Pye House Cadney

PRELIMINARY ECOLOGICAL APPRAISAL

Forestry England

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VERSION 1

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Document History

Revision	Date	Details	Authorised

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Glossary

BCT	Bat Conservation Trust
BoCC	Birds of Conservation Concern
BNG	Biodiversity Net Gain
CIEEM	Chartered Institute of Ecology and Environmental Management
DAFOR	Dominant, Abundant, Frequent, Occasional, Rare
DEFRA	Department for Environment, Food and Rural Affairs
DLL	District Level Licence
GCN	Great Crested Newt
GLNP	Greater Lincolnshire Nature Partnership
HRA	Habitat Regulations Assessment
IEF	Important Ecological Feature
INNS	Invasive Non-native Species
LNR	Local Nature Reserve
LWS	Local Wildlife Site
MAGIC	Multi-agency Geographic Information
NERC	Natural Environment and Rural Communities
NPPF	National Planning Policy Framework
PEA	Preliminary Ecological Appraisal
SAC	Special Area of Conservation
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
UKHab	UK Habitat Survey
ZoI	Zone of Influence

Executive Summary

Proposals

A scheme of woodland creation is proposed at Pye House, Cadney. The location for the proposals covers approximately 219 hectares that is dominated by arable farmland, with smaller areas of woodland and grassland.

Important Ecological Features

There are non statutory designated sites of international importance [Special Protection Area (SPA) Special Area of Conservation (SAC) Ramsar wetland] within 5 km.

There are also no other statutory designated sites, including Site of Special Scientific Interest (SSSI), within 2 km of the Site.

The Site is dominated by arable fields and species-poor pasture that are of low (sub-Local) ecological importance. Native hedgerows and reedbeds represent HPI and Priority Habitat of the Lincolnshire BAP and are of National importance. A single potential veteran tree that is of up to National importance is present in the Site. Habitats of Local ecological importance include the areas of plantation woodland, trees, ponds and ditches.

There are five non-statutory designated Local Wildlife Sites (LWSs) located within 2 km of the Site. Faraway and Thirty Foot Drain LWS is located within the Site and New River Ancholme LWS is located west of the Site boundary.

The Sites habitats provide opportunities for birds, badgers, bats, otter, water vole, great crested newts (GCN), reptiles and hedgehog. There are also ponds in the area surrounding the Site that may provide suitable breeding habitat for GCN.

Further Survey & Assessment

Subject to design of the proposals, further survey is recommended to confirm the likely presence or absence of roosting bats, otter, water vole and GCN.

Mitigation

Any trees or hedgerows adjacent the Site boundary should be protected in accordance with BS5837:2012 *Trees in Relation to Design, Demolition and Construction*.

Stand-offs and best practice measures should also be implemented to control the risk of pollution to nearby sensitive habitats, including the LWSs.

Construction should avoid removal of nesting habitat in the main bird breeding season (01 March to 31 August). Where this is not possible then a nesting bird check should be completed in advance of removal and any active nests avoided with an appropriate stand-off (as determined by the ecologists).

Badgers should be protected at all times through the use of stand-offs, best working practices and monitoring. Where necessary impacts to badger setts would require works to be covered by an appropriate Natural England badger licence.

Future management should avoid the introduction of gaps into suitable foraging and commuting habitat. Where appropriate, sensitive lighting should be adopted to avoid impacts to bats.

Should otter, water vole or GCN be confirmed to be present then mitigation would be managed through best working practice, including the use of stand-offs, appropriate timing of work and monitoring and, where necessary, the adoption of a Natural England Protected species mitigation licence.

Best practice measures are recommended to allow the sensitive displacement of reptiles from areas of suitable habitat that are impacted.

Best practice is recommended to control and avoid the spread of invasive and non-native species, including tree of heaven and aquatic fauna. Survey should also be undertaken to re-affirm the absence of other invasive and non-native species.

Ecological Enhancement
Ecological enhancements may be integrated into the woodland creation scheme, including increases in the coverage and connectivity of native woodland and wetland habitats, and also the installation of features for notable fauna known to occur locally, such as otter, bats and birds

1. Introduction

1.1.1 This report has been prepared by Fenland Ecology Ltd on behalf of Forestry England. The report provides the results and assessment of a Preliminary Ecological Appraisal (PEA) Pye House Cadney (centered on Grid Reference TL 4701 8876), where woodland creation is proposed. The boundary of the area for woodland creation is illustrated in Figure 1, Appendix A (the Site).

1.2 Site Context

1.2.2 The existing Site covers approximately 219 ha and is made up of arable farmland, with areas of woodland and grassland. The immediate boundaries of the Site are formed by similar arable habitats to the north and east, the New River Ancholme to the west, North Kelsey Beck Soak Drain to the south. The surrounding landscape is dominated by arable farmland, with the village of Cadney to the south-east and Cadney Reservoir to the north-east.

1.3 Development Proposals

1.3.3 Woodland creation is planned at the Site which is owned by Forestry England. The proposals are in an early stage of development, but shall include planting a mixture of broadleaf and conifer species and incorporating open space for conservation and visual diversity (the 'Scheme').

1.4 Purpose

1.4.4 This PEA report follows the guidelines set out in:

- Chartered Institute of Ecology & Environmental Management (CIEEM) (2017) Guidelines for Preliminary Ecological Appraisal, 2nd edition[1]
- British Standard *42020:2013 Biodiversity. Code of Practice for Planning and Development*.
- The UK Forestry Standard (5th Edition)[2]
- Forestry Commission (2024) *Ecological survey and assessment for woodland creation (England) V3.1*
- All other supporting guidance indicated in the text.

1.4.5 This report is therefore intended to provide advice and recommendations on the basis of a review of the habitats present at the Site. The purpose of the report is therefore to:

- As far as possible identify the Important Ecological Features[3] (IEF) of the Site from a field survey of the habitats present.
- Identify potential impacts to IEFs, making initial recommendations for how the Scheme may avoid these impacts.

[1] CIEEM (2017) Guidelines for Preliminary Ecological Appraisal, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester. link
[2] https://www.gov.uk/government/publications/the-uk-forestry-standard [accessed 26/06/25]
[3] Important ecological features are habitats, species, ecosystems and their functions and processes that are of conservation importance and could potentially be affected by the Scheme.

- Provide recommendations for mitigation where impacts cannot be avoided and an outline of what that mitigation involves.
- Identify where further detailed ecological survey is required to determine impacts and / or design mitigation.
- Provide recommendations for the enhancement of biodiversity as part of the Scheme.

1.4.6 The methodologies followed for the report are provided in Appendix D, including details of any limitations.

2. Baseline Ecology & Recommendations

2.1 Introduction

2.1.1 The following section details the results of habitat classification and an appraisal of suitability for faunal species. IEFs are identified and, where possible, their importance is evaluated.

2.1.2 Where appropriate recommendations are made for further survey. Outline recommendations are also provided for the approach to mitigation and compensation that may be required as part of the Scheme during both the establishment and future management of woodland.

2.2 Designated Sites

2.2.3 The location of statutory designated sites are illustrated in Figure 2, Appendix A, with descriptions provided in Table 1.

Statutory Sites

2.2.4 There are no statutory designated nature conservation sites of International importance [Special Area of Conservation (SAC), Special Protection Area (SPA), or Ramsar wetland] that are designated for non-breeding birds within the 10 km Study Area.

2.2.5 There are also no statutory designated nature conservation sites of national importance [Site of Special Scientific Interest (SSSI) or Local Nature Reserve (LNR)] within the 2 km Study Area. In addition, review of the Impact Risk Zones confirmed that there is no requirement for consultation with Natural England regarding the potential for impact upon SSSI's from afforestation schemes at this location.

Non-statutory Sites

2.2.6 There are five non-statutory Local Wildlife Sites (LWSs) of County importance located within 2 km of the Site (Table 1). There were no areas of designated ancient woodland within the 2 km Study Area.

TABLE 1 NON-STATUTORY DESIGNATED SITES OF COUNTY NATURE CONSERVATION IMPORTANCE

Designated Site	Designated Feature	Distance & Direction from Site
Faraway and Thirty Foot Drains	3.7km of drain habitat that are designated for its diversity of freshwater habitats.	Within Site
New River Ancholme	24 km length of river habitat with diverse aquatic and marginal plant communities, bank-side grassland habitats and trees.	Adjacent west boundary
Newstead Drain	1.4 km of drain with high diversity of water plants.	640 m north at closest point
Cadney Beck, Westrum	3 km of drain designated for its diversity of freshwater and wetland plant species.	1.2 km north at closest point

Old River Ancholme	River with some unmodified sections and diversity of aquatic plants.	1.5 km north at closest point

Constraints

2.2.7 Non-statutory LWS are of at least **County** importance for their qualifying features.

2.2.8 There will be no direct Impacts to any designated sites within the Study Area.

2.2.9 A section of the sensitive wetland habitats of Faraway and Thirty Foot Drain LWS is located within the Site boundary and the New River Ancholme is located adjacent the west Site boundary. These habitats of these LWSs and others locate in the wider Study Area are sensitive to indirect impacts from hydrological change and over-shading. Alterations on the quality and amount of water run-off, such as during soil disturbance, and also from over-shading may alter the plant communities associated with these designated sites. Reductions in the diversity or coverage of the associated plant species as a result of these changes may undermine the conservation status of these non-statutory sites, resulting in significant adverse effects.

2.2.10 It is therefore recommended that both operation during the establishment and maintenance of the proposed woodland follow the guidance set out in the UK Forestry Standard Practice Guide – *Managing forest operations to protect the water environment (2nd edition)*. To protect the LWSs this should include the following:

- Buffer of 10 m of Faraway and Thirty Foot Drain LWS (which has a channel width of less than 2 m);
- Buffer of 20 m adjacent New River Ancholme LWS (which has a channel width of more than 2 m);
- Monitor weather conditions;
- Avoid any ground disturbance within 2 m of the watercourse;
- Limit excavations (spoil trenches) to 30 m or less and avoid any excavations discharging into the watercourse;
- Avoid the storage and / or application of fertiliser and pesticides[4] in the buffer zone and / or during wet conditions;
- Apply stringent working protocols for the application of pesticide, including avoiding any contamination of watercourses with equipment;
- Maintain biosecurity protocols (refer below); and,
- Provide a plan for the monitoring and remediation of pollution of watercourses from increased sedimentation or other accidental pollution events, such as oil spillages.

2.2.11 The implementation of these measures are sufficient to mitigate the risk of adverse effects upon the conservation status of all non-statutory LWSs.

Commented [HH1]: FYI @Cooper, Jessica

Commented [HH2]: FYI @Startup, Stuart and @Mason-Powers, Issy

Commented [SS3R2]: @Holden, Hannah we need further discussion about faraway drain as I need to work within 10m.

[4] Unless the pesticide product is approved for use in or near water and appropriate authorisation is in place.

2.3 Habitats & Flora

Desk Study

2.3.12 There were records of Deciduous Woodland Habitat of Principal Importance (HPI) from within the Site boundary. These records were associated with the woodland habitats of W1, W2, W7 & W8 (Table 4). Field survey has confirmed that these habitats do not represent HPI (refer below).

2.3.13 There were also records of Deciduous Woodland and Coastal Floodplain Grazing Marsh Habitats of Principal Importance within the 1 km Study Area.

2.3.14 There were no existing records of notable flora from within the Site.

Field Survey

2.3.15 The Site consists of arable farmland with some grassland compartments, blocks of woodland and hedgerow field boundaries. The northern half of the Site is bisected by Brigg Road. The north and east boundaries are largely formed by farmland, the south boundary comprises North Kelsey Beck and the west boundary of the Site is formed by Faraway Drain and the New River Ancholme. The land surrounding the Site is dominated by open farmland with scattered blocks of woodland. The residential areas of Cadney are located adjacent to the east Site boundary and Cadney Reservoir is located north-east of the Site.

2.3.16 The recorded habitats are illustrated in Figure 3, Appendix A, with the main habitats types listed together in Table 2. Representative photographs of the habitats and features recorded are provided in Appendix B. Descriptions of the habitats are provided in the following paragraphs with the lists of botanical species recorded provided in Appendix C. Where necessary numbered Target Notes (TN) have been used to identify notable features that are cross-referenced in the text.

TABLE 2 SUMMARY OF HABITAT TYPES

Habitat Type	UKHab Codes	Habitat of Principal Importance
Other calcareous grassland	g2c	No
Other neutral grassland	g3c, g3c5 & g3c6	No
Modified grassland	g4	No
Other woodland – mixed	w1h5 & w1h6	No
Other broadleaved woodland	w1g	No
Other native hedgerows	h2a5	Yes
Dense scrub	h3	No

Habitat Type	UKHab Codes	Habitat of Principal Importance
Aquatic marginal vegetation	f2d	No
Reedbeds	f2e	
Arable and horticulture	c1	No
Developed land; sealed surface	u1b	No
Other temporary ponds and scrapes	r1f	No
Other standing water	r1g	*
Other rivers and streams	r2b	No

Grasslands

2.3.17 Grassland habitat was associated with some individual field compartments, the field margins, tracks, banks of ditches and around the woodland edge. The habitats are described in Table 3 with the locations of each compartments illustrated in Figure 3, Appendix A.

TABLE 3 GRASSLAND HABITAT DESCRIPTIONS

Reference	Description
G1	**g2c Other calcareous grassland** This was a small area of grassland around the steep embankments of the pond P2. The grassland consisted of a sparse sward on freely draining soil. The sward included occasional cock's-foot *Dactylis glomerulata*, bent *Agrostis* sp. and perennial rye-grass *Lolium perenne*, with frequent ribwort plantain *Plantago lanceolata* and occasional carline thistle *Carlina vulgaris*.
G2	**g3c Other neutral grassland** Tall and unmanaged grassland associated with field margins, tracks and woodland rides. The habitat varied in width from approximately 2 m to 9 m. Grasses included occasional to locally abundant cock's-foot, locally abundant soft brome *Bromus horaeceus,* frequent red fescue *Festuca rubra* and frequent Yorkshire fog *Holcus lanatus* and black grass *Alopecurus myosuoides*. Overall there was a low abundance of forbs in the sward, which included occasional to frequent common hogweed *Heracleum sphondylium*, abundant cut-leaved crane's-bill *Geranium dissectum* and occasional cow parsley *Anthriscus sylvestris*. Comparatively diverse areas of grassland on some of the tracks where the sward comprised a mix of occasional bent *Agrostis*, cock's-foot, field bindweed *Convulvulus arvensis*, ribwort plantain *Plantago lanceolata*, smooth tare *Vicia tetrasperma*, creeping buttercup *Ranunculus repens*, dove's-foot cranesbill and white clover *Trifolium repens*.

