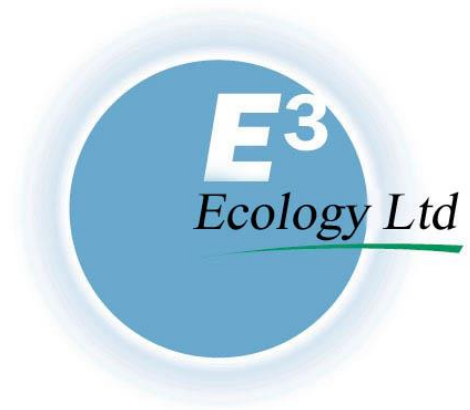




AN ECOLOGICAL ASSESSMENT OF LAND AT SHAFTON TWO GATES, SOUTH YORKSHIRE



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Job No. 3211						

A EXECUTIVE SUMMARY

E³ Ecology Ltd was commissioned by Engena Ltd to undertake an Extended Phase 1 Habitat and Protected Species Survey of an area of reclaimed land at Shafton Two Gates, east of Cudworth, Barnsley, to accompany a planning application. A bird risk assessment was also carried out as part of this survey work. It is proposed to construct a single turbine (50m to hub and 77m to blade tip) and associated infrastructure.

The turbine will stand within an area of semi improved grassland considered to be of parish ecological value. Site access will be gained through the construction of an access track extending from an existing track to the north east.

The proposed development area is surrounded by similar semi improved grassland with areas of immature broadleaf plantation, regenerating scrub and a number of ponds found readily in the vicinity.

The land in the wider area comprises arable fields to the west, similar grassland to the north and south with industrial development and brownfield land to the east. The access track onto the site runs through semi improved grassland and utilises an existing track.

Habitats within the site boundary provide suitable foraging habitat for badgers, though does not provide suitable habitat for sett creation and no evidence of this species was recorded during the survey. It is likely that badgers are present within the local area but given the limited scale of the development no impact on this species is predicted.

The featureless grassland within which it is proposed to locate the turbine will provide poor quality foraging and commuting habitat for bats, with no potential roost locations within close proximity to the development field. Within the close surroundings of the turbine there are small plantations that comprise well sealed trees and offer no potential roost locations. The hedgerow and trees in the wider area provide discontinuous commuting routes through this landscape and may partially link areas of higher quality foraging, in this case the areas of plantation woodland and ponds to the west. The buffer between the turbine tip and all field boundaries and potential roost sites will be greater than 50m¹.

There are a number of ponds in the wider area with six recorded within 250m. Consultation highlighted the presence of great crested newts within the ponds to the east, approximately 100m distant. Great crested newt survey has been undertaken on these ponds. All results and recommendations can be found within a separate great crested newt survey report.

Habitats on the edges of the site are potentially suitable for supporting small numbers of reptiles, with coarse grassland, scrub, ditches and hedgerow providing a range of foraging, cover and basking opportunities. However, due to the nature of the proposed development site and given the small development footprint and the nature of the habitats to be directly affected, the risk of works harming or disturbing reptiles is concluded to be negligible.

¹ Natural England Technical Information Note TIN059 Bats and single large wind turbines; Joint Agencies interim guidance

No evidence of otter was found during the survey and although there are a number of ponds in the wider area there is no suitable habitat within the footprint for this species, the risk of this species being present is negligible.

Given the lack of suitable habitat, water voles are considered absent from the development area.

The proposed development site, inclusive of immediately adjacent habitat, is considered to be of low ornithological value for both its breeding and wintering population. The construction footprint makes up a very small proportion of the broader area, which is dominated by similar habitats.

As a result of the small footprint size, the number of birds nesting within the development area is likely to be very low and further decreased as the site is heavily used by dog walkers. Due to the timing of the survey, no species observed were exhibiting breeding behaviour; however skylark were recorded on the development field. The majority of birds likely to be nesting in the local area will favour opportunities associated with the hedge lines and woodland plantations, as opposed to the grassland that is likely to be heavily disturbed. Due to the nature of the development the risk of disturbance to nesting birds in these areas is likely to be low.

Although the risk assessment identified a limited number of Annex 1 and Schedule 1 raptors as likely to forage in the vicinity on occasion, it is considered unlikely that any of these species will breed within the immediate vicinity of the site due to a lack of suitable habitat. Impacts on local populations are also considered unlikely. During the survey none of the species were encountered.

The wider site will support good numbers of wintering wildfowl, with a number recorded using the ponds to the north of the site. However, due to the location and magnitude of the proposed development, it is considered that there will be no significant impact on a local population scale.

Construction works will cause short-term disturbance of the development area and this is likely to have a minor short-term impact on wildlife using the site and adjacent land. Given the nature of the site, this is concluded likely to be limited to the following:

- Loss of a limited area of habitat of parish ecological value.
- Disturbance and displacement/harm of very small numbers of nesting, foraging and/or loafing birds, species typical of semi improved grassland in a semi urban setting.

However, given the limited construction footprint and extent of similar habitat in the surrounding landscape, it is not considered that the above disturbance and displacement would have a significant impact on local populations.

Wildfowl and raptors are the key bird groups considered to be at potential risk of collision with operational turbines, with waders also showing potential disturbance to turbines. It is unlikely that wintering wildfowl and wader species will utilise the development footprint due to the nature of the habitats, though a good range of species were recorded utilising the ponds approximately 400m to the north and north east.

Although swans and geese are likely to move around the area in winter, potentially passing over the site, such movements are generally at height, and much above the height of the turbine proposed in this case (77m to blade tip). These species are

much more vulnerable when turbines are located in close proximity to feeding areas, as individuals then pass through the collision risk height band on both take-off and landing.

The potential impacts on local bird populations through collisions are limited by the scale of the development. As such, no impacts significant at a population level are predicted from the operational turbine.

