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# Preliminary Ecological Appraisal

Somerton Castle Energy Centre

Report on Behalf of:  
J Porter & Son

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# Somerton Castle Energy Centre



## Document Control

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## CONTENTS

<b>1.0 Non-technical Summary</b>	<b>4</b>
<b>2.0 Introduction</b>	<b>6</b>
Site Description	6
Project Overview	6
<b>Survey Purpose</b>	<b>6</b>
<b>3.0 Legislation and Planning Policies</b>	<b>8</b>
Protected Habitats & Species	8
Invasive Species	9
<b>4.0 Methodology</b>	<b>10</b>
<b>Desk Study</b>	<b>10</b>
<b>Habitat Survey</b>	<b>10</b>
<b>Protected Species Assessment</b>	<b>10</b>
Bats	11
Birds	13
Reptiles	13
Badger ( <i>Meles meles</i> )	13
Great Crested Newts ( <i>Triturus cristatus</i> ) and Amphibians	14
Notable Mammals	14
Invasive Species	15
Omissions	15
<b>Appraisal Methodology</b>	<b>15</b>
<b>Assumptions and Limitations</b>	<b>15</b>
<b>5.0 Results</b>	<b>16</b>
<b>Designated Sites</b>	<b>16</b>
<b>Habitat Survey</b>	<b>16</b>
Habitats	16
Modified Grassland	16
Sparsely Vegetated Urban Land	18
<b>Fauna</b>	<b>18</b>
Badgers	18
Bats	18
Breeding Birds	20
Reptiles	20
Amphibians	20
<b>6.0 Discussion &amp; Recommendations</b>	<b>22</b>
Proposals	22
Designated Sites	22
Habitats	22
Fauna	22
<b>7.0 Bibliography</b>	<b>25</b>

## **TABLES**

Table 1: Guidelines for Assessing the Suitability of Trees on Proposed Development Sites

Table 2: Assessing the Potential Suitability of a Development Sites for Bats

Table 3: HSI Score Scale

Table 4: Pond HSI Scores

## **FIGURES**

Figure 1: Site Location and Consultation Plan

Figure 2: UK Habitat Classification Plan

## 1.0 Non-technical Summary

<b>Executive Summary</b>
<b>Background</b>
In February 2024 Pioneer Environment Group Ltd. was instructed by J Porter & Son to undertake a Preliminary Ecological Appraisal of a small section of Somerton Castle, LN5 0LL (centered on Grid Reference SK 95413 58850).
<b>Site Description</b>
Somerton Castle is a 13 <sup>th</sup> century castle located off Castle Lane near the villages of Navenby and Boothby Graffoe. It is situated approximately 12km south of the city of Lincoln.  The survey undertaken covers a section of hard standing and grassland within the castle grounds (approx. 2.906ha) along with several nearby ponds, and is to support a demolition of the Dutch barn to facilitate the erection of a new Energy Centre, studio and stables, with associated grazing paddocks.  The village of Navenby lies approximately 3.7km south-east of the site; the village of Bassingham lies approximately 5.4km to the west. The surrounding landscape is dominated by intensive arable land.
<b>Development Proposal</b>
The development proposal is for the demolition of the Dutch barn and associated hardstanding, along with retention of the surrounding grassland, to facilitate the construction of a new Energy Centre, studio and stables, with associated grazing paddocks.  To facilitate the construction, the barn will be demolished and the surrounding grassland and hardstanding will be removed.
<b>Purpose</b>
The purpose of the survey was to: <ul style="list-style-type: none"> <li>Record and map habitats on the 'Development Site', including dominant botanical species (including invasive species).</li> <li>Assess the presence, potential presence, or likely absence of protected species.</li> <li>Evaluate, where appropriate, the ecological features recorded.</li> <li>Assess which ecological features may be subject to impact by a development within the boundaries of the site and advise on the need for additional or more detailed surveys to further establish the level of impacts.</li> </ul>
<b>Results and Recommendations</b>
<b>Designations</b> Lincolnshire Ecological Records Centre (LERC) did not identify any designated sites of international or national importance within 5km or 2km, respectively. LERC did not identify any Non-statutory Designated Sites within 1km of the site.  No designated or wildlife sites will be impacted by the development.
<b>Habitats</b> All habitats recorded were considered common and widespread within the local landscape and no rare or notable plants were identified.

## Executive Summary

### **Badgers**

No evidence of badgers or their setts, nor any habitats suitable for badgers, were found within the survey site.

Badgers are not considered a constraint to development at the time of writing this report.

### **Bats**

Two trees near the site were identified as having potential roosting features, along with bat boxes, whilst surrounding vegetation was considered to offer 'moderate-high' foraging and commuting habitat for bats. Works are not expected to impact either of the trees, or the vegetation.

The on-site Dutch barn proposed for demolition showed no potential to support roosting bats.

Artificial light used during construction should be directed away from trees and hedgerows.

### **Birds**

Demolition of the barn and clearance of vegetation suitable for breeding birds, such as trees or hedgerows, should be implemented outside of the bird nesting season i.e., between September and February. If this is not possible then the habitats should be checked by a suitably qualified ecologist immediately prior to starting works. If nesting is taking place, then these should be sufficiently buffered until the chicks have fledged.

No active nesting birds were noted during the survey of the site, its associated grounds or on adjacent land, however, it is important to consider that the survey was undertaken during mid-February.

### **GCN**

Despite the LERC records highlighting GCN within 500m of the Site, no evidence of GCN was noted during the survey.

Four ponds were HSI assessed for GCN suitability. Of those surveyed, one was assessed as 'Poor' (HSI Score 0.45), one as 'Below Average' (HSI Score 0.52), one as 'Average' (HSI Score 0.69) and one 249m to the south was assessed as 'Excellent' (HSI Score 0.79) habitat to support a breeding population of GCN.

