PLANNING DESIGN ENVIRONMENT

WINDMILL HILL, ROYSTON
ECOLOGICAL ASSESSMENT 2010
(Report Ref: 2536.002)

AUGUST 2010

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D2536.001 Habitat map 2010

1.0 INTRODUCTION

1.1 TEP was commissioned in August 2010 by NJL Consulting to carry out an ecological assessment of the habitats at land off Station Road and Windmill Terrace, Royston, Barnsley.

1.2 This report has the following objectives:

- to describe the existing vegetation and give an overview of the habitats present on the site;
- to identify whether there are any features of conservation value, such as species or habitats which are legally protected or of biodiversity importance[1];
- to advise of further surveys or mitigation requirements that might be needed prior to development of the sites;
- to highlight opportunities to provide biodiversity enhancement within the new site proposals.

2.0 SITE DESCRIPTION

2.1 The survey area is located off Station Road and Windmill Terrace to the north west of Royston Village. It is centred at OS grid reference SJ 533 877. The site's context in the wider landscape is illustrated in Figure 1 below.

Figure 1. Aerial photograph of the site and surrounding habitat

[1] (Including those habitats prioritised in the UK Biodiversity Action Plan (BAP) or the Local BAP)

2.2 The survey area is bounded to the west by Station Road and a residential housing estate. To the north and north east lie agricultural land and further residential housing lies south and east. The Trans Pennine Trail and Barnsley Canal are located approximately 950m to the east.

2.3 In brief, the site is dominated by continuous bracken and modified neutral grassland with patches of dense scrub, tall ruderal herbs, acid grassland and acid/heath mosaic.

3.0 METHODS

Desktop Study

3.1 Information regarding historic species records, protected sites, land allocation and relevant policies was requested/gathered from the sources listed in Table 1 below. Correspondence and other relevant information is presented at Appendix A.

Table 1: Ecological information and consultations

CONSULTEE / SOURCE OF INFORMATION	NATURE OF INFORMATION SUPPLIED BY CONSULTEE
Magic Map: Multi-Agency Geographic Information for the Countryside	Online mapping system identifying statutory and rural designations, citations, natural area boundaries etc.
UK Biodiversity Action Plan	Identification of national priority species and habitats known to occur in the region.
Barnsley Biodiversity Action Plan	Identification of local priority species and habitats known to occur in the local area.
National Biodiversity Network Gateway (NBN)	Online national records database.
Nature on the Map	Online mapping system for England for BAP habitats and protected sites.
Barnsley Council	Identification of records for protected species within the local area.
West Yorkshire Ecology	Identification of records for protected species within the local area.

Phase 1 Habitat Survey

3.2 The survey was carried out by TEP ecologist Val Gateley AIEEM on Wednesday 4th August 2010. The survey was carried out in accordance with the assessment methods set out in JNCC (2007) and gives an overview of key habitats and wildlife corridors and the likely sites for species of conservation concern.

Fauna

3.3 During the habitat survey, the habitats present were assessed for their potential to support species of conservation concern, particularly statutorily protected species or BAP priority species.

3.4 The trees on site were assessed for the potential to support roosting bats by viewing each tree from the ground and inspecting the trees for features suitable for use by roosting bats (e.g. cracks, cavities, holes, peeling bark, dense ivy).

4.0 RESULTS

Desktop Study

Protected sites

4.1 No statutorily or non-statutorily protected sites were identified within or adjacent to the proposed development site. The nearest site designated for nature conservation is Barnsley Canal Local Wildlife Site (LWS), which lies approximately 950m to the east of the site. Notton Wood and Chevet Branch Line Local Nature Reverses (LNR) lie over 1km to the west and north, respectively. Further details of these sites are given in Appendix A.

Protected species and species of conservation concern

4.2 Records from NBN (National Biodiversity Network) identified water vole within 1km of the site. The exact location of the records is unknown, but it likely to be associated with the Barnsley Canal and the network of Dikes to the south and west of the site.

4.3 Pipistrelle bat has been recorded within 100m of the site to the south west, associated with the residential housing.

4.4 Records from West Yorkshire Ecology show a pipistrelle bat roost located over 600m to the south west of the site, associated with housing, and a vesper bat species roost was recorded over 900m south west of the site.

4.5 Details of the NBN searches are presented at Appendix A.

Habitats and Flora

4.6 Detailed findings of the habitat survey are given in Appendix B and a habitat map is presented in Drawings D2536.001. The following paragraphs provide a summary of the findings and highlight any important results.

4.7 In summary, the site supports a mix of habitats but is dominated by dense bracken with a mosaic of grassland and scrub along the western boundary. Modified neutral grassland forms the predominant grassland habitat on site. This grassland is not typical of neutral grassland but does contain rank grassland swards of neutral origin not derived from agricultural swards species

4.8 There is one area within the site which is colonised with acid grassland and another area which contains a mosaic of acidic grassland species and heather.

4.9 There are a number of young scattered trees located within the site and two short lengths of species-poor intact hedge, one of which appears to be remnant of a former garden and comprises damson and the other is a native hawthorn hedge.

4.10 The native hedge, acid grassland and dry heath/acid grassland mosaic habitats within the site are local BAP and UKBAP priority habitats.

4.11 No protected plant species were recorded within or adjacent to the site.

4.12 There are arable fields with associated hedgerows to the east of the site and a woodland corridor to the north, both of which provide ecological linkages to the wider landscape to the north, east and west of the site.

Fauna

4.13 No evidence was found to suggest that bats are present on site. Most of the trees within the site are young and therefore do not currently have bat roost potential. As such there are currently no known implications for development regarding bats.

4.14 It is likely that bats will use the site for foraging and commuting.

4.15 No evidence was found to suggest that badgers are present on site. As such there are currently no known implications for development regarding badgers.

4.16 There are no waterbodies on site suitable for supporting breeding amphibians, otter or water vole. The closest waterbodies are located over 950m east of the site, associated with Common Lane Farm and the Trans Pennine Trail.

4.17 There are no records of reptiles within 2km of the site, however the site contains some habitats such as heath and grassland, which are suitable for reptile baskingand the site generally offers good foraging and refuge potential. There are links to woodland, aquatic and colliery habitat in the wider locality.

5.0 CONCLUSIONS & IMPLICATIONS

5.1 A Phase 1 Habitat survey was carried out in August 2010. The habitat survey is illustrated at Drawing D2536.001. Desktop survey correspondence is presented at Appendix A.

5.2 No sites designated for nature conservation will be affected by the proposed redevelopment of the site.

5.3 No specific development proposals were made available at the time of writing this report. The following paragraphs provide details on potential ecological constraints and opportunities.

5.4 The native hedge, acid grassland and mosaic dry heath/acid grassland are UKBAP priority habitats and are listed on the Barnsley BAP as habitats of local priority. PPS9 requires that local planning authorities should seek to maintain and enhance biodiversity when considering planning applications. As such, UKBAP habitats may be a material consideration in any planning application.

5.5 Although there are no records of reptiles within the site of with 2km of the site, Royston is not heavily recorded and given the habitat on site and within the

wider locality it is recommended the a presence/absence reptile survey be undertaken at the site.

5.6 Nesting birds are protected under the *Wildlife and Countryside Act 1981 (as amended)*. There is no provision under the licensing system for disturbance/destruction of nests to facilitate development.

5.7 Any removal of vegetation should be undertaken outside of the nesting bird season (March – August inclusive). If this is not possible a pre-clearance check should be made by an ecologist on the day of removal.

