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Preliminary Ecological Appraisal

Survey site:
Newbuildings Farm, Calladine Lane, Shottle, Belper, DE56 2DY

Client:
Jessica White

Survey date:
15/09/2026

Project:
This report is prepared to inform a planning application with Amber Valley Borough Council. The proposals can be described as the creation of an earth bank slurry lagoon.

On the assumption that site conditions and habitats remain unchanged, the results of this assessment will remain valid for 18 months from the date of this survey i.e. until March 2028, in accordance with CIEEM guidance in the lifespan of Ecological Reports and Surveys. This survey and report should be updated if a planning application has not been submitted within this timeframe.

EXECUTIVE SUMMARY

The following is work you will need to commission to obtain planning permission and to comply with legislation. Further information, along with opportunities for biodiversity enhancement, are outlined in the proceeding sections of this report.

Table 1: Summary of key findings arising from this survey.

Key Findings
▪ The habitats proposed to be removed on site are of no specific conservation value but have value at the local level. These are to be partially destroyed. Loss or damage will contribute to net losses of biodiversity locally. There are no specific concerns relating to Protected or otherwise Important Species or Assemblages of a scale warranting further investigation. ▪ The proposed works will result in a net loss of biodiversity on site. As the site does not meet one of the exemptions, a Biodiversity Net Gain (BNG) assessment will be required to ensure the site delivers the net gain required by the local council. ▪ Various precautionary working methods have been recommended which have been fully detailed within the fauna section of this report.

1. INTRODUCTION

The aim of the PEA was to obtain data on existing ecological conditions, and to conduct a preliminary assessment of the likely significance of ecological impacts on the proposed development.

No previous ecology reports have been produced for this site by Arbtech Consulting Ltd or, to the author's knowledge, by any other consultancy.

Methodology

PEA survey methodology and legislation can be found in the Arbtech Supplement: PEA Methodology and Legislation - 2025.

Survey Details

The site survey was undertaken on 15/09/2026 by Rebecca Kay MSc, Consultant Ecologist an ecologist with 3 years of experience.

Table 2: The weather conditions during the survey.

Temperature (°C)	Humidity (%)	Cloud Cover (%)	Wind (km/h)	Rain
15.6	74.0	87	24.9	None

Survey Limitations

It should be noted that whilst every effort has been made to describe the baseline conditions within the survey area, and evaluate these features, this report does not provide a complete characterisation of the site. This assessment provides a preliminary view of the likelihood of protected species being present. This is based on suitability of the habitats on the site and in the wider landscape, the ecology and biology of species as currently understood.

A biological records data search has not been undertaken. However, given the location of the site, the nature of the habitats present and the assessed suitability of the site for protected or notable species, it is not anticipated that the purchase of biological records data will add any significant weight or alter the conclusions and recommendations outlined in this report.

2. SITE LOCATION AND LANDSCAPE CONTEXT

2.1 Summary of Survey Findings

Site Location & Context

The site is centred at National Grid reference SK 30208 48782 and has an area of approximately 6.14ha. The site comprises modified grassland, native hedgerow with trees, ditches, artificial unvegetated, unsealed surface and scattered trees.

The site is enclosed by native hedgerows with trees along all boundaries, providing a degree of connectivity with the surrounding landscape. Access to the site is provided via an existing entrance at the south-western corner, with a further access point along the southern boundary.

The site is situated within a rural setting, with the surrounding landscape comprising predominantly agricultural land used for dairy farming. The wider area is characterised by a predominantly pastoral landscape, with fields separated by hedgerows and occasional mature trees. A brook is located to the east of the site, providing an additional habitat feature within the surrounding landscape. The site forms part of a wider agricultural landscape, with connectivity to the surrounding countryside provided by the network of hedgerows, trees and watercourse.

A review of historic maps indicates the landscape has remained largely unchanged since the late 1800s.

A brook is located to the east of the site and forms the main nearby watercourse. Surface water runoff has been noted across the site during wetter periods in some years, particularly following prolonged rainfall. Given the site's agricultural setting and the presence of the brook nearby, there is potential for surface water to drain towards the surrounding watercourse during periods of heavy rainfall. The site is underlain by predominantly medium clay-loam soils, with areas of heavier, more clay-rich soil and subsoil. The soils are not particularly susceptible to wind erosion, although there is a moderate risk of water erosion during very wet periods. Rilling can occur following heavy rainfall, and sediment has been observed within surface runoff. The pH of the soil is currently unknown.

Priority Habitats

There are five classifications of priority habitats within 2km of the site. These comprise deciduous woodland 70m east, ancient replanted woodland 70m east, traditional orchard 270m south-west, ancient & semi-natural woodland 350m east and lowland dry acid grassland 535m north.

The site is well connected to nearby habitats via field margins, ditches, hedgerows and trees.

Designated Sites

Statutory Designations within 2km
There are no statutory designations within 2km of the site.

SSSI Risk Zone
The site does fall within the impact risk zone for Mount Pleasant SSSI however, the proposed development type is not listed as possible high risk with regard to this designation as the slurry lagoons is not larger than 750m².

Non-Designated Sites
The presence of non-statutory designated sites within 2km of the site cannot be established without data from the local records centre. Whilst some habitats in the wider landscape may host designations, the immediate environs of the site do not host habitats likely to be of designable quality. A further check on MAGIC Maps revealed no non-statutory designated sits within 2km of the site.

2.2 Foreseen Impacts

No direct impacts to any designated sites will occur as a result of the proposed development, due to the small scale and low overall impact of the development from such sites (where known), alongside additional factors such as distance in combination with connectivity disrupting barriers.

2.3 Recommendations

Although no specific ecological recommendations are considered necessary, care should be taken during construction to avoid pollution and minimise the risk of contaminated surface water runoff entering the surrounding habitats. The wider landscape contains areas of woodland, hedgerows and other potentially valuable habitats, which could be indirectly affected by pollution arising from the proposed works. Appropriate pollution prevention measures should therefore be implemented throughout construction, including the appropriate storage of fuels and chemicals, responsible waste management and the prevention of sediment-laden runoff. These measures will help to ensure that the surrounding habitats are protected from indirect impacts associated with the development.

3. ONSITE HABITATS

This section may include further work you will need to commission (if any) to obtain planning permission or comply with legislation for other consent. All clients are expected to read and understand this section, or to contact the lead surveyor for advice.

3.1 Summary of Survey Findings

Grassland - Modified grassland (g4) with Scattered Trees (32)

The site is covered with grassland comprised of a low variety of common grassland species. This grassland is actively managed via regular mowing and grazing, resulting in a short sward of ~5cm. No signs of compaction or damage are present, resulting in areas of bare ground totalling <10% of the site. The species composition is poor, with less than 8 vascular plant species present per m2.

