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Sent: 08 March 2015 10:16
To: _planningadvice
Subject: Wind Turbine Chapel Farm DOC Application
Attachments: REG Windpower Planning Discharge Report Final_AC.PDF

Dear Team,

Further to my telephone conversations with Sally last week please find attached the outstanding Post Construction Habitat Assessment required as part of the application.

Thank-you very much for the helpful advice and assistance.

Regards,

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REG WINDPOWER

CHAPEL FARM

DISCHARGE OF PLANNING CONDITIONS 10 & 11

March 2015

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REG WINDPOWER

DISCHARGE OF PLANNING CONDITIONS 10 & 11

March 2015

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APPENDICES

APPENDIX 1: Woodgate Farm Moulton Chapel Lincolnshire Bird Assessment Report

1 INTRODUCTION

1.1 Terms of Reference

Wardell Armstrong was commissioned by REG Windpower to produce a report to enable the adherence to and subsequent discharge of planning condition 10 and 11 of the planning consent for Chapel Farm near Moulton Chapel, Lincolnshire, grid reference TF286 166. The consented development involves a single 800kW turbine with a hub height of 50m and overall height of 74m. Ancillary structures and equipment would include a crane hard standing area, plus an enclosure (maximum 4x by 6x x 2.5m) located close to the base of the turbine. A total loss of 1800m² of existing arable farmland will be lost.

1.2 Conditions for Discharge

Planning conditions 10 & 11 of the Planning Consent are as follows:

Condition 10

"The development shall be carried out in accordance with the recommendations within the Bird Assessment Report (Reference RT-MME-108947, dated December 2011) received by the Local Planning Authority on 17 February 2012".

Reason: To safeguard wildlife and ensure that breeding birds, their nests, eggs and fledglings are not killed, injured or damaged.

Condition 11

"Construction of the turbine shall not be commenced until a detailed scheme for regular survey work for post-construction wildlife monitoring has been submitted to and approved in writing by the Local Planning Authority. It shall therefore be implemented as approved".

Reason: In the interest of safeguarding wildlife. This condition is imposed in accordance with Section 11 of the National Planning Policy Framework, March 2012.

1.3 Site Description

The location for the single 74 metre wind turbine is within a large field approximately 31 ha in size. The western boundary of the site is bounded by Moulton Mere Drain, reed-filled dyke along the northern boundary and a small 'V' shaped dyke to the east.

2 MEASURES REQUIRED FOR PLANNING CONDITION 10

2.1 Introduction

The Bird Assessment report (Middlemarch, 2011) stated the following recommendations for the protection of breeding birds if construction is to be carried out during the breeding bird season:

"It is considered that there may be some, albeit it very low, risk to bird species if enabling and turbine construction works are undertaken at the Woodgate Farm site during the bird breeding season. It is therefore recommended that such works are undertaken outside of this ecological window. The breeding bird season is considered to span March to September inclusive. If it is not possible to undertake works outside of this window, it is recommended that any vegetation likely to be impacted by works is subject to a check for the presence of nesting birds by an experienced ecologist immediately prior to works commencing".

All wild birds in the UK are protected under Section 1 of the Wildlife and Countryside Act 1981 (as amended), which makes it an offence to intentionally or recklessly kill, injure or take any wild bird, or take, damage or destroy the nest, whilst being built or when it has eggs in it. Some rare or vulnerable bird species such as, barn owl, are listed as Schedule 1 species under the Wildlife and Countryside Act 1981 (as amended). Schedule 1 species received additional legal protection which makes it an offence to intentionally or recklessly disturb these birds while they are building their nests, or in their nests, or near a nest that contains eggs.

Timing

All construction work should be undertaken outside of the breeding bird season (March – September, inclusive), where possible.

If works are carried out during the breeding bird season (March-August, inclusive), all habitats within 50m of the construction works, including access tracks, will be surveyed prior to the commencement of works, by a suitable qualified ecologist.

Methods

The search will be carried in suitable habitat such as hedgerows, scrub, mature trees and open arable and grassland habitats. Each area will be surveyed for at least 30 minutes and notes taken of whether any birds are nesting or preparing to nest (e.g. caring nest building material and/or food for their young). Should any nests be identified and should disturbance resulting

from construction be anticipated, appropriate works exclusion zones will be established around the nests. Such exclusion zones will be in place until the dependant young have fledged and the ecologist has confirmed that the nest is no longer being used.

If no nests are found or signs of nesting are identified within the construction area then work can commence. The site should be continued to be monitored throughout the construction period in order to prevent an offence being committed.

3 MEASURES REQUIRED FOR PLANNING CONDITION 11

3.1 Badger

The site contains suitable foraging habitat and sett creation (i.e. arable field, hedgerows). Assuming that hedgerows shall be avoided by the proposals no direct impacts on sett creation prior to the onset of works are anticipated. However, in order to ensure compliance with the relevant legislation, a check for the presence of mammal burrows with an entrance diameter exceeding 100mm should be undertaken prior to the onset of works. In the event that an active badger sett is identified, it is recommended that a buffer zone of between 10-15m from the active badger sett is applied in accordance with the Natural England guidelines “*Badgers and Development: A Guide to Best Practice and Licencing*” (2009), in order to avoid the requirement for a Natural England licence.

No post construction monitoring is considered necessary.

3.2 Birds

Introduction

A bird assessment including a desk study and site walkover were undertaken for the site in 2011 by Middlemarch Environmental LTD (see Appendix 1 for full report). The bird assessment identified the following target species on site:

- Common buzzard, kestrel and sparrowhawk;
- Owl species;
- Wildfowl;
- Wading species;
- Gull species; and
- Large flock-forming species of corvid.

The assessment considered the potential impact of the single turbine on the following;

- Direct loss and/or deterioration of habitats;
- Indirect habitat loss as a result of displacement by disturbance;
- Increased energy expenditure due to a barrier effect of larger arrays of rows of turbines; and
- Mortality due to collisions with turbines and associated infrastructure.

