Solihull Metropolitan Borough Council Additional Site Options Ecological Assessment:

Habitat Biodiversity Audit Partnership for Warwickshire, Coventry and Solihull

Warwickshire Wildlife Trust

Ecological Services Warwickshire County Council

January 2017

Contents

INTRODUCTION

SOLIHULL METROPOLITAN BOROUGH LOCAL PLAN

Solihull Metropolitan Borough commissioned the Habitat Biodiversity Audit (HBA) and Warwickshire Biological Records Centre (WBRC) to assess the ecological implications of the additional sites requirement for the current Solihull Metropolitan Borough Local Plan.
This report assesses nineteen additional sites identified by SMBC and refers to the changes to national planning guidance as set out in the National Planning Policy Framework (NPPF) (Communities and Local Government, 2012).

SUSTAINABLE DEVELOPMENT

The National Planning Policy Framework (NPPF) promotes three dimensions to sustainable development: economic, social and environmental. These dimensions give rise to the need for the planning system to perform a number of roles:

- **an economic role** – contributing to building a strong, responsive and competitive economy, by ensuring that sufficient land of the right type is available in the right places and at the right time to support growth and innovation; and by identifying and coordinating development requirements, including the provision of infrastructure;

- **a social role** – supporting strong, vibrant and healthy communities, by providing the supply of housing required to meet the needs of present and future generations; and by creating a high quality built environment, with accessible local services that reflect the community's needs and support its health, social and cultural well-being; and

- **an environmental role** – contributing to protecting and enhancing our natural, built and historic environment; and, as part of this, helping to improve biodiversity, use natural resources prudently, minimise waste and pollution, and mitigate and adapt to climate change including moving to a low carbon economy

These roles should not be undertaken in isolation, because they are mutually dependent. Economic growth can secure higher social and environmental standards, and well-designed buildings and places can improve the lives of people and communities. Therefore, to achieve sustainable development, economic, social and environmental gains should be sought jointly and simultaneously through the planning system.

This report details the natural environment dimensions of sustainable development.

ECOLOGY AND GEODIVERSITY ASSESSMENT (EGA) STUDY OBJECTIVES

- Solihull Metropolitan Borough Council commissioned the Habitat Biodiversity Audit and Warwickshire County Council Biological Records to assess the ecology and geodiversity of nineteen development sites in order to prepare ecological and geodiversity policies that are fit for purpose.

- The Assessment will include recommendations for more detailed survey of sites that are considered to have ecological/geological value, together with recommendations regarding the future safeguarding and management of different parts of the buffer areas.

- The text of the Ecological and Geological Assessment Report will be accompanied by a set of maps for each of the potential employment and housing development sites, comprising:

- a map for each potential development site, identifying locations of UK and Warwickshire BAP and priority habitats and species, as well as areas of irreplaceable natural habitat, such as ancient woodland and veteran trees, designated sites or sites with potential for designation; or where sites have potential to be upgraded, i.e. for example, from a LWS to a LNR;

- a map for each potential development site showing the Phase 1 Habitat classification (target notes will also be included on the shape files);

- a map for each potential development site indicating the occurrence of protected/priority species/habitats (target notes will also be included on the shape files); and

- a connectivity map of the Borough showing the potential for habitats to be linked together and where habitats need to be created.

- Recommend Local Wildlife Sites that are suitable for designation as Local Nature Reserves, prioritising the order of sites to be designated first,

- For each site recommend mitigation strategies to minimise the impact of development on the site's ecology and geodiversity,

- For each site recommend ways in which policies can ensure development can provide net gains in biodiversity,

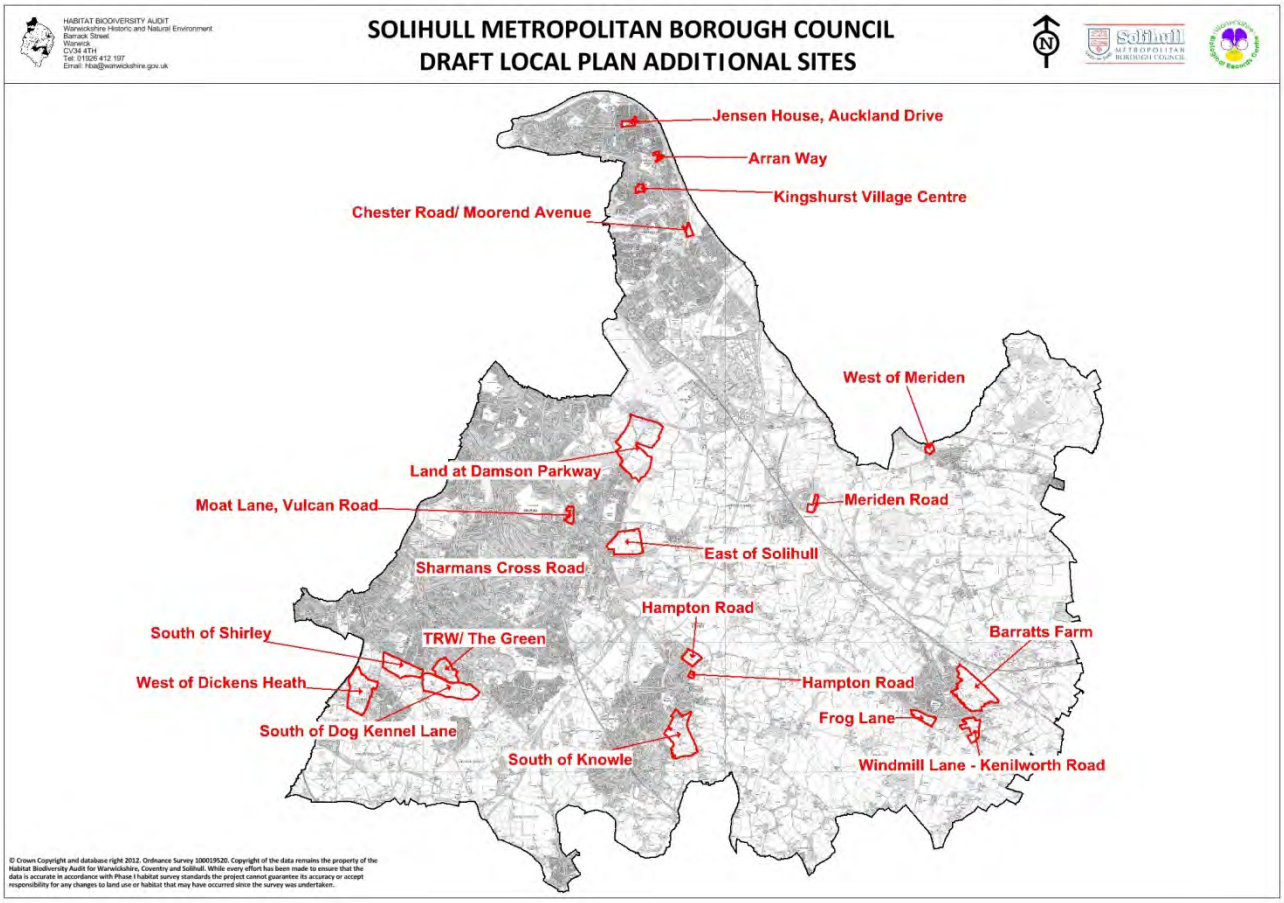
- Recommend suitable indicators for monitoring biodiversity and geodiversity.

THE STUDY AREAS

The study area consists of nineteen potential sites as identified by SMBC and listed below in Table 1 and mapped locations in Figure 1.

Table 1 Potential Site Allocations

Site Number	Site Name	Area (hectares)
1	Barratts Farm	56
2	Frog Lane	10
3	Windmill Lane & Kenilworth Road	15
4	West of Dickens Heath	46
5	Chester Road & Moorend Avenue	4
6	Meridan Road	6
7	Kingshurst Village Centre	3
8	Hampton Road	12
9	South of Knowle	49
10	West of Meriden	4
11	TRW & The Green	20
12	South of Dog Kennel Lane	46
13	South of Shirley	29
14	Arran Way	2
15	Jensen House & Auckland Drive	4
16	East of Solihull	37
17	Moat Lane & Vulcan Road	5
18	Sharmans Cross Roads	4
19	Land at Damson Parkway	94



Local Plan Additional Sites Map

REPORT DESCRIPTIONS

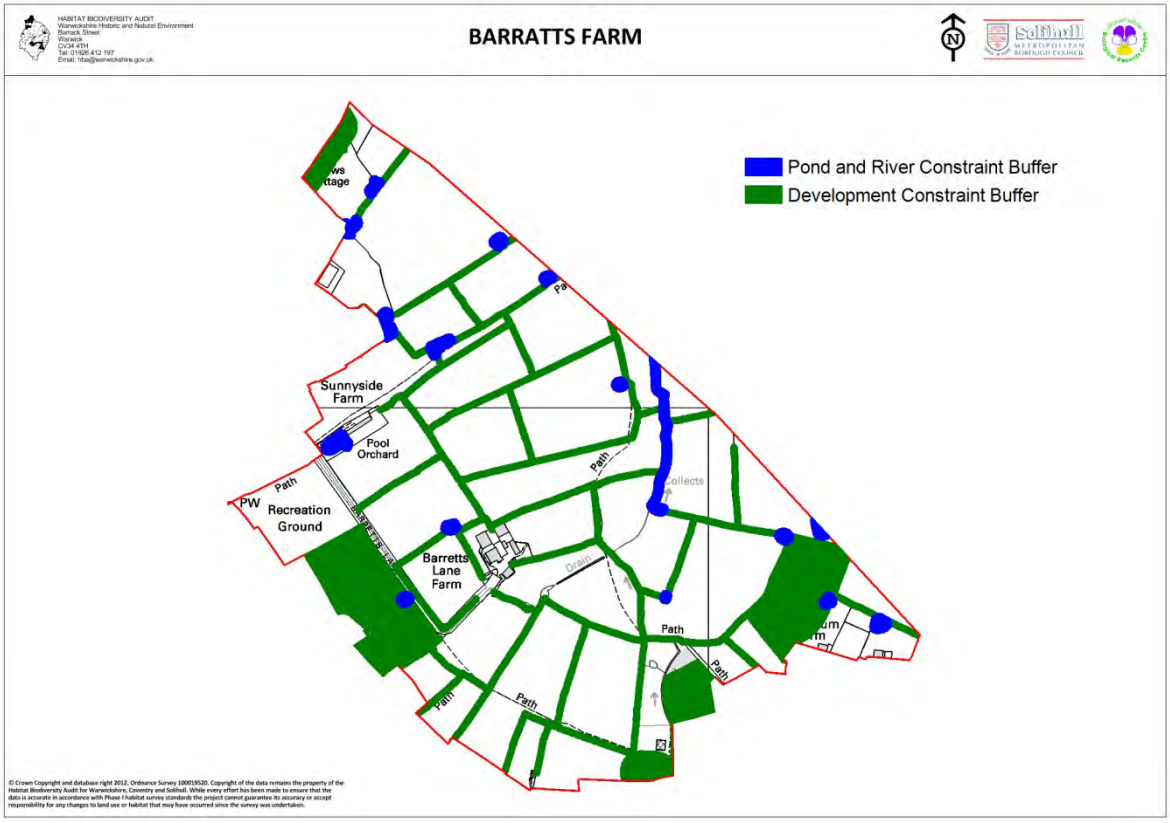
Each individual site report is divided into the following headings:

- Site Name and Area in Hectares
- Overview
- Key Features
- Recommendations
- Designated Sites
- Habitat Distinctiveness / Target Notes
- Biodiversity Off-setting Units
- Phase 1 Habitat Connectivity
- Protected Species and Important species

The Constraints Map

The constraints map for each site is dervided from the Phase 1 habitat mapping and shows where development should be avoided and ecological enhancement encouraged. The important habitats are identified and buffered to create an overall green (terrestrial habitats) and blue (riparian and aquatic habitats) map which clearly demarcates the limits of development, they include:

- 30 metre buffer around all semi-natural woodland and broad-leaved plantation woodland
- 8 metre buffer either side of adjacent river courses
- 8 metre buffers around all wetland features including; emergent vegetation, lakes and ponds
- 5 metre buffer either side of intact hedgerows
- All areas of medium to high distinctiveness grassland with values 4, 5 and 6



Example Map - Constraints

DESIGNATED SITES

The primary objective of nature conservation is to ensure that the national heritage of wild flora and fauna and geological and physiographic features remains as large and as diverse as possible, so that society may use and appreciate its value to the fullest extent (NCC 1989). The protection and management of areas of importance for wild flora and fauna and their habitat is regarded as the cornerstone of British conservation policy. The principal statutory means of achieving this is by designation of sites for their conservation importance.

STATUTORY SITES

A very small number of sites of nature conservation importance in the Warwickshire sub-region receive statutory protection. Statutory sites in Warwickshire comprise 48 Local Nature Reserves and 67 Sites of Special Scientific Interest (SSSIs).

Table 3 below lists the number, area and area percentage of designated sites for Solihull MBC including both the statutory and non-statutory sites.

Site Designation	Count	Area (ha)	% Area
SSSIs	4	75*	0.42
Local Nature Reserve (LNR)	12	215.2	1.21
Local Wildlife Sites (LWS)**	108	656.4	3.68
Local Geological Sites (LGS)	3	7.4	0.04
Ancient Woodland	76	362.4	2.03
Total Area SMBC		17,829	

Table 2 - Site Designation Summary

*Includes River Blythe SSSI
**LWS designated sites completed in 2015

SITES OF SPECIAL SCIENTIFIC INTEREST SSSI

Sites of Special Scientific Interest (SSSI) represent areas of the country's best wildlife and geological sites. SSSIs are legally protected under the Wildlife and Countryside Act 1981, as amended by the Countryside and Rights of Way (CROW) Act 2000 and the Natural Environment and Rural Communities (NERC) Act 2006.

LOCAL NATURE RESERVES

A Local Nature Reserve (LNR) is a statutory designation made under section 21 of the National parks and Access to the Countryside Act 1949 and amended by Schedule 11 of the Natural Environment and Rural Communities Act 2006. All district and county councils have powers to acquire, declare and manage LNRs. To qualify for LNR status a site must be of importance for wildlife, geology, education or public enjoyment.

NON-STATUTORY SITES:

LOCAL WILDLIFE SITES

The few sites which have statutory designations because of their international or national interest represent the top of the hierarchy of protection. These sites are selected according to standardised criteria and procedures. Second tier, non-statutory sites, covering local nature conservation importance, are more difficult to classify as they have no legislative basis or standardised definition. The Warwickshire, Coventry and Solihull Local Wildlife Sites Project in 2000 set out to formerly identify Sites of Importance for Nature Conservation (SINCs), now known as Local Wildlife Sites (LWS). The formal process for identifying, surveying and designating Local Wildlife Sites is set out in ***The Green Book: Guidance for the Selection of Local Wildlife Sites in Warwickshire, Coventry and Solihull*** (Habitat Biodiversity Audit, 2015).

NATIONAL PLANNING POLICY

The Government's National Planning Policy Framework (NPPF) (Communities and Local Government, 2012) launched in March 2012 replaced PPS9. It states that the distinction should continue to be made between the hierarchy of international, national and locally designated sites, so that protection is commensurate with their status and gives appropriate weight to their importance. It advocates the protection of Local Sites recognising their importance and the contribution that they make to wider ecological networks.

The NPPF states that Local Planning Authorities should:

"Set out a strategic approach to their local plans, planning positively for the creation, protection, enhancement and management of networks of biodiversity and green infrastructure."

To minimise impacts on biodiversity and geodiversity, planning policies should:

- "*Plan for biodiversity at a landscape-scale across local planning policies;*

- *Identify and map components of the local ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity, wildlife corridors and stepping stones that connect them, and areas identified by local Partnerships for habitat restoration and creation;*

- *Promote the preservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species populations, linked to national and local targets, and identify suitable indicators for monitoring biodiversity in the plan;*

- *Where Nature Improvement Areas (NIAs) are identified in Local Plans, consider specifying the types of development that may be appropriate in these Areas.*"

IDENTIFYING LOCAL WILDLIFE SITES

The Government recognises that our natural heritage is not confined to the various statutory designated sites but is found throughout the countryside and many urban areas. The Government also recognises that local authorities designate sites of local nature conservation value themselves and looks to them to take account of nature conservation interests in all their activities.

"Local Planning authorities should have regard to the relative significance of international, national and local and informal designations in considering the weight to be attached to nature conservation interests. They should only apply local designations to sites of substantive nature conservation value, and take care to avoid unnecessary constraints on development".

Local Wildlife Sites help buffer and connect natural areas, providing ecological networks and increasing resilience of biodiversity to pressure of land use and climate change (Lawton L.H., 2010). They contribute to the quality of life and the health and well-being of communities and provide important open space in urban areas.

Making Space for Nature (Lawton D.H., 2010) delivered to government in September 2011, asserts that Local Wildlife Sites are highly vulnerable to damage and loss, and recommended improving their protection and management, underlining that Local Sites are "*important to future ecological networks, because they not only provide wildlife refuges in their own right, but can act as stepping stones and corridors to link and protect nationally and internationally designated sites*". Building on this, recommendation 12 of the Review was that Local Authorities should take responsibility for the identification and monitoring of Local Wildlife Sites, and that their management must be improved.

The Government response to *Making Space for Nature*, published alongside the Natural Environment White Paper, (Defra, 2011), encouraged Local Site Partnerships to continue to implement Defra's Local Sites guidance and play an increased role in identifying, protecting and managing Local Sites. The subsequent *England Biodiversity Strategy* 2020 (Defra, 2011) restated that Government will encourage local authorities to take a more active and positive role in the management of Local Sites, including through reporting data on such sites in the Government's new Single Data List.

