



# **Study Into The Future Growth Implications of Redditch Second Stage Report**

**November 2008**



## **Appendix Two: Open Space Review: Ecology Report**



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## 1 INTRODUCTION

### Background

- 1.01 WYG Environment was commissioned by Redditch Borough Council (RBC) to conduct a desk-based study for the identification of the most valuable and least valuable areas for conservation and wildlife among sites identified as 'semi-natural' habitat by the land use assessment produced by Scott Wilson (2005). The assessment used in this report uses seven different criteria to assign a score indicative of each site's value for nature conservation, and which is relative to the value of other sites considered in the study. Plans 1, 2, 3, 4 and 5 show all sites considered by this investigation.
- 1.02 The assessment considers 74 individual land parcels in and around the town of Redditch, inside the jurisdiction of RBC. The areas are located in a landscape of a predominantly suburban nature, but sites can also be found in areas better described as farmland.
- 1.03 In the past, town planning in Redditch has been guided to incorporate natural features of the countryside in which it developed; the town has also benefited from several landscaping schemes. As a result, the town contains much land in a semi-natural state, and is recognised for its high quantity of open spaces in its urban and suburban confines.
- 1.04 The aim of the investigation is to inform RBC which land parcels previously categorised as 'semi-natural' are most suitable for development in terms of their ecological value (i.e. sites which are deemed to be least valuable for wildlife and nature conservation), based on information available from a variety of sources.

## 2 METHODOLOGY

### Introduction

- 2.01 In order to assess their value for wildlife and conservation, each land parcel considered by this investigation (i.e., those previously categorised as 'semi-natural' – Scott Wilson, 2005) was assigned a value based on the following criteria: (i) naturalness; (ii) habitat complexity; (iii) presence of protected and notable species; (iv) designation status, i.e. statutory and non-statutory nature conservation sites; (v) site area size; (vi) and proximity to statutorily designated sites. Each criterion is fully explained with reasons for their consideration in the proceeding sections.
- 2.02 Sites were categorised into three classes based on their total scores: 'high conservation value', 'moderate conservation value' and 'low conservation value'. Appendix 1 provides a table containing all the scores. The results of the assessment are presented in Plans 1, 2, 3, 4 and 5. Results are also further discussed in section 3.

### Naturalness

- 2.03 This criterion considers whether a particular site is actively subject to landscape management practices, such as frequent mowing, pruning or use of environmentally damaging products, and it assumes that sites which are managed in this way hold less biodiversity and are therefore least significant for wildlife and nature conservation. It is important to notice that 'management' here is defined differently to the type of traditional management used in rural landscapes and often discussed in ecological reports, where for example, the cutting of grass swards at adequate intervals and at the correct times of year do in fact increase biodiversity; another type of such management is coppicing, which results in a similar biodiversity-enhancing effect.
- 2.04 An attempt at assessing the level of management at a particular site was done by analysing aerial photographs available from internet resources, such as Google Earth (earth.google.com<sup>1</sup>). Since all areas assessed had been previously categorised as 'semi-natural', most have been assessed as unmanaged and awarded the maximum

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<sup>1</sup> Accessed on 15<sup>th</sup> August 2008

score obtainable of one. Where it was evident from images that parts of a particular site were managed, such as mowing of road and walkway verges, increments of a quarter-point were rather subjectively deducted from one.

### **Habitat Complexity**

- 2.05 In this assessment, habitat complexity is defined as the number of habitat types inside the confines of a particular area, and therefore a measure of habitat complexity was simply obtained by counting the number of habitat types contained within the site boundary, i.e. the habitat heterogeneity of a particular area is assumed to be equal to habitat complexity. It is assumed here, therefore, that the greater the number of habitats, the greater the area's value for wildlife and conservation, since a greater number of habitats would be expected to hold greater biological diversity. This relationship is generally accepted and has been shown to be true (e.g. Terborgh, 1977; Donovan *et al.*, 2005), though some authors have failed to find this relationship (e.g Roth, 1976); biogeographical and historical factors can obscure this relationship.
- 2.06 Nevertheless, an attempt at assigning each land parcel considered in this assessment a habitat complexity score has been made. The number of individual types of habitat was obtained by inspecting aerial photographs (Google Earth) and maps (ordnancesurvey.co.uk<sup>2</sup>). The following habitat types were discerned: woodland or scrub, grasslands or marsh, hedgerows or lines of trees, watercourses and ponds. A relative habitat complexity score of zero to one was assigned to each parcel considered by giving the score of one to the area with the highest habitat count. Each habitat type was assumed to possess equal weight as regards its value in the land parcels as habitat for wildlife or conservation. Aerial images can only provide a rough indication of the broad habitat types present in a particular area.

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<sup>2</sup> Accessed on 15<sup>th</sup> August 2008

### 3 PROTECTED AND NOTABLE SPECIES

- 3.01 Species records provide useful evidence of an area's value for wildlife and conservation, and are available remotely (i.e., without the need for site survey); every effort was made to obtain as many records as possible. All records falling within approximately 1km of each site and which were obtainable from the National Biodiversity Network (NBN) internet resource ([nbn.org.uk](http://nbn.org.uk)<sup>3</sup>) were collated, and a full consultation of the Worcestershire Biological Records Centre (WBRC) made. Additionally, presence information of species at particular sites was gleaned from designated site citations.
- 3.02 It is important to note that despite their importance in this assessment, this data does have limitations: (i) records only provide a snapshot of a species status at particularly location; (ii) their precision is often limited, and indeed most available data is only precise to the nearest 100m; (iii) records are sometimes of considerable age, and their usefulness in relation to the age of record is difficult to ascertain; (iv) moreover, records are rarely kept regarding the absence of a particular species at a location, and the absence of records at a particular location cannot be interpreted as a species' absence from that location.
- 3.03 For this assessment, the occurrence of particular notable or protected species (see Table 1) inside a site or within 100m of a site awarded that site a score of one. Each additional species was worth a further point score. The inclusion of records falling within 100m of a particular area should compensate for the imprecision of records and should also roughly consider a species' dispersal ability, since most species identified among the records are capable of dispersing across at least that distance. Moreover, unlike other categories where a relative score has been calculated, in this criterion each additional species counts as a point which reflects the weight of the evidence provided by species records.
- 3.04 Table 1 lists all designations considered in this assessment organised into statutory 'protected' designations and 'notable' non-statutory designations.

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<sup>3</sup> Accessed 10<sup>th</sup> August 2008

**Table 1. Lists of 'protected' and 'notable' designations.**

Protected species	Notable species
Species listed under Schedules 5 and 8 of the <i>Wildlife &amp; Countryside Act 1981</i> (as amended)	Locally Notable: as determined by the Worcestershire County Red Data Book <i>The Endangered Wildlife of Worcestershire</i> (1998) and the <i>Checklist of Worcestershire's Flora</i> (2001).
Species listed in Appendix 1 of the Convention of European Wildlife and Natural Habitats (the Bern Convention)	Red listed and rare species as assessed by criteria established by the International Union for the Conservation of Nature (IUCN).
Species listed in Appendix 1 of the Convention on the conservation of Migratory Species of Wild Animals (Bonn Convention)	Red listed and rare species not based on IUCN criteria. This assessment is based on the number of hectads (10km by 10km grid squares) species are known to occur in.
Species listed in Annex II of Council Directive 92/43/EEC (EC Habitats Directive).	Priority species of the Worcestershire Biodiversity Action Plan (Local BAP species)
Species listed in Annex I of Council Directive 79/409/EEC (the Birds Directive).	Priority species of the UK Biodiversity Action Plan (UK BAP species)

### Designated sites

- 3.05 Site designations were identified by using Geographical Information Systems (GIS) databases provided by RBC and Natural England. It was assumed by this investigation that sites possessing any designation would have greater value for wildlife and conservation than those sites not possessing designations.
- 3.06 Points were awarded to sites such that each statutory designation was worth one point to reflect their weight in this assessment, (e.g. sites designated as both a Local Nature Reserve (LNR) and a Site of Special Scientific Interest (SSSI) would receive two points), while non-statutory designations were worth a maximum of one point, regardless of how many separate designations were possessed by each site (e.g. a site which is recognised as a Site of Ecological Importance and a Special Wildlife Site obtains the same score as a site which is only recognised as a Special Wildlife Site – a total of one).



