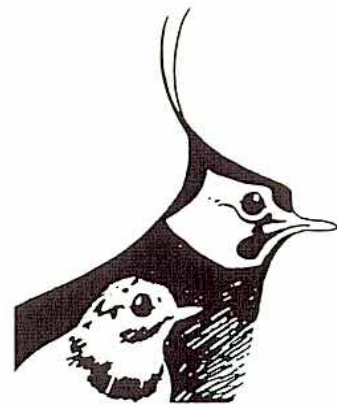


ECOLOGICAL SURVEY

RISEHOLME PART 1

for

EDAW



**LAPWINGS
CONSULTANTS**

*Serving Your
Environmental Needs*

ECOLOGICAL SURVEY

RISEHOLME PART 1

for

EDAW

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May 2005

DRAFT REPORT OF ECOLOGICAL SURVEY

RISEHOLME PART 1, RISEHOLME, LINCOLN, LINCOLNSHIRE

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1.0 SUMMARY

- 1.1 Lapwings Consultants Ltd has been commissioned by EDAW to undertake certain ecological surveys of the site of the Riseholme campus at Riseholme near Lincoln in Lincolnshire. The surveys undertaken in Part 1 of the study were as follows: a desk top study for existing ecological information and records for the site; a Phase 1 survey; an initial protected species walk-over survey; a badger survey; an amphibian and great crested newt survey; and an early spring breeding bird survey. The above surveys were undertaken in the period mid April to mid May 2005.
- 1.2 The desk study involved contact with English Nature, Lincolnshire Wildlife Trust, Environment Agency, Lincolnshire Bird Club, Lincolnshire Naturalists' Union, Botanical Society of the British Isles, and staff and other personnel at the Riseholme campus. The information obtained comprised the location and nature of statutory and non-statutory sites of nature conservation interest; lists of plant species recorded from the site over a period of 20 years; lists of aquatic invertebrates from a stream; short lists of protected species comprising great crested newt, bats and water vole.....*Not all data received yet*
- 1.3 The badger survey noted the presence of an old possible badger sett in the north of the site in Fox Covert, and some badger gates in nearby rabbit fencing, but no other and no recent signs of use by badgers were seen. The protected species walk-over noted grass snake in Fox Covert; that the water vole habitat of the lake and surroundings was still suitable for this species; and that some of the mature parkland trees have potential to support roosting bats.
- 1.4 The breeding bird survey of the early spring period gave an indication of the use made of the site. This comprised a number of species holding territory around the lake, such as great crested grebe and mute swan; species associated with the woodlands such as sparrowhawk, tawny owl, great spotted woodpecker and tree creeper; and species of the open farmland such as lapwing, skylark and yellowhammer. No Schedule 1 bird species has been recorded holding territory.
- 1.5 Great crested newt male and female adults were recorded from the pond at the edge of Briary Holt on 3 occasions; but were not seen elsewhere. From other ponds on the site, frogs and smooth newts were found.
- 1.6 Potential ecological constraints at this stage have been identified as the invasive alien plant Japanese knotweed; badgers if they re-occupy the sett in Fox Covert or make a new sett elsewhere; a small number of plants which are uncommon or declining in Lincolnshire but which mostly occur around the lake; breeding birds but only in the breeding season; great crested newts (although the location of the breeding pond in the north-eastern corner of the site excludes most of the site from this constraint); water voles but they are only around the lake; bats in parkland trees; and reptiles but only in the north around the lake and woodlands.

2.0 INTRODUCTION

2.1 Lapwings Consultants is a wholly owned trading company of the Lincolnshire Wildlife Trust with four Directors appointed by the Board of the Trust. The Trust aims to safeguard wildlife and wild places and to promote a better understanding of nature conservation. Lapwings Consultants' service is operated in the interests of good standards of conservation and management and all profits are covenanted to the Trust to enable it to further its aims.

Lapwings Consultants is a member of the Association of Wildlife Trust Consultancies, a body set up by The Wildlife Trusts (Royal Society for Nature Conservation) to monitor and advise Trust consultancies on matters relating to professionalism, standards and quality of service.

2.2 The Consultancy has access to a wide range of expertise in key ecological and environmental areas, covering

- Habitat and Species Monitoring and Survey
- Habitat Creation and Restoration
- Biological Records Database
- Wildlife and Countryside Management Plans
- Wildlife Interpretation, Education and Training
- Land Management Advice
- Landscape and Visual Impact

2.3 Lapwings Consultants was commissioned by EDAW on behalf of the University of Lincoln to undertake certain ecological surveys of the site of the Riseholme campus at Riseholme near Lincoln in Lincolnshire. The surveys undertaken in Part 1 of the study were as follows: a desk top study for existing ecological information and records for the site; a Phase 1 survey; an initial protected species walk-over survey; a badger survey; an amphibian and great crested newt survey; and an early spring breeding bird survey.