The assessment identified that golden plover and lapwing could be subject to displacement during construction with displacement of lapwings likely during operation.

Survey Duration

Pre-construction surveys should be carried out in accordance with section 2 above. These should continue for the duration of the construction period. A combination of transect and vantage point observations will be undertaken on a monthly basis beginning three months prior to the onset of construction, continuing through the construction phase and continuing for three consecutive months following completion of the build. Ideally surveys should span all seasons.

Survey Methods

A VP location will be selected to maximise visibility of the site. The surveys will be focused on dusk and dawn surveys with a site walkover to cover a 500m buffer area around the turbine.

During the VP survey two recording methods will be used. Firstly focal bird sampling for target species (e.g. golden plover, lapwing, gulls and raptors) and secondly; activity summaries for secondary species. The flight path of each target species will be drawn as accurately as possible onto a field map, and each flight will be numbered and cross reference to the flight data recording sheet. For each flight recorded, the following details will be recorded:

- Species, age and sex (where possible);
- Number of birds;
- Time of flight;
- Duration of the flight within the survey area;
- Flying height on detection and at each 15 second intervals; and
- Flight type e.g. foraging, displaying or flying through the site.

In addition, behavioural observations of birds interacting with the turbine will be noted. Observations will include the following:

- Weaving flight line up to maximum height of turbine;
- A direct flight line within the turbine envelope but clearly in a line up to a maximum turbine lade height, avoiding turbine;
- A bird flying towards the turbine, which takes avoiding action by a horizontal movement (i.e. no change in height) so as to take it around the perimeter of the turbine;

- As above, but the bird gains altitude to take it over the top of the turbine;
- Flight behaviour within or outside of turbine location, which appears to take no avoiding action with regard to turbine or other infrastructure;
- A recorded collision event;
- Avoidance behaviour near the turbine, generally taken at short notice, and is likely to appear as a sudden change in direction or height (or both); and
- Any behaviour not easily classifiable into any of the above categories. Provide full details on behaviour and flight lines.

In addition to a VP survey, a walkover survey of the site will be undertaken of all fields within 500m of the turbine. Surveys will record all observations of notable species, particularly golden plover, lapwing, wildfowl, waders, raptors, gulls and passerine birds. The survey area will include all land within 500m of the turbine location. The surveyor will walk a fixed transect route ensuring that all areas are observed within 100m distance.

3.3 Bats

Introduction

There is no pre-construction data on bat activity on site. The South Holland District Council – Planning Committee Report (2012) stated the following comments from Lincolnshire Wildlife Trust:

“We are pleased that the Lincolnshire Bat Group has been involved in discussions regarding the re-sitting of the turbine , and we are satisfied that there should not be any significant negative impact on local bat populations as a result of the development. We would recommended that a post-construction monitoring scheme for bats and birds is put in place to ensure that if there are any impacts, operation of the turbine can be altered accordingly, and to add to knowledge generally on the impacts of wind turbines on wildlife”.

Survey Duration

As for birds, monitoring will proceed three months prior to the onset of construction works (assuming this period is within the active season for bats (April-October, inclusive). Surveys will be undertaken monthly, throughout the duration of construction and continuing for three consecutive months following the completion of the build.

Survey Methods

An automated remote bat detector will be located as close as possible to the turbine. The automated remote detector will be placed out on site for 7 consecutive nights within the months of April to October. The detector will be set to commence approximately 30 minutes before sunset and finish 1 hour after sunrise to ensure that bats emerging early and returning to the roost late are recorded.

Information will be gathered on weather conditions including, wind speed and temperature. This information will provide data to allow for any mitigation to be put in place, if the data suggests it is required. REG Windpower or any subsequent owner of the wind farm will be responsible for collecting and providing the wind speed at the turbine.

3.4 Report

A monitoring report, combining the results of the pre-construction, construction and post-construction surveys will be presented to the client and the LPA, within 2 months of completion of all post construction monitoring surveys.

4 REFERENCES

Middlemarch Environmental Ltd. (2001). *Woodgate Farm Moulton Chapel Lincolnshire Bird Assessment: A report to Seren Energy.*

Natural England (2009). *Badgers and Development. A Guide to Best Practice and Licensing.*

South Holland District Council (2012). *Planning Committee Report.*

APPENDIX 1: WoodGate Farm Moulton Chapel Lincolnshire Bird Assessment Report

**WOODGATE FARM
MOULTON CHAPEL
LINCOLNSHIRE**

BIRD ASSESSMENT

A Report to Seren Energy

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Report Number: RT-MME-108947

December 2011

**WOODGATE FARM
MOULTON CHAPEL
LINCOLNSHIRE**

BIRD ASSESSMENT

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01 OF 02

01 SEREN ENERGY
02 MIDDLEMARCH ENVIRONMENTAL LTD.

This study was conducted and compiled by:
Tim Hextell MIEEM

*The contents of this report are the responsibility of Middlemarch Environmental Ltd.
It should be noted that whilst every effort is made to meet the client's brief,
no site investigation can ensure complete assessment
or prediction of the natural environment*

Contract Number C108947

December 2011

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1. INTRODUCTION

1.1 PROJECT INTRODUCTION

In October 2011 Seren Energy commissioned Middlemarch Environmental Ltd to undertake a bird assessment of the site of a proposed single medium-scale wind turbine in a field to the south of Chapel Farm near Moulton Chapel, Lincolnshire. The single turbine will have a height to tip of 74 metres. The scope of this assessment was agreed in correspondence with Mike Jones (Conservation Officer, Eastern England Regional Office, Royal Society for the Protection of Birds) in December 2011.