**Table 2. List of statutorily and non-statutorily designated sites**

<b>Statutorily designated sites (one point per designation)</b>	<b>Non-statutorily designated sites (one point per site regardless of how designations)</b>
Site of Special Scientific Interest	Inventory of Ancient Woodland
Local Nature Reserve	Site of Ecological Importance
	Special Wildlife Sites
	Grassland Inventory.

3.07 The inclusion of known nature conservation sites in the assessment allowed for the identification of the top-end sites as regards nature conservation value, calibrating the score system.

3.08 No sites were identified possessing the following statutory designations: Marine Nature Reserves (MNR), National Nature Reserves (NNR), Areas of Outstanding Natural Beauty (AONB), Ramsar Sites, Special Protection Areas (SPA) and Special Areas of Conservation (SAC).

**Habitat Connectivity**

3.09 Habitat connectivity is widely recognised as a factor determining the distribution and populations dynamics of a species (e.g., Hanski, 1998; Tichendorf and Fahrig, 2000). Habitat connectivity plays an important role in urban and suburban landscapes, where habitat fragmentation is often considerable. Habitat areas and features within an urban environment are variously interconnected with other such features and areas, as well as the wider rural landscape. It can be generally assumed that the better connected an area is with other urban habitats and the wider rural landscape, the greater its value for wildlife and conservation.

3.10 Moreover, habitat connectivity and wildlife corridors are now recognised by the planning process as important features of the landscape. This is evident from the effort many district councils have made to identify these features of the landscape, mainly in response to Paragraph 12 of Planning Policy Statement 9, which stipulates



that planning should seek '*to conserve, enhance and restore the diversity of England's wildlife and avoid the fragmentation and isolation of natural habitats*'.

- 3.11 Habitat connectivity is a complex topic and many methods have been devised to quantify habitat connectivity (see Moilanen and Nieminen, 2002). Recent techniques use special modelling tools to measure functional connectivity, which considers the dispersal capabilities of individual species (Watts *et al.*, 2005).
- 3.12 In this assessment, only physical connectivity was considered, as a full functional connectivity assessment was deemed unfeasible given the time available to carry out the assessment. Each land parcel was inspected for physical connections with surrounding habitats through the use of aerial photographs, and a count was made. For example, if an area of woodland being considered was physically connected to gardens, two separate woodland areas and two hedgerows, the area assessed was given a score of five. Once all parcels were given a score, the highest score was assumed to be one and a proportional score was calculated for all other areas so that the value assigned to each area was relative to all other areas, with the best 'connected' habitats scoring one and most isolated scoring zero.
- 3.13 This method does have limitations, as it does not consider the specific ecological characteristics of each individual species, which would allow for a more robust assessment of functional connectivity. However, it is of some value to the assessment as a whole, ensuring that habitat connectivity has been considered.

#### **Area size**

- 3.14 The pattern of increasing biodiversity with sample area has been well understood for some time, and the concept is known as the species-area curve (Arrhenius, 1921; McIntosh, 1985). It is therefore assumed by this assessment that the larger an area of semi-natural habitat, the greater its biodiversity is likely to be and, therefore, the greater its value to wildlife and conservation.
- 3.15 The area of each semi-natural land parcel was calculated using ArcGIS Geographic Information System software. Each parcel was then given a score proportional to the largest land parcel, which was assigned the maximum score obtainable by this criterion of one.

### **Sites occurring adjacent to statutorily designated sites**

- 3.16 Developments next to protected areas (such as SSSIs) can be a significant threat to the status of reserves. Areas of semi-natural habitats around a protected site act as a buffer. Pressure from adjacent developments can have a significant detrimental impact on a protected area due to factors such as increased human disturbance, noise and light pollution, and changes to local hydrology.
- 3.17 Therefore, to factor this potential constraint into this assessment, non-statutory designated areas of semi-natural habitat occurring directly adjacent to designated areas were assigned one score point. Statutory designations considered by this criterion were LNRs and SSSIs. No other statutory designation occurs in the assessment area and non-statutory designated sites are less likely to pose constraints to development as regards this criterion and therefore, have been excluded from this part of the assessment.

### **Ground Truthing (Site visits)**

- 3.18 The desk-based assessment undertaken to determine the value of each land parcel as regards wildlife and conservation categorised each site into a 'low', 'moderate' or 'high' category. To test the robustness of the assessment and its results, nine sites – one from the 'high value' category, four from the 'moderate value' category and four from the 'low value' category, were visited. Sites were selected where the predicted value of the site did not appear to agree with the expectations of the ecologist based on the information gathered for each site during the desk-based study. An example is Site 64 which is of a linear nature and appeared likely to score well due its potential to be used as a wildlife corridor, but was only assigned a 'moderate' score by the desk-based assessment.
- 3.19 WYGE devised a method for a rapid assessment which was applied to all nine sites. The rapid assessment devised comprised a form which encouraged the surveyor to record information relevant to the desk-based study including statutorily protected species, Worcestershire BAP species and Locally Notable plant species (as defined in Table 1 section 2.4). The following information was recorded:
- direct evidence pertinent to protected or notable species, e.g. droppings, latrines, burrows, setts, shed skins;



- features and habitats likely to support protected and notable species, e.g. potential roosting sites, foraging habitat, hedgerows, ponds, water courses, invertebrate food plants;
- broad habitats types; and
- presence of locally notable plant species.

3.20 The results from this assessment for each of the nine sites visited are discussed individually in section 3.2, where a subjective assessment is made based on the evidence gathered and the experience of the ecologist, assigning each site visited a 'low', 'moderate' or 'high' score. A copy of the rapid assessment form used during the site visits is provided in Appendix 1.

## 4 RESULTS

### Desk-based Assessment

- 4.01 The results of the assessment are presented graphically in Plans 1, 2, 3, 4 and 5. Appendix 1 Table 5 provides the scores awarded for each criterion as explained in section 2. Table 3, below, provides a summary of all final scores obtained by each site; refer to Plans 1, 2, 3, 4 and 5 for their locations.

**Table 3. Summary table of final scores obtained by each site**

Site	Score	Plan	Site	Score	Plan	Site	Score	Plan	Site	Score	Plan
0	2.1	2	20	1.4	1	40	2.0	3	60	4.4	2
1	7.1	2	21	2.7	1,3	41	5.2	3	61	3.0	2
2	0.9	2	22	4.5	2	42	7.4	3,4	62	3.5	2
3	0.8	1	23	3.0	2	43	2.9	3,4	63	1.8	2,4
4	1.0	1	24	4.1	2	44	2.4	3,4	64	2.8	2,4
5	2.1	1	25	5.1	2	45	2.8	4	65	4.9	2
6	1.7	1	26	2.6	2	46	2.2	3,4	66	1.4	4
7	1.8	1	27	1.3	2	47	3.4	1,3,4	67	5.1	1
8	4.5	1	28	2.4	3	48	1.6	2,4	68	7.3	1
9	6.4	1	29	2.0	3	49	2.2	4	69	4.3	1
10	8.7	1	30	3.1	3	50	2.2	4	70	1.8	2
11	7.2	1	31	1.7	3	51	1.9	2	71	6.9	2
12	2.8	1	32	2.8	3	52	3.3	2,4	72	1.5	2
13	7.4	1,3,4	33	1.6	3,4	53	1.7	1,3,4	73	2.1	2
14	1.9	1	34	4.6	3,4	54	1.8	1,2,3	74	3.5	2
15	3.6	1	35	1.8	3,4	55	1.8	1,3,4	-	-	-
16	3.8	1	-	-	-	56	4.0	1,4	-	-	-
17	0.8	1	37	4.4	3,4	57	9.1	3	-	-	-
18	2.8	1	38	12.6	5	58	4.3	2	-	-	-
19	4.0	1	39	3.3	3	59	7.6	2	-	-	-

- 4.02 The values are classed into 'low', 'moderate' and 'high' categories by using the Jenks algorithm for establishing 'natural' separations in the data set that best group similar values and maximise the difference between categories (Jenks, 1963). The method is widely used and recognised and is an automated feature of the GIS package ArcMAP by ESRI. Three categories were chosen for use in this assessment since it was agreed with WYG Planning and RBC that this would be the most convenient and useful number of categories for the purpose of the assessment.