2.4 The surveys were carried out for Lapwings Consultants by Ecologist Kate Taylor, Consultancy Manager Tim Smith and Associate Ecologists Andy Sims and Chris Manning in the period 13 April to 20 May 2005.

2.5 This report describes the nature of the work undertaken, describes the results obtained, makes an assessment of nature conservation value and discusses potential ecological constraints to development of the Riseholme site.

3.0 SITE DESCRIPTION

- 3.1 The location and extent of the Riseholme campus site which is the location for the part 1 ecological surveys is shown in Figure 1. The site can be conveniently divided into two halves by the west to east running Riseholme Lane. South of the lane, the site is largely arable farmland with the fields defined by hedges, although there is parkland just south of the lane and some grassland west of the farm buildings. Also south of the lane are the houses and gardens along one side of Riseholme Lane and along St. George's Lane in the south-western corner. Grange Farm stands in the middle of this part of the site.
- 3.2 The northern half of the site includes the former hall with surrounding parkland and lake, woodlands, the grassland on the site of the medieval village and various university and other buildings. Some arable land occurs between the campus and the A15 in the west and in the north there are horse paddocks.
- 3.3 The western boundary of the site is the A15; the southern is the Lincoln by-pass (A46); the eastern is the parish boundary between Riseholme to the west and Nettleham to the east; and the northern boundary is a hedgerow which runs from the A15 past the edge of Fox Covert to reach Briary Holt.

4.0 METHODS

- 4.1 **Search for existing records:** Contact was made with English Nature (EN), Lincolnshire Wildlife Trust (LWT), Botanical Society of the British Isles (North Lincolnshire Recorder) (BSBI), Lincolnshire Naturalists' Union, Lincolnshire Bird Club, Environment Agency, and staff and other personnel at the campus, in order to obtain existing ecological information and records for the Riseholme site.
- 4.2 **Badger survey:** A search was made for evidence of use of the Riseholme site by badgers and, access permitting, the immediately adjacent land was also included in this survey. Signs looked for were setts (both active and disused); deposits of bedding and scratch marks around sett entrances; worn paths and runs attributable to badgers; footprints; faecal deposits, including latrines; detached hairs; and feeding holes or feeding remains.
- 4.3 **Phase 1 survey:** The Riseholme campus site was walked over and the nature, extent and location of the habitats present were recorded and mapped using the standard Phase 1 habitat survey method (JNCC, 1993). Features of interest were recorded using target notes.
- 4.4 **Protected species walk-over:** The Riseholme campus site was walked over and actual or potential use of the site, based on habitats present, by protected species was noted.
- 4.4 **Breeding birds:** One breeding bird survey transect was established across the northern half of the site and one across the southern. The transects covered the areas of major habitats in each half of the site to ensure that no major habitat type was missed. The transects were recorded over the dates 22, 26-29 April and 3-5 May 2005 using the standard Common Bird Census method. The whole site was subject to an assessment of its breeding bird potential. Casual records of birds from other surveys were used to provide more data.
- 4.6 **Amphibians and great crested newts:** Standard surveys for great crested newts were undertaken of the lake, a pond on the western side of Briary Holt, the two "conservation ponds" near the lake outfall, a pond in the garden centre and a new pond which stands near the old fish farm. Descriptions of the ponds are given in the following section. The surveys were undertaken on 13, 16/17 & 27/28 April, 5/6, 11/12 & 19/20 May 2005. The methods used for the survey comprised netting, bottle trapping, egg searching and torching. Details of survey conditions are given in Annex 2.

5.0 RESULTS

5.1 Existing records:

Sites of Nature Conservation Interest

The Riseholme campus site does not include any European site of nature conservation importance (SPA site, Ramsar site, candidate Special Area of Conservation) and no such site lies adjacent to the site's boundary or within 5km radius of the site boundary.

The Riseholme campus site does not include any Site of Special Scientific Interest (SSSI), National Nature Reserve (NNR), or Local Nature Reserve (LNR), and no such site lies adjacent to the site's boundary.

The nearest NNR to the site is the Bardney Limewoods, which is a scattered collection of ancient semi-natural broad-leaved woodlands which are dominated by small-leaved lime. The woods lie in an area roughly defined by Bardney and Wragby and the nearest component woodland to the Riseholme site is Newball Wood which lies c9.5km east of the site boundary, with arable farmland and the villages of Nettleham, Sudbrooke and Langworth between. The component woodlands of the NNR are also biological SSSI. The SSSI of Greetwell Hollow Quarry, which is a geological site, lies closer to the Riseholme site than does Newball Wood. The closest point of Greetwell Hollow Quarry to the Riseholme site is c2km to the south-east, with extensive areas of built-up Lincoln between. The next nearest SSSI is Swanholme Lakes, a biological site, which lies c6.5km to the south-west, with extensive built-up areas of Lincoln between. Swanholme Lakes is also a LNR and another LNR is at Whisby Nature Park which lies c10km south-west, again with extensive built-up areas of Lincoln between.

