



Land at Heron Farm, Bunwell Road, Besthorpe, Norfolk

Preliminary Ecological Appraisal

Produced for Newall Plant Hire

By Applied Ecology Ltd

March 2023

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1 Introduction

Background

- 1.1 Applied Ecology Ltd (AEL) was commissioned by Newall Plant Hire, in May 2020, to carry out a Preliminary Ecological Appraisal (PEA) of an area of land at Heron Farm, Bunwell Road, Besthorpe, Norfolk, NR17 2LN (referred to hereafter as "the Study Area"). A plan showing the location of the Study Area and the application site is provided in **Figure 1.1**.
- 1.2 Heron Farm has planning permission for the open-air storage of plant, materials and aggregates, and a standard rule permit for the treatment of waste to produce soil, soil substitutes and aggregate. The current appraisal has been prepared to support an application for the same activities currently allowed under the permit ("the Development") and relates to only part of the Study Area as shown by **Figure 1.1**. The report identifies any potential ecological constraints associated with the proposed Development, and establishes the scope of further, more detailed ecological surveys which may be needed to support a planning application.
- 1.3 Considering the initial PEA findings, a great crested newt presence / absence survey of a single pond adjoining the Study Area to the south was subsequently undertaken and is also reported.
- 1.4 Where possible, the report discusses at a high level the likely impacts of the Development on ecological receptors based on the findings of the PEA. However, it does not provide, and nor is it intended to provide, a detailed or comprehensive assessment of Development impacts in the form of an Ecological Impact Assessment (EclA).
- 1.5 It should be noted that Version 3.0 of this report was updated and reissued based on a desk-top assessment of the Study Area conditions, and to reflect a minor change to the application boundary. Several high-quality digital photographs and an aerial drone image of the Study Area were provided by the client and reviewed by AEL and confirmed that the Study Area had not changed significantly since June 2020. Based on the information provided the findings of the 2020 PEA remained accurate and valid.
- 1.6 Version 4.0 of this report reflects a further minor boundary change only.

Legislation and Planning Policy

Legislation

- 1.7 The Wildlife and Countryside Act 1981 (as amended) provides the main legal framework for nature conservation and species protection in the UK. The Site of Special Scientific Interest (SSSI) is the main statutory nature conservation designation in the UK. Such sites are notable for their plants, or animals, or habitats, their geology or landforms, or a combination of these. Natural England is the key statutory agency in England for advising Government, and for acting as the Government's agent in the delivery of statutory nature conservation designations.



- 1.8 Designation of a SSSI is a legal process, by which sites are notified under the Wildlife and Countryside Act 1981. The 1981 Act makes provision for the protection of sites from the effects of changes in land management, and owners and occupiers receive formal notification specifying why the land is of special scientific interest, and listing any operations likely to damage the special interest.
- 1.9 The Countryside and Rights of Way Act 2000, and The Natural Environment and Rural Communities (NERC) Act 2006, provide supplementary protected species legislation. Specific protection for badgers *Meles meles* is provided by the Protection of Badgers Act 1992.

Habitats and Species of Principal Importance in England

- 1.10 The Natural Environment and Rural Communities (NERC) Act came into force on 1 October 2006. Section 41 (S41) of the Act requires the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in England. The list has been drawn up in consultation with Natural England, as required by the Act.
- 1.11 The S41 list is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under section 40 of the Natural Environment and Rural Communities Act 2006, to have regard to the conservation of biodiversity in England, when carrying out their normal functions.

Habitats of Principal Importance

- 1.12 Fifty-six habitats of principal importance are included on the S41 list. These are all the habitats in England that were identified as requiring action in the UK Biodiversity Action Plan (UK BAP) and continue to be regarded as conservation priorities in the subsequent UK Post-2010 Biodiversity Framework. They include terrestrial habitats such as upland hay meadows to lowland mixed deciduous woodland, and freshwater and marine habitats such as ponds and sub-tidal sands and gravels.