This report provides an assessment of the risk posed to bird species by the proposed turbine, based on a site walkover survey by an experienced field ornithologist and reference to desktop study data provided by the local biological records centre and county bird club.

1.2 SITE DESCRIPTION

The site is located to the south of the village of Moulton Chapel, approximately 6.5 km south-east of the Spalding in Lincolnshire, with the approximate location of the proposed single turbine centred at National Grid Reference (NGR) TF 286 166. The wider site is dominated by agricultural fields delineated by a series of dykes.

The survey area comprised a single large field of approximately 31 ha in extent, defined along its western boundary by Moulton Mere Drain; along its northern edge by a length of reed-filled dyke and adjacent farm access track; a small 'v' shaped dyke on its eastern side; and with no discernible boundary feature to the south (although this appeared to grade into an area of game cover).

The wider landscape comprised a series of large, and often vast, open arable fields, the boundaries of which were either ill-defined or consisted of dykes of varying width. Settlement was widely scattered, and often comprised isolated small farmsteads and linear settlements along minor country roads and lanes.

2. METHODOLOGY

An ecological desktop study was undertaken to collect records of bird species from up to a 5 km radius around the proposed turbine location. This exercise involved contacting organisations which hold ornithological data relating to the survey area. The consultees for the Desk Study were:

- Lincolnshire Environmental Records Centre Ecological Data Centre;
- Lincolnshire Bird Club (via Janet Eastmead, Data Officer, Lincolnshire Bird Club); and,
- British Trust for Ornithology (BirdTrack online bird recording system for 1km grid square in which the site is located and 2km buffer in each direction).

The above information was assimilated and analyzed in the context of data obtained during a site walkover by an experienced field ornithologist, and reference to mapped sources listed in Section 1.1.

3. RESULTS

3.1 DESKTOP STUDY RECORDS

Records of bird species provided by the Lincolnshire Environmental Records Centre, Lincolnshire Bird Club and BTO Birdtrack are provided in Table 3.1.

Species	No. of Records	Most Recent Record	Proximity of Nearest Record	UK BAP?	Local BAP?	NERC S.41?	Legislation / Conservation Status
Barn Owl <i>Tyto alba</i>	49	2010	1.5 km	N	Y	N	Amber Listed Species
Bewick's Swan <i>Cygnus columbianus</i>	4	2010	4.5 km	Y	N	Y	Amber Listed Species
Black-headed Gull <i>Larus ridibundus</i>	62	2010	4.5 km	N	N	N	Amber Listed Species
Canada goose <i>Branta canadensis</i>	9	2010	4.5 km	N	N	N	-
Carrion Crow <i>Corvus corone</i>	43	2010	4.5 km	N	N	N	-
Collared Dove <i>Streptopelia decaocto</i>	68	2010	4.5 km	N	N	N	-
Common Buzzard <i>Buteo buteo</i>	9	2011	1.9 km	N	N	N	-
Common Gull <i>Larus canus</i>	21	2010	4.5 km	N	N	N	Amber Listed Species
Common Sandpiper <i>Actitis hypoleucos</i>	8	2010	4.5 km	N	N	N	Amber Listed Species
Common Snipe <i>Gallinago gallinago</i>	9	2009	4.5 km	N	N	N	Amber Listed Species
Common Tern <i>Sturnus vulgaris</i>	27	2011	4.5 km	N	N	N	Amber Listed Species
Cormorant <i>Phalacrocorax carbo</i>	72	2011	4.5 km	N	N	N	-
Curlew <i>Numenius arquata</i>	1	2010	4.5 km	Y	Y	Y	Amber Listed Species
Gadwall <i>Anas strepera</i>	29	2010	4.5 km	N	N	N	Amber Listed Species
Golden Plover <i>Pluvialis apricaria</i>	14	2009	5 km	N	N	N	Amber Listed Species
Goldeneye <i>Bucephala clangula</i>	13	2008	4.5 km	N	N	N	Amber Listed Species
Goosander <i>Mergus merganser</i>	59	2010	4.5 km	N	N	N	-
Great Black-backed Gull <i>Larus marinus</i>	8	2010	4.5 km	N	N	N	Amber Listed Species

Table 3.1 (cont): Bird Records Within 5 km of Proposed Turbine Location provided by Lincolnshire Environmental Records Centre, Lincolnshire Bird Club and BTO Birdtrack

Species	No. of Records	Most Recent Record	Proximity of Nearest Record	UK BAP?	Local BAP?	NERC S.41?	Legislation / Conservation Status
Great Crested Grebe <i>Podiceps cristatus</i>	111	2010	4.5 km	N	N	N	-
Grey Heron <i>Ardea cinerea</i>	104	2011	3.5 km	N	N	N	-
Greylag Goose <i>Anser anser</i>	54	2010	4.5 km	N	N	N	Amber Listed Species
Herring Gull <i>Larus argentus</i>	31	2010	4.5 km	N	N	N	Red Listed Species
Hobby <i>Falco subbuteo</i>	3	2009	1.5 km	N	N	N	-
Jackdaw <i>Corvus monedula</i>	61	2010	4.5 km	N	N	N	-
Kestrel <i>Falco tinnunculus</i>	64	2010	5 km	N	N	N	Amber Listed Species
Lapwing <i>Vanellus vanellus</i>	66	2010	4.5 KM	N	Y	N	Red Listed Species
Lesser Black-backed Gull <i>Larus fuscus</i>	18	2010	4.5 km	N	N	N	Amber Listed Species
Little Egret <i>Egretta garzetta</i>	10	2010	3.5 KM	N	N	N	Amber Listed Species
Little Grebe <i>Tachybaptus ruficollis</i>	29	2010	4.5 KM	N	N	N	Amber Listed Species
Little owl <i>Athene noctua</i>	4	2011	1.9 km	N	N	N	-
Long-eared owl <i>Asio otus</i>	1	2001	4.5 km	N	N	N	-
Magpie <i>Pica pica</i>	68	2010	4.5 KM	N	N	N	-
Mallard <i>Anas platyrhynchos</i>	110	2011	4.5 km	N	N	N	Amber Listed Species
Marsh Harrier <i>Circus aeruginosus</i>	18	2010	4 km	N	N	N	Amber Listed Species
Merlin <i>Falco columbarius</i>	2	2010	2 km	N	N	N	Amber Listed Species
Mute swan <i>Cygnus olor</i>	94	2011	2 km	N	N	N	-
Oystercatcher <i>Haematopus ostralegus</i>	17	2010	4.5 km	N	N	N	Amber Listed Species
Peregrine Falcon <i>Falco peregrinus</i>	1	2009	5 km	N	N	N	
Pochard <i>Aythya ferina</i>	48	2011	4.5 km	N	N	N	Amber Listed Species
Pink-footed Goose <i>Anser brachyrhynchus</i>	2	2009	3 km	N	N	N	Amber Listed Species
Red Kite <i>Milvus milvus</i>	4	2007	5 km	N	N	N	Amber Listed Species
Redshank <i>Tringa totanus</i>	20	2010	4.5 km	N	N	N	Amber Listed Species
Rook <i>Corvus frugilegus</i>	64	2010	4.5 km	N	N	N	-