The Riseholme campus site does not include any Nature Reserve or Country Park, and no such site lies adjacent to the site's boundary. The nearest Country Park is at Hartsholme which lies c6km south-west of the Riseholme site boundary, with built-up areas of Lincoln between. The nearest Nature Reserve is at Boultham Mere which lies c3.5km south-west of the site's boundary; this reserve is of biological interest and is owned and managed by The Lincolnshire Wildlife Trust (LWT). The next nearest Nature Reserve is known as Pickering's Meadow and it lies c6km north-east of the site's boundary. This reserve is also of biological interest and is owned and managed by LWT.

Within a radius of c2km of the Riseholme site boundary there are 7 non-statutory sites of nature conservation importance (known as County Wildlife Sites, CWS) and a further non-statutory site lies in the centre of the northern part of the Riseholme site itself.

The non-statutory sites within c2km of the site boundary are as follows:

- Hallifirs Wood c0.75km west at SK 965 759
- Cathedral Quarry c0.5km south at SK 977 733
- Roman Aqueduct Marsh c0.3km south-east at SK 987 738
- Ceres House Grassland c0.5km south-east at SK 988 737
- Old Quarry c1.5km south-west at SK 968 728
- Newt Hollow c1.75km south-west at SK 968 725

- Hobblers Hole c1.75km south-west at SK 967 724

All of the above sites are of biological interest, with Cathedral Quarry also of geological interest which has been recognised through a RIGS non-statutory designation (Regionally Important Geological/Geomorphological Site). The sites Old Quarry and Hobblers Hole combined with Newt Hollow were resurveyed in 2004 by LWT as part of a pilot project undertaken in four areas of the county as part of work to prepare and test rigorous scientific criteria for the selection of CWS; the other sites were not selected for resurvey but may be looked at in the future.

The non-statutory site which lies within Riseholme is known as Riseholme Hall Wood SK 980 758. The map of this site shows that the lake and woodlands to the north and west lie within the site, which is described as "possible primary woodland" on the strength of small-leaved lime and oak which were said to be frequent, but the admission is made that the site was not accessible instead merely "looked at from the outside" on one occasion in May 1982. There are no further records beyond a note from 1987 which says "status satisfactory". With such a poor level of recording, the non-statutory site of nature conservation importance is practically meaningless.

No sites on the Riseholme site are shown on the Ancient Woodland Inventory for Lincolnshire.

Information on the statutory and non-statutory sites is given in Annex 1.

Records of Species

The Riseholme Farms manager, Tony Wright, has provided records of protected species which have been seen in the northern part of the site. These records are as follows. A long-eared bat was found roosting in a porch in the stable yard in autumn 2001, and in the summer of 2004, Daubenton's bats and pipistrelle bats were seen hunting over the main lake. Mr Wright believes that bats are an under-recorded group at Riseholme. Water voles are regularly seen on the side of the lake, in the outflow stream of the lake (The Beck) and in the pond adjacent to, and south of, The Beck. Two great crested newts were found under stones in the pond on the western edge of Briary Holt on 29 September 2003, when the pond was dry.

The Environment Agency was asked for records of fish and aquatic macro-invertebrates from the various waterbodies on the site. Their response indicated that the Agency had no records for the Riseholme site and that the nearest watercourse for which records of aquatic macro-invertebrates existed was Nettleham Beck. The water quality sampling site on this beck is located at TF 000 752 which lies c1.1km east of the eastern boundary of the Riseholme site. The outflow stream from the lake at Riseholme is part of the upper reaches of Nettleham Beck thus the site is linked to the water quality sampling station. The records supplied by the Agency are from the period January 1987-February 2000 and they comprise lists of species and Orders with some degree of abundance at each sampling occasion. On most occasions the beck failed to meet its Lincoln Quality Index Target.

The Lincolnshire Bird Club was asked for records of breeding birds for the Riseholme site. In their response they gave some general comments about the Riseholme site and these were as follows. The lake holds small numbers of common waterfowl; the common raptors (kestrel and sparrowhawk) hunt here and probably breed as well in most years; hobby (another raptor) may also hunt and nest here; ospreys occur on passage particularly in the spring; marsh harrier and buzzard occur nearby and may use this site in the future; the woods and parkland and farmland hold a good range of typical breeding and wintering species and some of the rarer birds of these habitats (such as wood warbler and common redstart) occur on passage; three species of owl (barn, tawny and little) occur and long-eared owl may be present in winter; the agricultural farmland part of the site is poorer for breeding and wintering birds than the lake/woods/park area; and some wintering golden plover may use this area but it is at the extreme southern limit of a traditional wintering area for this species.