B INTRODUCTION

E³ Ecology Ltd was commissioned by Engena Ltd to undertake an Extended Phase 1 Habitat and Protected Species Survey of an area of reclaimed land at Shafton Two Gates, east of Cudworth, Barnsley, to accompany a planning application. A bird risk assessment was also carried out as part of this survey work. A great crested newt survey of the site is the subject of a separate report.

It is proposed to construct a single turbine (50m to hub and 77m to blade tip) and associated infrastructure within an arable field, currently sown with beans.

B1 Background to development

The proposed development site is situated approximately 0.6km to the east of Cudworth, Barnsley, within an area of semi improved grassland at approximate grid reference: SE 399 084. Its location is illustrated below in figures 1 and 2.

The development will be accessed for construction via a newly constructed access track leading from an existing track to the north east of the turbine location.

Figure 2, below, illustrates the adjacent land use with the circle delineating a 1km radius from the proposed turbine location.



Figure 1 Site plan and location



Figure 2: Aerial Photo – Wider Area (Reproduced under licence from Google Earth Pro)

C SURVEY AND SITE ASSESSMENT

C1 Consultation/Pre-existing Information

Multi Agency Geographic Information Centre (MAGIC) Website

The MAGIC website indicates the following SSSI within 2km:

Carlton Mains Brickwork SSSI

This operational clay pit lies just to the south of Grimethorpe, six kilometres east of Barnsley. The special interests are within the Coal Measures strata, exposed by the extraction of clay. They include one of the best available exposures of the Top Marine Band (Westphalian C, Middle Carboniferous) in the Pennines coalfields. It has yielded an anomalous Myalina-facies fauna, a shelly fauna which contrasts with the Anthracoceras/pectinoid facies fauna found elsewhere in this area of Yorkshire. The Top Marine Band is the highest Coal Measures marine band in Britain, and is the last evidence of normal marine conditions in this country during the Carboniferous Period. A site of considerable scientific interest.²

Barnsley Biological Records Centre

Non-Statutory Protected Areas

There are a number of Barnsley Natural Heritage Sites within 2km of the site.

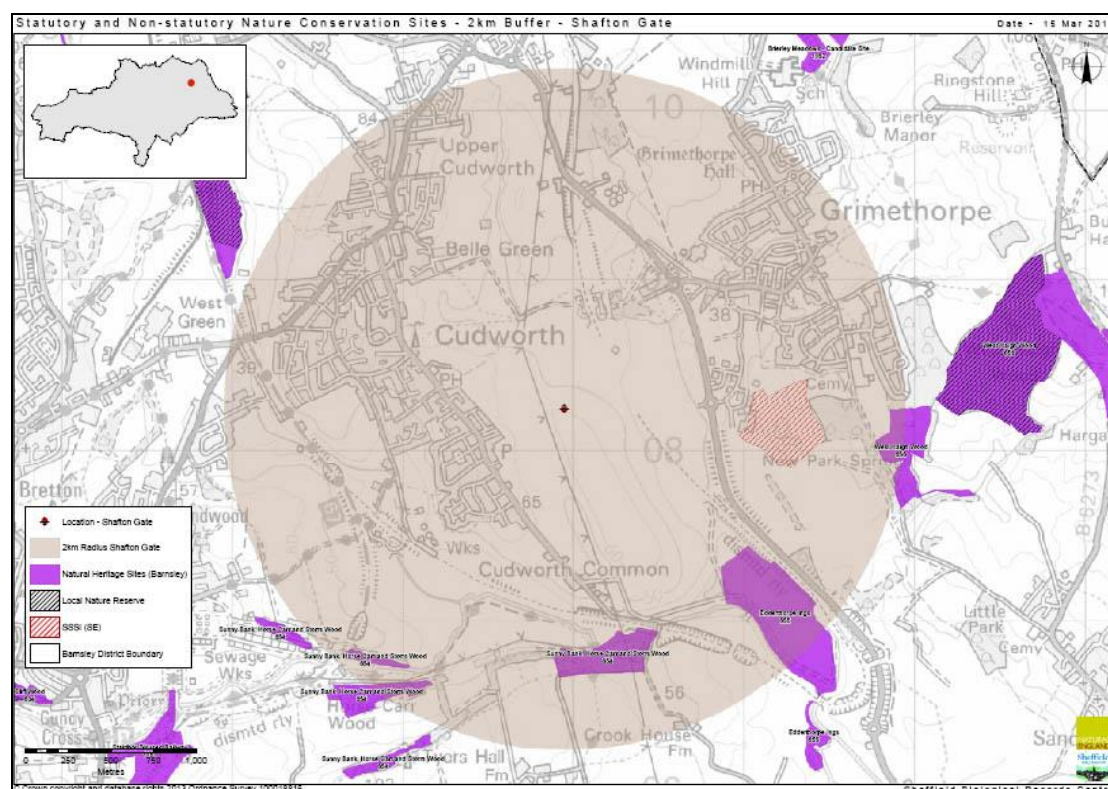


Figure 3 Map showing local areas of interest within search area.

² Natural England Nature on the Map Website

Yorkshire Wildlife Trust Reserves

There are no Yorkshire wildlife trust reserves within 2km of the development site.

Species of principal importance

The following species have been recorded from within the search area.

