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Preliminary Ecological Appraisal

August 2024



Thornton Lane, Thornton

HSSP Architects



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Non-Technical Summary

Three Shires Ltd was commissioned by HSSP Architects to undertake a Preliminary Ecological Appraisal (PEA) and a Preliminary Roost Assessment (PRA) of an area of land at Thornton Lane, Thornton, Markfield, hereafter referred to as 'the Site'

The Site is predominantly grassland with a single agricultural barn located at the southwest of the Site. Native hedgerows and two lines of trees border the site, and a vehicle track crosses the site from east to west.

The proposed plans are to convert the existing agricultural building into a residential property on the same footprint as the barn under class Q planning.

The proposed development may cause minimal disturbance to bats and birds using the site but not significant to require mitigation.

Overall, the Site has low to moderate ecological value which provides suitable habitat for species such as birds, bats and reptiles. All high value habitats such as native hedgerows and individual trees should be retained where possible.

No significant or long-term ecological impacts are expected from the proposed development.

Table 1: Overview of Required Mitigation for each Ecological Receptor

Factor	Present	Within 2km	Risk	Recommendation(s)
Sites of Nature Conservation				
Statutory Site	No	No		No action required
Protected and Notable Species				
Badger	No	Unknown		No evidence was identified on site during the survey. However, it would be recommended that any excavation >200mm in depth are ramped at each end. So, in the unlikely event any animal becomes trapped, there is a means of escape from the excavation.
Great Crested Newts	Possible	Unknown		Under the current planned works -No action is required. However, if plans are changed, ecological advice may be required.
Bats	High possibility	High possibility		Bats are likely to be on the site and/or using the site for foraging. Under the current planned works - No action is required as the current plans shall not significantly impact bats. However, if plans are changed ecological advice may be required. All hedgerows and trees on Site should be retained.

Factor	Present	Within 2km	Risk	Recommendation(s)
Birds	No	Yes		Under the current planned works -No action is required. However, if plans are changed, ecological advice may be required.
Widespread Amphibians	No	Yes		Best practice for ground vegetation clearance
Reptiles	No	Unknown		Best practice for ground vegetation clearance

1.0 Introduction

1.1 Background

In July 2024, Three Shires Ltd was commissioned by HSSP Architects to undertake a Preliminary Ecological Appraisal (PEA) and a Preliminary Roost Assessment (PRA) of an area of land at Thornton Lane, Thornton, Markfield, hereafter referred to as 'the Site' and the site visit was undertaken on 5 August 2024

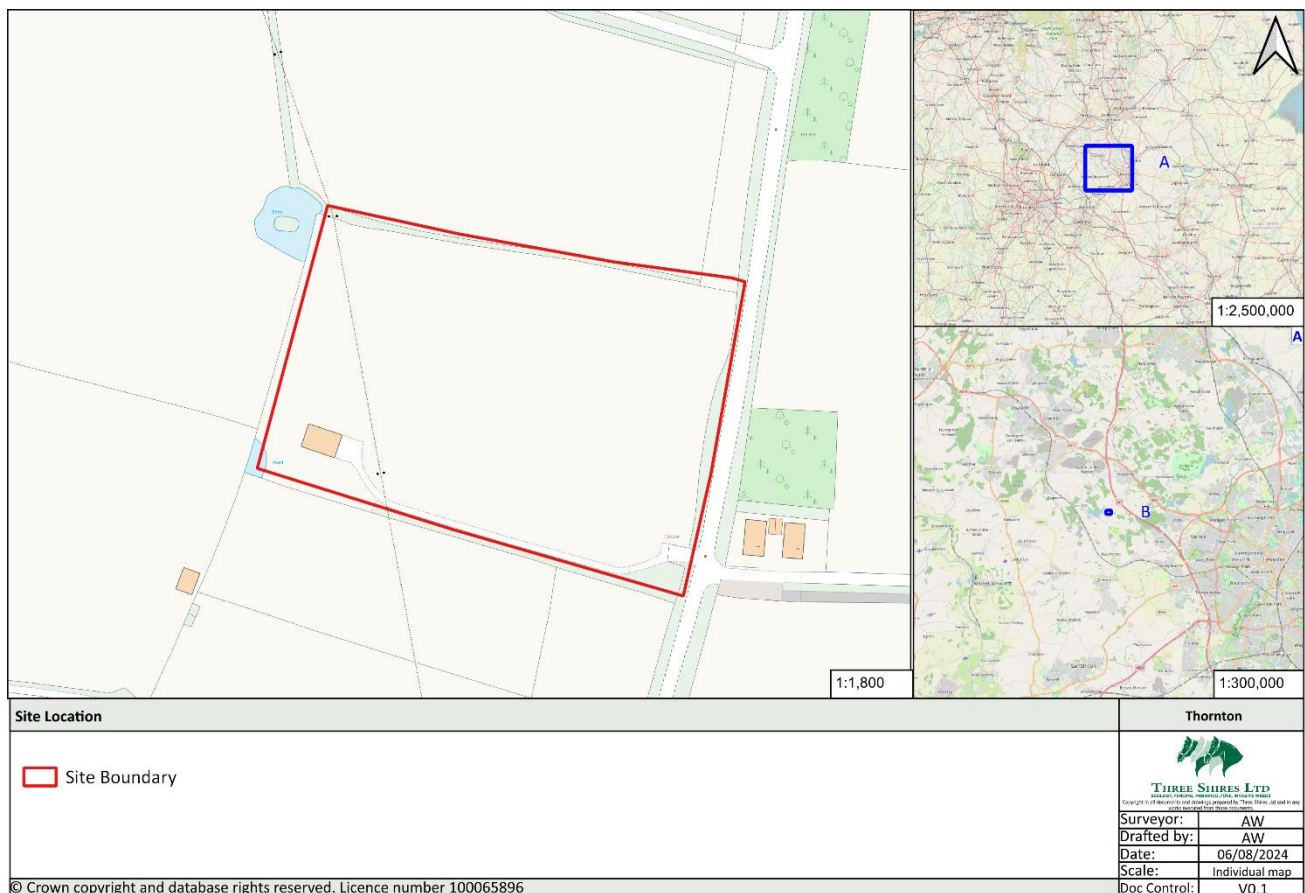
1.2 Purpose of this Report

The aim of this report is to provide an assessment of the current biodiversity value of the Site, highlight any other ecological features that have the potential to be impacted by the proposed development, and inform the design of the proposed development. The report follows the good practise guidance and follows the principles of the mitigation hierarchy and British Standard (BS) 42020 2013.

1.3 Site Location and Context

The Site is 1.9ha and is located 1.5km east outside of the village of Thornton, Markfield (**Figure 1**). The approximate centre of the Site lies at British National Grid Reference SK 48087 07642 approximately 2.6km south-west of Markfield and 11.3km from the city of Leicester. The Site is in a rural location, with no other buildings within a 0.1km radius of the centre of the site.

Figure 1: Site Location



The surrounding landscape is dominated by agricultural farmland and pasture (**Figure 2**). The hedgerows that border the Site have good connectivity to the wider habitat. There are fourteen waterbodies located within 500m of the Site; a small temporary waterbody is present on the west boundary and one larger waterbody just outside of the western boundary, Thornton reservoir is the largest waterbody within 500m of the site approximately 300m west of the site boundary (**Figure 6**); all other waterbodies were only visible from aerial imagery.

Figure 2: Site Landscape Context



1.4 Project Overview

The proposed development is for the demolition of an existing agricultural barn (**B1**) and the construction of a new residential dwelling on the pre-existing footprint of the barn. No detailed plans of the development were available at the time of writing.