Reference	Description
G3	**g3c Other neutral grassland, 10 scattered scrub 501 mesic** Tall and unmanaged grassland also associated with field margins and bankside habitat of ditches, where it frequently had a composition that was indicative of periodic inundation. The grasses included locally abundant false oat-grass *Arrhenatherum elatius*, perennial rye-grass *Lolium perenne* red fescue *Festuca rubra* agg. and tufted hair-grass *Deschampsia cespitosa*. Forbs included abundant black knapweed *Centaurea nigra*, common nettle *Urtica dioica*, cow parsley, creeping buttercup and creeping cinquefoil *Potentilla reptans*. In close proximity to ditches common reed *Phragmites australis* and lesser pond sedge *Carex acutiformis* were also locally abundant in this habitat. Where it occurred scattered scrub included blackthorn *Prunus spinosa*, bramble *Rubus fruitcosus* agg., hawthorn *Crataegus monogyna* and willow *Salix* sp.
G4	**G3c Other neutral grassland, 10 scattered scrub, 16 tall forbs,** These small areas were present in the unmanaged margins of fields and along some ditches. These areas were dominated locally by common nettle, with locally abundant creeping thistle *Cirsium arvense* and common couch *Elytrigia repens* and occasional cow parsley, hemlock *Conium maculatum* and common hogweed. Scattered stands of bramble dominated scrub were also present.
G5	**g3c5 Arrhenatherum neutral grassland, 16 tall forbs** These grassland swards were associated with tracks, the verges of roads and around the margins of woodland and were dominated by false oat-grass. Very few forbs were represented in the sward, with the species present being similar to the separate areas of other neutral grassland. Tall fords included locally abundant stands of common couch, common nettle, creeping thistle and cow parsley.
G6	**g3c7 Deschampsia neutral grassland, 100 grazed, 502 seasonally wet** This represented an area of low-lying and damp grassland dominated by tufted hair-grass. The sward was largely comprised of grasses, including frequent Yorkshire fog, and occasional cock's-foot, marsh foxtail *Alopecurus geniculatus* and perennial rye-grass. Creeping buttercup and creeping thistle were also recorded.
G7	**G3c8 Holcus Juncus grassland, 16 tall forbs** This was a small area of grassland in an untilled corner of a field compartment at the south of the Survey Area. The sward consisted of abundant Yorkshire fog and broad-leaved dock *Rumex obtusifolius*, with occasional soft rush *Juncus effusus*, dandelion *Taraxacum offiniale* agg., creeping thistle and field horsetail *Equisetum arvense*.
G8	**g4 Modified grassland, 10 scattered scrub, 100 grazed** These consisted of several compartments of grassland grazed by cattle and/or sheep. Yorkshire fog and soft brome were locally abundant, with perennial rye-grass at least frequent in the sward. Forbs were limited to frequent creeping buttercup, creeping thistle, dandelion, and occasional

Reference	Description
	white clover *Trifolium repens*. Mature hawthorn scrub was scattered around the boundaries of these compartments.

Woodland and Forest

2.3.18 There were eight separate woodland compartments across the Survey Area, which are described in Table 4.

TABLE 4 WOODLAND HABITAT

Reference	Description
W1	**w1h5 Other woodland - mixed - mainly broadleaved, 29 plantation** Young plantation woodland that appeared to lack current management and had no more than a sparse shrub layer that was largely confined to the woodland edge. Mature examples of common alder *Alnus glutinosa* were abundant in the canopy layer, with other mature trees occurring occasionally, including ash *Fraxinus excelsior*, pedunculate oak *Quercus robur*, silver birch *Betula pendula*, spruce *Picea* sp. and sycamore *Acer pseudoplatanus*. The shrub layer included locally abundant hawthorn, with other species recorded including blackthorn, dogwood *Cornus sanguinea*, elder *Sambucus nigra*, field maple *Acer campestre*, goat willow *Salix caprea*, and hazel *Corylus avellana*. The ground layer was dominated by common nettle, with abundant rough meadow-grass *Poa trivialis*. Some other shade-tolerant species recorded included black hoarhound *Ballota nigra*, hemp nettle *Galeopsis tetrahit*, wood avens *Geum urbanum* and white dead-nettle *Lamium album*. Some standing and fallen deadwood was present. The woodland rides consisted of shrub, tall forbs and neutral grassland.
W2	**w1g Other broadleaved woodland, 29 plantation** An area of young plantation that was located immediately adjacent W1, but lacked coniferous trees. The woodland has a mix of mature and semi-mature examples of ash, pedunculate oak, common alder and field maple. The shrub layer was largely absent, with a groundflora dominated locally by wood avens and with frequent common nettle. Some standing deadwood was also evident.
W3	**w1g Other broadleaved woodland, 29 plantation** A plantation with tree guards still in place and overall a poorly developed structure. The canopy consisted of frequent hawthorn and white willow *Salix alba*, with occasional blackthorn, field maple, guelder-rose *Viburnum opulus* and silver birch. The ground-layer consisted of leaf litter, with abundant meadow-grass *Poa* sp., dock *Rumex* sp. and frequent wood avens. At the woodland edge had a damp character and here great willowherb *Epilobium hirsutum* was locally abundant and hard rush *Juncus inflexus* was occasional.
W4	**w1g Other broadleaved woodland, 29 plantation** A plantation of semi-mature trees, including abundant ash and silver birch, with occasional pedunculate oak and sycamore. The shrub layer included frequent field maple and hawthorn, with occasional blackthorn, dog rose *Rosa canina* agg. and rowan *Sorbus aucuparia*. The ground layer included a mix of cow parsley, common hogweed, rough meadow-grass, false oat-grass, wood avens and lesser burdock *Arctium minus*. The north boundary was delineated by a dry ditch and here the vegetation

Reference	Description
	appeared to have developed from an overgrown hawthorn hedge and mature ash trees were more abundant.
W5	**w1g Other broadleaved woodland, 29 plantation** A plantation of mature to semi-mature trees on an embankment. The woodland has poor structure and included abundant field maple and frequent pedunculate oak. The ground-layer included leaf litter, with frequent cow parsley and common hogweed and occasional common nettle, cleavers *Gallium aparine* and white dead-nettle.
W6	**w1g Other broadleaved woodland, 29 plantation** A young plantation consisting of a mix of semi-mature examples of ash, hawthorn, hazel, guelder-rose, pedunculate oak and silver birch. The ground layer included leaf litter, with locally dominant common hogweed, frequent wood avens, and occasional bent grass *Agrostis* sp., cleavers and dock *Rumex* sp.
W7	**w1h5 Other woodland - mixed - mainly broadleaved, 29 plantation, 214 fallen dead wood abundant** A plantation woodland dominated by mature and semi-mature sycamore, with occasional pine *Pinus* sp. and poplar *Populus* sp. The understory comprised of frequent hawthorn and bramble, with occasional elder. The ground layer consisted of abundant common nettle and meadow-grass *Poa* sp., with occasional garlic mustard *Alliaria petiolata* and cleavers. There was an abundance of fallen deadwood within the woodland.
W8	**w1h5 - Other woodland - mixed - mainly coniferous, 29 plantation** A plantation woodland that was continuous with W7 but where the canopy was dominated by pine *Pinus* sp. The understory and ground layer were consistent with W7.

2.3.19 There were also several line of trees and individual trees associated with the field boundaries. Lines of trees are described in Table 5. Individual trees were infrequent and included mature and semi-mature examples of ash, common alder, common lime *Tilia* x *europaea*, field maple, sycamore, pedunculate oak and white willow.

2.3.20 The white willow tree T17 in the eastern half of the Surevy Area was of sufficient size (above 1 m diameter at breast height) and had numerous associated features, such as deadwood and rot holes, that it was considered likely to represent a veteran tree.

TABLE 5 LINES OF TREES

Line of trees	Description
TG1	Line of mature common lime trees.
TG2	Line of mature sycamore and ash trees.
TG3	Line of mature ash trees.
TG4	Line of mature ash trees.

Heathland and shrub

h2a5 Other native hedgerows

2.3.21 There were 11 native hedgerows located within the Survey Area and these are detailed in Appendix C.

2.3.22 The hedgerows were species-poor (less than 5 species per central 30 m section) and dominated by either hawthorn or blackthorn, with occasional elder and dog rose. Occasional ash, field maple and willow *Salix* sp tree standards were present in some hedgerows. The ground layers of the hedgerows either comprised bare earth or was continuous with the plant communities from the adjacent habitats. Management of the hedgerows appeared to be limited to occasional flailing, with many of the hedgerows unmanaged.

h3 Dense scrub

2.3.23 Stands of dense scrub were located around the unmanaged margins of the field boundaries and on the edges of woodland habitat. Ares of scrub around the margins of the grassland fields had developed from over-grown hedgerows. In each location the scrub was dominated locally by either bramble, hawthorn or blackthorn, with occasional dogwood and dog rose.

Wetland

f2d Aquatic marginal vegetation, 50 ditch

2.3.24 This habitat was associated with ditches across the Survey Area and each are described in . Although vegetation was consistent with periodic inundation, at all locations the ditches held only limited amounts of standing water or were dry at the time of survey. The bankside habitat of the ditches consisted of grassland and scrub and is described separately in the appropriate section.

TABLE 6 DITCH HABITAT

Ditch	Secondary code	Description
D1	503 wet 10 scattered scrub	3 m x 4 m ditch with <10 cm depth of water with abundant reed canary-grass *Phalaris arundinacea*, locally abundant reed sweet-grass *Glyceria maxima* and frequent great willowherb. Scattered bramble scrub overshaded sections of the ditch.
D2	503 wet	1.5 m x 1.5 m ditch with <10 cm depth of water and in-channel vegetation comprising reed canary-grass and bulrush *Typha latifolia*.
D3	503 wet 10 scattered scrub	5 m x 2 m ditch with <10cm depth of water and abundant greater pond-sedge Carex riparia, hard rush and soft rush and frequent meadowsweet *Filipendula ulmaria*. Bramble was locally abundant where it over-shaded the ditch.

D4A	503 wet	3 m x 2 m wet ditch with <10 cm of standing water. The in-channel vegetation was dominated by common reed and reed sweet-grass, with occasional meadowsweet and bulrush also present.
D4B	502 seasonally wet 10 scattered scrub	4 m x 3 m dry ditch with one localised area of standing water adjacent to a culvert connected to D4A. The in-channel vegetation was dominated by reed canary-grass , with locally abundant reed sweet-grass and occasional hard rush and great willowherb. Bramble scrub was also locally dominant.
D5	502 seasonally wet 10 scattered scrub	1m x 1m dry ditch with abundant hard rush and great willowherb. Bramble scrub was locally dominant, with occasional blackthorn, field maple and hawthorn scrub.
D6	503 wet 10 scattered scrub	4m x 2 m wet ditch with in-channel water depth < 10 cm and supporting a mix of bulrush, reed sweet-grass and great willowherb. Bramble scrub was locally abundant.
D7	502 seasonally wet	3 m x 2 m dry ditch with abundant common reed in channel.
D8	502 seasonally wet 10 scattered scrub	4 m x 1.5 m dry ditch with frequent bulrush and soft rush. Bramble scrub was also frequent.
D9	503 wet	5 m x 3 m wet ditch with abundant reed sweet-grass and bulrush.
D10	503 wet	5m x 4 m wet ditch with water depth of 30 - 40 cm. In-channel vegetation included abundant reed sweet-grass and meadowsweet.
D11	503 wet 10 scattered scrub	3m x 3m wet ditch with water depth<10 cm and in-channel vegetation including abundant common reed, frequent soft rush and jointed rush *Juncus articulates* and occasional field horsetail. Bramble and hawthorn scrub were frequent.
D12	503 wet 10 scattered scrub	2 - 3m x 3m wet ditch with water depth < 10 cm and in-channel vegetation including abundant bulrush and occasional soft rush. Bramble scrub was locally dominant.
D13	502 seasonally wet	3 m x 3 m dry ditch with frequent reed sweet-grass and occasional common reed.
D14A	502 seasonally wet 10 scattered scrub	5m x 5m dry ditch with low abundance of any species indicative of inundation, but has connectivity to other wet ditches. The ditch was heavily over-shaded by blackthorn and hawthorn scrub.

D14B	503 wet	5m x 4 m wet ditch with water depth of 30 - 40 cm. In-channel vegetation included abundant reed sweet-grass and meadowsweet.
D15	503 wet	5m x 5 m wet ditch with water depth of <10 cm . In-channel vegetation comprised frequent common reed, with occasional soft rush and bulrush.

f2e Reedbeds

2.3.25 Reedbed habitat that was at least 5 m in width was confined to an area adjacent to ditch D15 and the south site boundary. Here common reed was dominant where it had had colonised the riparian habitat of adjacent ditches.

Cropland

c1 Arable and horticulture

2.3.26 No rare or scarce arable flora was recorded during the field survey.

2.3.27 Cropland habitat dominated the Survey Area and the majority consisted of fallow fields. Vegetation composition varied between field compartments, with some influence from adjacent habitats evident. Within the fallow fields black grass, bristly ox-tongue *Helminthotheca echioides*, common poppy *Papus rhoeas*, field forget-me-knot *Myosotis arvensis*, soft brome, spear thistle *Cirsium vulgare* and sterile brome *Bromus sterilis* were abundant or locally abundant, with groundsel *Senecio vulgaris*, square-stalked willowherb *Epilobium tetragonum,* swin cress *Lepidium coronopus* and wild pansy *Viola tricolor* being frequent or locally frequent. Some field appeared to have been fallow for more than one season and here the vegetation was locally dominated by coarse grass species, including Yorkshire fog and false oat-grass.

2.3.28 As the field were fallow it was not possible to identify any untilled field margins. Where field margins exceeded 2 m in width they have been mapped as grassland or, where they were associated with ditches, marginal vegetation. In general, where margins were less than 2 m in width they consisted of a tussocky sward of coarse grasses similar to those in the other neutral grassland sward.

Urban

u1b Developed land; sealed surface

2.3.29 This consisted of the hardstanding surfaces of roads that bisected the survey area and lacked vegetation.

Rivers and lakes

r1f Other temporary ponds and scrapes, 10 scattered scrub

2.3.30 This comprised a single low-lying area within the woodland W1 that had shallow banks and a depth of approximately 1 m below the surrounding ground. The area was damp at time of survey, but did not hold any standing water. The habitat was dominated by rush *Juncus* sp., with occasional bramble scrub that was encroaching from the surrounding woodland.

r1g Other standing water, 42 Pond

2.3.31 There were two permanent ponds within the boundary of the survey area that were each less than 2 ha in size; Ponds P1B & P2.

2.3.32 Pond P1 was located within the woodland W1 and heavily over-shaded by the surrounding trees and scrub. The majority of the ponds banks were steep, being at least 1 m in height with an incline of 45° to 90°. In the shallow margins where light was able to penetrate some marginal vegetation had established and was dominated by bulrush, with occasional brooklime *Veronica beccabunga* and rush *Juncus* sp. No aquatic vegetation was recorded, but leaf litter was abundant in the pond.