NON-STATUTORY SITES: LOCAL GEOLOGICAL SITES (LGS)

For many years, schemes to conserve wildlife sites not enjoying the statutory protection of Sites of Special Scientific Interest (SSSIs) have been operating successfully throughout Britain, but schemes to protect non-statutory geological and geomorphological sites are far less widespread. Those that do exist have much in common with their biological partners - sites are selected and managed by locally based groups, and safeguarded through local authority planning policies and the involvement of site owner(s).

LGSs are any geological or geomorphological sites, excluding SSSIs, in a county that are considered worthy of protection for their educational, research, historical or aesthetic

importance. RIGS are broadly analogous to non-statutory wildlife sites and are often referred to locally by the same name. They can include important teaching sites, wildlife trust reserves, Local Nature Reserves and a wide range of other sites. LGSs are not regarded as 'understudy' SSSIs, but as sites of regional importance in their own right.

WARWICKSHIRE, COVENTRY AND SOLIHULL LOCAL BIODIVERSITY ACTION PLAN (LBAP).

The Warwickshire, Coventry and Solihull Local Biodiversity Action Plan (LBAP) provide a local response to the UK Government's National Action Plans for threatened habitats and species. The LBAP contributes to national targets wherever these are relevant to the Warwickshire sub-region but also sets local targets. The LBAP action plans for all local habitats can be found on the Warwickshire County Council Heritage and Culture web site:

http://heritage.warwickshire.gov.uk/ecology/lbap/

The Warwickshire, Coventry and Solihull LBAP habitats equivalent to the Warwickshire Phase 1 habitat survey are shown in the technical section 8.2, p.18.

HEDGEROWS

The Hedgerows Regulations: A Guide to the Law and Good Practice (Defra, 1997) sets out the criteria that must be used by the local planning authority in determining which hedgerows are important. The criteria relate to the value of hedgerows from an archaeological, historical, landscape or wildlife perspective. They exclude hedgerows that are less than 30 years old. If a hedgerow is at least 30 years old and qualifies under any one of the criteria, then it is important.

A Biodiversity Action Plan (BAP) priority hedgerow is defined as having more than 80% native woody species, including at least five (four in northern and eastern England, upland Wales and Scotland) woody species that are either native somewhere in the UK or which are archaeophytes[1]. If this is the case then the hedgerow is defined as species-rich.

The Hedgerows Regulations states that the hedgerow does not have to contain trees, but any trees in it form part of the hedgerow. Where a former hedgerow has not been actively managed and has grown into a line of trees it is not covered by the regulations. However, lines of trees may be protected under existing licensing procedures for felling or by Tree Preservation Orders (TPOs).

The Phase 1 habitat survey identifies different types of field boundaries including hedgerows. The Phase 1 survey is not an exhaustive assessment of hedgerows but is an indicator towards good or poor hedgerows. More detailed hedgerow surveys should be undertaken where a hedgerow has been identified as being species rich. The standard

[1] Being recorded as naturalised in the wild before 1500 AD

survey methodology should follow the guidelines set out in the Hedgerow Survey Handbook (Defra, 2007 2nd Ed)
Species-rich hedgerows can also be designated as Local Wildlife Sites as set out in *The Green Book: Guidance for the Selection of Local Wildlife Sites in Warwickshire, Coventry and Solihull* (Habitat Biodiversity Audit, 2015 Section 9.3. p.57).

WARWICKSHIRE PHASE 1 HABITATS SURVEY

The national Phase 1 habitat survey is a well-established, general purpose survey devised to provide rapid mapping over wide areas of the British countryside. The methodology is set out in the "Handbook for Phase 1 Habitat Survey: A technique for environmental audit" (Nature Conservancy Council 1990, 2010 ed.). The handbook has been revised and reprinted with minor revisions to mainly take account of the introduction and wider use of Geographical Information System (GIS).

The first field surveys for the Warwickshire sub-region are recorded in the 2001 Phase 1 survey for 1996 up to 2000. In 2001 the completed surveys were digitised and recorded in the HBA's GIS. The original Phase 1 survey was augmented by aerial survey interpretation from 1991 aerial imagery. Since the first survey was completed a mechanism has been established to update the Phase 1 survey on a regular basis and the original survey has become the baseline data from which all subsequent surveys are based. The continuous revision of the Phase 1 objective was to update the Warwickshire sub-region every 5 years, subject to resources. In addition to the field survey revision, HBA has access to the latest aerial imagery for 2013 from aerial surveys commissioned by Warwickshire County Council. For details of the Warwickshire Phase 1 habitat survey categories please refer to the technical appendix section 8 of this document.

PHASE 1 HABITAT DISTINCTIVENESS

The habitat distinctiveness categories and their associated scores have been taken from the Biodiversity Offsetting Pilot in the UK National Ecosystem Assessment (UK NEA, 2011 - see Appendix Table 5 for Phase 1 scores matched to distinctiveness). The Phase 1 habitat classification does determine between those land uses that are best for biodiversity and those that are not. The distinctiveness is designed to assign scores to those land-uses that are the most bio-diverse and those that are not.
The habitat distinctiveness categories can also be interpreted as areas of habitat importance or sensitivity to development, and are a useful way of simplifying the 57 Phase 1 map categories. Each Phase 1 habitat type has been given a distinctiveness score as below:

6 – High distinctiveness

5 – Medium / High distinctiveness

4 – Medium distinctiveness

3 – Low / Medium distinctiveness

2 – Low distinctiveness.

1 - None

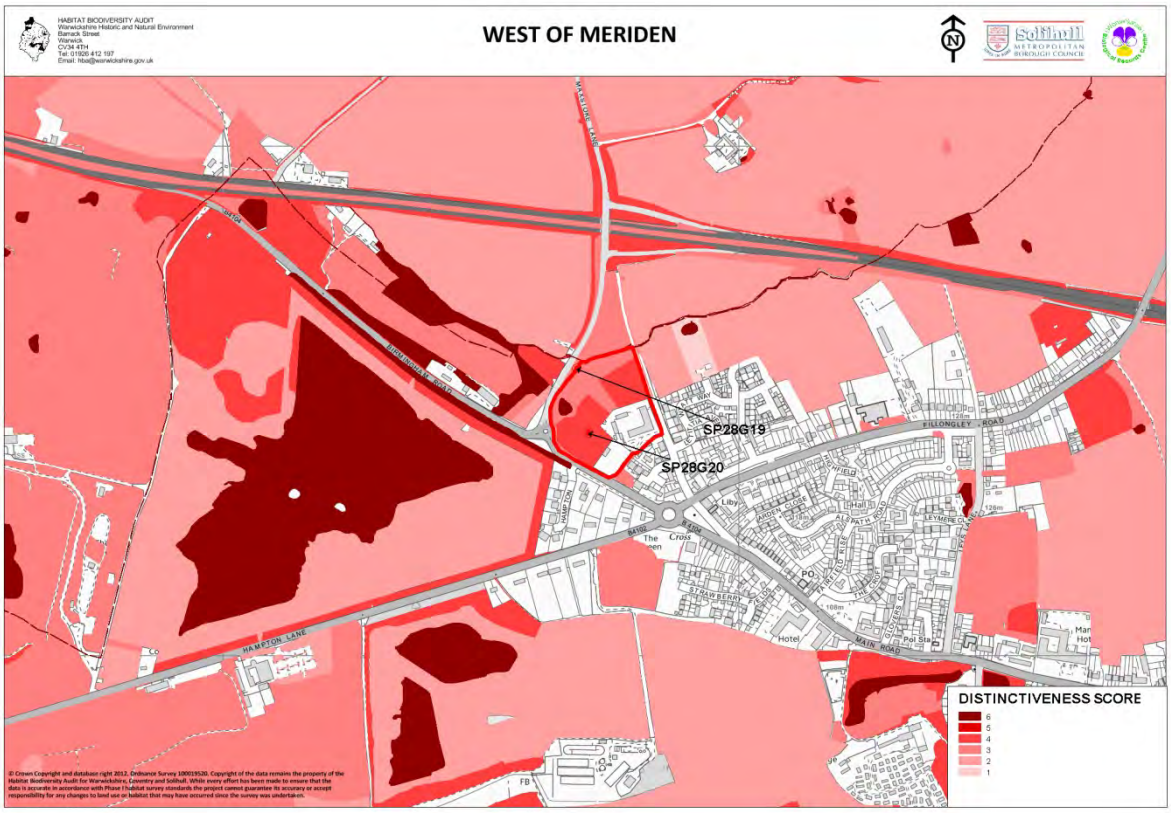
High distinctiveness scores equate to areas of highest biodiversity, including all unimproved habitats. High distinctiveness will incorporate statutory sites, Local Wildlife Sites and the Biodiversity Action Plan (BAP) habitats and species. The high distinctiveness category for linear habitats includes species-rich hedgerows.

Moderate distinctiveness scores are a mid-way assessment for areas that are either a transition from high to low or vice versa; or are of indeterminate biodiversity. Examples include semi-improved neutral grassland, scrub and tall ruderal[2] which are transitional and temporary habitats. Linear sites with moderate scores include intact hedgerows.
Low distinctiveness scores are areas of low biodiversity interest. These areas cover the majority of the sub-region, including for example agricultural farmland, amenity grassland and coniferous plantation woodland. Low linear scores are associated with defunct hedgerows, fences and dry ditches.

The distinctiveness categories can be further adapted and refined to best suit the Warwickshire sub-region habitats. For example scrub can be sub-divided into open scattered scrub that has a grass understory with a score of 4 to distinguish it from dense scrub with no understorey with a score of 3. Mosaic sites such as former industrial land may have higher scores due to the variety of habitats found in one area. Distinctiveness scores are an intrinsic requirement for the proposed bio-diversity off-setting schemes and will be a requirement for determining the value of habitats.

Ancient Woodland and SSSIs and considered as irreplaceable habitats and although are given a score of 6 for the purpose of mapping they are to be avoided. By definition, they are not replaceable.

[2] Ruderal from the latin for rubble or rubbish refers to cleared areas that have become colonised by pioneer plant species, typical tall perennial or biennial dicotyledon plant species include Rosebay (Chamerion anguistifolium) , Common nettle (Urtica diocia) and Japanese Knotweed (Fallopia japonica).



Example Map - Habitat Distinctiveness & Target Notes

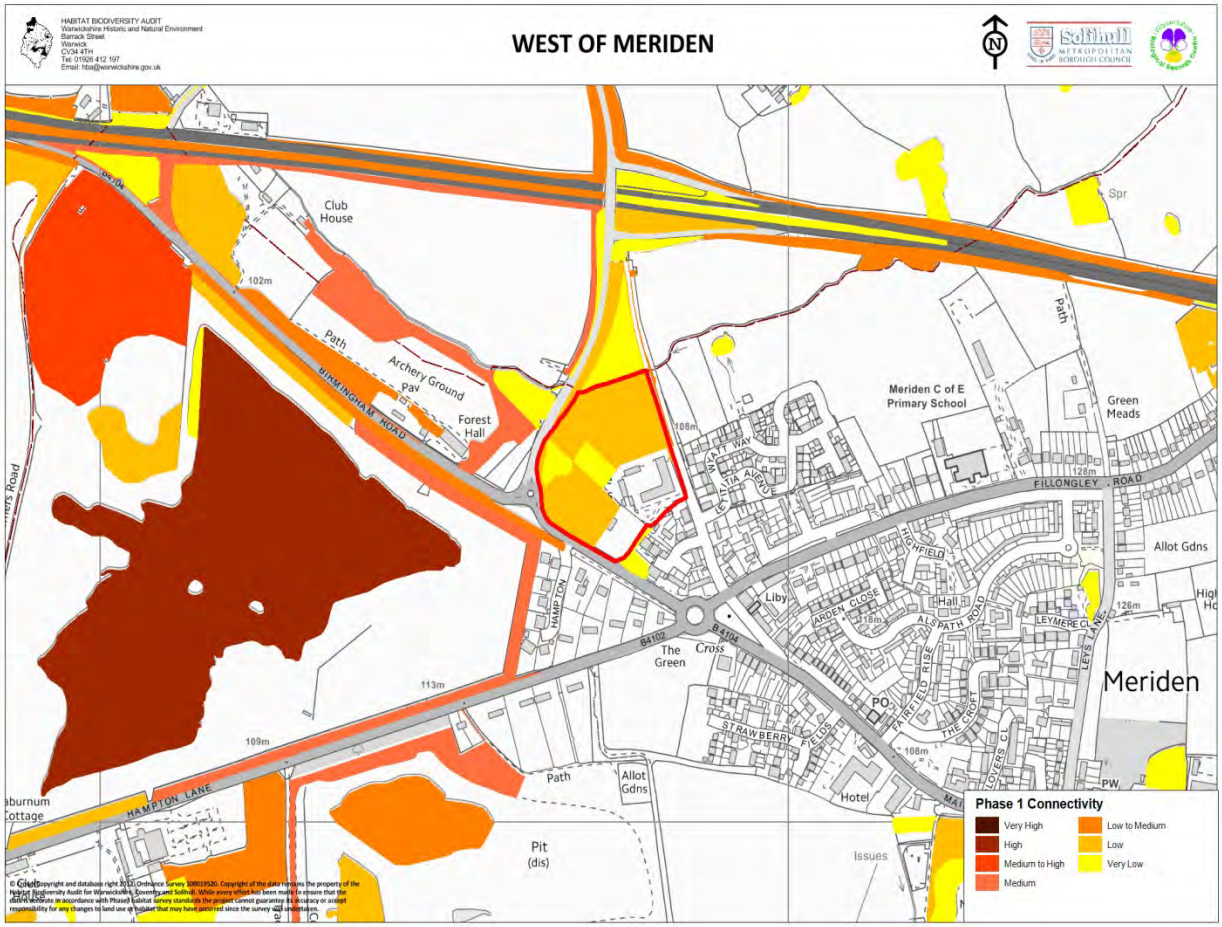
HABITAT CONNECTIVITY

Landscape habitat connectivity for The Warwickshire sub-region was used as part of the ecological assessment of service villages in Stratford-upon-Avon (Habitat Biodiversity Audit and WCC Ecological Services, July 2012) The study acquired the technical services from the Environment Department, University of York to calculate connectivity using the Incidence Function Model (IFM) (Nieminen, 2002) (Hanski, 2001 repr.) The model measures the distance between suitable habitats using a set dispersal distances of a study species. The Warwickshire model for this study uses dispersal distances of 500m each habitat type. The habitat types are categorised into 3 broad habitat types:

- Woodlands including semi-natural, broad-leaved plantation and scrub land
- Priority grasslands, namely all grasslands that have not been agriculturally improved
- Standing water and habitats associated with marshy conditions

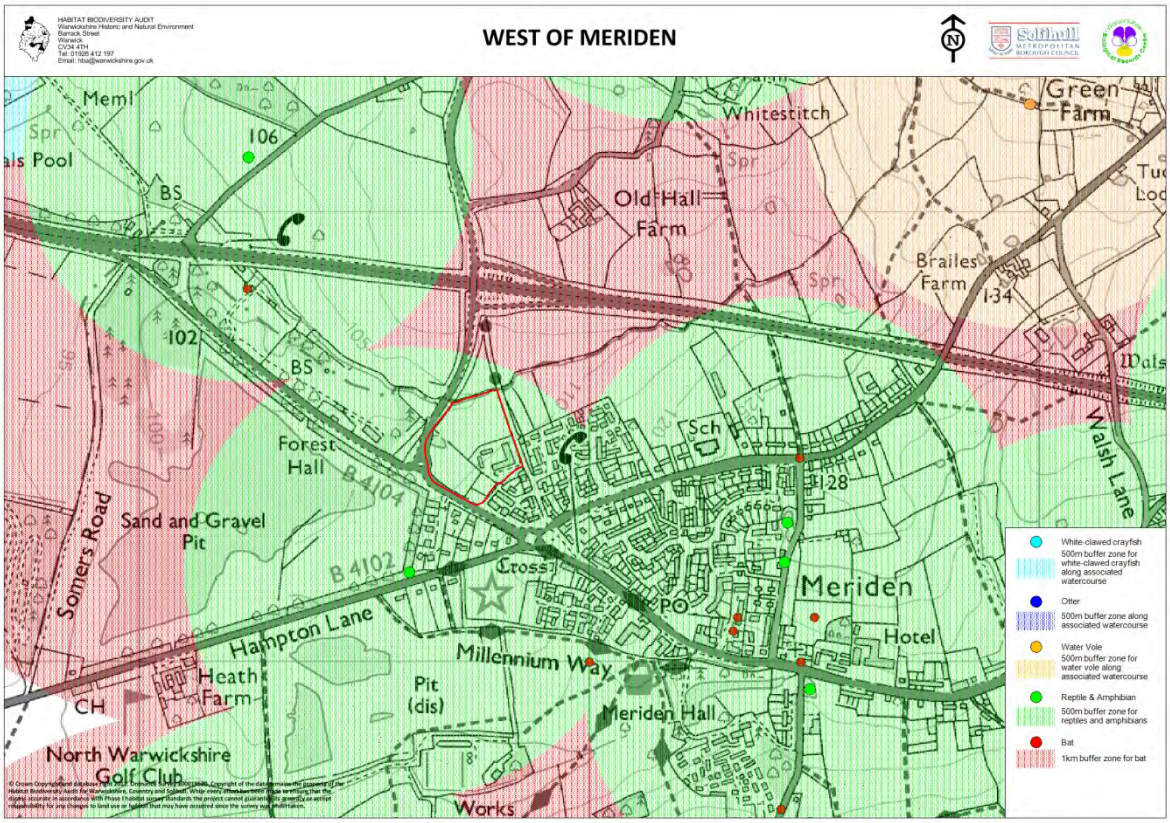
The quality and level of detail afforded by the Phase I cover data allow the results to be used as measures of structural connectivity, where the physical connectedness of the landscape elements of habitat patches and linear features can be assessed.