As the grassland is intensively managed for agricultural purposes, its botanical diversity and overall value for biodiversity are relatively limited. The short, regularly mown sward provides few opportunities for a diverse range of flowering plants and consequently offers limited resources for pollinating insects and other invertebrates. It may nevertheless provide some foraging opportunities for common invertebrates, birds and small mammals, particularly where it occurs alongside the species-rich boundary hedgerows and trees. The grassland therefore provides some ecological value within the wider agricultural landscape, although this is primarily associated with its role as part of the wider habitat mosaic and its proximity to the more structurally diverse boundary habitats.

Table 3a: Species abundance for modified grassland.

Abundance	Species
Dominant	Perennial Rye-grass *(Lolium perenne)*, Cock's-foot *(Dactylis glomerata)*
Abundant	White Clover *(Trifolium repens)*
Frequent	Dandelion *(Taraxacum)*
Occasional	Greater Plantain *(Plantago major)*, Creeping Thistle *(Cirsium arvense)*, Broad-leaved Dock *(Rumex obtusifolius)*, Spear Thistle *(Cirsium vulgare)*, Small Teasel *(Dipsacus pilosus)*

Rare	Bristly Oxtongue *(Helminthotheca echioides)*, Knotgrass *(Polygonum aviculare)*, Cow Parsley *(Anthriscus sylvestris)*, Common Nettle *(Urtica dioica)*, Common Ragwort *(Jacobaea vulgaris)*, Creeping Buttercup *(Ranunculus repens)*, Purple Mullein *(Verbascum phoeniceum)*

In accordance with the Statutory Biodiversity Metric Condition Assessment Sheets, the modified grassland was assessed to have a poor condition value. The full condition assessment for this, and all other habitats subject to condition assessments, are provided in Appendix 5.

Hedgerows and lines of trees - Native hedgerow with trees (h2a) with Scattered Trees (32)

The site boundaries are largely formed by native hedgerows with trees, which provide a well-established boundary feature and contribute to connectivity across the site and wider landscape. The hedgerows comprise a range of native woody species, with occasional mature trees present along the boundaries. The hedgerows are generally continuous and provide good structural diversity, with a mixture of woody vegetation and associated ground flora. They form an important ecological feature of the site, providing opportunities for nesting birds, invertebrates and other wildlife, as well as providing cover and movement routes through the surrounding agricultural landscape.

The hedgerows are considered to be in good condition in accordance with the UKHab assessment criteria.

Table 3b: Species abundance for native hedgerow with trees.

Abundance	Species
Dominant	-
Abundant	Holly *(Ilex aquifolium)*, Hawthorn *(Crataegus monogyna)*
Frequent	Hazel *(Corylus avellana)*
Occasional	Bramble *(Rubus fruticosus)*, Common & Atlantic Ivy *(Hedera helix)*
Rare	Dog roses *(Rosa canina)*, Elm sp. *(Ulmus sp.)*, Common Nettle *(Urtica dioica)*, Ash *(Fraxinus excelsior)*, Sycamore *(Acer pseudoplatanus)*, English Oak *(Quercus robur)*, Blackthorn *(Prunus spinosa)*, Pedunculate Oak *(Quercus robur)*

Full details of scattered trees within this habitat are provided in Table 4 below.

In accordance with the Statutory Biodiversity Metric Condition Assessment Sheets, the native hedgerow with trees was assessed to have a moderate condition value. The hedgerow comprises at least 80% native species, is longer than 20 m and narrower than 5 m, and does not present gaps longer than 20 m. Therefore it is considered a habitat of principal importance under the NERC Act 2006.

Watercourse - Ditches (50)

Two ditches are present immediately to the north-eastern and south-eastern boundary hedgerows. Although both ditches are located off-site, they provide a direct ecological and hydrological connection to the site, as they join the brook located to the east. At the time of the survey, the ditches were relatively shallow but contained fast-flowing water. Their connection with the wider watercourse network provides an additional habitat feature within the surrounding agricultural landscape and may support aquatic and riparian species, as well as providing a potential route for the movement of wildlife through the area.

In accordance with the Statutory Biodiversity Metric Condition Assessment Sheets, the ditches was assessed to have a poor condition value.

Urban - Artificial unvegetated, unsealed surface (u1c)

Areas of unsealed surface are present along the western section of the southern boundary, where concrete sleepers have been laid directly onto the bare ground to form an access track. The track extends from the southern boundary into the centre of the site and is primarily used to provide access across the agricultural field. The track is largely unvegetated due to regular use, although small areas of vegetation may occur along its margins. Given its disturbed and regularly used nature, the track is considered to have limited value for biodiversity, although the surrounding grassland and boundary vegetation provide additional habitat alongside it.

Table 3c: Species abundance for artificial unvegetated, unsealed surface.

Abundance	Species
Dominant	-
Abundant	-
Frequent	-
Occasional	-
Rare	Dandelion *(Taraxacum)*, Greater Plantain *(Plantago major)*, Knotgrass *(Polygonum aviculare)*

In accordance with the Statutory Biodiversity Metric, this habitat is not subject to a condition assessment.

Scattered Trees (32)

14 scattered trees were recorded across the site, all of which are native species. 13 of these are located in the native hedgerow and 1 located in the modified grassland. These included a young hawthorn *(Crataegus monogyna)*, a young ash *(Fraxinus excelsior)*, and a young pedunculate oak *(Quercus robur)* labelled T3. Further mature pedunculate oaks were noted, including a large specimen *(T4)* with ivy, a very large specimen *(T7)* and another large specimen *(T8)* both featuring deadwood, a large oak *(T10)* with a cavity, and a further large oak *(T12)* also with deadwood, alongside several medium-sized young or semi-mature pedunculate oaks *(T9, T11, T13, T14)*. A medium-sized hazel *(Corylus avellana)* and a mature medium-sized alder *(Alnus glutinosa)* with ivy were also present. Ecological niches present include a cavity, deadwood and ivy. T4 was noted to support ivy however it was not dense enough to support roosting bats.

In accordance with the Statutory Biodiversity Metric Condition Assessment Sheets, the trees were assessed as follows (see Appendix 5 for full condition assessments):

Table 4: The condition assessment scores for the scattered trees on site.

Tree / Group	Common Name	Primary Habitat	Condition Score
T1	Hawthorn (small)	Species-rich native hedgerow with trees (h2a5)	Moderate
T2	Ash (small)	Species-rich native hedgerow with trees (h2a5)	Moderate
T3	Pedunculate Oak (medium)	Species-rich native hedgerow with trees (h2a5)	Moderate
T4	Pedunculate Oak (large)	Species-rich native hedgerow with trees (h2a5)	Good
T5	Hazel (medium)	Species-rich native hedgerow with trees (h2a5)	Moderate

T6	Alder (medium)	Species-rich native hedgerow with trees (h2a5)	Good
T7	Pedunculate Oak (very large)	Species-rich native hedgerow with trees (h2a5)	Good
T8	Pedunculate Oak (large)	Species-rich native hedgerow with trees (h2a5)	Good
T9	Pedunculate Oak (medium)	Species-rich native hedgerow with trees (h2a5)	Moderate
T10	Pedunculate Oak (large)	Species-rich native hedgerow with trees (h2a5)	Good
T11	Pedunculate Oak (medium)	Modified grassland (g4)	Moderate
T12	Pedunculate Oak (large)	Species-rich native hedgerow with trees (h2a5)	Good
T13	Pedunculate Oak (medium)	Species-rich native hedgerow with trees (h2a5)	Moderate
T14	Pedunculate Oak (medium)	Species-rich native hedgerow with trees (h2a5)	Moderate

3.2 Foreseen Impacts

The proposed development will result in the loss of 0.43ha of modified grassland. This is likely to have a minimal impact on biodiversity due to the low ecological value of these habitats. However, this could lead to a net loss in biodiversity at the site.