2.3.33 The pond P2 was a shallow, circular waterbody that was partly over-shaded by the surrounding woodland vegetation. The open water habitat supported stands of yellow flag *Iris pseudocorus*, bulrush, brooklime and hard rush. There was also a dense coverage of moss in one area of the pond.

r2b Other rivers and streams

2.3.34 The watercourse of Faraway Drain (W1A) ran adjacent the north-west boundary of the Survey Area and Thirty Foot Drain (W1B) ran through the western half of the south Survey Area. Both were highly modified watercourses or drainage channels.

2.3.35 Faraway Drain RW1A was 3 m in width a the bank-tops and 2.5 m deep. The channel had a width of approximately 1 m with a silty substrate and a water depth of 30 - 40 cm with a very slow flow. Marginal and in-channel vegetation including abundant reed canary-grass, frequent meadowsweet and curled pondweed *Potamogeton crispus* and occasional sedge *Caredx* sp. The banks of the watercourse were dominated by other neutral grassland as described above.

2.3.36 Thirty Foot Drain RW1B was approximately 3 to 4 m in width at the bank-tops and 4m deep. The channel was approximately 1 m in width with a silty substrate, a water depth of 30 - 40 cm and a very slow flow. In-channel vegetation included abundant common reed and several species of pondweed *Potamogeton* sp., with occasional meadowsweet, sedge *Carex* sp., water horsetail *Equisetum fluviatile* and water-starwort *Callitriche* sp.

Constraints & Recommendations

Assessment

2.3.37 The grassland and cropland habitats within the Site comprises common and widespread habitats. There is no evidence (such as active stewardship schemes) that any of the fields or their associated margins are managed for the purpose of nature conservation. On this basis the margins are not considered to represent HPI. Therefore, given their limited diversity the grassland and cropland habitats are considered to be of **sub-Local** conservation importance.

2.3.38 The native hedgerows within the Site represent HPI and Priority Habitat of the Lincolnshire BAP Lincolnshire Biodiversity Partnership (2011)[5] and are therefore of **National** ecological importance.

2.3.39 The potential veteran white willow tree represents an irreplaceable habitat. The importance of veteran trees for biodiversity is acknowledged by national planning policy

[5] Lincolnshire Biodiversity Partnership (2011) *Lincolnshire Biodiversity Action Plan 2011 – 2020 (£rd Edition).*

and guidance[6], including the National Planning Policy Framework (NPPF) (Appendix F). The potential veteran tree is therefore considered to be of up to **National** importance.

2.3.40 The plantation woodland, lines of mature trees and individual mature trees within the Site are of recent origin and/ or have limited structural and species diversity and therefore are not considered to represent HPI or Priority Habitat of the Lincolnshire BAP. The existing woodland and trees do contribute to the overall structural diversity of the Site, providing 'stepping-stone' habitat for local flora and fauna. On this basis the woodland and mature trees are considered to be of up to **Local** importance.

2.3.41 The individual stand of common reed represent HPI and is therefore of **National** importance. The majority of the marginal vegetation associated with the other ditches provide some habitat diversity and connectivity, but are of limited extent and significantly encroached by scrub. These ditches do not represent HPI and are considered to be of up to **Local** ecological importance.

2.3.42 The ponds P1 and P2 are also of limited habitat and species diversity, although they do increase the availability of suitable habitat for aquatic fauna, such as amphibians. Both ponds are considered likely to be on no more than **Local** ecological importance.

2.3.43 The watercourse habitats associated with RW1A and RW1B form part of the Faraway and Thirty Foot Drain LWS and are assessed separately in the designated sites section above.

2.3.44 The urban habitats are considered to be of **Negligible** ecological importance.

Recommendations

2.3.45 It is recommended that the existing woodland, trees and hedgerows are retained as part of the Scheme design. The woodland, trees or hedgerows adjacent the Site boundary should be protected in accordance with BS5837:2012 *Trees in Relation to Design, Demolition and Construction*.

2.3.46 Any loss of woodland, trees or hedgerows should be compensated through the establishment of replacement native habitat. Replacement habitat should maintain, and where possible increase, the existing coverage and connectivity of habitats. Where possible, deadwood or arisings from the removal of woody vegetation should be retained in habitat piles at discrete locations within the Site.

2.3.47 All wetland habitats should be retained and integrated into the design of the Scheme. Best practice measures should also be implemented to control the risk of indirect impacts to wetland habitats, including the ditches and ponds. Indirect impacts may include changes in hydrology, accidental pollution events and over-shading of sensitive vegetation. This should include following the recommendations set out in the UK Forestry Standard Practice Guide – *Managing forest operations to protect the water environment*

[6] Department for Environment, Food & Rural Affairs (2022) *Keepers of time: ancient and native woodland and tree policy in England – Government's statement on England's ancient and native woodland and ancient and veteran trees*

(2nd edition). It is therefore recommended that as a minimum (refer above to buffers recommended to protect designated sites):

- A 5 m buffer is maintained from wetland habitat;
- Avoid the storage and / or application of fertiliser and pesticides[7] in the buffer zone and / or during wet conditions;
- Apply stringent working protocols for the application of pesticide, including avoiding any contamination of watercourses with equipment;
- Maintain biosecurity protocols (refer below); and,
- Provide a plan for the monitoring and remediation of pollution of watercourses from increased sedimentation or other accidental pollution events, such as oil spillages.

2.3.48 Consideration of the requirement for ecological enhancement, including Biodiversity Net Gain (BNG), are provided in Section 3 of this report.

2.4 Birds

Desk Study

2.4.49 GLNP desk study data identified 805 individual bird records of 55 separate species from within the 2 km Study Area. These including Species of Principal Importance (SPI) listed under Section of the Natural Environment & Rural Communities Act 2006, declining species listed as Red or Amber on the Bird of Conservation Concern (BoCC) (Stanbury *et al* 2021[8]) and birds listed on Scheule 1 of the Wildlife & Countryside Act 1981 (as amended).

2.4.50 The 55 species included the following:

- Six species listed on Annex 1 of the Birds Directive;
- 21 species listed as SPI;
- 18 species listed as Priority Species of the Lincolnshire BAP.
- 26 species listed as Red on the BoCC; and.
- 15 species listed as Amber on the BoCC.

2.4.51 In addition, 30 of the birds were listed under Schedule 1 of the Wildlife & Countryside Act 1981 (as amended). The schedule 1 birds included barn owl *Tyto alba*, black redstart *Phoenicurus ochruros*, hobby *Falco Subbuteo*, kingfisher *Alcedo atthis*, little ringed plover *Charadrius dubius*, peregrine *Falco peregrinus* and red kite *Milvus milvus*. All schedule 1 birds receive special statutory protection from disturbance when nesting and therefore this status is not relevant to this non-breeding report.

[7] Unless the pesticide product is approved for use in or near water and appropriate authorisation is in place.

[8] Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A, Lindley, P., McCulloch, N., Noble, D and Win, I. (2021) *The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain.* British Birds 114 pp723-747.

2.4.52 There were records from the following species in a tetrad that overlaps with the Site boundary; grey partridge *Perdicx perdix*, yellow wagtail *Motacilla flava*, tree sparrow *Passer montanus* and corn bunting *Emberiza calandra*.

2.4.53 Further details of the birds recorded in the desk study are provided in the separate wintering bird report (Fenland Ecology 2025[9]).

Field Survey

2.4.54 During the field survey the birds recorded making use of the Site's habitats included barn owl, blackbird *Turdus merula*, black cap *Sylvia atripilla*, blue tit *Cyanistes caeruleus*, chiffchaff *Phylloscopus collybita*, dunnock *Prunella modularis*, goldfinch *Carduelis carduelis*, great spotted woodpecker *Dendrocopos major*, great tit *Parus major*, grey partridge, lesser whitethroat *Curruca curruca*, linnet *Linaria cannabina*, meadow pipit *Anthus pratensis*, mallard *Anas platyrhynchos*, reed bunting *Emberiza schoeniclus*, sedge warbler *Acrocephalus schoenobaenus*, skylark *Alauda arvensis*, whitethroat *Curruca communis*, willow warbler *Phylloscopus trochilus*, wood pigeon *Columba palumbus*, wren *Troglodytes troglodytes* and yellowhammer *Emberiza citrinella*. Additional bird species recorded during the winter period are detailed in the separate wintering bird report (Fenland Ecology 2025).

2.4.55 The extensive cropland habitat and associated field margins provided suitable nesting habitat for farmland bird species, including grey partridge, skylark and yellowhammer. The system of ditches , and in particular the stands of marginal vegetation associated with the ditches, provided nesting opportunities for wetland birds species, such as reed bunting and sedge warbler. The woody vegetation of the woodland, hedgerows, individual trees and stands of scrub provided nesting habitat for both generalist species and also some specialists, such as whitethroat. Breeding opportunities around the margins of the ponds for wetland specialists, such as mallard, were limited in extent by the steepness of the banks and density of vegetation.

2.4.56 Barn owl was recorded on roosting on the north-west boundary of the Survey Area along the hedgerow H2. A barn owl box (TN1) was also located adjacent the western site boundary, although there was no evidence (accumulation of pellets, splashing or egg fragments beneath the box) that this box was occupied during field surveys.

Constraints and Recommendations

2.4.57 Wild birds are protected by the Wildlife and Countryside Act 1981 (as amended).

2.4.58 The birds noted during within the Site include species listed as Red and Amber on BoCC, SPI and Priority Species of the Lincolnshire BAP. None of the habitats within the Site meet the relevant criteria for LWS selection (criteria GM1, GM2 or GM3) on the basis of the bird assemblage present. The assemblage of breeding birds noted during the field visits and their distribution across the Site are both consistent with desk study data for the surrounding area and are typical of the mix of habitats present. On the basis of the

[9] Fenland Ecology (2025) *Pye House, Cadney – Wintering Bird Survey*. A report produced on behalf of Forestry England.

information available it is likely that the assemblage and individual breeding bird species present are of no more than Local importance.

2.4.59 An assessment of wintering birds is provided in the separate wintering bird report (Fenland Ecology 2025). In summary, the majority of species and numbers of over-wintering birds present are typical of the habitats within the Site and considered to be of Local importance. An over-wintering population of short-eared owl is present and considered to be of County importance.

2.4.60 It is recommended that the removal of suitable breeding habitat should be avoided in the main breeding season 01 March to 31 August. Where this is not possible, then a nesting bird check should be undertaken in advance by an ecologist. Where active nests are present then a suitable stand-off should be maintained around the nest (as advised by the ecologist) until chicks have fledged. Consideration should also be given to the potential presence of Schedule 1 birds, such as kingfisher and barn owl, which are additionally protected from disturbance while nesting.

2.4.61 The Scheme will lead to the loss of cropland habitats for the purpose of establishing woodland habitats. This will result in the unavoidable loss of habitat for the farmland specialists recorded, including Priority Species of the Lincolnshire BAP, such as skylark and linnet. The maintenance of stand-offs from ditch habitat as part of the Scheme design to avoid significant over-shading (as recommended above for habitats) would also maintain the extent of the habitat utilised by wetland specialists. The maintenance of woodland and boundary hedgerows would retain habitat for associated species. However, the extensive woodland creation would increase the overall extent of habitat available for notable woodland specialists known to occur locally, such as song thrush.

2.5 Badgers

2.5.62 Badgers are protected from persecution and therefore the results of the badger desk study and field survey are presented in the separate confidential Appendix D. The results of the badger field survey should not be disclosed to third parties without prior permission.

Constraints & Recommendations

2.5.63 Badgers are protected from persecution by the Protection of Badgers Act 1992. Badgers are a common and widespread species and the population present is considered to be of no more than Local importance.

2.5.64 Where there is a risk of impacts to badgers and their setts then they should be avoided through good working practices. The guidance in the Forestry Commissions *Forestry Practice Guide 9 - Forest Operations and Badger Setts* and Natura England's standing advice should be followed. Protection measures include:

- Planning site design, including haul roads, to avoid active badger setts;
- Pre-works surveys to confirm the absence of active setts;
- Maintaining stand-offs from active setts;

- Covering any exposed pipework with a diameter greater than 120 mm and covering excavations that are left open overnight, or leaving a suitable means of escape, such as a plank or sloping edges; and,
- Avoid felling trees towards badger setts.

2.5.65 Where stand-offs are applied around badger setts during site works the exact distance will depend upon the type of activity. The following distances from provide a guide :

- 10 m from any sett entrance - Use of hand tools or scrub clearance;
- 20 m from any sett entrance – Tree felling and the use of light machinery, including forestry cultivation, drainage and timber dragging machinery; and,
- 30 m from any sett entrance – Use of heavy machinery.

2.5.66 However, the risks of disturbance are context-dependant and some activities (such as pile-driving) may cause greater disturbance. Therefore all risks should be considered on a case-by-case basis and stand-offs applied as advised by an ecologist.

2.5.67 In the event that setts are impacted then an appropriate Natural England licence would needed. Certain forestry operations[10] that include, but are not limited to, tree felling or fencing, may be permitted at any time of year by a Natural England class licence. Where a class licence is not appropriate then it would be necessary to obtain a specific badger Natural England licence to interfere (damage, destroy or disturb) with badgers and their setts. This licence would include a method statement detailing the best working practices to avoid harm to badgers. Badger licences to interfere with badgers are usually only granted in the period 01 July to 30 November.

2.5.68 Site design and future woodland management should also consider the risk of damage or disturbance to badgers from increases in human presence (and their domestic pets) and from felling activities. The following recommendations are made to protect badgers:

- Trails or cycleways should avoid high status (i.e. main) setts, with a stand-off of 100 m;
- Future forestry operations and cycles of tree management should be planned to maintain trees around setts; and,
- Where fencing is required then two-way gates should be installed to maintain connectivity for badgers between their setts and also with suitable foraging and watering areas.

2.6 Bats

Desk Study

2.6.69 There were previous records for common pipistrelle *Pipistrellus pipistrellus*, unidentified pipistrelle *Pipistrellus* sp., brown long-eared bat *Plecotus auritus*, unidentified myotis bat *Myotis* sp. and unidentified bat species within the 2 km Study Area. The closest record

[10] https://www.gov.uk/government/publications/badgers-licence-to-interfere-with-setts-for-forestry-purposes/cl26 [accessed 14/06/25]

were for various bat roosts located within Cadney, at least 55 m east of the Survey Area over the period 2009 to 2017.

Field Survey

Bat Roosts

2.6.70 The suitability of potential roost sites identified with woodland, tree groups and individual trees are described in Table 7. The location of these features are illustrated in Figure 4, Appendix A. All other trees within the Survey Area lacked suitable features for roosting bats and were assessed as NONE.