The connectivity map for each proposed development site is a combination of all three broad habitat connectivity maps. Separate connectivity maps for each habitat category can be made as required.



Example Map - Habitat Connectivity

SPECIES RECORDS



Example Map - Protected Species

Protected species information is based on existing records within the Warwickshire Biological Record Centre (WBRC). For this report EU and UK protected species, UK Biodiversity Action Plan, Local Biodiversity Action Plan species and rare and endangered species have been noted where records are held digitally. These records have been used with local knowledge to provide spatial interpretation for each site.
This interpretation is based on data and information available at the time of preparing this report. Please note that lack of records may well indicate that no survey work has yet been undertaken, and does not indicate that species are necessarily absent. Protected species may be using the site and surrounding area and appropriate survey work may be required to establish their presence and to inform mitigation measures to ensure that they are not impacted by any proposed works.

Protected Species in Warwickshire (Warwickshire Wildlife Trust, 2012)

European Protected Species (EPS) are protected under the *Conservation (Natural Habitats &c.) Regulations 1994* found in Warwickshire include:

- All species of bat
- Great crested newt
- Otter

- Dormouse
- White-clawed crayfish

Other species that are protected under the *Wildlife and Countryside Act 1981 (as mended)* and the *Protection of Badgers Act 1982* relevant to Warwickshire include:

- Water Vole
- Barn owl
- Grass snake
- Slow worm
- Common lizard
- Badger

Each species recorded at a location on or close to a proposed development is given a radius based on its likely distribution; bats have a 1km radius, reptiles and amphibians a 500 meter radius; water voles, otters and white-clawed crayfish have a 500 metres radius along associated water courses.

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APPENDICES

Table 3 Equivalence of Urban Habitats in UK BAP and Phase 1 Habitat Surveys

Habitats of national (N) and local (L) importance. UKBAP; Biodiversity Action Plan for Warwickshire, Coventry and Solihull)	**Habitats identified in the Phase 1 survey (NCC/EN/NE)**
WOODLAND Ancient semi-natural woodland (N) Wood pasture and parkland (N) Orchards (N) Scrub and Carr (L)	W**OODLAND** Semi-natural and broadleaved (A111) Parkland and scattered trees (A3) Orchards (A5) Scattered Scrub (A22) Wet woodland (A116)
HEATHLAND Lowland heathland (N)	**HEATHLAND** Dry heath /acid grassland mosaic (D5)
GRASSLAND Lowland meadows (N) Lowland calcareous grassland (N) Lowland dry acid grassland (N) Floodplain grazing marsh (N)	**GRASSLAND and MARSH** Unimproved and semi-improved neutral grassland (B21/B22) Unimproved and semi-improved calcareous grassland (B31/B32) Unimproved and semi-improved acidic grassland (B11/B12) Marsh/marshy grassland (B5)
WETLAND Mesotrophic Lakes (N) Eutrophic standing waters (N) Ponds (N) Reedbed (N) Fen and Swamp (N) Rivers and streams (N) Canals (L)	**WETLAND** Standing water (G1) Swamp (F1) Inundation vegetation (F22) Running water (G2)
FARMLAND Arable field margins (N) Hedgerows (N)	**FARMLAND** Set aside (J113) Hedgerows intact (J21) with trees (J23)

	Native species rich (J211) with trees (J231)
BUILT ENVIRONMENT Gardens, Parks and Churchyards (L) Parks and public open spaces (L) Roadside verges (L) Allotments (L) School grounds (L) Open mosaic on previously developed land (N) Disused industrial (L) Quarries and gravel pits (L)	**BUILT ENVIRONMENT** Introduced shrub (J14), Amenity grassland (J12) Ephemeral/short perennial (J13) Tall herb – ruderal (C31) Tall herb - non-ruderal (C32) Quarry (J21) Bare ground (J4)

Table 4 Phase 1 Habitat Distinctiveness Area Features

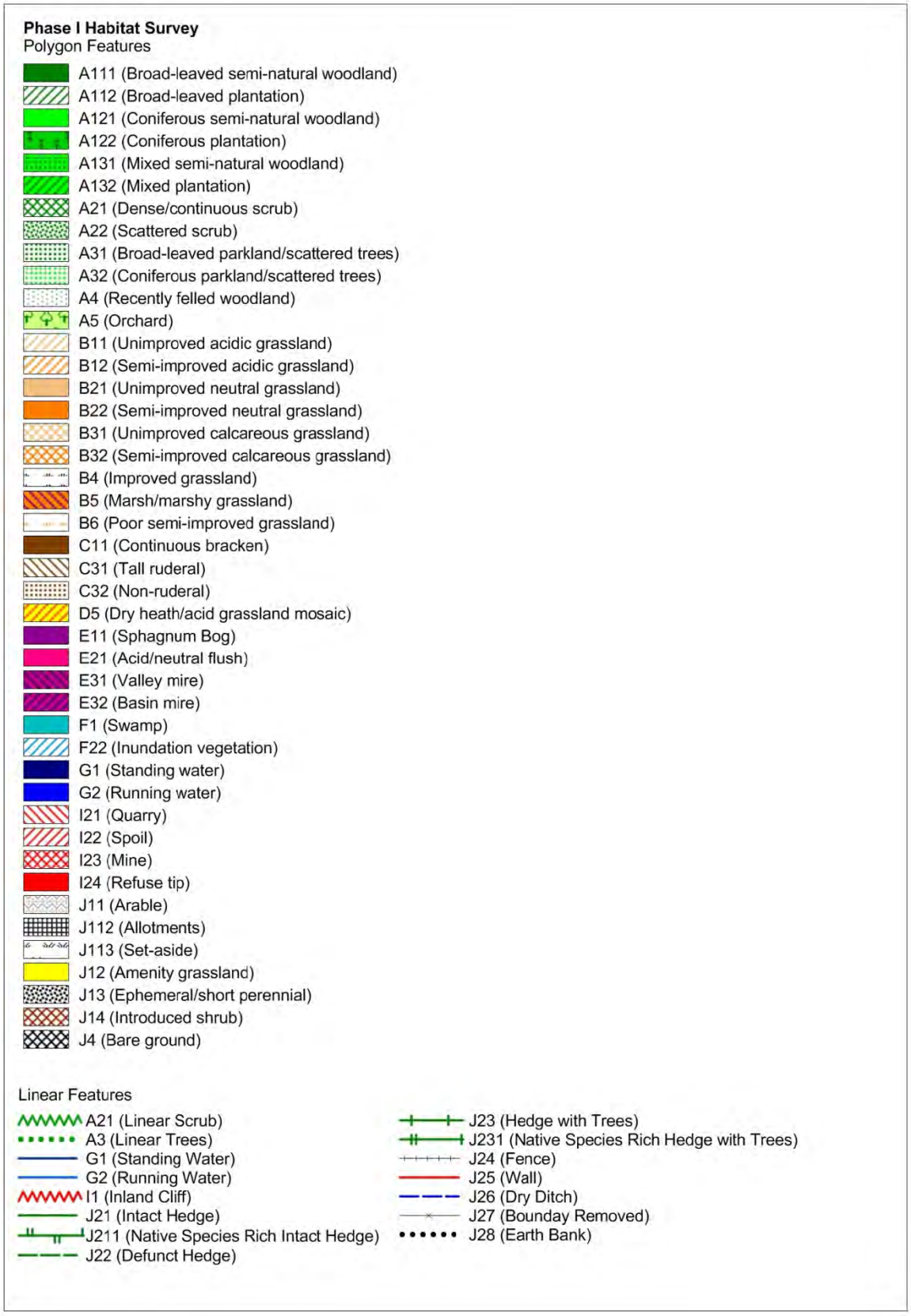
ID	Phase 1 code	Habitat description	IHS Code	Distinctiveness	Score
1	A111	Broad-leaved semi-natural woodland	WB3	High	6
2	A112	Broad-leaved plantation	WB3Z	Medium	4
3	A122	Coniferous plantation	WCZ	Low	2
4	A131	Mixed semi-natural woodland	WB1	Medium/High	5
5	A132	Mixed plantation	WB1	Low/Medium	2
6	A21	Dense continuous scrub	WB2	Low/Medium	3
7	A22	Scattered scrub	WB2	Medium	4
8	A31	Broad-leaved parkland/scattered trees	TS11	High	6
9	A32	Coniferous parkland/scattered trees	TS13	Medium/High	5
10	A4	Recently felled woodland		Low	2
11	A5	Orchard	CL31	High	6
12	B12	Semi-improved acidic grassland	GU0	High	6
13	B21	Unimproved neutral grassland	GN1	High	6
14	B22	Semi-improved neutral grassland	GU0	Medium	4
15	B31	Unimproved calcareous grassland	GC0	High	6
16	B32	Semi-improved calcareous grassland	GU0	High	6
17	B4	Improved grassland	G10	Low	2
18	B5	Marsh/marshy grassland	EM0	High	6
19	B6	Poor semi-improved grassland	GU0	Low/Medium	3
20	C31	Tall ruderal		Low/Medium	3
21	F1	Swamp	EM1	High	6
22	F22	Inundation vegetation	EM2	High	6
23	G1	Standing water	AP11	High	6
24	G2	Running water	AR1	High	6
25	I21	Quarry (active)	RE21	Low	2
26	I24	Refuse tip	RE24	Low	2
27	J11	Arable	CR2	Low	2
28	J112	Allotments	UA33	Low/Medium	3
29	J113	Set-aside (field margins)	CR61	Medium	4
30	J12	Amenity grassland	GL1	Low/Medium	3
31	J13	Ephemeral/short perennial		Low/Medium	3
32	J14	Introduced shrub		Low	2

33	J4	Bare ground		None	1
34	C11	Continuous bracken	BR0	Low	2
35	C32	Non-ruderal		Medium	4
36	B11	Unimproved acidic grassland	GA1	High	6
37	D5	Dry heath/acidic grassland mosiac	HE1/GA	High	6
38	E32	Basin Mire	EM3	High	6
39	A121	Coniferous semi-natural woodland	WCZ	Medium	6
40	E21	Acid/neutral flush	EM0	High	6
41	E11	Sphagnum Bog	EO0	High	6
42	I22	Spoil	RE22	Low	2

Table 5 Phase 1 Habitat Distinctiveness - Linear Features

ID	Phase 1 code	Habitat description	IHS Code	Distinctiveness	Score
43	A21	Linear scrub		Medium	4
44	A3	Linear trees	LF1Z	Medium	4
45	G1	Standing water (wet ditches)	AC111	High	6
46	G2	Running water	AR1	High	6
47	I1	Inland cliff		Medium	4
48	J21	Intact hedge	LF11Z	High	6
49	J211	Native species rich intact hedge	LF111	High	6
50	J22	Defunct hedge	LF1Z	Low	2
52	J23	Hedge with trees	LF11Z	High	6
53	J231	Native species rich hedge with trees	LF111	High	6
54	J24	Fence	LF26	Low	2
55	J25	Wall	LF23	Low	2
56	J26	Dry ditch	LF24	Low	2
58	J28	Earth bank	LF22	Low	2
59	A113	Wet woodland	WB34	High	6
60	F21	Emergent vegetation	EM21	High	6

Phase 1 Habitat Survey Key



SITE: ARRAN WAY

Area: 2 hectares

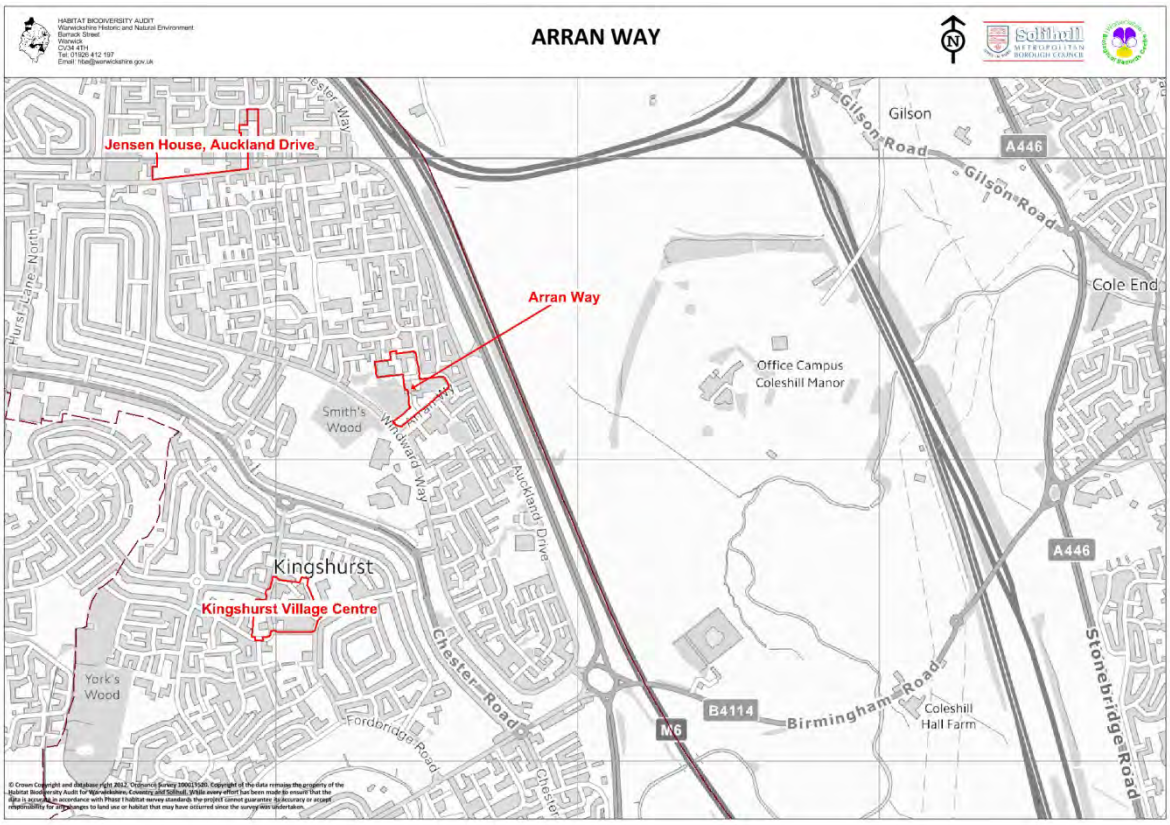


Figure 1 Site Location

Overview

The development parcel is loosely encircled by roads named Windward Way, Arran Way and Mull Croft. Further east connecting to Arran Way sits Auckland Drive running parallel to Chester Road (A452) and the M6 motorway. Arran Way marks the southern boundary facing St John the Baptist Catholic Primary School with Forest Oak and Merstone School directly opposite across from Windward Way. Mull Croft envelops much of the parcel enclosing a mix of shops, Smiths Wood Snooker & Social, Arran Medical Centre and the now demolished high rise block of Westfield House and Arran Hall.

Key Features

- Semi-natural broad-leaved woodland
- Veteran & urban trees
- Smiths Wood LWS (SP18U1)

Recommendations

The development parcel immediately abounds Smiths Wood LWS, an area of 4.9 ha of broad-leaved semi-natural woodland, unchanged since the first edition of the OS Map accept for the intrusion of Windward Way. It is an unmodified though neglected urban wood.

Given the high biodiversity value and rarity of ancient semi-natural woodland represented, Smiths Wood should be protected from the effects of development.

Development so close to Smiths Wood may result in five effects that are not mutually exclusive; chemical effects, disturbance, fragmentation, invasion by non-native species and all those cumulative effects.

The potential impacts on Smiths Wood are not always clear but are insidious and cumulative. It is essential that Smiths Wood is protected and enhanced as part of mitigation and management solutions resulting from potential development.

The retention and establishment of lines of trees along both Windward and Arran Way will allow and enhance connectivity within the wider landscape particularly those semi-natural habitats along Auckland Drive. This provision will provide important habitat for woodland birds (Stagoll et al. 2010) and improve the connectivity and function of the surrounding fragmented plots of woodland, scrub and hedgerow.

The implementation of a 30m wooded buffer zone and the use of passive management techniques such as fencing to prevent impacts of development on Smiths Wood should be considered to protect against edge effects and encroachment activities.

Encroachment activities range from waste disposal, woodland recreation, garden extension and garden plant invasion. It is likely given the public access to Smith's Wood, its surrounding urban character and adjoining road network that some edge effects are likely to be taking place.

In a worst case scenario, edge effects resulting from the proposed development should not be exuberated and development areas should be kept within the curtilage of the existing site and retained to already developed areas. Consequently the southern arm of the development parcel preferably should be excluded from any proposed plans.

The presence of a traditional coppice structure, mature oak standards and a dense hazel scrub layer indicates the benefits to a return to traditional management techniques as part of a woodland management plan. Selective thinning of the over-mature scrub layer and coppicing of selected hazels and young self-regenerating trees will increase the number of sites available for nesting birds and allow additional light to reach the ground flora.

Trees within the development parcel that are subject to a Tree Preservation Order (TPO; Town and Country Planning Act 1990), require consent from the local planning authority before such protected trees are cut down, topped or lopped.