3.3 Recommendations

Best practice measures to minimise the possibility of pollution must be implemented during construction. This should include the following measures:

- Remove only the minimum of habitat required to facilitate the development
- Use of Heras or other appropriate fencing to prevent encroachment by contractors onto retained habitats.
- Protect retained turf and soil resource from destruction and compaction using plastic matting and wooden boarding. Do not store skips and other heavy materials on retained turf.
- Grasscrete, cell web or any other porous surface treatment facilitating recovery of vegetation is preferred to hard standing.

The proposed development may require a Biodiversity Net Gain assessment, to calculate the value of habitats on site and ensure the delivery of a minimum of 10% measurable biodiversity net gain.

4. INVASIVE SPECIES

This section may include further work you will need to commission (if any) to obtain planning permission or comply with legislation for other consent. All clients are expected to read and understand this section, or to contact the lead surveyor for advice.

4.1 Summary of Survey Findings

No non-native invasive or otherwise problematic plants were recorded on site or are considered likely to be on site, but, given seasonal limitations and the sites wider context, may be visible at other times of year.

4.2 Foreseen Impacts

None.

4.3 Recommendations

No further surveys but remain vigilant.

5. FAUNA: BATS

This section may include further work you will need to commission (if any) to obtain planning permission or comply with legislation for other consent. All clients are expected to read and understand this section, or to contact the lead surveyor for advice.

5.1 Summary of Survey Findings

EPSL data and local records

A search of the magic.gov.uk database for granted EPSLs within a 2km radius of the site has been completed. Displaced bats from licensed sites <2km away from the survey site will find alternative habitat either within the mitigation measures implemented as part of the licence or will relocate to other known roosts sites in close proximity to the licensed site. No EPSLs are present within a 2km radius of the site.

The site is not within the zone of influence of a bat-designated SAC.

Foraging and commuting habitat

Habitats recorded on site are assessed to provide foraging and commuting opportunities for bats in the form of species-rich native hedgerow with trees, ditches and scattered trees, and offsite within 2km including deciduous woodland, ancient replanted woodland, traditional orchard, ancient & semi-natural woodland and lowland dry acid grassland. These habitats are likely to provide micro-climatic conditions that support invertebrates that will in turn provide foraging opportunities for local bat populations. Most notably, the hedgerows on site are mature and extend beyond the site adding to the continuity of vegetated linear features present in the wider landscape. Bats are well known to utilise linear features to aid navigation whilst travelling between foraging resources and roost sites.

Roosting habitat

As no trees are due to be impacted by the proposed development, an assessment of their potential to support roosting bats was not considered necessary.

5.2 Foreseen Impacts

Roosting habitat [Buildings]

There are no buildings on site, therefore no impacts are foreseen.

Roosting habitat [Trees]

Trees present on site will not be affected by the proposed works, therefore no impacts are foreseen.

Foraging and commuting habitat
The proposed development will result in the loss of small areas of 0.43ha of modified grassland but given their low value and the presence of more extensive areas of foraging and commuting habitat in the locality, this is likely to be inconsequential for bats.

Artificial lighting
No new lighting will be installed as a result of the proposed development.

5.3 Recommendations

Roosting habitat [Buildings]
None.

Roosting habitat [Trees]
In the unlikely event that a bat or evidence of bats is discovered during the development all work must stop and a bat licensed ecologist contacted for further advice.

Foraging and commuting habitat
No further surveys are required.

Artificial lighting
None required.

Suggested biodiversity enhancements
The installation of two bat boxes at the site will provide additional roosting habitat for bats.

The bat boxes will be erected on mature trees around the site. Suitable bat boxes include Wildcare Eco Bat Box or similar alternative brand.

Bat boxes should be positioned 3-5m above ground level facing in a south or south-westerly direction with a clear flight path to and from the entrance, away from artificial light.

6. FAUNA: BIRDS

This section may include further work you will need to commission (if any) to obtain planning permission or comply with legislation for other consent. All clients are expected to read and understand this section, or to contact the lead surveyor for advice.

6.1 Summary of Survey Findings

Buildings
There are no buildings on site.

Trees and vegetation
No bird nests were identified within the vegetation on-site, however modified grassland offers foraging opportunities, and species-rich native hedgerow with trees and scattered trees offer both nesting and foraging opportunities.

The site provides some potential value for overwintering birds, primarily through the grassland and associated boundary vegetation. The open grassland may provide limited winter foraging opportunities for common farmland and garden bird species, while the species-rich hedgerows and scattered trees provide additional sources of food, shelter and cover during the winter months. The hedgerows may also provide sheltered movement routes through the site and surrounding agricultural landscape.

The nearby ditches and brook provide further habitat diversity within the wider area and may offer additional foraging opportunities for bird species associated with wetland and riparian habitats. However, the regularly managed short grassland and relatively low botanical diversity are likely to limit its value for specialist overwintering farmland birds, particularly in comparison with less intensively managed grassland or areas providing a greater abundance of seed-bearing plants. Overall, the site is considered to provide some value to common overwintering bird species, with the boundary habitats likely to be of greater value than the short, intensively managed grassland itself.

Barn Owls
The site does not appear to provide any suitable nesting sites for barn owls.

6.2 Foreseen Impacts

Buildings / trees
No impacts are anticipated on nesting birds as a result of the proposed development.

Trees and vegetation
None foreseen.

Barn Owls
None foreseen.

6.3 Recommendations

Buildings / trees
Any building or vegetation removal should be undertaken outside the period 1st March to 31st August. If this timeframe cannot be avoided, a close inspection of the vegetation should be undertaken immediately, by a qualified ecologist, prior to the commencement of work. All active nests will need to be retained until the young have fledged or an ecologist has confirmed the nesting attempt has concluded.

Precautions should be taken with machinery and noise levels when working close to any retained nests so as not to disturb any nearby nesting birds during construction works. At least a 3-5m buffer should be created between any machinery and active nests until the young have fledged or an ecologist has confirmed the nesting attempt has concluded.

Precautions should be taken with machinery and noise levels when working close to any retained habitats so as not to disturb any nearby nesting birds during construction works.

Trees and vegetation
No additional surveys required.