### Ground Truthing

- 4.03 The results of each site visit are discussed in detail in the proceeding headings, providing details of habitat compositions, notable evidence identified and notable habitat features. Table 4 provides a summary of how results from the ground truthing compare with results from the desk-based assessment (please refer to Plans 1, 2, 3, 4 and 5 for site locations).

**Table 4. Comparison of results from the desk-based assessment and ground truthing**

Site number	Remote assessment results	Ground truthing results
Site 3	Low	Low
Site 8	Moderate	Low to Moderate
Site 24 and 25	Moderate	Moderate to High
Site 37	Moderate	High
Site 39	Moderate	Moderate
Site 64	Moderate	Moderate
Site 71	High	Moderate to High

- 4.04 It is important to note that the ground-truthing exercise was conducted outside the optimal survey period for some species, especially flora, (visits were made on 3<sup>rd</sup> and 4<sup>th</sup> of August) and should not be used as a full site ecological assessment and/or species survey. The evidence detailed below includes that which could be gathered during a brief walk-over of each site, with the aim of building an impression of the value of the site for conservation and wildlife. It was not within the scope of work to investigate every area of a site in the level of detail demanded by an extended Phase 1 habitat survey.

#### Site 3 (Plan 1)

- 4.05 The site can be described as a farmland field of semi-improved grassland with a sward dominated by creeping bent, with occasional false-oat grass (*Arrhenatherum elatius*), Yorkshire-fog (*Holcus lanatus*) and cock's-foot (*Dactylis glomerata*). The forb component comprises creeping buttercup (*Ranunculus repens*), timothy (*Phleum pratense*), creeping bent (*Agrostis stolonifera*), broad-leaved dock (*Rumex obtusifolius*), common ragwort (*Senecio jacobaea*), nettle (*Urtica dioica*), creeping

thistle (*Cirsium arvense*), white clover (*Trifolium repens*), dandelion (*Taraxacum officinale* agg.) and smooth sow-thistle (*Sonchus oleraceus*). Dominant stands of creeping thistle and nettle occur at certain locations inside the field.

- 4.06 The area of grassland habitat appears moderately suitable for reptiles; however, due to the lack of records identified in the site vicinity and the intensively-worked farmland and unsuitable suburban environment that surrounds the site, it appears that reptiles are unlikely to be inhabiting the site.
- 4.07 The site is bordered by a gappy species-poor hedgerow to the north-west. This hedgerow is approximately 2m to 3m tall and did not appear to be frequently managed. Its woody species composition includes dominant hawthorn (*Crataegus monogyna*) and some frequent hazel (*Corylus avellana*), blackthorn (*Prunus spinosa*), a rose (*Rosa* species) and elder (*Sambucus nigra*). Ground flora appears to be poor and similar to adjacent semi-improved grassland and includes nettle, spear thistle (*Cirsium vulgare*) and meadow buttercup (*Ranunculus acris*). This hedgerow can be tentatively classified as 'not important' under criteria set out by the *Hedgerow Regulations 1997*, though the hedgerow does appear to have potential to support nesting birds.
- 4.08 A steep bank lies outside of the site boundary to the east, adjacent to the road. This area is covered by scrub and some mature pedunculate oaks (*Quercus robur*) and ashes (*Fraxinus excelsior*). Other species present here include elder, hazel, hawthorn, holly (*Ilex aquifolium*), field maple (*Acer campestre*) and blackthorn. The ground layer is dominated by ivy (*Hedera helix*), but also includes occasional wood dock (*Rumex sanguineus*), creeping cinquefoil (*Potentilla reptans*), wood avens (*Geum urbanum*), lords-and-ladies (*Arum maculatum*), hedge mustard (*Alliaria petiolata*) and a small stand of dog's-mercury (*Mercurialis perennis*). The climber white bryony (*Bryonia dioica*) was identified along this hedgerow. No evidence of badgers (*Meles meles*) was identified along this bank during the brief site visit.

### Summary

- 4.09 Based on the ground truthing exercise, the site is assessed to have low value for conservation and wildlife. The hedgerows and scrub hold potential to support common and widespread bird species; however, the poor semi-improved grassland identified within the confines of the area appears to be of limited value for conservation. The grassland contains low plant species diversity and appears to lack any species characteristic of notable grassland habitats; however, the habitat does appear to have some potential as foraging habitat for bats.

### Site 8 (Plan 1)

- 4.10 This site appears to consist of a woodland habitat creation scheme and is frequently used by walkers. The habitat can be described as dense immature and planted woodland, which attempts to imitate the species composition found in typical lowland woodland. Pedunculate oak and ash are the dominant canopy species, while species such as rowan (*Sorbus aucuparia*) and silver birch (*Betula pendula*) occur occasionally. Understory species include hazel. The ground flora appears to be very poor, particularly where the woodland is immature. Some species do occur to the south where the woodland appears to be more established, such as hedge woundwort (*Stachys sylvatica*) and enchanter's nightshade (*Circaea lutetiana*).
- 4.11 Large mature pedunculate oaks occur in the area along the eastern boundary of the site. These trees hold good potential for tree roosting bats, possessing characteristics such as dislodged bark and rot-holes. Some trees are densely covered by ivy, which have been known to conceal potential features and even roosts. Beyond the western boundary lies a grazed field bordered by large mature oaks which also possess good potential for bats.
- 4.12 A path was identified at the southern end of the woodland, together with a recent latrine and some abandoned excavations, which were considered to have likely been originated by badgers. Paths were also identified running into other parts of the woodland, leading to signs of foraging by a mammal. This woodland can be generally regarded as good foraging habitat for badgers, and may also offer opportunities for sett creation. It is important to note that a full badger survey was not carried out and that the information provided here should not be interpreted as conclusive evidence that badgers are present on site.

- 4.13 As the woodland currently possesses a dense and low canopy, it offers good habitat for nesting birds such as chaffinches (*Fringilla coelebs*) and blue tits (*Cyanistes caeruleus*) which were heard on site; the area may also provide good foraging habitat for bats.
- 4.14 The hedgerow forming this western boundary appears to be the result of an attempt to recreate a species-rich hedgerow. A hedgerow also occurs along the eastern boundary of the site, which appeared to be composed of few woody species.
- 4.15 Species-poor grassland occurs along footpaths and along the western boundary hedgerow and is dominated by coarse grasses, such as cock's-foot and false-oat grass. This habitat may be considered suitable for reptiles, as it occurs adjacent to areas of scrub; however, the presence of a main road to the east of the area and the intensively farmed land to the west may limit the likelihood of this area supporting populations of reptiles.

### Summary

- 4.16 Overall, the area is assessed to be of moderate value to conservation and wildlife, although its value is likely to increase as the woodland on site matures and supporting a greater diversity of species, particularly if the area is managed in a manner sympathetic to wildlife. Some potential ecological constraints have been identified, for example, badgers appear to be utilising the area and birds that are considered highly likely to nest in the canopy of the developing woodland and scrub.

