

NETTLEHAM ROAD, SCOTHERN

Preliminary Ecological Appraisal Report (PEAR)



Client:

Lindum Group Ltd

Report Reference:

RSE_7687_R1_V2_PEAR

Issue Date:

March 2024

PROJECT

Client: Lindum Group Ltd

Project: Nettleham Road, Scothern

Reference RSE_7687_R1_V2_PEAR

Report Title Preliminary Ecological Appraisal Report

DOCUMENT CONTROL

Originated: **MH** Assistant Ecologist 19/03/2024

Technical Reviewed: **NW** Ecologist 26/02/2024

Approved for Issue: **NS** BSc MSc CEcol MCIEEM Director 12/03/2024

Issued: **BG** Ecologist 26/03/2024

Revisions: **BG** Ecologist 26/03/2024

East Midlands | West Midlands | Yorkshire

☎ 0115 930 2493 | 📧 @rammsanderson | 🌐 info@rammsanderson.com | 🌐 rammsanderson.com

DISCLOSURE:

The information provided within this report has been prepared and provided as true and in accordance with the Chartered Institute of Ecology and Environmental Management's (CIEEM) Code of Professional Conduct. It is intended for the sole use of the Client and their agents in accordance with the agreement under which our services were performed. Unauthorised communication, reproduction or usage of this report by any party other than the aforementioned is prohibited. No warranty, express or implied, is made as to the advice in this report or any other service provided by RammSanderson Ecology Ltd. This report has been prepared by an ecological specialist and does not purport to provide legal advice. RammSanderson is a trading name of RammSanderson Ecology Limited, as registered in England & Wales (Company No.: 8999992).



EXECUTIVE SUMMARY

RammSanderson Ecology Ltd were commissioned by Lindum Group Ltd to undertake a Preliminary Ecological Appraisal to assess the potential ecological constraints to the proposed residential development of 49 units with associated access route, landscape buffer and attenuation basin (hereafter referred to as the Scheme), located off Nettleham Road in Scothern, Lincolnshire.

- ii The land within the Scheme Boundary (hereafter referred to as the Site) is 2.7 ha in size and comprised other neutral grassland, cropland, hedgerows, line of trees, ditches, and fences.

Ecological Feature	Potential to be affected by the Scheme	Further Surveys, Assessment or Mitigation Recommended?
Habitats	Hedgerows to be partially removed to facilitate access. Loss of grassland, which might be of some ecological value. Cotoneaster sp. present on Site which may be invasive. Scrub habitat visible on aerial imagery had been cleared prior to the survey, reportedly by the previous landowner.	Retention of a priority hedgerow (H1) and trees where possible. Replace lost hedgerows at rate of 2:1. Grassland on Site to be condition assessed in floristic season with an updated botanical survey. Biodiversity Impact Assessment to be conducted. Avoidance of cotoneaster area.
Badger	No evidence for badgers was found during the survey. However, habitats on Site with potential for foraging and commuting badgers.	Pre-commencement walkover within 6 months of construction commencement. Best practice for mammals to be followed during construction.
Bats	Yes – Moderate suitability foraging habitats and potential flight-paths on Site. Trees along the eastern boundary might have bat roosting potential.	Ground Level Tree Assessment recommended if trees are being impacted directly or within 10m of construction works. Where night work is necessary and during operational phase of development, sensitive lighting strategy should be in place. Site enhancement through bat box installation.
Great Crested Newt	If ditches on Site are wet during Great Crested Newt (GCN) breeding season, there is potential for GCN to use them. Rough grassland and hedgerows are suitable for terrestrial phase GCN and there are 15 waterbodies within 500m of the Site	Habitat Suitability Index of waterbodies within 500m. eDNA survey to determine presence/likely absence of GCN within waterbodies, followed by a suite of further survey to determine population size class if GCN present.

Ecological Feature	Potential to be affected by the Scheme	Further Surveys, Assessment or Mitigation Recommended?
Reptiles	Risk of injuring or killing traversing individuals.	Pre-commencement check by an ecologist immediately prior to works (24hrs). Precautionary Method of Works should be followed including phased vegetation removal during clearance works.
Birds	Risk of damage, destruction, or disturbance of active nests during Site clearance. Impact upon breeding population as a result of habitat loss.	Further barn owl survey. Further breeding bird survey. Tree felling/vegetation clearance should be conducted outside core nesting season or inspected by an ecologist prior to clearance, where this is not possible. Site enhancement through bird box installation.
Terrestrial Invertebrates	A net gain in local biodiversity will be sought through implementation of the Scheme which will positively affect terrestrial invertebrates.	Creation of wildflower meadows. Creation of insect house.
Other Notable Species	Habitats on Site suitable for hedgehog, common toad, and brown hare.	Precautionary measures during construction. Creation of hedgehog house.

CONTENTS

EXECUTIVE SUMMARY		3
1 INTRODUCTION		6
2 BASELINE CONDITIONS, CONSTRAINTS AND RECOMMENDATIONS		8
3 OPPORTUNITIES FOR ENHANCEMENTS		20
4 CONCLUSION		21
5 FIGURES		22
6 REFERENCES		28

FIGURES

FIGURE 1: SITE LOCATION AND CONTEXT PLAN	22
FIGURE 2: UK HABITAT PLAN	23
FIGURE 3: WATERBODY PLAN	24
FIGURE 4: CLIENT PLAN	25
FIGURE 5: IBSTOCK SWIFT ECO HABITAT	26
FIGURE 6: 1B SCHWEGLER BIRD NEST BOX	26
FIGURE 7: VIVARA WOODSTONE BAT BOX	26
FIGURE 8: HH7 HOGILO HEDGEHOG HOUSE	27
FIGURE 9: NATIONAL TRUST HEXAGON INSECT HOUSE	27
FIGURE 10: IBSTOCK ENCLOSED BAT BOX 'C'	27

TABLES

TABLE 1: NOTABLE HABITATS AND PROTECTED AND NOTABLE FLORA WITHIN STUDY AREA	8
TABLE 2: HABITATS WITHIN SURVEY AREA	10
TABLE 3: SUMMARY OF FEATURES WITH POTENTIAL TO SUPPORT GREAT CRESTED NEWT	16
TABLE 4: SUMMARY OF RECOMMENDATIONS	21

APPENDICES

APPENDIX 1: RELEVANT LEGISLATION AND PLANNING POLICY	29
APPENDIX 2: METHODOLOGY	34

1 INTRODUCTION

1.1 Terms of Reference

RammSanderson Ecology Ltd (RS) were commissioned by Lindum Group Ltd to undertake a Preliminary Ecological Appraisal (PEA) to assess the potential ecological constraints to the proposed residential development (hereafter referred to as the Scheme), located to the east of Nettleham Road in Scothern, Lincolnshire. All land situated within the red line of the Scheme is hereafter referred to as the Site and is shown on Figure 1.

- ii The PEA has been undertaken with reference to current good practice¹ and forms part of the technical information commissioned by Lindum Group Ltd in connection with the Scheme. The results of the PEA are presented in this PEA report (PEAR), which addresses relevant wildlife legislation and planning policy as summarised in Appendix 1. The PEAR is consistent with the requirements of British Standard 42020:2013 *Biodiversity. Code of Practice for Planning and Development*.
- iii This PEAR is intended for advice in respect of Scheme design, site layout and / or site investigation. Further ecological surveys and / or ecological impact assessment (including detailed mitigation measures) may be required in connection with a planning application or to contribute to an Environmental Impact Assessment once the Scheme proposals have been finalised and any required surveys have been completed.