Due to the proximity of the site to suitable ponds and minimal presence of suitable habitat within the development site and surrounding areas, the development is not believed to negatively impact terrestrial stage GCN populations for the purposes of dispersal if present. Suitable habitat was limited to the western boundary of the development site and other external habitats therefore recommendations have been made.

### **Amphibians and Reptiles**

No evidence of other amphibians or reptiles was noted during the survey. Suitable habitat for basking, foraging and dispersal was limited to the habitat on the western boundary of the development site and habitats external to the works area. As such, recommendations have been made.

### **Invasive Species**

No invasive species were noted during the survey of the site.

### **Other Species**

All other species have been considered and do not present a constraint to the planned works.



## 2.0 Introduction

- 2.1 Pioneer Environment Group Ltd was instructed by J Porter & Son to undertake a Preliminary Ecological Appraisal (PEA) of a small section of Somerton Castle, LN5 0LL (centred on Grid Reference SK 95413 58850, Figure 1).
- 2.2 To assess the existing ecological interest of the site, an ecological desk study was carried out, and a walkover survey was undertaken on the 8<sup>th</sup> of February 2024. The survey comprised a UK Habitat Classification (UKHab) Survey, a Preliminary Roost Assessment (PRA) for bats, and included initial observations of any suitable habitats for, or evidence of, other protected species.

### Site Description

- 2.3 Somerton Castle is a 13<sup>th</sup> century castle located between the villages of Navenby and Boothby Graffoe (Figure 1). It comprises the castle buildings, which are now used for residential purposes, associated parking, gardens, ponds and reedbeds.
- 2.4 The red line boundary (Figure 2) is approximately 0.29ha in extent and comprised a Dutch barn, hardstanding and grassland, along with the access road. The site is used for residential purposes.
- 2.5 The survey site is entirely enclosed within the castle grounds, the northern boundary is demarcated by a fenceline, the eastern boundary is demarcated by a brick wall and woodland, the western boundary is demarcated by a drainage ditch and the southern boundary is demarcated by buildings.
- 2.6 The wider landscape is formed of intensive arable farmland with associated hedgerows and trees.

### Project Overview

- 2.7 The development proposal is for the demolition of the Dutch barn and associated hardstanding, along with retention of the surrounding grassland, to facilitate the construction of a new Energy Centre, studio and stables, with associated grazing paddocks.

### Survey Purpose

- 2.8 The purpose of the survey was to:
- Record and map habitats on the Site, including dominant botanical species and check for invasive species.
  - Assess the presence, potential presence, or likely absence of protected/Natural Environment and Rural Communities (NERC) species.
  - Evaluate, where appropriate, the ecological features recorded.
  - Assess which ecological features may be subject to impact through the development of the site and advise on the need for additional or more detailed surveys to further establish the level of potential impacts.

- Make recommendations regarding precautions, mitigation, enhancements and/or management to ensure compliance with statutory and non-statutory nature conservation legislation and policy for the development of the site.
- 2.9 This report aims to provide general advice on ecological constraints identified applicable to the development of the site and includes recommendations for further survey work if required.



### 3.0 Legislation and Planning Policies

- 3.1 Several UK and European policies and legislation control the conservation of biodiversity. This section briefly outlines the legal and policy protection afforded to species and habitats scoped into this survey and described within the report.

#### Protected Habitats & Species

- 3.2 The Wildlife and Countryside Act 1981 (as amended by the Countryside Rights of Way Act 2000) is the primary legislation that protects animals, plants, and habitats in the UK. The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 additionally lists European Protected Species.
- 3.3 Bats and their roosts are protected under the Wildlife and Countryside Act 1981 (as amended) and by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. In summary it is an offence to damage, destroy or obstruct any place used by bats for breeding and shelter, disturb a bat, or kill, injure, or take a bat. Seven bat species including noctule (*Nyctalus noctule*) (but not common pipistrelle (*Pipistrellus pipistrellus*)) are listed as Species of Principal Importance under the provisions of the NERC Act 2006.
- 3.4 Common reptiles grass snake (*Natrix helvetica*), adder (*Vipera berus*), common lizard (*Zootoca vivipara*) and slow worm (*Anguis fragilis*) are listed under Schedule 5 of the Wildlife and Countryside Act (as amended) and are protected from killing and injury.
- 3.5 Common frog (*Rana temporaria*), common toad (*Bufo bufo*), common newt (*Lissotriton vulgaris*), and palmate newt (*Lissotriton helveticus*) receive limited protection under the Wildlife and Countryside Act 1981 (as amended), making it illegal to sell or trade them. Great Crested Newt (*Triturus cristatus*) and Natterjack Toad (*Epidalea calamita*) are fully protected under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 as European Protected Species. It is illegal to:
- 3.6 Deliberately capture, injure, kill, or disturb either species,
- 3.7 Intentionally or recklessly obstruct access to any structure/place used for shelter or protection, or
- 3.8 Damage or destroy a breeding site or resting place.
- 3.9 The Wildlife and Countryside Act 1981 (as amended) provides protection to all species of wild bird and their nests. Under Section 1 it is an offence to intentionally or recklessly take, damage, destroy, or otherwise interfere with nests or eggs, or to obstruct or prevent any wild bird from using its nest.
- 3.10 Under the Protection of Badgers Act 1992 it is an offence to disturb, kill, injure, or take a badger (*Meles meles*) or to disturb, damage, obstruct access to, allow a dog to access or destroy a sett.
- 3.11 The NERC Act 2006 places a duty on public authorities to conserve biodiversity. Additionally, this Act states that a list of priority species and actions must be drawn up and published, to contain species and habitats of principal importance for the purpose of conserving biodiversity. These lists of Priority Species and Priority Habitats, which encompass the previous UK Biodiversity Action Plan (BAP) habitats and species, are those

identified as being the most threatened and requiring conservation action. Priority habitats and species were chosen based on international importance, rapid decline, and high risk. The list contains over 1000 habitats and species in total.