### Site 24 and 25 (Plan 2)

- 4.17 The site comprises a linear area of scrub and woodland with a footpath running along the centre of the area, which is flanked by managed amenity grassland, and appears to be subject to much disturbance from local residents. Species of the canopy include ash, white willow (*Salix alba*), elms (*Ulmus* species), common alder (*Alnus glutinosa*), aspen (*Populus tremula*), wild plum (*Prunus domestica*), crack willow (*Salix fragilis*), pedunculate oak, goat willow (*Salix caprea*), (*Salix cinerea*), field maple and wild cherry (*Prunus avium*). Hybrid poplars, which appear to have been planted, occur in dominant stands. The ground flora comprises wood avens, yellow archangel (*Lamium galeobdolon*), dog's mercury, nettle, red campion (*Silene dioica*), lords-and-ladies (*Arum maculatum*), hedgewound, meadowsweet (*Filipendula ulmaria*),



cock's-foot, nipplewort (*Lapsana communis*), herb-robert (*Geranium robertianum*), wood speedwell (*Veronica montana*), enchanter's nightshade, (*Dryopteris dilatata*), (*Dryopteris filix-mas*), ground-ivy (*Glechoma hederacea*), opposite-leaved golden-saxifrage (*Chrysosplenium oppositifolium*), hart's tongue fern (*Phyllitis scolopendrium*) and couch grass; some areas are dominated by ivy, while others by nettles or brambles. Species of the woodland mantle include hazel, blackthorn, hawthorn, osier (*Salix viminalis*), a rose (*Rosa* species) and dense stands of brambles (*Rubus fruticosus*). Some mature canopy trees possess features suitable for roosting bats. Abundant numbers of speckled wood butterflies were observed during the walkover of the area.

- 4.18 A shallow stream also runs through the centre of the woodland and scrub area. The water depth varies between approximately 5cm and 10cm and is quite turbid; its substrate comprises silt and exposed clay, as well as some coarse pebbles. The banks are very shaded and poorly vegetated, but often steep-sided (almost vertical in places). Characteristic riparian vegetation includes pendulous sedge (*Carex pendula*). A burrow was identified along this stream; however, its origin was not determined during this ground truthing exercise.
- 4.19 A small pond occurs adjoined to the area of woodland and grassland. This pond contains a bed of bulrush and its water surface is covered by duckweed (*Lemna* species). Other vegetation characteristic of this habitat occurs, including a water starwort (*Callitriche* species), celery-leaved buttercup (*Ranunculus sceleratus*) a sweet-grass (*Glyceria* species), pendulous sedge and soft-rush (*Juncus effuses*). A darter dragonfly (*Sympetrum* species) was identified along the margins of this pond. Additionally, moorhens (*Gallinula chloropus*) were observed inhabiting the pond.
- 4.20 The amenity grassland flanking the areas of woodland are highly managed, and possess a limited species composition restricted to perennial rye-grass (*Lolium perenne*) turf and common forbs characteristic of amenity grassland such as dandelion, white clover and greater plantain (*Plantago major*).

### Summary

- 4.21 Overall, the sites are regarded as of moderate to high value for conservation and wildlife. The area contains nine species known to be indicative of ancient woodland: yellow archangel, dog's mercury, red campion, lords-and-ladies, herb-robert, wood speedwell, opposite-leaved golden-saxifrage and hart's-tongue fern. Moreover, the site forms a wildlife corridor linking areas of open space in Redditch to the wider countryside beyond the town boundaries; the site acts as both a woodland corridor and river corridor, facilitating the passage of wildlife characteristic of these habitat types. The site was considered to have limited potential to support protected or notable species. It is also subject to much disturbance from local residents who use the space as a play area and a location to dump garden waste.

### Site 37 (Plan 3)

- 4.22 The majority of the site comprises mature semi-natural woodland, very likely to be of ancient origin. The canopy is diverse and tall, containing species such as silver birch, downy birch (*Betula pubescens*), pedunculate oak, rowan and alder; several large oaks occur within the woodland with features capable of supporting roosting bats. Understorey species include hazel, field maple and holly. The ground flora contains many of the species characteristic of ancient semi-natural woodland, such as wood sorrel (*Oxalis acetosella*), common figwort (*Scrophularia nodosa*), lords-and-ladies, honeysuckle (*Lonicera periclymenum*), a dog-violet, and wood sedge (*Carex sylvatica*), primrose (*Primula cf. vulgaris*), bluebells (*Hyacinthoides non-scripta*), yellow pimpernel (*Lysimachia nemorum*) and wood sage (*Teucrium scorodonia*), but also broad buckler fern, male fern and enchanter's nightshade; bracken and bluebells are often dominant in areas. Typical mosses of mature woodland also occur, including common haricap (*Polytrichastrum commune*) and common smoothcap (*Atrichum undulatum*). The wood also contains the remains of ancient earthworks, i.e. a wood-bank; this can be interpreted as evidence indicating that the wood is of ancient origin.
- 4.23 Small pools also occur throughout the area, supporting small amounts of water starwort (*Callitriche* species). A wet flush was also identified during the walkover, which support dense mats of bog-moss (*Sphagnum* species) under stands of bracken.

- 4.24 The site provides good potential habitat for dormice and the nightingale, which are both recognised as 'priority' species under the Worcestershire Biodiversity Action Plan. Moreover, the site provides good habitat for foraging and sett creation by badgers.

### Summary

- 4.25 Overall, this area of ancient semi-natural woodland is regarded as of high value for wildlife and nature conservation. It was found to support 11 species characteristically found in ancient woodlands, including notable species, namely bluebells, yellow pimpernel, wood sage and wood sorrel; bluebells are protected in the UK under the *Wildlife & Countryside Act 1981* (as amended).
- 4.26 The southern arm of the site consist of the edge of improved farmland fields, with a few mature trees and a small band of woodland, as well as a hedgerow intersecting this 'limb' across the centre. This area is of limited value for wildlife and conservation, particularly if compared to the adjoining ancient semi-natural woodland.

### Site 39 (Plan 3)

- 4.27 This site comprises a relatively large area of semi-natural woodland. The ground flora is poor and restricted to common and widespread woodland species, such as lords-and-ladies, hedge woundwort, wood avens, ground ivy, herb-robert, broad buckler fern, male fern and stinking iris (*Iris foetidissima*); brambles, nettles and wood avens are notably abundant in places. Canopy species include rowan, silver birch, pedunculate oak, ash, field maple, crack willow, wild cherry, field maple, a lime (*Tilia* species), alder and sycamore (*Acer pseudoplatanus*). Understorey shrubby species identified included elder, raspberry (*Rubus idaeus*), hazel and hawthorn. Very large mature oaks are present in the woodland, and these possess good features for roosting bats, such as rot-holes and loose bark.
- 4.28 A small woodland pond was identified; however, this was found to be heavily shaded possessing marginal plant species diversity restricted to creeping buttercup and some shrubs overhanging the water surface.
- 4.29 An active five-entrance badger sett was identified at the site. The active status of the sett was confirmed by the presence of fresh spoil heaps and paw-prints. A second

sett possessing three entrances was also identified in the woodland; however, this sett did not appear to be in active use.

### Summary

- 4.30 Overall, this area is regarded to have moderate value for wildlife and conservation. It is was found to support an active population of badgers and is likely to support other wildlife typical of woodland. A total of four floral species indicative of woodland of ancient origin were identified on site; however, most are not notable but common and widespread. No species considered to be locally notable were identified in the area.
- 4.31 The name of the area implies that the site was previously managed as coppice woodland. It was evident during the site survey that this had not been managed in such a way for a considerable period of time. It is possible that upon reinstatement of coppicing, the conservation value of the woodland would increase as species within the seed-bank emerge. A full investigation of the history of the site may better reveal its potential as a site for nature conservation.

### Site 64 (Plan 4)

- 4.32 This site forms another linear area of semi-natural woodland, similar to that seen at Site 24 and 25, with an associated footpath and ditch. Canopy species include sycamore, hybrid poplar, oak, ash, wild cherry, hybrid poplar, larch and crack willow, white willow, weeping willow (*Salix × sepulcralis*) and chestnut (*Castanea sativa*). Woodland mantle and understorey species include elder, a rose, hawthorn, blackthorn, hazel and wild plum. Species of the ground flora include pendulous sedge, common figwort, hedge woundwort, red campion, broad buckler fern, yellow archangel, lords-and-ladies, enchanter's nightshade; ivy, brambles, nettle and herb-robert are dominant in areas. Some species, such as tutsan (*Hypericum androsaemum*), also occur as likely garden escapes, and saplings of sycamore smother the ground flora in parts. Large trees suitable for roosting bats appear to be absent in this area of woodland. A flock of long-tailed tits were heard within the woodland.
- 4.33 A ditch is present through the centre of the woodland area. This ditch possesses shallow banks approximately 50cm to 1m tall, which are heavily shaded by woodland trees and shrubs. Marginal vegetation bordering the ditch is limited, but includes

pendulous sedge. The ditch widens in parts to form pools which support some aquatic vegetation.