1.2 The Scheme

The Scheme plans to provide 49 new dwellings with gardens in the village of Scothern in the West Lindsey district of Lincolnshire. This residential development is allocated in the Central Lincolnshire Local Plan (ref: WL/SC/004A) and it is supported by The Scothern Neighbourhood Plan (Scothern Parish Council 2023) in line with Policy H4. The Neighbourhood Plan seeks to deliver a mix of housing types that meet the requirements of the current and future population. The proposals for the Scheme are designed to be in line with the local and rural context.

- ii The Site's topography falls southwest to northeast. The vehicular access to the Site is proposed to be from Nettleham Road. Pedestrian access will be provided in the form of footpath links to the north, east and south to adjoin the existing Public Right of Ways.
- iii Hedgerows on Site are to be retained where possible and removed for access only. A landscape buffer is planned along the southern Site boundary and a pond to be located in the northeast corner of the Site.

1.3 The Site

The Site is located in the village of Scothern, approximately 5km northeast of Lincoln, at Ordnance Survey national grid reference TF 03179 77147 and is approximately 2.7 ha in size.

- ii The Site comprises grassland with scattered scrub, cropland, hedgerows, line of trees, ditches, and a fence. Scrub habitat visible on aerial imagery had been cleared prior to the survey, reportedly by the previous landowner before acquisition by Lindum Group. The Site is bounded by a residential area to the north and east, with arable fields to the south and Nettleham Road along the western boundary. The wider area consists of arable fields and agricultural land.

¹CIEEM (2017). Guidelines for Preliminary Ecological Appraisal, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester.

1.4 Scope of the Preliminary Ecological Appraisal

This PEAR presents ecological information obtained during the following:

- A desk-study undertaken on 02/02/2024 to obtain records of designated sites, notable habitats² and protected and notable species³ up to 1 km of the Site (the area covered by the desk study is hereafter referred to as the Study Area); and,
 - A walkover survey of accessible land within the Site (the area covered by the survey is hereafter referred to as the Survey Area) on 16/01/2024.
- ii The purpose of the PEAR is to provide a high-level ecological appraisal of the Site, specifically to:
- establish baseline conditions and determine the presence of Important Ecological Features (IEF)⁴ (or those that could be present), as far as is possible;
 - to identify potential ecological constraints to the Scheme and make initial recommendations to avoid impacts on IEFs, where possible;
 - to identify requirements for mitigation, where possible, including mitigation measures that will be required and those that may be required (depending on results of further surveys or final scheme design);
 - to establish any requirements for more detailed surveys; and,
 - to identify any opportunities offered by the Scheme to deliver biodiversity enhancements.
- iii The methodology followed for undertaking the desk study and field surveys is detailed in Appendix 2.

² Notable habitats are taken as principal habitats for the conservation of biodiversity listed under Section 41 of the Natural Environment and Rural Communities Act 2006; habitats listed under the Lincolnshire Biodiversity Action Plan (BAP); hedgerows identified as being 'important' under the wildlife criteria of the Hedgerow Regulations 1997, ancient woodlands and veteran trees.

³ Notable species are taken as principal species for the conservation of biodiversity listed under Section 41 of the Natural Environment and Rural Communities Act 2006; any species listed in an IUCN Red Data Book; and any other species listed under the Lincolnshire Biodiversity Action Plan.

⁴ Important Ecological Features are habitats, species, ecosystems and their functions and processes that are of conservation importance and could potentially be affected by the Scheme.

2 BASELINE CONDITIONS, CONSTRAINTS AND RECOMMENDATIONS

2.1 Surveyor Competence

The walkover survey was conducted by Nicky Woods BSc (Hons) MRes. She has been a professional ecologist for the past four years. She holds a Field Identification Skills Certificate (FISC) Level 3 and has the required competencies (Chartered Institute of Ecology and Environmental Management) to undertake this type of survey.

2.2 Limitations to the Assessment

General limitations to undertaking desk and field-based assessments are provided in Appendix 2. Specific limitations to the assessment are detailed below:

- The survey was undertaken outside the floristic season (April – September). Furthermore, large areas of grassland were flooded and frozen during the survey. As such, plant species may have been under recorded which could alter the classification of certain habitat types, particularly grassland.

2.3 Designated Sites

2.3.1 Desk Study

There are no designated Sites within the Study Area.

2.3.2 Constraints and Recommendations

There are no constraints to the future development of the Site since there are no designated sites within the Zone of Influence.

2.4 Habitats

2.4.1 Desk Study

Table 1 summarises the records of notable habitats and protected or notable flora⁵ (including veteran trees⁶) within the Study Area.

Table 1: Notable Habitats and Protected and Notable Flora within Study Area

Habitat/ Flora Feature	Reason for Conservation Interest	Location ⁷
Deciduous woodland	Priority habitat	0.7 km SE
	Local biodiversity action plan habitat	0.8km SE
		0.8km SE
		0.9km S
		1km S

⁵ For this assessment 'flora' includes vascular and non-vascular plants, fungi and lichens.

⁶ For this assessment the definition of a veteran tree is taken from Annex 2 of the National Planning Policy Framework (glossary): "A tree which, because of its great age, size or condition is of exceptional value for wildlife, in the landscape, or culturally."

⁷ Where features are situated outside of the Site boundary, the distance and direction is given at the closest point of the designated site from the Site



Habitat/ Flora Feature	Reason for Conservation Interest	Location ⁷
No main habitat but additional habitat present	Partly listed as Deciduous woodland)	0.9km S



2.4.2 Field Survey



Summary descriptions of the habitats within the Survey Area are provided below in Table 2 and shown on Figure 2, with specific features highlighted by TNs.


- ii Habitat types detailed are listed in order of the UKHabitat Survey Handbook (UKHab Ltd, 2023). The species list provided in this report reflect only those taxa observed during the survey and are not an exhaustive list of all species that may be present, as the survey only provides a snapshot of the Site.

Table 2: Habitats within Survey Area

Habitat	Description	Area (m ²)	Proportion of site (%)	Ecological Importance & Outcome of Proposal	Photograph
c1c5 Winter stubble	The southwestern section of the Site comprised of arable crops left in the ground over winter after harvesting.	3723	13.76	Ecologically important for breeding birds, and traversing mammals and herptiles. To be lost within proposals.	
g3c 10, 14, 504 Other neutral grassland	<p>The majority of the Site comprised other neutral grassland, with scattered scrub and scattered rushes. It had been recently cleared of scrub and small trees by the previous landowner. Stubble from cleared vegetation was abundant with areas of sawdust noted.</p> <p>Species included perennial ryegrass, meadow-grass sp., couch grass, cock's-foot, false oatgrass, creeping buttercup, cleavers, common daisy, garlic mustard, creeping thistle, dandelion, cow parsley, dock, ragwort, square stalked willowherb, , bramble, bristly oxtongue, rosebay willowherb, common nettle, cranesbill, burdock, hogweed, common ivy, forget-me-not, bitter cress, ribwort plantain, and cinquefoil. There were areas of locally dominant tall forbs around Site peripheries and areas of locally abundant rushes throughout the grassland.</p> <p>This grassland had areas of standing water present, which were frozen in places. Flooding was</p>	23326	86.24	<p>Some ecological value for commuting and foraging mammals, herptiles, breeding birds, and foraging invertebrates.</p> <p>Due to the survey being carried out outside of floristic season, this grassland could contain more species, which would result in different habitat classification.</p> <p>To be lost within the Scheme.</p>	