### **Invasive Species**

- 3.12 Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) contains introduced species which have been identified as having a severe economic and ecological impact through their introduction. It is an offence to release or allow to escape into the wild any species which is listed under Part I or Part II of Schedule 9, or any species which is not native.

## 4.0 Methodology

### Desk Study

- 4.1 In order to compile existing baseline information, relevant ecological information surrounding a 1km radius was reviewed, and includes:
- Landscape structure using Ordnance Survey base maps ([www.bing.com](http://www.bing.com)) and aerial photographs from Google Earth.
  - Designated sites and priority habitat held on <http://magic.defra.gov.uk/>. International statutory designations within 5km and National statutory designations within 2km.
  - Lincolnshire Environmental Records Centre (LERC) search for protected species and designated sites within 2km of the proposal.
- 4.2 It is considered that the search buffers are sufficient to cover the potential zone of influence of the proposed development. The designations of each protected habitat at each site have been considered during analysis into whether any proposed development will have any significant ecological impacts upon them.

### Habitat Survey

- 4.3 The habitat survey was undertaken following UK Habitat Classification Survey Methodology (UKHab Ltd, 2023) on the 8<sup>th</sup> February Steph Robertson and Meg Utton, and covered all accessible parts of the survey area, including boundary features (Figure 1). Habitats were mapped and described. Where appropriate, a list of plant species was compiled, along with an estimate of abundance using the DAFOR scale (D = Dominant; A = Abundant, F = Frequent, O = Occasional, R = Rare). Features such as trees and hedgerows were mapped, and habitats were considered with regards to their ecological value and potential to support protected species.
- 4.4 Target notes were used to record features or habitats of particular interest, as well as any sightings or evidence of protected or notable species.
- 4.5 The UKHab survey does not constitute a full botanical survey, or a Phase 2 pre-construction survey that would include accurate GIS mapping for invasive or protected plant species.

### Protected Species Assessment

- 4.6 Throughout the UKHab assessment the survey area was assessed through field observations for the potential to support protected species. Consideration was given to the actual or potential presence of protected species including those protected under the Wildlife and Countryside Act 1981, the Protection of Badgers Act 1992, and the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. Consideration was also given to the existence and use of each reach by other notable fauna such as Local Biodiversity Action Plan (LBAP) or Red Data Book (RDB) species.
- 4.7 The survey area was inspected for protected species and signs of, as follows:

**Bats**

4.8 The presence of features in, and on trees, indicating potential for roosting bats such as fissures, holes, loose bark, and ivy. Direct evidence such as the presence of bats, staining, droppings and feeding remains were also looked for. The number, size and condition of these features was then used to give a quantified assessment of potential for bat occupation (Table 1). ‘Bat potential’ is a non-quantifiable measure of suitability for bats and is determined by surveyor subjectivity, however the table below classifies the potential categories as accurately as possible.

**Table 1: Guidelines for Assessing the Suitability of Trees on Proposed Development Sites**

Suitability	Description
NONE	Either no PRFs in the tree or highly unlikely to be any.
FAR	Further assessment required to establish if PRFs are present in the tree.
PRF	A tree with at least one PRF present.

4.9 A preliminary roost assessment considers all accessible features on a building with the potential to provide suitable habitat for bats. The exterior and interior of buildings are visually assessed by a bat licenced ecologist for potential bat access points and evidence of bat activity.

4.10 Features such as gaps in the fabric of buildings, which have potential to be used as access points are sought. Suitable nesting/roosting features are also mapped, and evidence of potential access points are described.

4.11 Ladders, torches, binoculars, and an endoscope can all be used to aid this assessment.

4.12 The survey work was completed in accordance with Bat Conservation Trust’s “Bat Surveys for Professional Ecologists”. The rationale behind the value given to the suitability of a feature to support bats is shown in Table 2.

**Table 2: Assessing the Potential Suitability of Development Sites for Bats (Collins, 2023 )**

Potential suitability	Description	
	Roosting habitats in structures	Potential flight-paths and foraging habitats
<b>None</b>	No habitat features on site likely to be used by any roosting bats at any time of the year (i.e. a complete absence of crevices/suitable shelter at all ground/underground levels).	No habitat features on site likely to be used by any commuting or foraging bats at any time of the year (i.e. no habitats that provide continuous lines of shade/protection for flight-lines, or generate/shelter insect populations available to foraging bats).

Potential suitability	Description	
	Roosting habitats in structures	Potential flight-paths and foraging habitats
<b>Negligible<sup>a</sup></b>	No obvious habitat features on site likely to be used by roosting bats; however, a small element of uncertainty remains as bats can use small and apparently unsuitable features on occasion.	No obvious habitat features on site likely to be used as flight-paths or by foraging bats; however, a small element of uncertainty remains in order to account for non-standard bat behaviour.
<b>Low</b>	A structure with one or more potential roost sites that could be used by individual bats opportunistically at any time of the year. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions <sup>b</sup> and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity and not a classic cool/stable hibernation site, but could be used by individual hibernating bats <sup>c</sup> ).	Habitat that could be used by small numbers of bats as flight-paths such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
<b>Moderate</b>	A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions <sup>b</sup> and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only, such as maternity and hibernation – the categorisation described in this table is made irrespective of species conservation status, which is established after presence is confirmed).	Continuous habitat connected to the wider landscape that could be used by bats for flight-paths such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.