Species of Principal Importance

- 1.13 There are 943 species of principal importance included on the S41 list. These are the species found in England which were identified as requiring action under the UK BAP and which continue to be regarded as conservation priorities under the UK Post-2010 Biodiversity Framework. In addition, the hen harrier *Circus cyaneus* has also been included on the list because without continued conservation action it is unlikely that the hen harrier population will increase from its current very low levels in England.
- 1.14 In accordance with Section 41(4) the Secretary of State will, in consultation with Natural England, keep this list under review and will publish a revised list if necessary.

National Planning Policy Framework

- 1.15 The National Planning Policy Framework (NPPF) was published in March 2012 (and replaced previous planning policy guidance (PPS 9) on biodiversity. The NPPF was updated in July 2018, and in February 2019, and states the following in relation to biodiversity and planning:

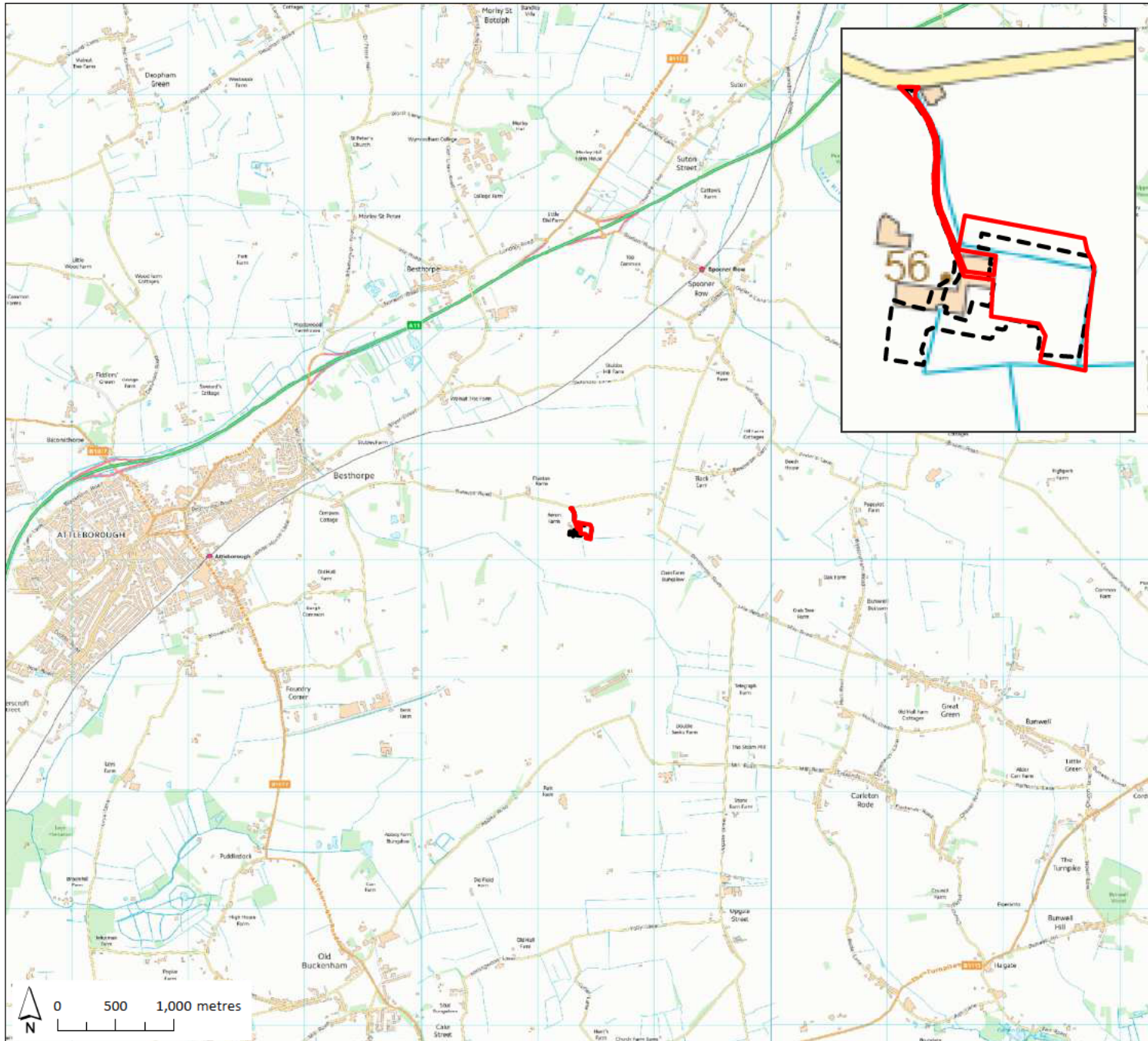


1.16 *“When determining planning applications, local planning authorities should apply the following principles:*

- *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;*
- *development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;*
- *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 reasons and a suitable compensation strategy exists; and*
- *development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.*
- *The following should be given the same protection as habitats sites:*
 - *potential Special Protection Areas and possible Special Areas of Conservation;*
 - *listed or proposed Ramsar sites; and*
 - *sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.*

1.17 *The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other projects) unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.”*






Land at Heron Farm, Besthorpe

Site location

- application boundary
- study area

Figure 1.1

Map Scale @ A4: 1:50,000

Surveyed by: n/a	 <p>Applied Ecology Ltd</p>
Survey date: n/a	
Drawn by: NB	
Checked by: RJH	
Status: Final	

2 Survey Approach and Findings

Survey Approach

Pre-existing data records

- 2.1 The locations of statutory wildlife sites and ancient woodland in relation to the Study Area have been identified using the government's online interactive mapping tool MAGIC¹.

Extended Phase 1 habitat survey

- 2.2 An extended Phase 1 habitat survey of the Study Area was undertaken by Rob Hutchinson MCIEEM on the 5 June 2020 during overcast conditions with light rain, which did not restrict or constrain the survey work completed. Rob is a principal ecologist at AEL and holds Natural England survey licences for great crested newt (Level 2), bats (level 1) and dormouse, and has been awarded a Level 5 Field Skills Identification Certificate (FISC) for plant identification from the Botanical Society of Britain & Ireland (BSBI).