Table 3.1 (cont): Bird Records Within 5 km of Proposed Turbine Location provided by Lincolnshire Environmental Records Centre, Lincolnshire Bird Club and BTO Birdtrack

Species	No. of Records	Most Recent Record	Proximity of Nearest Record	UK BAP?	Local BAP?	NERC S.41?	Legislation / Conservation Status
Shelduck <i>Tadorna tadorna</i>	13	2010	4.5 km	N	N	N	Amber Listed Species
Short-eared Owl <i>Asio flammeus</i>	5	2009	4.5 km	N	N	N	Amber Listed Species
Shoveler <i>Anas clypeata</i>	3	2010	4.5 km	N	N	N	Amber Listed Species
Sparrowhawk <i>Accipiter nisus</i>	21	2011	4.5 km	N	N	N	-
Stock Dove <i>Columba oenas</i>	17	2010	4.5 km	N	N	N	Amber Listed Species
Tawny Owl <i>Strix aluco</i>	5	2010	4.8 km	N	N	N	-
Teal <i>Anas crecca</i>	19	2010	4.5 km	N	N	N	Amber Listed Species
Tufted Duck <i>Aythya fuligula</i>	105	2011	4.5 km	N	N	N	Amber Listed Species
Turtle Dove <i>Streptopelia turtur</i>	7	2007	4.5 km	Y	Y	Y	Red Listed Species
Whooper Swan <i>Cygnus Cygnus</i>	7	2009	4.5 km	N	N	N	Amber Listed Species
Woodcock <i>Scolopax rusticola</i>	8	2011	5 km	N	N	N	Amber Listed Species
Woodpigeon <i>Columba palumbus</i>	69	2010	4.5 km	N	N	N	-
Wigeon <i>Anas penelope</i>	45	2010	4.5 km	N	N	N	Amber Listed Species

Table 3.1: Bird Records Within 5 km of Proposed Turbine Location provided by Lincolnshire Environmental Records Centre, Lincolnshire Bird Club and BTO Birdtrack (continued)

Key

UK BAP	Species listed as UK Biodiversity Action Plan Priority Species
Local BAP	Lincolnshire Biodiversity Action Plans
RSPB Red	Species included on RSPB Red List of Conservation Concern (see below)
RSPB Amber	Species included on RSPB Amber List of Conservation Concern (see below)

Notes for RSPB Red-listing Criteria

BDp: Rapid (>50%) decline in UK breeding population over the last 25 years

HD: Historic population decline in UK during 1800-1995

Additional Amber-listing Criteria

SPEC 2 or 3: Species with unfavourable conservation status in Europe (SPEC = Species of European Conservation Concern)

Notes for RSPB Amber List Criteria

BDMp: Moderate (25-49%) decline in UK breeding range over last 25 years

BDMr: Moderate (25-49%) contraction in UK breeding range over last 25 years

SPEC 2 or 3: Species with unfavourable conservation status in Europe (SPEC = Species of European Conservation Concern)

Hdrec: Historic population decline during 1800-1995, but recovering: population size has more than doubled over last 25 years

BI: >20% of European breeding population in UK

WI: >20% of NW European (wildfowl), East Atlantic Flyway (waders) or European (others) non-breeding populations in UK

In addition to the ornithological desk study information, additional data was obtained for statutory and non-statutory protected sites within a 5 km radius of the survey area. Information received from the Lincolnshire Environmental Records Centre highlighted the presence of a single statutory and four non-statutory nature conservation sites within this search radius. These sites were:

- Cowbit Wash Site of Special Scientific Interest (SSSI);
- Cowbit Wash (south) Site of Nature Conservation Interest (SNCI);
- High Bank Gull Local Wildlife Site (LWS);
- New River Cowbit Local Wildlife Site (LWS); and,
- River Welland Site of Nature Conservation Interest (SNCI).

Cowbit Wash SSSI is designated as an important site for studies of Flandrian (i.e. post-glacial) sea level changes but is not notified for its ornithological interest. It is located 5 km north-west of the proposed turbine location.

Cowbit Wash (south) SNCI was formerly a 'washland' that was flooded each winter but since the 1950's has undergone management activities resulting in conversion to arable farmland with a subsequent reduction in its once rich flora and ornithological interest. This site is located 1.9 km west of the site.

High Bank Gull LWS comprises a small area of woodland, neutral grassland and standing water. The standing water is managed as a fishing pond and the surrounding grassland is occasionally grazed by horses. This site is located 4.3 km south-west of the site.