Individual records for wintering or passage birds at Riseholme since 2001 include woodcock, wood lark, meadow pipit, common redstart, northern wheatear, fieldfare, wood warbler, nuthatch and brambling. There are records for a pair of great crested grebes in April 2004 on the lake; also a pair of tufted duck at the same time; a single dead rose-ringed parakeet was found near the lake in April 2004; and 1 barn owl was seen in September 2003 at grid ref SK 976 752. This is near the western end of St. George's Lane but there is no further information about this bird, for instance whether it was hunting.

Data supplied by the Bird Club from the tetrad-based breeding bird survey of the county undertaken in 1985-89 for the tetrad (2x2 km square) in which most of the Riseholme site, including the lake, park and most of the woods, lies (SK 97X) included the following records. Proved breeding for 30 species including mallard, kestrel, coot, woodcock, song thrush, willow warbler, spotted flycatcher, tree creeper, tree sparrow, swift, bullfinch, skylark, willow tit, jackdaw and rook. It is likely that most of these species with proved breeding actually bred on the Riseholme site, since it has the lake, woods and parkland habitats, with access for the survey to take place, compared to the rest of the tetrad which is farmland with limited access. There were also records of probable breeding for a further 26 species, including tufted duck, sparrowhawk, hobby, lapwing, cuckoo, tawny owl, green woodpecker, great spotted woodpecker, yellow wagtail, yellowhammer, garden warbler and linnet.

The Lincolnshire Naturalists' Union was asked for records of non-avian vertebrates (mammals, reptiles, amphibians) for the Riseholme site.....*Nothing received as at 31 May.*

The North Lincolnshire recorder for the BSBI was asked for plant records from the Riseholme site. The data-base of records held by the recorder produced 726 records of 329 species made in the period 1977-1997, mostly by one recorder. The sites from which these records were made were described as Riseholme Park (woods); Riseholme College (park, lake and arable); Riseholme churchyard; Riseholme Hall Wood; Riseholme college grounds; Riseholme; Riseholme Grange Lane; and Riseholme Lane. Clearly many of these recording sites overlap to some degree, and some may be wholly included in others, depending on the recorders and how the sites they looked at were named.

The more significant records from the above for the Riseholme site are as follows. Ancient woodland indicator species for central Lincolnshire, which refers to the Bardney limewoods (Peterken, 2000), found at Riseholme are ramsons, giant bellflower, wood sedge, pignut, hairy St. John's wort, dogs mercury, wood meadow-grass, primrose, goldilocks buttercup, figwort and heath speedwell. Species associated with calcareous grasslands (limestone at Riseholme) are tor grass, harebell, blue fleabane, lady's bedstraw, crested hair-grass, rough hawkbit, fairy flax, mouse-eared hawkweed, hoary plantain, cowslip, bulbous buttercup, meadow saxifrage and bladder campion. The invasive alien Japanese knotweed and two other knotweed species were recorded, together with the invasive alien Himalayan balsam. The native black poplar was recorded in addition to some species which are either uncommon or decreasing in Lincolnshire (Gibbons, 1975), and these are quaking grass, twayblade, ragged robin, yellow loosestrife, corn parsley, golden dock, marsh dock and marsh speedwell.

- 5.2 **Badgers:** The results of the badger survey are given in Figure 2. The only potential sign of badger activity on the Riseholme site is an old possible badger sett which is located in the north of Fox Covert woodland at approximately SK 978 761. Nearby, badger gates have been installed in a rabbit-proof fence around another area in Fox Covert and part of the base of the fence has been pushed up as if moved by a badger. No other signs were seen.
- 5.3 **Phase 1:** The Phase 1 survey map is given in Figure 3. Photographs of the site's habitats and notes describing these habitats are given in Annex 3.
- 5.4 **Protected species walk-over:** The protected species walk-over noted the presence of grass snakes at Fox Covert in a fenced-off new plantation area approximately at SK 978 759. No other reptiles were seen. The habitats from which the college staff has noted water voles appears to be still suitable for their use and occupancy. Some of the mature trees in the parkland have potential to support roosting bats.
- 5.5 **Breeding birds:** The breeding bird surveys undertaken in late April/early May are not sufficient on their own to state with much degree of certainty which species are breeding on the site and how many pairs are present, other than for obvious examples such as rooks where nests in rookeries can be seen and counted. Despite this, some indication of the breeding bird use of the site can be gained and this is as follows.

Species which may be breeding on the site and have 5 or fewer pairs are little grebe, great crested grebe, mute swan, Canada goose, mallard, sparrowhawk, red-legged partridge, grey partridge, lapwing, stock dove, cuckoo, tawny owl, green woodpecker, great spotted woodpecker, yellow wagtail, lesser whitethroat, common whitethroat, garden warbler, chiffchaff, willow warbler, goldcrest, treecreeper, jay, magpie, carrion crow, tree sparrow and bullfinch. Species which may be breeding on site and have between 5 and 10 pairs are pheasant, moorhen, coot, collared dove, house martin, pied wagtail, song thrush, mistle thrush, long-tailed tit, coal tit, goldfinch and linnet. Species which may be breeding on site and have over 10 pairs or which are deemed to be common and more numerous breeding species are wood pigeon, skylark, swallow, wren, dunnoek, robin, blackbird, blackcap, blue tit,

great tit, jackdaw (c45 pairs), rook (c105 pairs), starling, house sparrow, chaffinch, greenfinch and yellowhammer.