Common Name	Location	Grid Ref	Date
Common Toad	Cudworth pond 6	SE407071	01/01/2007
Common Toad	Grimesthorpe pond 2	SE405090	01/01/2008
Common Toad	Grimesthorpe pond 5	SE406088	01/01/2008
Common Toad	Grimesthorpe pond 6	SE409079	01/01/2010
Common Toad	Edderthorpe Ings	SE410075	13/04/2012
Great Crested Newt	Cudworth	SE39770835	01/01/2000
Water Vole	Carlton Marsh LWS	SE3809	25/04/1982
Water Vole	'BARNSELEY MBC'	SE3893007419	13/05/2012
Water Vole	'BARNSELEY MBC'	SE3893107421	13/05/2012
Water Vole	'BARNSELEY MBC'	SE3899207680	13/05/2012
Water Vole	'BARNSELEY MBC'	SE3898807706	13/05/2012
Water Vole	'BARNSELEY MBC'	SE3898407756	13/05/2012
Water Vole	'BARNSELEY MBC'	SE4030609355	06/05/2012
Water Vole	'BARNSELEY MBC'	SE4031309343	06/05/2012
Water Vole	'BARNSELEY MBC'	SE4031809335	06/05/2012
Water Vole	'BARNSELEY MBC'	SE3897607783	13/05/2012
Water Vole	'BARNSELEY MBC'	SE3897007797	13/05/2012
Water Vole	'BARNSELEY MBC'	SE3912107153	12/05/2012
Water Vole	'BARNSELEY MBC'	SE4128709240	19/06/2012
Water Vole	'BARNSELEY MBC'	SE3893007419	13/05/2012
Water Vole	'BARNSELEY MBC'	SE3898707707	13/05/2012
Water Vole	'BARNSELEY MBC'	SE3903607223	12/05/2012
Water Vole	'BARNSELEY MBC'	SE4077807992	05/05/2012
Water Vole	'BARNSELEY MBC'	SE4078007960	05/05/2012
Water Vole	'BARNSELEY MBC'	SE3894007382	13/05/2012
Water Vole	'BARNSELEY MBC'	SE3903807224	12/05/2012
Water Vole	'BARNSELEY MBC'	SE4130209253	19/06/2012
Bats	'BARNSELEY MBC'	SE4006	22/05/1982
Hedgehog	'BARNSELEY MBC'	SE3809	18/09/1983
Brown Hare	'BARNSELEY MBC'	SE4008	28/01/2012
Badger	'BARNSELEY MBC'	SE388067	01/04/1981
Harvest Mouse	Edderthorpe Ings	SE410075	11/11/2011
Harvest Mouse	Edderthorpe Ings	SE409075	08/03/2012
Harvest Mouse	'BARNSELEY MBC'	SE3906	01/01/1995
Noctule	Ferry Moor pond	SE40410878	08/07/2011
Pipistrelle	Ferry Moor pond	SE40410878	08/07/2011
Pipistrelle	'BARNSELEY MBC'	SE390081	09/06/2007
Pipistrelle	Cudworth	SE390081	09/07/2004
Pipistrelle	Cudworth	SE390081	12/07/2004
Pipistrelle	Cudworth	SE3909	25/07/1999
Pipistrelle	Cudworth	SE3809	30/09/1993
Pipistrelle	'BARNSELEY MBC'	SE4109	25/06/1999
Pipistrelle	'BARNSELEY MBC'	SE4108	07/03/1994
45 Khz Pipistrelle	Grimethorpe Barnsley	SE409092	29/06/2004
45 Khz Pipistrelle	'BARNSELEY MBC'	SE409092	29/06/2004

In addition the following bird species have been recorded within 2km:

Sparrowhawk	Swallow	Curlew Sandpiper	Wood Warbler
Sedge Warbler	Herring Gull	Little Stint	Willow Warbler
Reed Warbler	Lesser Black-Backed Gull	Linnet	Maggie
Common Sandpiper	Great Black-Backed Gull	Redpoll	Green Woodpecker
Long-Tailed Tit	Yellow-legged Gull	Siskin	Spoonbill
Skylark	Black-Headed Gull	Little Ringed Plover	Golden Plover
Kingfisher	Bar-Tailed Godwit	Ringed Plover	Grey Plover
Red-legged Partridge	Black-Tailed Godwit	Black Tern	Great Crested Grebe

Egyptian Goose	Grasshopper Warbler	White Stork	Spotted Crake
Pintail	Goosander	Stock Dove	Duncock
Shoveler	Corn Bunting	Woodpigeon	Bullfinch
Teal	Corn Bunting	Carrion Crow	Water Rail
Wigeon	Red Kite	Jackdaw	Avocet
Mallard	White/Pied Wagtail	Quail	Goldcrest
Garganey	Grey Wagtail	Cuckoo	Sand Martin
Gadwall	Yellow Wagtail	Common Cuckoo	Whinchat
White-Fronted Goose	Curlew	Blue Tit	Woodcock
Greylag Goose	Whimbrel	Whooper Swan	Common Tern
Pink-Footed Goose	Wheatear	Mute Swan	Eurasian Collared Dove
Meadow Pipit	Ruddy Duck	House Martin	Turtle Dove
Swift	Osprey	Little Egret	Starling
Grey Heron	Blue Tit	Yellowhammer	Blackcap
Short-Eared Owl	Great Tit	Reed Bunting	Whitethroat
Long-Eared Owl	Willow Tit	Robin	Lesser Whitethroat
Little Owl	House Sparrow	Merlin	Little Grebe
Pochard	Tree Sparrow	Peregrine	Shelduck
Tufted Duck	Grey Partridge	Kestrel	Spotted Redshank
Canada Goose	Coal Tit	Chaffinch	Wood Sandpiper
Goldeneye	Cormorant	Brambling	Greenshank
Buzzard	Pheasant	Coot	Green Sandpiper
Sanderling	Ruff	Snipe	Common Redshank
Dunlin	Redstart	Moorhen	Wren
Mistle Thrush	Song Thrush	Jay	Redwing
Barn Owl	Fieldfare	Oystercatcher	Blackbird
Lapwing			

C2 Legal Status of protected species

Planning Policy

The Government's National Planning Policy Framework (NPPF) states the following:

- Plan policies and planning decisions should be based upon up-to-date information about the natural environment (Paragraph 158 and 165).
- Plan policies should promote the preservation, restoration and recreation of priority habitats, ecological networks and the recovery of priority species (Paragraph 117).
- Local planning authorities should set out a strategic approach in their Plans, planning positively for the creation, protection, enhancement and management of networks of biodiversity and green infrastructure. (Paragraph 117).
- When determining planning applications in accordance with the Local Plan and the presumption in favour of sustainable development local planning authorities should aim to conserve and enhance biodiversity by applying a number of principles, including if significant harm resulting from a development cannot be avoided, adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused. (Paragraph 118).