Habitat	Description	Area (m ²)	Proportion of site (%)	Ecological Importance & Outcome of Proposal	Photograph
	reported in the area just prior to the survey so the grassland likely gets waterlogged seasonal only.				
h2a6 11, 50 Other native hedgerow with trees	<p>H1 (2m high x 1.5m wide) was present along the western boundary, with a ditch on the roadside, which was wet in places and overgrown with vegetation.</p> <p>Dominated by hawthorn and blackthorn, species included occasional privet and ash.</p> <p>Ground flora contained frequently observed bramble and nettle, and abundant rose, ivy, and cleavers.</p> <p>Six standard ash trees were also present within this hedgerow.</p>	99m	N/A	<p>Priority habitat.</p> <p>Has ecological value for a range of fauna including invertebrates, small mammals, birds and bats. Majority of boundary hedgerows likely to be retained. Some loss anticipated to facilitate access.</p>	
h2b 50 Non-native and ornamental hedgerow	<p>H2 (2m x 1m) with a dry ditch was present along the half length of the northern boundary, dominated by hawthorn and Buddleja. Occasionally observed was blackthorn, with abundant bramble and frequent ivy.</p>	121m	N/A	<p>Non-priority habitat. Some ecological value to nesting birds. May provide shelter for common herptiles and small mammals.</p> <p>Likely to be retained within proposals.</p>	

Habitat	Description	Area (m ²)	Proportion of site (%)	Ecological Importance & Outcome of Proposal	Photograph
h2b Non-native and ornamental hedgerow	<p>H3 (1.5m high x 1m wide) was present along the half length of the eastern boundary and had signs of being cut back recently. This hedgerow was dominated by cotoneaster sp., with occasionally observed hawthorn, frequent bramble, and abundant nettle.</p> <p>TN1: water feature heard in the vicinity of this hedgerow. A bridge present to the north of this hedgerow.</p> <p>TN2: cotoneaster sp. within this hedgerow, which might be invasive</p>			Some ecological value to nesting birds. May provide shelter for common herptiles and small mammals. Likely to be retained within proposals.	
w1 33, 50 Line of Trees 1	A line of immature trees with gaps was present along the half length of the northern boundary. A ditch was present along the treeline. Willow was a dominating species, with occasional sycamore and a scrub layer comprised of Buddleja.	167m (combined total for lines of trees)	N/A	Ecological value for nesting birds. Likely to be retained within proposals.	

Habitat	Description	Area (m ²)	Proportion of site (%)	Ecological Importance & Outcome of Proposal	Photograph
w1 33, 50 Line of trees 2	A line of trees with a wet ditch was present along 1/3 of the length of the eastern boundary. Water in the ditch was 50-80cm deep, but that was most likely due to recent flooding. The treeline was dominated by willow, with occasional hawthorn and ash. Shrub layer consisted of abundant bramble and nettle, and rarely observed cherry laurel. The trees to the south of the 15m gap with stumps were mature and had evidence of recent management.	167m (combined total for lines of trees)	N/A	Ecological value to nesting birds and potentially roosting bats. Shrub layer may provide shelter for common reptile species and breeding GCN. Most likely to be retained within proposals.	

2.4.1 Constraints and Recommendations

- A large part of the Site comprised other neutral grassland with scattered scrub.
- ii A hedgerow along the western boundary (H1) was found to be a priority habitat and should be prioritised for retention within proposals as far as possible. If retained, Root Protection Zone of this hedgerow, as well as the trees on Site, should be identified and a fence should then be installed to avoid indirectly or directly impacting the hedgerow or trees during the construction phase. Hedgerows that are to be lost within the proposals should be replaced at a rate of 2:1 using native species.
 - iii Cotoneaster sp. was identified within the hedgerow along the western boundary (H3). This species might be listed on Schedule 9 of Wildlife and Countryside act (1981) (as amended) as an invasive species. This area should be avoided during construction. Where this is not possible, measures should be implemented to reduce the risk of its spread during construction.
 - iv It is recommended that current Pollution Prevention Guidance (CIRIA, 2014) is adhered to, in order to reduce the risk of accidental pollution to onsite retained habitats and off-site habitats, such as ditches.
 - v The initial survey was conducted outside of the optimal season for botanical assessment (April – September). As such, plant species may have been under recorded which could alter the classification of certain habitat types, such as other neutral grassland. This habitat would benefit from an updated botanical survey within the floristic season (ideally May – August) and an updated condition assessment.
 - vi It is recommended that a Biodiversity Impact Assessment is undertaken of the Site to ascertain if a net loss in habitat/hedgerow units may occur. This will also inform habitat compensation and/or enhancement provisions.
 - vii No impacts are anticipated on local priority habitats in the Study Area due to the distance and intervening development between the Site and these habitats.

2.5 Badger

2.5.1 Desk Study

There are no recent records of badger within the Study Area.

2.5.2 Field Survey

No field signs of badger were found during the survey. However, the habitats on Site, such as grassland and cropland did provide opportunities for foraging and sett building badgers. The Site is also connected to the wider landscape, which comprised arable fields and blocks of woodland.

2.5.3 Constraints and Recommendations

There is potential a foraging or traversing badger is present on Site during the works. Therefore, it is recommended that a pre-commencement walkover is carried out within six months of the works on Site to be commenced to check for any newly excavated badger setts.

- ii It is also recommended that best practice guidelines are implemented to ensure transient badgers are not negatively impacted by the works. These precautions are:
 - Mammal ladders (such as a plank) or earth ramps to be placed in any open excavations at the end of each day to prevent animals from becoming trapped;
 - Cap off any open pipes at the end of each day;
 - Keep all fuel and other harmful substances in a locked area;
 - Ensure any spillages are treated with spill kits;
 - Night work should be avoided where possible, and any flood lighting should face away from the site boundaries; and
 - If any fresh sett digging is observed notify an ecologist immediately and leave a 30m buffer around the area until an assessment can be made.

2.6 Bats

2.6.1 Desk Study

There are four recent records of bats within the Study Area. The closest/ most relevant of these records is of an unidentified bat species associated with residential houses approximately 20m east from the Site boundary.

2.6.2 Field Survey

It must be noted that a full Ground Level Tree Assessment (GLTA) was not within the scope of the survey. The trees by the eastern boundary and within H1, however, were noted to have features, such as large cavities, that bats could use for roosting.

- ii The habitats on Site were of moderate quality (BCT, 2023) to support commuting and foraging bats. Hedgerows and trees on Site are good foraging features, as well as linear features for commuting bats. These habitats also connect to the wider landscape and adjacent back gardens.

2.6.3 Constraints and Recommendations

The mature trees on Site will need to be assessed further, if they are to be impacted directly (removed, pruned, delimbed) or construction works are to be conducted within 10m of these trees, unless these trees can be retained and a buffer around them is maintained. If this is not possible, GLTA is recommended to identify the potential for roosting bats within these trees. Should any trees with at least one PRF be identified, and it is suitable for individual bats or very small numbers of bats either due to size or lack of suitable surrounding habitats (PRF-I), no further surveys are required and a PMW for works should be provided. If a PRF is suitable for multiple bats (PRF-M) and may be used by a maternity colony, PRF inspection surveys for these features in summer are required, including three separate dusk emergence survey visits, spaced at least three weeks apart. Where features are inaccessible or too extensive for PRF inspection, emergence surveys in summer will be required (BCT, 2023). GLTAs can be conducted at any time of year, with the subsequent aerial/nocturnal surveys conducted between May and September inclusively.