5.8 No other evidence was found to suggest that there are any other protected species present on site.

6.0 RECOMMENDATIONS

6.1 Under PPS9 Local Planning Authorities have a duty not only to ensure net biodiversity value is maintained as a result of development proposals, but also to seek biodiversity gain when appropriate. The following paragraphs provide examples of how biodiversity within the site can be maintained and enhanced.

6.2 Development proposals should therefore consider retaining the acid grassland and dry heath/acid grassland mosaic habitats in the final design. If this is not possible, then replacement habitat creation should be incorporated into any site proposals. Replacement or restoration of acid grassland/heath habitats can be achieved by appropriate soil and turf translocation methods. A method statement should be produced for such measures in the event that these habitats can not be retained in situ.

6.3 Consideration could be given to planting new hedgerows, with native species along the boundaries of the site, which could incorporate existing trees. Additionally, internal hedgerows or linear native planting across the site would help strengthen wildlife corridors through the greenspace.

6.4 It is recommended that the trees on site be retained and protected where possible. A tree survey to BS5837:2005 should be carried out to evaluate the tree stick and provide recommendations for removal, retention and protection. If tree removal is likely to be required, then replacement planting should be incorporated into the site design. Increasing the current levels of tree habitat on site would further benefit a range of species including birds, bats and invertebrates. Tree planting should use native species, ideally of local stock.

6.5 Shrub and wildflower planting should also be used to create a diverse under-storey beneath existing and newly planted trees and hedgerows.

6.6 Other potential enhancement measures include the provision of wildlife refuge features such as areas with log and stone coverhouses, bat boxes and bird nest boxes. As well as nesting boxes, incorporation of breeding ledges or fixing of artificial nests to new buildings, to attract swallows, house martins and swifts is also recommended (Appendix C).

6.7 Green trellising could be installed on to new buildings to provide foraging and nesting for birds and invertebrates.

7.0 REFERENCES & FURTHER READING

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APPENDIX A:
Desktop Information

Site Check Report

Report generated on August 2 2010.

You clicked on the point:
Grid Ref: SE359121
Full Grid Ref: 435900 , 412100

The following features have been found within 2,000 metres of your search point:

Counties, Metropolitan Districts and Unitary Authorities (GB)

Geographic Level	Name
METROPOLITAN DISTRICT	BARNSLEY
METROPOLITAN DISTRICT	WAKEFIELD

NUTS1 - Government Office Regions (GB)

Hotlink	Name	Reference
http://www.statistics.gov.uk/geography/nuts_york_hum.asp	YORKSHIRE AND THE HUMBER	UKE

Local Nature Reserves (England)

Name	Reference
CHEVET BRANCH LINE	1008837
NOTTON WOOD	1009053

National Nature Reserves (England)

There are no features within your search area.

Special Protection Areas (England)

There are no features within your search area.

Special Areas of Conservation (England)

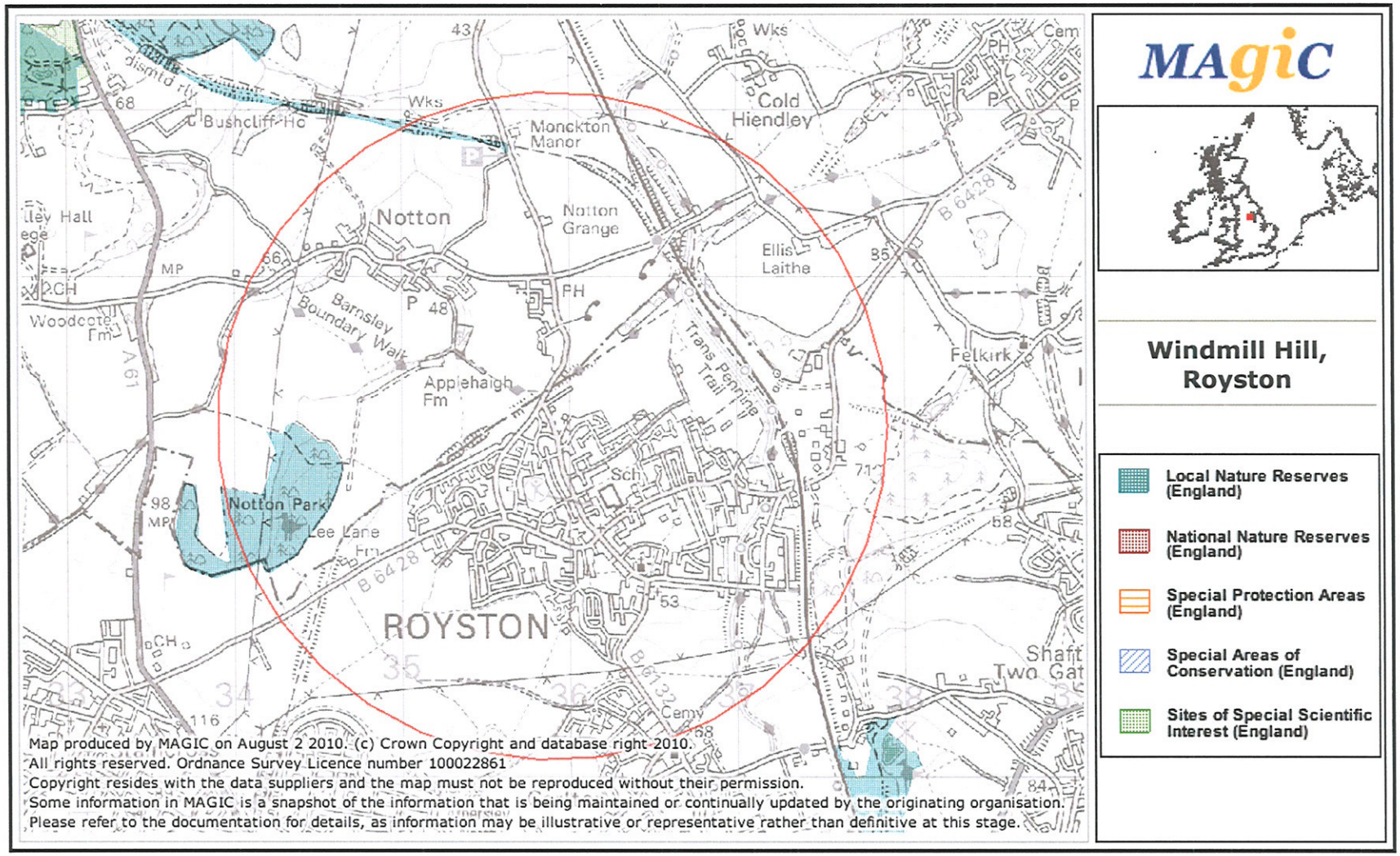
There are no features within your search area.

Sites of Special Scientific Interest (England)

There are no features within your search area.

To save the report, select "Save" or "Save As" from the File menu. You should save the file with a **.html** extension and give it a name of your choice. You can then open your report using your web browser software.