The following protected species may be present on a site such as this:

Species	Relevant Legislation	Level of Protection
Bats (All species)	• Protection under the Wildlife and Countryside Act (WCA) (1981) (Listed on Schedule 5) - as amended • Classified as European protected species under Conservation of Habitats and Species Regulations 2010 • Bats are also protected by the Wild	The WCA (1981) and Habitat Regulations (2010) make it an offence to: • intentionally kill, injure, or take any species of bat • intentionally or recklessly disturb bats • intentionally or recklessly damage destroy or obstruct access to bat roosts

Species	Relevant Legislation	Level of Protection
	Mammals (Protection) Act 1996	
Birds	Protection under the Wildlife and Countryside Act (1981) as amended with the exception of some species listed in Schedule 2 of the Act	The WCA (1981) makes it an offence to (with exceptions for certain species): - Intentionally kill, injure or take any wild bird - Intentionally take, damage or destroy nests in use or being built (including ground nesting birds) - Intentionally take, damage or destroy eggs - Species listed on Schedule 1 of the WCA or their dependant young are afforded additional protection from disturbance whilst they are at their nests
Common reptiles (Grass Snake, Common Lizard)	Partially protected by the Wildlife and Countryside Act	The WCA (1981) makes it an offence to: - intentionally kill or injure these animals - sell, offer for sale, advertise for sale, possess or transport for the purposes of selling any live or dead animals or part of these animals
<i>Under the Countryside and Rights of Way Act 2000 (CROW Act) the offence in section 9(4) of the Wildlife and Countryside Act 1981 of damaging a place of shelter or disturbing those species given full protection under the act is extended to cover reckless damage or disturbance.</i>		

C3 Objective(s) of survey

The aims of the study are: -

- i) to ascertain the types of habitat within the study area through consultation and Extended Phase 1 Field Survey;
- ii) to provide provisional indications of the conservation value of the identified habitats;
- iii) to assess the species likely to be present and the risk of adversely affecting protected species;
- iv) to assess the sensitivity of the habitats and species in relation to the proposed scheme and the effect the development would have on them;
- v) to undertake a bird risk assessment to identify the sites suitability for a range of species;
- vi) to identify any further specialist studies that may be required to complete a reliable and robust ecological assessment and subsequently develop mitigation proposals that will allow development to proceed without significant adverse ecological effect.

C4 Survey area

Figures 1 and 2 (B1) illustrate the broad habitats present in the wider area.

Figure 4 (C7) illustrates the survey area and results.

C5 Personnel their qualifications and experience

Survey work, site assessment and reporting were undertaken by Mark Osborne BTEch (Hons) MIEEM and Jamie Coleman BSc (Hons) of E³ Ecology Ltd. Details of experience and qualifications are available at www.e3ecology.co.uk.

C6 Field survey

C6.1 Phase I Habitat Survey

The field survey of the proposed site was conducted using the methodology of the JNCC Phase 1 survey, as outlined in their habitat-mapping manual³. Each habitat was assessed by a trained surveyor and then mapped with target notes where appropriate.

Extended Phase 1 Survey was undertaken on the 5th March 2013.

The quality of field data will be affected by the season of the survey, with some plant species only being evident or identifiable at certain seasons. However, it is considered that the period in which the work was undertaken would have enabled a full assessment of the site.

C6.2 Protected Species

As part of the Extended Phase 1 Survey, the risk of protected species being present was assessed from the consultation responses, field signs and local knowledge. If present, any trackways regularly used by badger and deer were mapped, and any badger sett usage assessed by the presence of freshly dug earth and/or bedding at the entrance. Habitats were surveyed for potential to support reptiles. Wetlands if present were reviewed for their potential use by great crested newt, otter and water voles, with particular attention paid to possible otter sprainting sites and resting areas.

C6.3 Site Assessment

The value and significance of the habitats and species found was assessed against the following criteria developed from the Guidelines for Ecological Impact Assessment produced by the Institute of Ecology and Environmental Management⁴.

Level of Value	Examples
International	☐ An internationally designated site or candidate site. ☐ A viable area of a habitat type listed in Annex I of the Habitats Directive, or smaller areas of such habitat, which are essential to maintain the viability of a larger whole. ☐ Any regularly occurring population of an internationally important species, which is threatened or rare in the UK. ☐ Any regularly occurring, nationally significant population/number of any internationally important species.
National	☐ A nationally designated site. ☐ A viable area of a priority habitat identified in the UK BAP, or smaller areas of such habitat, which are essential to maintain the viability of a larger whole. ☐ Any regularly occurring population of a nationally important species, which is threatened or rare in the region or county. ☐ A regularly occurring regionally or county significant population/number of any nationally important species. ☐ A feature identified as of critical importance in the UK BAP.
Regional	☐ Viable areas of key habitat identified in the Regional BAP or smaller areas of such habitat, which are essential to maintain the viability of a larger whole. ☐ A regularly occurring, locally significant number of a regionally important species.