Barn Owls
No further barn owl surveys required.

Suggested biodiversity enhancements
The installation of a minimum of two bird boxes on mature trees around the site boundaries will provide additional nesting habitat for birds e.g. e.g. Schwegler 1B Nest Boxes, Woodstone Nest Box or a similar alternative brand.

Tree boxes should be positioned approximately 3m above ground level where they will be sheltered from prevailing wind, rain and strong sunlight. Small-hole boxes are best placed approximately 1-3m above ground on an area of the tree trunk where foliage will not obscure the entrance hole.

7. FAUNA: REPTILES

This section may include further work you will need to commission (if any) to obtain planning permission or comply with legislation for other consent. All clients are expected to read and understand this section, or to contact the lead surveyor for advice.

7.1 Summary of Survey Findings

EPSL data and local records

A review of the MAGIC database returned no granted EPSL records for protected reptiles within 2km of the site.

Habitat suitability

Habitats recorded on site are assessed to provide foraging, commuting, basking and refuge opportunities for reptiles. The hedgerows provide elevated value for reptiles as these habitats provide a suitable structure for refuge, whilst also providing foraging and commuting opportunities. However, it is important to note that the site is dominated by frequently managed grassland of limited value to reptiles. These habitats are suboptimal due to an absence of notable habitat structure and diversity, which significantly limits refuge, foraging, and commuting opportunities, albeit they do provide some basking opportunities when located adjacent to potential refugia. The site has good connectivity to further suitable reptile habitat in the wider landscape via hedgerows. The presence of reptiles on site cannot be discounted, albeit likely limited to within the grassland edges and hedgerows.

Wider landscape

The wider landscape provides a range of habitats with potential value for local reptile populations, including hedgerows, mature trees, agricultural grassland and the network of ditches and watercourses surrounding the site. These habitats provide opportunities for foraging, shelter, basking and movement through the landscape, with the boundary vegetation and associated ditch network providing connectivity between areas of potentially suitable habitat. The brook and associated vegetation to the east also contribute to the wider habitat network. While the intensively managed grassland within the site offers relatively limited opportunities for reptiles, the surrounding habitats may provide more suitable conditions and allow reptiles to move through the wider landscape. The presence of reptiles within the surrounding habitats therefore cannot be discounted.

7.2 Foreseen Impacts

Modified grassland will be removed during construction. The loss of such habitats is likely to be inconsequential to local reptile populations owing to their low value and the presence of more extensive habitat locally. However, site clearance could result in the death or injury of reptiles, if present.

7.3 Recommendations

A precautionary working method will be implemented for widespread reptiles during construction, including the following measures:

- Vegetation will be maintained at a short sward (5cm) to discourage reptiles.
- Removal of any root systems / refugia will be undertaken outside the reptile hibernation season (November – February).
- Any excavations will be covered overnight, or a ramp will be installed to enable any trapped animals to escape.
- Best practice pollution prevention measures will be implemented to minimise impacts to nearby habitats.
- Any chemicals or pollutants used or created by the development should be stored and disposed of correctly according to COSHH regulations.
- If any reptiles are found in the working area these should be allowed to disperse of their own accord or, if at immediate risk, should be moved by hand to a sheltered, vegetated area away from disturbance.
- In the unlikely event that a reptile is identified, works must cease and advice must be sought from a suitably qualified ecologist.

Suggested biodiversity enhancements
The site could be enhanced for reptiles post-development with the inclusion of log piles (created from felled materials) and planting of areas of native shrubs, to provide sheltering opportunities.

8. FAUNA: AMPHIBIANS

This section may include further work you will need to commission (if any) to obtain planning permission or comply with legislation for other consent. All clients are expected to read and understand this section, or to contact the lead surveyor for advice.

8.1 Summary of Survey Findings

EPSL and survey data
A review of the MAGIC database returned no granted EPSL records for amphibians within 2km of the site.

The site location falls within a Green Risk Zone under the Natural England GCN District Level Licensing Scheme and therefore would qualify under the scheme.

Aquatic habitat suitability (including ponds within 500m)
Great crested newts (GCN) exist in metapopulations and are known to utilise ponds and their connecting terrestrial habitat during their life cycle; great crested newts are typically found within terrestrial habitats up to 500m from breeding ponds (Langton et al. 2001).

There are no ponds on the site, but a review of aerial imagery (MAGIC and OS Maps) indicates the presence one brook within 500m. The closest is the brook is located ~135m E.

A pond map showing approximate pond locations is provided in Appendix 6.

Terrestrial habitat suitability
The site provides some suitable terrestrial habitat for amphibians, although the value is generally limited by the nature and management of the habitats present. The regularly managed short-sward grassland provides sub-optimal terrestrial habitat, with limited cover and few areas suitable for shelter or overwintering. The hedgerows and associated trees provide greater opportunities for refuge and movement, particularly along the site boundaries.

The ditches located adjacent to the northern and southern boundary hedgerows, together with the brook to the east, provide additional wetland features within the surrounding landscape. Although these habitats are located off-site, their connectivity with the wider watercourse network provides a potential route for amphibian movement through the area. The surrounding agricultural landscape also contains hedgerows and other

boundary features that may provide suitable terrestrial habitat and connectivity. As a result, the presence of amphibians within the site and their potential use of the hedgerows cannot be discounted.

8.2 Foreseen Impacts

When georeferencing the proposed development plans over scaled mapping of the site, it is noted that the development area is likely to result in the loss or significant disturbance of 0.43ha of modified grassland. If great crested newts are present within the brook east of the site, when completing the rapid risk assessment published by Natural England (Natural England 2015), the proposed development produces a green risk score, which states: Offence unlikely.

8.3 Recommendations

Owing to the nature of the proposed development and the low potential for impacts to great crested newts, further surveys are considered to be disproportionate. A precautionary working method will be implemented for common amphibians during construction, including the following measures:

- A staged approach will be adopted for vegetation clearance, whereby the vegetation will be strimmed to 15cm and left overnight to allow any amphibians to disperse. The vegetation can then be cleared to ground level and must be maintained at this level for the duration of construction to deter amphibians from the working area.
- Any rubble piles will be dismantled by hand outside the amphibian hibernation window and debris and brash will be stored on pallets or removed from the site to prevent amphibians from utilising these areas.
- Best practice pollution prevention measures will be implemented to minimise impacts to nearby aquatic habitats that amphibians could use.
- Any chemicals or pollutants used or created by the development should be stored and disposed of correctly according to COSHH regulations.
- If any common amphibians are found in the working area these should be allowed to disperse of their own accord or, if at immediate risk, should be moved by hand to a sheltered, vegetated area away from disturbance.
- In the unlikely event that a great crested newt is identified, works must cease and advice must be sought from a suitably qualified ecologist.