Print Report | Close Window


MAgiC
Windmill Hill, Royston
Local Nature Reserves (England)
National Nature Reserves (England)
Special Protection Areas (England)
Special Areas of Conservation (England)
Sites of Special Scientific Interest (England)
Notton
Notton Park
ROYSTON
Cold Hiendley
Monckton Manor
Notton Grange
Ellis Laithe
Felkirk
Barnsley Boundary Walk
Applehaigh Fm
Trans Pennine Trail
Lee Lane Fm
Woodcote Fm
Bushcliff Ho
Shaft Two Gat
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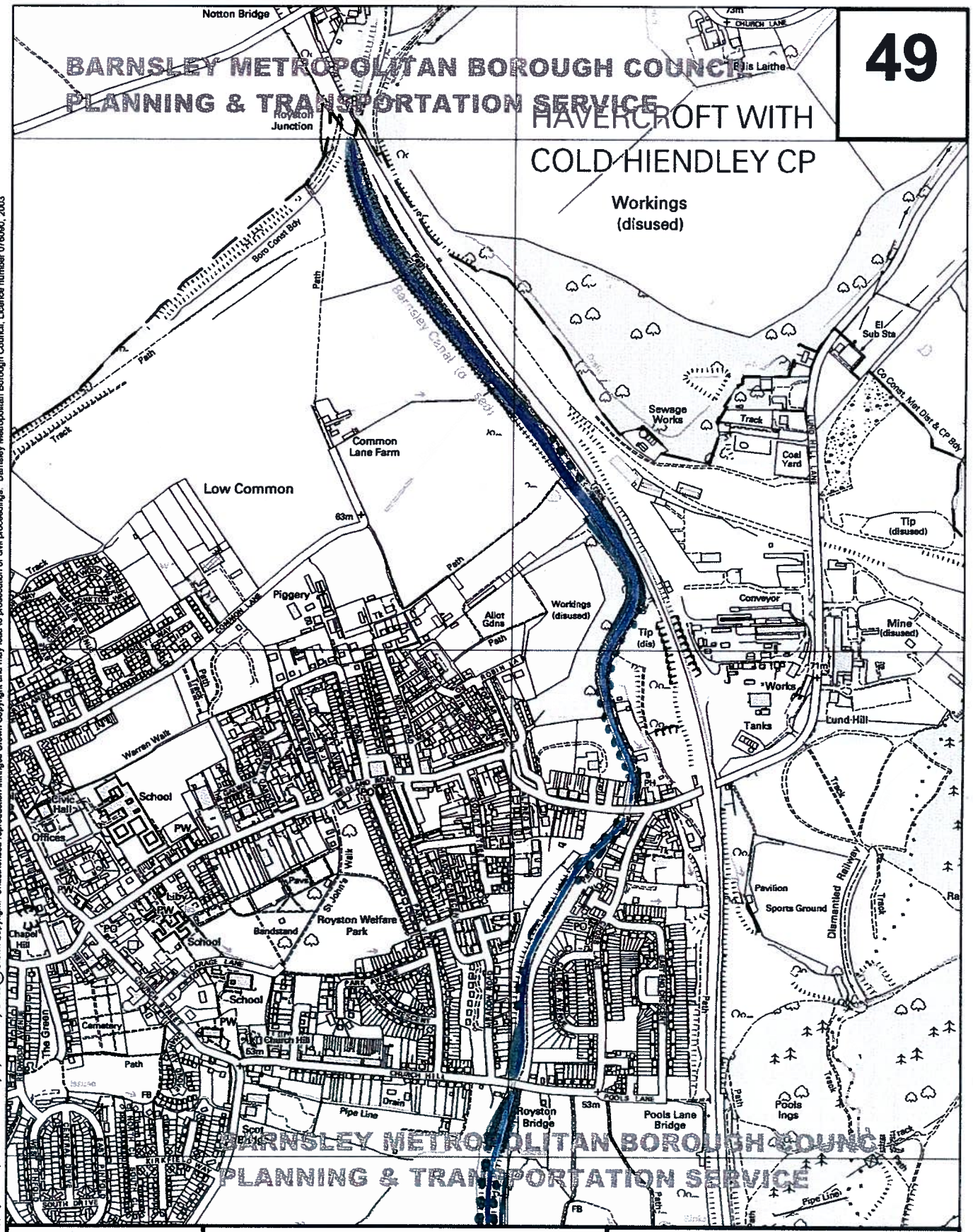

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NORTH

metres
0 100 200

Natural Heritage Sites

49 - Barnsley Canal Map 1 of 2

BARNSLEY
Metropolitan Borough Council

Planning and Transportation Service
Assistant Director: Ruth Middleton, BA(Hons), DipSurv, MRTPI
Central Offices, Kendray Street, Barnsley. S70 2TN
Tel: (01226) 770770 Fax: (01226) 772599

Scale 1 : 10,000	OS Sheet: SE31	Date - May 2003

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NORTH

metres
0 100 200

Natural Heritage Sites

49 - Barnsley Canal Map 2 of 2

BARNSLEY
Metropolitan Borough Council

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Assistant Director: Ruth Middleton, BA(Hons), DipSurv, MRTPI
Central Offices, Kendray Street, Barnsley. S70 2TN
Tel: (01226) 770770 Fax: (01226) 772599

Scale 1 : 10,000 | **OS Sheet:** SE31 | **Date - May 2003**

Site Name: Barnsley Canal Parish:

Grid Reference: SE 370125 Area: 4.2 ha

SITE DESCRIPTION

The disused Barnsley Canal passes through the east of Royston at an altitude of 51 m AOD and forms a contiguous site with the Barnsley Canal in Wakefield. The district boundary follows the canal in the northern part of the site.

At the time of the 1990/1 survey the water in the northern stretch of canal was almost completely covered with common duckweed (Lemna minor) with some ivy-leaved duckweed (L. trisulca). The canal banks are steep and covered with low trees and shrubs with some large white willow (Salix alba) beside the canal. The marginal vegetation at the edge of the canal contains reed (Phragmites australis) and occasional bur-reed (Sparganium species). At the bridge reed and rose-bay willow-herb (Chamerion angustifolium) are dominant. A dense stand of reed sweet-grass (Glyceria maxima) now chokes the canal to the north of the Midland Road bridge (March 2003).

There is a dense, extensive bed of reed south of the bridge. This area may dry out in summer but it was noted as having water in March 2003. South of the reed is open water with common duckweed and a fringing vegetation of reed. There is an area of dense trees of white willow, elder (Sambucus nigra) and hawthorn (Crataegus monogyna) on the canal banks north of the road.

The next stretch of canal is dry with much reed and trees of white poplar (Populus alba), hawthorn, field maple (Acer campestre) and goat willow (Salix caprea) on the banks. Great reedmace (Typha latifolia) occurs as the canal gets wetter to the south. There is much reed again further south. Trees of black poplar (Populus nigra), birch (Betula species) and elder and blackthorn (Prunus spinosa) are found on the canal banks.

A total cover of reed extends some way along the stretch south of Royston Bridge. There are bankside trees of hawthorn, ash and sycamore (Acer pseudoplatanus). Occasional stands of great reedmace are found in the canal. Further south the open water has a total cover of common duckweed with marginal vegetation of great reedmace and reed. Where the disused railway crosses the canal the water is more open with little emergent vegetation and occasional large white willow on the banks.

The southernmost section starts with some cover of common duckweed. The fringing vegetation consist of bur-reeds with bittersweet (Solanum dulcamara) and occasional great reedmace. Horsetail (Equisetum species) is found on the banks with a variety of tree species. Where the canal bends eastwards, abundant ivy-leaved duckweed and false fox sedge (Carex otrubae) were found in 1990/1. The southern end of the site has a total cover of common duckweed and reed with white willow, as the canal becomes dry near the road. The canal also supports whorled water-milfoil (Myriphyllum verticillatum), a nationally scarce plant.