2.0 Relevant Legislation and Local Policy

Relevant legislation and National Planning Policies applicable to the Site can be found in **Appendix A**.

2.1 Local Planning Policies

Local Planning policy is set out within the Hinckley & Bosworth Borough Council, Local Plan 2020 to 2039, adopted February 2022¹. The following policies are of particular relevance to this assessment.

NAT03 Trees, Hedgerows, Woodlands and Development

Planning permission will not normally be permitted (unless there are wholly exceptional reasons) where the proposal adversely affects trees, woodlands and hedgerows which are:

- a) Protected by a Tree Preservation Order (TPO);
- b) Ancient woodlands including Ancient Semi-natural Woodland (ASNW) and Planted Ancient Woodland Sites, individual ancient and veteran trees, those defined in Natural England's inventory of ancient woodlands and mature plantation woodlands; or
- c) Within a site of nature conservation importance which has Statutory Protection.

NAT07 Protecting Biodiversity

Internationally and Nationally Designated Sites

International and Nationally Designated Sites will be safeguarded. Development which is likely to have any adverse impact on the notified features of a nationally designated site will not normally be permitted. In exceptional circumstances, a proposal may be found acceptable where it can be demonstrated that:

- a) A suitable alternative site with a lesser impact than that proposed is not available;
- b) The on-site benefits of the proposal clearly outweigh the impacts on the notified features of the site and where applicable, the overall SSSI or habitat network;
- c) All appropriate mitigation measures have been addressed through the development management process; and
- d) Development likely to result in a significant effect on internationally designated sites will be subject to assessment under the Habitats Regulations and will not be permitted unless adverse effects can be fully avoided, mitigated and/or compensated. Development proposals should not have an adverse impact on the River Mease Special Area of Conservation (SAC). Where a significant effect on the SAC is identified an 'Appropriate Assessment' will be required.

Irreplaceable Habitats

Proposals which are likely to result in the loss or deterioration of an irreplaceable habitat (such as ancient woodland, ancient or veteran trees, old species-rich grassland, including that marked by ridge and furrow, and species-rich hedgerows that meet Hedgerow Regulations ecological criteria) would only be acceptable where:

- a) The need and benefits of the development in that location clearly outweigh the loss;

¹ https://www.hinckley-bosworth.gov.uk/download/downloads/id/7702/hinckley_and_bosworth_pre-submission_local_plan_regulation_19.pdf

- b) It has been adequately demonstrated that the irreplaceable habitat cannot be retained with the proposed scheme; and
- c) Appropriate compensation measures are provided on site wherever possible and off site where this not is feasible.

Locally Important Sites

Development proposals affecting locally important sites should always seek to contribute to their favourable management in the long term.

Where a proposal is likely to result in harm to locally important sites (including habitats or species of principal importance for biodiversity, and sites that meet the Leicester, Leicestershire, and Rutland criteria for designation as a Local Wildlife Site), developers will be required to accord with the following sequential approach:

- a) Firstly, seek an alternative site with a lesser impact than that proposed;
- b) Secondly, and if the first is not possible, demonstrate mitigation measures can be taken on site;
- c) Thirdly, and as a last resort, seek appropriate compensation measures, on site wherever possible and off site where this is not feasible.

NAT08 Enhancing Biodiversity and Habitat Connectivity

All development should provide a measurable 10% net gain in biodiversity on site in the first instance, through biodiversity enhancement off-site, or through off setting where appropriate.

All proposals should be supported by evidence to demonstrate a biodiversity net gain using the recognised biodiversity accounting metric and provide details of the long-term maintenance and management of the net gain.

Major developments in particular must include measures to deliver biodiversity gains through opportunities to:

- a) Restore and enhance existing features on site;
- b) Create additional habitats and ecological networks; and
- c) The linking of existing habitats to create links between ecological networks and where possible, with adjoining features.

Biodiversity net gain should be additional to any habitat creation required to mitigate or compensate for impacts on protected local/national BAP priority species. Net Gain can be delivered where there are no losses through development.

Proposals where the primary objective is to conserve or enhance biodiversity or geological interest will be permitted where they comply with other relevant policies in the Plan.

The retention and enhancement of linear features which enables strong connectivity of biodiversity as part of an integrated habitat network will be supported; this includes networks of hedgerows and ditches; enhanced habitats along the River Sence and Ashby Canal; roadside verges; and (cumulatively) private gardens, disused railway lines or other linear landscape features.

On site features should be retained, buffered and managed favourably to maintain their ecological value, connectivity and functionality in the long-term. The removal or damage of such features shall only be

acceptable where it can be demonstrated the proposal will result in no net loss of biodiversity and where the integrity of the hierarchy of international, national and locally designated sites identified in Policy NAT07 is secured.

If the harm cannot be prevented, adequately mitigated against or appropriate compensation measures provided, planning permission will be refused.

NAT09 Development in the Countryside and Settlement Separation

Development in the countryside will be considered sustainable where:

- a) It is for outdoor sport or recreation purposes (including ancillary buildings) and it can be demonstrated that the proposed scheme cannot be provided within or adjacent to settlement boundaries;
- b) The proposal involves the change of use, re-use or extension of existing buildings (including house extensions) which lead to the enhancement of the immediate setting;
- c) It significantly contributes to economic growth, job creation and/or diversification of rural businesses;
- d) It relates to the provision of stand-alone renewable energy developments in line with CC04;
- e) It is for agricultural or forestry purposes;
- f) The proposal is within the National Forest and relates to tourism, leisure or the woodland economy; or
- g) It relates to the provision of residential development in accordance with Policy HO08.

And:

- i. It does not have a significant adverse effect on the intrinsic value, beauty, open character and landscape character of the countryside in line with Policy NAT10;
- ii. It does not undermine the physical and perceived separation and open character between settlements;
- iii. It does not create or exacerbate ribbon development;
- iv. The residual traffic and transport impacts are addressed, as necessary, in accordance with Policies HT01 to HT04;
- v. If within a Green Wedge, it protects its role and function in line with Policy NAT02; and
- vi. If within the National Forest, it contributes to the delivery of Policy NAT04, the National Forest Strategy and the National Forest 25 Year Vision.

3.0 Methodology

3.1 Zone of Influence

The Zone of Influence (Zol) was defined considering the likely effects arising from the proposals, both during construction and in operation.

It is considered that the following impacts may result from the construction of low numbers of housing units:

- Temporary and permanent habitat loss;
- Injury or mortality of protected and notable species;
- Habitat degradation (e.g. dust pollution);
- Disturbance to protected and notable species resulting from works – machinery noise, vibration, light, increased human activity.

The distances from the site for these potential impacts are shown in **Table 1**.

Table 1: Zone of Influence used for this Assessment

Ecological Receptors	Zone of Influence
Special Areas of Conservation with bat species as features of interest	Within 10km of the Site boundary
Statutory protected sites	Within 2km of the Site boundary or where any site Impact Risk Zone (IRZ) covers the development site
Non statutory protected sites	Within 1km of the Site boundary
Habitats of Principal Importance and Ancient Woodland boundaries	Within 50m of the Site boundary
Waterbodies	Within 500m of the site boundary
Protected species evidence • Badger • Bat • GCN • Otter • Water vole	Within the Site boundary plus 30m 30m from the location of disturbance 500m from the Site boundary 200m from the Site boundary along watercourses 200m from the Site boundary along watercourses
Habitats	Within the site boundary plus 50m, where visible

3.2 Desk Study

The following sources were used to provide data for the desk study:

- Aerial photography – in order to aid preliminary ecological and overall assessment of the site;

- Multi-Agency Geographic Information for the Countryside (MAGIC)² – for statutory sites designated for nature conservation and recently granted (since 2009) European Protected Species (EPS) licences within 2km of the Site; and
- Environment Agency Main River Watercourse database³ - to determine whether any waterbodies identified on Site are designated as Statutory Main River.
- GCN Risk Zone (Leicestershire, Rutland, Rushcliffe and South Kesteven)⁴ – to determine if the area is important for GCN populations.
- Hinckley & Bosworth Borough Council, Local Plan 2020 to 2039, adopted February 2022.