Suggested biodiversity enhancements

The site could be enhanced for amphibians post-development through creation of amphibian hibernacula using rubble and logs from site clearance. Information on how to construct a hibernaculum can be found here: https://www.wiltshirewildlife.org/hibernaculum

9. FAUNA: RIPARIAN ANIMALS

This section may include further work you will need to commission (if any) to obtain planning permission or comply with legislation for other consent. All clients are expected to read and understand this section, or to contact the lead surveyor for advice.

9.1 Summary of Survey Findings

A search of the magic.gov.uk database for granted EPSLs within a 2km radius of the site has been completed for riparian animals (otters and water voles). No EPSLs relating to riparian animals are present within a 2km radius of the site.

Habitat suitability
The site itself provides limited suitable habitat for riparian mammals, as it is predominantly comprised of short, regularly managed grassland. The hedgerows along the site boundaries provide some cover and opportunities for movement, although they are not considered optimal habitat for riparian species. Furthermore, no evidence of riparian mammals was identified during the site survey.

The two ditches located adjacent to the north-eastern and south-eastern boundary hedgerows provide more suitable habitat for riparian mammals and connect to the brook located to the east of the site. Although these watercourses are located off-site, their close proximity and connectivity to the wider watercourse network provide potential opportunities for movement and foraging. The surrounding agricultural landscape, including the network of hedgerows and watercourses, may also provide suitable habitat and commuting routes. As such, the potential presence of riparian mammals within the wider area cannot be discounted, although the likelihood of the site itself being regularly used is considered limited.

9.2 Foreseen Impacts

The loss of such habitats is likely to be inconsequential to local riparian mammal populations owing to their low value and the presence of more extensive habitat locally. However, construction activities could result in the death or injury of riparian mammals, if present due to the water course 300m away.

9.3 Recommendations

Otters

Owing to the nature of the proposed development and the low potential for impacts to otter, further otter surveys are considered to be disproportionate. A precautionary working method will be implemented during construction, including the following measures:

- Heras fencing will be erected around the working area to prevent encroachment within 8m of the watercourse.
- Any excavations will be covered overnight, or a ramp will be installed to enable any trapped animals to escape.
- The use of night-time lighting will be avoided, or sensitive lighting design will be implemented to avoid light spill on to the watercourse and any retained habitats which otters could use.
- Best practice pollution prevention measures will be implemented to minimise impacts to the watercourse and any retained habitats that otters could use.
- Any chemicals or pollutants used or created by the development should be stored and disposed of correctly according to COSHH regulations.

In the unlikely event that an otter holt or den is identified, works must cease and advice must be sought from a suitably qualified ecologist.

Water vole

Owing to the nature of the proposed development and the low potential for impacts to water voles, further water vole surveys are considered to be disproportionate. A precautionary working method will be implemented during construction, including the following measures:

- Heras fencing will be erected around the working area to prevent encroachment within 5m of the watercourse.
- Any excavations will be covered overnight, or a ramp will be installed to enable any trapped animals to escape.
- The use of night-time lighting will be avoided, or sensitive lighting design will be implemented to avoid light spill on to the watercourse and any retained habitats which water voles could use.
- Best practice pollution prevention measures will be implemented to minimise impacts to the watercourse and any retained habitats that water vole could use.
- Any chemicals or pollutants used or created by the development should be stored and disposed of correctly according to COSHH regulations.

In the unlikely event that water voles or evidence of water voles is identified, works must cease and advice must be sought from a suitably qualified ecologist.

10. FAUNA: HAZEL DORMOUSE

This section may include further work you will need to commission (if any) to obtain planning permission or comply with legislation for other consent. All clients are expected to read and understand this section, or to contact the lead surveyor for advice.

10.1 Summary of Survey Findings

EPSL data and local records

A search of the magic.gov.uk database for granted EPSLs within a 2km radius of the site has been completed for hazel dormouse. No EPSLs relating to hazel dormouse are present within a 2km radius of the site.

Habitat suitability

Hazel dormice typically favour well-connected habitats with a diverse, three-dimensional structure, which provide opportunities for commuting between feeding and breeding areas whilst offering protection from predators. The hedgerows along the site boundaries are in good condition and well connected to the wider landscape, providing potentially suitable habitat for this species. However, as no impacts to the boundary hedgerows are anticipated as part of the proposed development, these will be retained. The habitats within the main body of the site are considered to offer limited suitability for hazel dormice, and the likelihood of this species being present within the site is therefore considered acceptably low.

10.2 Foreseen Impacts

No impacts are anticipated on hazel dormice as a result of the proposed development.

10.3 Recommendations

No further hazel dormouse surveys required.

11. FAUNA: BADGERS

This section may include further work you will need to commission (if any) to obtain planning permission or comply with legislation for other consent. All clients are expected to read and understand this section, or to contact the lead surveyor for advice.

11.1 Summary of Survey Findings

No badger setts were noted on site or within a 30m radius of the site. Further, no evidence of foraging badgers was noted within the development area. However, the site was considered suitable for badger sett excavation and foraging habitat.

11.2 Foreseen Impacts

No works will be undertaken within 30m of a badger sett. Modified grassland will be removed during construction. The loss of such habitats is likely to be inconsequential to local badger populations owing to their low value and the presence of more extensive habitat locally. However, construction activities could result in the death or injury of badgers, if present.

11.3 Recommendations

Owing to the nature of the proposed development and the low potential for impacts to badgers, further badger surveys are considered to be disproportionate. A precautionary working method will be implemented during construction, including the following measures:

- Any excavations will be covered overnight, or a ramp will be installed to enable any trapped animals to escape.
- The use of night-time lighting will be avoided, or sensitive lighting design will be implemented to avoid light spill on to retained habitats which badgers could use.
- Any chemicals or pollutants used or created by the development should be stored and disposed of correctly according to COSHH regulations.
- In the unlikely event that a badger sett is identified, works must cease and advice must be sought from a suitably qualified ecologist.

Suggested biodiversity enhancements
Planting fruit bearing trees and species-rich grassland to increase foraging opportunities for badgers.

12. FAUNA: INVERTEBRATES

This section may include further work you will need to commission (if any) to obtain planning permission or comply with legislation for other consent. All clients are expected to read and understand this section, or to contact the lead surveyor for advice.

12.1 Summary of Survey Findings

The habitats present on-site, including grassland, mature trees and hedgerows, likely provide common invertebrates with opportunities to forage and shelter. The site contains no further notable habitats which may provide niches for specialised or protected invertebrates.

12.2 Foreseen Impacts

Modified grassland will be removed during construction. The loss of such habitats is likely to be inconsequential to local invertebrate populations owing to their low value and the presence of more extensive habitat locally.

12.3 Recommendations

No further surveys.

Suggested biodiversity enhancements
The incorporation of bee bricks (e.g. Ibstock BeeHabitat or similar alternative brand) into the fabric of the new buildings would provide sheltering opportunities for pollinators. These should be installed 0.5m above ground level on a south-facing elevation with no obscuring vegetation. The site could be further enhanced via the provision of native wildflowers or wildflower turf, which would provide foraging opportunities for invertebrates.