TABLE 7 POTENTIAL SUITABILITY OF WOODLAND AND TREES FOR ROOSTING BATS

Reference	Type	Assessment	Description
W1	Woodland	FAR	Occasional mature trees and standing deadwood with flaking bark, rot holes and knot holes
W2	Woodland	FAR	Standing deadwood with flaking bark, rot holes and knot holes
W3	Woodland	FAR	Large mature ash on north boundary with potential to support roosting features (inaccessible at time of survey)
W5	Woodland	FAR	Mature trees with some knot holes and flaking bark.
W7	Woodland	FAR	Occasional mature trees and standing deadwood with flaking bark and cavities.
W8	Woodland	FAR	Occasional mature trees and standing deadwood with flaking bark and cavities.
TG2	Sycamore & ash	PRF	Knot holes
TG3	Ash trees	FAR	Large enough to support roosting features (not accessible at time of survey)
TG4	Ash trees	PRF	Knot holes & split limbs
T2	Ash	PRF	Knot holes and wound providing potential roost features
T4	Ash	PRF	Series of rot holes providing potential roosting features
T5	Ash	FAR	Flaking bark
T6	Ash	FAR	Large enough to support roosting features (not accessible at time of survey)
T7	Field Maple	PRF	Bat boxes present
T13	Ash	FAR	Large enough to support roosting features (not accessible at time of survey)
T14	Ash	FAR	Large enough to support roosting features (not accessible at time of survey)
T15	Ash	PRF	Hollow limbs, folded bark, split limbs and knot holes
T16	Ash	PRF	Hollow limbs, folded bark, split limbs and knot holes

Reference	Type	Assessment	Description
T17	White willow	PRF	Flaking bark, hollow stem & limbs, split limbs.
T22	Ash	PRF	Flaking bark and knot holes present
T25	White willow	PRF	Folded bark and flaking bark

2.6.71 There were also two brick- and tile-built culverts (TN2 & TN3) present that had cavities that provided potentially suitable access points and roosting sites for bats. Based upon the features present these culverts were considered to have Moderate bat roost potential. There were no other buildings or structures within the Survey Aea with the potential to support roosting bats.

Foraging & Commuting Habitat

2.6.72 The cropland habitats dominating the Survey Area provided seasonal foraging habitat for bats, although the overall suitability of this habitat was reduced by its very open and exposed character. The permanent habitats of woodland, trees, hedgerows, ditches, open water and grassland within the Survey Area supplied some suitable foraging habitat for bats, including hawking species such as brown long-eared bat. Many of the ditches were less sheltered and their suitability as foraging or commuting habitat was limited by their exposed character. The comparatively sheltered habitats present along woodland edges and rides, hedgerows, scrub and tall riparian vegetation represented more optimal habitat. These woodland, hedgerow and ditch habitats both within the Survey Area and adjacent to it also provided suitable commuting habitat that was connected to similar habitat in the surrounding area.

Constraints and Recommendations

2.6.73 Bats are fully protected by the Habitat Regulations 2017 (as amended) and the Wildlife and Countryside Act 1981 (as amended). Brown long-eared bat and soprano pipistrelle are SPI and all bats recorded in the county are Priority Species of the Lincolnshire BAP. The bat species known to be present in the vicinity of the Site represent widespread species at both national and local levels, and are therefore of Local importance or above.

2.6.74 The recommendations below have been based on the following guidance:

- Best practice guidance for the design of woodland creation and management for bats as set out in Forestry Commission for England & Wales (2005) *Woodland Management for Bats*, Forest Research, Forestry Commission & Natural England (2013) *Guidance on managing woodlands for bats in England* and Bat Conservation Trust (2025) *Bats and Woodland – Considering bats when managing woodland and trees*.
- The current guidance for bat surveys are detailed in Collins (2023)[11].

2.6.75 Woodland, tree groups, individual trees and two culverts that are located within the Site provide potential roosting opportunities for bats. It is recommended that all potential

[11] Collins, J.(ed) (2023). *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (4th edition). The Bat Conversation Trust. London

roost sites are avoided and retained as part of the woodland creation Scheme. To maintain their ecological context and function, individual trees with potential roosting features should be integrated into the Scheme design with a stand-off (approximately 20 m) of retained vegetation. This stand-off should also be maintained as part of future woodland management operations.

2.6.76 If at any time the Scheme is likely to result in impacts to the woodland, tree groups or individual trees that have bat roost potential (classified as FAR or PRF) or the culverts TN2 & TN3 with Moderate bat roost potential, then further surveys would be required to determine the presence and status of any bat roosts present.

2.6.77 All bat roost surveys should also be undertaken in accordance with the latest best practice guidance. Based on the current guidance of Collins (2023), surveys of trees should involve the following:

- Tree inspections to determine if trees are suitable for multiple roosting bats (classified PRF-M).
- Three tree climbing inspections or nocturnal surveys to PRF-M trees in the period 01 May to 31 September, with 2 visits in the period 01 May to 31 August.

2.6.78 Trees with lower levels of suitability for bats, i.e. for individual or small numbers of bats (classified as PRF-I), do not require further survey.

2.6.79 Surveys of structures with Moderate suitability for bats should involve at least two nocturnal surveys in the period 01 May to 31 September, one of which should be completed in the period 01 May to 31 August. In the event that roosting bats are identified then at least one additional nocturnal visits should be undertaken in the period 01 May to 31 August to fully characterise the roost status.

2.6.80 The felling or pruning of trees classified as PRF-I should be completed under an bat Precautionary Working Method Statement (PWMS) (Reason & Wray 2023[12]). The PWMS would set out roles and responsibilities of personnel, the requirement for an Ecological Clerk of Works (ECoW), appropriate timing of works and mitigation measures to reduce risk of harm to bats (such as section felling) and emergency provisions. The PWMS must state that is bats are found at any time then the work at that location should stop and further advice sought from an ecologist.

2.6.81 Where there are impacts to confirmed bat roosts, then it is likely that a Natural England protected species licence would be required. The licence would detail the working methods required to protect bats, such as the correct timing of work, requirement for supervision and the provision of replacement habitat. Where necessary replacement roosts should be provided within the scheme of woodland planting and should comprise bat boxes sited on retained trees.

[12] Reason, P.F. and Wray, S. (2023). *UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats. Version 1.1*. Chartered Institute of Ecology and Environmental Management, Ampfield

2.6.82 The range of habitats within the Site provide suitable foraging and commuting habitat for bats, including species that have been recorded in the local area. The woodland creation Scheme has the potential to improve opportunities for foraging and commuting bats known to occur locally. The following is recommended to maintain and improve upon the resource of foraging ad commuting habitat:

- Maintain existing woodland, hedgerow and ditch habitat.
- New woodland should be established to provide connections between areas of existing mature vegetation, particularly areas of woodland, both within and adjacent to the Site.
- Future management of retained and newly established woodland should allow the development of a diverse understory.
- Where possible, the introduction of gaps (e.g. through removal of trees or hedgerows) in any linear feature should not exceed 20 m.

2.6.83 Where appropriate, the potential for disturbance to bats from any increases in artificial lighting should be managed through the use of sensitive lighting in accordance with Institute of Lighting Professionals guidance[13]. Lighting levels should be directed away from sensitive habitats, as low as guidelines permit and only used where required for public safety.

2.7 Hazel Dormouse

Desk Study

2.7.84 There were no records for hazel dormouse *Muscardinus avellanarius* within the 2 km Study Area.

Field Survey

2.7.85 No evidence of hazel dormouse was recorded within the Survey Area.

2.7.86 The arable fields and grazed grassland that dominated the Survey Area were considered unsuitable for hazel dormouse. The woodland, scrub and hedgerow habitat within the Survey Area provided potential opportunities for hazel dormouse to shelter and forage. Tree roots and stands of leaf-litter that were also associated with these habitats provided some potential hibernation habitat for hazel dormouse. Connections between these habitats and similar areas off-Site were frequently interrupted by breaks, including those created by nearby watercourses or areas of open arable farmland.

Constraints & Recommendations

2.7.87 Hazel dormouse are fully protected by the Habitat Regulations 2017 (as amended) and the Wildlife and Countryside Act 1981 (as amended) and are a SPI.

2.7.88 In Lincolnshire populations of hazel dormouse are known to be restricted to the location of specific reintroduction sites. This is consistent with the known distribution of hazel

[13] Institute of Lighting Professionals (2023) *Guidance Note GN 08/23 Bats and Artificial Lighting in the UK*. link [accessed 26/09/24]

dormouse[14] and the absence of local records. Therefore, although there is some suitable habitat for hazel dormouse within the Site, it is considered unlikely that they are present and no further survey or mitigation is required for this species.

2.8 Otter

Desk Study

2.8.89 There were records of otter *Lutra lutra* within the 2 km Study Area from the period 2009 to 2022. The closest were from within grid square SE 99 03 in 2009 and 2017, which was at least 100 m west of the Site.

Field Survey

2.8.90 No evidence of otter was recorded within the Survey Area.

2.8.91 The open and exposed cropland habitats within the Survey Area were of limited suitability for otter. The ditches and associated areas of scrub and tall riparian vegetation provided commuting habitat and some limited cover for otter. Some woodland habitats across the Survey Area provided some opportunities for otter to shelter, although this was limited by the open character and poor habitat structure in most areas, with the most suitable areas comprising the scrub and dense vegetation located in the woodland W1 where it was located adjacent to Faraway Drain RW1A. A pile of deadwood (TN4) located at the margins of the woodland W1 provide some additional opportunities for otter to shelter. Some limited foraging opportunities were provided by the permanent water bodies within the Survey Area and the watercourse RW1A and RW1B.

2.8.92 The watercourse of New River Ancholme located to the west of the Site boundary and North Kelsey Beck to the south each provided suitable foraging and commuting habitat for otter that were well-connected to other suitable habitat in the surrounding landscape. The open water habitats of Cadney Reservoir also provided a potentially suitable foraging area for otter.

Constraints & Recommendations

2.8.93 Otters are fully protected by fully by the Habitat Regulations 2017 (as amended) and the Wildlife and Countryside Act 1981 (as amended) and are a SPI. Otter are a widespread species known to be present on most river catchments at a national level[15]. Any otter population making use of the Sites habitats would be considered of at least Local importance.

2.8.94 The following recommendations are based on the guidance set out in Forest Research, Forestry Commission & Natural England (2013) *Guidance on managing woodlands with otter in England* and Natural England standing advice.

[14] Natural England (2021) *Definition of Favourable Conservation Status for Common dormouse,* Muscardinus avellanaris. A report produced as part of the Defining Favourable Conservation Status Project.
[15] Crawford, A. (2010) *Fifth otter survey of England 2009 – 2010*. A report produced on behalf of the Environment Agency.

2.8.95 Areas of dene vegetation in the woodland W1 and the deadwood at TN4 provide opportunities for otter to shelter, either as a resting site or as a breeding site. The remaining habitats are unlikely to be regularly used by otter as places of shelter or breeding sites.

2.8.96 Where their places of rest or shelter are present then otters may be sensitive to a disturbance up to 30 m from a resting place and a distance of 100 - 200m from a breeding site. Therefore, should any woodland creation or management activities come within 200 m of these locations within W1, it is recommended that a survey should be undertaken to determine the presence of otter.

2.8.97 Otter surveys may be completed at any time of year and should be undertaken in accordance with guidance of the RSPB (1994[16]) and Chanin, P. (2003[17]). Characterising the use of potential places of shelter can require several monitoring visits[18], which may include the use of trail cameras[19].

2.8.98 Should otters be present then the design of the woodland creation Scheme should avoid impacts to this species as a result of habitat loss and / or disturbance. Impacts to otters may be avoided through the use of precautionary methods, including stand-offs from sensitive areas, the correct timing of works and monitoring of otter activity. In some circumstances mitigation may need to be covered by a Natural England protected species licence. The licence would detail the working methods required to protect otter, such as the timing of work, the requirement for supervision and the provision of replacement habitat.

2.8.99 In addition to the above measures, it is also recommended that woodland management avoids stacking timber adjacent to watercourses for longer than 2 month to prevent it from becoming a place of shelter for otter.

2.9 Water Vole

Desk Study

2.9.100 There were numerus records for water vole from within the 2 km Study Area, the majority of which were from 2010 to 2011 and associated with North Kelsey Beck immediately south of the Site.

Field Survey

2.9.101 The steep sided banks of ditch and watercourse habitat within the Survey Area provided suitable burrowing opportunities for water vole. The suitability of many ditches for water vole was limited by the limited depth of water (10 cm or less), which in many locations were either dry or near-dry. The most suitable habitat was provided by the watercourse of

[16] Ward, D. Holmes, N. Jose, P. (1994). *The New Rivers and Wildlife Handbook*. Royal Society for the Protection of Birds. Bedfordshire
[17] Chanin, P (2003). *Monitoring the Otter* Lutra lutra. Conserving Natura 2000 Rivers Monitoring Series No 10. English Nature, Peterborough
[18] Liles, G (2003) *Otter Breeding Sites. Conservation and Management* Conserving Natura 2000 Rivers Conservation Techniques Series No. 5. English Nature, Peterborough
[19] In some circumstances the use of cameras to monitor otter sites may require an appropriate Natural England survey licence

RW1A and RW1B and the ditches D10, D11 and D14B, which held a reasonable depth of water at the time of survey. Lush vegetation along the ditches, in particular stands of reed, tall grasses and ruderal plants, provided suitable shelter and foraging opportunities for water vole.

2.9.102 The ponds within the Survey Area were heavily over-shaded by adjacent vegetation and therefore provided sub-optimal habitat for water vole .

Constraints & Recommendations

2.9.103 Water voles are fully protected by the Wildlife and Countryside Act 1981 (as amended). Water vole are also a SPI and a Priority Species of the Lincolnshire BAP. Although water vole are a declining mammal species at a national level, they are widespread in Lincolnshire. A water vole population within the Site would therefore be considered to be of at least Local importance.

2.9.104 Any activities within 5 m of the toe of the bank[20] of suitable watercourses may have the potential to impact water voles (Dean *et al* 2016[21]). If activities are planned this area then further surveys are recommended to confirm the presence or absence of water vole. Water vole surveys should be completed in accordance with Dean *et al* (2016) and should involve two survey visits; one in the period mid-April to 30 June and a second in the period 01 July to 31 September (surveys outside this period cannot reliably confirm the absence of water vole). Survey visits should be undertaken at least two months apart with the extent of survey determined by the scale of potential impact.

2.9.105 If water vole are present then works should be planned to avoid impacts. Where this is not possible then work may require a Natural England protected species licence. The licence details the best working practices to protect water vole, including the sensitive displacement of water vole from affected habitat, the requirement for supervision, the appropriate timing of work and the reinstatement or replacement of habitat.

2.9.106 In addition to the above measures, it is also recommended that during harvesting as part of future woodland management trees are directionally felled away from areas of suitable water vole habitat.