Habitats and plants

- 2.3 The methodology adopted followed the standard JNCC approach to Phase 1 habitat survey (JNCC, 1993²) by which all habitats present within the Study Area were classified and mapped according to standard categories. Notes were taken on the habitats present and associated plant species, with plant species abundance recorded using the DAFOR³ scale, where appropriate. The habitat map was subsequently digitised using a Geographical Information System (ArcGIS).

Faunal signs and potential

- 2.4 The standard habitat survey was "extended" to include a search for evidence of or potential for the presence of protected species or species of nature conservation interest within and close to the Study Area. This was not a detailed survey for such species but included noting the presence of habitats suitable to support specific protected species, and where seen, any evidence of presence such as droppings, mammal tracks and footprints, shelters (or nests/roosts), hair caught on fence-wire, foraging signs, and so on.
- 2.5 In advance of the PEA visit, initial calculations were undertaken using Natural England's great crested newt (GCN) risk assessment calculator to determine if any ponds are located sufficiently close to the Development to indicate that GCN could be impacted by the Development being proposed. The calculations assume that GCN are present in the ponds being assessed, with impact risk increasing in relation to pond proximity and Development extent.

¹ <https://magic.defra.gov.uk/MagicMap.aspx>

² JNCC (1993) *Handbook for Phase 1 Habitat Survey – A technique for Environmental Audit*. JNCC, Peterborough.

³ DAFOR: whereby species occurrence may be classified as being Dominant, Abundant, Frequent, Occasional or Rare. Rare in the context of DAFOR should not be confused with species rarity in the more widely accepted meaning of general scarcity.



- 2.6 In addition to the protected species walkover, a ground level inspection of a single ash tree associated with the northern hedgerow was also undertaken using binoculars to identify any potential bat roost features such as woodpecker holes, split limbs, and rot holes. The tree was classified according to the roost suitability categories established by Collins (2016)⁴. The mature ash trees along the eastern boundary were not inspected or assessed for their roosting bat suitability as these trees and the associated hedgerow would be unaffected by the Development.