Of the species suspected to breed on the Riseholme site, the following are UK Biodiversity Action Plan (BAP) Priority Species (Anon, 1995): grey partridge, skylark, song thrush, tree sparrow, linnets and bullfinch. Species which are of biodiversity importance in Lincolnshire (Farrow & Wright, 2000) are: song thrush, grey partridge, skylark, tree sparrow, linnets, bullfinch and lapwing. Birds which are on the British Trust for Ornithology Red List (Gregory et al, 2002) are species which have suffered a decline in population and/or range by more than 50% in the last 25 years, or have declined long-term (since 1800), or are globally threatened, and on site these include starling, house sparrow and yellowhammer. Species which have undergone moderate declines in the same period are on the Amber List and on site these species are mute swan, lapwing, stock dove, cuckoo, green woodpecker, swallow, yellow wagtail, dunnoek, mistle thrush, willow warbler and goldcrest.

5.6 Amphibians and great crested newts: The water bodies covered by the amphibian and great crested newt surveys were as follows:

Briary Holt pond: this is at SK 985 764 and it stands on the western side of the woodland named Briary Holt. This pond has an island and is bounded by high banks. There is a pond-dipping platform. Plants present include amphibious bistort, yellow iris, fool's water-cress and soft rush.

Garden Centre pond: this is at SK 985 755 and it is a lined pond and is planted with baskets, much used by ducks and has turbid water as a result.

New pond: this is at SK 987 755. A drain enters this pond from the north and another leaves via a brick outfall in the south-east. There is no aquatic vegetation.

Conservation ponds: the conservation area is at SK 984 755. One pond is small and it stands on the eastern side of a plantation; the banks are steep and the water is turbid. Vegetation present includes marsh marigold, a sedge and water mint. The second pond is larger and elongated and it is linked to the stream which comes out of the lake; the sides are gently sloping and it has clear shallow water. Plants present include marsh marigold, a sedge species and water mint.

Lake: this is at SK 982 754 and is 3.2 ha in extent. The lake is artificial since it dates from the landscaping of the parkland adjacent to the hall. The lake banks are open and grassy in places and tree-lined in other places. There is a small wooded island. Cattle poach the southern lake shore. There are scattered stands of marginal vegetation. The lake supports wildfowl and grebes. There are many fish.

The results of the amphibian surveys were as follows:

Briary Holt pond: No amphibians seen on 13, 16 & 17 April. One frog heard on 27 April. On 28 April 4 male and 1 female smooth newt caught in bottle traps; also 3 male and 1 female great crested newts caught in bottle traps. On 5 May 1 female and 1 male smooth newt seen in torchlight. On 6 May 1 male and 4 female smooth newts caught in bottle traps; also 1 male and 1 female great crested newts in bottle traps. Two female smooth newts seen in

torchlight on 11 May. On 12 May 2 male and 1 female smooth newt caught in bottle traps; also 2 male and 1 female great crested newts in bottle traps. 1 female smooth newt and adult frog seen in torchlight and a second frog heard on 19 May; and 8 smooth newts caught in bottle traps (no great crested newts) on 20 May.

Garden Centre pond: 12 smooth newts seen on 27 April; more smooth newts seen on 5 May; and 12 male and 6 female smooth newts were netted on 11 May. 18 smooth newts and 1 frog netted on 19 May; 7 female smooth newts seen in torchlight also on 19 May.

New pond: frog spawn seen and tadpoles later in the survey period. No other amphibians.

Conservation ponds: one small frog from the small pond on 17 April; one dead frog from the large pond on the same date; tadpoles in the large pond on 27 April; tadpoles seen on 5 May in each pond also frog and female smooth newt in small pond on same date; tadpoles seen on 11 May; and tadpoles seen on 12 May in large pond and 1 female smooth newt caught in bottle trap in small pond on same date. On 19 May 1 frog and many tadpoles were seen in the small pond and many tadpoles also seen in the large pond on this date. A few tadpoles were caught in the bottle traps on 20 May in the small pond, and tadpoles and 1 female smooth newt were caught in the large pond.

Lake: no amphibians seen (although tadpoles noted by the Phase 1 survey in May).

6.0 POTENTIAL ECOLOGICAL CONSTRAINTS

6.1 Designated Sites

There is no constraint to development from any designated site which is of importance for nature conservation. There is no site of importance for nature conservation in a European context within 5km of the site and the nearest site of GB importance is a geological SSSI which lies c2km from the site and separated from Riseholme by extensive built-up areas of Lincoln; the nearest biological SSSI is c6.5km from the site, again with extensive built-up areas between. The non-statutory site of Riseholme Hall Wood which actually lies within the Riseholme site can be discounted as a site of interest for nature conservation since it was only looked at from its boundary and not actually entered and surveyed closely.