A detailed description of the methodologies for habitats and protected species can be found in **Appendix B**.

3.3 Survey Constraints / Limitations

Full access to the area within the redline boundary was accessible for surveying. However, no access to the adjoining land was available during the time of the survey. For this reason, it was not possible to survey a 30m buffer zone for badgers outside of the redline boundary or to survey the waterbodies on the site, due to a lack of access to the land. Aerial imagery does show waterbodies within 500m of the Site, due to a lack of access it was not possible to survey these areas.

² magic.defra.gov.uk

³ environment.maps.arcgis.com

⁴ naturalengland-defra.opendata.arcgis.com

4.0 Results and Evaluation

4.1 Statutory Nature Conservation Sites

There were no Special Areas of Conservation (SAC) with bats listed as a feature of interest within 10km of the Site.

There is no statutory designated site within 2km of the Site. However, the site does lie within the 6th IRZ of Botcheston Bog SSSI (**Table 3, Figure 3**).

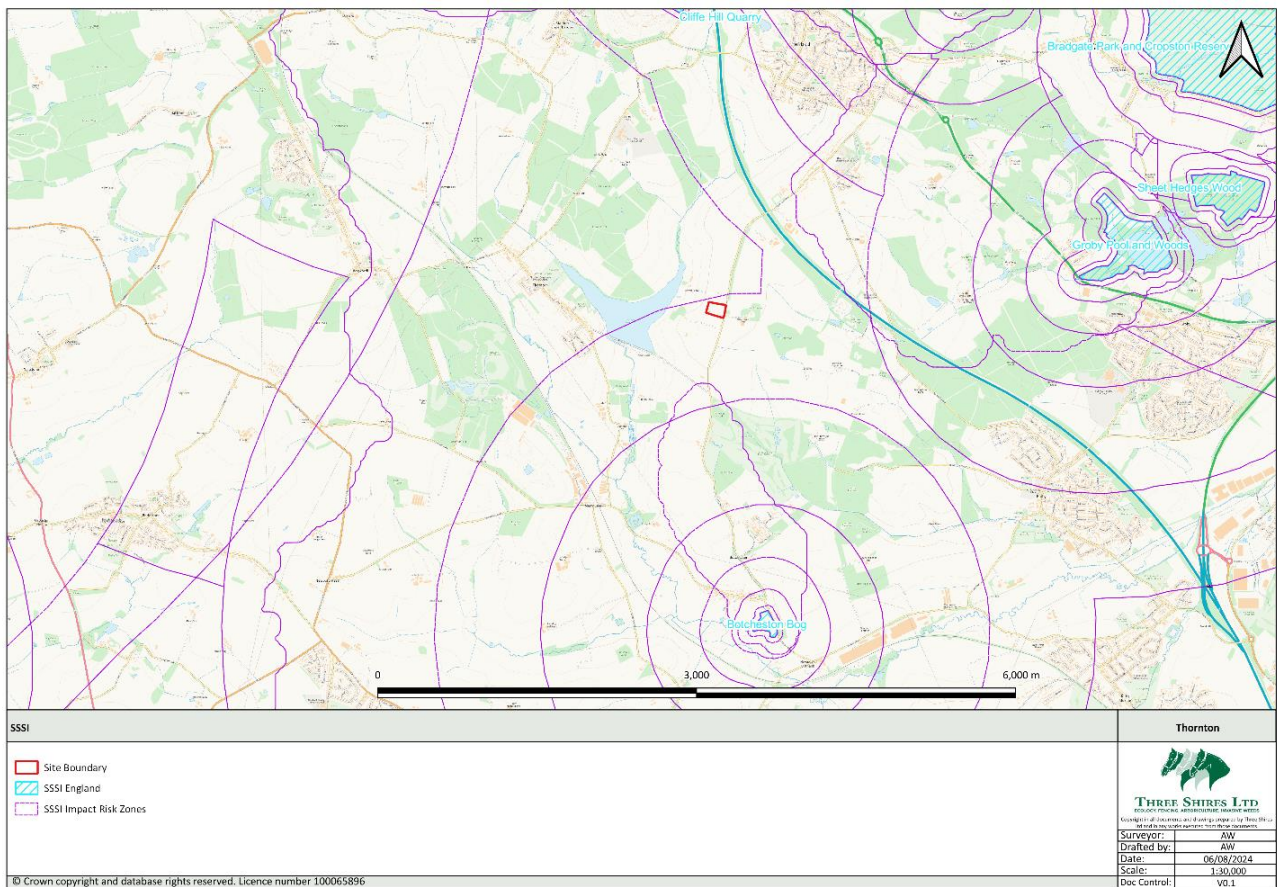
The ZOI for the proposed development results in no direct loss of habitats within the statutory site and as a residential development doesn't fall within Natural England's requirement for approval in respect to the impact risk of the SSSI for Infrastructure, air pollution, Mineral, oil and gas⁵

Table 3. Statutory Sites and Associated IRZ's

Site Name	Designation	Reason for Designation	Distance and direction from Site (km)
Botcheston Bog	SSSI	The site contains one of the best remaining areas of marshy grassland in Leicestershire and is representative of grazed marsh communities on peaty soils. The marsh has developed on a thin layer of peat which overlies mineral soils derived from Alluvial deposits and a number of plant species which are of rare occurrence in Leicestershire. The marsh is supported and supplemented by an adjacent area of wet grassland; and by a number of watercourses which flow through and around the site.	3km south of the Site

⁵ [https://irz.geodata.org.uk/IRZ/step2.html?irzcode=0301000500000¬es=&location=446908,306612%20\(IRZ%20polygon%20centre\)](https://irz.geodata.org.uk/IRZ/step2.html?irzcode=0301000500000¬es=&location=446908,306612%20(IRZ%20polygon%20centre))

Figure 3. Statutory Sites and Associated IRZ's



4.2 Non-Statutory Sites

Due to the nature of the proposals, a local records search was not conducted. Thornton Reservoir is a Designated Wildlife Site and is located approximately 300m to the west of the site boundary. The scale of the works are not anticipated to affect the status of the designation of the site.