Great crested newt presence / absence survey

- 2.7 Following the PEA survey, a further visit to the site was made on 18 June 2020 to conduct a presence / absence eDNA survey of a pond adjoining the Study Area to the south. Water samples were collected from the pond following the recommended protocol using an ADAS eDNA kit and were subsequently sent to ADAS for analysis.

Survey Findings

Pre-existing data records

- 2.8 The locations of statutory wildlife sites and ancient woodland in relation to the Study Area are shown by **Figure 2.1**.
- 2.9 The closest statutory wildlife site is **New Buckenham Common Site of Special Scientific Interest (SSSI)** and is located 4.1km to the south of the Study Area. The closest SSSI with additional Natura 2000 designation is **Swangey Fen, Attleborough SSSI** which forms part of **Norfolk Valley Fens Special Area of Conservation** and is located 6.7 km to the southwest. It is of note that the Study Area is not located in a SSSI Impact Risk Zone relevant to the Development being proposed.
- 2.10 The closest area of ancient woodland is known as Peaseacre Wood and is located 3.5 km to the northeast.

Extended Phase 1 habitat survey

Habitats and plants

- 2.11 The Phase 1 habitat map is shown in **Figure 2.2**, and a description of the habitats recorded is provided below. A selection of habitat survey photographs can be found in **Figure 2.3**.
- 2.12 Aerial drone photograph of the Study Area (taken in 26 July 2022) is provided in **Appendix A** and shows that the habitats present had not changed significantly over the period June 2020 – July 2022.
- 2.13 The Study Area incorporates the primary access road off Bunwell Road, together with open-air material storage and processing areas. In habitat terms, the Study Area was dominated by concrete hard standing and compacted made ground (also mapped as hard standing) with sparse marginal patches of ephemeral /short perennial and tall ruderal vegetation amongst stored materials and plant. These areas were characterised by a range of common weedy annual and tall ruderal species such as broadleaved dock *Rumex*

⁴ Collins, J (2016) *Bat Surveys for Professional Ecologists – Good Practice Guidelines – 3rd Edition*. Bat Conservation Trust, London.



obtusifolius, creeping bent *Agrostis stolonifera*, hoary willowherb *Epilobium parviflorum*, perennial rye-grass *Lolium perenne*, barren brome *Anisantha sterilis*, bristly ox-tongue *Picris echioides*, common couch *Elytrigia repens* and mugwort *Artemisia vulgaris*.

- 2.14 Large unvegetated linear soil bunds were present inside the northern and eastern boundaries of the Study Area with hedgerows and trees along the southern side of the northern bund and the eastern side of the eastern bund. Physical access to these hedgerows was partly restricted due to the proximity of material stockpiles and earth bunds but both appeared to be relatively species-poor, with the northern hedgerow consisting of hawthorn *Crataegus monogyna*, dog-rose *Rosa canina* and a single ash *Fraxinus excelsior*, and the eastern hedgerow dominated by mature ash with occasional shrubs.

Faunal signs and potential

- 2.15 No evidence of protected or notable animal species, including badger, was noted during the survey, and the Study Area was of negligible value to such species overall given the lack of semi-natural habitats and the high levels of disturbance associated with ongoing operations. Further details of the survey findings in relation to tree roosting bats, breeding birds and great crested newt are provided below.
- 2.16 The single ash tree along the northern hedgerow which is scheduled for removal possessed some leggy ivy growth around the main trunk but lacked obvious high value potential roost features and was assessed as being of Low suitability. In line with best practice guidance, no further survey or associated mitigation is considered necessary in relation to roosting bats and the removal of this tree.
- 2.17 The northern and eastern hedgerows are likely to support a small number of relatively common nesting birds, with the presence of uncommon bird species considered very unlikely. The removal of the northern hedgerow would need to be completed outside of the bird breeding period (March-August) to minimise the risk of killing / injuring nesting birds during the clearance works. If clearance during the nesting period is unavoidable, this must follow a careful and thorough check of the hedgerow for nesting bird presence by a suitably experienced ecologist and could only proceed if the check confirms absence.
- 2.18 The results of the GCN risk assessment calculations confirm that significant impacts on GCN because of the Development cannot be discounted (without further specific survey) in relation to the pond adjoining the Site to the south (labelled Pond 1 on **Figure 2.2**) as the calculator gives an **Amber: Offence likely** outcome. This pond was therefore subject to a presence / absence GCN survey to verify the presence / absence of this species and verify impact risk (as detailed below). The second nearest pond (shown on a 1:2,500 site location plan), which is in the garden of Heron Cottage 140 m to the north of the application site, generates a **Green: Offence Highly Unlikely** outcome and is not considered further.