Constraints

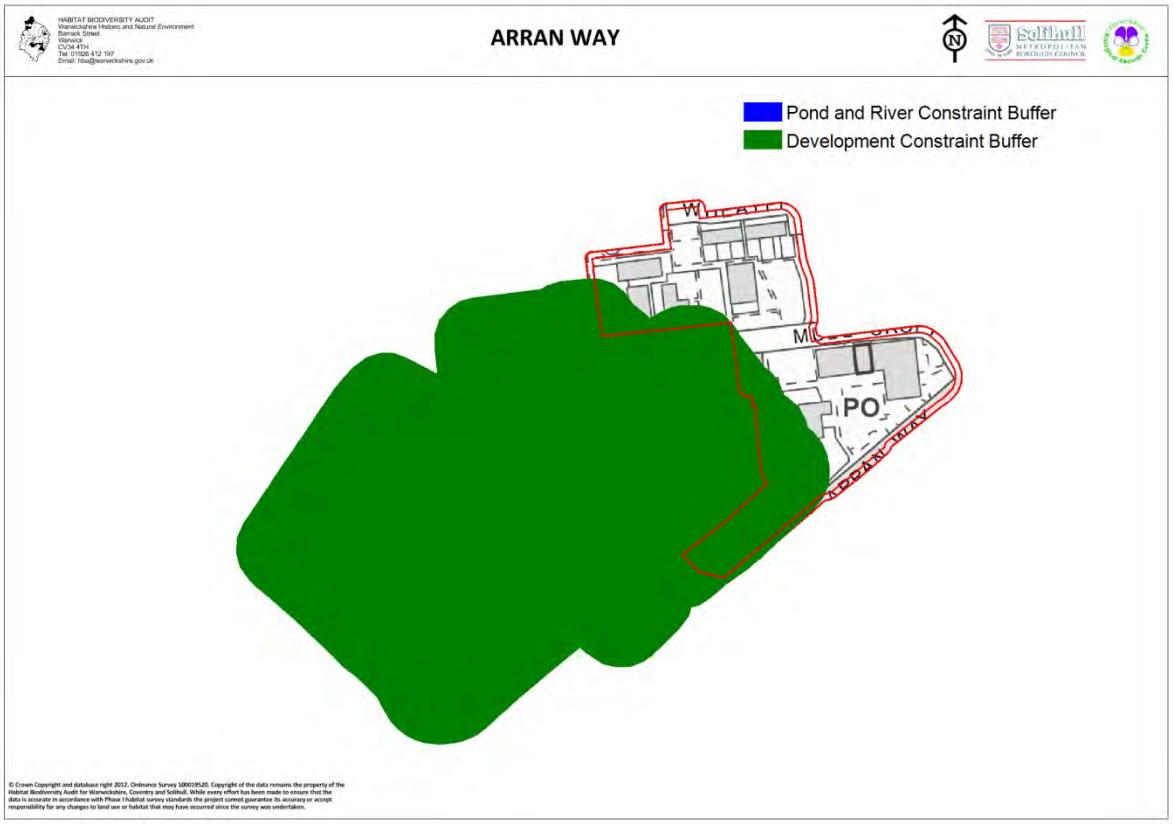


Figure 2 Constraints Map

The areas marked in green and blue on the above constraints map indicate where development should be avoided and ecological enhancement encouraged.

They include:

- 30m buffer around woodland
- 8m buffer either side of adjacent to watercourses
- 8m buffers around ponds
- 5m buffer either side of intact hedgerows
- Areas of medium to high distinctiveness grassland (Values 4, 5 & 6)

Designated Sites

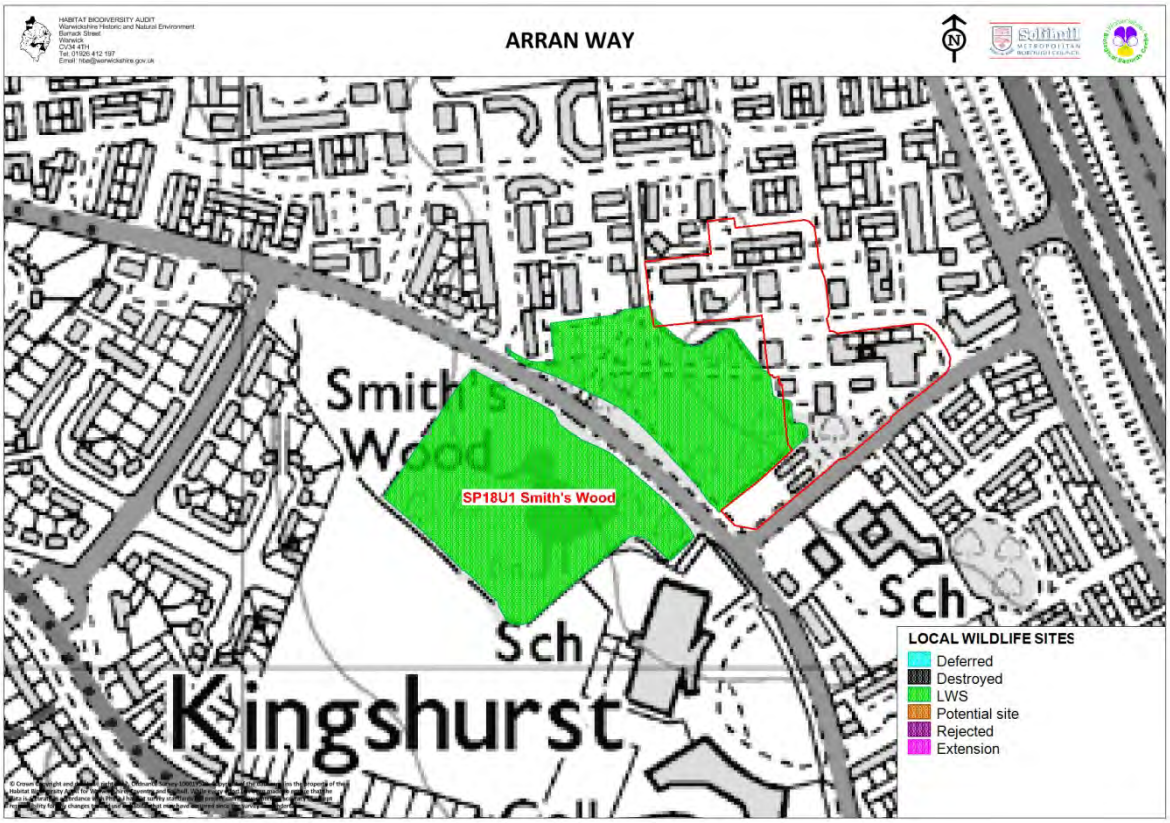


Figure 3 Designated Sites

The development parcel directly borders and infringes Smiths Wood LWS.

Local Wildlife Site

SMITHS WOOD LWS[3] SP18U1 Area; 4.29ha

Survey Date; 19/01/01

Smiths Wood is a 4.29ha area of broad-leaved semi-natural woodland situated in the Smiths Wood area of Solihull. The surrounding land use is predominantly urban although immediately to the south of the wood is a large area of amenity grassland. There is little native woodland in the area apart from Yorks Wood LNR 3/4km to the south west.

Smiths Wood is bisected by a road (Windward Way) but otherwise the extent of the wood is unchanged since the first edition OS Map.

The vegetation is W10 *Quercus robur-Pteridium aquilinum-Rubus fruticosus* woodland. The block of woodland on the south western side of the road is an excellent example of neglected coppice W10 woodland. The stand is dominated by English Oak (*Quercus*

[3] Local Wildlife Sites Project – SP18U1 Smiths Wood 2001 HBA, Warwick

robur) standards with rare frequency Birch (*Betula*). The shrub layer is dominated by dense, mature Hazel (*Corylus avellana*) stools. Bramble (*Rubus fruticosus*) is abundant Bracken (*Pteridium aquilinum*) and Honeysuckle (*Lonicera periclymenum*) are occasional whilst Bluebells (*Hyacinthoides non-scripta*) are dominant in the spring. Wood Avens (*Geum urbanum*) are occasional whilst Wood Sedge (*Carex sylvatica*), Remote Sedge (*Carex remota*) and Greater Stitchwort (*Stellaria holostea*) are rare. There is strong evidence for past coppice management including the composition of the stand and internal boundary ditches to mark the coppice compartments.
The wood on the northern side of the road is a modified example of W10 woodland. English Oak is the most abundant tree. Ash (*Faxinus excelsior*) and Aspen (*Populus tremula*) are also present. The shrub layer is sparser with frequent Hazel and Elder (*Sambucus nigra*). The soil appears to be richer here with some Dogs Mercury (*Mercurialis perennis*) and Wood Millet (*Milium effusum*). Bluebells are abundant and Greater Stitchwort is present. Lots of paths cross this area with disturbance to the ground layer resulting in the presence of ruderal species including Nettles (*Urtica dioica*), Cleavers (*Galium aparine*), Cow Parsley (*Anthriscus sylvestris*) and Dandelion (*Taraxacum officinale*).

The additional species were recorded at a later visit: Rowan (*Sorbus aucuparia*), Tussock Grass (*Deschampsia cespitosa*), Garlic mustard (*Alliara petiolata*), Lords and ladies (*Arum maculatum*), Enchanters nightshade (*Circaea lutetiana*), Pignut (*Conopodium majus*), Broad-leaved willowherb (*Epilobium montanum*), Soft Rush (*Juncus effusus*), Wood sorrel (*Oxalis acetosella*) and Raspberry (*Rubus idaeus*).

Previous records exist for Dogwood (*Cornus sanguinea*), Guelder Rose (*Viburnum opulus*), Wood False Brome (*Brachypodium sylvaticum*), Foxglove (*Digitalis purpurea*) and Ground Ivy (*Glechoma hederacea*) from GVP/RS 18/05/82. Wood Melick (*Melica uniflora*) and Wood Meadow-grass (*Poa nemoralis*) where recorded by Ian Tanner on 06/05/98.

Habitat Description

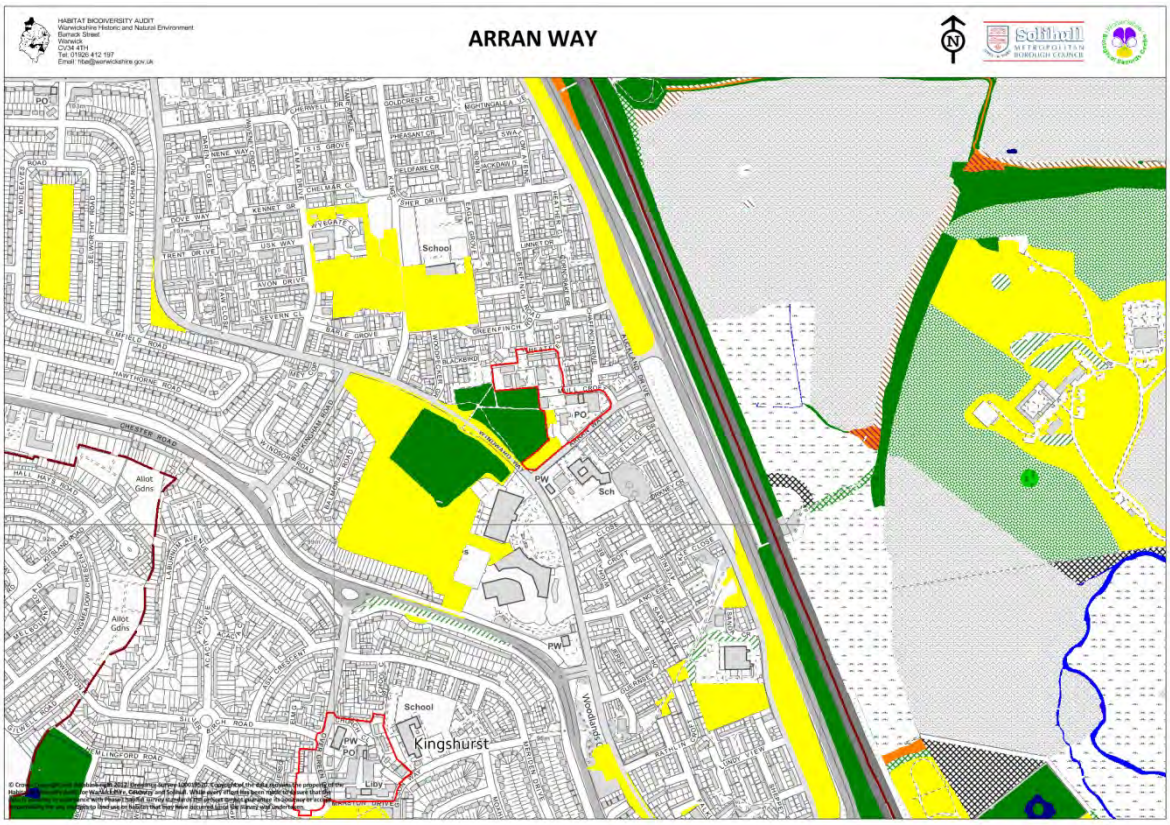


Figure 4 Phase 1 Habitats

The habitats within the parcel comprise amenity grassland of road verges associated with the urban character of the parcel. The most valuable habitat of broad-leaved semi-natural woodland (A111) lies immediately adjacent to the eastern edge of the development parcel enclosed with Smiths Wood LWS. Planted amenity trees (A3) scattered across the development parcel act as important connectivity features.

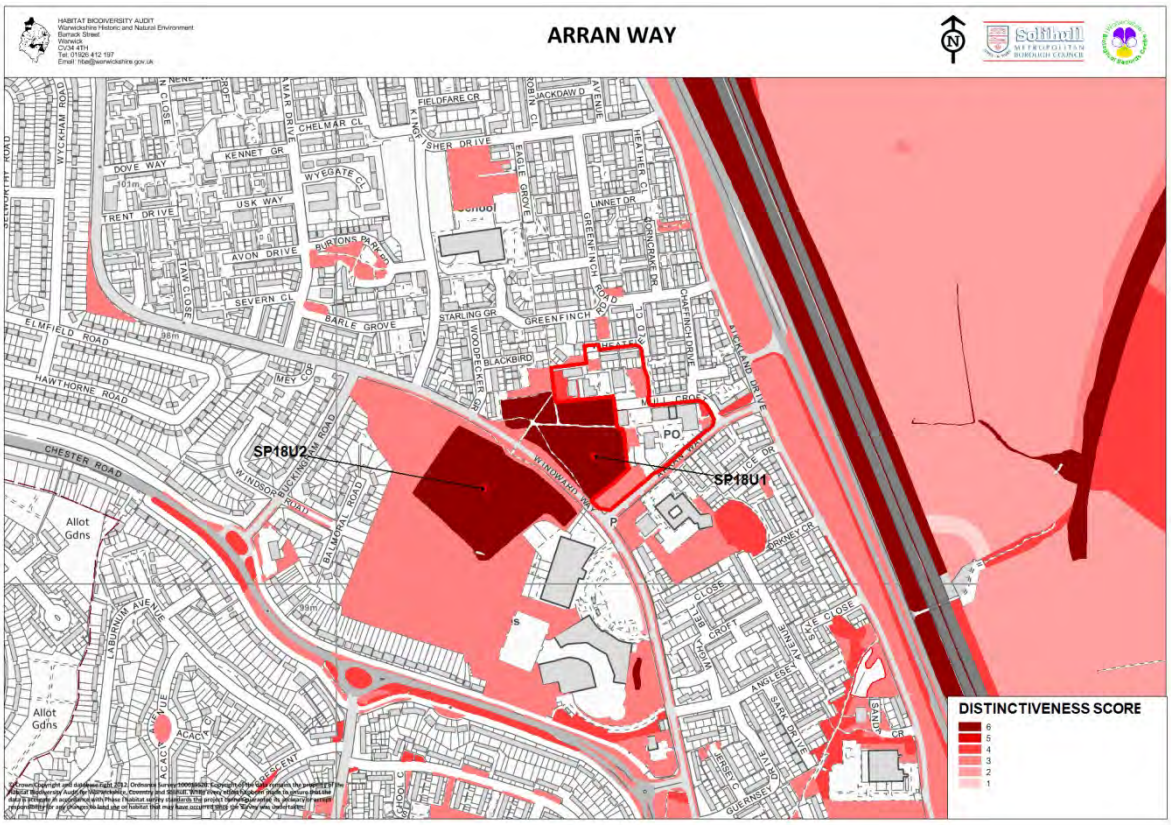


Figure 5 Habitat Distinctiveness & Target Notes

Highly distinct habitats include the semi-natural broad-leaved woodland (A111) of Smiths Wood and amenity grasslands (J12) associated within a number of school grounds.

Target Notes

Number	Grid Reference	Survey Date
SP18U1	**SP1738989183**	**04/06/1998**

Smith's Wood is high forest mature oak woodland with birch (Betula spp.) occasional larch (Latrix spp.) and some ash (Fraxinus excelsior) along the eastern boundary. Well-structured with hazel (Corylus avellana), holly (Ilex aquifolium), cherry (Prunus spp.), hawthorn (Crataegus monogyna) and elder (Sambucus nigra) forming an almost continuous understorey. Bluebell (Hyacinthoides non-scripta) and bramble (Rubus fruticosus agg.) dominate the ground flora with frequent wood millet (Milium effusum), tufted hair-grass (Deschampsia cespitosa), wood meadow-grass (Poa nemoralis) lesser celandine (Ranunculus ficaria), bracken (Pteridium aquilinum), enchanter's nightshade (Circaea lutetiana), common nettle (Urtica dioica), cleavers (Galium aparine) and wood avens (Geum urbanum).