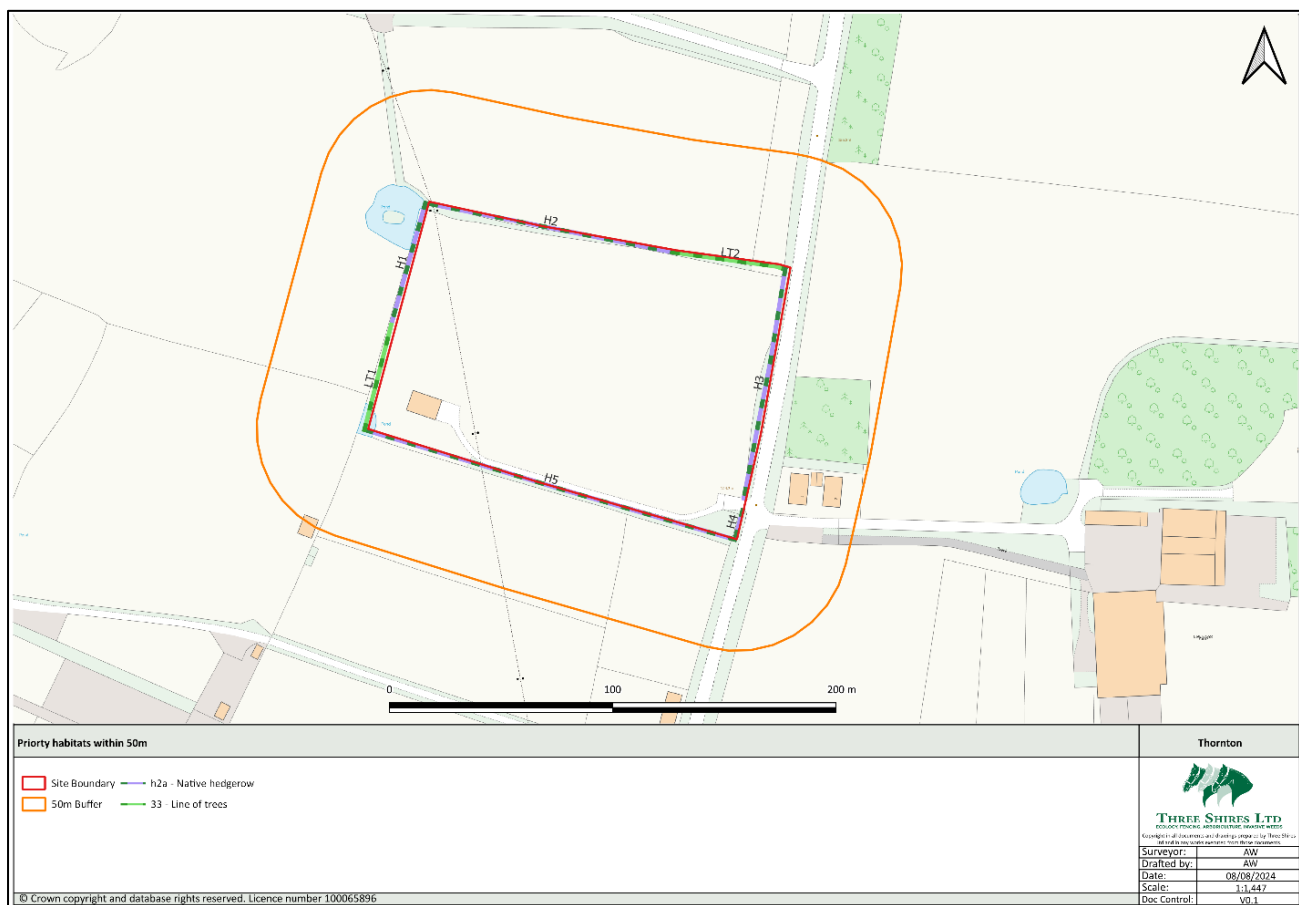
4.3 Priority Habitats

There are five native hedgerows (**H1, H2, H3, H4 & H5, Figure 4**) which border the Site, qualify as priority habitats. There is no loss of hedgerow expected from the development of the Site.

There are no other priority habitats within 50m of the Site boundary (**Figure 4**). There are a further two areas of deciduous woodland within 0.2km of the Site, one to the east and one to the west.

It is anticipated there will be no direct loss or damage to offsite priority habitats due to the scale of the proposed development.

Figure 4. Priority Habitats within 50m



4.4 Habitat Overview

The Site is dominated by other neutral grassland with one agricultural building in the south west corner of the Site with an area of hardstanding to the front of the building. There is a vehicle access track leading from the eastern boundary to the barn following the south boundary hedgerow. The Site is bordered by native hedgerows with two lines of trees, one on the southwest and one on the north west section of the Site boundary (**Figure 5**).

Figure 5: Site Baseline Habitat Map



4.4.1 Grassland

Other Neutral Grassland

The dominant habitat on Site is other neutral grassland (**Photographs 1-3**), the grassland is cut annually for hay and grazed by sheep over winter. The species composition is as follows:

- Dominant species: Yorkshire fog (*Holcus lanatus*).
- Abundant species: meadow foxtail (*Alopecurus pratensis*), false oat grass (*Arrhenatherum elatius*) and red fescue (*Festuca rubra*).
- Frequent species: cock's-foot (*Dactylis glomerata*), Timothy (*Phleum pratense*), meadow buttercup (*Ranunculus acris*), perennial rye (*Lolium perenne*) and white clover (*Trifolium repens*).
- Occasional species: creeping thistle (*Cirsium arvense*), mouse ear chickweed (*Cerastium fontanum*), crested dog's-tail (*Cynosurus cristatus*), birds foot trefoil (*Lotus corniculatus*), common hogweed (*Heracleum sphondylium*), sorrel (*Rumex acetosa*), sweet vernal grass (*Anthoxanthum odoratum*) and bristly oxtongue (*Helminthotheca echioides*).
- Rarely occurring species: Red clover (*Trifolium pratense*), and common nettle (*Urtica dioica*)

The grassland had a sward height of approximately 0.5m which was unmanaged at the time of survey and lacked variation in sward height across the grassland area.



Photograph 1: Looking northwest across the grassland from field access.



Photograph 2: Small area of grassland, south of field access.



Photograph 3: Looking northeast across the grassland from barn.

4.4.2 Buildings

One building is present on Site, a concrete and metal barn located in the southwest of the site (**B1**). **B1** is used for the storage of agricultural machinery and other associated equipment and materials, the construction of the barn is of a concrete base with concrete and metal sidings covered with a corrugated metal roof (**Photographs 4 & 5**). To the front of the building there is a concrete area for hardstanding. Access to the barn is via an unsealed hardcore track that crosses the site from east to west following the south boundary.



Photograph 4: Eastern aspect of B1.



Photograph 5: Internal area of B1.

4.4.3 Other Developed Land – Track

A compacted hardcore vehicle track crossed the Site from the field access on the eastern boundary, to the barn on the western side of the site, and runs parallel to the southern boundary (**Photographs 6-7**). The track was wide enough for one vehicle and appeared to be in use frequently. A small strip of vegetation was present in the middle of the track and included occasional Yorkshire fog, autumn hawkbit (*Scorzoneroides autumnalis*), groundsel (*Senecio vulgaris*), black medic (*Medicago lupulina*) and cranesbill sp., (*Geranium sp.*).



Photograph 6: Access to site from Thornton Road⁶.



Photograph 7: Access track viewed from B1.

4.4.4 Native Hedgerow

The site is partially bordered on the north and western boundaries by native hedgerow and lines of trees (**H1 & H2, Photograph 8 & 9**). Additionally, a native hedgerow denotes the south and eastern boundaries except for the access point on the eastern boundary (**H3, H4 & H5, Photograph 10-12**).

All hedgerows were dominated by hawthorn and blackthorn and were between 3-4m in height, **H1** showed signs of grazing of the understorey by livestock; however, the hedgerow had a width of approximately 2m, above the grazed areas. Hedgerows H2, H3, H4 & H5 were in an overall better condition and **H2** has been managed in the past with cutting of the side but not of the height due to a line of trees overshadowing the hedgerow from the neighbouring property and therefore was taller at approximately 4m. Hedgerows, **H3, H4**

⁶ Google Streetview 2024

& H5 were quite uniform in height and width at approximately 2m wide and 3m tall, having been managed and cut regularly. The ground flora of the hedgerow was dominated by grassland species previously identified in **section 4.4.1** with a transitional area which included frequent cow parsley (*Anthriscus sylvestris*), broadleaved dock and common nettle.