³ Joint Nature Conservation Committee. 2010. Handbook for Phase 1 habitat survey, A Technique for Environmental Audit. JNCC

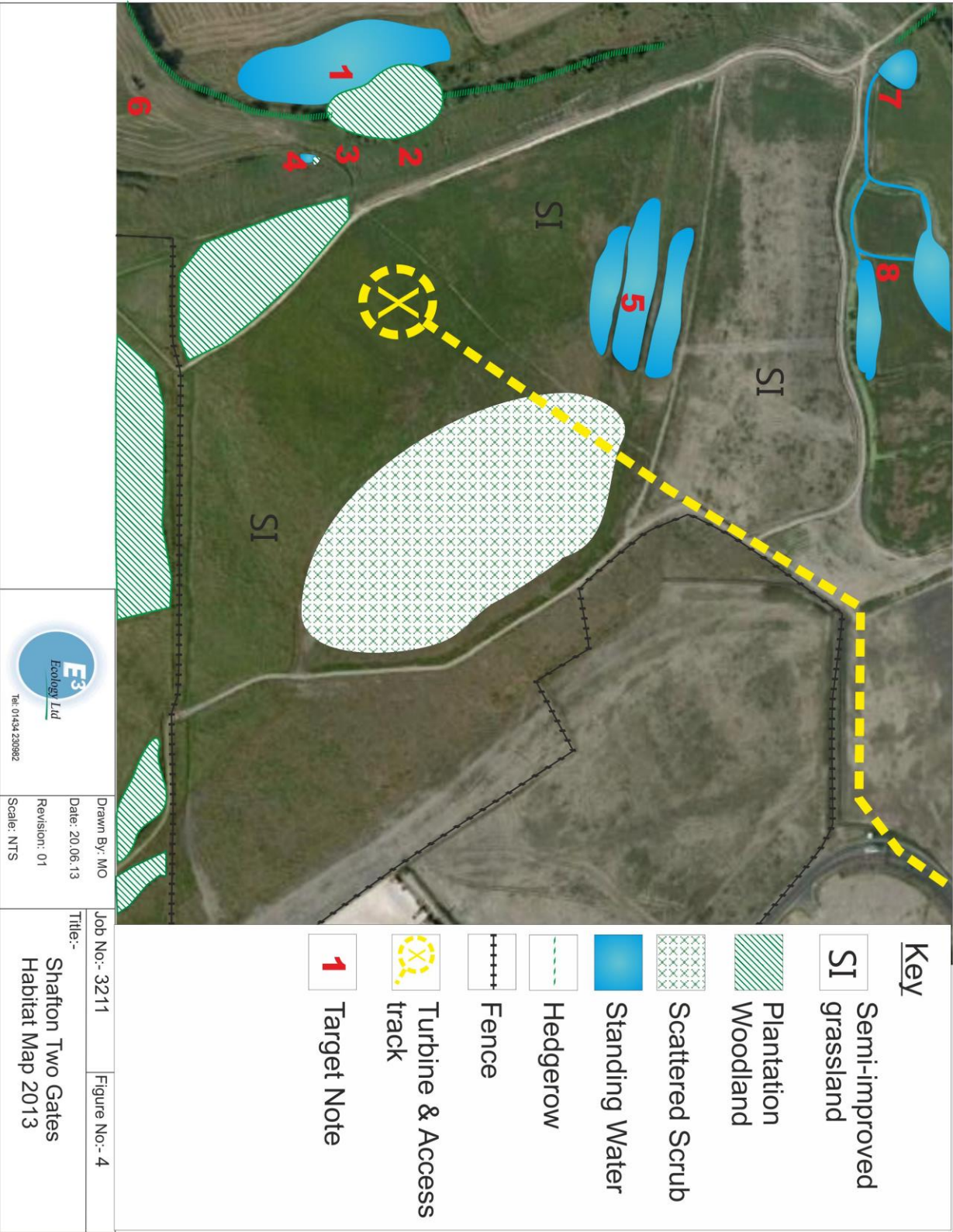
⁴ Institute for Ecology and Environmental Management (2006) Guidelines for Ecological Impact Assessment in the United Kingdom (Version 7 July 2006). <http://www.ieem.org.uk/ecia/index.html>.

Level of Value	Examples
County/ Metropolitan	☐ County/Metropolitan designated sites. ☐ A viable area of a habitat type identified in the County BAP. ☐ Any regularly occurring, locally significant population of a species which is listed in a County/Metropolitan "red data book" or BAP on account of its regional rarity or localisation. ☐ A regularly occurring, locally significant number of a species important in a County/Metropolitan context.
District/ Borough	☐ Areas of habitat identified in a District/Borough level BAP. ☐ Sites designated at a District/Borough level. ☐ Sites/features that are scarce within the District/Borough or which appreciably enrich the District/Borough habitat resource. ☐ A population of a species that is listed in a District/Borough BAP because of its rarity in the locality.
Parish/ Neighbourhood	☐ Area of habitat considered to appreciably enrich the habitat resource within the context of the Parish or neighbourhood. ☐ Local Nature Reserves.
Low	☐ Habitats of poor to moderate diversity such as established conifer plantations, species poor hedgerows and unintensively managed grassland that may support a range of Local BAP species but which are unexceptional, common to the local area and whose loss can generally be readily mitigated.

C7 Results

C7.1 Phase I Habitat Survey

The figure below illustrates the development area, the approximate location of the turbine and the current access track.



Semi Improved Grassland

The site and surrounding area comprise a wide expanse of coarse semi improved grassland. The sward was in general short, likely due to the time of year. Species present include cock's foot (*Dactylis glomerata*), Yorkshire Fog (*Holcus lanatus*), false oat-grass (*Arrhenatherum elatius*), *Poa* sp. *Festuca* sp., *Agrostis* sp, white clover (*Trifolium repens*), sow thistle sp. (*Sonchus* sp.), ribwort plantain (*Plantago lanceolata*), creeping thistle (*Cirsium arvense*), broadleaf dock (*Rumex obtusifolius*), curled dock (*Rumex crispus*) creeping buttercup (*Ranunculus repens*), broad leaved willowherb (*Epilobium hirsutum*), vetch sp. (*Vicia* sp.), ragwort (*Senecio jacobaea*), dandelion agg. (*Taraxacum* agg.), birds foot trefoil (*Lotus corniculatus*), soft rush (*Juncus effusus*) and common knapweed (*Centaurea nigra*).



Hedgerow

There are two areas of hedgerow present to the west of the site. The sections are mature and largely intact. Dominated by hawthorn (*Crataegus monogyna*) and occasional elder (*Sambucus nigra*) and blackthorn (*Prunus spinosa*).