- ii If boundary hedgerows with trees are to be largely retained, no further activity surveys due to moderate quality foraging habitat on Site are necessary. If the Scheme proposals change to require removal of large portions of hedgerows or removal of trees, further bat activity surveys might be required, such as a night-time bat walkover (NBW) or automated/static bat detector surveys.

2.7 Otter and Water Vole

2.7.1 Desk Study

There is a single recent record of otter within the Study Area, associated with Nettleham Beck which is approximately 0.7 km south of the Site boundary.

- ii There are no recent records of water vole within the Study Area.

2.7.2 Field Survey

There were no suitable habitats on Site or within 100m of the Site boundary for these species. The ditches on Site did not have suitable banks for water vole burrows or otter holts and they were not connected to the watercourses or suitable habitats for these species.

2.7.3 Constraints and Recommendations

- ii Despite the recent record of otter within 1km of the Site boundary, no habitats on Site provided opportunities for commuting or holt/burrow building otter or water vole. Presence of these species on Site or within the Zone of Influence of disturbance (i.e. 100m) is therefore ruled out and are not mentioned further in this report.

2.8 Great Crested Newt

2.8.1 Desk Study

There are no recent records of great crested newts (GCN) within the Study Area.




- ii A total of 15 water bodies are present within 500m of the Site (Figure 3). All waterbodies were connected to the Site through hedgerows, grassland, scrub, trees, and gardens. Whilst S1 to the north of the Site is assumed to be a flowing waterbody, which may present a barrier to GCN dispersal, it appears there are areas where it is culverted which may allow GCN to reach Site from ponds beyond it.

2.8.2 Field Survey

Table 3 summarises the features that have the potential to support great crested newts.

- ii Features in Table 3 are shown on Figure 3.

Table 3: Summary of features with potential to support Great Crested Newt

Feature	Description	Location	HSI Score	Photograph
Ditch D11	This ditch ran along the eastern boundary and was wet at the time of the survey. Willow trees and a bridge was present.	Along eastern boundary	N/A	
Ditch D11	This ditch is a continuation of the ditch that ran along the eastern boundary. It was located along the line of trees at the northern boundary and was wet at the time of the survey.	Along northern boundary	N/A	
Ditch D10	Wet ditch was present on the roadside by the western boundary, that may be seasonally wet since it was only wet in places and very choked with veg.	Along western boundary	N/A	

2.8.3 Constraints and Recommendations

Habitats on Site, such as hedgerows and grassland provide opportunities for GCN terrestrial phase. The ditches on Site could provide suitable breeding habitat if they remain wet during the GCN breeding season (March to June). Therefore, GCN could be present on Site and be impacted by the Scheme.

- ii Further habitat suitability index assessments (HSI) should therefore be undertaken of waterbodies within 500m. This is recommended as a preliminary scoping exercise due to the high number of waterbodies and the likelihood of the ditches/drains identified being dry and/or having low/no suitability for GCN. During this assessment, S1 should also be assessed to determine if it presents a major barrier to GCN dispersal and whether waterbodies to the north of it can be scoped out of further assessment.
- iii Any waterbodies within 500m that cannot be scoped out will then require survey to determine presence/likelihood of breeding GCN. This should take the form of eDNA sampling between mid-April and June. If GCN are present, further survey to determine population size class may be required utilising traditional methods (refuge search/ egg search/ netting/ torching/ bottle trapping).

2.9 Common Species of Reptile

'Common species of reptile' refers to common lizard, slow worm, adder and grass snake. The Site is located outside of the known range of smooth snake and sand lizard and these species are not considered in this report.

2.9.2 Desk Study

There are no recent records of reptile within the Study Area.

2.9.3 Field Survey

- ii No signs of reptiles, such as a slough, were found during the survey. The rough grassland on Site and hedgerows provided some suitability to support reptiles. These habitats are well connected to the wider landscape and provide opportunities to bask, forage, seek refuge, and commute. The Site is also connected to Nettleham Beck in the south, which could provide opportunities for hunting and commuting grass snake.

2.9.4 Constraints and Recommendations

The Site showed evidence of vegetation clearance (sawdust, stumps) and is known to be waterlogged often. Scrub habitats visible on aerial imagery had been cleared prior to the survey by the previous land owner.

- ii Utilising aerial imagery confirmed the Site had been previously used for agricultural purposes until 2016, further reducing the suitability of the Site for significant populations of reptile. While there might be some suitability for reptiles in the hedgerows and grassland, the Site is unlikely to represent a core habitat area for reptiles, with low numbers if present at all. Loss of this habitat is unlikely to have a significant impact on any local populations if present, since alternative habitat is likely available to the north and south.
- iii The presence of reptiles on Site cannot be ruled out, and there is a risk of injury/mortality to any individuals present on Site at the time of clearance. Hence, it is recommended that Precautionary Method of Works (PMW) with respect to vegetation clearance and reptiles is followed during the works, which is to be outlined within a Construction Environmental Management Plan (CEMP) document. Subject to precautionary measures and a production of a CEMP being implemented prior to the commencement of work, this will reduce impacts to negligible.
- iv An ecologist should be present on site to perform vegetation checks immediately prior to works (24hrs) and habitat manipulation using phased cuts may be required. Vegetation on Site should first be cut to a height of 15-20cm by a hand tool such as brush cutter, progressing at walking pace only. The area should be left for 24-48hrs and then cut to 5cm using the same method, working in the same direction as the previous cut. This will allow any reptiles present to disperse into the wider environment unharmed. In the unlikely event that a reptile is seen during the works they should be allowed to escape unharmed at their own pace. Only a

trained ecologist should attempt to move reptiles by hand. If multiple reptiles are encountered, works should cease, and the methodology be re-evaluated.

2.10 Birds (including barn owl)

2.10.1 Desk Study

There are recent records for two notable⁸ bird species within the Study Area. These include red kite, listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended), and swift, listed on the Conservation Concern 5 (BoCC5) Red list (Stanbury, 2021).

- ii The breeding distribution map for declining and rare farmland birds on MAGIC (Arable Assemblage Farmland Birds by RSPB) showed the Site falls within grey partridge, corn bunting, tree sparrow, and lapwing breeding area.

2.10.2 Field Survey

Habitats on Site, such as trees and hedgerows provided foraging and nesting opportunities for garden birds, and mature trees on Site could be used by nesting red kite and barn owl.

2.10.3 Constraints and Recommendations

It is unknown how often the Site is being cleared of vegetation or mowed. The Site is, however, surrounded by arable fields and is located within the area of breeding farmland birds and could provide opportunities for these species. The Scheme will result in a loss of 2.7ha of potentially suitable breeding bird habitat.

- ii It is recommended that a suite of breeding bird surveys is conducted, comprising of six survey visits spread evenly between late March and early July. A scoping survey for barn owl on the mature trees on Site is also recommended, which can be conducted at any time of year.
- iii Additionally, any tree management works, or vegetation clearance should take place outside the bird nesting season (March – August) to ensure compliance with the general protection afforded to wild birds under the Wildlife and Countryside Act 1981 (as amended). If this is unavoidable, the trees and hedgerows should be carefully checked, by a suitably qualified ecologist, 24 hours prior to removal. If any nesting birds are identified during the survey, they will be left in situ for their entire nesting period and alternative approaches to the work proposed. This may include leaving an exclusion zone around the nests to avoid disturbance.
- iv Due to the recent records of swift in the Study Area, it is recommended that swift boxes (Figure 4) are incorporated into the new buildings to provide nesting opportunities for this declining species.