13. FAUNA: OTHER NOTABLE SPECIES

This section may include further work you will need to commission (if any) to obtain planning permission or comply with legislation for other consent. All clients are expected to read and understand this section, or to contact the lead surveyor for advice.

13.1 Summary of Survey Findings

Hedgehogs
The grassland and hedgerows present on site offer some foraging and commuting opportunities for hedgehogs and other small mammals. While the regularly managed short grassland provides limited cover, the hedgerows and associated trees offer denser vegetation that can provide shelter and protection from disturbance. These habitats may also support a range of invertebrates, providing potential foraging resources for hedgehogs and other small mammals.

The site's rural setting and connectivity with the surrounding agricultural landscape further increase its potential value for hedgehogs. The network of hedgerows and associated boundary vegetation provides potential routes for movement between the site and surrounding areas of suitable habitat. The ditches and brook to the east also contribute to habitat connectivity within the wider landscape. Although the site does not provide extensive areas of dense or unmanaged vegetation, it may still be used by hedgehogs for foraging, shelter and commuting.

13.2 Foreseen Impacts

Hedgehogs
Modified grassland will be removed during construction. The loss of such habitats is likely to be inconsequential to local hedgehog populations owing to their low value and the presence of more extensive habitat locally. However, construction activities could result in the death or injury of hedgehogs, if present.

13.3 Recommendations

Hedgehogs
Similar to the badgers, a precautionary working method will be implemented during construction, including the following measures:

- Any excavations will be covered overnight, or a ramp will be installed to enable any trapped animals to escape.
- The use of night-time lighting will be avoided, or sensitive lighting design will be implemented to avoid light spill on to retained habitats which hedgehogs could use.
- Any chemicals or pollutants used or created by the development should be stored and disposed of correctly according to COSHH regulations.

If any hedgehogs are found in the working area these should be allowed to disperse of their own accord or, if at immediate risk, should be moved by hand to a sheltered, vegetated area away from disturbance.

13.4 Suggested Biodiversity Enhancements

Hedgehogs

The following habitat creation and enhancement opportunities could be incorporated into the proposed development which would be beneficial for hedgehogs:

- Planting fruit bearing trees and species-rich grassland to increase foraging opportunities.
- Creation of brash piles or installation of hedgehog houses in shady areas.

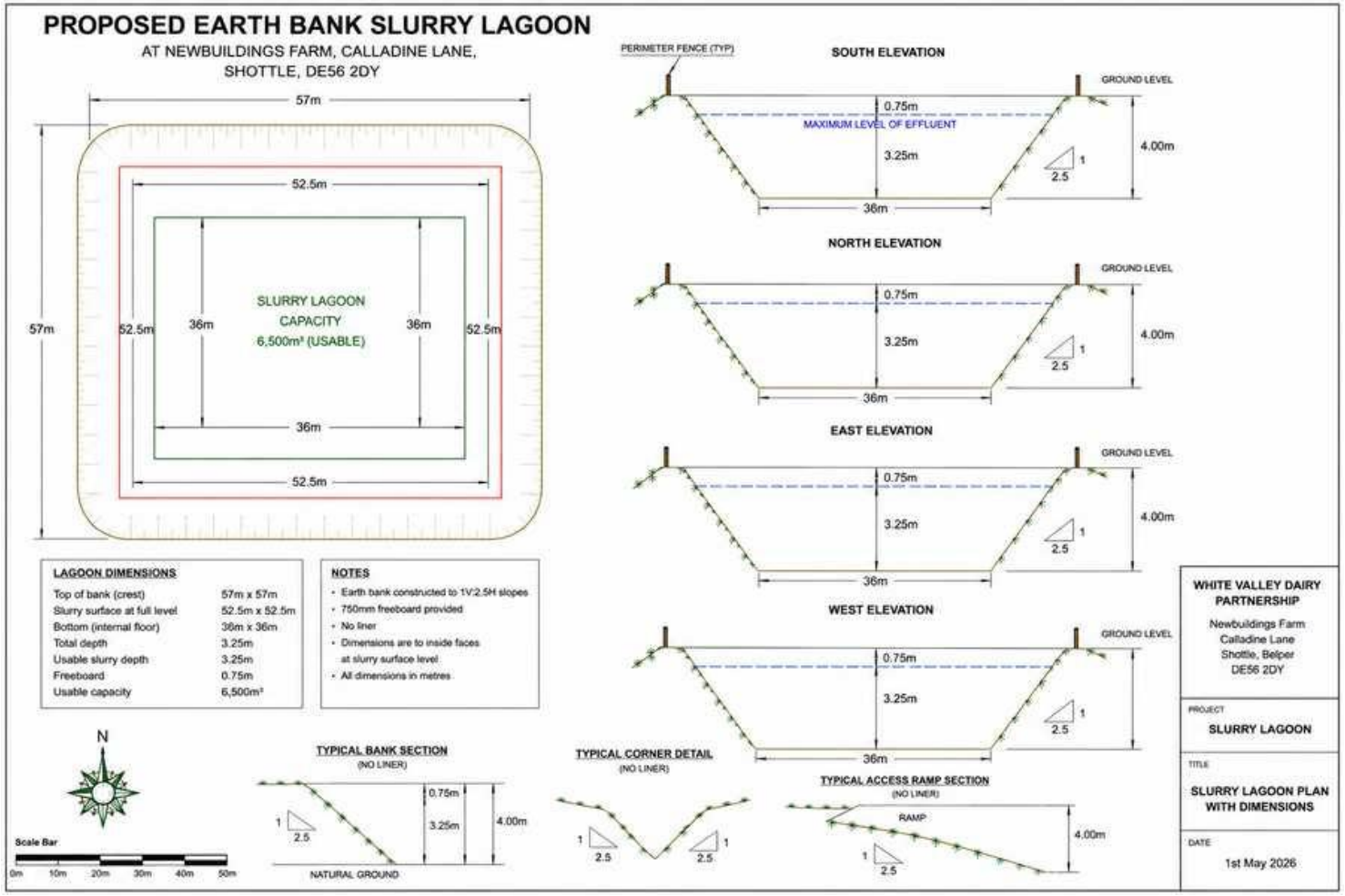
APPENDIX 1: SURVEY/HABITAT MAP



APPENDIX 2: LOCATION MAP



APPENDIX 3: PROPOSED PLAN



APPENDIX 4: HABITAT IMAGES



Modified grassland



Modified grassland



Modified grassland



Species-rich native hedgerow with trees



Species-rich native hedgerow with trees



Species-rich native hedgerow with trees



Ditches



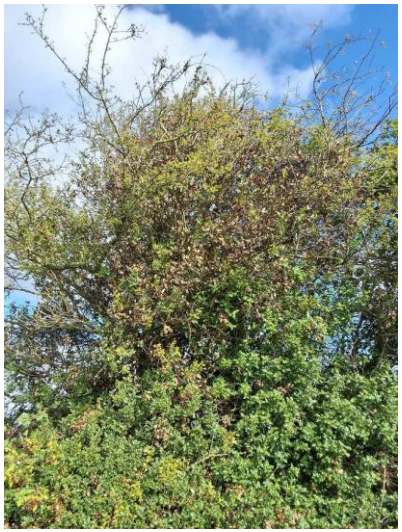
Ditches



Artificial unvegetated, unsealed surface



Artificial unvegetated, unsealed surface



Scattered trees; T1



Scattered trees; T2



Scattered trees; T3



Scattered trees; T4



Scattered trees; T5



Scattered trees; T6



Scattered trees; T7



Scattered trees; T8



Scattered trees; T9



Scattered trees; T10



Scattered trees; T11



Scattered trees; T12



T13 — Pedunculate Oak



Scattered trees; T14

APPENDIX 5: BASELINE CONDITION SCORE TABLES

Modified grassland (g4) condition assessment.