Potential suitability	Description	
	Roosting habitats in structures	Potential flight-paths and foraging habitats
<b>High</b>	A structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions <sup>b</sup> and surrounding habitat. These structures have the potential to support high conservation status roosts, e.g. maternity or classic cool/stable hibernation site.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by bats for flight-paths such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.
<p><b>a)</b> Negligible is defined as ‘so small or unimportant as to be not worth considering, insignificant’. This category may be used where there are places that a bat could roost or forage (due to one attribute) but it is unlikely that they actually would (due to another attribute).</p> <p><b>b)</b> For example, in terms of temperature, humidity, height above ground level, light levels or levels of disturbance.</p> <p><b>c)</b> Evidence from the Netherlands shows mass swarming events of common pipistrelle bats in the autumn followed by mass hibernation in a diverse range of building types in urban environments (Korsten et al., 2016 and Jansen et al., 2022). Common pipistrelle swarming has been observed in the UK (Bell, 2022 and Tomlinson, 2020) and winter hibernation of numbers of this species has been detected at Seaton Delaval Hall in Northumberland (National Trust, 2018). This phenomenon requires some research in the UK, but ecologists should be aware of the potential for larger numbers of this species to be present during the autumn and winter in prominent buildings in the landscape, urban or otherwise.</p>		

### Birds

- 4.13 The presence of nesting habitat for breeding birds, such as buildings, mature trees, dense scrub, hedgerows and/or field margins suitable for ground nesting birds; and evidence of bird nesting including bird song, old nests, faecal marks etc.

### Reptiles

- 4.14 The site was searched for areas that could be used for insolation, shelter, foraging and breeding (Froglife, 1999).

### Badger (*Meles meles*)

- 4.15 Cover and topography suitable for badger sett construction, as well as evidence of badger including runs, push-throughs, setts, hair, and latrines (Harris, Cresswell, & Jefferies, 1989). All suitable habitats within the proposed areas and accessible land within 30m were searched for evidence of badger activity.

**Great Crested Newts (*Triturus cristatus*) and Amphibians**

- 4.16 The assessment aims to evaluate the potential of on-site water bodies to support breeding amphibians, specifically Great Crested Newts (*Triturus cristatus*), as well as the suitability of surrounding terrestrial habitats including rough grassland, scrub, hedgerows, woodland, and refuges such as logs and rubble piles. The assessment follows the Habitat Suitability Index (HSI) methodology developed by Oldham et al (2000).
- 4.17 The HSI methodology incorporates the evaluation of ten attributes to determine the suitability of water bodies for Great Crested Newts:
- Location (Area A, B or C within the UK);
  - Pond Area (size in metres<sup>2</sup>);
  - Permanence (how many times it may dry out in a decade);
  - Water quality (invertebrate diversity);
  - Shade (percentage of a water bodies perimeter shaded);
  - Fowl (impact of waterfowl if present);
  - Fish (impact of fish if present);
  - Pond Count (density of ponds within 1km)
  - Terrestrial Habitat (quality of surrounding habitat); and
  - Macrophytes (percentage of surface area occupied).
- 4.18 To assess pond suitability, a score is assigned based on the most appropriate criteria level within each attribute. A total score ranging from 0 to 1 is then calculated. The following scale is used to determine pond suitability:

**Table 3: HSI Score Scale**

HSI Score	Pond Suitability
>0.8	Excellent
0.7 – 0.79	Good
0.6 – 0.69	Average
0.5 0.59	Below Average
<0.5	Poor

**Notable Mammals**

- 4.19 The survey area was searched for evidence and suitable habitat for BAP/Priority Species mammals (Cresswell et al., 2012).



### **Invasive Species**

- 4.20 The survey area was searched for evidence of species listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended).

### **Omissions**

- 4.21 All other protected and notable species were scoped out of the survey work due the lack of suitable habitat within and adjacent to the surveyed area.

### **Appraisal Methodology**

- 4.22 The overall ecological appraisal is based on the standard best practice methodology provided by the Guidelines for Preliminary Ecological Appraisal (CIEEM, 2017). The assessment is a systematic approach used to assess the ecological value of a site or area prior to development or land use change. The appraisal aims to identify ecological features, sites, habitats, and species of value based on various factors, including legal protection, local or statutory site designations such as Sites of Special Scientific Interest (SSSI) or Local Wildlife Sites (LWS), and inclusion on Red Data Book Lists or Biodiversity Action Plans. The ecological value of the identified features is assessed in the context of different geographical scales, such as international, national, regional, or local, and potential constraints to development are identified based on this assessment. In cases where further investigation is needed, more detailed surveys may be recommended, such as to fully investigate the botanical value or confirm the presence or likely absence of a protected species.
- 4.23 The assessment also considers relevant planning policy guidance, such as the NPPF (2021), to relate the ecological value of the site to the planning process. This helps to identify any constraints and opportunities for ecological enhancement in line with both national and local policy. By considering ecological factors in the context of legal protections, site designations, and planning policy guidance, the assessment ensures that any potential impacts of development on ecological features are properly assessed and managed in an environmentally responsible manner.

### **Assumptions and Limitations**

- 4.24 It should be noted that whilst every effort has been made to describe the features on site as accurately as possible, this report reflects the habitat conditions noted at the time the ecology survey was undertaken only.
- 4.25 Habitats were surveyed outside of the optimal survey period for botanical and invasive species. As such, species lists included in this report should not be considered exhaustive. Should habitats be significantly impacted beyond the scale of the initially proposed development, then further survey effort between May and August should be considered.
- 4.26 The accuracy of habitat area measurements is limited to baseline data collection and quality of available mapping resources.

## 5.0 Results

### Designated Sites

#### Statutory Designated Sites

- 5.1 No designated sites of international or national importance were identified within 5km or 2km, respectively.

#### Non-statutory Designated Sites

- 5.2 No non-statutory designated sites were identified within 1km of the development.