- 4.34 Well managed amenity grassland flanks the footpath that runs along the centre of the woodland area. The sward is dominated by perennial rye-grass, with some forbs characteristic of amenity swards, such as greater plantain, dandelion and white clover.

### Summary

- 4.35 This site is assessed with moderate value for conservation and wildlife. Parts of the site may comprise remnants of ancient semi-natural woodland, given that species such as common figwort, hedge woundwort, red campion, yellow archangel and lords-and-ladies occur there. Long-tailed tits were observed foraging along the strip. These birds are often found in woodland and farmlands, and their presence indicates that the area is used as a wildlife corridor. However, the site is subject to much disturbance, including local residents dumping garden waste in the area, which may have a negative impact on the conservation value of the site.

### Site 71 (Plan 2)

- 4.36 Site 71 is similar in structure and species composition to Sites 24 and 25: a band of semi-natural woodland, with a stream and footpath occurring along the middle of the area. Much waste appears to be dumped on site. Canopy species present include common lime (*Tilia × europaea*), field maple, pedunculate oak, false acacia (*Robinia pseudoacacia*), ash, sycamore, apple (*Malus* species), hybrid poplar, larch, wild cherry, alder, red oak (*Quercus robur*), white willow, Italian alder (*Alnus incana*) and goat willow. Woodland mantle and understorey species include snowberry (*Symphoricarpos albus*), hazel, elder, hawthorn, burnet rose (*Rosa spinosissima*) and dogwood (*Cornus sanguinea*). Some large trees occur with good potential to support roosting bats. Species of the ground layer include, abundant to dominant ivy, nettle and bramble; lords-and-ladeis, male-fern (*Dryopteris filix-mas*), bittersweet (*Solanum dulcamara*), wood avens, herb-robert, dog's mercury, enchanter's nightshade (*Circaea lutetiana*), an iris (*Iris* species), a dog violet (*Viola riviniana* or *V. reichenbachiana*) and red campion.

- 4.37 Amenity grassland flanks the footpath in some areas. The sward of these grasslands is dominated by perennial rye-grass and other species such as cock's-foot and annual meadow-grass (*Poa annua*); among the forbs are selfheal (*Prunella vulgaris*), creeping buttercup and white clover.
- 4.38 The stream running down the centre of the area possesses steep and very shaded banks. Vegetation along the stream is very limited but includes *Deschampsia cespitosa* and pendulous sedge.

### Summary

- 4.39 The area is assessed to have moderate to high value for wildlife and nature conservation. It contains six species indicative of ancient semi-natural woodland: lords-and-ladies, herb-robert, dog's mercury, a dog violet and red campion. Moreover, the area is likely to operate as a wildlife corridor, connecting areas of open space in the town of Redditch to wider countryside, particularly as regards birds and riparian invertebrates and is also likely to be used as foraging habitat by bats. The locally notable burnet rose was recorded in the area. This species has a scattered distribution status in Worcestershire, and therefore secures this site's conservation value at moderate to high (Fraser, *et al.*, 1998).

## 5 DISCUSSION OF RESULTS, RECOMMENDATIONS AND LIMITATIONS

### Results of the Desk-based Study

- 5.01 The assessment identified 11 areas as 'high' value to conservation and wildlife, 32 areas with 'moderate' value and 31 areas with 'low' value. With a few exceptions (discussed later in this section), the areas categorised as of 'low' value for conservation and wildlife are likely to pose the least constraints to any proposed developments. Areas falling in the 'moderate' category are believed to be more likely to pose constraints than 'low' value sites and it is considered that those areas categorised with 'high' value for nature conservation are highly likely to pose constraints to any development plans, particularly as most possess statutory nature conservation designations.
- 5.02 'Low' value areas are typically relatively small in size (less than 10,000 m<sup>2</sup>) and lacking records supporting the presence of protected and notable species, with a few exceptions where bats and great crested newts had been reported to occur (these are discussed further elsewhere in this section). In other categories, some sites assessed to be of 'low' value fared better than might have been expected. For example, Site 51 obtained high scores in the categories of naturalness and habitat complexity, but overall was categorised as low.
- 5.03 Areas categorised as of 'moderate' value are typically in the mid-sized range (between 10,000 and 50,000 m<sup>2</sup>) and possessing habitat complexity at the mid to high range. Moreover, several were found to have associated records indicating the likely presence of protected or notable species. A total of eight of these sites occur adjacent to statutory designated sites, and two sites (Sites 15 and 41) possess the statutory designation of LNR. In the categories of naturalness and connectivity, moderate sites are spread fairly evenly.
- 5.04 Most 'high' value sites are relatively large (greater than 50,000 m<sup>2</sup>) protected by statutory nature conservation designations and possess a suite of records reporting the occurrence of protected and notable species. The only exception to this trend within the high value category is sites 71, which, although is not designated, scores highly in most other categories.

- 5.05 Several sites identified as of 'low' or 'moderate' value were shown by the desk-based assessment to contain, or at least be known to have contained, populations of great crested newts: sites 5, 22, 26, 58 and 67. Any plan to develop these sites should consider this evidence carefully, and professional advice from a suitably qualified ecologist sought at an early stage. Great crested newts and their habitat are protected under the *Wildlife & Countryside Act 1981* (as amended).
- 5.06 Moreover, several sites identified as of 'low' or 'moderate' value were shown by the desk-based assessment to support, or at least known to have supported, populations of common pipistrelle bats: sites 22, 24, 25, 28, 30, 61 and 65. Additionally, an instance of Daubenton's bats has been reported at or near site 65. Again, any plan to develop these sites should consider this evidence carefully, and professional advice from a suitably qualified ecologist sought at an early stage. Great crested newts and their habitat are protected under the *Wildlife & Countryside Act 1981* (as amended).
- 5.07 Further still, two site (sites 16 and 56) identified by the assessment as of 'moderate' value for conservation or wildlife possessed an associated record of the slow-worm, a reptile protected under the *Wildlife & Countryside Act 1981* (as amended).

### Results of the Ground Truthing Exercise

- 5.08 Generally, the subjective value assessments based on the results from the ground-truthing exercise appear to agree with the results of the desk-based study. It should be noted that the sites visited were not a random sample of sites, but a selection of sites for which the predicted score did not match the subjective opinion of the ecologist undertaking the desk-based study prior to any visits.
- 5.09 The ground-truthing exercise identified several pieces of evidence which were not identified by the desk-based study. Some notable examples are provided below.
- High value woodland habitat at Site 37, where ancient woodland was identified by the ground assessment;
  - presence of badgers in some woodland areas, namely Site 8 and 39;
  - the habitat creation scheme found at Site 8, where an attempt is being made to establish a potentially valuable woodland hedgerow; and
  - the presence of the locally notable burnet rose at site 71.



- 5.10 The desk-based assessment did not identify the likely ancient woodland present at Site 37. Ancient woodland habitat is recognised as a 'priority' habitat by the Worcestershire Biodiversity Action Plan. The Worcestershire Biological Records Centre notes that many small areas of ancient natural woodland in Worcestershire are not listed in the Inventory of Ancient Semi-Natural Woodland published by the Forestry Commission, as one of the inventory's assessment criterion determines that a woodland can only be listed where it is at least one hectare in size; many ancient semi-natural woodlands occurring throughout Worcestershire are smaller than this, according the Worcestershire Biological Records Centre.