New River Cowbit LWS comprises a short stretch of the New River Drain encompassing open water and reedbed with steeply sloping banks. A range of invertebrates and common bankside and aquatic plant species reported for the site. This site is located 2 km south-west of the site.

The River Welland SNCI is noted as being of importance for wintering wildfowl with nationally significant numbers of mute swan and goosander reported. This site is located 4 km south-west of the site.

With the exception of the River Welland SNCI, neither the single statutory or remaining non-statutory sites are known to be of significance for their breeding or wintering bird populations.

A review of local biodiversity action plans relevant to Lincolnshire was undertaken. This identified a range of farmland bird species comprising sky lark, linnet, corn bunting, yellowhammer, reed bunting, common snipe, yellow wagtail, curlew, tree sparrow, grey partridge, bullfinch, turtle dove, starling, redshank, barn owl and lapwing. Of these species it is considered that five are potentially target species for the proposed wind turbine installation, namely common snipe, curlew, redshank, barn owl and lapwing.

Lincolnshire Bird Club was contacted and a request for information regarding notable breeding and wintering concentrations of the following target groups within a 5 km radius of this site was made:

- Diurnal raptors;
- Owl species;
- Wildfowl;
- Wading species;
- Gull species; and,
- Corvid species.

Target groups are those species identified as being of particular risk to wind power projects, such as slow-flying or flock forming species.

3.2 WALKOVER SURVEY RESULTS

All bird species noted using the proposed turbine field and its surrounds, including the wider service area, during the site walkover visit undertaken in November 2011 are detailed in Table 3.2.

Common Name	Scientific Name	Status
Blackbird	<i>Turdus merula</i>	-
Carrion Crow	<i>Corvus corone</i>	-
Chaffinch	<i>Fringilla coelebs</i>	-
Common Buzzard	<i>Buteo buteo</i>	-
Dunnock	<i>Prunella modularis</i>	National BAP Species. Amber Listed Species.
Fieldfare	<i>Turdus pilaris</i>	Red Listed Species.
Golden Plover	<i>Pluvialis apricaria</i>	Amber Listed Species
Goldfinch	<i>Carduelis carduelis</i>	-
Kestrel	<i>Falco tinnunculus</i>	Amber Listed Species
Little owl	<i>Athene noctua</i>	-
Magpie	<i>Pica pica</i>	-
Pheasant	<i>Phasianus colchicus</i>	-
Red-legged Partridge	<i>Alectoris rufa</i>	-
Redwing	<i>Turdus iliacus</i>	Red Listed Species.
Reed Bunting	<i>Emberiza schoeniclus</i>	National BAP Species. Local BAP Species. Amber listed Species.
Sky Lark	<i>Alauda arvensis</i>	National BAP Species. Local BAP Species. Red Listed Species.
Starling	<i>Sturnus vulgaris</i>	National BAP Species. Local BAP Species. Red Listed Species.
Stock Dove	<i>Columba oenas</i>	Amber Listed Species.
Wood Pigeon	<i>Columba palumbus</i>	-
Wren	<i>Troglodytes troglodytes</i>	-
Yellowhammer	<i>Emberiza citrinella</i>	National BAP Species. Local BAP Species. Red listed Species.

Table 3.1: Bird Species recorded during the site visit to Moulton Chapel site in November 2011

Key

UK BAP	Species listed as UK Biodiversity Action Plan Priority Species
Local BAP	Lincolnshire Biodiversity Action Plans
RSPB Red	Species included on RSPB Red List of Conservation Concern (see below)
RSPB Amber	Species included on RSPB Amber List of Conservation Concern (see below)

Notes for RSPB Red-listing Criteria

BDp: Rapid (>50%) decline in UK breeding population over the last 25 years

HD: Historic population decline in UK during 1800-1995

Additional Amber-listing Criteria

SPEC 2 or 3: Species with unfavourable conservation status in Europe (SPEC = Species of European Conservation Concern)

Notes for RSPB Amber List Criteria

BDMp: Moderate (25-49%) decline in UK breeding range over last 25 years

BDMr: Moderate (25-49%) contraction in UK breeding range over last 25 years

SPEC 2 or 3: Species with unfavourable conservation status in Europe (SPEC = Species of European Conservation Concern)

Hdrec: Historic population decline during 1800-1995, but recovering: population size has more than doubled over last 25 years

BI: >20% of European breeding population in UK

WI: >20% of NW European (wildfowl), East Atlantic Flyway (waders) or European (others) non-breeding populations in UK

4. DISCUSSION & CONCLUSIONS

Following field observations of birds gained from the site visit undertaken on 21st November 2011 complemented with desk study data obtained from the Lincolnshire Environmental Records Centre, Lincolnshire Bird Club and BTO BirdTrack, a series of potential target species were compiled for the Moulton Chapel site. Target species are those which are considered to be at greatest risk from wind turbines, for example less manoeuvrable species which fly at the approximate height of turbine rotor blades, or species which tend to form large flocks. The following potential target species for the site were identified:

- Diurnal raptor species with common buzzard, kestrel and sparrowhawk the primary species;
- Owl species;
- Wildfowl;
- Wading species;
- Gull species; and,
- Large, flock-forming species of corvid;

Reference to desk study data together with field observations and interrogation of mapped and aerial imagery of habitats indicated that some of the above target species/groups e.g. wildfowl, wading birds, gulls and corvids, are not perceived to be at significant risk from the proposed single turbine at Moulton Chapel. Of these target bird groups, wading bird records were relatively few over the period 2000-2011 e.g. 17 records of oystercatcher with a peak count of 12 birds; one record of dunlin; nine records of common snipe with a peak count of none birds; and, one record of curlew. These records came from areas of winter flooding and washland adjacent to the River Welland/Spalding area which is located approximately 4.5 west of the study area. The habitat surrounding the proposed turbine location comprised intensive arable farmland dissected by a series of straight-sided and deep ditches and dykes. This type of habitat is considered to be of low value for the majority of wading bird species.