SITE EVALUATION

Criteria

Size: The site extends to approximately 3km of disused canal. The boundary of the site is the towpath or footpath on the eastern side ans the top of the opposite bank of the canal on the other side. The canal north of this site is proposed as a Site of Ecological and Geological Interest (SEGI).

Diversity: The site shows a diversity of wetland habitats including open water and swamp of Phragmites australis.

Naturalness: The canal is man-made, but the vegetation communities within it are semi-natural.

Rarity: Myriphyllum verticillatum is a nationally scarce plant occurring in 106 10 x 10 km squares in Great Britain (*British Atlas of the British Isles*, 2002).

Fragility: The site is vulnerable to natural succession and drying out, pollution from adjacent land uses, such as run-off from agricultural land and dumping of rubbish. The canal is no longer managed as a viable waterway.

Typicalness: The canal contains some typical canal flora such as the fringing vegetation and Myriophyllum verticillatum. The stands of Phragmites australis are a typical single species swamp habitat.

Evaluation of important features

Site Feature		Importance		
1.	Habitat type	District		
	Standing water	High		
	Swamp	High		
2.	Species	National	County	District
	Myriophyllum verticillatum	High*		

* Presence confirmed by survey in 1998.

Existing site designations: Adjoins SEGI.

Site justifications: The Barnsley Canal is split into five discrete sections in this site. The canal contains a typical variety of wetland plants and large areas of Phragmites swamp. The nationally scarce plant Myriophyllum verticillatum grows here in some abundance.

Barnsley Biodiversity Action Plan
HAP 13 Reedbeds
HAP 14 Ponds and Canals

SITE MANAGEMENT

Management objective:
To maintain the open water habitats of the canal.

Initial Management:
Control of reed sweet-grass is required in order to prevent the loss of open water.

Ongoing management:
Consider programme of dredging in some drier areas of the canal presently dominated by reed, to provide more areas of open water to encourage growth of aquatic plants.
Continue to monitor location, abundance and state of health of Myriphyllum verticillatum an carry out appropriate management to ensure its survival and to encourage it to spread to other areas of the canal. If the population is large enough consider transplantation to other stretches of the site where conditions are suitable.

Constraints:
Water pollution has been a problem especially in the northern section of canal. Consider carrying out water quality tests on each section to identify where there may be problems with water pollution. This is particularly important in the Myriophyllum verticillatum area.

Opportunities:
Opportunity for liaison with canal conservation group over future management.

SITE CONSTRAINTS AND OPPORTUNITIES

Constraints:

Opportunities:
Attractive linear habitat in an urban area so good opportunity for publicising NHS and providing interpretation for local people. Access easy for public. Ideal site for school use.

REVIEW OF BARNSLEY NHS SITES - FEBRUARY/MARCH 2003

Barnsley Canal

1. Site Boundaries
The site boundaries, as shown on the 1990 Survey Map, were identified as being correct.

2. Main Habitat Components
The main habitat compartments shown on the 1990 Survey Map were identified as being correct with exception of 3) below.

3. Habitat Change/Loss
Since the 1990 survey Glyceria maxima has taken hold and has filled the whole width of the canal to the north of the Midland Road bridge.

4. Notable/Rare Species
The species for which the site is noted, Myriophyllum verticilatum was not evident at the time of the March 2003 survey. Ice covered the water's surface.

5. Potential Threats
Large amounts of rubbish and litter have been thrown into the canal, especially where it is close to housing.

Key for habitat maps

Woodland and Scrub

- Broad-leaved woodland, semi-natural
- Broad-leaved woodland, plantation
- Coniferous woodland, plantation
- Mixed woodland, plantation
- Scrub, dense/continuous
- Scrub, scattered
- Parkland/scattered trees, deciduous
- Parkland/scattered trees, coniferous

Grassland and Marsh

- Acidic grassland, unimproved
- Acidic grassland, semi-improved
- Neutral grassland, unimproved
- Neutral grassland, semi-improved
- Improved grassland
- Marsh/marshy grassland

Tall herb and Fen

- Bracken, continuous
- Bracken, scattered

Heathland

- Dry dwarf shrub heath, acidic
- Dry heath/acidic grassland mosaic

Mire, Flush and Spring

Sphagnum bog, blanket bog

BM Basin mire

VM Valley mire

Acidic flush

Swamp, Marginal and Inundation

Swamp, single-species dominant

Swamp, tall

Inundation

Open water

Standing water

Running water

Rock exposure

C Cave

Rock exposure, acidic

Q Quarry

S Spoil

M Mine

R Rubbish tip

Miscellaneous

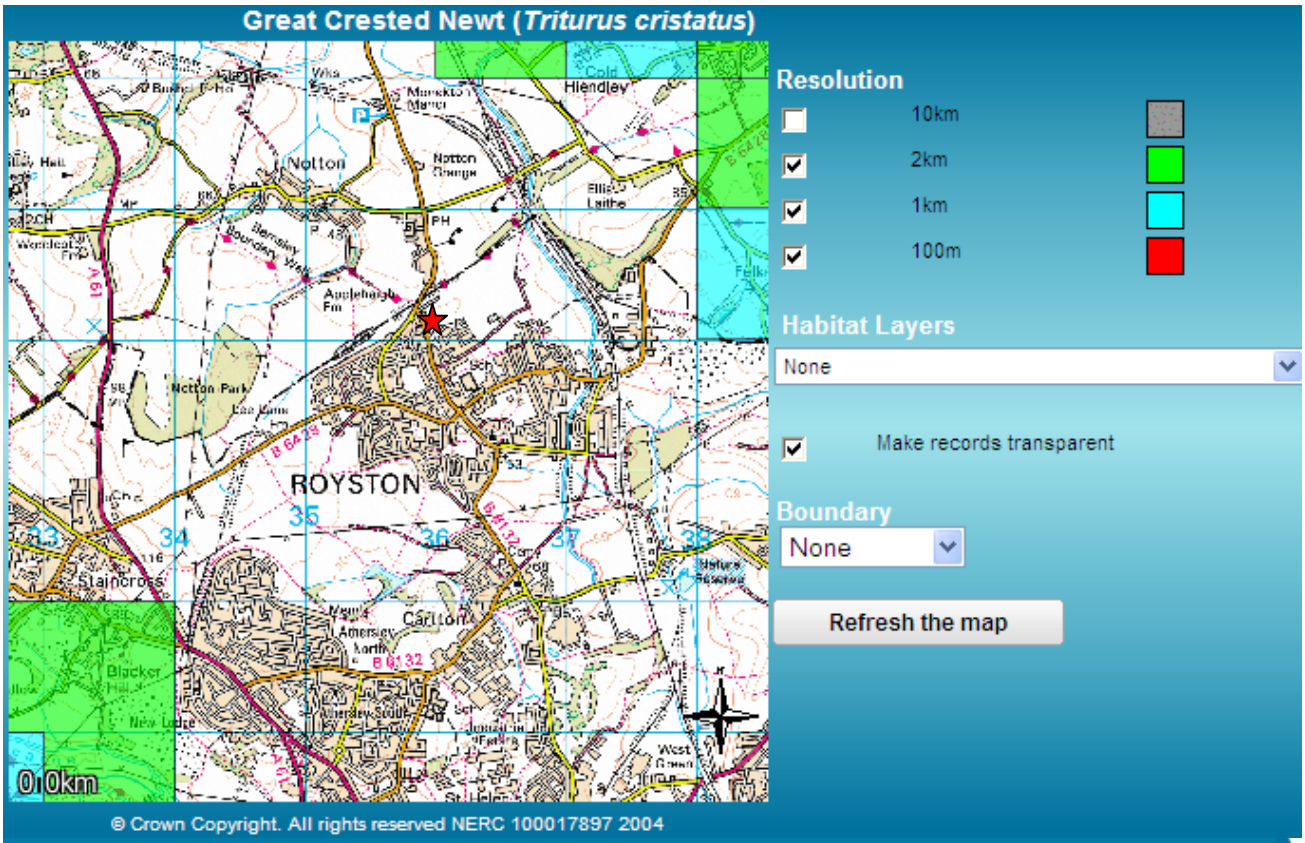
- Arable land
- Ephemeral/short perennial
- Intact hedge
- Native species-rich hedge
- Defunct hedge
- Fence
- Wall
- Permanently-flooded ditch
- Seasonally-wet ditch
- Buildings
- Bare ground
- Boundary between habitats where no boundary is marked on the map
- Boundary removed