### Habitat Survey

#### Habitats

- 5.3 The survey area encompassed a hardstanding tarmac driveway leading to a Dutch barn situated on a concrete slab. Within the areas of hardstanding and aggregate, very few species were identified. Perennial ryegrass (*Lolium perenne*), Yorkshire fog (*Holcus lanatus*), *Veronica sp.*, cleavers (*Galium aparine*) common nettle and red dead-nettle were rarely found, along with the occasional spear thistle (*Cirsium vulgare*).
- 5.4 Strips of ephemeral vegetation established on recently disturbed ground surrounding the barn was present.
- 5.5 The area of grassland was previously used as a storage area for materials and stockpiles during historical construction works and had recently been seeded.

#### Modified Grassland

- 5.6 Across the site, species diversity within grassland areas was low, and those present were indicative to that of 'Modified Grassland' (Photograph 1). Within this habitat, a section that had previously been used as a storage area for material stockpiles had been re-seeded with a *Lolium*-dominant grass seed mix in Autumn 2023.
- 5.7 Perennial ryegrass was dominant, with occasional occurrences of cock's-foot (*Dactylis glomerata*) and Yorkshire fog. White clover (*Trifolium repens*), dandelion (*Taraxacum officinale agg.*) and creeping buttercup (*Ranunculus repens*) were occasionally present.



**Photograph 1 – Modified Grassland habitat.**

- 5.8 Running along the western boundary of the site, the sward varied in height (Photograph 2) and comprised an abundance of tall forbs such as common nettle (*Urtica dioica*), willowherb sp. (*Epilobium sp.*), and hogweed (*Heracleum sphondylium*) present.



**Photograph 2 – Varied sward on western boundary.**

- 5.9 Herbaceous species included frequent occurrences of sowthistle (*Sonchus sp.*), bristly oxtongue (*Picris schioides*), cow parsley (*Anthriscus sylvestris*), daisy (*Bellis perennis*), *Veronica sp.*, and red dead-nettle (*Lamium pupureum*). Herb Robert (*Geranium robertianum*), pineappleweed (*Matricaria discoidea*) and curled dock (*Rumex crispus*) were occasionally identified.
- 5.10 Ragwort (*Senecio jacobaea*), broad-leaved dock (*Rumex obtusifolius*), speedwell sp. (*Veronica sp.*), meadow buttercup (*Ranunculus acris*) and forget-me-not (*Myosotis sp.*) had rare occurrences.



### Sparsely Vegetated Urban Land

- 5.11 To the east of the Dutch barn was a strip of previously disturbed land that had several ephemeral species establishing (Photograph 3). Perennial ryegrass and sowthistle sp. dominated, with frequent occurrences of herb Robert, white clover, daisy, Yorkshire fog, cleavers, spear thistle, common nettle, great mullein (*Verbascum thapsus*), bittercress sp. (*Cardamine sp.*) and groundsel (*Senecio vulgaris*). Bordering this, herb robert, pineappleweed, and cleavers .
- 5.12 Ragwort, cock's-foot, broad-leaved dock, bristly oxtongue and ribwort plantain (*Plantago lanceolata*) were occasionally found across the habitat parcel. Dandelion, *Veronica sp.*, red dead-nettle, white dead-nettle (*Lamium album*), willowherb sp. (*Epilobium sp.*), forget-me-not, mallow sp. (*Malva sp.*) and sun spurge (*Euphorbia helioscopia*).



Photograph 3 – Sparsely Vegetated Urban Land

### Fauna

#### Badgers

**\*\*\* All badger information should be kept confidential and remain out of the public domain\*\*\***

- 5.13 The Lincolnshire Environmental Records Centre (LERC) identified no setts within 1km of the development site.
- 5.14 No setts, guard hairs or prints were identified within or adjacent to the development site during the survey.

#### Bats

- 5.15 The LERC search for protected species returned several records of bat species within 1km of the development site: brown long-eared (*Plecotus auratus*), common pipstrelle, *Myotis*

sp., nathusius' pipistrelle (*Pipistrellus nathusii*), natterer's (*Myotis nattereri*), noctule (*Nyctalus noctula*), soprano pipstrelle (*Pipistrellus pygmaeus*) and western barbastelle (*Barbastella barbastellus*) (Figure 1).

- 5.16 No trees were identified to support roosting bat within the application site boundary.
- 5.17 Two trees located off-site and nearby were identified as having the potential to support roosting bats and were assessed as 'PRF' (Figure 2, TN1 & TN2). Tree 1 (Photograph 4) was approximately 8m from the site boundary and had a potential roosting feature (knot hole) visible from ground level. Tree 2 (Photograph 5) was approximately 11m from the site boundary and had multiple potential roosting features visible from ground level (knot holes, lifted bark), as well as two bat boxes hung approximately 3m and 4m high on the trunk. No other trees within and adjacent to site had suitable features.



Photograph 4 – Tree 1 (Figure 2, TN1)



Photograph 5 – Tree 2 (Figure 2, TN2)

- 5.18 No structures that could have suitable features for roosting bats will be disturbed or impacted by the development under current proposals. A Dutch barn stood within the site, with open sides and an asbestos panelled, double pitched roof. No potential roosting features were identified on the building (Photograph 6). The building was therefore deemed to have 'negligible' suitability for roosting bats.





**Photograph 6 – Dutch Barn**

- 5.19 The vegetation immediately surrounding the development site was considered to offer ‘moderate-high’ quality foraging and commuting habitat for bats, with a wider habitat mosaic of favourable (woodland, waterways, and hedgerows) and less favourable (arable fields and roads) habitats and landscape features.

#### **Breeding Birds**

- 5.20 The Dutch barn was assessed for presence of nesting birds and historical nests; at the time of survey, no nests were identified. The barn contained beams and ledges that can provide suitable nesting habitat for certain species, such as swallows. However, due to the barn being exposed on all sides, it was deemed to have ‘low’ potential to support breeding birds. Recommendations have been made.
- 5.21 The ephemeral vegetation and hardstanding habitats held negligible potential to support nesting birds.