### **Limitations of the Desk-based Study**

- 5.11 It is important to recognise that the assessment does have limitations inherent of all types of ecological desk-based studies. These limitations are discussed below.
- For a category to score high in the assessment, it must score high in a range of categories. The assessment does not comprehensively attempt to assign a weight to each category. This means that where good evidence supports a potential constraint at a particular site, this site may still be assigned as a 'low' value site. Examples are shown where records of protected species, such as common pipistrelles and great crested newts, are present in sites assessed with 'low' or 'moderate' value.
  - The existence of a record of a particular protected species associated with a particular site cannot be used to unequivocally determine the value of a site (though it is interpreted as good evidence in this assessment). To determine the value of a site for a particular protected species, full surveys must be undertaken to determine the status of a particular species at the site in accordance with recognised guidance. For example, common pipistrelle bats often forage a variety of habitats and species records may occur for foraging individuals at a particular site; however, roosting bats are likely to pose a more significant constraint to future development than foraging bats.
  - The use of occurrence records have several limitations, as mentioned previously in this report: (i) records only provide a snapshot of a species status at a particular location; (ii) their precision is often limited, and indeed most are available data is

only precise to the nearest 100m; (iii) records are sometimes of considerable age, and their usefulness in relation to the age of record is difficult to ascertain; (iv) moreover, records are rarely kept regarding the absence of a particular species at a location, and the absence of records at a particular location cannot be interpreted as a species' absence from that location.

- The assessment was reliant on aerial photography to assign scores in several of the categories. Examples of limitations inevitable when using aerial images include:
  - (i) The aerial images represent a snapshot of the site at a particular point in time; changes may have happened to the landscape since the images were created. This may affect the accuracy of scores in the categories naturalness, habitat complexity and habitat connectivity, all of which were determined by aerial images.
  - (ii) The images can also only provide a broad indication of the habitat types present at the location. It is not possible to discern areas of high quality grassland from areas of poor improved grassland.
  - (iii) More fundamental distinctions can also be missed. For example areas of advance scrub cannot be discerned from areas established woodland with a great deal of confidence. This limitation influences the habitat complexity score assigned to each category.
- The assessment of habitat connectivity considers only physical links between habitats; it does not attempt to consider the ecology of individual species' to make assessment of the 'functional connectivity' of each individual area of habitat.
- A full site survey during the ground-truthing site visits was outside the scope of work and this must be borne in mind when interpreting results. The information discussed in section 3.2 provides an account of the evidence collected during a rapid assessment of each site.

- Moreover, conditions on the day may have influenced the likelihood of encountering evidence which would support the subjective assessment of a site's value for conservation. Some important examples include:
  - (i) Woodlands are best surveyed at during the spring months when characteristic woodland flora is most evident.
  - (ii) Grasslands are best surveyed during the summer months when the identification of grasses is easiest and a larger number of forbs are in flower.
  - (iii) Invertebrates generally become less active as temperatures drop below 17 °C, particularly during overcast and wet days.
  - (iv) Animals such as reptiles and amphibians become increasingly less active during the Autumn months (when the ground-truthing exercise was conducted), decreasing the probability of a sighting.

### Summary

- 5.12 The assessment identified 11 areas as 'high' value to conservation and wildlife, 32 areas with 'moderate' value and 31 areas with 'low' value, and it is considered that 'low' value sites are likely to pose less constraints than 'moderate' or 'high' value sites to any proposed development.
- 5.13 The results of the desk-based study provide a useful guide based on the limited existing information available to inform any future land-use plans. However, it cannot replace dedicated ecological surveys, a conclusion supported by the occasional disparity between the desk-based study results and the ground-truthing results, and by the limitations discussed above.
- 5.14 Therefore, it is recommended that full site ecology surveys are undertaken at every site previously identified as 'semi-natural', even those identified by this assessment as land of low value for wildlife and conservation to inform development proposal. Desk based studies normally comprise only the first stage of a site's ecological investigation, and the results from this study should be used in the same manner.

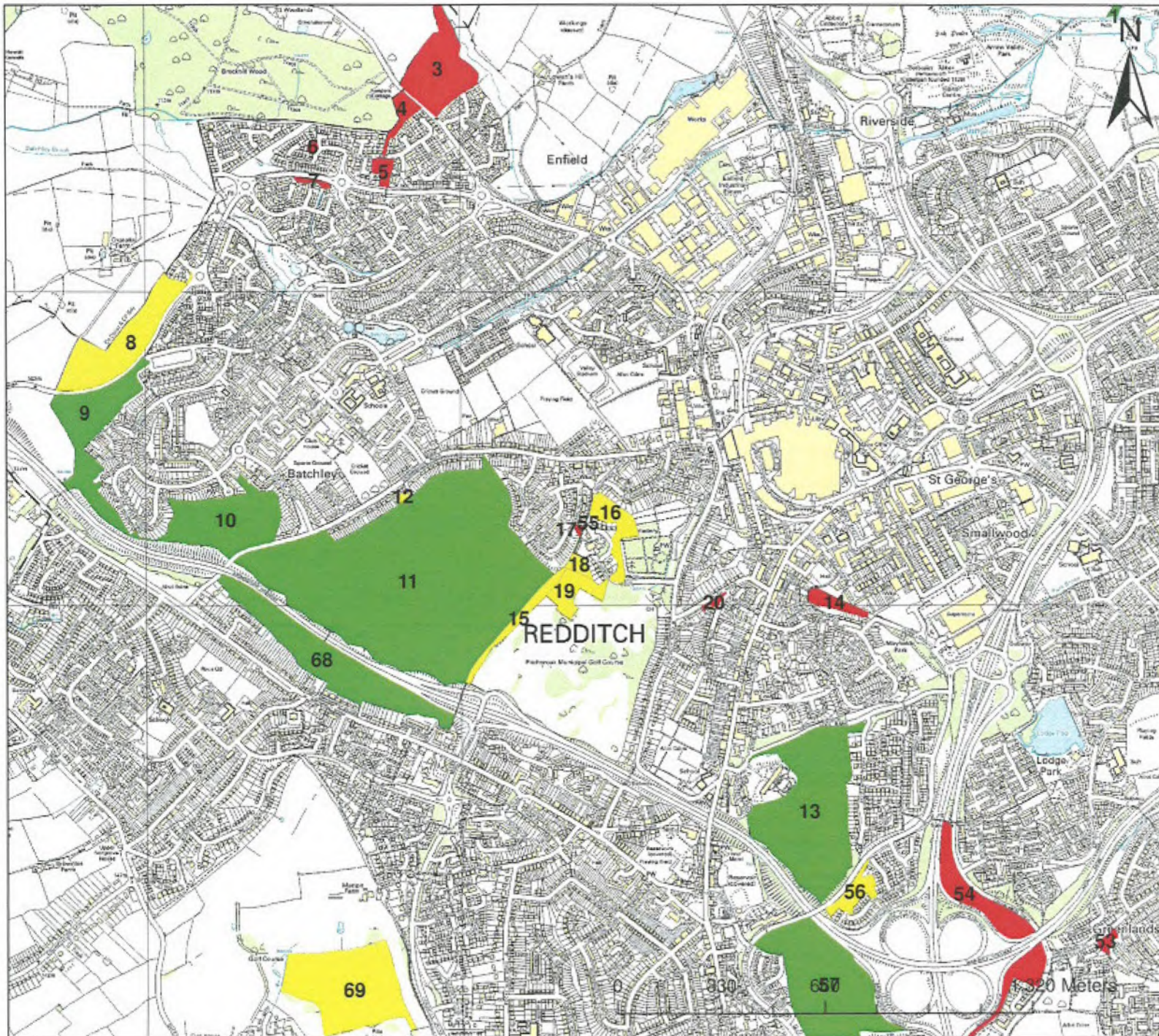


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**Legend**  
**Semi-natural Open Spaces**  
**Assessment Categories**

- 0 - 2
- 3 - 5
- 6 - 13

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 Avalon Way        Fax: 0116 2380002  
 Anley                email: midlands.ecology@wyg.com  
 Leicester            LE7 7GR