Photograph 8: Section of **H1** on the western boundary.



Photograph 9: Section of **H2** on the northern boundary.



Photograph 10: Section of managed hedgerow **H3**.



Photograph 11: Section of managed hedgerow **H4**.



Photograph 12: Section of managed hedgerow **H5** and access track.

4.4.5 Line of Trees

Two lines of trees (**LT1 & LT2, Photograph 13 & 14**) form part of the west and north boundaries of the site. The trees were predominantly mature oak (*Quercus sp.*) with the occasional mature ash (*Fraxinus excelsior*)



Photograph 13: Mature oak in LT1 on west boundary.



Photograph 14: LT2 on north boundary.

4.4.6 Waterbodies

There are fourteen waterbodies within 500m of the Site (**Figure 6**).

WB1 is directly adjacent to the southwest of the Site and is a small ephemeral waterbody that forms within a low point of the landscape, in full shade of the line of trees on the west boundary. There was no standing water within the pond; however, there was a small area of damp ground in the centre of the pond at the time of the site visit, due to recent rain fall. No vegetation was present within the wet area and the bed of the waterbody was formed from soft sediment and decomposing leaf litter and detritus (**Photograph 15**).

WB2 is shallow basin forming a semi-permanent waterbody, located adjacent to the northwest boundary of the site (**Photograph 16**). The ground surrounding **WB2** is bare earth with no aquatic or bankside vegetation with the water body experiencing low water levels at the time of the site visit. Visible evidence of poaching by livestock was present around the full perimeter of the waterbody.

WB3, WB4, WB5, WB9 and WB11 were only visible with aerial imagery and are in residential gardens located within a 500m radius of the site.

WB6 is Thornton reservoir, a designated wildlife site, which lies partially within 500 meters of the Site. There is no identified hydrological connectivity between the Site and Thornton reservoir and the scale of and nature of the development are anticipated to have no impact on the status of the Thornton Reservoir site.

WB7, WB8, WB10, WB12 and WB14 were only visible with aerial imagery, located within a 500m radius of the site. The waterbodies are shown on aerial imagery to be located within an agricultural landscape.

WB13 was only visible with aerial imagery, located within a 500m radius to the north of the site, in an area of woodland.

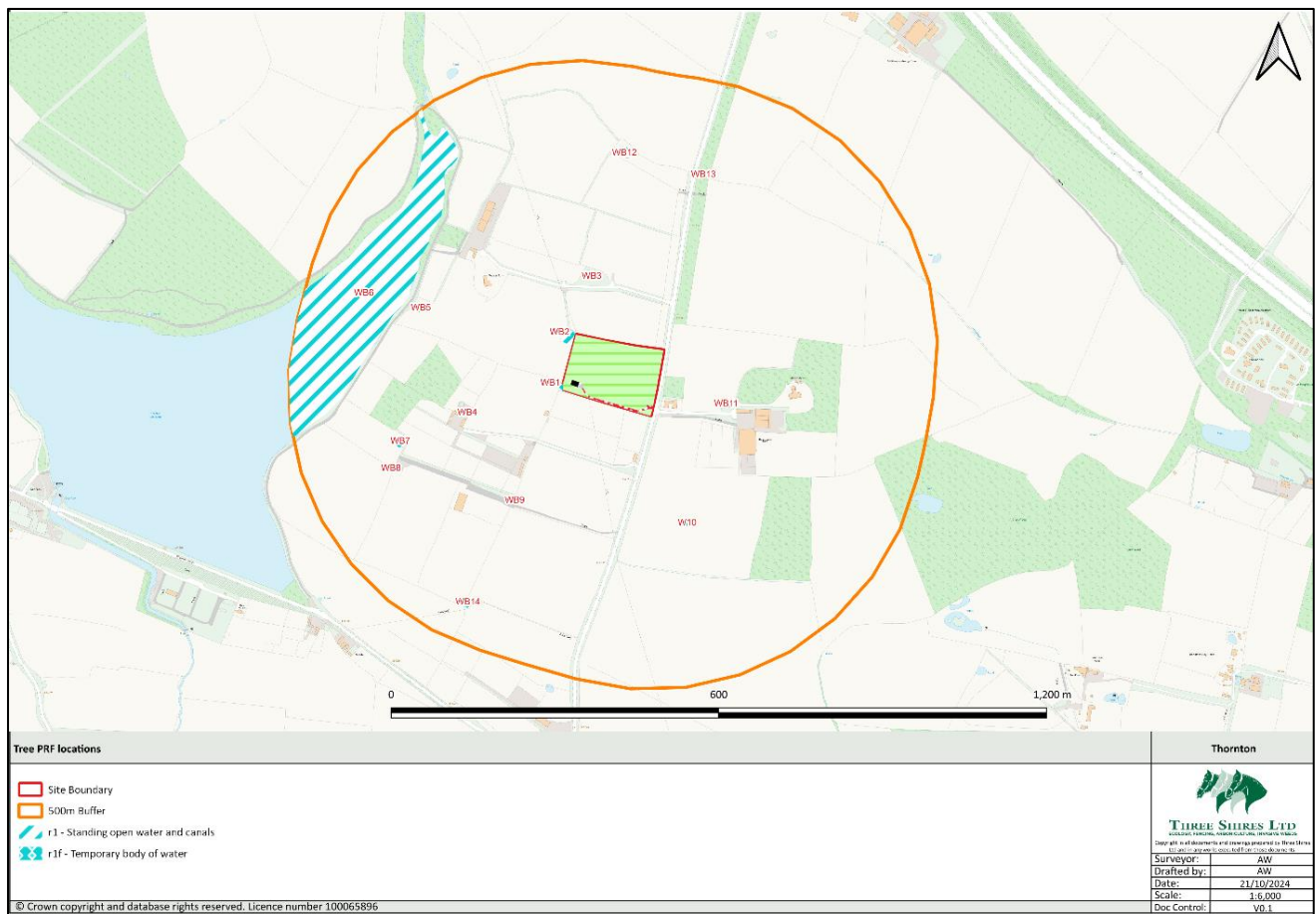


Photograph 15: Damp ground of **WB1**.



Photograph 16: Aerial view of **WB2** (Google Earth, 2023).

Figure 6: Waterbodies within 500m of Site



4.5 Protected and Notable Species

4.5.1 Bats

Desk Study

Magic returned three European Protected Species Mitigation Licence applications within 2km of the site. Two licences were issued for the destruction of common pipistrelle (*Pipistrellus pipistrellus*) roosts and a single licence application for the destruction of a resting place for soprano pipistrelle (*Pipistrellus pygmaeus*) and brown long eared bats (*Plecotus auritus*). All three licence applications were issued between the years of 2011 & 2019 and are located near the village of Thornton approximately 1.75km west of the site.

Buildings B1

B1 (Photograph 4), was assessed for its suitability for roosting bats. Upon inspection the building was considered to have **Negligible** potential for roosting bats. This is due to the nature of the construction of the building, good condition of the building and lack of access and egress points for bats.

The construction of the building is of concrete and corrugated metal sheeting and doesn't offer favourable conditions for roosting bats. A building of this design typically experiences large temperature fluctuations and high levels of ambient lighting due to clear corrugated roofing panels (**Photograph 5**).