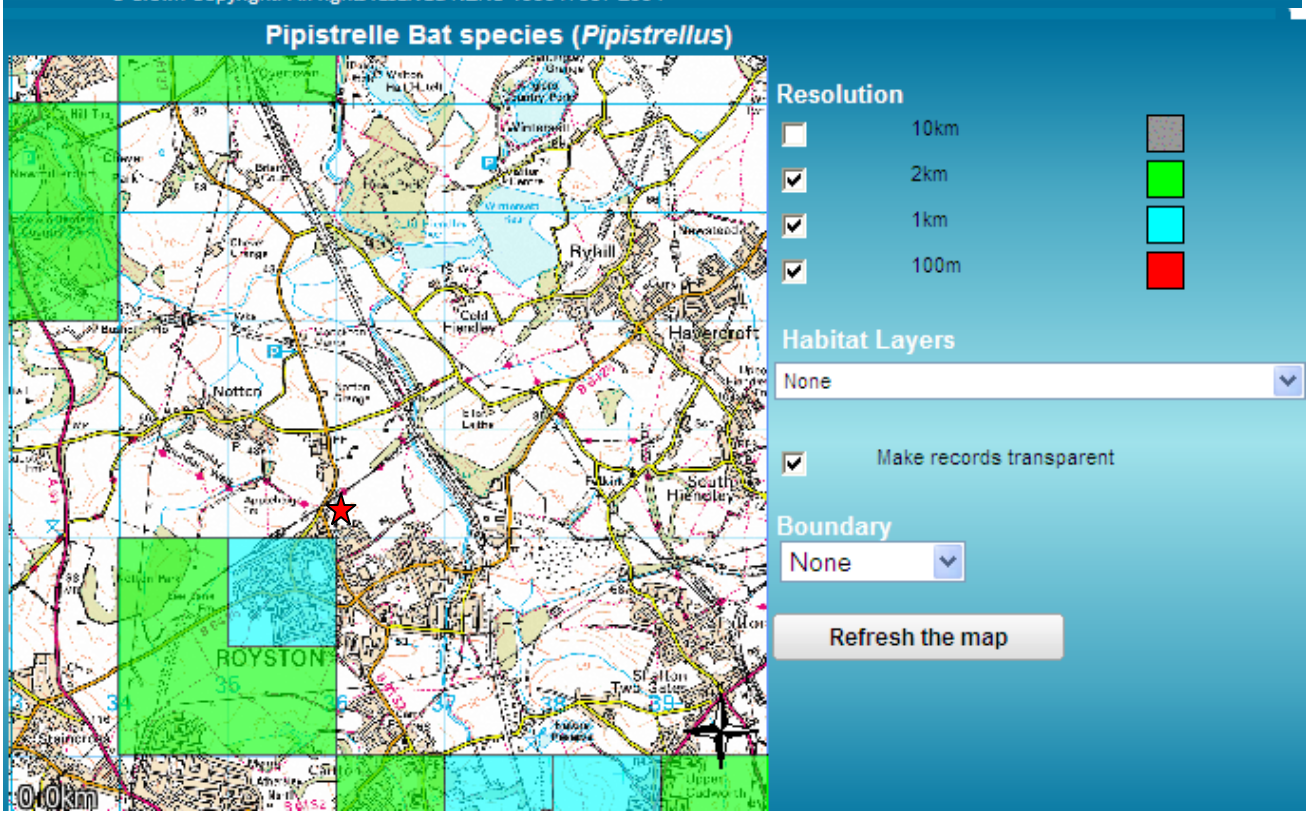
Information for West Yorkshire Ecology

G□i□ Re□	**C□□ □ □□ N□□ e**	**L□i□ N□□ e**	**□□e**	**Rec□□□ Type**	**A□□□□□□ce**	**L□c□i□□ N□□ e**	**S□□□ey**
SE354118	Pipistrelle Bat species	Pipistrellus sp.	2000	Roost		6 Cedar Close, Royston, Barnsley, S71 4JF	Natural England Response Letters to Bat Surveys and Enquiries
SE350125	Wall	Lasiommata megera	17/08/1995	field record	6 Count of Adu	Applehaigh	Butterflies of Wakefield Metropolitan District 1995-1999
SE352117	Vesper Bat species	Vespertilionidae	22/07/2002	Roost		Barnsley, Firham Close	West Yorkshire, English Nature Bat Cases, 2002

NBN data

★ = site





Myotis Bat species (*Myotis*)

Resolution

- [ ] 10km
- [x] 2km
- [x] 1km
- [x] 100m

Habitat Layers

None

[x] Make records transparent

Boundary

None

Refresh the map

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Brown Long-eared Bat (*Plecotus auritus*)

