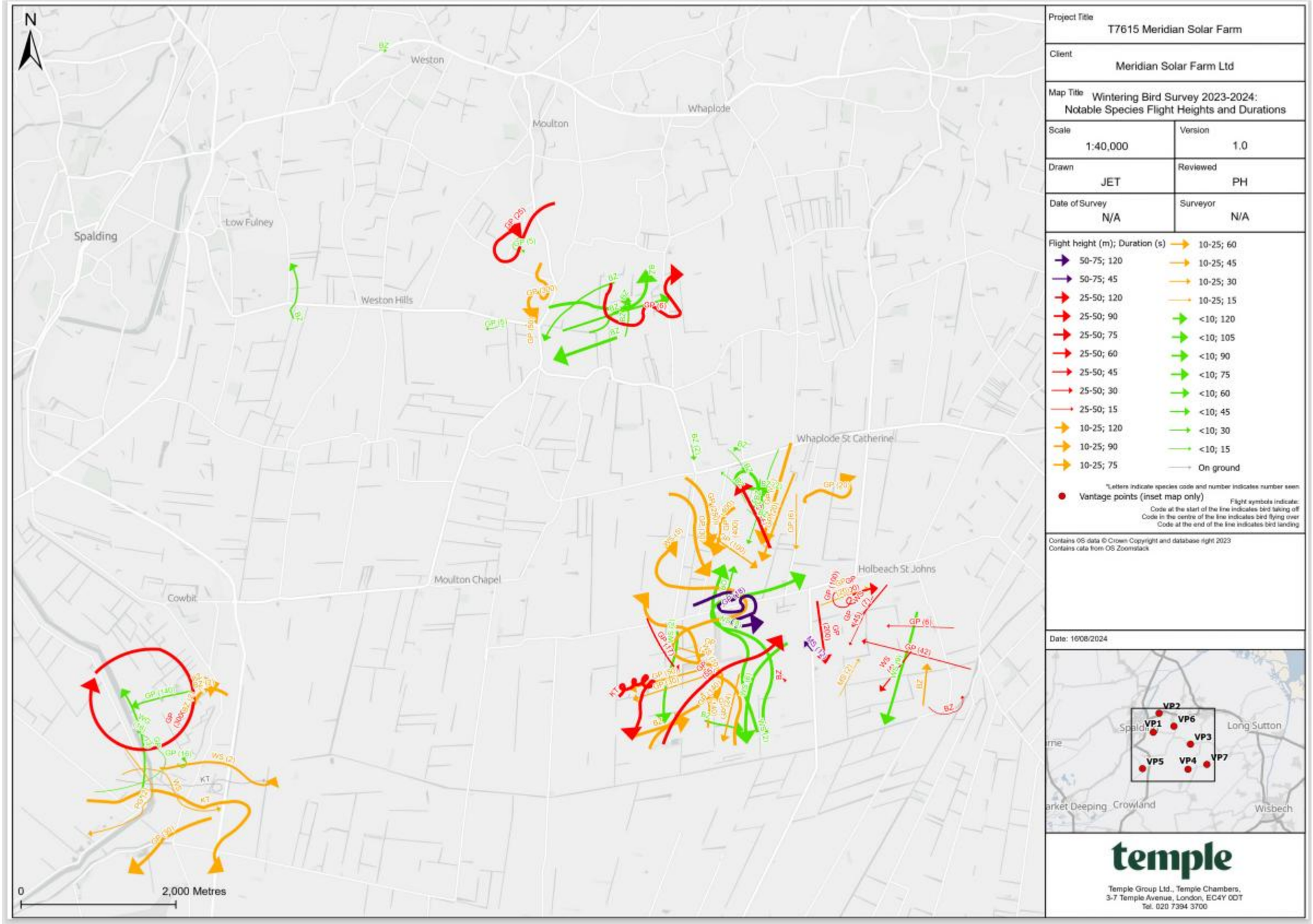
Date	species	VP	Number	Duration (Second)	Max Height Band
17/01/2024	barn owl	VP4	1	60	<10m
21/12/2023	buzzard	VP1	1	60	<10m
29/11/2023	buzzard	VP2	1	10	<10m
29/11/2023	buzzard	VP3	1	30	<10m
29/11/2023	buzzard	VP3	2	30	<10m
22/12/2023	buzzard	VP3	2	180	<10m
16/01/2024	buzzard	VP3	1	15	<10m
16/01/2024	buzzard	VP3	1	15	<10m
16/01/2024	buzzard	VP3	1	30	<10m
13/02/2024	buzzard	VP3	1	15	<10m
13/02/2024	buzzard	VP3	1	15	<10m
17/01/2024	buzzard	VP4	1	100	10 -25m
23/02/2024	buzzard	VP4	1	75	<10m
13/03/2024	buzzard	VP5	2	210	10 - 25m
22/12/2023	buzzard	VP6	1	60	<10m
22/12/2023	buzzard	VP6	1	120	<10m
16/01/2024	buzzard	VP6	1	45	<10m
13/02/2024	buzzard	VP6	1	90	<10m
12/03/2024	buzzard	VP6	1	75	<10m
12/03/2024	buzzard	VP6	1	165	<10m
17/01/2024	buzzard	VP7	1	20	25 - 50m
17/01/2024	buzzard	VP7	1	60	10 -25m
15/03/2024	buzzard	VP7	1	10	25 - 50m