Trees

Three mature oak trees were identified to have bat roost potential, and a tree roost potential classification has been given, based on the Bat Surveys for Professional Ecologists: Good Practice Guidelines⁷ for tree roosts. Classifications given are **I** and **M**, **I** is representative of a feature that maybe used by an individual bat or small numbers of bats, **M** respectively is for the classification of feature that has the potential for the use of a maternity roost or use by larger numbers of bats.

All trees assessed for their bat roost potential during the site visit have been classified **I** and locations of the trees are given in **Figure 7** and further details of roost features are in **Table 4**.

⁷ 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

Figure 7: Tree PRA Locations

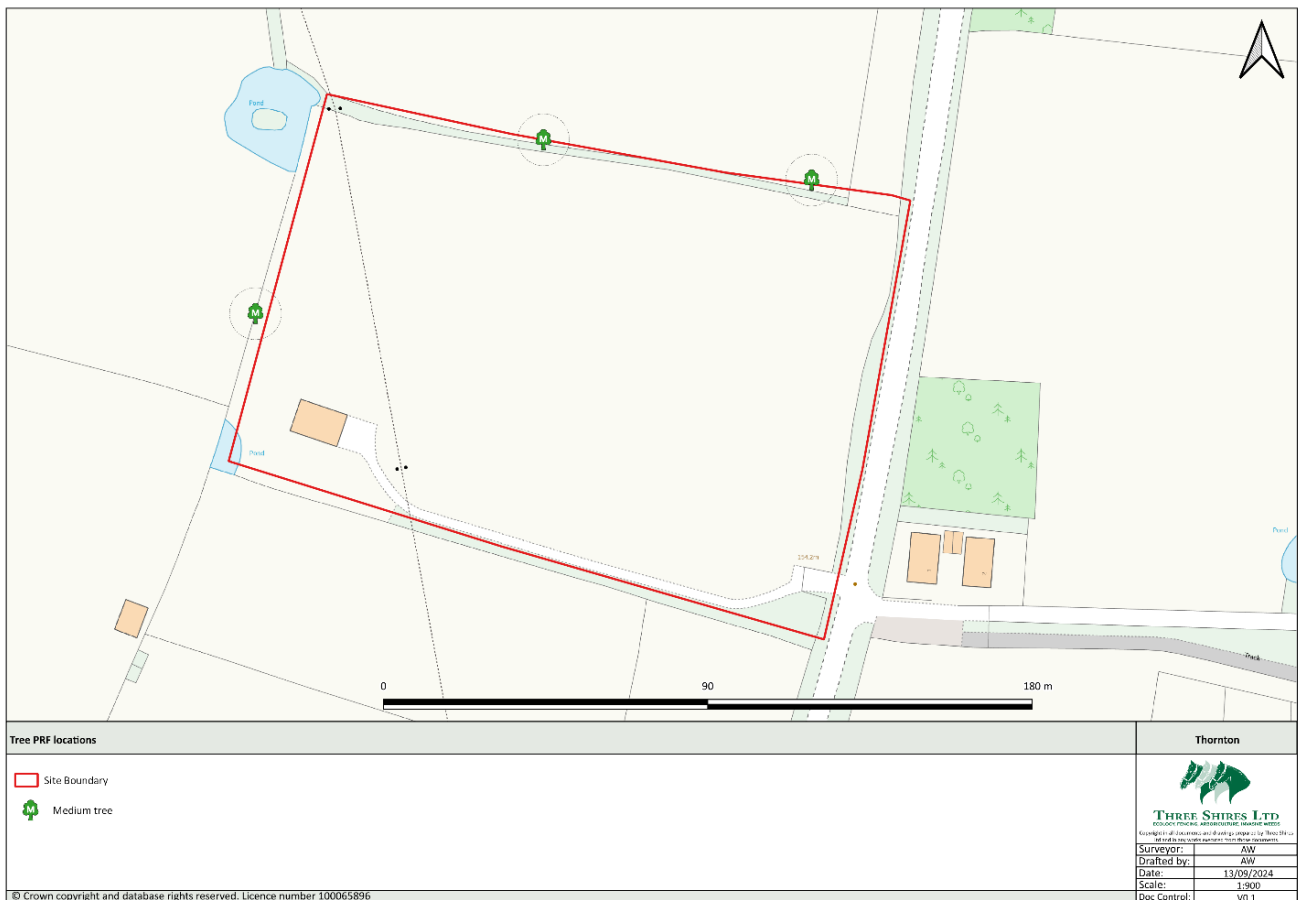


Table 4. Tree PRA Results

Tree Number Reference and Description	PRF's	Photographs	Roost Suitability
T1: Mature oak growing on the western site boundary. Tree is in moderate condition with a height of approximately 15m (Photograph 17).	Cracked/broken limb: There was a cracked/ broken limb with an approximate height of 5m from ground level with an east facing aspect. There is an open fissure and is considered to be suitable for roosting bats. The feature is likely only to be used by individual bats. The full extent of the fissure was not accessible from ground level (Photograph 18). Peeling bark: An area of peeling bark approximately 1m in length and approximately 7m from ground level on the north aspect of the limb (Photograph 19). The feature is likely only to be used by individual bats on an opportunistic basis, due to the size and aspect of the feature. Woodpecker/mammal hole: A hole and cavity possibly created by a woodpecker and taken over by a squirrel due to the evidence of chew marks around the entrance. If not in use, does provide a suitable feature for roosting bats. The hole is approximately 5m from ground level and is on the northern aspect of the tree (Photograph 20).	 Photograph 17: T1 mature oak on western boundary  Photograph 18: PRF on T1  Photograph 19: Split bark potential PRF on T1.  Photograph 20: PRF on T1.	I

Tree Number Reference and Description	PRF's	Photographs	Roost Suitability
T2: Mature oak growing on the northern site boundary. T2 is in moderate condition with a height of approximately 17m (Photograph 21).	Broken and rotted limb: There was a broken and rotted limb on T2, the feature was at an approximately height of 5m from ground level with a western facing aspect. There is an open fissure in the centre of the limb and is considered to be suitable for roosting bats. The feature is likely only to be used by individual bats. The full extent of the fissure was not accessible from ground level (Photograph 22).	 Photograph 21: T2 mature oak on northern boundary  Photograph 22: Broken limb with rotted centre.	I
T3: Mature oak growing on the northern site boundary. Tree is in moderate condition with a height of approximately 18m (Photograph 23).	Cracked/broken limb: There was a cracked/broken limb with an approximate height of 8m from ground level with a southeast facing aspect. There are multiple small open fissures in the end of the broken limb and are considered to be suitable for roosting bats. The feature is likely only to be used by individual bats. The full extent of the fissure was not accessible from ground level (Photograph 24).	 Photograph 23: T3 mature oak on northern boundary	I

Tree Number Reference and Description	PRF's	Photographs	Roost Suitability
		 Photograph 24: Cracked and broken limb of T3.	

4.5.2 Great Crested Newts

Magic returned no European Protected Species licence applications for great crested newts (*Triturus cristatus*) within a 2km radius of the site.

No evidence of GCN was identified on site. Suitable habitat is available on site for GCN is associated with the hedgerows and tree lines on the boundaries, which would provide opportunities for foraging and commuting. Waterbodies onsite or adjacent too were subject to Habitat suitability index (HSI) and the results are shown in **Table 5**. The HSI results for GCN is poor to below average for **WB1** & **WB2**, respectively.

It is unlikely that GCN will be present within the development area as the planned works are to only impact the concrete footprint of the existing barn that is on site and not the grassland and boundary hedgerow or tree lines.