Plantation

There are a number of immature broadleaf plantations within the wider site. The trees are approximately 3m in height and well-sealed, supporting a negligible risk for roosting bats. The following tree species were recorded cherry (*Prunus* sp.), pedunculate oak (*Quercus robur*), silver birch (*Betula pendula*), alder (*Alnus glutinosa*) and holly (*Ilex aquifolium*) and blackthorn (*Prunus spinosa*).



Scattered Scrub

Area of immature scattered scrub are present within the grassland. Species present include willow (*Salix* sp), silver birch *Betula pendula*, broom (*Cytisus scoparius*) and gorse (*Ulex europaeus*).



Target Notes

TN1 – A large flooded pond, within 100m of the proposed turbine location. From the aerial photos, it is apparent that there are at least three separate ponds within this area, though at the time of survey the area was heavily flooded. The ponded area is fringed by a dense area of willow scrub. From the aerial imagery, the layouts of the ponds indicate that this area has been created as a mitigation area for great crested newts.



TN2 – Piles of large boulders above the flooded area, likely placed to form hibernacula structures as part of an area of habitat creation.



TN3 – A small section of historic amphibian fencing, the vast majority of which is overgrown or absent.



TN4 – A small pond, likely created as part of an historic habitat creation area. The pond is edged by a small area of willow regeneration.



TN5 – Three large shallow ponds, approximately 150m from the proposed turbine location, supporting very limited aquatic vegetation. The ponds support no bankside vegetation and are very exposed. A number of mallard were recorded within these ponds during the survey.



TN6 – Powerlines running along the edge of the arable fields.



TN7 – A large circular pond to the approximately 400m to the north west of the proposed turbine location approximately 15m x 15m. The pond was fringed by common reed (*Phragmites australis*) and greater reedmace (*Typha latifolia*). This water body is linked to adjacent large water bodies by a wet ditch.



TN8 – Three large flooded water bodies 400m to the north of the proposed turbine location. The water bodies support very limited vegetation, though supported moderate numbers of wintering wildfowl. The water bodies were surrounded by wet grassland that at the time of survey supported a small flock of wintering lapwing.



C7.2 Protected Species Results and Assessment

Badger

Habitats within the site boundary provide foraging habitat for badgers. It is likely that badgers are present within the local area, although consultation identified no recent records, and it is possible that they may forage within the site at times from setts in the wider area.

Bats

There are no suitable roost locations within 250m of the proposed turbine location. The hedgerows and ditches around the western extremities of the site and throughout the local area provide potential commuting routes and may link areas of better quality habitat, such as the larger areas of wetland to the north. The buffer between the turbine tip and features that may be used by bats will be greater than 50m, in line with Natural England guidance⁵.

Woodland, hedgerow and open water habitats provide good foraging opportunities for bats, however the open nature of the site is likely to limit the diversity and abundance of bats in the area and it is therefore considered that the proposed development will have no significant effects at a population level. The grassland within which it is proposed to locate the turbine is open and exposed and will provide only low value foraging habitat.

Great crested newts

There are a number of water bodies in the wider area suitable for this species. Consultation identified records of this species within the ponds less than 100m to the west of the proposed turbine location. Great crested newt surveys have been undertaken between April and June 2013. All details can be found within the separate great crested newt survey report.

Otter

There are a number of water bodies in the wider area that may be used at times by otter. The habitats within which it is proposed to locate the turbine and access track is considered unsuitable for this species and as such they are considered absent from the site.

⁵ Natural England Technical Information Note TIN059 Bats and single large wind turbines; Joint Agencies interim guidance

Water Vole

No evidence indicating the presence of water vole was recorded during phase 1 survey. There is a low risk that this species is using the water bodies in the wider area, however the habitats within which it is proposed to locate the turbine and access track are considered unsuitable for this species and as such they are considered absent from the site.

Reptiles

Habitats on the edges of the site are potentially suitable for supporting small numbers of reptiles, with tall ruderal/coarse grassland, scrub, ditches and hedgerow providing a range of foraging, cover and basking opportunities.

Due to the nature of the proposed development field and given the small development footprint and the nature of the habitats to be directly affected, the risk of works harming or disturbing reptiles is concluded to be negligible.

Other

Brown hare and hedgehog (both UK BAP species) are likely to utilise the site, though will be unaffected by the proposed development.

Birds

The proposed development area and adjacent land are likely to support an urban/farmland assemblage typical to the area and habitats present. The water bodies in the wider area are likely to attract a range of wintering wildfowl species, with a number recorded during the survey.

During the walkover survey, a total of 20 species were recorded from either the proposed development site, or the immediate area. These species were: carrion crow, kestrel, red legged partridge, mallard, woodpigeon, skylark, lapwing, lesser redpoll, wigeon, magpie, dunnoek, blue tit, blackbird, greenfinch, grey partridge, starling, gadwall, grey heron, pied wagtail and green woodpecker.

The nature of the site is likely to limit the breeding assemblage to ground nesting species such as skylark and grey partridge.

In terms of species at an elevated risk of collision with turbines the wider area is also likely to support a range of common raptors, including kestrel, buzzard and sparrowhawk and potentially scarcer raptors such as red kite and peregrine that may pass over the site less frequently. In addition, barn owl and occasionally short eared owl may forage over the site at times. None of the habitats within the development area will support the breeding of any of these species.

The ponds and waterbodies within the wider area are likely to support a range of wildfowl species in moderate numbers throughout the winter. The ponds closest to the proposed turbine location may be frequented on occasion, though it is considered that the larger ponds to the north are more suitable and will be frequented in greater numbers, in part due to the fact that there was evidence of the wildfowl being fed.

Geese and swans may pass through the wider area during migratory times of year however such movements are likely to be at a much greater height than the proposed turbine. From a review of the wider landscape, the area within which it is proposed to locate the turbine does not lie on an obvious flightline between roosting and/or feeding area and the nature of the site is likely to preclude it from providing a winter foraging resource.