Resolution

- [ ] 10km
- [x] 2km
- [x] 1km
- [x] 100m

Habitat Layers

None

[x] Make records transparent

Boundary

None

Refresh the map

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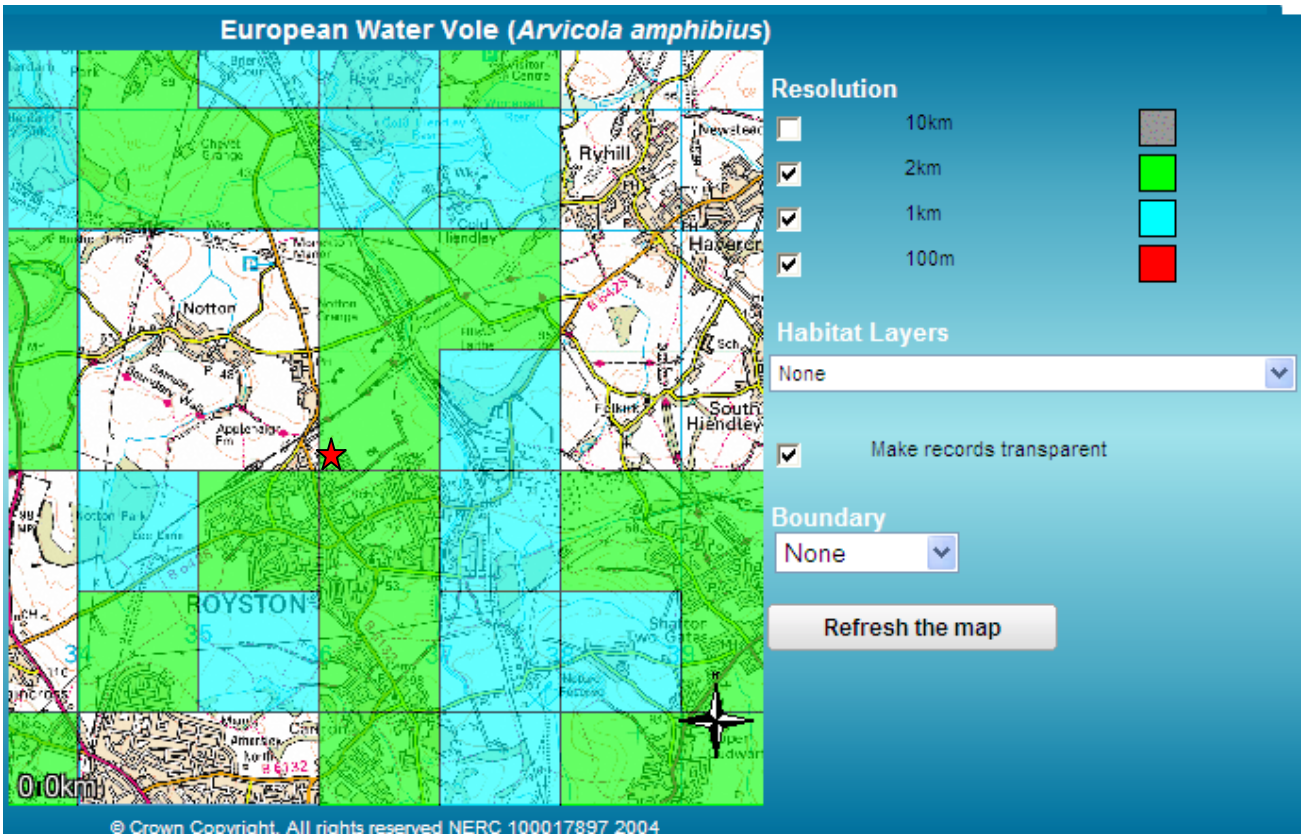
European Water Vole (*Arvicola amphibius*)
Resolution
10km
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100m
Habitat Layers
None
Make records transparent
Boundary
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ROYSTON
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Eurasian Badger (*Meles meles*)
Resolution
10km
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ROYSTON
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Staincross
Carlton
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APPENDIX B:
Phase 1 Habitat Survey Form

PHASE 1 HABITAT SURVEY

General Details:

Site Name	**Windmill Hill, Royston**		
Job Number	2536	Doc. Ref	**2536.001**
Site Location	Off Station Road, Royston, Barnsley		
Date(s)	04/08/10		
Surveyor(s)	Val Gateley AIEEM		
Weather	Dry and cool		
Seasonal Constraints	The survey was carried out in accordance with the assessment methods set out in JNCC 2007 and gives an overview of key habitats and wildlife corridors.		
Methods	JNCC Phase 1 Habitat Survey		
Drawing Ref:	D2536.001		

	Written	Checked	Authorised
Initial	SMC	VG/RAH	RAH

Survey Results:

Habitat Type

Scrub

There is some scattered damson (*Prunus domestica*), bramble (*Rubus fruticosus*) and hawthorn (*Crataegus monogyna*) scrub within the site, mainly associated with the western site boundary.

There are six large patches of dense scrub within the, mainly along the western and southern boundaries. Species include raspberry (*Rubus idaeus*), bramble, broom (*Cytisus scoparius*) and damson.

The large patch of damson in the south west of the site which appears to be the remnants of a former garden. It is associated with a short hedgerow along the western boundary which is also dominated by damson.

Habitat Type

Scattered trees

There are a number of scattered trees located within the site, mainly young trees comprising sycamore (*Acer pseudoplatanus*), silver birch (*Betula pendula*), ash (*Fraxinus excelsior*), apple (*Malus domestica*) and oak (*Quercus robur.*). There is one mature sycamore tree located along the western boundary of the site.

Habitat Type

Acid grassland

There is one area within the site which is colonised with acid grassland. The habitat contains an abundance of mat grass (*Nardus stricta*) with frequent common bent (*Agrostis capillaris*) and wavy hair-grass (*Deschampsia flexuosa*).

Acid grassland is a UKBAP priority habitat and it is listed on the Barnsley BAP as a local priority habitat.

Species list

Nardus stricta	A
Festuca rubra	F
Deschampsia flexuosa	F
Agrostis capillaris	F
Plantago lanceolata	O
Hieracium sp.	O
Cotoneaster	O
Hypochaeris radiator	O
Lonicera sp.	O
Arrhenatherum elatius	O
Gaultheria mucronata	O
Knauha arvensis	R

Habitat Type

Modified neutral grassland

Modified neutral grassland forms the predominant grassland habitat on site. The grassland is not regularly managed for agricultural or amenity purposes, but includes a range of rank grassland species of neutral origin not derived from agricultural swards. Species occurring in these areas include Yorkshire fog (*Holcus lanatus*), annual meadow-grass (*Poa annua*), false oat-grass (*Arrhenatherum elatius*) and common bent.

Species list

Holcus lanatus	A
Arrhenatherum elatius	A
Agrostis capillaris	F
Plantago lanceolata	F
Trifolium repens	F
Trifolium pratense	O
Chamerion angustifolium	O
Senecio jacobaea	O
Poa annua	O
Hieracium sp.	R
Odontites verna	R
Rumex acetosa	R
Trifolium sp.	R

Habitat Type

Continuous bracken

The predominant habitat on site comprises dense bracken (*Pteridium aquilinum*), there is a large area central to the site, extending along the eastern boundary and up to the north of the site.

Habitat Type

Tall ruderal herbs

There are three stands of tall ruderal herb within the site, all of which are associated with the site boundaries and dominated by rosebay willowherb (*Chamerion angustifolium*).

Habitat Type

Dry heath/acid grassland mosaic

There is a small area of mosaic habitat on the western boundary of the site

containing acidic grassland species and heather (*Calluna vulgaris*).

Lowland heathland and acid grassland are listed on the Barnsley BAP and UKBAP as priority habitats.

Species list

Calluna vulgaris	A
Festuca rubra	A
Agrostis capillaris	F
Plantago lanceolata	O
Hypochaeris radiator	O

Habitat Type

Species-poor hedge

There are two short lengths of species-poor intact hedge, one located on the western boundary of the site which contains damson and the other running up the centre of the site containing hawthorn (*Crataegus monogyna*), elder (*Sambucus nigra*) and field maple (*Acer campestre*).

Native hedgerows (i.e. hawthorn) are listed on the Barnsley BAP and UKBAP as priority habitats.

Protected Species

No evidence of protected species was identified during the survey.

The trees within the site did not have characteristics suitable to support roosting bats.

The trees and scrub that are present within the site provide habitat suitable for nesting birds.

There are no waterbodies on site suitable for supporting breeding amphibians, otter or water vole. The closest waterbodies are located over 950m east of the site, associated with Common Lane Farm and the Trans Pennine Trail.

The site provides good potential for reptiles to forage and refuge and it is connected to the wider landscape.

Summary:

The native hawthorn hedge, acid grassland and dry heath/acid grassland mosaic habitats within the site are local BAP and UKBAP priority habitats. BAP habitats should be retained and protected as far as possible within the development proposals.

Nesting birds are protected under the *Wildlife and Countryside Act 1981 (as amended)*. There is no provision under the licensing system for disturbance/destruction of nests to facilitate development.