2.10 Great Crested Newt

Desk Study

2.10.107 There were no records for great crested newt *Triturus cristatus* (GCN) within the 2 km Study Area.

2.10.108 Review of map data identified that in addition to the on-Site ponds P1 & P2 there were10 waterbodies located within 500 m of the Site boundary; ponds P3 to P11 (Figure 5, Appendix A). Pond P3 corresponded to Cadney Reservoir that was located within 50 m of the north-east Site boundary.

Commented [HH4]: How does this line up with your planned works? @Startup, Stuart map should be lower down the report to show locations

Commented [SS5R4]: Hi @Holden, Hannah The only picture I can find to reference those number is watercourse RW1B which I won't be working in or near. If you have a map with RW1A and the ditches I can check those.

[20] The point where the average water line of the watercourse meets the bank profile

[21] Dean, M. Strachan, R. Gow, D. Andrews, R. (2016). *The Water Vole Mitigation Handbook (The Mammal Society Guidance Series).* Eds Fiona Mathews and Paul Chanin. The Mammal Society. London

Field Survey

2.10.109 The open water and marginal vegetation of the two waterbodies P1 and P2 within the Site boundary provided potential breeding habitat for GCN. The shallow pools of water associated with the majority of wet ditches across the Survey Area were considered to provide only sub-optimal habitat for GCN as they had limited lacked opportunities for display and mating. The watercourse RW1A and RW1B had an almost imperceptible flow and dense stands of aquatic vegetation that provided suitable egg-laying habitat. Therefore, this watercourse and the ditches D10, D11 and D14B that held deeper water were also considered to provide potentially suitable breeding opportunities for GCN.

2.10.110 Despite their associated vegetation at the time of survey, the fallow arable fields were considered to be of limited suitability for GCN since they were a temporary habitat that lacked permanent places of rest or shelter. The grazed grassland fields also lacked potential places of rest or shelter. Potential areas of terrestrial habitat were provided by the woodland, scrub, hedgerows and permanent grassland associated with field margins and embankments of ditches. The roost systems of mature trees and hedgerows, animal holes, occasional ant hills and gaps around fence posts all supplied potentially suitable places of shelter for GCN.

2.10.111 The watercourses of New River Ancholme to the west of the Survey Area and North Kelsy Beck to the south of the Survey Area both had a flow and were of sufficient size to support populations of predatory fish. These features were therefore considered to represent permanent barriers to the dispersal of GCN (Figure 5, Appendix A).

Constraints & Recommendations

2.10.112 GCN are fully protected by fully by the Habitat Regulations 2017 (as amended) and the Wildlife and Countryside Act 1981 (as amended). GCN are a SPI and a Priority Species of the Lincolnshire BAP. GCN have a widespread, but local distribution in lowland England and a population within the Site would be of at least Local importance.

2.10.113 The following recommendations are based on guidance set out in Forest Research, Forestry Commission & Natural England (2013) *Guidance on managing woodlands with otter in England,* English Nature (2001) *The Great Crested Newt Mitigation Guidelines* and Natural England standing advice.

2.10.114 There are ponds within the Site boundary (P1 & P2) and the ditches within the Site that have standing water have some limited potential as breeding habitat for GCN. There are also waterbodies in the surrounding landscape (P3 to P12) that may have the potential to support GCN. Of these off-Site waterbodies;

- P3 is a large reservoir that is likely to support predatory fish populations and therefore is unlikely to support GCN.
- P12 is separated from the Site by North Kelsey Beck which is considered to represents a permanent barrier to GCN dispersal. Therefore any GCN that may be present in P12 are unlikely to make use of the habitats within the Site.

2.10.115 The ponds P3 and P12 are therefore scoped out and are not considered further.

2.10.116 For the remaining waterbodies there is a risk that, should they be present, GCN may make use of habitats within the Site boundary. It is recommended that all suitable GCN habitat is avoided where possible. Where there is a risk of impacts to GCN that may be present then the waterbodies should be surveyed to confirm the presence or absence of GCN. Waterbodies holding standing water should be subject to sampling for environmental DNA (eDNA) surveys in the period 15 April to 30 June (Biggs *et al* 2014[22]).

2.10.117 The risk of impacts to GCN and the scope of survey should consider all stages of woodland establishment and operation in the context of the following:

- The presence of suitable habitat, including places of rest or shelter.
- GCN may make use of habitat up to 500 m of their breeding ponds (English Nature 2001), but research has demonstrated that they are more likely to be found in suitable habitat located within 50 - 100m of their breeding ponds (Cresswell & Whitworth 2004[23]).
- GCN may also occupy areas of unsuitable or poor habitat, such as in areas of hardstanding, cropland habitat or short grassland, up to 50 m from breeding ponds[24].

2.10.118 If GCN are confirmed absent or are unlikely to be able to access the Sites habitats, then it is likely there is no risk of impact to this species and no further survey or mitigation would be required.

2.10.119 If GCN are confirmed to be present then mitigation may need to be covered by either a PWMS and / or a protected species licence. A PWMS would provide details of measures to avoid risk to GCN including the roles and responsibilities of personnel, the requirement for an ecological clerk of works, the appropriate timing of work, the avoidance of suitable habitat and emergency provisions. The PWMS must state that if GCN are found at any time then the work at that location should stop and further advice sought from an ecologist.

2.10.120 Where a licence is required then this may be either the adoption of a District Level Licence (DLL) or a standard Natural England European Protected Species licence. The DLL approach is managed by Natural England in North Lincolnshire and enables works to be licenced without the need for GCN survey and reduces obligations for mitigation during construction. If required, a standard Natural England licence may require further

[22] Biggs J, Ewald N, Valentini A, Gaboriaud C, Griffiths RA, Foster J, Wilkinson J, Arnett A, Williams P and Dunn F 2014. *Analytical and methodological development for improved surveillance of the Great Crested Newt. Appendix 4. Results of a pilot survey to test the use of eDNA outside of the recommended great crested newt survey window. Defra Project WC1067*. Freshwater Habitats Trust: Oxford

[23] Cresswell & Whitworth (2004) *English Nature Research Report 576 – An assessment of the efficiency of capture techniques and the value of different habitats for the great crested newt* Triturus cristatus. English Nature

[24] As detailed in GCN Method Statement, *'even unvegetated or sparsely vegetated areas close to high quality newt ponds (within around 50m) should be included in impact assessments; this could apply to quarry floors, arable, cracked or damaged hard-standing and amenity grassland'* https://www.gov.uk/government/publications/great-crested-newts-apply-for-a-mitigation-licence [accessed

detailed surveys and a strategy for the mitigation and compensation necessary to protect GCN.

2.10.121 To manage the potential risk of harm to GCN as part of future woodland management it is recommended that the stacking of timber and tracking of vehicles across suitable terrestrial habitat is avoided within 100 m of any confirmed GCN breeding habitat.

2.11 Reptile

Desk Study

2.11.122 There were no historical records for reptiles within the 2 km Study Area.

Field Survey

2.11.123 No evidence of reptiles were recorded in the Survey Area during the field surveys.

2.11.124 The arable fields, grazed grasslands and over-shaded areas of woodland within the Survey Area were unsuitable for reptiles. The mix of scrub, grasslands and tall vegetation along the ditches and on the margins of arable fields included a mix of sward heights that provided a vegetation structure with some suitability for reptiles. Some limited opportunities for reptiles to shelter were created by the root systems of hedgerows and mature trees, animal holes and the fence posts within the Survey Area. The areas of open water habitat provided some potentially suitable foraging opportunities for grass snake *Natrix helvetica*.

2.11.125 The surrounding landscape comprised arable and woodland habitats similar to those found within the Site and also the urban fringe of Cadney, all of which were either unsuitable or sub-optimal for reptiles. The on-Site ditches and the watercourse of the New River Ancholme provided potentially suitable commuting corridor for grass snake to suitable habitat in the wider landscape.

Constraints & Recommendations

2.11.126 Reptiles are partially protected from harm and sale by the Wildlife and Countryside Act 1981 (as amened) and are SPIs.

2.11.127 The grassland within the Site represents an area with some limited suitability for reptiles that has some limited connections to other areas of habitat in the surrounding landscape. Given the absence of local records and the limited availability of suitable habitat it is considered that there is a low risk to any reptiles that may be present.

2.11.128 It is recommended that suitable reptile habitat is avoided where possible. Where suitable habitat cannot be avoided then mitigation should be planned as part of a PWMS. Measures to protect reptiles would involve a combination of the appropriate timing of works and the sensitive management of vegetation to displace reptiles from the working area into areas of suitable habitat. This approach would involve the following key steps:

- The removal of suitable places of shelter and any vegetation management to displace reptiles shall only be undertaken during suitable weather conditions, i.e. daytime temperature 9°C or higher, and within the reptile active season (mid-March - mid-October).

- Grassland will first be strimmed directionally to a height of 100mm and 1-2 hours later it will be reduced to 50mm. All strimming will be carried out from the centre of the working areas towards the retained areas of habitat.
- All arisings will be completely removed from the working area to prevent potential areas of refugia from being used by reptiles moving across the area.
- A fingertip search of the working area will be made immediately prior to any ground works to ensure that all common reptiles are absent from the area of work. Further operations will only continue once common reptile species have been confirmed to be absent from the working area.

2.11.129 These measures are considered sufficient to manage the risk of harm to reptiles at all stages of woodland creation and management.

2.12 Invertebrates

Desk Study

2.12.130 There were records of the SPI butterfly wall *Lasiommata megera* within the 2 km Study Area.

Field Survey

2.12.131 The majority of the cropland and pasture were of limited suitability for invertebrates, as these habitats lacked the required diversity of habitat structure. Mature trees and standing deadwood with features such as deadwood or raised and lifted bark, provided suitable habitat for saproxylic (deadwood) invertebrate species. The hedgerows and the field margins provided suitable dispersal corridors for invertebrates with suitable habitat in the surrounding landscape.

2.12.132 The open water and watercourses provided some opportunities for aquatic or semi-aquatic invertebrates. Opportunities for crayfish to shelter and forage were confined to stands of marginal vegetation, with other places of shelter, such as stones and cobbles, being absent.

Constraints & Recommendations

2.12.133 Deadwood and other features associated with mature trees provide an important resource for invertebrates. It is recommended that these features are avoided and retained where possible. Where it is necessary to remove any deadwood, for example, for reasons of health and safety, it is recommended that to maintain habitat continuity the deadwood is retained at a safe location within the Site boundary.

2.12.134 The Site is outside the known distribution of the native white-clawed crayfish *Austropotamobius pallipes*. This is consistent with the lack of local records and also the potential presence of the non-native crayfish (see below). Therefore, white-clawed crayfish are considered likely to be absent and no further survey or mitigation are required for this species.

2.12.135 The remaining habitats associated with the Site of limited importance for invertebrates and therefor no further survey or specific mitigation measures are considered necessary.

2.13 Invasive Non-native Species

Desk Study

2.13.136 There were records of the invasive non-native species[25] (INNS) of plant Nuttall's waterweed *Elodea nuttallii* and montbretia *Crocosmia* x *crocosmiiflora* areas that included the Site. In the wider 2 km Study Area there were also records of Himalayan balsam *Impatiens glandulifera* and Canadian waterweed *Elodea canadensis*.

2.13.137 There were records of American mink *Neovison vison* over the period 2011 to 2017 within the 2 km Study Area. There were records of the invasive Chinese mitten crab *Eriocheir sinensis* from the New River Ancholme and North Kelsey Beck immediately adjacent the west and south Site boundary, respectively. There were also records of the invasive American signal crayfish *Pacifastacus leniusculus* from the New River Ancholme adjacent the west Site boundary.

Field Survey

2.13.138 The invasive tree of heaven was recorded on the east boundary of the Survey Area, adjacent to Brigg Road (TN5).

2.13.139 No other invasive species were recorded within the Survey Area.

Constraints & Recommendations

2.13.140 The Wildlife and Countryside Act 1981 (as amended) makes it illegal to plant or allow the invasive species listed on Schedule 9 to spread in the wild.

2.13.141 Tree of heaven is an invasive plant species under Schedule 9 of the Wildlife & Countryside Act 1981 (as amended) and has been recorded within the Site. An invasive species plan is recommended to ensure the correct treatment and disposal of any Schedule 9 plants in accordance with The Environmental Protection Act 1990. This would require complete removal of the plant (including tree stump and roots) and either include burning on Site or disposal at an appropriately licenced facility.

Commented [HH6]: @Mason-Powers, Issy FYI

Commented [MI7R6]: @Holden, Hannah do we know a timescale on this by any chance?

2.13.142 Given the nearby presence of the Schedule 9 animals Chinese mitten crab and American signal crayfish, it is recommended that any operations affecting the watercourses RW1A and RW1B and ditches D10, D11 and D14B should implement appropriate biosecurity measures. These should be detailed as part of an invasive species plan, and would involve the decontamination of clothing and equipment, avoiding the removal of contaminated materials (such as silt) from the Site or cross-contamination between watercourses and the humane disposal of any captured Schedule 9 animal species.

2.13.143 It is recommended that regular monitoring is undertaken prior to woodland establishment and during woodland management to confirm the absence of plant INNS. It is also recommended that the planting Scheme should avoid the use of invasive non-native plant species listed on Scheule 9.

[25] Species listed on Scheule 9 of the Wildlife & Countrysde Act 1981 (as amended).

2.14 Other Notable Species

Desk Study

2.14.144 There were records of brown hare *Lepus europaeus* and hedgehog *Erinaceus auropaeus* within the 2 km Study Area

Field Survey

2.14.145 The woodland, scrub, hedgerows and areas of pasture provide opportunities for hedgehog to forage or shelter.

2.14.146 Individual brown hare were making use of the open cropland fields within the Survey Area.

Constraints & Recommendations

2.14.147 Hedgehog and brown hare both represent SPI.

2.14.148 Hedgehog are a declining mammal species[26] that may be considered to be of at least of Local importance. Where possible the clearance of habitat that provides opportunities for hedgehog to shelter, such as dense scrub or piles of logs and brash, should avoid the main hibernation period 01 November to 31 March. If hedgehogs are encountered during operations then they be avoided or if this is not possible and there is a risk of harm they should be carefully moved to an area of retained habitat. Overall, the scheme of woodland creation is likely to increase the availability of suitable habitat for hedgehog and result in an overall benefit for this species.

2.14.149 Brown hare are a widespread species that are considered to be of no more than Local importance. Although the Scheme will result in some habitat loss it is not considered to result in significant adverse effects upon the local population.

2.14.150 No further survey or mitigation measures are considered necessary for any of these individual species

[26] Gazzard, A. & Rasmussen, S.L. 2024. Erinaceus europaeus. The IUCN Red List of Threatened Species 2024.

3. Ecological Enhancement

3.1.1 The following section provides outline recommendations for enhancement opportunities that may be included as part of development proposals at the Site.

3.2 Woodland Creation

3.2.2 In accordance with the guidance of the UK Forestry Standard (5th Edition) and focus areas of the Forestry England's Biodiversity Plan 2022-26 it is recommended that the woodland creation scheme maximises gains for biodiversity wherever possible.