However, it should be noted that two wading bird species that are frequently associated with open arable farmland are golden plover and lapwing (the former species being a winter and passage migrant and the latter occurring in both the breeding and non-breeding season). Both of these species were highlighted by Mike Jones (Conservation Officer, Eastern England Regional Office, RSPB) as being of 'potential concern' with respect to the proposed wind turbine installation. The desk study information received from the Lincolnshire Bird Club (LBC) and Lincolnshire Environmental Records Centre (LERC) highlighted the presence of both species within the 5 km search radius. Over the last 10 years golden plovers have been recorded on 14 occasions during the autumn and winter period with flocks of generally below 300 birds but with peak counts of 1425 and 1800 in 1999. The closest of these records to the proposed turbine location were 5 km distant. During the site walkover visit in November 2011, a small flock of eight birds were recorded in the field to the north-west of the proposed turbine location. The open field habitat within which the turbine is proposed, together with the surrounding areas of extensive arable farmland (which will almost certainly comprise bare or sparsely vegetated ground over the autumn/winter period) offer

potentially rich habitat for this species, both in terms of providing a foraging resource and safe roosting areas. However, the presence of an existing access track and dyke feature along the northern edge of the proposed turbine location is considered to provide a barrier to use of the habitats within the surrounding vicinity of the turbine location (the reed-filled dyke has the potential to screen and harbour predators). It is also considered that once the turbine and associated infrastructure are installed then any golden plover that may use the area will almost certainly maintain a 'safe distance' from the turbine of in excess of 200 m. Studies undertaken on golden plovers and documented in Bright *et al* (2006) show that they are able to avoid turbines in conditions of good flight and sight, increasing their flight height and changing direction accordingly to avoid turbines at a distance of 200-500 m from them. In light of the fact that the proposed works at Woodgate Farm involve the installation of a single turbine within a very large field with surrounding open vista it is considered that although there may be some displacement of this species there are large areas of highly suitable habitat within a surrounding 5 km radius. In addition, it is considered that the presence of only a single well sited turbine will provide a very low risk of collisions taking place.

Desk study data received for lapwing within a 5 km radius of the proposed turbine location indicated that this species is fairly common within the area surrounding the turbine location, primarily outside of the breeding season but also occurring in low numbers during the nesting season. The majority of records emanated from the Spalding/River Welland/Borough Farm area, a minimum distance of 4.5 km from the proposed turbine location. No evidence of this species' presence was identified during the site walkover visit but it is considered that the site may offer winter foraging potential for this flock-forming species. Whether suitable breeding habitat is present within the study area is unsure, as the large field had been sown with a mixture of autumn wheat and rape both of which may be unsuitable for use by this species for nesting purposes during the spring (it is generally considered that autumn sown wheat and rape are likely to be too high to support breeding pairs in spring). There is potential for some displacement during works to install the turbine and infrastructure and its subsequent usage but it is considered that the surrounding habitat offers suitable alternative lapwing habitat. In terms of collision risk this species, like the previous one, is considered to be at low risk of collision with a single, well sited turbine.

Two raptor species which are also cited as being of potential risk are barn owl and marsh harrier. The desk study highlighted the presence of 49 records of barn owl between 1999 and 2010, of which the closest record was within 1.5 km of the proposed turbine location. Records occurred throughout the year and included data indicating local breeding. Although the site walkover visit in November 2011 included a watch until after dark no evidence of this species was noted in what was considered to be good hunting conditions. The majority of habitat within the Chapel Farm/Woodgate Farm area is considered sub-optimal for hunting barn owl, being intensively farmed arable crops. However, the system of dykes which form the field boundaries and their associated margins of coarse neutral grassland, are considered to provide potential foraging resources for barn owls. Additional parcels of potential foraging habitat were noted to the east of the proposed turbine location, a distance of approximately 550 m with further areas of similar habitat in excess of 600 m north-east. Barn owls generally fly at a height of below 4.5 m with the optimal hunting height being 3 m above ground level (Bunn, 1982, Martin, 2008). Therefore, as there will

be no loss of potential foraging habitat and there is virtually no collision risk with a single, well located turbine, it is considered that this species is unlikely to be detrimentally impacted by site proposals.

Between 1999 and 2010, 18 records of marsh harrier were provided in the desk study information, with the nearest being within 4 km (including confirmed breeding in excess of 5 km from the proposed turbine location). It should be noted however that the desk study data indicates no breeding activity since 2006. The Chapel Farm/Woodgate Farm site may provide potential foraging habitat for this species, particularly along the dyke features and they are known to also use crops for breeding purposes particularly cereals. Flight activity of marsh harrier is generally at a low level, particularly when hunting, although display flight may involve birds flying at heights of 100 m in spring. It is considered that given the generally low level of recorded activity within the area together with the small scale nature of the proposal ie. a single turbine, it is considered that the risk to this species there is negligible.

Additional raptor species which require consideration with respect to site proposals comprise common buzzard, hobby, kestrel, little owl, long-eared owl, merlin, peregrine falcon, red kite, short-eared owl, sparrowhawk and tawny owl.