#### **Reptiles**

- 5.22 The western section of grassland that runs parallel to the ditch provides suitable habitat for dispersing reptiles, as well as proving favourable for breeding, hibernating and foraging reptiles. The wider habitat to the north of the site was also deemed favourable.
- 5.23 Some rubble piles were noted around the site, however due to the regular disturbance of these piles they were not considered suitable hibernacula for reptiles at the time of survey.

#### **Amphibians**

- 5.24 There are seven native species of frog, toad and newt which are found within the UK. All amphibian species rely on suitable aquatic habitat (usually ponds) for breeding in the spring months, as well as suitable terrestrial habitat for safe migration and hibernation over the winter and before they reach maturity. Three of the species found in the UK, great crested newt, natterjack toad and pool frog (*Pelophylax lessonae*), are afforded European Protected Species status following population declines over previous years.

- 5.25 Two GCN records were returned within 500m of the proposals by the Lincolnshire Environmental Records Centre (LERC).
- 5.26 The Baseline Ecology Survey undertaken in 2013 (Wild Frontier Ecology, 2013) highlighted nine waterbodies within the footprint of Somerton Castle. Upon visiting the site, only four waterbodies within 250m of the development area held water (despite recent rains) and were assessed. A HSI was conducted on each pond to assess their suitability for GCN, the results can be seen In Table 4 and pond locations on Figure 2 (P1, P2, P3 & P4).
- 5.27 Some suitable terrestrial habitat for amphibians was observed on site, and further recommendations have been made.

**Table 4: Pond HSI Scores**

<b>Pond Number</b>	<b>HSI Score</b>	<b>Suitability</b>	<b>Distance from site (approx.)</b>
P1	0.52	Below Average	91m (SW)
P2	0.69	Average	85m (E)
P3	0.45	Poor	100m (N)
P4	0.79	Excellent	249m (S)



## 6.0 Discussion & Recommendations

### Proposals

- 6.1 The development proposal is for the demolition of the Dutch barn and associated hardstanding, along with retention of the surrounding grassland, to facilitate the construction of a new Energy Centre, studio and stables, with associated grazing paddocks.

### Designated Sites

- 6.2 No statutory or non-statutory designated sites were located within 1km or 2km of the site and those further away would not likely be impacted by the development proposal.
- 6.3 It is not anticipated that designated sites or wildlife sites will be impacted by the proposed development due to their distance from, and the small-scale nature of the proposals.

### Habitats

- 6.4 Habitats and plant species identified were considered common and widespread within the local area. Consequently, a loss of small sections of these habitats should not be considered a significant ecological constraint to a development proposal.
- 6.5 During the site visit, the site was also subject to a Biodiversity Net Gain (BNG) assessment (Pioneer Environment Ltd, 2024). This report contains proposed habitat creation/enhancement plans.

### Fauna

#### Badgers

- 6.6 No badger setts were identified within the survey area and this species is not considered a constraint to development.

#### Bats

- 6.7 Two trees were identified outside of the site boundary as having potential roosting features, with one also supporting two bat boxes. As these trees are outside of the site boundary, works will not impact them.
- 6.8 The on-site Dutch barn proposed for demolition showed no potential to support roosting bats; hence, no further assessment or surveys are deemed necessary.
- 6.9 The vegetation surrounding the development site was considered to offer 'moderate-high' quality foraging and commuting habitat for bats. Due to the proximity of the trees and vegetation to the development site, lighting recommendations have been provided.
- 6.10 Lighting should be designed to:
- Avoid artificial lighting of the mature trees with bat potential (Figure 2, TN1 & TN2).
- 6.11 If unavoidable, post development lighting schemes should:
- Use LED luminaires should where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability.
  - Use a warm white spectrum (ideally <2700Kelvin) to reduce blue light component.

- Use luminaires that feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats.
- Use specialist bollard or low-level downward directional luminaires to retain darkness above.
- Only use luminaires with an upward light ratio of 0% and with good optical control.
- Only use luminaries mounted horizontally (no upward tilt).
- Be designed by a lighting professional in conjunction with an ecologist.

### Breeding Birds

- 6.12 Habitats at the site provide suitable nesting and foraging habitat for birds. All birds are protected while nesting by the WCA 1981 (as amended). Specially protected Schedule-1 bird species are afforded additional protection from disturbance while nesting.
- 6.13 It is recommended that site clearance works, including the demolition of the Dutch barn and removal of any woody vegetation and ground flora during development is conducted outside the bird breeding season (March – August inclusive) between September and February. If clearance is planned for the bird breeding season, then it will need to be preceded by a nesting bird survey conducted by an experienced ecologist. This will involve observing any vegetation to identify birds exhibiting nesting behaviour and/or searching for active nests. Should active nests be identified then an exclusion zone would need to be retained until the chicks had fledged as determined by the supervising ecologist.

### Reptiles

- 6.14 Although only a small area of habitat, with limited suitability for reptiles, is being affected by the proposed development, the following recommendations will reduce the likelihood of killing, injuring, or disturbing any reptiles present on the site.
- During clearance of any of the grassland, phased removal of any vegetation to above 150mm should be undertaken during temperatures exceeding 15°C (this is when reptiles are active). After a 24-hour period, a second cut can be made to ground level. If this is not possible due to timing of works, habitats should be checked via a fingertip search for reptiles by a suitably qualified ecologist.

### Amphibians

- 6.15 Although only a small area of habitat suitable for amphibians is being affected by the proposed development, the below recommendations will reduce the likelihood of killing, injuring, or disturbing any amphibians present on the site.
- 6.16 Due to the proximity of the site to suitable ponds, and minimal presence of suitable habitat within the development site and surrounding areas, the development is not believed to negatively impact terrestrial stage GCN populations for the purposes of dispersal, if present. However, the following recommendations will reduce the likelihood of killing, injuring, or disturbing any GCN/amphibians present on the site:
- A receptor area to the south or east of the development site should be established and left undisturbed throughout construction. Vehicles should not pass over this area.