3.2.3 The design of any habitat enhancements should take account of the requirements of ecological and other environmental mitigation.

3.2.4 Ecological enhancements may be achieved through habitat creation as part of the design of the newly planted woodland. It is recommended that the habitat creation should:

- Establish native habitats that are characteristic of the local area.
- Contribute to the protection of existing habitats by providing buffers of semi-natural vegetation.
- Maximise the coverage of the newly created native habitats.
- Contribute to habitat connectivity by linking together existing areas of semi-natural habitat.

3.2.5 The Site is located in the Central Lincolnshire Vale Natural Character Area[27] and within the catchment of the River Ancholme an its tributaries. In this context appropriate habitat enhancements may comprise the following:

- Native woodlands oak woodland stands and (subject to ground conditions) including a proportion of small-leaved lime that are characteristic of the wider area.
- Wetland habitats, including damp grassland and open water.
- Bringing existing habitats into more favourable management. For example, through the control of scrub encroachment.

3.2.6 Consideration may be given to the provision of specific enhancements for faunal species, which could include:

- Creation of purpose-built otter holts in sheltered areas near the New River Ancholme.
- The installation of bat boxes and bird boxes on retained trees.

3.2.7 In order to function in a meaningful way it would be necessary for the habitats and features to provide safe refuges for associated fauna that are known to be present locally, such as water vole. Therefore, where possible design of these refuges should seek to maintain stand-offs from direct access by the public and their pets.

[27] https://nationalcharacterareas.co.uk/central-lincolnshire-vale/

3.2.8 These enhancements should be secured as part of Management & Monitoring Plan or equivalent document. This document would include the aims and objectives of management, how this will contribute to local conservation objectives, the prescriptions for habitat establishment and management, a programme and methodology for monitoring and future adaptive management. It is recommended that the details of the management plan should be agreed in consultation with the Greater Lincolnshire Partnership.

3.3 Biodiversity Net Gain

3.3.9 Any part of the Scheme that is determined by the Town & County Planning Act would need to undertake an assessment with the Statutory Biodiversity Metric. This should demonstrate the achievement of 10 % BNG in accordance with the provisions of the Environment Act 2021 and in line with best practice principals[28].

3.3.10 The Statutory Metric calculation should only be applied after the application of the mitigation hierarchy in line with the recommendations set out above for the IEFs in Section 2. The calculation will take account of the habitat distinctiveness, condition ad strategic significance of habitat losses and gains, with reference to relevant documents, including the Local Nature Recovery Strategy or equivalent nature conservation planning documents

3.3.11 Gains for biodiversity may be achieved through the improvement of existing habitats or the creation of new habitats, for example woodland creation. It is anticipated that there is more than sufficient scope within the Site to deliver the requirements of mandatory BNG.

3.3.12 In the event that losses occur and cannot be compensated within the Site then it may be necessary to seek off-site opportunities. Off-Site location should be subject to survey to characterise the existing habitats present and designed to improve their biodiversity value in accordance with the Statutory Metric. Where available it may be possible to identify locations that are already available on the BNG market, including those on the Biodiversity Gain Site Register[29]. Any off-Site measures to deliver mandatory BNG should be agreed in consultation with the relevant competent authority (usually the Local Authority).

3.3.13 For any habitats delivering significant ecological enhancements it will be necessary as part of the Biodiversity Gain Condition to provide a formal Biodiversity Net Gain Plan and a Habitat Management & Monitoring Plan (HMMP). The HMMP should be secured via a legal agreement (either a section 106 agreement or a conservation covenant) and cover a period of 30 years. Any site listed on the Biodiversity Gain Register will already have a HMMP in place.

[28] Biodiversity Net Gain: Good practice principles for development © CIEEM, CIRIA, IEMA, 2016
[29] https://environment.data.gov.uk/biodiversity-net-gain [accessed 29/04/25]

4. Summary

4.1.1 The are no statutory designated sites of international or national importance within the Study Area.

4.1.2 There are non-statutory LWS within 2 km of the Site, including Faraway and Thirty Foot Drains LWS within the Site and New River Ancholme to the west of the Site. Best practice measures, including the use of stand-offs and careful forestry operations are recommended to maintain the conservation status of these designated sites.

4.1.3 Field survey shave demonstrated that the Site is dominated by arable fields and species-poor pasture that are of low ecological importance. Native hedgerows and reedbeds represent HPI and Priority Habitat of the Lincolnshire BAP. A single potential veteran tree is present in the Site. Other features of ecological importance include the areas of plantation woodland, trees, ponds and ditches.

4.1.4 It is recommended that woodland, trees, hedgerows and wetland features are retained and protected. This should include the use of stand-offs and careful forestry operations.

4.1.5 The Site provides opportunities for a range of breeding birds that are typical of the habitats present. Any clearance of suitable nesting bird habitat should be planed to avoid the main nesting period (01 March to 31 August). An ecologist should compete a nesting bird check when avoidance of the nesting period is not possible. Where any active nests are identified then they should be avoided with stand-offs maintained until checks have fledged (as advised by an ecologist).

4.1.6 Badgers should be protected at all times through the use of stand-offs, best working practices and monitoring. Where necessary impacts to badger setts would require works to be covered by an appropriate Natural England badger licence.

4.1.7 Existing woodland and trees and two culverts provide potential roosting habitat for bats. Where any potential bat roosts are impacted then further details are required to confirm the absence of bats (further details in the report). Future management should avoid the introduction of gaps into suitable foraging and commuting habitat. Where appropriate, sensitive lighting should be included in the Scheme design to maintain the ecological function of habitat that is suitable for bats.

4.1.8 The Site provides some suitable habitat for reptiles and furthers survey is recommended to confirm the presence of absence of these species. Should reptiles be preset then mitigation would be delivered by a working method statement to detail the safe displacement of reptiles to a suitable area of habitat.

4.1.9 Further surveys are recommended to determine the presence or absence of otter, GCN and water vole. Where these species are present then mitigation would involve the use of stand-offs, the appropriate timing of works, species monitoring and, where necessary, the completion of operations under an appropriate Natural England licence.

4.1.10 Best practice measures are recommended to avoid the risk of harm to reptiles during any clearance of suitable habitat.

4.1.11 Best practice is recommended to control and avoid the spread of invasive and non-native species, including tree of heaven and aquatic fauna. Survey should also be undertaken to re-affirm the absence of other invasive and non-native species.

4.1.12 Where possible the clearance of habitat that provides opportunities for hedgehog to shelter, such as dense scrub or piles of logs and brash, should avoid the main hibernation period 01 November to 31 March.

4.1.13 Recommendations are made for the integration of ecological enhancements into the woodland creation scheme. These include increasing the coverage of native woodland and wetland habitats that provide links to each other and to existing habitats in the local area, and the installation of features for notable fauna known to occur locally, such as otter, bats and birds. These enhancements will allow the Scheme to contribute to local conservation objectives and provide gains for biodiversity.

Appendix A Figures

FIGURE 1 SITE LOCATION PLAN

FIGURE 2 DESIGNATED SITES PLAN

FIGURE 3 HABITAT PLAN

FIGURE 4 BAT ROOST POTENTIAL PLAN

FIGURE 5 POND LOCATION PLAN

Appendix B Photographs

PHOTO 1 VIEW ACROSS FALLOW CROPLAND HABITAT

PHOTO 2 VIEW NORTH ALONG DITCH D12

PHOTO 3 WATERCOURSE RW1B (THIRTY FOOT DRAIN LWS)

PHOTO 4 YOUNG PLANTATION WOODLAND W6

PHOTO 5 OTHER NEUTRAL GRASSLAND ON TRACKWAY

PHOTO 6 VIEW EAST ACROSS GRAZED MODIFIED GRASSLAND

PHOTO 7 NATIVE HEDGEROW

PHOTO 8 POND P2

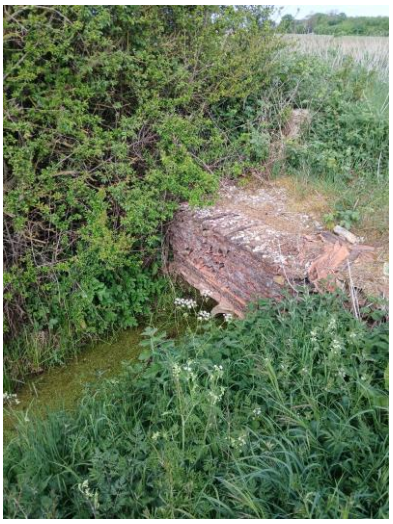

PHOTO 9 CULVERT TN1 WITH BAT ROOST POTENTIAL

PHOTO 10 CULVERT TN2 WITH BAT ROOST POTENTIAL

PHOTO 11 PILE OF LOGS PROVIDING POTENTIAL SHELTER FOR OTTER AND OTHER FAUNA

Appendix C Botanical Results

The following tables detail the plant species recorded in each habitat group. Abundance is indicated on the DAFOR scale; D, dominant, A, abundant, F, frequent, O, occasional, rare. The prefix 'L' is applied where the recorded abundance was more restricted (or local) within an individual area of habitat, e.g. LA represents locally abundant.

The range of abundance recorded across an individual area of habitat (e.g. O–F) or between areas of habitat (separated by commas).

TABLE 8 WOODLAND PLANT SPECIES LIST

Common Name	Scientific Name	Abundance
Ash	*Fraxinus excelsior*	O
Ash (sapling)	*Fraxinus excelsior*	R
Bent grass	*Agrostis sp.*	O
Black horehound	*Ballota nigra*	R
Blackthorn	*Prunus spinosa*	R, O
Bramble	*Rubus fruticosus* agg.	R
Broad-leaved dock	*Rumex obtusifolius*	A
Cleavers	*Gallium aparine*	R, O
Common alder	*Alnus glutinosa*	A
Common Hogweed	*Heracleum sphondylium*	O-LD
Common nettle	*Urtica dioica*	O, D
Cow Parsley	*Anthriscus sylvestris*	F
Crack willow	Salix fragilis	R
Dock	*Rumex sp.*	O
Dog rose	*Rosa canina agg.*	R, O
Dogwood	*Cornus sanguinea*	R
Elder	*Sambucus nigra*	R
Field maple	*Acer campestre*	R
Garlic mustard	*Alliaria petiolata*	R
Goat willow	*Salix caprea*	R-O
Ground ivy	*Glechoma hederacea*	R
Guelder rose	*Viburnum opulus*	R
Hawthorn	*Crataegus monogyna*	R-LA
Hazel	*Corylus avellana*	R
Hemlock	*Conium maculatum*	R
Hemp nettle	*Galeopsis tetrahit*	R
Pedunculate oak	*Quercus robur*	O, F
Pine	*Pinus sp.*	O-LD
Poplar	*Populus sp.*	R
Rough meadow-grass	*Poa trivialis*	A
Rowan	*Sorbus aucuparia*	
Silver birch	*Betula pendula*	R, O
Soft rush	*Juncus inflexus*	R
Sycamore	*Acer pseudoplatanus*	O, F
White Dead-nettle	*Lamium album*	R

Common Name	Scientific Name	Abundance
White willow	*Salix alba*	R
Wood avens	*Geum urbanum*	A

TABLE 9 GRASSLAND PLANT SPECIES LIST

Common Name	Scientific Name	Abundance
Ash (sapling)	*Fraxinus excelsior*	R
Bent grass	*Agrostis sp.*	LF
Black knapweed	*Centaurea nigra*	R
Black-grass	*Alopecurus myosuoides*	F-LA
Bramble	*Rubus fruticosus* agg.	R-LA
Bristly oxtongue	*Helminthotheca echioides*	O
Broad-leaved dock	*Rumex obtusifolius*	R, F, LA
Carline thistle	*Carlina vulgaris*	R
Cleavers	*Galium aparine*	R, F
Cock's-foot	*Dactylis glomerata*	R, O, A
Colt's-foot	*Tussilago farfara*	R
Common Couch	*Elymus repens*	O-F, LA, LD
Common Hogweed	*Heracleum sphondylium*	O-F, A
Common mallow	*Malva sylvestris*	R
Common nettle	*Urtica dioica*	R, O-F, D
Common poppy	*Papaver rhoeas*	R
Common Ragwort	*Senacio jacobaea*	R
Common reed	*Phragmites australis*	O
Cow Parsley	*Anthriscus sylvestris*	R - O
Creeping cinquefoil	*Potentilla reptans*	F, LA
Creeping Thistle	*Cirsium arvense*	R-LA, O, A
Curled dock	*Rumex crispus*	R
Cut-leaved crane's-bill	*Geranium dissectum*	A
Daisy	*Bellis perennis*	R
Dandelion	*Taraxacum officinale* agg.	R, O
Dog rose	*Rosa canina agg.*	R
Dove's-foot Cranesbill	*Geranium molle*	R
False Oat-grass	*Arrhenatherum elatius*	A, D
Field Bindweed	*Convolvulus arvensis*	O
Field forget-me-knot	*Myosotis arvensis*	R
Great willowherb	*Epilobiium hirsutum*	R, LF
Greater pond-sedge	*Carex riparia*	R
Ground ivy	*Glechoma hederacea*	R
Hairy tare	*Vicia hirsuta*	R
Hard rush	*Juncus inflexus*	R
Hawthorn (sapling)	Crataegus monogyna	R
Hemlock	*Conium maculatum*	R, O

Common Name	Scientific Name	Abundance
Lesser burdock	*Arctium minus*	R
Lesser Pond Sedge	*Carex acutiformis*	R
Lesser trefoil	*Trifolium dubium*	R
Meadow foxtail	*Alopecurus pratensis*	R-O
Meadow-grass	*Poa sp.*	O
Perennial rye-grass	*Lolium perenne*	R - LA, F
Perennial sow-thistle	*Sonchus arvensis*	R
Prickly sow-thistle	*Sonchus asper*	R
Red Clover	*Trifolium pratense*	R
Red fescue	*Festuca rubra agg.*	F, A
Reed canary-grass	*Phalaris arundinacea*	R-LA
Ribwort plantain	*Plantago lanceolata*	R, LF
Rosebay willowherb	*Chamerion angustifolium*	O
Rough hawk's-beard	*Creppis biennis*	R
Rough hawkweed	*Hieracium scabrum*	R
Rough meadow-grass	*Poa trivialis*	O-F
Silverweed	*Potentilla anserina*	R
Smooth tare	*Vicia tetrasperma*	R
Soft brome	*Bromus hordeaseus*	R-LA
Soft rush	*Juncus effusus*	O
Spear thistle	*Cirsium vulgare*	R
Sterile brome	*Bromus sterilis*	R-LA, F
Tall fescue	*Schedonorus arundinaceus*	R
Tansy	*Tanacetum vulgare*	R
Tufted Hairgrass	*Deschampsia cespitosa*	R, O & LA
White clover	*Trifolium repens*	R
White Dead-nettle	*Lamium album*	R
Wild teasle	*Dipsacus fullonum*	R
Yorkshire fog	*Holcus lanatus*	F, A