Great crested newt presence / absence survey

- 2.19 The eDNA analysis of pond water samples for evidence of GCN DNA confirmed the absence of this species from the pond adjoining the Study Area to the south, and therefore potential impacts on this species because of the proposed Development can be discounted. The ADAS analysis result sheet is provided in **Appendix B**.



Land at Heron Farm, Besthorpe

Statutory designated sites and ancient woodland

-  application boundary
-  Aslacton Parish Land SSSI
-  Lower Wood, Ashwellthorpe SSSI
-  New Buckenham Common SSSI
-  Sea Mere, Hingham SSSI
-  Swangey Fen, Attleborough SSSI
-  Norfolk Valley Fens SAC
-  Ancient & Semi-Natural Woodland
-  Ancient Replanted Woodland

Figure 2.1

Map Scale @ A4: 1:75,000

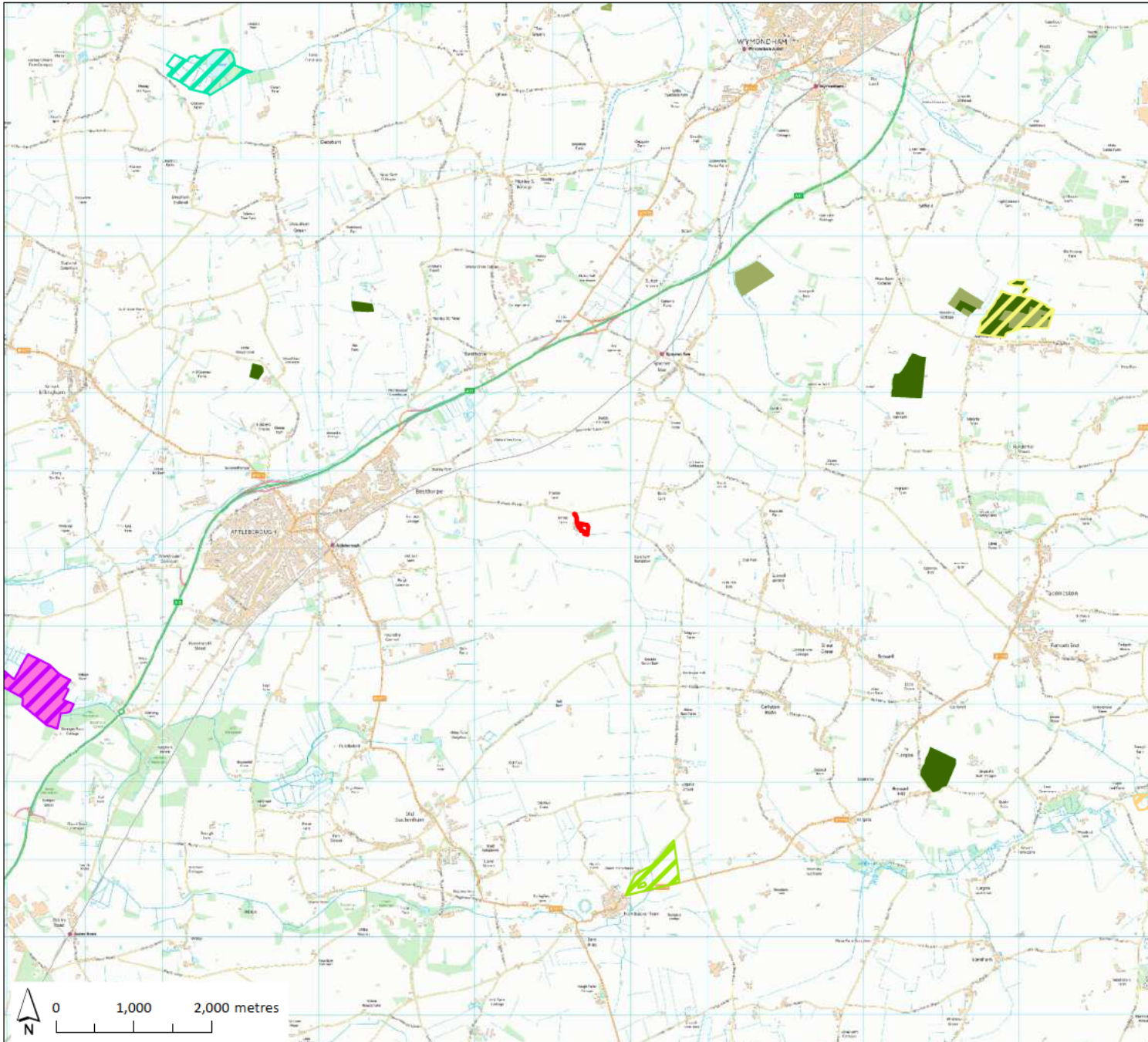
Surveyed by: n/a

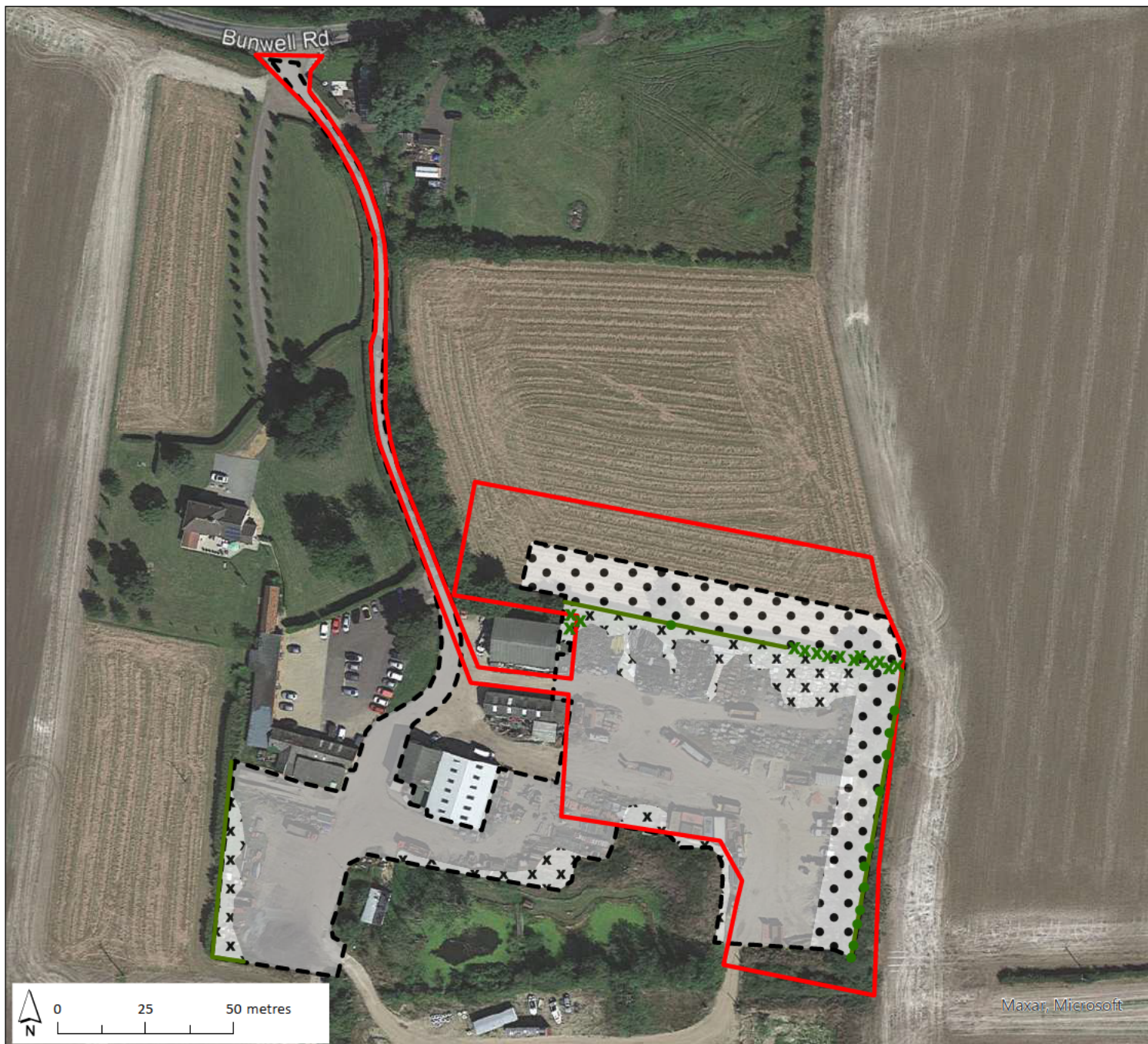
Survey date: n/a

Drawn by: NB

Checked by: RJH

Status: Final





Land at Heron Farm, Besthorpe

Phase 1 habitat map

- application boundary
- study area
- bare ground
- ephemeral/short perennial