**White  
Young  
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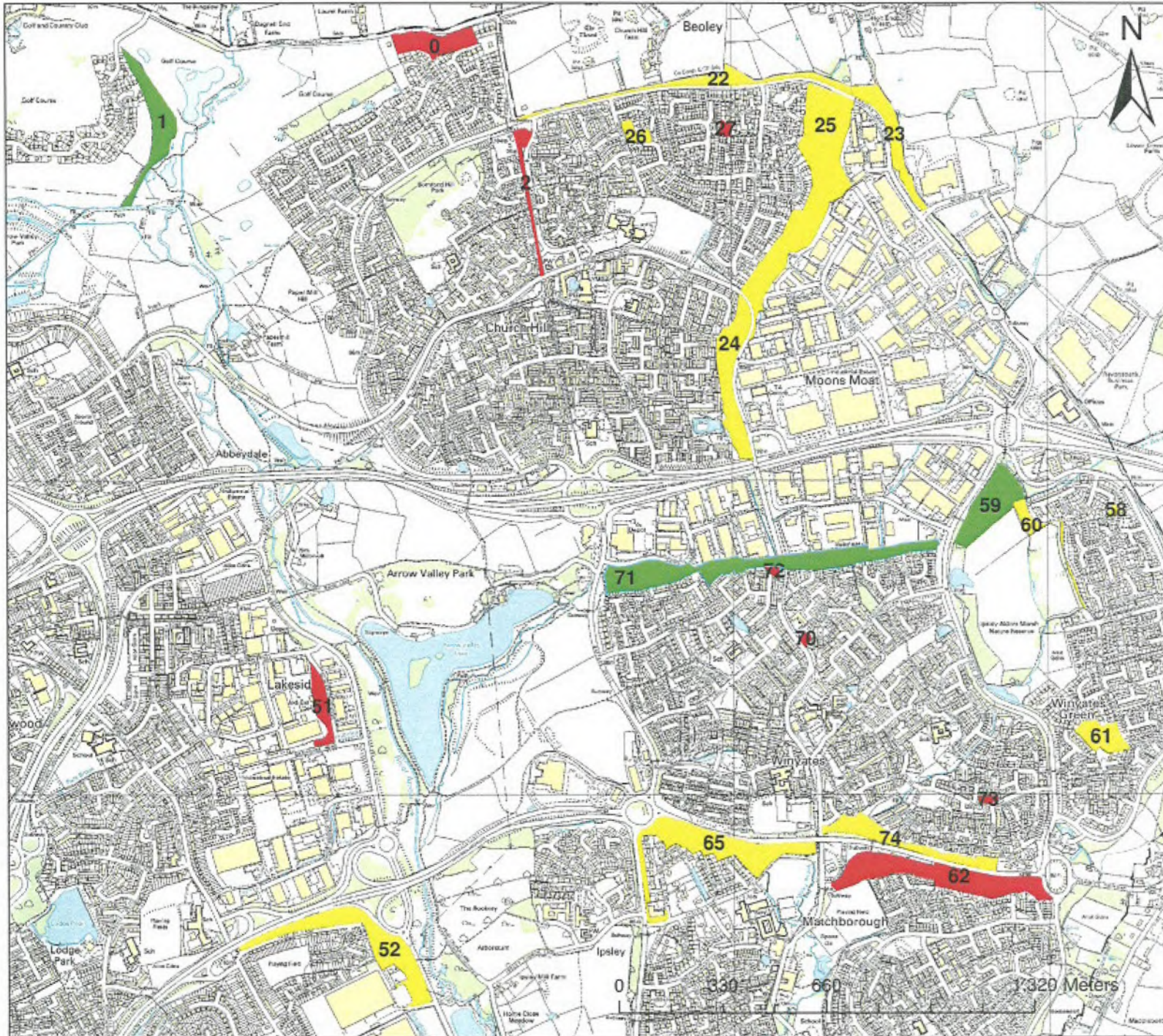
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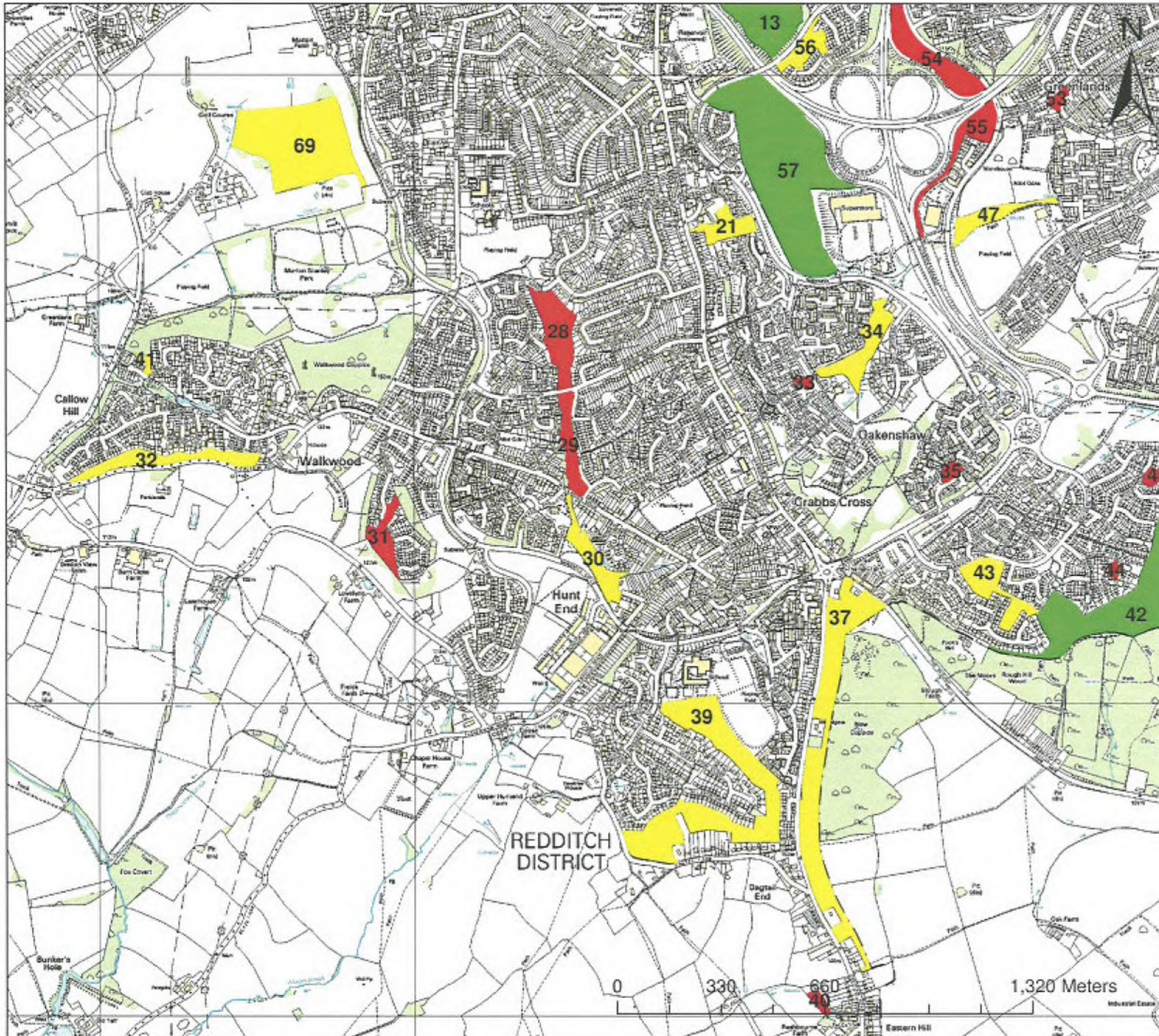
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Executive Park  
 Avalon Way  
 Ashley  
 Leicestershire  
 LE7 7GR