TABLE 10 CROPLAND PLANT SPECIES LIST

Common Name	Scientific Name	Abundance
Annual meadow-grass	*Poa annua*	R
Black-grass	*Alopecurus myosuoides*	F, A
Bristly oxtongue	*Helminthotheca echioides*	R, A
Broad-leaved dock	*Rumex obtusifolius*	R
Broad-leaved plantain	*Plantago major*	R
Canadian fleabane	*Erigeron canadensis*	R
Charlock	*Sinapis arvensis*	O
Cleavers	*Galium aparine*	R
Colt's-foot	*Tussilago farfara*	LO
Common Hogweed	*Heracleum sphondylium*	R

Common Name	Scientific Name	Abundance
Common mallow	*Malva sylvestris*	R
Common poppy	*Papaver rhoeas*	R, A
Common Ragwort	*Senacio jacobaea*	R
Common sun-spurge	*Euphorbia helioscopia*	R
Corn parsley	*Petroselinum segetum*	R
Creeping bent	*Agrostis stolonifera*	R
Creeping Thistle	*Cirsium arvense*	R, O
Cut-leaved crane's-bill	*Geranium dissectum*	R
Dandelion	*Taraxacum officinale* agg.	R, O - LF
Dove's-foot Cranesbill	*Geranium molle*	R
Field forget-me-knot	*Myosotis arvensis*	A
Field horse-tail	*Equisetum arvense*	R. LO
Field pansy	*Viola arvensis*	R
Great willowherb	*Epilobiium hirsutum*	R
Groundsel	*Senecio vulgaris*	F
Hedge mustard	*Sisymbrium officinale*	R
Hoary willowherb	*Epiobium parviflorum*	R, O
Lesser burdock	*Arctium minus*	R
Parsley piert	*Aphanes arvensis*	R
Perennial sow-thistle	*Sonchus arvensis*	O
Prickly lettuce	*Lactuca serriola*	R
Red fescue	*Festuca rubra agg.*	R
Rosebay willowherb	*Chamerion angustifolium*	R
Scented mayweed	*Matricaria chamomilla*	O
Scentless mayweed	*Tripleurospermum inodorum*	R
Shepherd's purse	*Capsella bursa-pastoris*	R
Smooth sow-thistle	*Sonchus oleaceus*	R
Soft brome	*Bromus hordeaseus*	LA
Spear thistle	*Cirsium vulgare*	F, LA
Square-stalked willowherb	*Epilobium tetragonum*	O-F
Sterile brome	*Bromus sterilis*	R, A
Swine-cress	*Lepidium coronopus*	LF
Wild oat	*Avena fatua*	O
Wild pansy	*Viola tricolor*	LF
Wild teasle	*Dipsacus fullonum*	R
Yellow-cress	*Rorippa* sp.	R

TABLE 11 SCRUB PLANT SPECIES LIST

Common Name	Scientific Name	Abundance
Blackthorn	*Prunus spinosa*	O
Bramble	*Rubus fruticosus* agg.	D
Dog-rose	*Rosa canina* agg.	R
Elder	*Sambucus nigra*	R
Field maple	*Acer campestre*	R
Goat willow	*Salix caprea*	R
Gorse	*Ulex europaeus*	R
Hawthorn	Crataegus monogyna	R

TABLE 12 WETLAND PLPANT SPECIES LIST

Common Name	Scientific Name	Abundance
Bramble	*Rubus fruticosus* agg.	LA, LD
Bulrush	*Typha latifolia*	R
Colt's-foot	*Tussilago farfara*	R
Common reed	*Phragmites australis*	A
Creeping buttercup	*Renunculus repens*	R
Elder	*Sambucus nigra*	R
False fox-sedge	*Carex otrubae*	R
Field horse-tail	*Equisetum arvense*	O
Great willowherb	*Epilobiium hirsutum*	O, F, A
Greater pond-sedge	*Carex riparia*	A
Grey willow	*Salix cinerea*	LO
Hard rush	Juncus inflexus	O, LA
Hawthorn	*Crataegus monogyna*	LF
Marsh foxtail	*Alopecurus geniculatus*	R
Meadowsweet	*Filipendula ulmaria*	F
Reed canary-grass	*Phalaris arundinacea*	R, O, A
Reed sweet-grass	*Glyceria maxima*	R-LA
Soft rush	*Juncus effusus*	R, F
Water figwort	*Scrophularia auriculata*	R

TABLE 13 RIVERS AND LAKES PLANT SPECIES LIST

Common Name	Scientific Name	Abundance
Branched bur-reed	*Sparganium erectum*	O
Brooklime	*Veronica beccabunga*	O
Bulrush	*Typha latifolia*	O
Cuckooflower	*Cardamine pratensis*	R
Curled pondweed	*Potamogeton crispus*	F
False fox-sedge	*Carex otrubae*	R
Frogbit	*Hydrocharis morus-ranae*	R
Hard rush	*Juncus inflexus*	O

Common Name	Scientific Name	Abundance
Meadowsweet	*Filipendula ulmaria*	F
Pondweed	*Potamogeton sp.*	F
Reed canary-grass	*Phalaris arundinacea*	F-A
Sedge	*Carex sp.*	O
Soft rush	*Juncus effusus*	R
Spike-rush	*Elocharis sp.*	R
Water horse-tail	*Equisetum fluviatile*	R
Water star-wort	*Callitriche sp.*	R
Yellow flag	*Iris pseudocorus*	F

TABLE 14 HEDGEROW SURVEY RESULTS

Hedge	Length	Species	Central 30 m Section[A]	Tree Age Class[B]	Features[C]	Important[D]	UKHab Habaitat
H1	170 m	Ash, Blackthorn, Goat Willow, Hawthorn, Dog Rose, Elder.	3	Mature	Ditch; Standards	No	Other native hedgerow, associated with ditch or bank
H2	110 m	Ash, Dog rose, Hawthorn.	2	Mature	Ditch, Gaps <10%; Standard	No	Other native hedgerow, associated with ditch or bank
H3	140 m	Blackthorn, Hawthorn, Elder, Willow.	2	None	Ditch >50% (dry); Gaps <10%	No	Other native hedgerow
H4	120 m	Blackthorn, Dog Rose, Hawthorn, Elder, Willow.	3	Mature	Ditch >50% (dry); Standards	No	Other native hedgerow
H5	45 m	Hawthorn, Dog Rose	2	None	Ditch>50% (dry); Gaps <10%	No	Other native hedgerow
H6	135 m	Hawthorn, Dog Rose	2	None	Ditch>50%	No	Other native hedgerow, associated with ditch or bank
H7	110 m	Hawthorn, Dog Rose	2	None	Ditch>50%	No	Other native hedgerow, associated with ditch or bank
H8	55 m	Blackthorn, Hawthorn, Dog Rose.	3	Mature	Ditch>50%; Gaps <10%	No	Other native hedgerow, associated with ditch or bank
H9	100 m	Ash, Blackthorn, Hawthorn, Dog Rose.	3	Mature	Ditch>50%	No	Other native hedgerow,

							associated with ditch or bank
H10	520 m	Hawthorn, Dog Rose, Elder, Wild Cherry.	2	None	Ditch >50%	No	Other native hedgerow, associated with ditch or bank
H11	100 m	Hawthorn, Dog Rose, Elder.	3	None	Ditch >50% (dry);	No	Other native hedgerow, associated with ditch or bank
A	Average species recorded per central 30 m section as defined by the Hedgerow Regulations 1997.						
B	Tree age classes as defined by the Statutory Biodiversity Metric[Error! Bookmark not defined.] and Hedgerow Survey Handbook[30].						
C	Features associated with the hedgerow as defined by Hedgerow Regulations 1997: Bank / wall >50% - bank or wall for at least half the hedgerow length; Ditch > 50% - ditch for at least half the hedgerow length; Gaps <10% - gaps do not exceed 10% of the hedgerow length; Standard trees / 50m – average of at least one standard trees per 50m of hedgerow length; Groundflora – at least 3 species of groundflora plants listed on Schedule 2 of the Hedgerow Regulations 1997; Connections – hedgerow scores 4 or more points for connections to hedgerows (1 point), woodland (2 points)or ponds (2 points); Parallel hedge – a parallel hedge within 15m of the hedgerow; PROW – public right of way present.						
D	Hedgerow meets the criteria for selection as Important according to the wildlife and landscape criteria of the Hedgerow Regulations 1997.						
E	Hedgerow classification according to UKHab[Error! Bookmark not defined.]						

[30] Defra (2007) *Hedgerow Survey Handbook*. A standard procedure for local surveys in the UK. Defra, London.

Appendix D CONFIDENTIAL Badger Results

THE FOLLOWING SECTION IS CONFIDENTIAL AND SHOULD NOT BE PUBLISHED IN THE PUBLIC DOMAIN OR SHARED WITH THIRD PARTIES WITHOUT PRIOR PERMISSION.

Desk Study

The only badger records from the Study Area in the last 20 years were located at least 500 m east of the Site within grid square TA 0202.

Field Survey

Eight separate setts were identified within the Survey Area and are described in Table 15, with the locations illustrated in Figure 6.

TABLE 15 BADGER SETTS WITHIN SURVEY AREA

Reference	Status	Description
S1	Outlier	Single D-shaped badger hole on bank of ditch and old bedding at entrance. There were no signs of recent activity.
S2	Main	At least 17 D-shaped holes with large spoil mounds. 14 holes were active and three partially active. Fresh excavations and bedding were present, with prints and guard hairs.
S3	Main	At least 15 D-shaped holes with large spoil mounds present, eight of which have fresh digging. Prints, clear pathways between and hairs were present.
S4	Annex / Subsidiary	At least 5 active holes with D-shaped entrances and large spoil mounds. Fresh bedding and a play area with trampled vegetation were evident.
S5	Outlier	Two holes with D-shaped entrances and digging evident.
S6	Unknown	At least one D-shaped hole in steep embankment of drain. Clear paths ran along the embankment into adjacent areas of impenetrable scrub.
S7	Outlier	A single D-shaped hole with a large spoil mound. A rabbit *Oryctolagus cuniculus* warren was located immediately adjacent to the hole.
S8	Unknown	At least two large D-shaped holes in the steep embankment of a drain. Clear paths were located between the holes and into adjacent areas of impenetrable scrub.

The identified setts comprised:

- Two main setts (S2 and S3);
- A single annex / subsidiary sett (S4); and,
- Three outlier setts (S1, S5 & S7).
- Two setts of unknown status (S6 & S8[31])

Latrines were identified within fields to the north of sett S1 and to the east of sett S4 (Figure 6). Digging and some foraging remains (discarded maize and excavated bees nests) consistent with badger activity were also scattered at various locations across the Survey Area.

The cropland field compartments within the Survey Area provided a seasonal foraging resource for badgers. Permanent areas of foraging habitat were supplied by the permanent pasture, woodland, field margins and hedgerows. The ditches and open water of ponds provided suitable watering areas for badger. As part of a wider arable landscape the habitats of the Survey Area were well-connected to similar habitats in the surrounding area including areas of woodland and pasture.

Photos

PHOTO 12 OLD BEDDING AT ENTRANCE OF S1

[31] The setts S6 & S8 were classified as unknown status because access to the area around them was restricted by scrub and tall vegetation. Given the presence of nearby pathways that lad into the scrub it was possible that other entrances were present and therefore the full status of the setts could not be determined.

PHOTO 13 DIGGING AT MAIN SETT S2, WITH FURTHER HOLES IN BACKGROUND

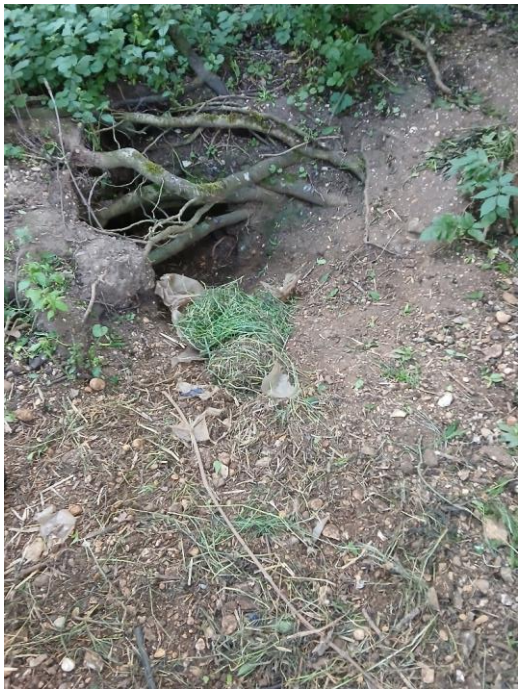

PHOTO 14 DIGGING AND FRESH BEDDING AT EXAMPLE HOLE FROM MAIN SETT S3

PHOTO 15 HOLES AND PATHWAYS AT ANNEX / SUBSIDIARY SETT S4

PHOTO 16 EXAMPLE LATRINE DUNG PIT

FIGURE 6 BADGER SURVEY RESULTS

Appendix E Methodology

Desk Study

A desk study was undertaken to identify records of protected and notable[32] habitats and species that are relevant to the Scheme. The desk study follows the CIEEM PEA and desk study guidelines (CIEEM 2017[1] and 2020[33]).

The Multi-Agency Geographic Information for the Countryside (MAGIC) tool[34] was reviewed for the following information:

- Statutorily designated Habitat Sites of international importance within 5 km of the Site; SPA, Ramsar sites and SAC.
- Other statutory designated sites of nature conservation sites within 2 km of the Site; SSSI & LNR.
- Records of ancient woodland and Habitat of Principal Importance from the England Biodiversity List[35] located within 1 km of the Site.

On the 10th July 2024 the following data was obtained from the Greater Lincolnshire Nature Partnership:

- Non-statutory designated sites (LWS) located within 2 km of the Site;
- Records of protected and notable flora and fauna located within 2 km of the Site.

For the purpose of assessing the potential presence of GCNs, the location of waterbodies up to 500 m[36] from the Site were identified from Ordinance Survey maps.

Field Survey

The Survey Area comprised the habitats located within the Site and where necessary was extended to cover adjacent habitats where access was available.

A walk over survey was undertaken within the Survey Area on 6th May, 30th May and 2nd June to map and classify habitats and identify suitability for legally protected and notable[37] habitats and fauna.