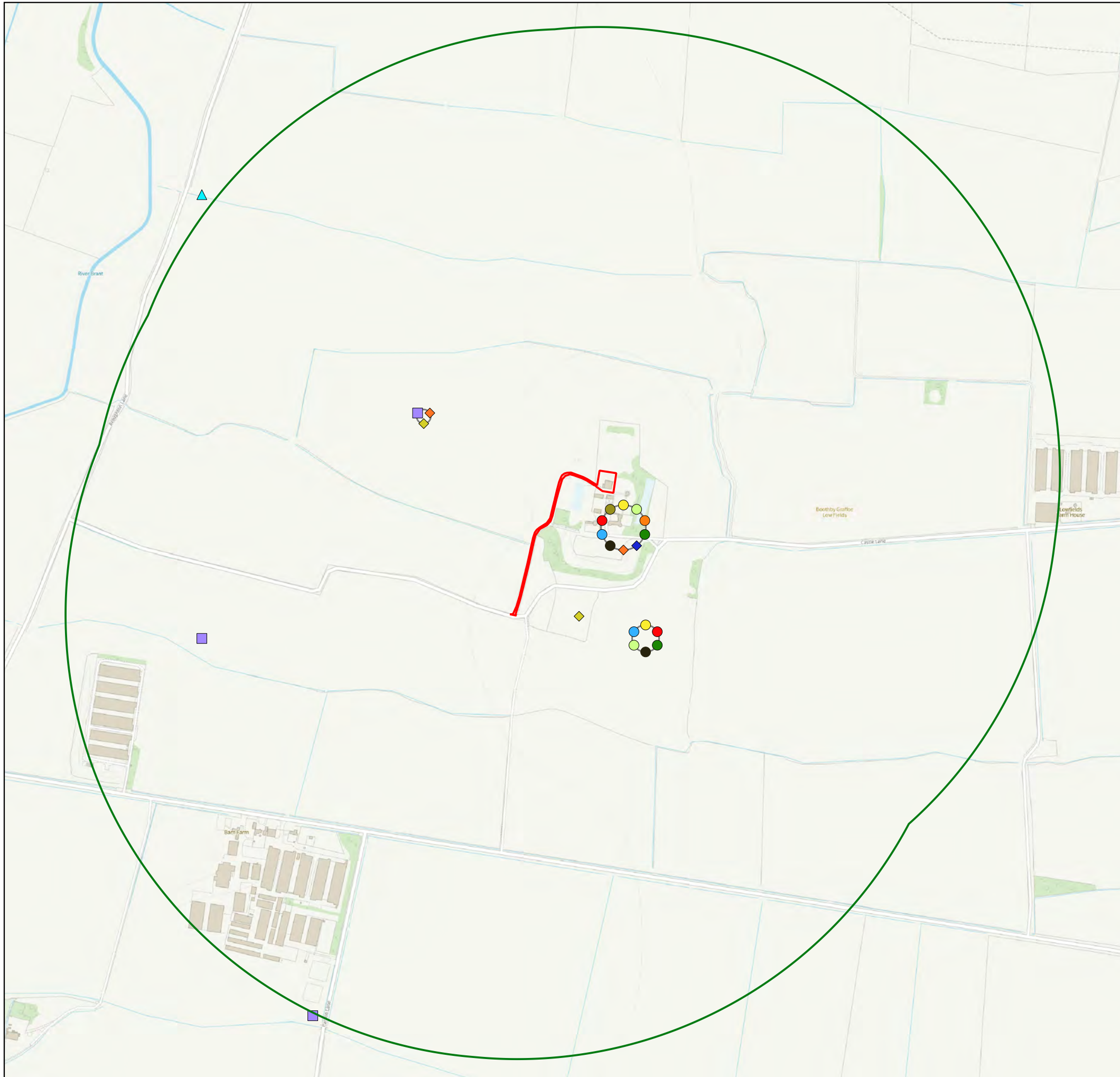
- Vegetation within the site boundary should be strimmed using hand tools; initially, to 150mm, then to ground level. The strimming process will be undertaken in a directional manner towards the receptor area (west to east) to encourage the dispersal of any species into the wider environment.
- Any piles of debris/wood that may form potential hibernacula should be avoided if work is undertaken in winter months.
- If amphibians or GCN are identified during the works, then works should cease immediately and Pioneer Environment Group contacted.

#### General Recommendations

- 6.17 To minimise disturbance, all work should be undertaken by hand where possible, and machinery use limited. This will lessen the impact on any wildlife present or nearby.
- 6.18 Where possible, most work should be carried out in the winter months to limit disturbance to wildlife.
- 6.19 Any deep excavations which must be left open overnight must have sloping boards installed to ensure that any animals such as badgers, hedgehogs, hares, or amphibians that fall in are able to escape.
- 6.20 Should any non-protected species such as hedgehog, frog, smooth newt, or toad be found during works they should be moved carefully by hand to an area to be left undisturbed by works.
- 6.21 Should evidence of protected species, such as bats, nesting birds, great crested newts, badgers, or reptiles, be discovered during works, works should temporarily stop while Pioneer Environment Group Ltd or the local office of Natural England are contacted for advice on the optimal way to proceed.

## 7.0 Bibliography

- CIEEM. (2017). *Guidelines for Preliminary Ecological Appraisal* (2nd ed.). Winchester: Chartered Institute of Ecology and Environmental Management.
- Collins. (2023 ). *Bat Surveys for Professional Ecologists: Good Practice Guidelines*.
- Froglife. (1999). *Reptile Survey: An Introduction to Planning, Conducting and Interpreting Surveys for Snake and Lizard Conservation*. Froglife Advice Sheet 10. Froglife, Halesworth.
- Harris, S., Cresswell, P., & Jefferies, D. (1989). *Surveying Badgers*. London: Mammal Society.
- ILP, B. &. (2023). *Guidance Noted 8 - Bats and Artificial Lighting*.
- Pioneer Environment Ltd. (2024). *Biodiversity Net Gain Report*.
- UKHab Ltd. (2023). *UK Habitat Classification Field Key*.
- Wild Frontier Ecology. (2013). *Baseline Ecology Survey*.