6.2 Plants and Habitats

None of the sites habitats are a constraint to development. The habitats are of no or low and limited nature conservation importance.

No UK BAP Priority habitats have been identified on this site. The Priority Habitat of Cereal Field Margins (Anon, 1995) is not applicable to the Riseholme site because there are no 6m wide "wildlife strips" or 6m or 12m wide "conservation headlands" around the edges of the site's cereal crop fields. The Priority Habitat of Eutrophic Standing Waters (English Nature, 1998) may be applicable to the lake, since the scope of this particular Habitat Action Plan (HAP) does include man-made still waters. A key defining criterion in the HAP for the definition of a Eutrophic Standing Water is that it should have dense and long-term populations of algae by mid-summer; however, the algal growth in Riseholme Lake is not known, so at this stage it is not possible to assign the lake to this habitat.

Habitats which are included in the Lincolnshire BAP (Farrow & Wright, 2000) and which occur at the Riseholme site include arable field margins, hedges & hedgerow trees, road verges, the lake (as standing water), the churchyard, and the parkland.

There are no nationally rare plants on the site. There are no UK BAP or Lincolnshire BAP Priority plant species on the site. A notable plant species on the site is the native black poplar which was recorded at SK 980 756 in 1999 near the lake; this grid reference is on the western side of the lake just south of the bridge. The native black poplar is a scarce tree species in Lincolnshire. A number of plants recorded from the site are uncommon or decreasing in Lincolnshire; most of these are wetland plants which probably occur around the lake, or along the in/outflow stream. These plants would not be a constraint to development elsewhere on the site.

The invasive alien plants Japanese knotweed and giant knotweed are known from the site; both were recorded in 1996, the latter from Grange Lane and both in the 1km grid square SK 9875. Current legislation in the form of the Wildlife & Countryside Act 1981 (Schedule 9) makes it an offence to cause Japanese knotweed to grow in the wild (e.g. by spreading soil containing rhizomes) and the Environmental Protection Act 1990 treats Japanese knotweed as "controlled waste" and soil with its rhizomes as "contaminated",

which must be disposed of safely on-site or off-site at a licensed landfill. Giant knotweed is viewed slightly more benignly than Japanese knotweed in that it is rarer and does not seem to spread as much, although recent fears have been expressed in the botanical literature about the hybrid Japanese-giant knotweed and its capacity for spread. The knotweed is a rather localised constraint to development.

The invasive alien plant Himalayan balsam features in the background records for the site and it still occurs, being present along the feeder stream of the lake where it runs through Fox Covert and along the northern arm of the lake itself. In places this species become locally dominant. It was not noted however in the marginal vegetation of the lake south of the bridge. This species is not included on Schedule 9 of the Wildlife & Countryside Act. The presence of Himalayan balsam is a minor constraint to development, since it is of localised occurrence on the site, and is restricted to damp habitats.

Another invasive alien plant, New Zealand pigmyweed, occurs in the great crested newt breeding pond at the side of Briary Holt. Here, it is locally dominant and is likely to have been introduced accidentally or deliberately with the plants of greater spearwort which also occur in the pond. This species is also not included on Schedule 9 of the Wildlife & Countryside Act. The presence of this species is a minor constraint to development, since it is of very localised occurrence on site, and is restricted to aquatic or damp habitats. It is more of a constraint if enhancement works to the great crested newt breeding pond are proposed, since this may give the species an opportunity to spread but conversely such work may be an opportunity for its control.

6.3 Badgers

Badgers are currently not a constraint to development. The old possible badger sett on site at Fox Covert is an indication that they may have used the area in the past and therefore may do so again, if there is a local population which might expand sufficiently to occupy former setts. It would be prudent to establish a watching brief for the resumption of badger activity, setts in particular, on site.

6.4 Breeding Birds

Currently, there are no birds which are listed on Schedule 1 of the Wildlife & Countryside Act (1981 and as amended) which are holding territory on the Riseholme site. Therefore, currently, no particular requirements are needed in order to avoid disturbance to these species. Hobby, a Schedule 1 species has possibly bred on this site or nearby in the past, and may do so again. This would introduce a constraint during the breeding season. Many other bird species are holding territory or are actually breeding on site, in a wide variety of habitats, but these do not result in any particular constraints beyond those which are standard and relate to destruction of active nests or nests with eggs and unfledged young birds for the duration of the breeding season (roughly March to August).

6.5 Great Crested Newts

Great crested newts were only found in the pond on the western side of Briary Holt, on 28 April, 6 May and 12 May 2005. Great crested newts were only

recorded by the bottle trapping method. The maximum number recorded was 4, on 28 April and this comprised 3 males and 1 female. On each occasion great crested newts were found, only one female was caught with the numbers of males being 1-3. According to the information and terminology given in the English Nature great crested newt mitigation guidelines (REF) the numbers of great crested newts found at this site indicate that the population is "small". Great crested newts from the Briary Holt pond have either not found the "conservation" ponds, garden centre pond, or other water bodies, or have found them and deemed them not suitable for breeding.