SP18U2 **SP1722489133** **04/06/1998**

Smith's Wood is high forest mature oak woodland with frequent birch (Betula spp.). Well structured with hazel (Corylus avellana), holly (Ilex aquifolium), cherry (Prunus spp.), hawthorn (Crataegus monogyna), elder (Sambucus nigra), some field maple (Acer campestre) and a ground flora dominated by bluebell (Hyacinthioides non-scripta) with bramble (Rubus fruticosus agg.). Also contains frequent wood-millet (Milium effusum), tufted hair-grass (Deschampsia cespitosa), wood meadow-grass (Poa nemoralis), remote sedge (Carex remota), Yorkshire-fog (Holcus lanatus), soft rush (Juncus effusus), wood melick (Melica uniflora), germander speedwell (Veronica chamaedrys), honeysuckle (Lonicera periclymenum), pignut (Conopodium majus), somerosebay willowherb (Chamerion angustifolium), lesser celandine (Ranunculus ficaria), bracken (Pteridium aquilinum), enchanter's-nightshade (Circaea lutetiana), common nettle (Urtica dioica), cleavers (Galium aparine) and wood avens (Geum urbanum).

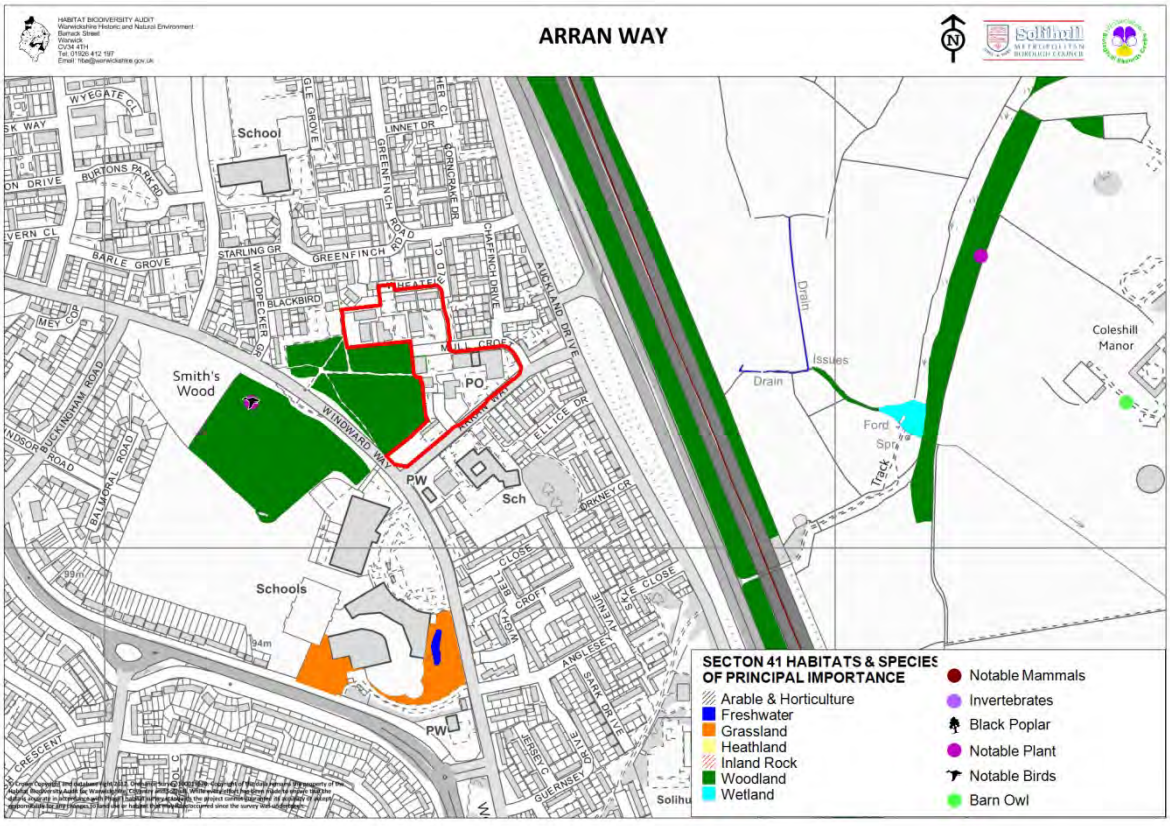


Figure 6 Section 41 Habitats and Species of Conservation Importance

Habitat Connectivity

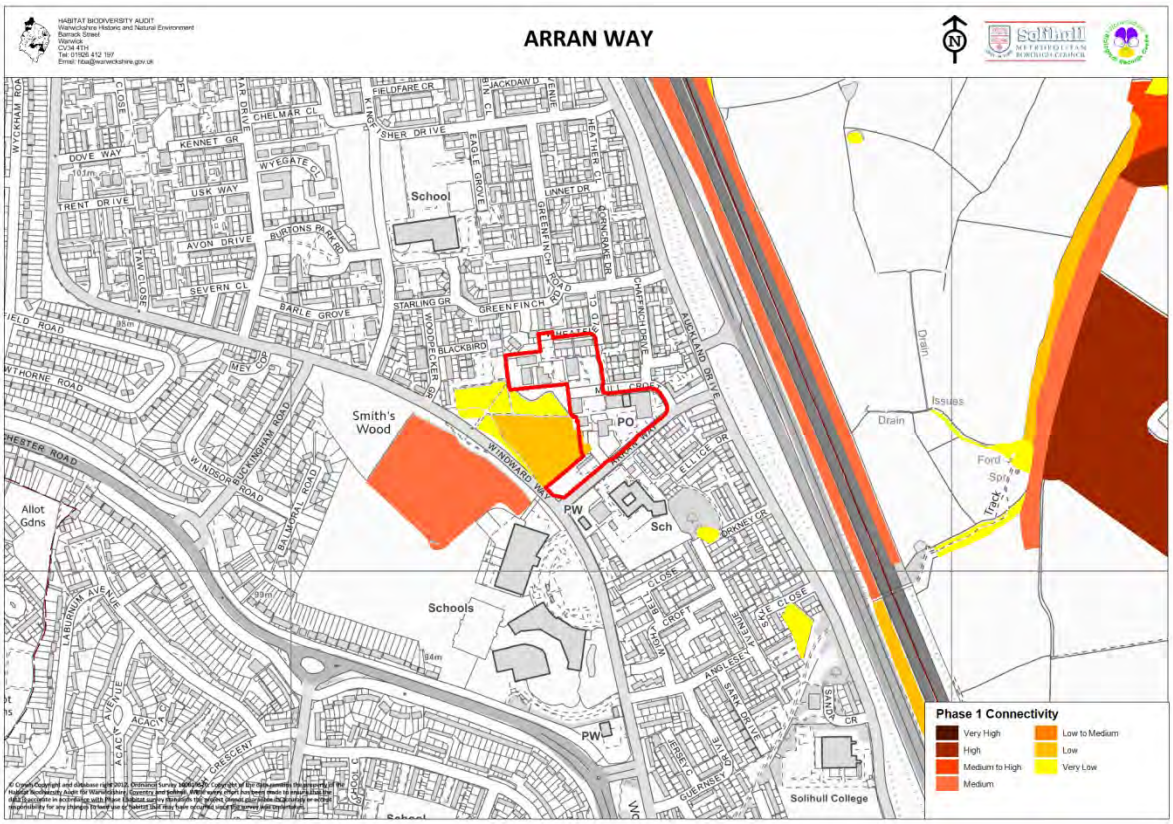


Figure 7 Habitat Connectivity

Woodland habitats range from low to medium connectivity becoming isolated by residential zones and associated road infrastructure. The retention and enhancement of veteran and urban trees along Arran Way and Auckland Drive would complement connectivity with linear woodland that marks the M6 motorway.

Protected Species

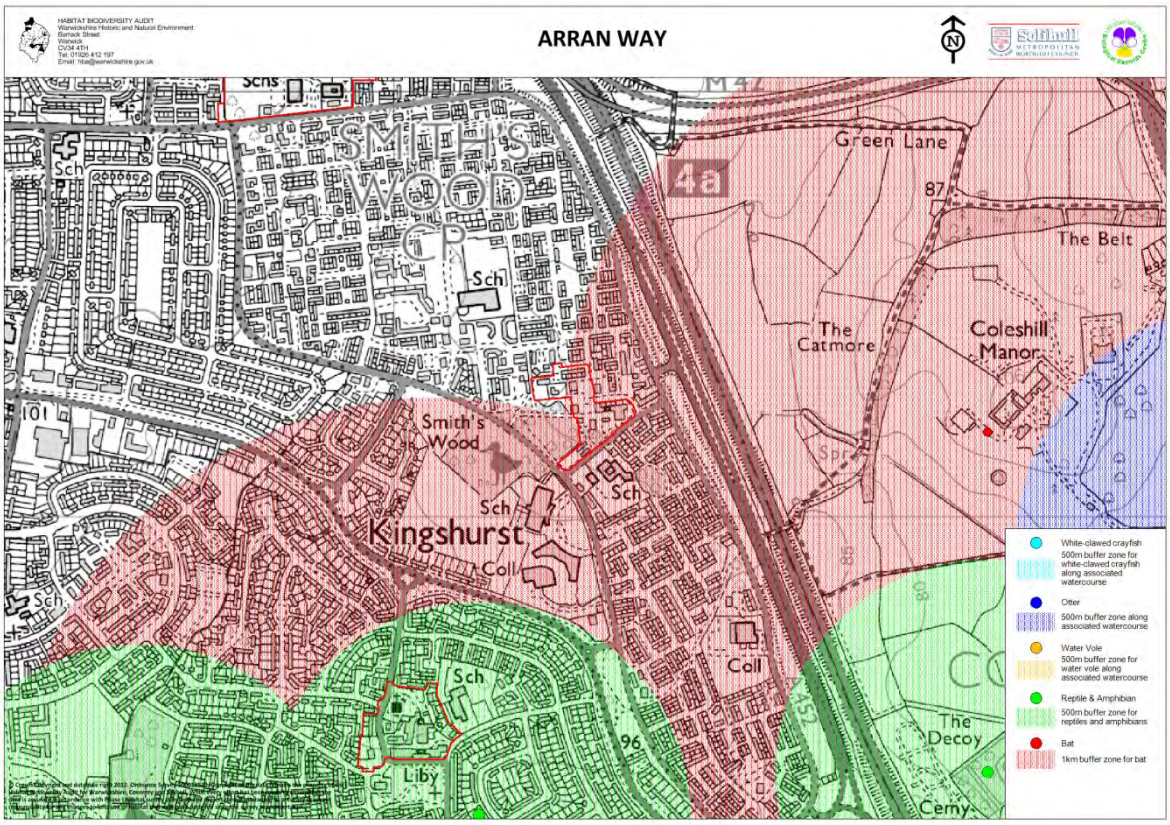


Figure 8 Protected Species

There are no protected or notable species records located within the site boundaries. Foraging and roosting records dating from 2002 exist for two bat species beyond major road barriers 900m away within the grounds of Coleshill Manor.

We recommend that protected species are taken into consideration through more detailed ecological assessments in regard to works taking place close to Smiths Wood. Please take note than an absence of species records does not mean an absence of species.

SITE: BARRATTS FARM

Area: 56 hectares

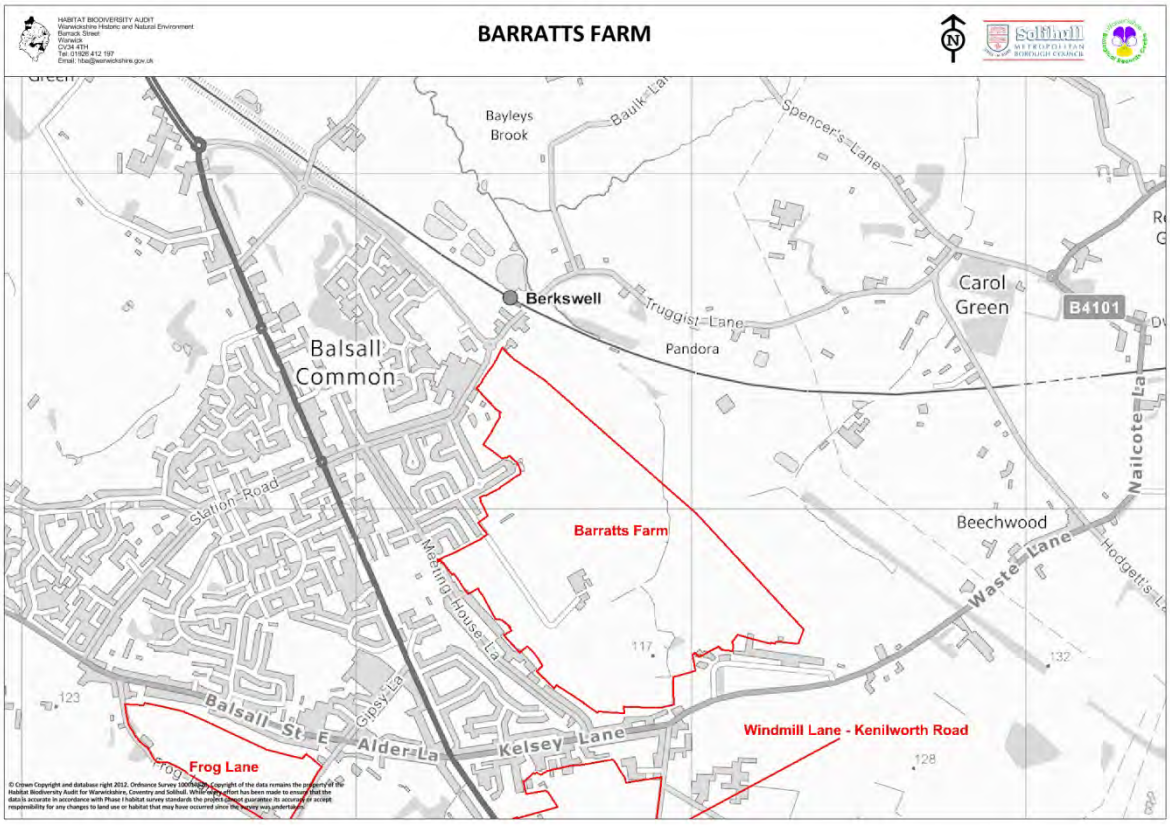


Figure 2 Site Location

Overview

The development parcel is a large rural area of intensive agriculture comprising 77.5% of improved grassland, with 43.4 ha managed as part of a ley farming system. The small field patterns are enclosed by intact hedgerows with mature and veteran trees present.

This rural landscape abounds the large rural settlement of Balsall Common to the east with the Kenilworth Green Dismantled Railway Line to the west. The line stretches 4.5 miles from Kenilworth to Berkswell Station. This is the proposed section of HS2. Balsall Common is one of the larger villages within the borough and sits in the rural greenbelt known as the Meridan Gap. A small brook criss-crosses parts of the parcel and eventually becomes a tributary to the River Blythe.

The centre of the parcel is dominated by Barratts Lane Farm with the farmsteads of Sunnyside and Laburnum Farm dominating the western and south-east periphery. The Lant Rec Ground is sandwiched between Barratts Lane and residential properties off Meeting House Lane that mark the southern rim.

Key Features

- Semi-improved grasslands
- Species-rich intact hedgerows
- Ponds, swamp & marshy grassland
- Hedgerows with mature and veteran trees
- Amphibians
- Potential Local Wildlife Site

Recommendations

Many of the small fields of semi-improved grassland with their associated ridge and furrow have been degraded through intensive grazing, general neglect or through expansion of housing development. The few remaining viable semi-improved grasslands have continued to be neglected and are declining in habitat value. Consideration should be given to restoring the semi-improved grasslands along the southern boundary of the site incorporating the rejected local wildlife site.

There should be a strong commitment to a long term management regime of the species-rich grassland present with the development parcel. A site-specific long-term management plan is required to prevent domination of the sward by scrub and aggressive species. Long term-management should include a monitoring and evaluation programme that will enable the management regime to be adapted as necessary with the aim to determine the extent of the grassland establishment (% ground cover, bald patches and presence of leaf litter) and sward composition (grass to herb ratio, positive indicator species, negative indicator species, species with local distinctiveness). A regime of cutting and light grazing is essential for maintaining species richness.

The small fields are characteristic of the Arden landscape and retention of the species-rich hedgerows should be a priority to maintain the connection with the open countryside south of Balsall Common.

Any potentially species-rich hedgerows should be subject to a full hedgerow survey detailed in the Hedgerow Survey Handbook (2nd edition) under The Hedgerows Regulations (made under Section 97 of the Environment Act 1995). The regulations were introduced in England and Wales in 1997 to protect this characteristic element of the countryside. The Regulations prohibit the removal of most countryside hedgerows without first submitting a hedgerow removal notice to the local planning authority. Local planning authorities are able to order the retention of 'important' hedgerows but not others.

The presence of recent valid amphibian records for great crested newts, smooth newt, common frog and common toad necessitates the requirement for amphibian surveys to determine the status of populations within the development parcel. The supporting pond network should be surveyed to LWS survey standard as a pond cluster.

Given the position of the proposed development in relation to metapopulations of great crested newts, the development scheme should be designed to incorporate additional aquatic features and green corridors to improve linkage between sites in addition to the retention of suitable terrestrial habitat. Sustainable urban drainage schemes should be used to achieve conservation gains for great crested newts.