Of the four owl species, tawny owl can be virtually eliminated as a potential risk species due to the lack of its principal habitat requirements i.e. mature woodland or parkland within a 5km radius of the site. The site is considered to offer little suitable habitat for long-eared owl, a species which requires dense scrub for roosting purposes and areas of rough grassland for hunting. The desk study search cited a single record of this species in 2001 located 4.5 km from the proposed turbine location. The site is considered to offer little roosting potential with the nearest suitable habitat being mature hedgerows 500 m to the north. Some potential foraging habitat occurs within the vicinity of the proposed turbine and access track along the dykes and adjacent rough grassland zones. However, long-eared owls generally operate below 5 m above ground level and are not therefore considered to be at risk from the site proposals. Short-eared owl has a similar low number of reported records (5 in the desk study with the closest being 4.5 km distant), and whilst the dyke and rough grassland features may provide potential hunting and roosting habitat (this species roosts on the ground) it too adopts low level flight for the majority of its hunting activity and is not therefore considered to be at any considerable risk with respect to the proposed scheme. The desk study noted the presence of little owl within the desk search radius (four records with the closest being 1.9 km), whilst the site visit recorded calling little owl (believed to be emanating from the Woodgate Farm area approximately 750 m to the south-east of the proposed turbine location). This is another owl species which is generally confined to low level airspace and requires trees and fence posts from which to hunt for prey which is normally taken off the ground. The lack of suitable wooden fence posts within a 500 m radius of the site is considered to be a limiting factor to the presence of this species within proximity of the proposed turbine location and it is not therefore deemed to be any significant risk.

Of the remaining seven raptor species, hobby, merlin, peregrine falcon and red kite are noted as being scarce within the area (a combined total of only ten records between 1999 and 2010), and it is generally considered that the Chapel Farm site offers generally poor habitat for all four species, both in terms of

breeding opportunities and foraging potential. The single turbine will not create a significant 'barrier effect' and is therefore considered to comprise a minimal collision risk to these raptor species. Scottish Natural Heritage (SNH) have produced a guidance note on the avoidance rate of a range of target species commonly impacted by wind farm developments with an emphasis upon those raptors found within Scotland. However, though the species may be different from those reported for the Chapel Farm site the characteristics of the family groups are generally the same as those found further south in England. The majority of species were found to have an avoidance rate of 98% or 99% i.e. 98% or 99% of birds moving through an area with wind turbine(s) are expected to avoid those turbine(s). However, it should be known that avoidance rates for many species are still not known with accuracy due to lack of collision data. Further information provided in SNH's guidance note indicates that overall collision events are uncommon or rare.

Of the three remaining raptors identified in the desk study information obtained for the site, namely common buzzard, kestrel and sparrowhawk, all three species were frequently recorded within the 5 km search area. During the site walkover visit conducted in November 2011 the first two named species were identified utilising a line of well scattered poplars *Populus* sp approximately 500 m south-east of the proposed turbine location. Assessing the habitats present within the vicinity of the proposed turbine it is considered that there is suitable foraging habitat for both common buzzard and kestrel but limited potential for sparrowhawk (a species that utilises cover to gain an advantage on prey species). Common buzzard generally requires small woods and copses for breeding purposes and it is considered that the habitats within a 1 km radius of the proposed turbine location offer limited nesting potential. Kestrel has a generally accepted avoidance rate of 95% with respect to wind farm developments. The habitats present along, and adjacent to, dyke features provide potential foraging opportunities for this species and the scattered trees located a minimum distance of 550 m to the east provide potential nesting locations. On balance therefore it is considered that the risk to both kestrel and common buzzard of a single turbine in a large, open and flat expanse of arable farmland is low.

In terms of wildfowl being a potential consideration with respect to the erection of a single turbine this group of birds is considered to be of low risk. There are no significant large open waterbodies within a 2 km radius of the proposed turbine location which are likely to hold concentrations of wintering wildfowl. The area surrounding the turbine field comprises flat, open, well-drained arable farmland which is deemed to be of negligible value for wintering wildfowl. Reference to desk study data supplied by LOS and LERC highlights concentrations of swans, geese and ducks utilising the River Welland and adjacent Cowbit Wash throughout the winter months with nationally significant numbers of mute swan and high counts (in a county context) of mallard, wigeon and tufted duck together with a good diversity of other waterbirds (although no concentrations of any particular species). No waterbirds were observed using or flying over the Woodgate Farm site during the site visit undertaken in November 2011. A series of narrow and steep-sided dykes form the boundaries of many of the fields within the vicinity of the proposed turbine location. Many of these boundary ditches were observed to be devoid of any significant depths of water and vegetated by common reed *Phragmites australis*. To the west of the proposed turbine location is the north/south aligned Moulton Mere Drain. This feature possessed steeply angled banks of

approximately 45° that were estimated to be some 3 m above existing water level. The banks possessed generally coarse grass and tall ruderal vegetation although this was noted to be close mown. No significant aquatic vegetation was observed within the channel and no swans, geese or ducks were noted using this feature. This dyke fed southwards in a direct straight line eventually feeding into the South Holland Main Drain approximately 800 m from the proposed turbine location. It is considered that the River Welland is likely to provide a significant flyway for wildfowl into the Wash approximately 20 km distant (and potentially used by a range of additional bird species also). The South Holland Main Drain may also provide a flyway for birds as it links the River Welland with the River Nene (which ultimately outfalls into the Wash too). Birds using these linear wetland waterways are not considered to be at any significant risk from a single well placed turbine as they are located 800 m and 1.75 km from the turbine location at their closest points.

In terms of the status of gulls within the 5 km radius of the proposed turbine location, the desk study data supplied by LOS and LERC indicated that the four 'common' large gull species, i.e. herring gull, lesser black-backed gull and great black-backed gull were reasonably regularly recorded throughout the period 2004-2010, although generally in small numbers with a peak count of less than 50 of any one species. Black-headed gulls tended to be more commonly noted with a highest count of 354 (in August 2008). All gull records provided were a minimum distance of 4.5 km from the site of the proposed turbine, favouring the River Welland/Spalding/Borough fen area. No gull species were observed during the walkover site assessment undertaken in November 2011. The Woodgate Farm site offers no breeding potential for this species group, the great majority of the larger gulls breed around the coastline of Britain and black-headed gulls favour coastal marshes, moorland and inland gravel pit complexes. Birds outside of the breeding season will often frequent inland areas, feeding by day on landfill sites and areas of farmland and roosting on large lakes and reservoirs. It is known that large numbers of gulls roost on the Wash and undertake dusk and dawn flight lines between feeding areas and roosting locations. No dusk flights of gulls were observed during the November site visit. It is therefore considered that given the generally low numbers of gulls reported within a 5 km radius of the proposed turbine, the distant roosting locations within the Wash and the open location of a single proposed wind turbine at the Woodgate Farm site, it is considered that the single turbine will not be a significant risk to this bird group.