Trees and scrub within the site provide nesting bird habitat. Any removal of these habitats should be undertaken outside of the nesting bird season (March-August).

If vegetation removal is required during the nesting season an inspection by an ecologist will be required immediately prior to the removal work to ensure that no active bird nests are affected.

It is recommended that a reptile presence/absence survey is undertaken at the site.

APPENDIX C:
Examples of habitat enhancement measures for bats and birds

BAT BOXES TO INSTALL INTO / ON TO BUILDINGS & BUILT STRUCTURES

These bat boxes are designed to be built into buildings, or underneath bridges, arches or tunnels, where conditions are relatively humid. There are particularly useful for incorporating into new buildings or bridges to attract bats or to provide new roost sites where existing buildings with bats are being renovated.

Schwegler N27

This box should be cemented into a wall. It contains a single internal wooden panel which simulates a crevice. The removable front panel allows for easy cleaning. *No painting is required, but if it is necessary, a natural breathable paint should be used*
Woodcrete (75% wood sawdust, concrete and clay mixture)
Width 18cm, Height 29cm, Depth 23.5cm

Schwegler 1FR Bat Tube

This long box can be installed within brick masonry, beneath plasterwork or wood panelling, or incorporated into concrete structures such as factory buildings or bridges. Inside it contains a woodcrete surface, a roughened wood board, and a metal mesh, providing a choice of roosting areas depending on the weather conditions and the bats' habits. This box is maintenance-free as the entrance slit is at the bottom, allowing for self cleaning. No painting required, but if painting is necessary a natural breathable paint should be used

Woodcrete (75% wood sawdust, concrete and clay mixture)
Width 20cm, Height 47.5cm, Depth 12.5cm
Entrance width 15cm, Entrance depth 2cm

Schwegler 2FR Bat Tube

The same design as the 1FR but with holes in the sides. This allows multiple tubes to be placed next to each other to form a much larger bat roost.
These boxes are maintenance-free as the entrance slit is at the bottom. No painting required, but if painting is necessary a natural breathable paint should be used.

Woodcrete (75% wood sawdust, concrete and clay mixture)
Width: 20cm, Height: 47cm, Depth: 12.5cm, Weight: 13kg
Entrance Width: 15cm, Entrance Depth: 2cm

Norfolk Bat Brick

A handmade brick which can be used to replace an existing brick or incorporated into new structures. Ideal for sheltered sites such as under bridges, in tunnels, or even in mines and caves. The slits are the perfect size for Daubentons', Natterers, Long-eared, and Brandts' bats. The bat brick should not be painted.
These bat bricks are only available directly from the Norfolk Bat Group. Contact John Goldsmith 01508 550 784 for orders. Delivery time may be several weeks

Ibstock - Enclosed Bat Box B

- **Designed specifically for the pipistrelle bat**
- **Available in all brick types**
- **Discrete home for bats**
- **Various sizes**
- **Several roosting zones are created inside the box**
- **Bats are contained within the bat box itself**
- **Maintenance free with entrance at the base**
- **Ideal for new build & conservation work**

215mm x 215mm or 215mm x 290mm
F2 S2 Fully frost resistant

Ibstock - Bat Box with Engraved Motif C

- **Attractive motive**
- **Available in all brick types**
- **Discrete home for bats**
- **Various sizes**
- **Several roosting zones are created inside the box**
- **Bats are contained within the bat box itself**
- **Maintenance free with entrance at the base**
- **Ideal for new build & conservation work**

215mm x 215mm or 215mm x 290mm
F2 S2 Fully frost resistant

Schwegler Bat Access Panel

This is a maintenance free access panel, designed to allow bats entry through exterior walls. The rear of the panel is left open so bats can pass through into existing bat roosts. The bat panel is particularly useful when renovation or conversion work is taking place in buildings containing bat roosts, where continued access to established bat roosts is desirable. No painting is required, but if painting is necessary a natural breathable paint should be used.

Material: Woodcrete (75% wood sawdust, concrete and clay mixture)
Width: 30cm, Height: 30cm, Depth: 8cm, Weight: 7.8kg

Back Plate for 1FE Bat Panel

If access to an existing nesting site is not required, the 1FE can be fitted with an optional Back Plate, which includes an attached wooden panel to create a cavity wall inside the box .The roughened surfaces of the Plate, and the inside of the 1FE itself, are very attractive to bats. Installation of the complete box is easy. For example, it can be screwed to a wall or fixed within insulation.

Material: Woodcrete (75% wood sawdust, concrete and clay mixture)
Weight: 2.2kg

Schwegler 1FQ Bat Box
An attractive box designed specifically to be fitted on the external wall of a house, barn or other building. Equally appealing to bats as a roost or a nursery, it features a special porous coating to help maintain the ideal temperature inside as well as a roughened front panel to enable the bats to land securely. Access into the box is via a step-like recess.
Inside the box, rough pieces of wood are incorporated into the back of the box which are good insulators and are used by the bats as perches. The internal layout offers three different areas with varying degrees of brightness and temperature.
This durable box is easy to attach to most walls, requires no maintenance or cleaning and will last for decades. Please note that this box is designed to be fitted to a wall. Due to the weight it is unsuitable for fences or sheds.

Woodcrete (75% wood sawdust, concrete and clay mixture)
Height 565mm; Width 350mm, Depth 85mm, Weight 13kg

Schwegler 1FF Bat Box
The rectangular shape makes the 1FF suitable for attaching to the sides of buildings or in sites such as bridges, though it may also be used on trees. It has a narrow crevice-like internal space to attract pipistrelle and noctule bats.

Woodcrete (75% wood sawdust, concrete and clay mixture)
Width 27cm
Height 43cm

BAT BOXES FOR SITE ON TREES

Schwegler 2F Bat Box
A popular general purpose box attractive to the smaller British bats. A simple design with a narrow entrance slit on the front.

Woodcrete (75% wood sawdust, concrete and clay mixture)
Diameter 16cm
Height 33cm

Schwegler 2F-DFP Bat Box
A general purpose box attractive to the smaller British bats, with a roughened wooden panel inside the box which simulates a crevice.
This box is favoured by Daubenton's bat and Nathusius' pipistrelle.

Woodcrete (75% wood sawdust, concrete and clay mixture)
Diameter 16cm
Height 33cm

Schwegler 2FN Bat Box
A larger box with both a wide access slit at the base and an access hole on the underside. Suitable for the larger British bat species. Particularly successful in attracting noctule and Bechstein's bats.

Woodcrete (75% wood sawdust, concrete and clay mixture)
Diameter 16cm
Height 36cm

Schwegler 1FD Bat Box
A large general purpose bat box, with two roughened wood panels inside the box which simulate crevices.

Woodcrete (75% wood sawdust, concrete and clay mixture)
Diameter 16cm, Height 36cm

Schwegler 1FF Bat Box
The rectangular shape makes the 1FF suitable for attaching to the sides of buildings or in sites such as bridges, though it may also be used on trees. It has a narrow crevice-like internal space to attract pipistrelle and noctule bats.

Woodcrete (75% wood sawdust, concrete and clay mixture)
Width 27cm
Height 43cm

Schwegler 1FS Bat Box
A larger capacity general purpose bat box.