	Criteria Description	Criteria Passed?
A	There are 6-8 vascular plant species per m2 present, including at least 2 forbs (these may include Creeping thistle Cirsium arvense, spear thistle Cirsium vulgare, curled dock Rumex crispus, broad-leaved dock Rumex obtusifolius, common nettle Urtica dioica, creeping buttercup Ranunculus repens, greater plantain Plantago major, white clover Trifolium repens and cow parsley Anthriscus sylvestris).Where the vascular plant species present are characteristic of medium, high or very high distinctiveness grassland, or there are 9 or more of these characteristic species per m2 (excluding those listed in the previous sentence), please review the full UKHab description to assess whether the grassland should instead be classified as a higher distinctiveness grassland.	N
B	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for vertebrates and invertebrates to live and breed.	N
C	Any scrub present accounts for less than 20% of the total grassland area. (Some scattered scrub such as bramble Rubus fruticosus agg. may be present). Note - patches of scrub with continuous (more than 90%) cover should be classified as the relevant scrub habitat type.	Y
D	Physical damage is evident in less than 5% of total grassland area. Examples of physical damage include excessive poaching, damage from machinery use or storage, erosion caused by high levels of access, or any other damaging management activities.	Y
E	Cover of bare ground is between 1% and 10%, including localised areas (for example, a concentration of rabbit warrens). For example, this could include small, scattered areas of bare ground allowing establishment of new species, or localised patches where not exceeding 10% cover.	Y
F	Cover of bracken Pteridium aquilinum is less than 20%.	Y
G	There is an absence of invasive non-native plant species (as listed on Schedule 9 of WCA).	Y
		Total 5/7
	Condition **poor** due to passing 5 of 7 criteria. Essential criteria (A) not met; condition capped at poor.	

Native hedgerow with trees (h2a) condition assessment.

	Criteria Description	Criteria Passed?
A	Height >1.5 m average along length. (The average height of woody growth estimated from base of stem to the top of the shoots, excluding any bank beneath the hedgerow, any gaps or isolated trees. Newly laid or coppiced hedgerows are indicative of good management and pass this criterion for up to a maximum of four years (if undertaken according to good practice). A newly planted hedgerow does not pass this criterion (unless it is >1.5 m height).)	Y
A	Width >1.5 m average along length. (The average width of woody growth estimated at the widest point of the canopy, excluding gaps and isolated trees. Outgrowths (such as blackthorn Prunus spinosa suckers) are only included in the width estimate when they are >0.5 m in height. Laid, coppiced, cut and newly planted hedgerows are indicative of good management and pass this criterion for up to a maximum of four years (if undertaken according to good practice).)	Y
B	Gap between ground and base of canopy <0.5 m for >90% of length. (This is the vertical 'gappiness' of the woody component of the hedgerow, and its distance from the ground to the lowest leafy growth. Certain exceptions to this criterion are acceptable (see page 65 of the Hedgerow Survey Handbook).)	Y
B	Gaps make up <10% of total length; and No canopy gaps >5 m. (This is the horizontal 'gappiness' of the woody component of the hedgerow. Gaps are complete breaks in the woody canopy (no matter how small). Access points and gates contribute to the overall 'gappiness' but are not subject to the >5 m criterion (as this is the typical size of a gate).)	Y
C	>1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length: Measured from outer edge of hedgerow; and Is present on one side of the hedgerow (at least). (This is the level of disturbance (excluding wildlife disturbance) at the base of the hedgerow. Undisturbed ground is present for at least 90% of the hedgerow length, greater than 1 m in width and must be present along at least one side of the hedgerow. This criterion recognises the value of the hedgerow base as a boundary habitat with the capacity to support a wide range of species. Cultivation, heavily trodden footpaths, poached ground etc. can limit available habitat niches.)	N
C	Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground. (The indicator species used are nettles Urtica spp., cleavers Galium aparine and docks Rumex spp. Their presence, either singly or together, does not exceed the 20% cover threshold.)	N
D	>90% of the hedgerow and undisturbed ground is free of invasive non-native plant species (including those listed on Schedule 9 of WCA) and recently introduced species. (Recently introduced species refer to plants that have naturalised in the UK since AD 1500 (neophytes). Archaeophytes count as natives. For information on archaeophytes and neophytes see the JNCC website, as well as the	Y

	BSBI website where the 'Online Atlas of the British and Irish Flora' contains an up-to-date list of the status of species. For information on invasive non-native species see the GB Non-Native Secretariat website.)	
D	>90% of the hedgerow or undisturbed ground is free of damage caused by human activities. (This criterion addresses damaging activities that may have led to or lead to deterioration in other attributes. This could include evidence of pollution, piles of manure or rubble, or inappropriate management practices (for example, excessive hedgerow cutting).)	**Y**
E	There is more than one age-class (or morphology) of tree present (for example: young, mature, veteran and or ancient), and there is on average at least one mature, ancient or veteran tree present per 20 - 50m of hedgerow. (This criterion addresses if there are a range of age-classes or morphologies which allow for replacement of trees and provide opportunities for different species.)	**N**
E	At least 95% of hedgerow trees are in a healthy condition (excluding veteran features valuable for wildlife). There is little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity. (This criterion identifies if the trees are subject to damage which compromises the survival and health of the individual specimens.)	**Y**
		Total 7/10
	Condition **moderate** due to passing 7 of 10 criteria.	

Ditches (50) condition assessment.

	Criteria Description	Criteria Passed?
A	The ditch is of good water quality, with clear water (low turbidity) indicating no obvious signs of pollution.	**Y**
B	A range of emergent, submerged and floating-leaved plants are present. As a guide >10 species of emergent, floating or submerged plants present in a 20 m ditch length.	**N**
C	There is less than 10% cover of filamentous algae and or duckweed Lemna spp. (these are signs of eutrophication).	**Y**
D	A fringe of aquatic marginal vegetation is present along more than 75% of the ditch.	**N**
E	Physical damage is evident along less than 5% of the ditch, with examples of damage including: excessive poaching, damage from machinery use or storage, or any other damaging management activities.	**Y**
F	Sufficient water levels are maintained - as a guide a minimum summer depth of approximately 50 cm in minor ditches and 1 m in main drains.	**N**
G	Less than 10% of the ditch is heavily shaded.	**N**
H	There is an absence of non-native plant and animal species.	**Y**
		Total 4/8
	Condition **poor** due to passing 4 of 8 criteria.	