Great crested newts are a constraint to development up to c500m from the breeding pond at Briary Holt. This figure is used as a general rule of thumb in assessing how far newts may disperse from the pond after breeding; in reality the distance may be less in one direction if the habitats are unfavourable to newts and more in another direction if habitats are particularly valuable to newts. Using the c500m figure, with the breeding pond at Briary Holt at the centre of a circle with this radius, it is apparent that the part of the site south of Riseholme Lane is outside the range of the newts (the road is at c1km distance) and that the university buildings which lie north of the lake are also more than 500m from the breeding pond.

6.6 Other Protected Species

Water voles are a constraint to development but only in areas where they are in occupancy along the banks of water bodies and water courses. On this site, such places are only around the lake, along the outflow stream, and the ponds in the woodland around the outflow stream. Development elsewhere on the site would not affect water voles. Some trees in the parkland have the potential to support roosting bats; if this potential use is confirmed, such as by an emergence survey undertaken at dusk and dawn, then trees with roosts are a constraint to development should the trees be lost or likely to be built close to such that their immediate environment would be changed. Grass snakes were found in Fox Covert and current legislation for reptiles is such that intentional killing or injury is an offence. As far as development is concerned, this has been interpreted as a need to ensure that a site is cleared of reptiles by catching and translocation to an appropriate receptor site before development proceeds. Development south of Riseholme Lane would probably not be constrained by reptiles since the grass snakes are likely not to range south of the lake and adjacent conservation area, since this is where they would feed.

7.0 REFERENCES

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FIGURE 1 RISEHOLME SITE LOCATION MAP