- hard standing
- species-poor intact hedge
- individual tree (indicative location)
- x scattered scrub

Figure 2.2

Map Scale @ A4: 1:1,650

Surveyed by: RJH	
Survey date: 5 June 2020	
Drawn by: NB	
Checked by: RJH	
Status: Final	

Figure 2.3: Selection of habitat survey photographs.



(a) Main working area showing compacted made ground and open-air material storage



(b) Large unvegetated earth bund on eastern boundary – looking north



(c) Northern boundary hedgerows with single ash tree



(d) Pond 1 located to the south of the Study Area with no evidence of GCN presence found during eDNA presence / absence survey



3 Conclusions and Recommendations

- 3.1 The current PEA has been prepared to support a planning application for activities already allowed under a standard rule permit, namely the treatment of waste to produce soil, soil substitutes and aggregate within the application site.
- 3.2 No statutory wildlife sites or ancient woodland are located close to the Study Area, and the Study Area is not located within a SSSI Impact Risk Zone that is relevant to the development being proposed.
- 3.3 The Study Area is dominated by hard standing and bare ground habitats of negligible ecological value and is subject to high levels of disturbance due to existing operations. The section of boundary hedgerow located in the northern part of the application site, which includes a single ash tree of Low suitability for roosting bats, is scheduled for removal to facilitate the proposed Development. The removal of the northern hedgerow would need to be completed outside of the bird breeding period (March-August) to minimise the risk of killing / injuring nesting birds during the clearance works. If clearance during the nesting period is unavoidable, this must follow a careful and thorough check of the hedgerow for nesting bird presence by a suitably experienced ecologist and could only proceed if the check confirms absence.
- 3.4 Aside from the likely presence of nesting birds in hedgerow boundaries, no other protected species constraints have identified by the PEA.