Woodcrete (75% wood sawdust, concrete and clay mixture)
Diameter 28cm, Height 44cm, Weight 10kg

Schwegler 1FW Hibernation Box
This monster box is designed to provide a protected environment, particularly through the cold winter months when bats hibernate. It has three internal wooden panels imitating crevices. ***Supplied with special fixing brackets. It is important to fit this heavy box very securely if mounting above the ground, and to site it well away from public areas.***

Woodcrete (75% wood sawdust, concrete and clay mixture)
Diameter 38cm, Height 50cm, Weight 30kg

BIRDS DEPENDENT UPON BUILDINGS

BIRD BOX SPECIFICATIONS

Supplier:

Alana Ecology
The Old Primary School
Church Street
Bishop's Castle
Shropshire
SY9 5AE

Tel: +44 (0)1588 630173
Fax: +44 (0)1588 630176
Email: sales@alanaecology.com

Schwegler boxes have the highest occupation rates of all box types. They are carefully designed to mimic natural nest sites and provide a stable environment for chick rearing and winter roosting. They can be expected to last 25 years or more without maintenance

BOXES TO FIT UNDER EAVES

Sparrow Terrace, Stone Colour House sparrows are gregarious and prefer to nest close to each other, so this woodcrete box provides room for three families under one roof. Made from long-lasting, breathable woodcrete. Stone colour. No maintenance required. Dimensions 245 x 430 x 200 mm. Weight 13kg. Designed for fixing to walls (not suitable for fences or sheds due to the weight of the box). A02085 Sparrow Terrace, Stone Colour (also available in brown)	 .
Schwegler 9A House Martin Double Nest These woodcrete nests are durable and ready for immediate use when birds return each summer. Easily fixed under the eaves on the outside walls of buildings, at least 2 metres from the ground. The backing board may be painted to match the building. Model 9A is a double unit with two nests mounted side by side on a backing board, as shown. Model 9B is similar to the 9A above but with one single nest A02018 Schwegler 9A House Martin Double Nest A02019 Schwegler 9B Single House Martin Nest	
Schwegler No 10 Swallow Box This box should be located inside buildings such as barns, stables, sheds or outhouses, ensuring there is always access for the birds through a window or opening. A02020 Schwegler No 10 Swallow Box	

Droppings Board To avoid problems with bird droppings from house martin or swallow nests, this board can be installed where necessary, for example over a window or door. A02021 Droppings Board	

Schwegler No 16 IMF Swift Box, Double Chamber **The design of this box mimics bell tower louvres. It has two removable panels for easy inspection of the two nest chambers. Designed for fixing on or within walls (not suitable for fences or sheds). Dimensions 460mm h x 430mm w x 225mm d** **A02088 Schwegler No 16 IMF Swift Box, Double Chamber** Schwegler No 16 Swift Box, Single Chamber **Similar to the box above but with a single chamber and single front panel. Dimensions 240mm h x 430mm w x 225mm d.** **A02087 Schwegler No 16 Swift Box, Single Chamber**	
Nest Mould for No 16 Swift Boxes This nest mould fits inside the nest chamber of the No16 or No16 IMF boxes above, to encourage nesting. Research shows that the birds are more likely to nest if a nest mould is used. A02089 Nest Mould for No 16 Swift Boxes	
Schwegler No 17 Swift Box This box is constructed from plant-fibre based material. It should be sited 6-7m above the ground, near the roof of a building or on a steep rock face. Interior dimensions 14 x 14 cm. Outer length 34cm A02041 Schwegler No 17 Swift Box	
Schwegler No 18 Swift Box This nest box is suitable for fixing high under the eaves or under the guttering of a building. Woodcrete on board backing. Interior dimensions 14 x 34 x 15 cm. Exterior dimensions 19 x 50 x 22 cm A02041A Schwegler No 18 Swift Box	
Schwegler N24 Nest Brick **Designed for installation into the fabric of a building, this box is suitable for tits and redstart etc. Woodcrete. Weight 7.3kg** **Entrance hole 32mm Dimensions 180w x 180d x 240h mm** **A02043 Schwegler N24 Nest Brick**	

Schweger N25 Nest Brick **Designed for installation into the fabric of a building, this box is suitable for swifts. Woodcrete Weight 8.8kg** **Entrance hole 55x33mm. Dimensions 260w x 220d x 180h mm** **A02044 Schwegler N25 Nest Brick**	
Schwegler N26 Nest Brick **Designed for installation into the fabric of a building, this box is suitable for** pied wagtail, spotted flycatcher and black redstart **etc. Woodcrete. Weight 5.4kg** **Entrance hole 110mm Dimensions 180w x 180d x 200h mm** **A02045 Schwegler N26 Nest Brick**	

BOXES TO FIT FENCES, WALLS and TREES

Schwegler 1B Bird Box, natural brown The most popular box for garden birds, the 1B appeals to a wide range of species, and is the official nest box of National Nest Box Week. The box can be nailed to the trunk of a tree, or hung from a branch. Schwegler boxes have the highest occupation rates of all box types. They are carefully designed to mimic natural nest sites and provide a stable environment for chick rearing and winter roosting. They can be expected to last 25 years or more without maintenance. Woodcrete, 23cm high x 16cm diameter. With standard 32mm diameter entrance hole	 .
The Bird House A decorative yet practical nest box designed for fixing to a tree trunk, wall or fence using the bracket on the back. It will attract similar species to the standard 1B box. Robust and durable Schwegler woodcrete construction A02084 The Bird House	

Gable Nest Box A substantial wooden bird box with a gable roof and 28mm entrance hole. Made of 15mm thick softwood, external dimensions 14.5cm x 14.5cm x 26cm high (to top of gable). Suitable for the smaller garden birds. A03008 Gable Nest Box	
Wooden Bird Box, A simple wooden bird box with sloping roof, suitable for the smaller garden birds. Made from substantial 2cm thick softwood. 14cm w x 18cm d x 26cm h (backplate 33.5cm h). The standard model has a 32mm diameter entrance hole attractive to a wide range of smaller garden birds. A03004 Wooden Bird Box	
Roosting Pockets. These attractive roosting/nest pockets can be used by wild birds in autumn, winter and spring. The birds can save energy during the colder months by roosting in a sheltered place. These pockets also provide a warm nesting place in the spring for smaller birds such as wrens. Made from natural materials. The pockets have a wire at the back to fix onto a branch, or they can be stapled or nailed to a fence or trellis with plant cover. Pack of 3 assorted roost pockets (styles may vary). A02090 Roosting Pockets	

DRAWINGS

Key

- Site boundary
- Dense scrub
- Scattered scrub
- Scattered broad-leaved trees
- Acid grassland
- MG Modified neutral grassland
- Continuous bracken
- Tall ruderal herbs
- Dry heath/acid grassland mosaic
- Species-poor intact hedge

Species

Ac	Field maple	Cys	Broom
Bpe	Silver birch	Fe	Ash
Cha	Rosebay willowherb	Pru.	Damson
Cv	Heather	Qr	Oak
Cm	Hawthorn	Rid	Raspberry
		Rf	Bramble

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INSERT CLIENTS OR MAP SOURCE OS LICENCE NUMBER IF USING OS BASE MAPS

Rev	Description	Drawn	Approved	Date

TEP
Genesis Centre
Birchwood Science Park Warrington
WA3 7BH
Tel 01925 844004
Fax 01925 844002
e-mail tep@tep.uk.com

Project

Windmill Hill, Royston

Title

Phase 1 Habitat Survey 2010

Drwg No D2536.001

Scale Not to scale

Date 09/08/10

Drawn SMC

Checked VG

Approved EJS