The table below provides a full list of species that would be expected to occur either on site or within the immediate surrounding area.

Species	Recorded during survey (S) or through risk assessment (RA):		
	Status on study site/immediate area	S	RA
Kestrel	Non-breeding resident, hunting within the site	✓	
Red Kite	Non-breeding resident, foraging within the site		✓
Buzzard	Non-breeding resident, foraging within the site		✓
Sparrowhawk	Non-breeding resident, hunting within the site		✓
Peregrine	Non-breeding resident, foraging over the site		✓
Barn Owl	Non-breeding resident, foraging within the site		✓
Short Eared Owl	Non-breeding resident, occasional foraging within the site		✓
Redshank	Passage bird, utilising water bodies to the north		✓
Whooper Swan	Passage bird autumn and spring		✓
Mute Swan	Potential breeder on water bodies to the north.		✓
Pink Footed Goose	Passage bird autumn and spring		✓
Canada Goose	Feral population		✓
Goosander	Winter Foraging utilising water bodies to the north		✓
Teal	Winter Foraging utilising water bodies to the north		✓
Mallard	Winter Foraging, breeding resident	✓	
Gadwall	Winter Foraging utilising water bodies to the north	✓	
Wigeon	Winter Foraging utilising water bodies to the north	✓	
Tufted Duck	Winter Foraging, breeding resident		✓
Grey Heron	Breeding resident	✓	
Lapwing	Winter foraging around water bodies, passage bird autumn and spring and potential breeder to the north	✓	
Swift	Non-breeding summer visitor, feeding over the site		✓
Swallow	Non-breeding summer visitor, feeding over the site		✓
House Martin	Non-breeding summer visitor, feeding over the site		✓
Sand Martin	Non-breeding summer visitor, feeding over the site		✓
Carrion Crow	Breeding resident	✓	
Rook	Breeding resident		✓
Jackdaw	Breeding resident		✓
Magpie	Breeding resident	✓	
House Sparrow	Breeding resident within hedges		✓
Yellowhammer	Breeding resident within hedges		✓
Blackbird	Breeding resident within hedges		✓
Linnet	Breeding resident within hedges		✓
Woodpigeon	Breeding resident within hedges	✓	
Collard Dove	Breeding resident within hedges		✓
Whitethroat	Summer breeder within hedges		✓
Dunnock	Breeding resident, within hedges	✓	
Great Tit	Breeding resident		✓
Blue Tit	Breeding resident	✓	
Wren	Breeding resident, within hedges		✓
Robin	Breeding resident, within hedges		✓
Fieldfare	Winter flocks foraging within hedges		✓
Redwing	Winter flocks foraging within hedges		✓
Black headed gull	Non-breeding resident, foraging		✓
Herring Gull	Non-breeding resident		✓
Greater Black Backed Gull	Non-breeding resident		✓
Lesser Black Backed Gull	Non-breeding bird		✓
Common Gull	Non-breeding resident		✓
Grey Partridge	Breeding resident within field margins	✓	
Red Legged Partridge	Breeding resident within field margins	✓	
Starling	Breeding resident within hedges	✓	
Pied Wagtail	Breeding resident	✓	

Species	Recorded during survey (S) or through risk assessment (RA):		
	Status on study site/immediate area	S	RA
Lesser Redpoll	Overflying site	✓	
Chaffinch	Breeding resident within hedges		✓
Greenfinch	Breeding resident within hedges	✓	
Goldfinch	Breeding resident within hedges		✓
Reed Bunting	Breeding resident within fields		✓
Green Woodpecker	Breeding locally	✓	
Skylark	Possible summer breeder within site	✓	
Meadow Pipit	Possible summer breeder within site		✓

D CONCLUSIONS AND RECOMMENDATIONS

D1 Habitat Assessment

- The proposed development site is of up to parish ecological value. The grassland within the site is moderately diverse and provides a large area of open space/amenity land.
- The hedgerow and areas of standing water outwith the site provide habitats of parish value, but will not be affected by the proposed works.

D2 Protected Species Assessment

- The site is exposed and most likely used at only a very low level by foraging bats.
- Hedgerow in the wider area are likely to be used by bats as commuting routes between local plantations, water bodies and woodland, the risk of affecting this taxa is very low.
- Badgers are most likely present in the surrounding area and may forage within the proposed development area at times. The risk of harming or disturbing this species is considered to be low.
- Great crested newts were highlighted as being present within the nearest water body. This species is dealt with in a separate report.
- Reptiles are likely to be present within the area in low numbers. As the development is to be sited within an arable field with low levels of disturbance and existing access tracks being utilised, the risk of harming this taxa is considered to be negligible.
- Water vole and otter are considered absent from the proposed development site.

D3 Ornithological Assessment

The table below highlights the conservation importance of the bird populations likely to be present on or adjacent to the site.

Conservation importance of bird populations							
Species	Annex 1	Schedule 1	UK BAP	Species	Annex 1	Schedule 1	UK BAP
Kestrel				Yellowhammer			✓
Red Kite		✓		Blackbird			
Buzzard				Linnet			✓

Sparrowhawk				Woodpigeon			
Peregrine	✓	✓		Collard Dove			
Barn Owl		✓		Whitethroat			
Short Eared Owl	✓			Dunnoek			
Redshank				Great Tit			
Whooper Swan	✓	✓		Blue Tit			
Mute Swan				Wren			
Pink Footed Goose				Robin			
Canada Goose				Fieldfare		✓	
Goosander				Redwing		✓	
Teal				Black headed gull			
Mallard				Herring Gull			✓
Gadwall				Greater Black Backed Gull			
Wigeon				Lesser Black Backed Gull			
Tufted Duck				Common Gull			
Grey Heron				Grey Partridge			✓
Pied Wagtail				Red Legged Partridge			
Lapwing			✓	Starling			✓
Swift				Greenfinch			
Swallow				Lesser Redpoll			✓
House Martin				Chaffinch			
Sand Martin				Goldfinch			
Carrion Crow				Reed Bunting			✓
Rook				Green Woodpecker			
Jackdaw				Skylark			✓
Magpie				Meadow Pipit			
House Sparrow			✓				

Notes:

1. Red List Species are listed by the RSPB as species of high national conservation concern.
2. Amber List species are listed by the RSPB as species of medium national conservation concern⁶

The proposed development site, inclusive of immediately adjacent habitat, is considered to be of **low** ornithological value for both its breeding and wintering population as it makes up a small proportion of the broader area, an area dominated by similar open habitats that appear well used by dog walkers.