2.11 Terrestrial Invertebrates

2.11.1 Desk Study

There are 13 recent records of notable⁹ terrestrial invertebrates within the Study Area. The closest (20m to the east) / most relevant of these records was the one of wall butterfly, which is also a priority species in the UK.

⁸ Notable bird species are taken as those listed: on Annex I of the EC Birds Directive (2009/147/EC); on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended); as Species of Principal Importance (SPI) for the Conservation of Biodiversity in England listed in Section 41 of the Natural Environment and Rural Communities Act 2006; as Red or Amber in the Birds of Conservation Concern (BoCC) 4 (Eaton MA, Aebischer NJ, Brown AF, Hearn RD, Lock L, Musgrove AJ, Noble DG, Stroud DA and Gregory RD (2015). Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and Isle of Man. British Birds 108, 708-746); bird species or groups listed under the Lincolnshire BAP.

⁹ Notable terrestrial invertebrates are taken as principal species for the conservation of biodiversity listed under Section 41 of the Natural Environment and Rural Communities Act 2006; any invertebrate listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended); any invertebrate listed under Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as

2.11.2 Field Survey

The grassland and field edges on Site offered some value for invertebrates. Plant species found on Site, such as cock's-foot, are main wall caterpillar food.

2.11.3 Constraints and Recommendations

Despite the majority of the grassland habitat is to be removed, the area around attenuation basin can be enhanced for invertebrates through creation of a wildflower meadow (e.g. N7 Wetland Meadow Mixture from Naturescape, which is suitable for sites that remain damp year-round and may experience some flooding). This will increase the availability of these plants locally through appropriate seeding / planting. A net gain in local biodiversity will be sought through implementation of the Scheme which could have a significant positive impact on terrestrial invertebrates' post development.

2.12 Other Notable Species

2.12.1 Desk Study

There are seven recent records of hedgehog¹⁰ within the Study Area, associated with residential area which is approximately 90 m west from the Site boundary.

2.12.2 Field Survey

The habitats on Site and immediate surroundings, such as grassland, hedgerows and arable fields, were suitable for hedgehog, common toad, as well as brown hare.

2.12.3 Constraints and Recommendations

In order to minimise the risk of harm to animals using the Site it is recommended that preventative measures are in place during construction as mentioned in Section 2.5.3.

amended); any invertebrate listed in the IUCN Invertebrate Red Data Book (1991); and any invertebrate listed under a Lincolnshire BAP.

¹⁰ Notable species are taken as principal species for the conservation of biodiversity listed under Section 41 of the Natural Environment and Rural Communities Act 2006; any species listed in an IUCN Red Data Book; and any other species listed under the Lincolnshire BAP that are not referred to in previous sections of the report.

3 OPPORTUNITIES FOR ENHANCEMENTS

This section highlights opportunities for providing ecological enhancements, based on the current Scheme details. These are high level opportunities and would need to be developed in greater detail once further surveys have been completed and the Scheme proposals, such as detailed areas of habitat loss are confirmed.

3.2 Other Enhancements

The following enhancements could be delivered for biodiversity as part of the Scheme, that don't contribute towards the calculation of biodiversity net gain but can still deliver significant improvements for biodiversity:

- Provision of bird nest boxes could be installed to the retained trees. Use of boxes such as the Schwegler 1B nest box (Figure 5) and the Manthorpe swift brick, or house sparrow nesting boxes, which can be built into new dwellings, provide a long-term nest box solution requiring limited replacement unlike wooden boxes which need regular replacement as a result of weathering. As some of nesting bird habitat on Site is to be removed (hedgerows) the provision of bird nesting boxes would aid in compensation for the loss of nesting bird habitat.
 - Consideration to provision of bat boxes could be given in respects to the retained trees. Use of boxes such as the Vivara Woodstone box (Figure 6) provide a long-term nest box solution requiring limited replacement unlike wooden boxes which need regular replacement as a result of weathering.
 - Consideration to provision of bat boxes could also be given in respects to the new building. Use of in-cavity boxes such as Ibstock Enclosed Bat Box C provide a long term nest box solution incorporated into the building.
 - Hedgehog boxes (Figure 7) could be placed within hedgerows, away from the main roads.
 - Invertebrate houses (Figure 8) could be placed between the hedgerow by the northern boundary and the area of proposed attenuation basin, which will be enhanced with wildflowers.
- ii Any landscape planting associated with the Scheme should consider the use of native shrub species and also species such as lavender which provide important sources for pollinating species. The Royal Horticultural Society provide online resources to identify suitable plants for garden areas that are aesthetically pleasing but of significant value to local pollinators (www.rhs.org.uk/plantsforpollinators).

4 CONCLUSION

This PEAR is based on a desk study and ecological surveys undertaken 16/01/2024, to assess the ecological constraints to the Scheme and to provide advice in respect of Scheme design, site layout and / or site investigation.

- ii The following further surveys that need to be conducted prior to planning application, summarised in Table 4, are recommended to support the planning application for the Scheme.

Table 4: Summary of Recommendations

Ecological Feature	Recommendation	Timing
Habitats	Updated botanical survey and condition assessment for grassland.	May - August
Bats	Further GLTA of mature trees if these are to be affected by proposals or works are within 10m of the trees. If the Scheme proposals require removal of large portions of hedgerows or removal of trees, further bat activity surveys might be required.	GLTA: All year round Bat activity survey: April - October
Great Crested Newt	HSI followed by further presence/absence surveys (eDNA) of waterbodies in 500m radius.	HSI: any time of year eDNA: mid-April - end of June
Birds	Breeding bird survey. Barn owl survey.	March to August Initial barn owl survey any time of year. If further survey required, March – August.

- iii The Biodiversity Impact Assessment is to be conducted separately from this report.

4.2 Re-Survey of Site

Due to the mobility of animals and the potential for colonisation of the Site, it is recommended that an updated ecological survey be undertaken prior to the redevelopment of this Site should this not occur within 18 months of the date of the field survey.



RammSanderson		
Title: Site Context Plan		
Project: Nettleham Road, Scothern		
Client: Lindum Group Ltd		
Date: 23/11/2023	Fig: 1	Author: LG
A4 Scale: 1:1250	ID: RSE_7687_STC_1123_V1R1	
EPSG:27700 OSGB36 / British National Grid		