Table 5. HSI Results

Pond Name: Grid Ref:	WB1 SK480076	WB2 SK480077
SI Description	SI Value	SI Value
Geographic location	1	1
Pond area	0.05	0.8
Pond permanence	0.1	0.5
Water quality	0.01	0.1
Shade	0.2	1
Water fowl effect	1	0.67
Fish presence	1	1
Pond Density	0.9	0.9
Terrestrial habitat	0.33	0.33
Macrophyte cover	0.3	0.3
HSI Score	0.25	0.55
Pond suitability	Poor	Below average

4.5.3 Birds

During the survey, bird species identified on and flying over the Site included robin (*Erithacus rubecula*), jackdaw (*Coloeus sp.*), wren (*Troglodytes troglodytes*), woodpigeon (*Columba palumbus*) and pied wagtail (*Motacilla alba*).

No evidence or observations of Schedule 1 or Local BAP bird species were identified or present on Site during the survey. Therefore, it is unlikely that the development will negatively affect Schedule 1 or Local BAP species.

The proposed development will not result in a loss of significant habitat for breeding birds and there is a low risk of this group occurring due to the size of the field and hedged boundaries. The scale of work and the location of the works to be undertaken are of low risk to ground nesting birds and shall not result in significant disturbance to ground nesting birds or any Section 41 or BAP listed species.

4.5.4 Reptiles and Widespread Amphibians

The Site provides suitable habitat for reptiles and widespread amphibians due to the tall grassland which dominates the Site has the potential to provide foraging grounds for species such as grass snake (*Natrix helvetica*).

It is considered likely that reptiles and widespread amphibians are present on or around the Site; however, these are not likely to be adversely impacted by potential small scale losses or changes of habitat, with risk to individuals dealt with effectively by suitable working measures.

4.5.5 Other Protected and Notable Species

The following protected species are considered to be absent from the Site due to a lack of or absence of suitable habitat and field evidence on site:

- Badger (*Meles meles*)
- Great crested newt (*Triturus cristatus*)
- Hazel dormouse (*Muscardinus avellanarius*)
- White-clawed crayfish (*Austropotamobius pallipes*)
- Invasive Non-Native Species
- Notable invertebrates

5.0 Conclusions

Overall, the biodiversity value of the Site is low-moderate due to the predominant habitat being grassland. The native hedgerows have a high ecological value and provide suitable nesting and foraging habitat for birds. Recommendations are outlined in Section 6.0 to mitigate this effect.

The barn is not considered to have any bat roosting potential and the roost features in trees are not likely to be lost, or bats using them affected by the proposals.

The current proposed development is anticipated to result in no significant ecological impact or adverse ecological effects. However, if the proposed plans are to change, further advice may be required.

The Site provides suitable habitat for bats, birds, amphibians and reptiles due to the tall sward of the grassland, adjacent waterbodies and native hedgerows. The appropriate recommendations to mitigate against any impacts to these species are outlined in the next section.

6.0 Recommendations

6.1 Habitats

It is recommended that where possible, all areas of other neutral grassland, hedgerows and trees be retained and maintained.

6.1.1 Trees

The proposed development should not result in the loss of these trees or disturbance of any potential roosting bats, as, the planned works should not be coming within 30m of the trees. However, if this is to change, further assessment and surveys will be required.

6.2 Protected and Notable Species

6.2.1 Bats

The site provides good foraging habitat for bats and all artificial lighting plans should be sympathetic to bats by reducing the illumination of the building's exteriors and surrounding garden and wider habitats (i.e. hedgerows and trees) as to preserve the current value of the habitat to bats.

6.2.2 Birds

Where possible the building should be closed securely to prevent birds from entering and creating nests.

Site and building design should consider the provision for nesting birds, in the form of nest boxes.

Any work that may negatively affect nesting birds should be undertaken outside of the nesting bird season (March – August where possible. For works to be undertaken during the nesting bird season, the area should be surveyed and works approved by a suitably experienced ecologist.

6.2.3 Great Crested Newt and Widespread Amphibians

GCN are unlikely to be affected by the planned development of the Site as suitable habitat is associated with the boundaries of the Site which are outside of the development area. Therefore, it is unlikely that the planned works shall negatively impact GCN.

As a precautionary measure, appropriate RAMS should be in place prior to any vegetation clearance, avoiding the months between November to February to minimise the risk of injuring hibernating amphibians. Vegetation clearance should start in a directional manner and slowly work outwards so any amphibians present are directed towards suitable habitat (i.e. hedgerows or open grassland).

If GCN should be found onsite, all works are to stop immediately, and a suitably qualified ecologist contacted.

6.2.4 Reptiles

Due to the suitable habitat for reptiles on Site, appropriate RAMS should be in place prior to any vegetation clearance and a two-stage cut undertaken with a 24-hour interval between cuts to minimise the risk of injuring reptiles. Vegetation clearance should start in a directional manner and slowly work outwards so any reptiles present are directed towards suitable habitat (i.e. hedgerows or open grassland).

Appendix A Relevant Legislation and Policies

Legislation

The main pieces of legislation regarding the protection of species and habitats in the UK are the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017 (as amended). Other legislation is in force which gives protection to certain species, such as the Protection of Badgers Act 1992, specific activities, such as the Wild Mammals (Protection) Act 1996 and specific habitats, such as the Hedgerow Regulations 1997 (as amended).

Invasive non-native species are regulated via a combination of the Invasive Alien Species (Permitting and Enforcement) Order 2019 and Section 14/Schedule 9 of the 1981 Act.

Under the Natural Environment and Rural Communities (NERC) Act 2006, all public bodies are required to have due regard to the conservation of biodiversity when carrying out their function. Under this Act, habitats and species that are of principal importance for the conservation of biodiversity in England are identified and published under the provisions of Section 41 (S41).

Planning Policies

The biodiversity policies which are most relevant on a national level are the National Planning Policy Framework (NPPF)⁸.

National Planning Policies

In terms of planning policy, at a national level, Chapter 15 of the NPPF (which relates to conserving and enhancement the nature environmental) requires Local Authorities to take measures to:

- Refuse planning permission if significant harm to biodiversity results from a development that cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for;
- Develop planning policies and decisions should contribute to and enhance the natural and local environment.
- Not usually permit development on land within or outside a Site of Special Scientific Interest (SSSI), and which is likely to have an adverse effect on it (either individually or in combination with other developments). 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 SSSI;
- Refuse planning permission for development that results in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees), unless there are wholly exceptional reasons, and a suitable compensation strategy exists; and
- Support development whose primary objective is to conserve or enhance biodiversity; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.

⁸ National Planning Policy Framework - GOV.UK (www.gov.uk)

Appendix B Methodology

Habitat Survey

This was conducted by undertaking a systematic walkover over of the Site habitats, using a route which allowed all habitats to be viewed and flora species identified where possible. Habitats were defined and mapped using the 'UKHab V2.01' classification system.

Dominant plant species were noted, as were any protected, uncommon, invasive species or species indicative of a particular habitat type, but there was no attempt to compile exhaustive species lists for this element of the Site assessment. Botanical nomenclature in this report follows Stace (2019)⁹ for both scientific and common names.

The survey also included:

- A preliminary search for evidence of protected or important species and species groups, and for habitats and features likely to host them if direct evidence is absent;
- The identification of other constraints (e.g., invasive non-native plant species) and any further opportunities for ecological enhancement; and
- An assessment to identify any potential roosting features (PRF) of significant buildings and trees providing bat roost potential.