Scattered trees (T1, T2, T3, T5, T9, T11, T13, T14) condition assessment.

	Criteria Description	Criteria Passed?
A	The tree is a native species (or at least 70% within the block are native species).	**Y**
B	The tree canopy is predominantly continuous, with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide (individual trees automatically pass this criterion).	**N**
C	The tree is mature (or more than 50% within the block are mature).	**N**
D	There is little or no evidence of an adverse impact on tree health by human activities (such as vandalism, herbicide or detrimental agricultural activity). And there is no current regular pruning regime, so the trees retain >75% of expected canopy for their age range and height.	**Y**
E	Natural ecological niches for vertebrates and invertebrates are present, such as presence of deadwood, cavities, ivy or loose bark.	**N**
F	More than 20% of the tree canopy area is oversailing vegetation beneath.	**Y**
		Total 3/6
	Condition **moderate** due to passing 3 of 6 criteria.	

Scattered trees (T4, T6) condition assessment.

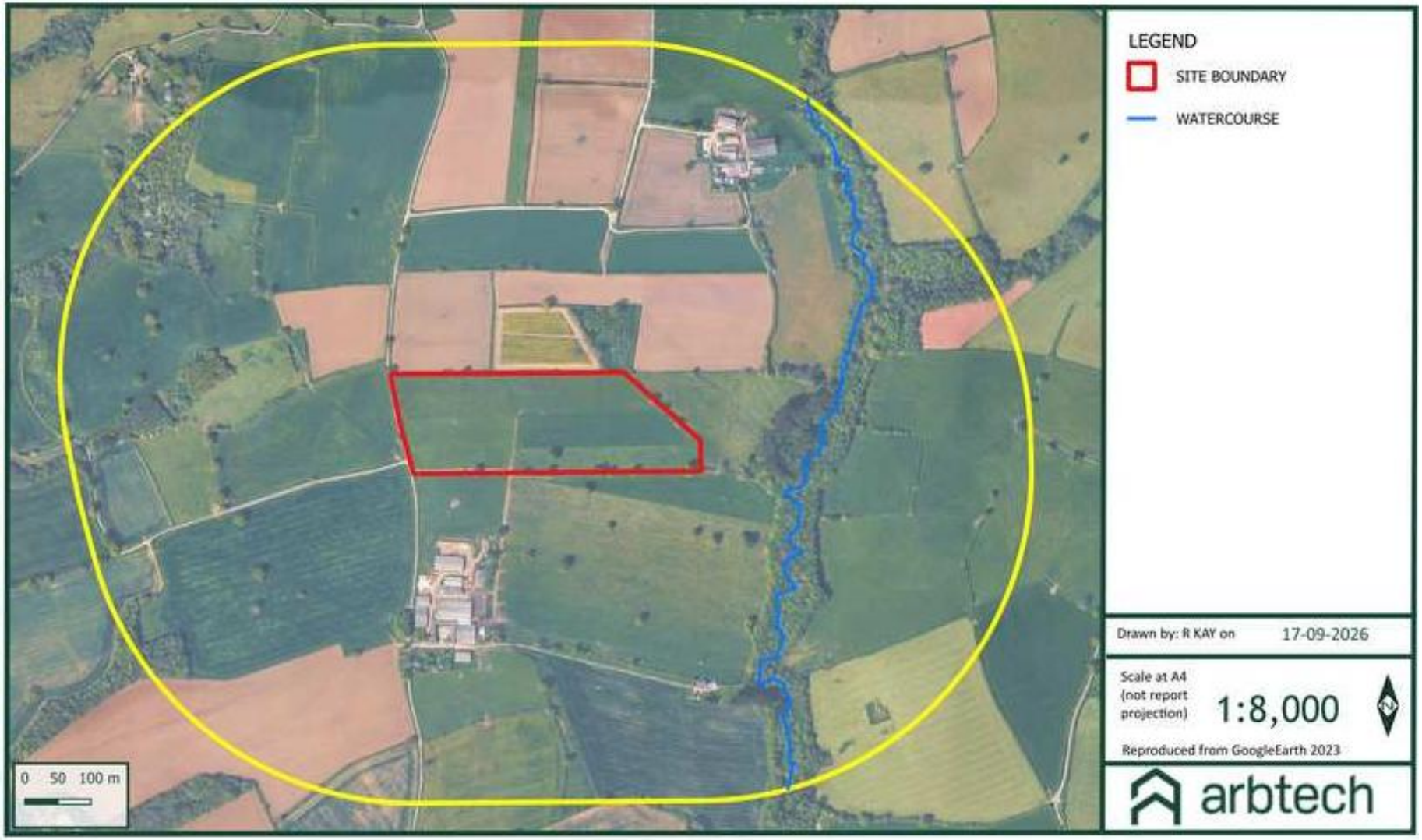
	Criteria Description	Criteria Passed?
A	The tree is a native species (or at least 70% within the block are native species).	**Y**
B	The tree canopy is predominantly continuous, with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide (individual trees automatically pass this criterion).	**N**
C	The tree is mature (or more than 50% within the block are mature).	**Y**
D	There is little or no evidence of an adverse impact on tree health by human activities (such as vandalism, herbicide or detrimental agricultural activity). And there is no current regular pruning regime, so the trees retain >75% of expected canopy for their age range and height.	**Y**
E	Natural ecological niches for vertebrates and invertebrates are present, such as presence of deadwood, cavities, ivy or loose bark.	**Y**
F	More than 20% of the tree canopy area is oversailing vegetation beneath.	**Y**
		Total 5/6
	Condition **good** due to passing 5 of 6 criteria.	

Scattered trees (T7, T8, T10, T12) condition assessment.

	Criteria Description	Criteria Passed?
A	The tree is a native species (or at least 70% within the block are native species).	**Y**
B	The tree canopy is predominantly continuous, with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide (individual trees automatically pass this criterion).	**N**
C	The tree is mature (or more than 50% within the block are mature).	**Y**
D	There is little or no evidence of an adverse impact on tree health by human activities (such as vandalism, herbicide or detrimental agricultural activity). And there is no current regular pruning regime, so the trees retain >75% of expected canopy for their age range and height.	**Y**
E	Natural ecological niches for vertebrates and invertebrates are present, such as presence of deadwood, cavities, ivy or loose bark.	**Y**
F	More than 20% of the tree canopy area is oversailing vegetation beneath.	**Y**
		Total 5/6
	Condition **good** due to passing 5 of 6 criteria.	

APPENDIX 6: PONDS

Pond Map



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