Building and development work can harm great crested newts and their habitats, for example if it:

- Removes habitat or makes it unsuitable
- Disconnects or isolates habitats, eg by splitting it up
- Changes habitats of other species, reducing the newts' food sources

- Increases shade and silt in ponds or other water bodies used by the newts
- Changes the water table
- Introduces fish, which will eat newt eggs or young
- Increases the numbers of people, traffic and pollutants in the area or the amount of chemicals that run off into ponds

You should be able to avoid harming the newts, damaging or blocking access to their habitats by adjusting proposed development plans.

Mitigation measures must demonstrate that the assessed great crested newt population has suffered no net loss on its conservation status.

Constraints

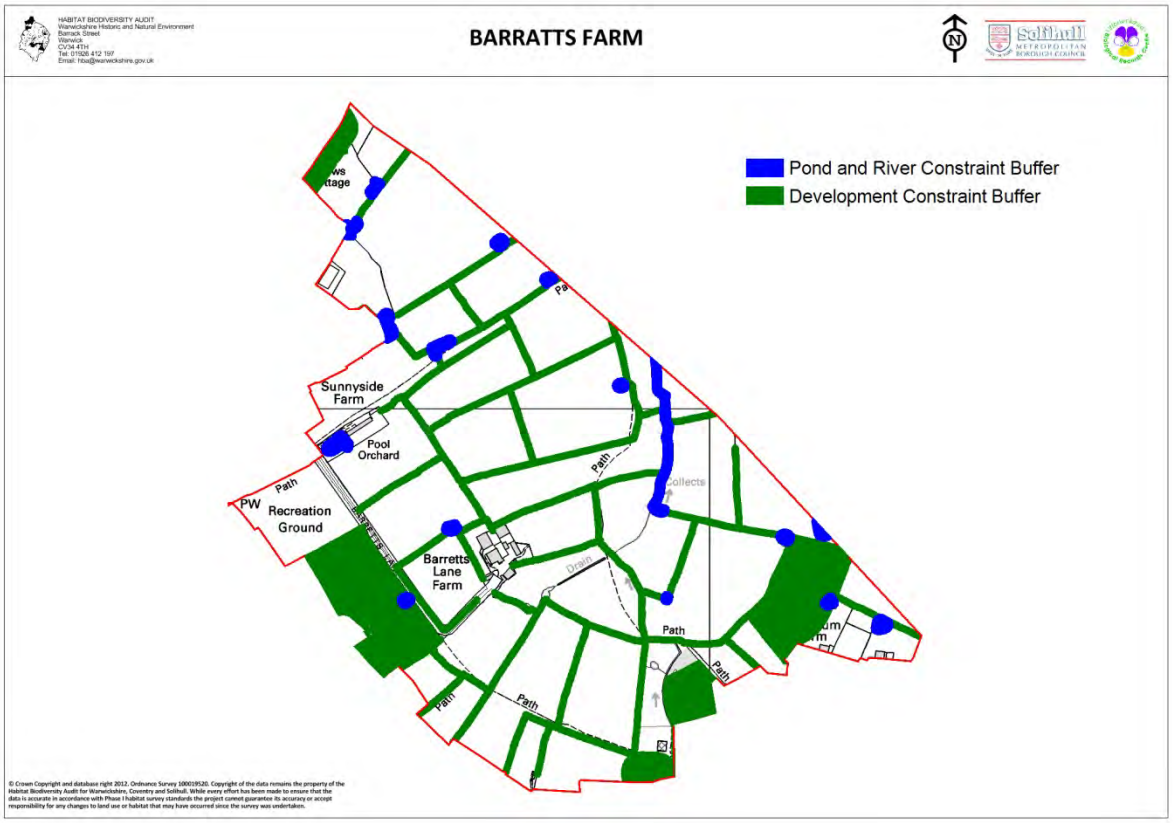


Figure 2 Constraints Map

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They include:

- 30m buffer around woodland
- 8m buffer either side of adjacent to watercourses
- 8m buffers around ponds
- 5m buffer either side of intact hedgerows

- Areas of medium to high distinctiveness grassland (Values 4, 5 & 6)

Designated Sites

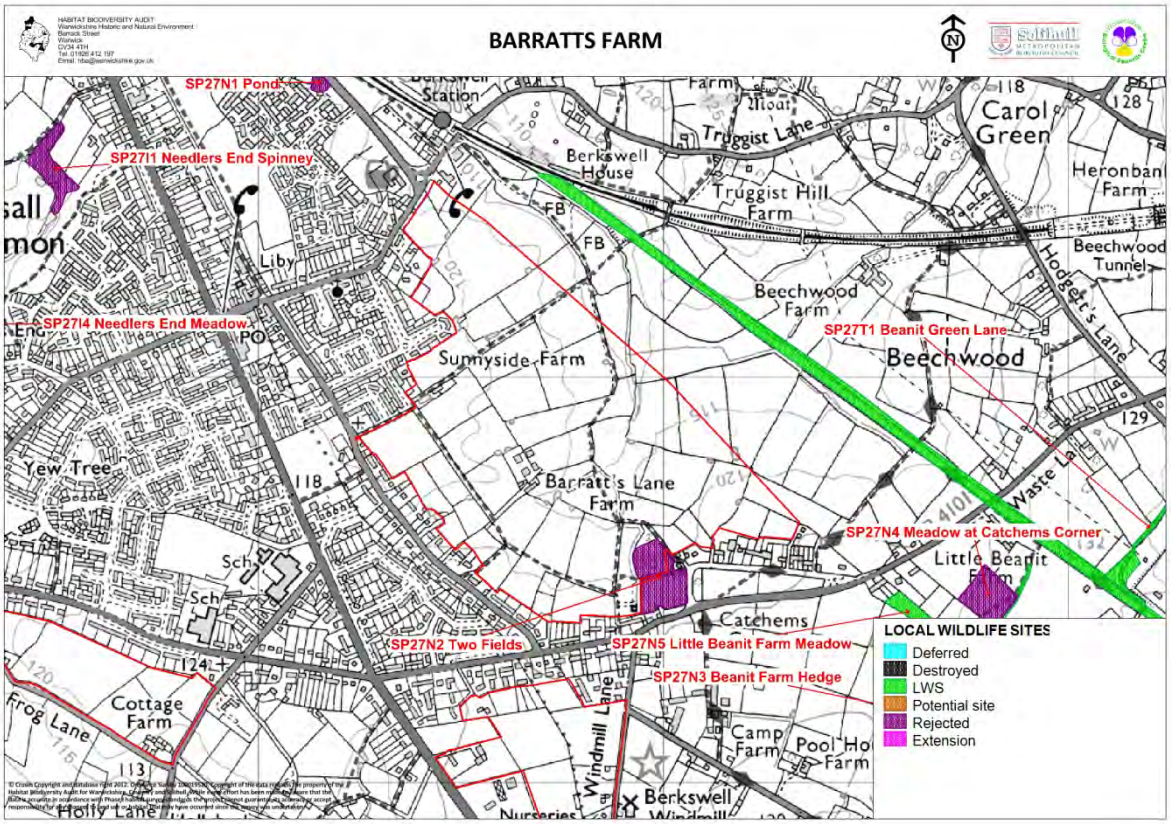

Figure 3 Site Designations

There are no designated sites or proposed sites within Barratts Farm. Two small fields on the southern border of the site were rejected as a local wildlife site in 2005.

Local Wildlife Site

TWO FIELDS REJECTED LWS SP27N2[4] **Area; 1.6 ha**

[4] Local Wildlife Sites Project: Two Fields Rejected LWS, 2005 HBA, Warwick

Habitat Description

The habitats present consist mostly of improved grassland (B4) with low habitat distinctiveness. There are some better areas of grassland including semi-improved neutral grassland (B22) with medium-high distinctiveness, although these are of in-determinate quality having been heavily grazed in the past. Some of these fields retain their ridge and furrow character. The site does have an interconnection of species-rich hedgerows. Semi-improved grasslands equate to 4.6 ha or 8% of the total development parcel. Poor or rank semi-improved grassland equates to 2.6 ha or 4.6 %.

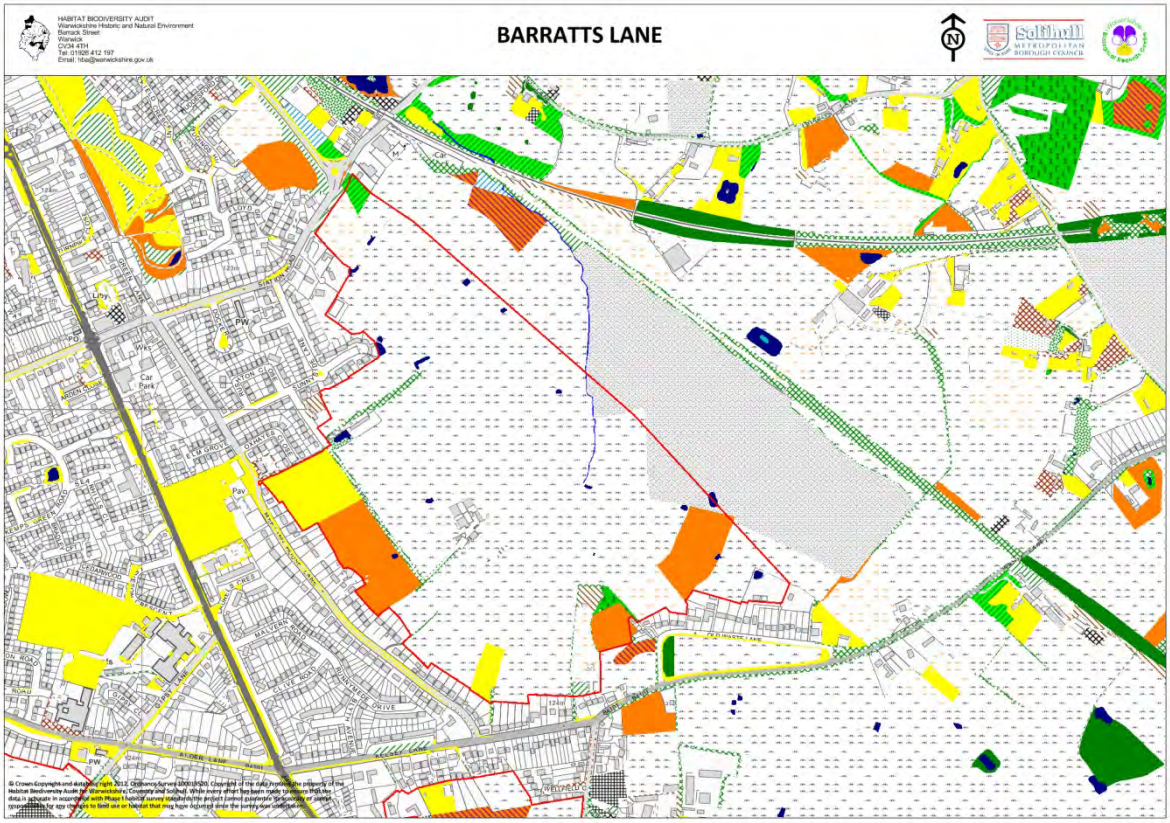

Figure 3 Phase 1 Habitats

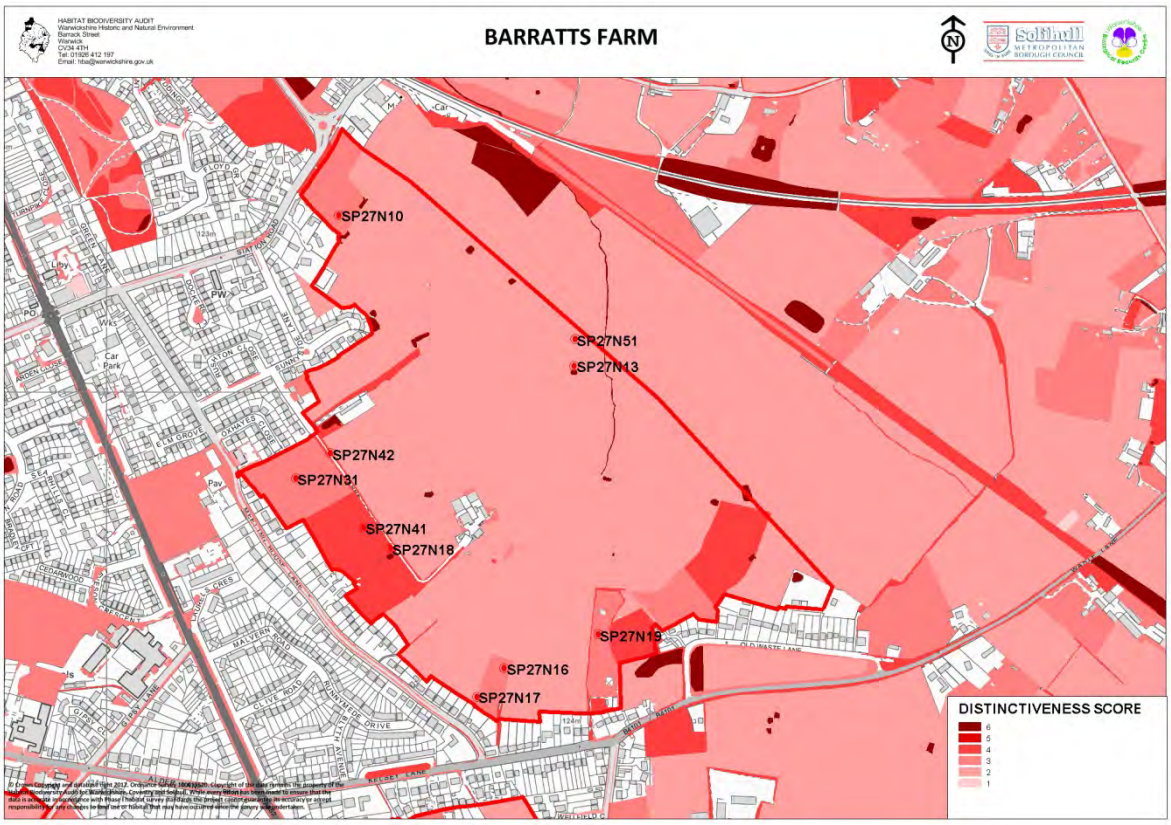

Figure 4 Phase 1 Habitat Distinctiveness

The most distinct habitats are semi-improved grassland parcels (B22) prevalent on the southern and western boundaries. These should be retained and incorporated within development proposals.

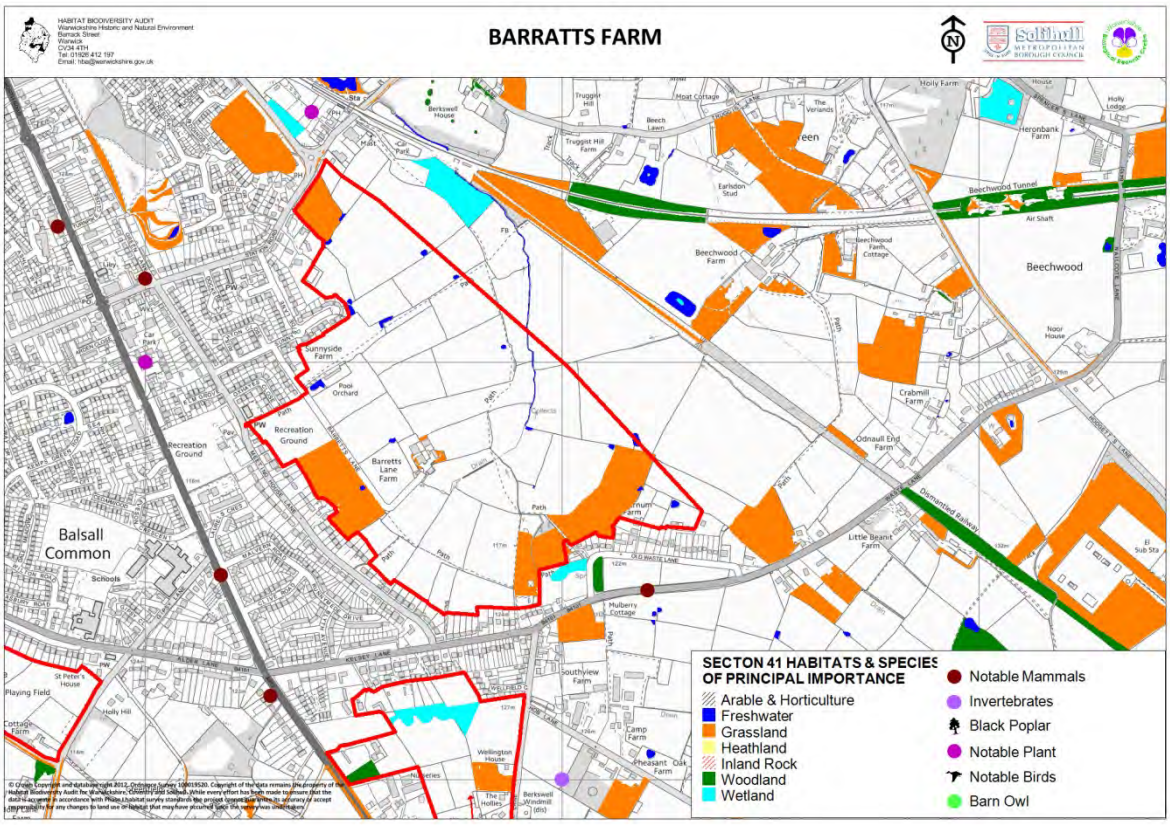

Figure 5 Section 41 Habitats & Species of Principal Importance

Target Notes

Number	Grid Reference	Survey Date
SP27N10	**SP2442777314**	**21/07/1997**

Improved old pasture with very irregular topography and a mature mixed plantation of sycamore (Acer pseudoplatanus) and scots pine (Pinus sylvatica) bordering Station Road.