The number of birds nesting within the development footprint is likely to be low and limited to individual pairs of skylark, meadow pipit and grey partridge. Nesting opportunities are more abundant within the hedgerow and scrub outwith the survey area.

The Annex 1 and Schedule 1 species highlighted within the risk assessment are in general raptors or wintering species that may on occasion forage within the vicinity of the site. It is considered unlikely that any of these species will breed within this area and as such, impacts on local populations are considered unlikely.

The wider site will support a range of birds typically found on an urban fringe/farmland site such as this. However, due to the small footprint of the proposed development and the habitat currently present, numbers potentially displaced will be negligible.

⁶ Eaton MA, Brown AF, Noble DG, Musgrove AJ, Hearn R, Aebischer NJ, Gibbons DW, Evans A and Gregory RD. 2009. Birds of Conservation Concern 3: the population status of birds in the United Kingdom, Channel Islands and the Isle of Man. British Birds 102: 296-341.

It is likely that wildfowl will utilise the water bodies to the north in moderate numbers throughout the wintering period and will likely move between these and other areas of standing water in the wider area. These water bodies are approximately 400m to the north of the proposed turbine location. The areas of standing water closer to the turbine are more exposed and are likely to be used less frequently. Given the distance from these features and the fact that the development comprises a single turbine it is considered that the risk of proposals having any significant affect on populations is minimal.

D4 Impact Assessment

Potential impacts of the development in order of conservation significance are:

Temporary Disturbance (Construction Period)

Construction works will cause short-term disturbance of the development area and this is likely to have a minor short-term impact on wildlife using the site and adjacent land.

Given the nature of the site, this is likely to be limited to the following:

- Loss of a limited area of habitat of up to parish ecological value.
- Disturbance and displacement/harm of very small numbers of nesting, foraging and/or loafing birds, species typical of arable land and hedgerow habitat.

However, given the limited construction footprint and extent of similar habitat in the surrounding landscape it is not considered that the above disturbance and displacement would have a significant impact on local populations.

Operational Impacts (Long term)

Wildfowl and raptors are the key bird groups considered at particular risk of collision with operational turbines.

Due to their small numbers and their role as keystone predators, raptor populations are especially vulnerable to losses. Although such species are known to inhabit the wider area, the surrounding habitat provides limited suitable nesting opportunities for these raptors to breed. This combined with the fact that the sites feeding opportunities are limited mean that activity levels through the site will be at a low level.

Although wildfowl utilise the wider area in winter, with moderate numbers present on the water bodies to the north, the distance from these features is considered great enough to prevent any significant impact.

The potential impacts on local bird populations through collisions are limited by the scale of the development, with only a single turbine representing an easy target to avoid. As such, no impacts significant at a population level are predicted.

Site design has ensured a 50m buffer is maintained between the turbine blade tips and the areas of woodland and hedgerows present. This, combined with the lack of potential bat roost sites in the vicinity of the proposed turbine (man-made structures or mature trees) and the location within an area of exposed grassland, leads to the conclusion that the risk of potential long term impacts on local bat populations of the operational turbine through direct collision mortality and indirect effects such as barotrauma is likely to be low.

Pipistrelle bats are the most likely species to be found foraging within an area such as this open arable land, albeit at low levels, and both common and soprano pipistrelles are common within this area of Yorkshire. These species are classed by

Natural England as populations with only a low risk of being threatened due to impacts from wind turbines⁷.

D5 Mitigation Requirements

The following elements of mitigation will be incorporated into the proposed development:

- Any required vegetation clearance works to be undertaken outwith the bird nesting season (March to August inclusive), unless a checking survey by an appropriately qualified ornithologist confirms that active nests are absent.
- Any excavations that are left overnight will include a ramp of 45° or less on one face to allow badgers and other wildlife to climb out should they fall into the excavation.
- Specific great crested newt mitigation can be found within the 2013 GCN survey report.

If there are any changes to development or site access E3 Ecology Ltd will be made aware and further survey may be required.

D6 Additional Survey Recommendations

Bats

Site design and turbine location has primarily followed Natural England recommendations, ensuring a buffer of at least 50m between the blade tip and all potential roost sites and key features such as woodland edge and hedgerow habitat. As such, **no further survey with regard to bats is currently proposed.**

Great Crested Newt

Survey was undertaken in 2013. Please see separate report for recommendations.

Water Vole and Otter

Both species are considered absent from the development site and as such **no further survey would be recommended.**

Reptiles

Due to the limited suitable habitat within the development footprint and given the limited construction footprint and the fact that habitat loss is limited the risk of harming reptiles during works is concluded to be very low. As such, **no further survey with regard to reptiles is currently proposed.**

Birds

The survey area is concluded to be of low ornithological value and given the small scale of the proposed development the risk of proposals impacting on local populations or key species is concluded to be negligible. **Further survey is therefore not considered necessary though it is recommended that consultation is undertaken with Natural England and the RSPB.**

⁷ Natural England Technical Information Note TIN059 Bats and single large wind turbines; Joint Agencies interim guidance

Badger

Although the habitats within the site boundary provide suitable foraging habitat for badgers there is no suitable habitat for sett creation on site or within 30m of the proposed development. **No further survey is considered necessary.**