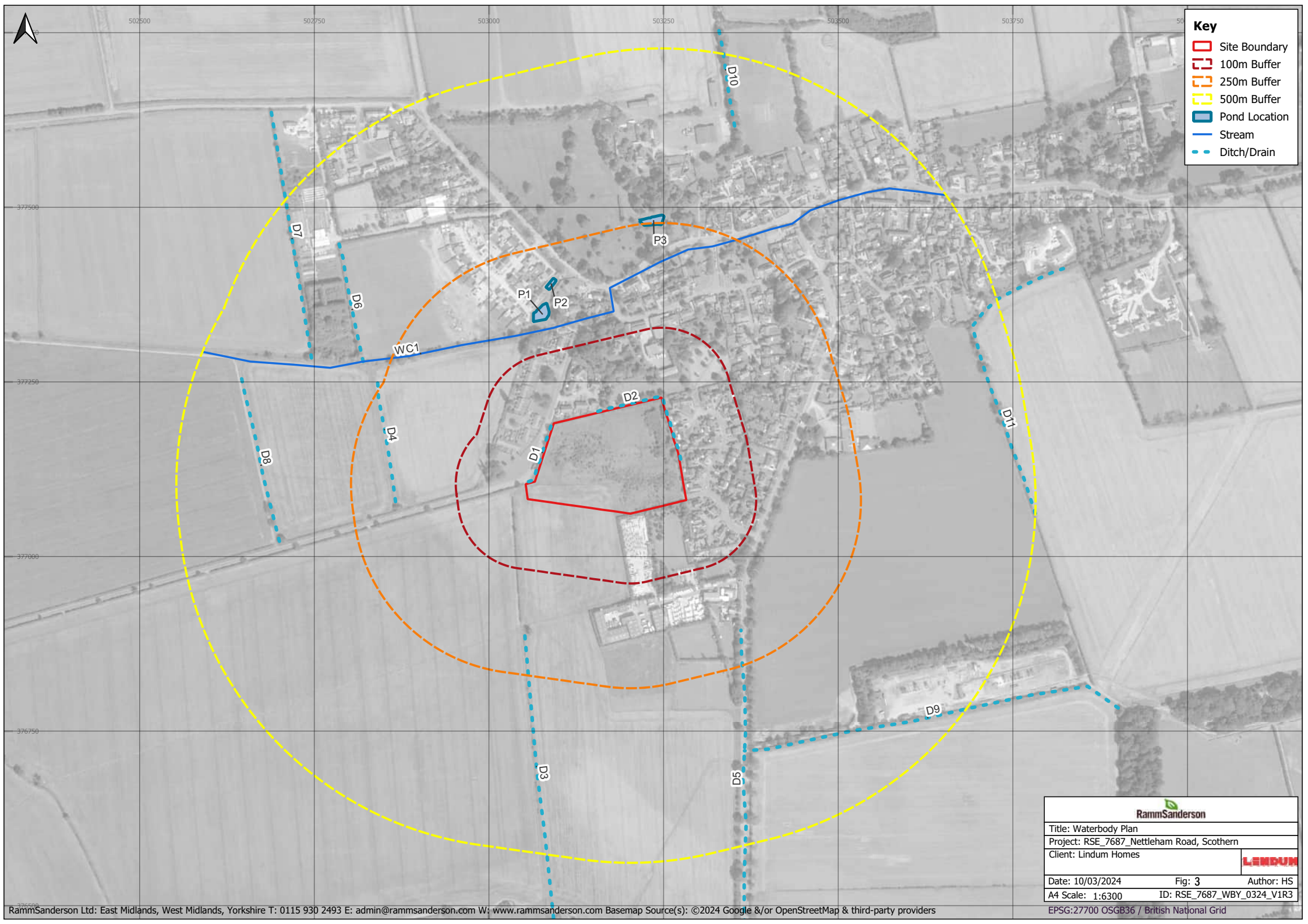
- Key**
- Site Boundary
 - u1e: Built linear features - fence
 - c1c5: Winter stubble
 - g3c: Other neutral grassland
 - h2a6: Other native hedgerow
 - h2b: Non-native and ornamental hedgerow
 - w1 33: Line of trees
 - Target Notes
 - TN1 - Water feature
 - TN2 - Cotoneaster species



Title: UKHabs Habitat Plan
 Project: RSE_7687_Nettleham Road, Scothern
 Client: Lindum Homes



Date: 12/03/2024 Fig: 2 Author: HS
 A4 Scale: 1:1200 ID: RSE_7687_UKH_0324_V1R3



Key

- Site Boundary
- 100m Buffer
- 250m Buffer
- 500m Buffer
- Pond Location
- Stream
- Ditch/Drain

RammSanderson		
Title: Waterbody Plan		
Project: RSE_7687_Nettleham Road, Scothern		
Client: Lindum Homes		LINDUM
Date: 10/03/2024	Fig: 3	Author: HS
A4 Scale: 1:6300	ID: RSE_7687_WBY_0324_V1R3	

Figure 4: Client Plan

Heathlea

Path (un



Figure 5: Ibstock Swift Eco Habitat



© <https://www.wildcare.co.uk/wildlife-nest-boxes/bird-boxes/swifts/ibstock-swift-eco-habitat>

Figure 6: 1b Schwegler Bird Nest Box



© <https://www.nhbs.com/1b-schwegler-nest-box>

Figure 7: Vivara Woodstone Bat Box



© <https://www.nhbs.com/vivara-pro-woodstone-bat-box>

Figure 8: HH7 Hogilo Hedgehog House



© <https://www.nhbs.com/hh7-hogilo-hedgehog-mammal-house>

Figure 9: National Trust Hexagon Insect House



© <https://www.nhbs.com/national-trust-hexagon-insect-house>

Figure 10: Ibstock Enclosed Bat Box 'C'



© <https://www.nhbs.com/ibstock-enclosed-bat-box>

6 REFERENCES

- Wildlife and Countryside Act . (1981 (as amended)). *Schedule 9*.
- Chanin, P. (2003). *Monitoring the Otter Lutra lutra. Conserving Natura 2000 Rivers Monitoring Series No 10*. Peterborough: English Nature.
- CIRIA. (2014). *Control of water pollution from construction sites. Guidance for consultants and contractors (C532). Containment systems for pollution prevention* . CIRIA.
- Collins, J. (ed.) (2023) *Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition)*. The Bat Conservation Trust, London. ISBN-978-1-7395126-0-6.
- Dean, M. S. (2016). *The Water Vole Mitigation Handbook (The Mammal Society Guidance Series) Eds Mathews, F. and Chanin, P.* London: The Mammal Society.
- Department of Communities & Local Government. (2023). *The National Planning Policy Framework (NPPF)* .
- English Nature. (2001). *The Great Crested Newt Mitigation Guidelines*. Peterborough.
- English Nature. (2004). *Reptiles: Guidelines for Developers*. Peterborough: English Nature.
- English Nature. (2006). *The Dormouse Conservation Handbook, 2nd edition*.
- Froglife. (1999). *Reptile Survey: An introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife Advice Sheet 10*. . Halesworth.
- Froglife. (2001). *The Great Crested Newt Conservation Handbook*. Halesworth.
- Harris, S. C. (1989). *Surveying Badgers*. The Mammal Society.
- Joint Nature Conservation Committee. (2003). *Herpetofauna Workers Manual*.
- Multi-Agency Geographic Information for the Countryside (MAGIC) (www.magic.gov.uk)* . (n.d.).
- National Parks and Access to the Countryside Act*. (1949).
- Natural England. (2004). *An assessment of the efficiency of capture techniques and the value of different habitats for the great crested newt (ENRR576)* . Peterborough: <http://publications.naturalengland.org.uk/publication/134002>.
- Natural England. (2009). *Interpretation of 'Disturbance' in relation to badgers occupying a sett*. Peterborough.
- R. S. Oldham, J. K. (2000). Evaluating the suitability of habitat for the great crested newt (*Triturus cristatus*). *The Herpetological Journal*, pp.143-155.
- Scottish Natural Heritage. (2018). *Surveying for Badgers: Good Practice Guidelines. Version 1*.
- Stace, C. E. (2019). *New Flora of the British Isles, 4th Edition*. Cambridge University Press.
- Stanbury, A. E. (2021). The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. *British Birds*, 114:723-747.
- The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations*. (2019).
- The Hedgerow Regulations*. (1997).
- UKHab Ltd. (2023). *UK Habitat Classification Version 2.0* . Retrieved from <https://www.ukhab.org>
- Ward, D. H. (1994). *The New Rivers and Wildlife Handbook*. Bedfordshire: Royal Society for the Protection of Birds.