Similarly, corvid species such as carrion crow, rook and jackdaw although defined as target species are considered to be at low risk from collision with a single, well sited turbine due to their general agility, manoeuvrability and ability to become habituated to a single turbine and avoid as necessary.

In terms of assessing potential impacts of the proposed single turbine, factors which need to be considered are:

- Direct loss and/or deterioration of habitats.
- Indirect habitat loss as a result of displacement by disturbance.
- Increased energy expenditure due to a barrier effect of larger arrays of rows of turbines.
- Mortality due to collisions with turbines and associated infrastructure.

In terms of loss and deterioration of habitats, it is considered that the proposed location of a single medium scale turbine within a large field which, at the time of the field survey, was occupied by a recently sown arable crop is unlikely to have a significant impact upon bird species within the local area. Intensively managed arable farmland generally supports few bird species both during the breeding and non-breeding seasons.

The footprint of the proposed turbine station is small, and its planned location is within an area of existing arable crops. The vast arable field of 31 ha in extent is generally considered likely to support few bird species. The habitats to be impacted will be arable crops and even if there is some displacement by disturbance there is more than sufficient commensurate habitat within the surrounding area. Land use immediately to the north and east of the proposed turbine field comprised areas under arable crops with mixed boundary features. It is therefore considered that there is unlikely to be any direct loss of suitable small passerine habitat as a result of turbine and associated infrastructure installation. Thus, although there may be some limited temporary displacement of arable farmland bird species it is considered that there is suitable habitat immediately surrounding the proposed turbine field location so that there is unlikely to be a long term negative impact. There is however, some potential for minor disturbance to breeding birds if the access route and turbine erection is undertaken during the bird breeding season. A recommendation to minimise this disturbance is made in Section 5.

In terms of infrastructure associated with the proposed turbine, it is considered that there will be minimal impact to the existing habitats with the network of existing access tracks being utilised for the movement of plant and equipment to the proposed turbine location. The turbine will require a foundation radius of 24 m and a temporary crane hard standing will be required during the construction and erection activities. This will lead to a permanent loss of approximately 1800 m² of existing arable farmland. It is therefore considered that there may be some temporary disturbance to birds using this area but if planned to be undertaken outside of the nesting bird season then this is unlikely to have any detrimental impacts to breeding birds within a radius of approximately 100 m of the proposed turbine location. Field observations made during the site visit indicated that the field within which the turbine is to be located is unlikely to support many breeding species possibly with the exception of ground nesting farmland birds such as sky lark (several of which were located within the fields to the north of the proposed turbine location). However, it is considered that the surrounding area provides extensive zones of sky lark suitable habitat and any disturbance or displacement is only likely to be temporary. Recent research indicates that farmland birds including sky lark experienced no decrease in overall numbers in relation to proximity to turbine locations (Devereux, et al, 2008). Located within 50 m and to the north of the proposed turbine location is a 3 m wide ditch with narrow margins on either side of coarse neutral grassland to 0.75 m in height. During the site visit several small passerine species were noted here including reed bunting, wren and yellowhammer. It is considered that the ditch and its adjacent grassy margins are likely to provide nesting and foraging resources for both these and additional farmland passerines. During construction activities there is a potential for some minor disturbance. A recommendation regarding the optimal timing of works is made in Section 5.

Due to the very small scale nature of the proposed turbine scheme, its proposed location and minor enabling works, it is considered that there will be very little adverse impact on the birdlife of the site if undertaken with appropriate due care.

In terms of indirect habitat loss as a result of displacement by disturbance, it is considered that during the construction phase there is likely to be a small amount of disturbance but again this is considered to be negligible given the proposed turbine location, the overall small scale of the proposals and the area within which the works are scheduled.

In regard to increased energy expenditure due to a barrier effect of larger arrays of rows of turbines, this is also considered to have no impact as the scheme only proposes one medium scale turbine. Birds will not be forced to deviate any significant distance in order to bypass the single proposed turbine.

In conclusion, the obtained desk study information highlighted a selection of species considered to be target species and therefore potentially at risk. However, the siting, design and management of the proposed single turbine at the Woodgate Farm site is considered unlikely to have any significant adverse impacts on any important 'perceived 'target bird ' populations or habitats. Furthermore, it is considered that small passerines which were recorded during the site visits generally suffer no significant impacts from small/medium scale wind farm developments.

5. RECOMMENDATIONS

It is considered that there may be some, albeit it very low, risk to bird species if enabling and turbine construction works are undertaken at the Woodgate Farm site during the bird breeding season. It is therefore recommended that such works are undertaken outside of this ecological window. The breeding bird season is considered to span March to September inclusive. If it is not possible to undertake works outside of this window, it is recommended that any vegetation likely to be impacted by works is subject to a check for the presence of nesting birds by an experienced ecologist immediately prior to works commencing.

It is further recommended that appropriate management of habitats surrounding the turbine location are undertaken so as not to 'draw in' potential target species that may be at collision risk with respect to the operation of the proposed wind turbine i.e. appropriate management of vegetation within and adjacent to dyke feature located to the north of the proposed turbine.

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Wildlife & Countryside Act (1981) as amended

MIDDLEMARCH ENVIRONMENTAL

QUALITY ASSURANCE

**WOODGATE FARM
MOULTON CHAPEL
LINCOLNSHIRE**

BIRD ASSESSMENT

A Report to Seren Energy

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