[32] Notable habitats and species are taken to be those recognised as being of principal importance under Section 41 of the NERC Act 2006, any species listed in an IUCN Red Data Book and Habitats and Species of Conservation Concern from the Nottinghamshire LBAP.
[33] CIEEM (2020) *Guidelines for Accessing, Using and Sharing Biodiversity Data in the UK. 2nd Edition. Chartered Institute of Ecology and Environmental Management*. Winchester, UK.
[34] www.magic.gov.uk
[35] https://www.gov.uk/government/publications/habitats-and-species-of-principal-importance-in-england
[36] English Nature (2001) *The Great Crested Newt Mitigation Guidelines.* English Nature, Peterborough.
[37] CIEEM (2020) *Guidelines for Accessing, Using and Sharing Biodiversity Data in the UK. 2nd Edition. Chartered Institute of Ecology and Environmental Management*. Winchester, UK.

Habitat Classification

The classification of habitat types was undertaken in accordance with the UK Habitat Survey (UKHab Survey) methodology (UKHab Ltd 2023[38]), which is a standardised system that applies a series of codes to classify habitat type and habitat context. Primary Codes were assigned using the UKHab Field Key to at least Level 3 hierarchy. At Level 4 and Level 5 the UKHab Survey also allows the identification of Habitat of Principal Importance and Annex I Habitat Types. Secondary Codes were also applied to provide contextual information for each habitat type. A minimum mappable unit of 200 m^2 was applied when recording habitats.

The presence of any invasive plants listed on Schedule 9 of the Wildlife & Countryside Act 1981 (as amended) were recorded. All plant species names were recorded in accordance with Stace (2019[39]).

Faunal Species

The potential of habitat within the Survey Area for protected or notable faunal species was also recorded during survey. This involved an appraisal of the suitability and extent of habitat available for fauna. Any sightings of or field signs associated with protected or notable fauna were also recorded. The following provides an overview of the guidance followed for specific fauna.

- **Badger:** the Survey Area was searched for any signs of badger activity including setts, tracks, snuffle holes and latrines, following the methodology of Harris et al (1989)[40].
- **Bats**: a DBW of the Survey Area was undertake to search for potential roosting sites and flight lines and foraging habitats in accordance with Collins (2023). Further detail is provided below on the method for the classification of roosts.
- **Hazel dormouse**: the potential of any habitats within the Survey Area to support hazel dormouse was appraised following the guidance of English Nature (2006[41]).
- **Otter**: the suitability of any watercourses, water bodies and adjacent terrestrial habitat within the Survey Area to support otter were assessed following the RSPB (1994) and Chanin, P. (2003) guidance.
- **Water vole**: any watercourses, water bodies or other areas of suitable habitat within the Survey Area were classified as suitable or unsuitable for water vole following the guidance of Dean *et al* (2016)
- **Great crested newt**: the potential of any aquatic and terrestrial habitats within the Survey Area to support GCN were assessed following English Nature (2001) and Froglife (2001)[42] guidance.
- **Reptiles:** the potential of habitats within the Survey Area to support reptiles followed the guidance of Froglife (1999)[43] and JNCC (2003)[44].

[38] UKHab Ltd. (2023) *UK Habitat Classification Version 2.0*. www.ukhab.org.
[39] Stace (2019) *New Flora of the British Isles (Fourth Edition)*.
[40] Harris, S. Cresswell, P. and Jefferies, D. (1989). *Surveying Badgers*.
[41] English Nature (2006). *The Dormouse Conservation Handbook*, 2nd edition.
[42] Froglife (2001). *The Great Crested Newt Conservation Handbook*.
[43] Froglife (1999). *Reptile Survey: An introduction to planning, conducting and interpreting surveys for snake and lizard conservation*. Froglife Advice Sheet 10. Froglife, Halesworth.
[44] Joint Nature Conservation Committee (2003). *Herpetofauna Workers Manual*.

Bat Roost Survey

Trees and structures within the site boundary were assessed for their potential to support roosting bats using Natural England statutory guidance[45] and best practice survey methodology (Collins 2023).

Structures

The structures were inspected externally using close-focussing binoculars. Features, such as small gaps around or brickwork, which have the potential for use as access points, were noted. Any evidence that bats actively use the features present was recorded. On the exterior of the structure this may include staining within and around the gaps or bat droppings and urine staining under gaps. Where present, cobwebs and or general detritus within and around potential access points was used as an indicator that bats had not recently used the area to access the structure.

An assessment was made on the level of bat roosting potential offered by the structures, based on the presence of the features detailed above. Table 16 below broadly classifies the potential categories and discusses the relevance of such features, where present.

TABLE 16 BAT ROOST POTENTIAL CLASSIFICATION BUILDINGS - BASED ON TABLE 4.1 OF COLLINS (2023ERROR! BOOKMARK NOT DEFINED.).

Classification / Suitability	Description of Roosting Habitat within buildings
None	No features likely to be used by roosting bats at any time of year.
Negligible	Negligible obvious features likely to be used by roosting bats.
Low	A structure with one or more potential roost sites or features (PRF) that could be used opportunistically by small numbers or individual bats. These features do not provide enough space, shelter, suitable conditions and/or surrounding suitable habitat to be used on a more regular basis or by larger numbers of bats. The feature is unlikely to be suitable for hibernation or maternity roosts.
Moderate	A structure with one or more potential roost sites or features that could be used by bats due their size, shelter, protection, conditions, and surrounding habitat but unlikely to support a roost of high conservation status (in respect to roost type only and not species conservation status).
High	A structure with one or more potential roost sites that are obviously suitable for use by large numbers or bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions, and surrounding habitat.

Trees

Trees were inspected from the ground using close focussing binoculars to identify Potential Roosting Features (PRFs) for bats. PRFs include but are not limited to holes / cavities, loose bark, cracks / splits, occluded bark, and gaps behind ivy stems (Bat Tree Habitat Key 2018[46]). Other

[45] https://www.gov.uk/guidance/bats-advice-for-making-planning-decisions [accessed 28/04/25]
[46] Bat Tree Habitat Key (2018) *Bat Roosts in Trees – A guide to identification and assessment for tree-care and ecology professionals.* Pelagic Publishing, Exeter.

factors such as orientation of the feature, its height from the ground, the direct surroundings and its location in respect to other features may enhance or reduce the potential suitability of the PRF. Any evidence of possible use by bats were also recorded, such as bat droppings, odour, scratches, staining and audible sounds.

An assessment was made on the level of bat roosting potential offered by the trees, based on the presence of the features detailed above. Table 17 below outlines the suitability categories as per Colins (2023).

TABLE 17 SUITABILITY OF TREES FOR BAT ROOSTS - BASED ON TABLE 4.2 OF COLLINS (2023)

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

Trees categorised as PRF were then further classified from the ground into the categories PRF-I or PRF-M (Table 18).

TABLE 18 CATEGORISATION OF POTENTIAL SUITABILITY OF PRFS – BASED ON TABLE 6.2 OF COLLINS (2023)

Classification	Description
PRF-I	PRF is only suitable for individual bats or very small numbers of bats due to size of lack of suitable surrounding habitats.
PRF-M	PRF is suitable for multiple bats and may therefore be used by a maternity colony.

Assessment of Ecological Importance

The evaluation of the importance of non-breeding birds has applied the guidance set out in the Chartered Institute for Ecology and Environmental Management (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland*[47].

Guidance states that important ecological features should be classified in terms of a geographical frame of reference. This assessment used the following geographical categories:

- Sub-Local (less than Local);
- Local (Parish of Cadney);
- County (Lincolnshire);
- Regional (East Midlands);
- National (England); and,
- International (Europe).

[47] CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine*. CIEEM, Winchester

All available sources of ecological information, including data from desk studies and relevant national and local published guidance, were applied to determine the ecological importance of the birds present.

In determining ecological importance the assessment has considered:

- Any special statutory protection of the recorded habitat or species
- Whether the habitat or species are listed included on lists of species of conservation interest, including Annex 1 the Habitats Directive and Section 41 of the NERC Act 2006;
- Whether the habitats or species that meet the criteria for selection as a LWS (Greater Lincolnshire Nature Partnership 2013[48]).
- The extent, abundance and diversity of the habitat or species in comparison to national and county estimates for

Professional judgement was also applied when determining the ecological importance where data was otherwise unavailable.

Limitations & Assumptions

Desk Study

The desk study provides background information on the ecological context of the Site. The data provided is dependent upon the submission of records from people and organisations within the desk study area. A lack of records should not be taken to infer that a particular habitat or species is absent. Similarly, the presence of a record does not mean that a habitat or species is still within the area of interest or are relevant to the Scheme.

Access

Dense vegetation and fencing prevented access to some areas of the Survey Area. There is a risk that some field signs associated with fauna, such as animal holes, may have also been missed. However, this is not considered to represent a significant limitation to the evaluation of the suitability of habitat and the outline recommendations made for further survey, assessment and mitigation

Habitat Mapping

Where habitat boundaries coincide with physical boundaries recorded on OS maps the resolution is as determined by the scale of mapping. Elsewhere, habitat mapping is as estimated in the field and/or recorded by hand-held GPS. Where areas of habitat are given, they are approximate and should be verified by measurement on Site where required for design or construction.

[48] Greater Lincolnshire Nature Partnership (2013) *Local Wildlife Site Guidelines for Greater Lincolnshire – 3rd Edition*.

Appendix F Legislation

The following provides a summary of the legislation and policy relevant to the protection and conservation of habitats, flora and fauna.

The Conservation of Habitats and Species Regulations 2017 (as amended)

Although the UK is no longer bound by EU law, the protections established under the Habitats and Birds Directives continue to be enforced in the UK under the European Union (Withdrawal) Act 2018. In addition to strengthened powers of enforcement, the important elements of the legislation are:

Designation of Habitat Sites & Appropriate Assessment: The legislation ensures the preservation of important habitats and species through the designation of Habitat Sites (SPA or SAC) as part of the National Site Network. Where any plan or project is likely to impact the features for which a Habitat Site is designated, then the competent authority must undertake an Appropriate Assessment to ensure that the integrity of the Habitat Site is not affected.

Species Protection & Licensing: The regulations introduce strict protections for species introduce a system for obtaining licenses to carry out certain activities that could potentially harm protected species or habitats. Licences may be granted for a number of purposes (such as science and education, conservation, preserving public health and safety), but only after the appropriate authority is satisfied that there are no satisfactory alternatives and that such actions will have a detrimental effect on the favourable conservation status the species concerned.

Ramsar sites that are designated under the *Convention on Wetlands of International Importance especially as Waterfowl Habitat 1971* (the Ramsar Convention), in the UK, are treated by legislation and policy as having the same level of protection as Habitat Sites, particularly in terms of appropriate assessment.

The Wildlife & Countryside Act 1981 (as amened)

The Wildlife and Countryside Act 1981 consolidates and strengthens earlier laws related to wildlife conservation, the protection of specific species, and the management of designated areas. Key provisions of the Act for biodiversity include:

Sites of Special Scientific Interest: The Act allows for the designation and protection of SSSIs, which are areas of land recognized for their ecological or geological importance. Landowners must follow certain regulations to avoid damaging these sites.

Protection of Species: The Act makes it illegal to intentionally kill, injure, or take wild birds, certain animals and plants listed in Schedules 1, 5, and 8. It also prohibits the destruction of bird nests and eggs, as well as the disturbance of Schedule 1 bird species during breeding or rearing.

Control of Non-native Species: The Act regulates the release into the wild of non-native species listed on Scheule 9.

In England and Wales and the provisions of the Wildlife and Countryside Act 1981 were strengthened by the Countryside and Rights of Way (CROW) Act 2000. This improved the protection of SSSIs, establishing powers to enter into management agreements, placing a duty on public bodies to further their conservation and enhancement and improving enforcement and penalties for breaches in the legislation. The species provisions of the Wildlife and Countryside Act 1981 were

also strengthened to include an offence of reckless disturbance and increased provision for access and enforcement, including making certain offences 'arrestable'.

The Natural Environment & Rural Communities Act 2006

In addition to the creation of Natural England and supporting initiatives for environmental stewardship, Section 40 of the NERC Act 2006 imposed a biodiversity duty on all public authorities to have regard to conserving biodiversity when carrying out their functions.

Section 41 required the Secretary of State to publish lists of habitats and species that are of principal importance for the conservation of biodiversity in England. The Section 41 list is used to guide authorities in implanting their biodiversity duty in England when carrying out their functions.

The Protection of Badgers Act 1992

This legislation is aimed at protecting badgers from persecution and makes it an offence to kill or take a badger, to cruelly ill-treat a badger, or to interfere with a badger sett, including disturbing a badger while it is occupying a sett.

Licences to permit otherwise prohibited actions can be granted under Section 10 of the Act for various purposes, including development.

Hedgerow Regulations 1997

The Hedgerow Regulations protect certain hedgerows from removal or destruction. The regulations provide protection for hedgerows that meet specific criteria, particularly those that are considered "Important" based on historical, archaeological, or ecological significance.

Local authorities are responsible for assessing notifications and can protect important hedgerows by issuing a hedgerow removal notice if they determine that the hedgerow should be retained.

The Environment Act 2021

The provisions of the UK Environment Act 2021 that are related biodiversity are designed to enhance and protect natural habitats and ecosystems. Central to this is the introduction of mandatory BNG, which requires new developments to leave the natural environment in a better state than before. Developers must ensure at least a 10% increase in biodiversity, measured through the BNG metric, as a condition for planning approval.

The Act further strengthens the existing biodiversity duty for public authorities. Authorities are therefore legally required to take measures to conserve and enhance biodiversity when carrying out their functions.

The new Local Nature Recovery Strategy (LNRS) is mandated, which enables local authorities to map and plan for nature restoration, encouraging the creation of connected and thriving ecosystems across the country.

The Act introduces conservation covenants, which are voluntary legal agreements between landowners and conservation organizations to ensure long-term habitat preservation. These covenants are binding and can be passed on to future owners of the land.

Tree felling protections are also bolstered through improved enforcement powers and penalties for illegal tree felling.

National Planning Policy Framework

The NPPF states the commitment of the UK Government to minimising impacts on biodiversity and providing net gains for biodiversity, contributing to the Government's commitment to halt the overall decline in biodiversity.

Protected or notable habitats and species are a material consideration in planning decisions and may therefore make some sites unsuitable for particular types of development. The NPPF specifies the obligations that the Local Authorities and the UK Government have regarding statutory designated sites and protected species under UK and international legislation and how this it to be delivered in the planning system.

The NPPF states if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then the planning permission should be refused. The policies also cover the loss or deterioration of irreplaceable habitats and also support for the enhancement of biodiversity.

Local Priority Habitats & Species

As set out above, under the Environment Act 2021 the LNRSs are due to replace the existing strategic policy documents for identifying conservation priorities in the planning system. Currently the Lincolnshire LNRS is in preparation and an associated list of species of conservation concern has not yet been provided. While this document is in preparation this report has therefore referred to the Lincolnshire Biodiversity Action Plan (BAP) (Lincolnshire Biodiversity Partnership 2011). The Lincolnshire BAP includes lists of BAP Priority Habitats and Priority Species and sets out actions for maintaining, enhancing and monitoring their conservation status.

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