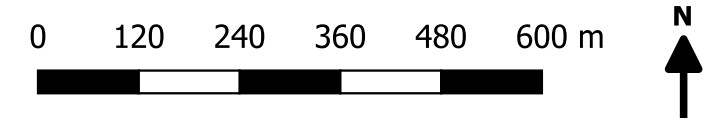


Key

- Site Boundary
- 1km Buffer Zone

Protected Species

- ▲ Barn Owl
- Brown Long-eared Bat
- ◆ Common Lizard
- Common Pipistrelle
- Eurasian Badger
- European Water Vole
- ◆ Grass Snake
- ◆ Great Crested Newt
- Myotis Bat species
- Nathusius's Pipistrelle
- Natterer's Bat
- Noctule Bat
- Soprano Pipistrelle
- Western Barbastelle



Project Name: **Somerton Castle Energy Centre**

Client: **J Porter & Son**

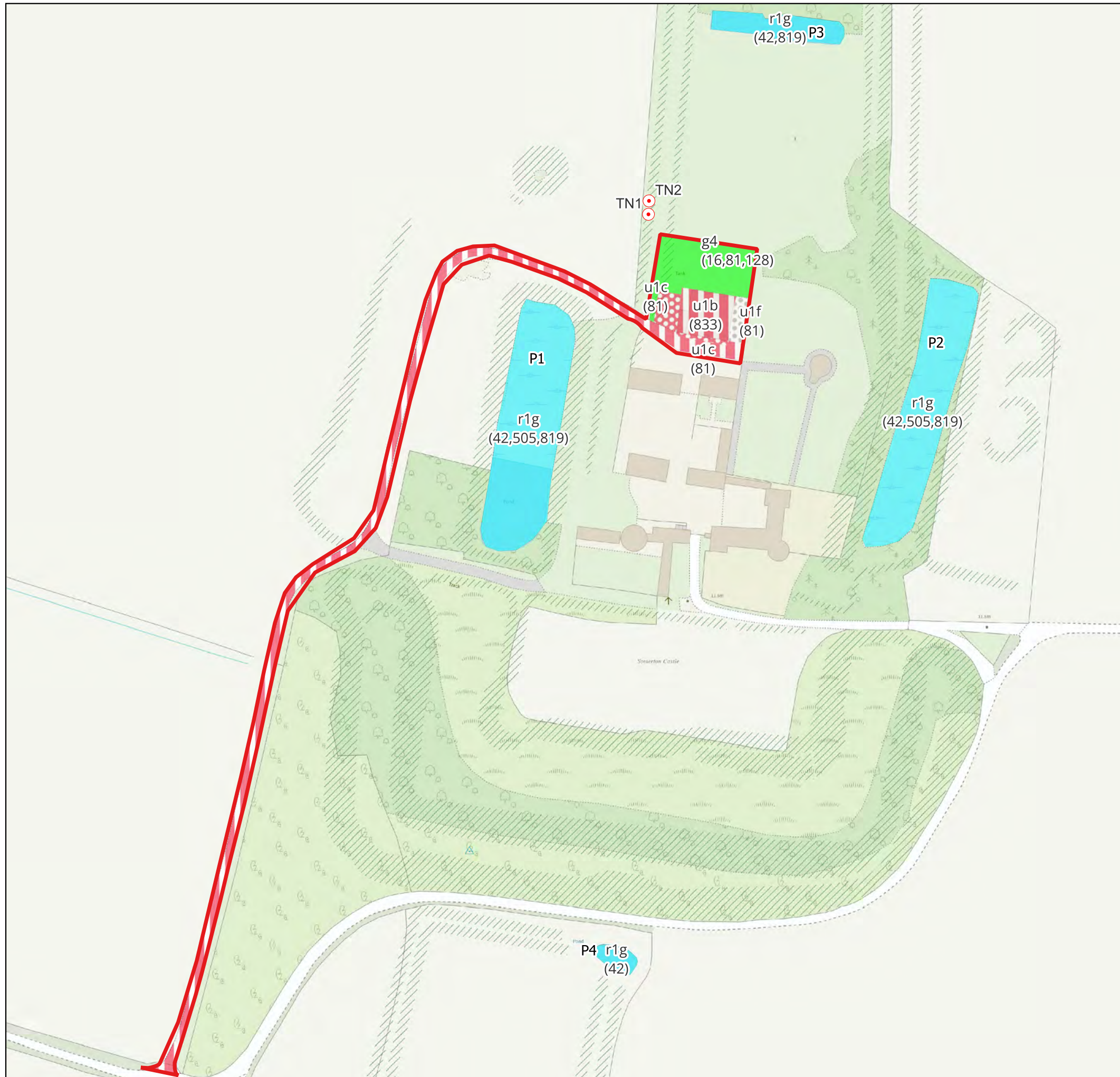
Figure No: **Figure 1**

Date: 09.02.2024

Title: Site Location and Consultation Plan







Key

- Site Boundary
- UKHAB — Baseline Areas
- u1c - Artificial unvegetated unsealed surface
- u1b - Developed land; sealed surface
- g4 - Modified grassland
- r1g - Ponds
- u1f - Sparsely vegetated urban land
- Target Notes

20 0 20 40 60 80 m



Project Name: **Somerton Castle Energy Centre**

Client: **J Porter & Son**

Figure No: **Figure 2**

Date: 19.02.2024

Title: UK Habitat Classification Plan