Protected and Notable Species

Badger

Field signs for badger (*Meles meles*) within or adjacent to the Site (within 30m of the boundary, access permitted) were recorded in accordance with the standard methodology outline (Harris et al 1989) which includes surveying for active sett entrances, as well as spoil, bedding, latrines, hairs, prints, foraging signs and pathways.

A walkover of the whole site (including land, where accessible, within approximately 30m of the Site boundary) was undertaken and signs of badger activity were recorded in accordance with the standard methodology outline¹⁰. Signs of activity include:

- Sett entrances (entrances that are greater than 25cm in diameter with a flattened oval appearance);
- Presence of and size of any spoil heaps outside tunnel entrances;
- Presence of bedding material within or outside tunnel entrances;
- The degree of smoothness, or wear of the tunnel sides;
- The degree of any vegetation covering tunnel entrances, the presence of any debris within the tunnel;
- Faeces;
- Paths between setts or leading to feeding habitats;
- Areas of scratching at the base of tree trunks or branches;
- Scrapes into the ground (snuffle holes) where badgers have searched for food;
- Bundles of vegetation where badgers may sleep above ground (day nests);

⁹ Stace, C (2019) *New Flora of the British Isles*. 4th edn. Cambridge University Press, Cambridge, UK.

¹⁰ Surveying Badgers, Harris S. et. al, 1989

- Hair traces;
- Tracks.

When found, the activity level and status of the sett was based on the number of used, partially used and disused entrances. The definition of a badger sett “current use” is outlined in the Protection of Badgers Act 1992 (as amended) and further in a guidance by Natural England¹¹; mainly smooth-sided entrances, clear of debris and vegetation, with spoil heaps and sometimes bedding material and footprints outside.

If setts were located, then they were categorised according to **Table 1**, with the activity status categorised according to **Table 2**.

Table 1: Sett Categories

Sett Type	Definition
Main	Typically, several active entrances with large spoil heaps and obvious paths leading from and between sett entrances. Signs of frequent and constant high levels of activity. May contain inactive entrances.
Annexe	Normally close to a main sett (<50m), comprising several entrances with well-worn paths between the main and annex sett. May not be in use all the time, even if main sett is very active.
Subsidiary	Usually some distance from main sett (>150m) with several entrances, but no obvious paths connecting to other setts. May only be used intermittently.
Outlier	Often comprise one or two entrances with little spoil outside. No obvious paths connecting to other setts and only used sporadically. May also be used by foxes and rabbits.

Table 2: Entrance and Overall Sett Activity Status Criteria

Sett Status	Definition	Field Signs
Active	Where field signs indicate that the sett or entrance is currently being occupied by badgers.	Field signs include recently excavated spoil, bedding material, footprints, hairs, fresh latrines and with well-worn paths present between entrances and leading into surroundings, entrances generally clear of vegetation and look well used.
Inactive	Where field signs indicate a strong likelihood of no or limited badger activity within the previous three months.	Absence of fresh spoil, bedding or footprints, leaf build up in tunnel entrances, extensive cobwebs in tunnels, seedlings growing in tunnel entrances etc. Paths may be present but less well defined.
Disused	Where field signs indicate that the sett has not been used for some considerable time, typically more than 3 months minimum.	Large amount of leaf litter / debris collected at tunnel entrances and vegetation grown up around or inside entrances. No obvious paths visible leading to and from entrance and spoil heap has dispersed / weathered and become re-vegetated. May be partially collapsed or blocked.

Bats

A Preliminary Roost Assessment (PRA) was undertaken to determine the Potential Roosting Features (PRFs) which could support roosting bats. This was undertaken by suitably qualified and experienced Three Shires Ltd ecologists led by a Natural England (NE) Level 1 Bat Survey Class Licence holder/suitably experienced ecologist

¹¹ Guidance on ‘Current Use’ in the definition of a Badger Sett, *Natural England 2009*,
https://webarchive.nationalarchives.gov.uk/ukgwa/20140523111208/http://www.naturalengland.org.uk/Images/WMLG17_tcm6-11815.pdf

for the complexity of the structure being surveyed and the assessment of the buildings and trees and their suitability for roosting bats were carried out from the ground using binoculars and torches (where necessary).

The external surfaces of any buildings were inspected using binoculars to check for loose or lifted roof tiles, soffit boards, fascias, guttering or cracked brickwork. Internal inspections were also undertaken, where access was permitted, to give a broader understanding of the suitability of the building and to identify any potential features that may provide roosting opportunities.

An assessment of the trees and their suitability for roosting bats was also carried out from the ground using binoculars and torches (where necessary). These were assessed for features such as woodpecker holes, fissures, cracks, cavities, and loose bark that could be suitable for use by roosting bats.

Where features were identified, observations of evidence of bat use or activity, such as droppings, urine stains, odour, feeding remains, scratch marks, grease stains, wear marks were recorded.

Table 3 below details the level of suitability for roosts and the features that classify each suitability level.

Table 3: Bat Roost Suitability Levels

Suitability Level	Typical Features / Evidence
Confirmed	Evidence or presence of bats within feature or on/within building/structure
High	A building/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, and surrounding habitat.
Moderate	A building/structure with one or more potential roost Sites that could be used by bats due to their size, shelter, protection, conditions, and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).
Low	A building/structure with one or more potential roost Sites that could be used by individual bats opportunistically. However, these potential roost Sites do not provide enough space, shelter, protection, appropriate conditions 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 or hibernation).
Negligible	Negligible features present that are unlikely to support roosting bat species

Birds

The species of birds encountered during the survey were recorded and details of suitable habitats for nesting birds during the breeding bird season (March – August inclusive) were noted, with habitat suitability for notable species or important assemblages being considered, including barn owl. Binoculars were used to aid vision and the presence of nests, where observed, was also recorded.

Great Crested Newt (GCN)

An assessment of all on-site waterbodies and those within the immediate vicinity of the Site boundary were surveyed for their potential to provide suitable habitat for GCN. If available to be surveyed, each pond was also given Habitat Suitability Index¹² (HSI) score. This allowed a numerical value to be given to each pond based on its suitability based on variety of factors. These scores range from < 0.5 being poor to > 0.8 being excellent (**Table 4**).

¹² <https://www.arguk.org/info-advice/advice-notes/9-great-crested-newt-habitat-suitability-index-arg-advice-note-5/file>

Table 4: HSI Scores

HSI score	Pond Suitability
< 0.50	Poor
0.50 - 0.59	Below average
0.60 - 0.69	Average
0.70 - 0.79	Good
> 0.80	Excellent

Reptiles

Suitable habitat for grass snake (*Natrix helvetica*), common lizard (*Zootoca vivipara*), slow worm (*Anguis fragilis*) and adder (*Vipera berus*) was identified and recorded. Evidence for field signs for reptile (e.g. sloughs, burrows, eggs) and an assessment of habitat potential for reptiles (e.g. edges/ecotones, ridges, hummocks, sunny slopes, brash heaps) were recorded.

Other Notable Species

The Site was also assessed for suitability for other protected species such as barn owl (*Tyto alba*) and hedgehog (*Erinaceus europaeus*).

Appendix C Baseline Habitat Map



Pre-Development Habitat Map

Thornton

- | | | |
|---|---|---|
|  Site Boundary |  g3c - Other neutral grassland |  u1c - Artificial unvegetated unsealed surface |
|  h2a - Native hedgerow |  u1b5 - Buildings |  r1f - Temporary body of water |
|  33 - Line of trees |  u1b6 - Other developed land |  r2 - Rivers and streams |



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