APPENDIX 1: RELEVANT LEGISLATION AND PLANNING POLICY

The UK is no longer a member of the European Union (EU). EU legislation as it applied to the UK on 31 December 2020 is now a part of UK domestic legislation. EU legislation which applied directly or indirectly to the UK before 11.00 p.m. on 31 December 2020 has been retained in UK law as a form of domestic legislation known as 'retained EU legislation'.

The Secretary of State for the Environment, Food and Rural Affairs and Welsh Ministers have made changes to parts of the Conservation of Habitats and Species Regulations 2017 (referred to as the 2017 Regulations) so that they operate effectively. Most of these changes involve transferring functions from the European Commission to the appropriate authorities in England. All other processes or terms in the 2017 Regulations remain unchanged and existing guidance is still relevant and are now referred to as The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 (the 2019 Regulations).

Protected Species

Bats / Otter / Great Crested Newt

These species, known as European Protected Species, are protected under Regulation 43 of the 2017 Regulations as amended by the 2019 Regulations. This makes it an offence to deliberately capture, injure or kill an animal; deliberately disturb an animal; or damage or destroy a breeding site or resting place used by an animal.

Deliberate capture or killing is taken to include "accepting the possibility" of such capture or killing. Deliberate disturbance of animals includes in particular any disturbance which is likely a) to impair their ability (i) to survive, to breed or reproduce, or to rear or nurture their young, or (ii) in the case of animals of hibernating or migratory species, to hibernate or migrate; or b) to affect significantly the local distribution or abundance of the species to which they belong.

Where development works are at risk of causing one or more of the offences listed above, a mitigation licence from Natural England can be obtained to facilitate the works that would otherwise be illegal.

These species are also protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). This makes it an offence to intentionally or recklessly obstruct access to any structure or place used for shelter or protection or disturb an animal in such a place.

Lower levels of disturbance not covered by the Conservation of Habitats and Species Regulations 2017 remain an offence under the Wildlife and Countryside Act 1981 although a defence is available where such actions are the incidental result of a lawful activity that could not reasonably be avoided.

Water Vole

Water voles are protected under the Wildlife and Countryside Act 1981 (as amended). There are no licensing purposes that explicitly cover development or other construction activities which could have an impact on water voles.

When development work is proposed in or near an area which is either known to or likely to contain water voles, then the developer will need to implement suitable mitigation to prevent impacts to water voles. The preferred mitigation option is to leave water voles in situ, with the development works adopting avoidance measures through redesign of the proposals.

Where impacts cannot be avoided, operations aimed at displacing water voles from a development site are now no longer covered by the "incidental result of an otherwise lawful action" defence in the Wildlife and Countryside Act 1981 (as amended). Displacement of water voles now needs to be undertaken under a licence.

In England, small scale (limited to continuous lengths of bank not exceeding 50 m) displacement of water voles can be carried out at certain times of the year (February to April) for the purposes of conservation under a Class Licence

by a registered person. For larger scale displacements or displacements outside of this period, displacement can be undertaken under a site-specific conservation licence.

Where it is considered that the best outcome for water voles is capture and translocation to a different location then this action is considered by Natural England to be outside the scope of the defence as the intentional capture of water voles is unlikely to be considered 'incidental'. In these circumstances there may be genuine grounds for issuing a conservation licence for the purpose of translocating the water vole population to suitable alternative habitat.

Nesting Birds

All wild birds are protected under the Wildlife and Countryside Act 1981 (as amended), with some species afforded greater protection under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended). In addition to the protection from killing or taking that all birds receive, Schedule 1 birds and their young must not be disturbed at the nest.

There are no licensing purposes that explicitly cover development activities affecting wild birds.

Common Species of Reptile (common lizard, slow worm, grass snake and adder)

Common species of reptile are protected against intentional killing and injury under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). There is no requirement for a licence where development works affect common species of reptiles. Instead, Natural England (English Nature, 2004) advise that where reptiles are present, they should be protected from any harm that might arise during the development works through appropriate mitigation.

Badger

Badgers and their setts are protected under the Protection of Badgers Act 1992 (as amended). This makes it an offence to wilfully kill, injure or take a badger; or intentionally or recklessly damage, destroy or obstruct access to a badger sett or disturb a badger in its sett.

It is not illegal to carry out disturbance activities near setts that are not occupied, i.e. those that do not show signs of current use.

Where required, licences for development activities involving disturbance or sett interference or closure are issued by Natural England. Licences for activities involving watercourse maintenance, drainage works or flood defences are issued under a separate process.

When assessing the requirement for a licence in respect of development, Natural England (Natural England, 2009) state that badgers are relatively tolerant of moderate levels of noise and activity around their setts, and that a low or moderate level of apparent disturbing activity at or near to badger setts does not necessarily disturb the badgers occupying those setts.

Licences are normally not granted from December to June inclusive (the badger breeding season) because dependent cubs may be present within setts.

Species and Habitats of Principal Importance for the Conservation of Biodiversity

Section 40 of the Natural Environment & Rural Communities Act (NERC) 2006 sets out the duty for public authorities to conserve biodiversity in England.

Habitats and species of principal importance for the conservation of biodiversity are identified by the Secretary of State for England, in consultation with Natural England, are referred to in Section 41 of the NERC Act for England. The list, known as the 'England Biodiversity List', of habitats and species can be found on the Natural England web site.

The 'England Biodiversity List' is used as a guide for decision makers such as public bodies, including local and regional authorities, in implementing their duty under Section 40 of the NERC Act 2006 to have regard to the

conservation of biodiversity in England when carrying out their normal functions. The habitats and species on the List, are material considerations of planning, where present on an application site.

Hedgerows

Under The Hedgerow Regulations, 1997, it is against the law to remove or destroy certain hedgerows without permission from the local planning authority. In general, permission will be required before removing hedges that are at least 20 metres in length, over 30 years old and contain certain species of plant. The local planning authority will assess the importance of the hedgerow using criteria set out in the regulations.

Non-native Invasive Plant Species

Under the Wildlife and Countryside Act, 1981 (as amended), it is an offence to plant or otherwise cause these species to grow in the wild.

Any contaminated soil or plant material is classified as controlled waste and should be disposed of in a suitably licensed landfill site, accompanied by appropriate Waste Transfer documentation, and must comply with section 34 of the Environmental Protection Act 1990.

Planning Policy

National Planning Policy Framework, 2023

The National Planning Policy Framework (NPPF) (Department of Communities & Local Government, 2023) sets out the Governments planning policies for England and how these are expected to be applied by Local Authorities within their Local Development Frameworks (LDF).

Regarding the NPPF, the most pertinent paragraphs are:

8.c) “to protect and enhance our natural, built and historic environment, including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy”

174.d) “minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures”

179.b) “promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.”

180.a) “if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused.”

180.c) “development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons⁶³ and a suitable compensation strategy exists.”

6.1 Local Planning Policy

- i. Strategies of Central Lincolnshire Local Plan 2023:

Policy S60: Protecting Biodiversity and Geodiversity

All development should:

- a) *protect, manage, enhance and extend the ecological network of habitats, species and sites of international, national and local importance (statutory and non-statutory), including sites that meet the criteria for selection as a Local Site;*
- b) *minimise impacts on biodiversity and features of geodiversity value;*
- c) *deliver measurable and proportionate net gains in biodiversity in accordance with Policy S61; and*
- d) *protect and enhance the aquatic environment within or adjoining the site, including water quality and habitat.*

6.2 Local Biodiversity Action Plans

- i. Lincolnshire BAP aims are:

“Conserve and enhance Lincolnshire’s biodiversity; recreating habitats on a landscape scale and developing networks of interlinked natural areas – a ‘living landscape’ of which wildlife is an integral part, not confined to specially protected sites.