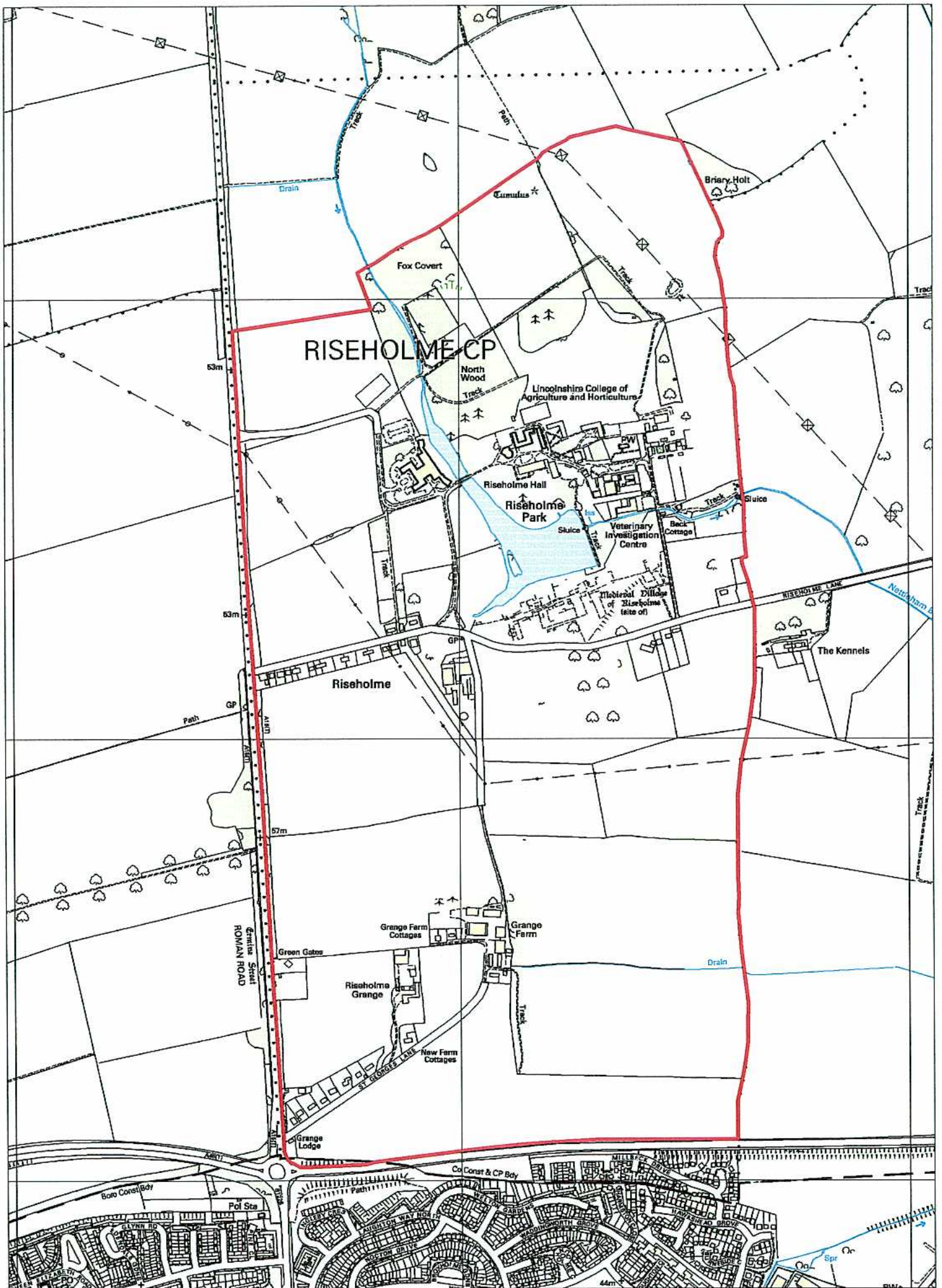


FIGURE 2 BADGER SURVEY RESULTS

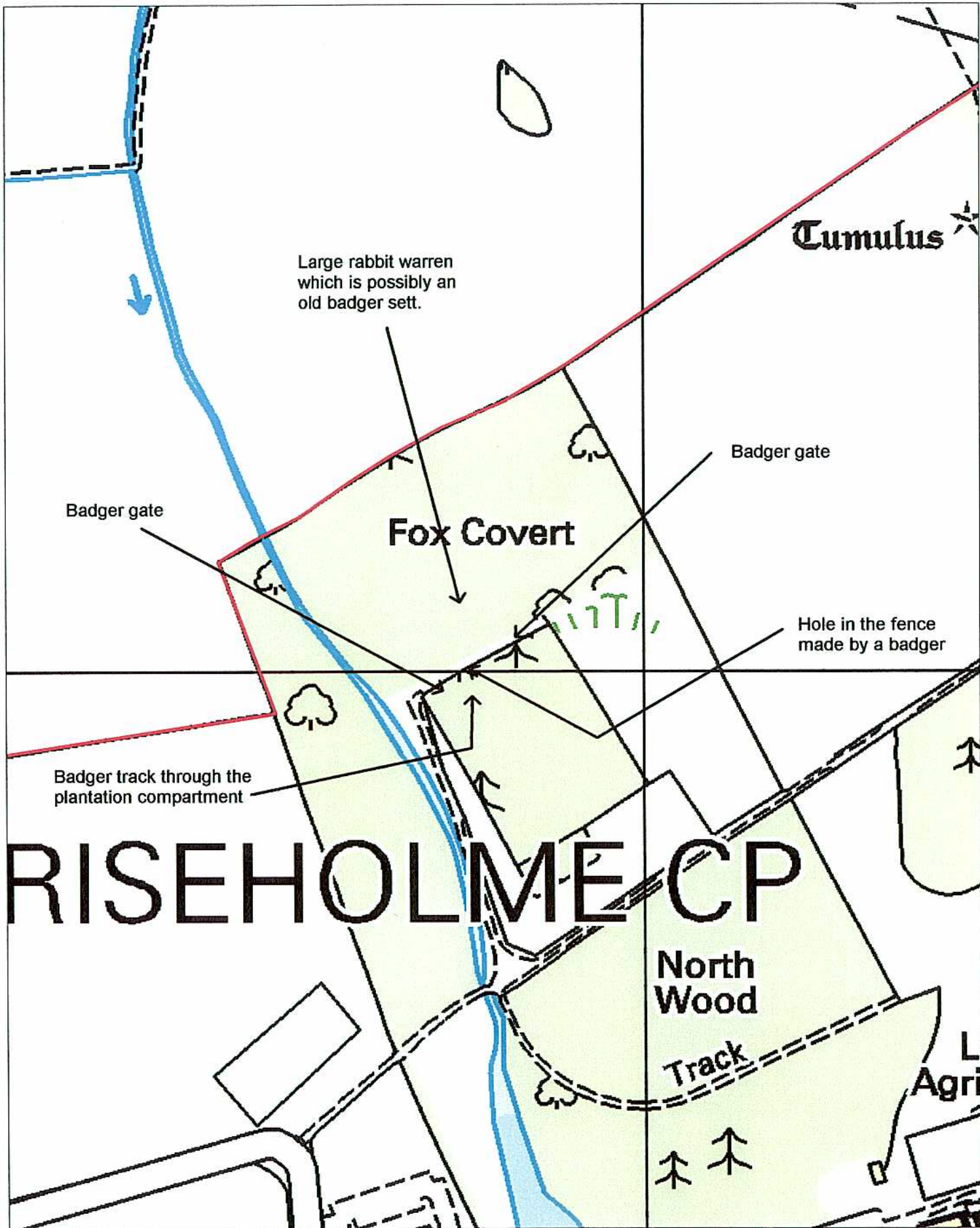


FIGURE 3 PHASE 1 HABITAT MAP