SP27N13	**SP2486077037**	**21/07/1997**

Pond unshaded by any large trees or shrubs coated instead by duckweeds (Lemna spp.) with little open water. Banks and edges have good mix of grasses and herbs including small reed's (Calamagrostis spp.), floating sweet-grass (Glyceria fluitans), reed canary-grass (Phalaris arundinacea), timothy (Phleum pratense), cock's-foot (Dactylis glomerata), soft rush (Juncus effusus), celery-leaved buttercup (Ranunculus sceleratus) and redshank (Persicaria maculosa).

SP27N16	**SP2473176482**	**05/07/2012**

Marshy area bordered to north and east by a deep ditch with soft rush (Juncus effusus). small sweet-grass (Glyceria declinata) and reed sweet-grass (Glyceria maxima). The rest

of the area is a mixture of tufted hair-grass (Deschampsia cespitosa), reed canary-grass (Phalaris arundinacea), broad-leaved dock (Rumex obtusifolius) and common nettle (Urtica dioica).

UPDATED 05/07/2012

Now a private property with mown grassland.

SP27N17 SP2468176429 05/07/2012

Neglected improved grassland invaded by tall ruderal vegetation. Updated 05/07/2012 now a private property with mown grassland.

SP27N18 SP2452276702 21/07/1997

Mesotrophic pond with mostly open water with floating sweet-grass (Glyceria fluitans), yellow iris (Iris pseudacorus) and water plantain (Alisma plantago-aquatica).

SP27N19 SP2490576543 21/07/1997

Private garden with a recently created pond and introduced plant species.

SP27N31 SP2434876830 05/07/2012

Holly blue (Celastrina argiolus) noted in farmyard.Updated 05/07/2012 now a mown field which is privately owned by the Roman Catholic Archdiocese of Birmingham.

SP27N41 SP2447376740 05/07/2012

Neglected semi-improved grassland meadow dominated by tall grasses including cock's-foot (Dactylis glomerata) and creeping soft-grass (Holcus mollis) alongside patches of meadow vetchling (Lathyrus pratensis) and oak (Quercus robur) saplings throughout.

SP27N42 SP2441176877 05/07/2012

Species rich-hedgerow with trees containing specimens of common hawthorn (Crataegus monogyna), midland hawthorn (Crataegus laevigata), hazel (Corylus avellana), crab apple (Malus sylvestris), holly (Ilex aquifolium), oak (Quercus robur) and ash (Fraxinus excelsior). Ground flora includes foxglove (Digitalis purpurea), bramble (Rubus fruticosus agg), creeping buttercup (Ranunculus repens), ivy (Hedera helix), hedge woundwort (Stachys sylvatica), cleavers (Galium aparine), common nettle (Urtica dioica), honeysuckle (Lonicera periclymenum), herb-robert (Geranium robertianum), field rose (Rosa arvensis) with yellow iris (Iris pseudacorus) recorded frequently in a wet ditch. The hedge is well maintained but is scrubby and up to 25m high.

An important linear feature, which comprises of a continuous line of sessile oak (Quercus petraea) alongside occasional goat willow (Salix caprea), ash (Fraxinus excelsior) and a poplar (Populus sp.) species. The under-storey comprises of bramble (Rubus fruticosus agg.) and dog rose (Rosa canina). The fenced hedgerow prevents stock damage and is shadowed by a wet ditch along its entire length.

Habitat Connectivity

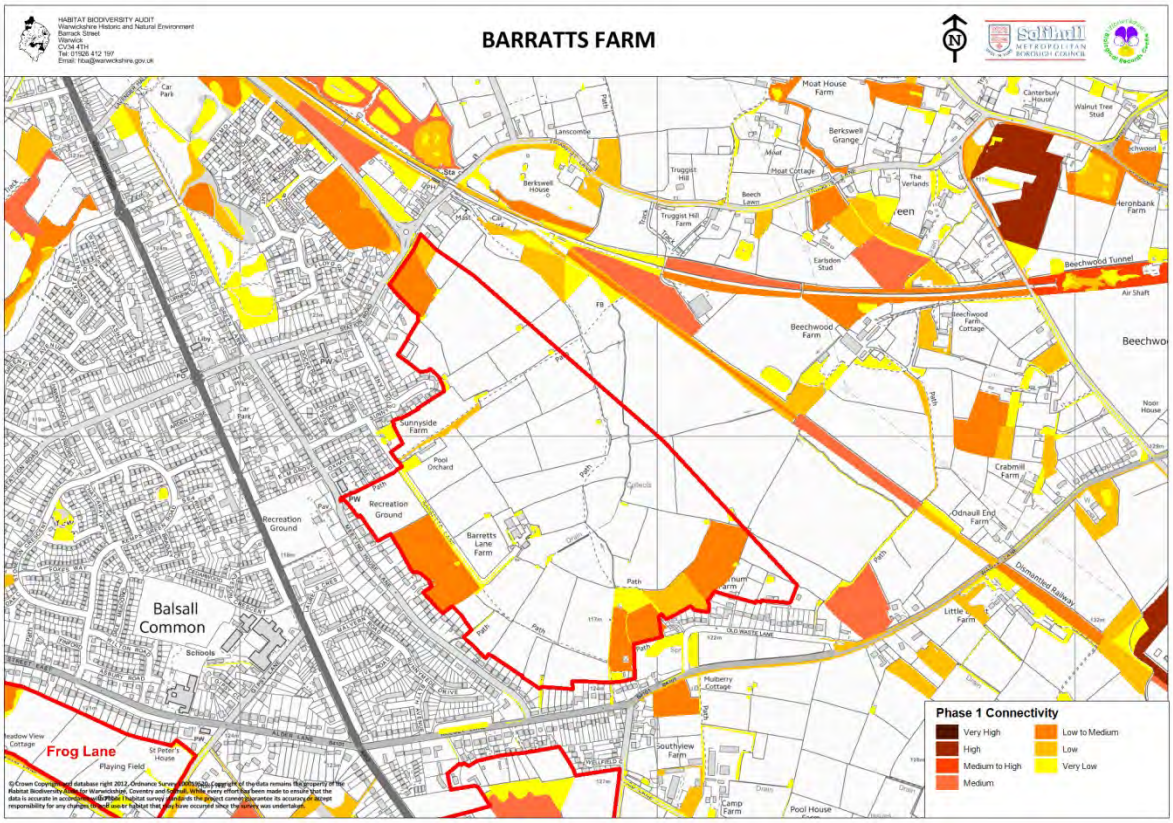

Figure 6 Habitat Connectivity

Semi-improved grasslands occupy medium connectivity and those areas highlighted on the southern and western boundary should be enhanced as grassland creation and enhancement zones.

Protected Species

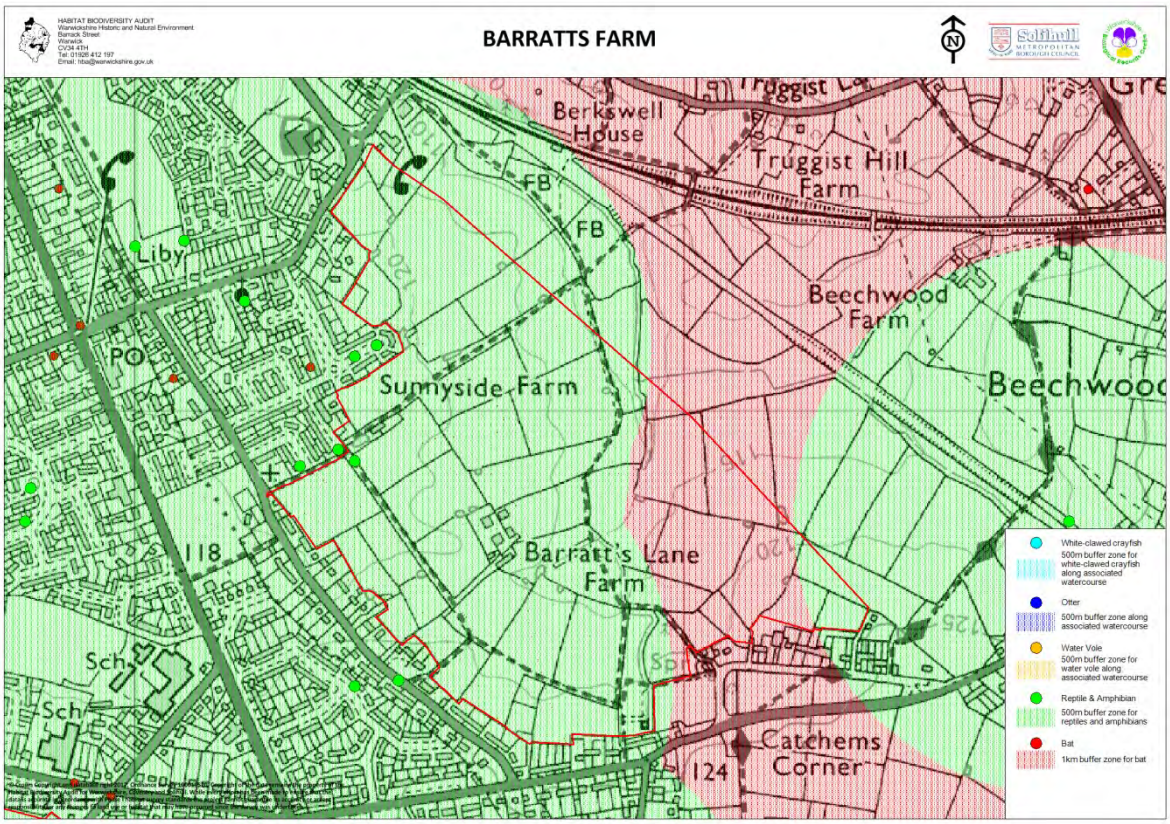

Figure 7 Protected Species

The development proposal holds modern records for breeding great crested newts (Triturus cristatus). The Warwickshire Reptile and Amphibian Network recorded great crested newts within and immediately adjacent to the proposed development within residential properties on and adjoining to Barratts and Sunnyside Lane in 2015. A newt breeding pond lies just inside the central western boundary of the development parcel, which in addition supports a pond network in addition to suitable terrestrial habitat for great crested newts. An assessment of the status and distribution of the population will be required.
In the same survey, numerous records indicated strong populations for smooth newt (Lissotriton vulgaris), common toad (Bufo bufo) and common frog (Rana temporaria) within similar habitats along Meeting House, Barratts and Sunnyside Lane.

The likely presence of strong populations of amphibians necessitates that the first aim will be to avoid negative effects on amphibian populations by re-designing the development scheme to avoid habitat fragmentation by creating corridors or steeping stones of habitat to join up populations, altering road routes, installing green bridges and creating new breeding and terrestrial habitats on both sides of roads to prevent road casualties.

It is essential that new habitats are designed to avoid trapping amphibians by using sloping kerbs either side of gully pots, creating draining schemes without sumps and not using kerbs.

Modern records from 2012 for Brown Long-Eared (Plecotus auritus) and pipistrelle (Pipistrellus sp.) bats supersede records from 2006, 100m-300m from the western development parcel boundary.

Roosting and foraging bats of common pipistrelle and noctule (Nyctalus noctula) (Pipistrellus pipistrellus) from 2005 are superseded in 2013, 500m from the development parcel on Station and Kenilworth Road.

SITE: CHESTER ROAD AND MOOREND AVENUE

Area: 4 hectares

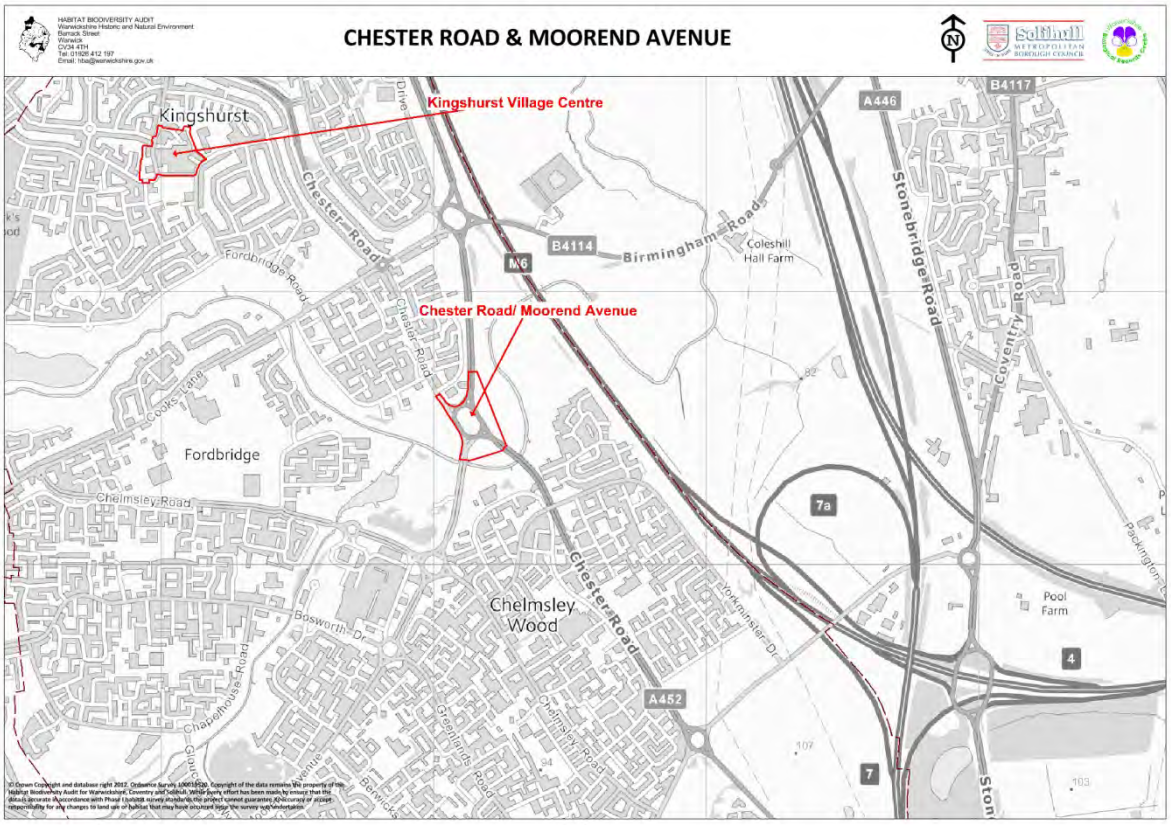

Figure 8 Site Location

Overview

The sites are located at the road junction of the A452 at the joining of Chester Road and Moorend Avenue between the suburbs of Bacon's End and Chelmsley Wood. The development parcel encompasses the road network that dissects the River Cole at Bacon's End Bridge.

Of the 2.4 ha of semi-natural habitat present outside of the developed road network within the proposed development parcel, 1.3 ha comprises short amenity grassland of road verge and associated traffic islands accompanied in part by 0.2 ha of broad-leaved plantation woodland and 0.1 ha of dense scrub.

The proposed development parcel includes 1.3 ha of the Cole Park Bank LWS including 0.7 ha of scattered scrub, 0.3 ha of amenity grassland and 0.1 ha of dense scrub.

Cole Bank Park LWS forms part of the Cole Valley corridor, an exceptionally important linear feature which links up numerous important wildlife habitats and green spaces across Birmingham and Solihull, up to the river's confluence with the River Blythe SSSI near Coleshill. It is also a vital part of Kingfisher Country Park.

The area of reed swamp, marsh, wet grassland and developing carr is a good example of a feature now scarce in the region, and is particularly important in the Cole Valley where similar habitat is now almost non-existent.

Key Features

- Cole Park Bank LWS
- Wetland habitats
- Priority grassland and scrubland

Recommendations

The inclusion of sections of Cole Bank Park LWS within the development parcel raises ecological constraints. Cole Bank Park contains a mosaic of MG1 grassland, scrub and tall herb, with the most important habitat consisting of a particularly species-diverse wetland area including wet willow carr and scrub, reed swamp, marsh and wet grassland.

Much of the land acquired for possible development extends to those habitats associated with the already existing transport infrastructure however the proposed development will split already fragmented sections of Cole Bank Park LWS and encroach close to the River Cole, designated as a potential LWS. As such an adequate buffer zone should be place between any proposed development and the River Cole as not to adversely affect the character and value of the watercourse. Any proposed development at a minimum should not be within 8 metres of the watercourse. The vegetated buffer zone of native plant species will allow the retention of any trees and shrubs along this boundary. The southern extent of the development parcel extends 11m from the bank of the River Cole. As a consequence a pre-cautionary measure is advised that before and during construction, vehicle and construction activities do not enter a demarcation zone within 10m of the River Cole. Outside of recommendations achieved through protected species surveys, no impact is anticipated upon commuting and foraging otter habitat.

In the first instance, avoidance should be taken to avoid development on any designated LWS and as such a review of design proposals to exclude areas of LWS for development is recommended. Secondly if avoidance is not likely offset the loss associated with the development of a local wildlife site accordingly.

Overall 186 species of vascular plants were recorded which is above average.

A range of sub-habitats are also present within the LWS including seasonally wet bare areas, steep slopes and an area of hard-standing supporting a developing calcareous flora. Although not botanically rich the MG1 grassland and scrub supports a diverse range of birds, mammals and invertebrates, including many species which are scarce or absent in the surrounding built-up environment.