Tel: 0116 2348100  
 Fax: 0116 2348902  
 email: midlands.ecology@wyg.com



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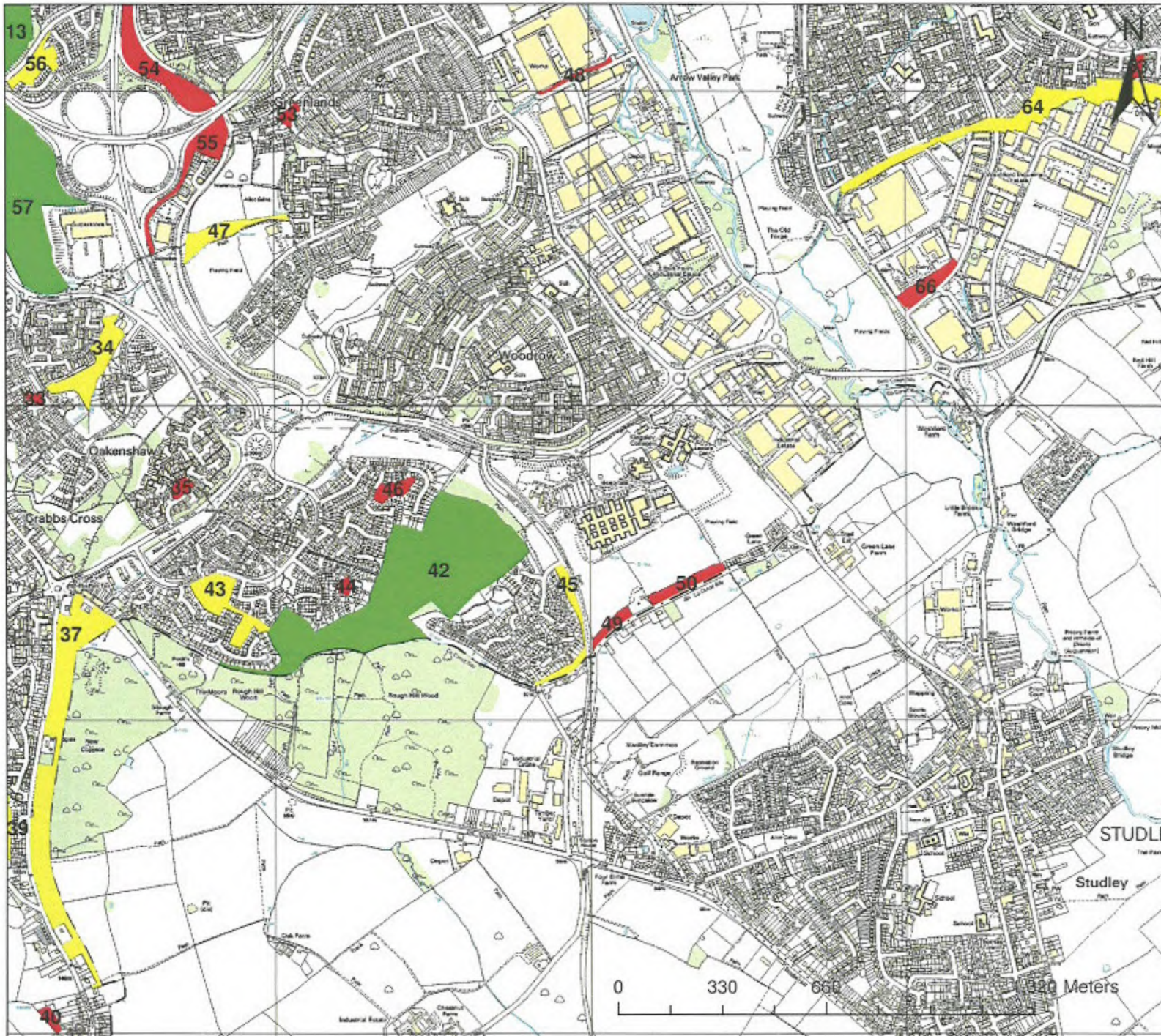
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 Avon Way Fax: 0116 2545002  
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 Leicester  
 LE17 7GR



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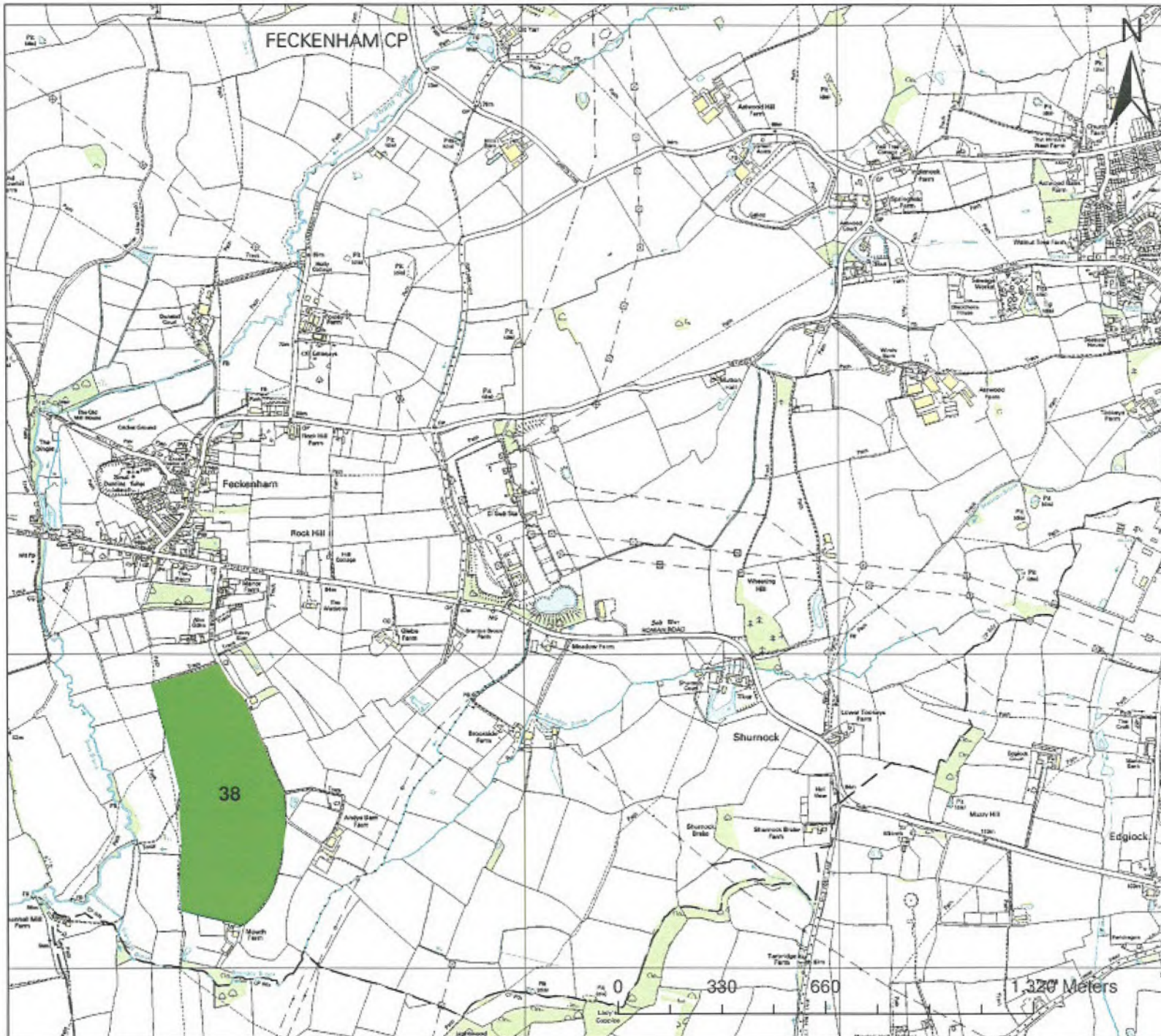
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 Avalon Way  
 Anstey  
 Leicester  
 LE17 7GR

Tel: 0116 2348100  
 Fax: 0116 2348002  
 email: midlands.ecology@wyg.com

**White Young Green**

**Environmental**

Project  
 Redditch Assessment of Conservation Value of Open Spaces

Drawing Title:  
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