Ensure that biodiversity is recognised as an essential element of life in the historic county of Lincolnshire: including its contributions to health and wellbeing; the economy, recreation and tourism; and provision of

ecosystem services (such as flood protection, retention of water resources, carbon storage and crop pollination).

Ensure biodiversity conservation is sustainable; the benefits are felt by society, the economy and the environment.

Provide and gather biodiversity information to monitor progress and enable individuals and organisations to make decisions based on sound evidence.”

Habitat types included in the LBAP:

- Coastal sand dunes
- Peat and clay exposures
- Sabellaria spinulosa reefs
- Saline lagoons
- Salt marsh
- Arable field margins
- Grazing marsh
- Hedgerows and hedgerow trees
- Lowland calcareous grassland
- Lowland meadows
- Heathland and peatland
- Lowland dry acid grassland
- Chalk streams and blow wells
- Fens
- Ponds, lakes and reservoirs
- Reedbeds and bittern
- Canals and drains
- Springs and flushes
- Lowland mixed deciduous woodland
- Traditional orchards
- Wet woodlands
- Wood-pasture and parkland
- Brownfield
- Churchyard and cemeteries
- Gardens and allotments
- Parks and open spaces

- ii **Species included in the LBAP:**
- European eel
 - Water vole
 - Barn owl
 - Bats
 - Commercial fish (marine)
 - Farmland birds
 - Freshwater fish
 - Greater water-parsnip
 - Natterjack toad
 - Newts
 - Seals
 - Urban birds
 - Water vole
 - White clawed crayfish
 - Invasive non native species

APPENDIX 2: METHODOLOGY

Desk Study

Background Records Search

The preliminary ecological assessment includes a desk study to obtain background records relevant to a Site and the Scheme. The data obtained provides contextual information for the scope of field surveys, to aid the evaluation of field survey results, and to provide supplementary information where complete field survey coverage is not possible.

The Study Area is dependent upon the nature, timing and scale of the Scheme, as well as the location of the Site and the surrounding landscape. These variables all contribute to what is referred to as the Zone of Influence (Zol) of the Scheme, which is the area over which ecological features may be affected by biophysical changes because of the works and associated activities.

On 23/11/2023 the Lincolnshire Environmental Records Centre was contacted to obtain the following ecological data:

- Records of non-statutory designated sites (LWS (Local Wildlife Site)) within 2 km of the Site boundary;
- Records of legally protected and notable species (fauna and flora) within 2 km of the Site boundary, including Species of Principal Importance for the Conservation of Biodiversity listed under Section 41 of the Natural Environment & Rural Communities Act 2006 in the England Biodiversity List¹¹.

The Multi-Agency Geographic Information for the Countryside (MAGIC) (www.magic.gov.uk) website was reviewed for the following information:

- Designated sites of nature conservation importance (statutory sites only) within 2km of the Site. This was extended to 2 km for internationally designated sites: Special Protection Areas (SPAs), Wetlands of International Importance (Ramsar sites) and Special Areas of Conservation (SACs); and,
- Notable habitats within 2 km of the Site, these being areas of ancient woodland and 'Habitats of Principal Importance for the Conservation of Biodiversity' included in the England Biodiversity List.

Great Crested Newt Pond Search

Ordnance Survey maps and the Where's the Path website (<https://wtp2.appspot.com/wheresthepath.htm>) have been used to identify the presence of water bodies within 500 m of the Site boundary, in order to help establish if the land within and immediately surrounding the Site could be used by great crested newts. This species can use suitable terrestrial habitat up to 500 m from a breeding pond (English Nature, 2001), though there is a notable decrease in great crested newt abundance beyond 250 m from a breeding pond (Natural England, 2004).

Field Survey

The preliminary ecological assessment includes a walkover survey of the Survey Area (all land within the Site), broadly following the UK habitat survey methodology (UKHab Ltd, 2023). This survey method records information on habitat types and is 'extended' to record any evidence of and potential for protected or notable species to be present. Plant names recorded during the survey follow (Stace, 2019).

¹¹ Section 40 of the Natural Environment & Rural Communities Act 2006 requires that very public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity. The Secretary of State has drawn up, in accordance with Section 41 of the Act and in consultation with Natural England, a list of habitats and species of principal importance for the conservation of biodiversity in England that is known as the England Biodiversity List

During the walkover survey, the following protected or notable species are considered:

- **Badger:** the survey involves searching for signs of badger activity including setts, tracks, snuffle holes and latrines, following the methodology detailed in (Scottish Natural Heritage, 2018) and (Harris, 1989).
- **Bats:** the survey involves searching for potential roosting sites for bats within trees and structures (such as buildings, bridges or underground features such as mines) and categorising the potential of those trees or structures to support roosting bats (negligible to high, or confirmed roost), in accordance with Bat Conservation Trust (BCT) (Collins, J. (Eds.), 2016) guidance.
- **Otter:** the survey involves assessing the potential of watercourses and water bodies, and adjacent terrestrial habitat within the Survey Area to support otter, following RSPB (Ward, 1994) and (Chanin, 2003) guidance;
- **Water vole:** the survey involves assessing the potential of watercourses and water bodies within the Survey Area to support water vole, following The Mammal Society (Dean, 2016) guidance;
- **Birds:** the survey involves assessing the potential of habitats within the Survey Area to support breeding, wintering or migrating birds, either individually notable species or assemblages of both common and rarer species;
- **Great crested newt:** the survey involves assessing the potential of habitats within the Survey Area to support great crested newt, following English Nature (English Nature, 2001) and Froglife (Froglife, 2001) guidance;
- **Reptiles:** the survey involves assessing the potential of habitats within the Survey Area to support reptiles (typically adder, grass snake, common lizard and slow worm only, though in some locations and habitat types (most notably heathland) may also include smooth snake and sand lizard), following Froglife (Froglife, 1999) and JNCC (Joint Nature Conservation Committee, 2003) guidance;
- **Notable species of invertebrate:** the survey involves assessing the potential of habitats within the Survey Area to support notable species of invertebrates, both terrestrial and aquatic (including white-clawed crayfish);
- **Protected or Notable species of plants:** the survey involves recording protected or notable plant species;
- **Other notable species:** the survey involves assessing the potential of habitat within the Survey Area to support other Notable Species, such as hedgehog, brown hare, polecat or common toad;
- **Non-native invasive plant species:** the survey involves recording evidence of the presence of invasive plants listed on (Wildlife and Countryside Act, 1981 (as amended)) and subject to strict legal control.

Limitations

The aim of a desk study is to help characterise the baseline context of a proposed development and provide valuable background information that would not be captured by a single site survey alone. Information obtained during the course of a desk study is dependent upon people and organisations having made and submitted records for the area of interest. As such, a lack of records for a particular habitats or species does not necessarily mean that the habitats or species do not occur in the study area. Likewise, the presence of records for particular habitats and species does not automatically mean that these still occur within the area of interest or are relevant in the context of the proposed development.

An ecological survey represents a 'snapshot' in time of the ecological condition of a Site. The ecological character of a Site can change substantially throughout both the course of a year, and from year to year impacting on the extent and quality of habitats potential to support protected species.