Date	species	VP	Number	Duration (Second)	Max Height Band
16/01/2024	golden plover	VP3	400	180	10 -25m
16/01/2024	golden plover	VP3	100	60	10 -25m
16/01/2024	golden plover	VP3	60	160	10 -25m
16/01/2024	golden plover	VP3	20	180	10 -25m
16/01/2024	golden plover	VP3	6	30	10 -25m
16/01/2024	golden plover	VP3	20	90	10 -25m
16/01/2024	golden plover	VP3	250	210	10 -25m
16/01/2024	golden plover	VP3	30	150	10 -25m
17/01/2024	golden plover	VP4	24	45	10 -25m
17/01/2024	golden plover	VP4	50	75	10 -25m
17/01/2024	golden plover	VP4	30	45	10 -25m
17/01/2024	golden plover	VP4	140	90	<10m
17/01/2024	golden plover	VP4	55	120	25 - 50m
17/01/2024	golden plover	VP4	23	45	25 - 50m
17/01/2024	golden plover	VP4	17	60	25 - 50m
13/03/2024	**golden plover**	**VP4**	**18**	**165**	**50 - 75m**
17/01/2023	golden plover	VP5	3	75	<10m
17/01/2024	golden plover	VP5	16	30	<10m
13/03/2024	golden plover	VP5	140	60	<10m
13/03/2024	golden plover	VP5	3000	240	25 - 50m
13/03/2024	golden plover	VP5	30	105	10 -25m
30/11/2023	golden plover	VP6	5	15	<10m
30/11/2023	golden plover	VP6	5	15	<10m
16/01/2024	golden plover	VP6	300	150	<Null>

Date	species	VP	Number	Duration (Second)	Max Height Band
16/01/2024	golden plover	VP6	25	120	<Null>
16/01/2024	golden plover	VP6	50	60	<10m
12/03/2024	golden plover	VP6	6	195	25 - 50m
17/01/2024	golden plover	VP7	20	30	10 -25m
17/01/2024	golden plover	VP7	42	10	25 - 50m
17/01/2024	golden plover	VP7	6	10	25 - 50m
17/01/2024	golden plover	VP7	45	10	25 - 50m
17/01/2024	golden plover	VP7	100	30	25 - 50m
17/01/2024	golden plover	VP7	200	90	25 - 50m
14/02/2024	golden plover	VP7	200	90	25 - 50m
17/01/2024	mute swan	VP7	2	20	25 - 50m
15/03/2024	mute swan	VP7	12	40	50 - 75m
21/11/2023	pink-footed goose	VP5	2	30	10 -25m
23/02/2024	red kite	VP4	1	240	25 - 50m
23/02/2024	red kite	VP5	1	150	<Null>
13/03/2024	red kite	VP5	1	240	10 -25m
14/12/2023	white-fronted goose	VP5	16	30	<10m
16/01/2024	whooper swan	VP3	22	150	25 - 50m
22/11/2023	whooper swan	VP4	8	285	<10m
22/11/2023	whooper swan	VP4	6	95	<10m
22/11/2023	whooper swan	VP4	10	250	10 -25m
15/12/2023	whooper swan	VP4	5	240	10 -25m
21/11/2023	whooper swan	VP5	2	90	<10m
21/11/2023	whooper swan	VP5	1	35	10 -25m

Date	species	VP	Number	Duration (Second)	Max Height Band
23/11/2023	whooper swan	VP7	9	110	<10m
23/11/2023	whooper swan	VP7	2	210	<10m
23/11/2023	whooper swan	VP7	2	105	<10m
17/01/2024	whooper swan	VP7	4	30	25 - 50m
17/01/2024	whooper swan	VP7	7	40	25 - 50m

Appendix 6: Flight lines of Primary Focal Species



Project Title	T7615 Meridian Solar Farm
Client	Meridian Solar Farm Ltd
Map Title	Wintering Bird Survey 2023-2024: Notable Species Flight Heights and Durations
Scale	1:40,000
Version	1.0
Drawn	JET
Reviewed	PH
Date of Survey	N/A
Surveyor	N/A

Flight height (m); Duration (s)

- 50-75; 120
- 50-75; 45
- 25-50; 120
- 25-50; 90
- 25-50; 75
- 25-50; 60
- 25-50; 45
- 25-50; 30
- 25-50; 15
- 10-25; 120
- 10-25; 90
- 10-25; 75
- 10-25; 60
- 10-25; 45
- 10-25; 30
- 10-25; 15
- <10; 120
- <10; 105
- <10; 90
- <10; 75
- <10; 60
- <10; 45
- <10; 30
- <10; 15
- On ground

*Letters indicate species code and number indicates number seen

Vantage points (inset map only)

Flight symbols indicate:
Code at the start of the line indicates bird taking off
Code in the centre of the line indicates bird flying over
Code at the end of the line indicates bird landing

Date: 16/08/2024

temple

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