Appendix A

Aerial photograph (taken 26 July 2022)





Appendix B

ADAS eDNA analysis sheet



Client: Rob Hutchinson,
Applied Ecology



ADAS
Spring Lodge
172 Chester Road
Helsby
WA6 0AR

Tel: 01159 516747
Email: Helen.Rees@adas.co.uk

www.adas.uk

Sample ID: 2020-1628 Condition on Receipt: Good Volume: Passed
Client Identifier: Pond 1 Newall
Plant Hire, Besthopre Description: pond water samples in preservative
Date of Receipt: 02/07/2020 Material Tested: eDNA from pond water samples

Determinant	Result	Method	Date of Analysis
Inhibition Control [†]	2 of 2	Real Time PCR	13/07/2020
Degradation Control [§]	Within Limits	Real Time PCR	13/07/2020
Great Crested Newt*	0 of 12 (GCN negative)	Real Time PCR	13/07/2020
Negative PCR Control (Nuclease Free Water)	0 of 4	Real Time PCR	As above for GCN
Positive PCR Control (GCN DNA 10 ⁻⁴ ng/μL) [#]	4 of 4	Real Time PCR	As above for GCN

Report Prepared by: Dr Helen Rees Report Issued by: Dr Ben Maddison

Signed:



Signed:



Position: Director: Biotechnology Position: MD: Biotechnology

Date of preparation: 16/07/2020 Date of issue: 16/07/2020

eDNA analysis was carried out in accordance with the stipulated methodology found in the Technical Advice Note (WC1067 Appendix 5 Technical Advice Note) published by DEFRA and adopted by Natural England.

** If all PCR controls and extraction blanks give the expected results a sample is considered: negative for great crested newt if all of the replicates are negative; positive for great crested newt if one or more of the replicates are positive.*

[†] Recorded as the number of positive replicate reactions at expected C_t value. If the expected C_t value is not achieved the sample is considered inhibited and is diluted as per the technical advice note prior to amplification with great crested newt primer and probes.

[§] No degradation is expected within time frame of kit preparation sample collection and analysis.

[#]Additional positive controls (10⁻¹ 10⁻² 10⁻³ ng/μL) are also routinely run results not shown here.

Appendix 1: Interpretation of results

Sample Condition

Upon sample receipt we score your samples according to quality: good, low sediment, medium sediment, high sediment, white precipitate, and presence of algae.

There are three reasons as to why sediment should be avoided:

1. It is possible for DNA to persist within the sediment for longer than it would if it was floating in the water which could lead to a false positive result i.e. in this case GCN not recently present but present a long time ago
2. In some cases sediment can cause inhibition of the PCR analysis used to detect GCN eDNA within samples which could lead to an indeterminate result.
3. In some cases sediment can interfere with the DNA extraction procedure resulting in poor recovery of the eDNA which in turn can lead to an indeterminate result.

Algae can make the DNA extraction more difficult to perform so if it can be avoided then this is helpful.

Sometimes samples contain a white precipitate which we have found makes the recovery of eDNA very difficult. This precipitate can be present in such high amounts that it interferes with the eDNA extraction process meaning that we cannot recover the degradation control (nor most likely the eDNA itself) at sufficient levels for the control to be within the acceptable limits for the assay, therefore we have to classify these type of samples as indeterminate.

What do my results mean?

A positive result means that great crested newts are present in the water or have been present in the water in the recent past (eDNA degrades over around 7-21 days).

A negative result means that DNA from the great crested newt has not been detected in your sample.

On occasion an inconclusive result will be issued. This occurs where the DNA from the great crested newt has not been detected but the controls have indicated that either: the sample has been degraded and/or the eDNA was not fully extracted (poor recovery); or the PCR inhibited in some way. This may be due to the water chemistry or may be due to the presence of high levels of sediment in samples which can interfere with the DNA extraction process. A re-test could be performed but a fresh sample would need to be obtained. We have successfully performed re-tests on samples which have had high sediment content on the first collection and low sediment content (through improved sample collection) on the re-test. If water chemistry was the cause of the indeterminate then a re-test would most likely also return an inconclusive result.

The results will be recorded as indeterminate if the GCN result is negative and the degradation result is recorded as:

1. evidence of decay - meaning that the degradation control was outside of accepted limits
2. evidence of degradation or residual inhibition - meaning that the degradation control was outside of accepted limits but that this could have been due to inhibitors not being removed sufficiently by the dilution of inhibited samples (according to the technical advice note)

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