Constraints

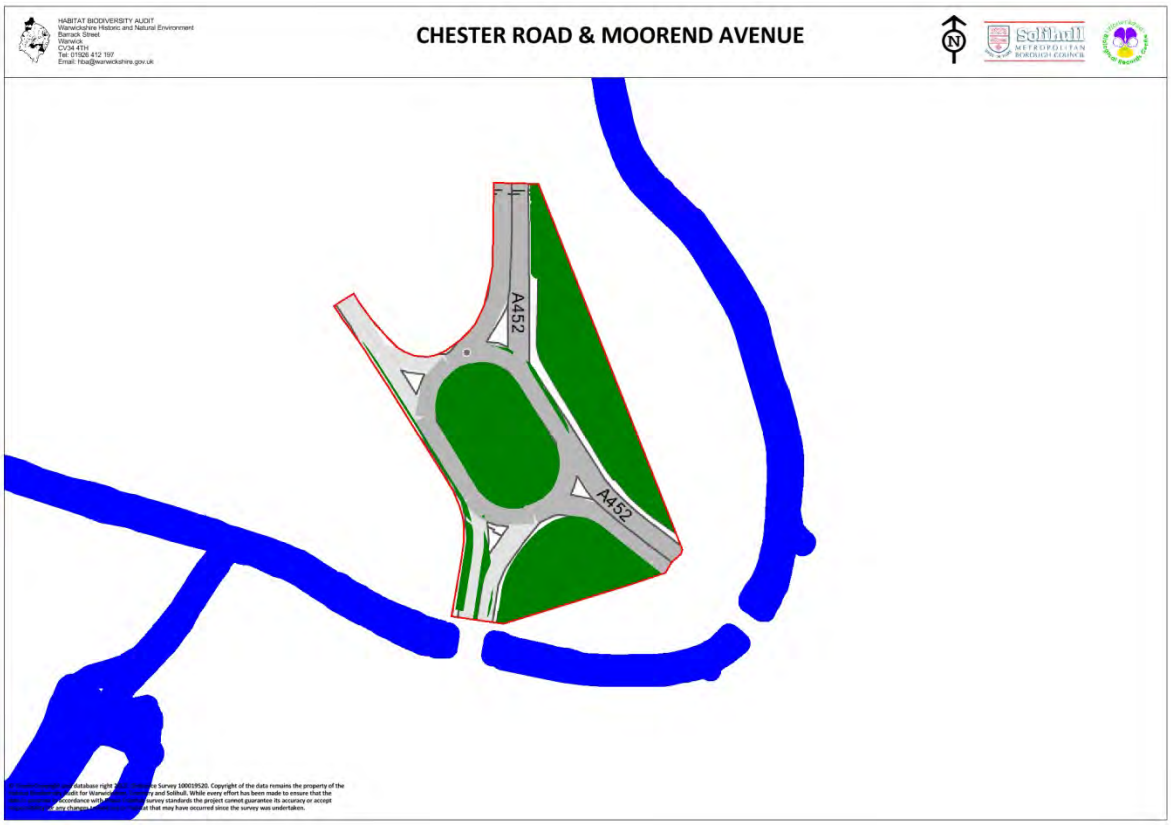

Figure 2 Constraints Map

The areas marked in green and blue on the above constraints map indicate where development should be avoided and ecological enhancement encouraged.

They include:

- 30m buffer around woodland
- 8m buffer either side of adjacent to watercourses
- 8m buffers around ponds
- 5m buffer either side of intact hedgerows
- Areas of medium to high distinctiveness grassland (Values 4, 5 & 6)

Designated Sites

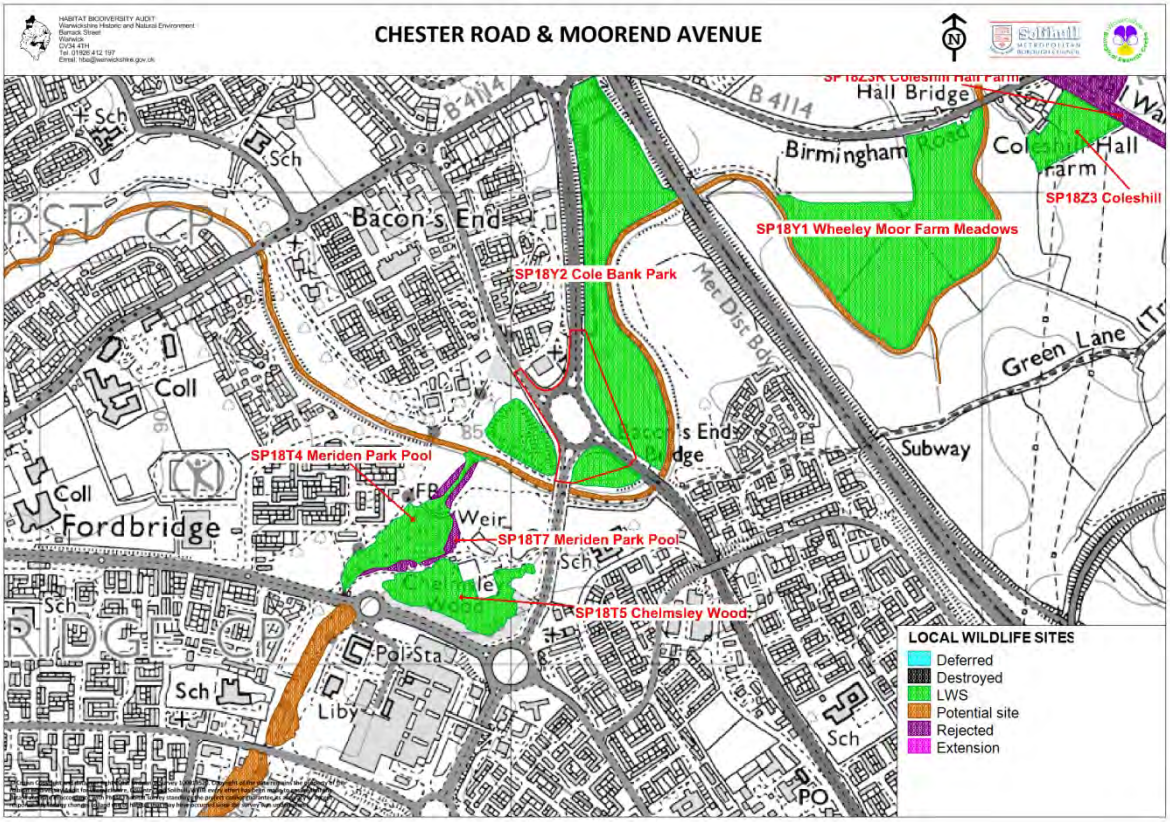

Figure 3 Site Designations

The development parcel intersects the Cole Bank Park LWS and in its south-western corner cushions the River Cole potential Local Wildlife Site.

Local Wildlife Site

SP18Y2 COLE BANK PARK LWS[5] **Area; 10.85 ha**

Survey Date; 29/10/2009

Cole Bank Park is a narrow corridor of semi-natural habitats situated on the west bank of the River Cole in a heavily urbanised part of Solihull, and is part of Kingfisher Country Park. It lies between the densely populated suburbs of Chelmsley Wood to the south and Kingshurst to the west and north-west, and is bounded by the River Cole on the east side, the M6 motorway to the north and by the duelled A452 to the west.

The park is part of a vital green lung and wildlife corridor which connects a number of LWS's along the Cole Valley and Kingshurst Brook, such as Babb's Mill Lake, Allcott Wood and York's Wood, with open countryside to the north beyond the M6 motorway.

[5] Local Wildlife Sites Project: Cole Bank Park LWS, 2010 HBA, Warwick

The park's geology and landscape has altered profoundly since the area was developed in the 1960's and 1970's, having originally been part of a series of flat river meadows overlying alluvial deposits. With new road construction large amounts of spoil were deposited on the site and subsequently landscaped, and the park now consists of a series of low mounds and ridges which have been extensively planted with blocks of largely native shrubs and trees. An area of original grassland does survive in the northern part of the LWS however, and this has remained wet due to impeded drainage caused by the steep embankments of the M6 and A452 which act as impoundments. An area of reed swamp, marsh and willow carr has formed in this area, partly covering several small ponds which formerly existed.

Road construction has isolated two sections of the LWS on the south side which are connected by underpasses, and the whole park has open access to the general public.

Potential Local Wildlife Sites

RIVER COLE SP18Li4z **Area; 9.84 ha**

Habitat Description

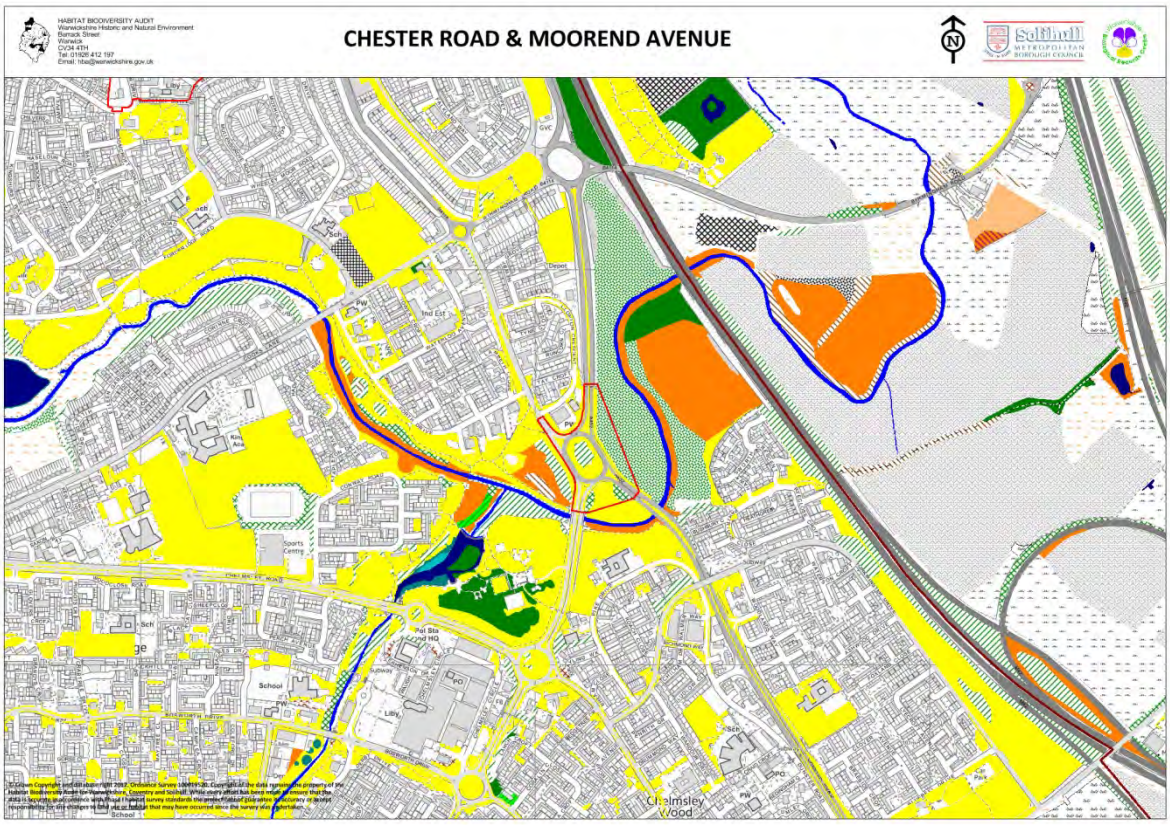

Figure 4 Phase 1 Habitats

The Chester Road/Moorend Avenue site consists of a central area of broad-leaved plantation (A112) surrounded by mown areas of amenity grassland (J12) along the roadside verges. Part of the proposed site extends into Cole Bank Park and LWS. This part of the site has the continuous strip of semi-improved grasslands (B22) with patches of dense scrub.

The semi-improved grasslands have high habitat distinctiveness, which have been fragmented by the road development. The River Cole loops around the southern edge of the site providing an important wildlife corridor between the densely built up areas of Chelmsley Wood and Kingshurst.

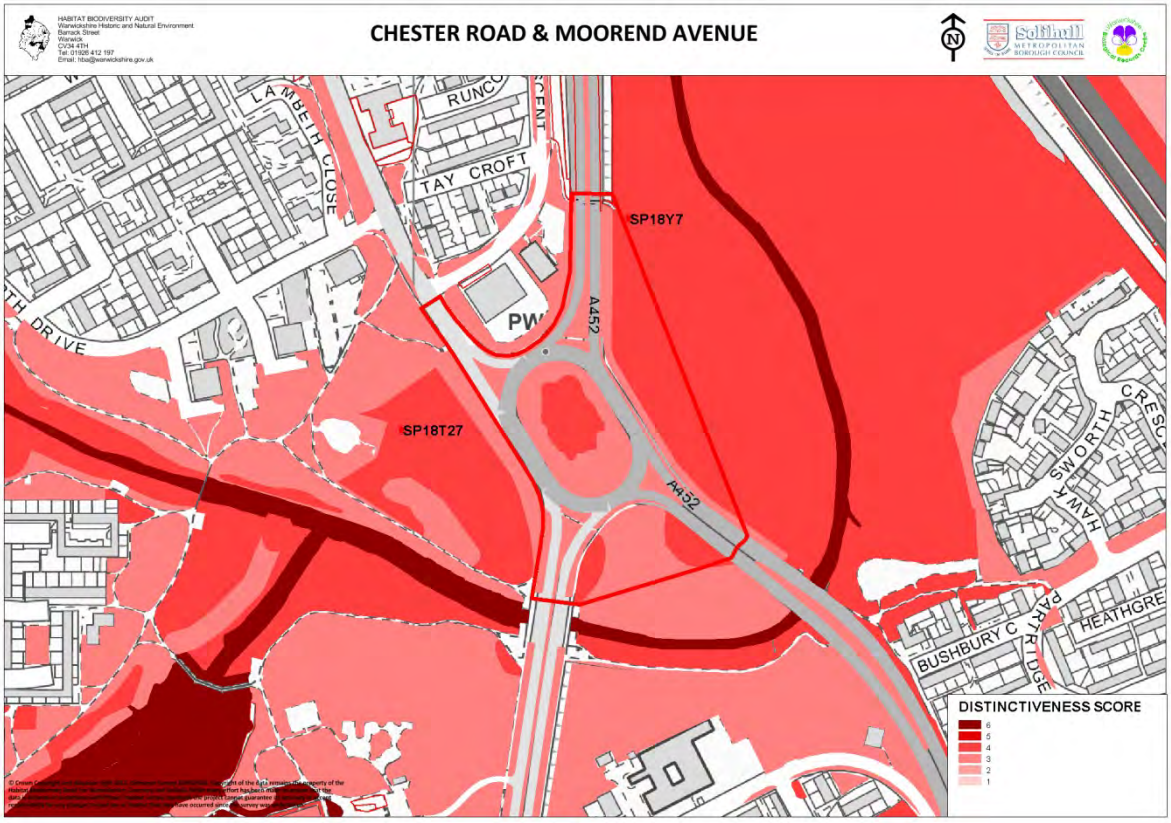

Figure 5 Habitat Distinctiveness & Target Notes

Target Notes

Number	Grid Reference	Survey Date
SP18Y7	**SP1816987680**	**06/08/1998**

Poor disturbed semi-improved grassland dominated by perennial rye-grass (Lolium perenne) with abundant false oat-grass (Arrhenatherum elatius), cock's-foot (Dactylis glomerata), tufted hair-grass (Deschampsia cespitosa) and timothy (Phleum pratense). ribwort plantain (Plantago lancelota), autumn hawkbit (Leontodon autumnalis) and dandelion (Taraxacum officinale agg.) are frequent to locally abundant with wild carrot (Daucus carota), lesser trefoil (Trifolium dubium), red (T. pratense) and white clover (T. repens), thistle (Cirsium sp.), mugwort (Artemisia vulgaris), hairy tare (Vicia hirsuta) and cat's-ear (Hypochaeris radicata) with patches of field scabious (Knautia arvensis), ladies-bedstraw (Galium verum) and ox-eye daisy (Leucanthemum vulgare). Mosaic of mown and um-mown grassland with sections along the River Cole, appear to be mown during the summer.

SP18T27	**SP1798987513**	**01/05/2010**

Large raised large mound near Forth Drive Play Area with tussock grasses and locally dominant cow parsley (Anthriscus sylvestris) and scrub occupying good butterfly habitat with ringlet (Aphantopus hyperantus), meadow brown (Maniola jurtina), gatekeeper (Pyronia tithonus) and burnet moths (Zygaena spp.) seen.

SP18T30 **SP1787187466** **01/05/2010**

The River Cole and adjacent banks; is a mosaic of grassland types, backed by scrub and plantation. On the north bank the area closest to the river contains taller herbs and grasses including Stinging Nettle, White Dead-nettle, cow parsley (Anthriscus sylvestris), Cock's-foot, Meadow Foxtail, cleavers (Galium aparine), Broad-leaved Dock. Further away from the river the sward is more diverse, where common vetch (Vicia sativa), Woodrush, ribwort plantain (Plantago lancelota), Beaked Hawk's-beard, Common Sorrel and Dandelion are all frequent. The patches of scrub consist of hawthorn (Crataegus monogyna), blackthorn (Prunus spinosa), bramble (Rubus fruticosus agg.) and Willows sp. with Cow Parsley being the dominant herb. The south bank is steeper and the grasses are mostly coarse tussock grasses such as Cock'sfoot and False Oat Grass. Flowering plants are rare and include Meadow Crane's-bill. The river is visited regularly by Kingfishers and Grey Wagtails.

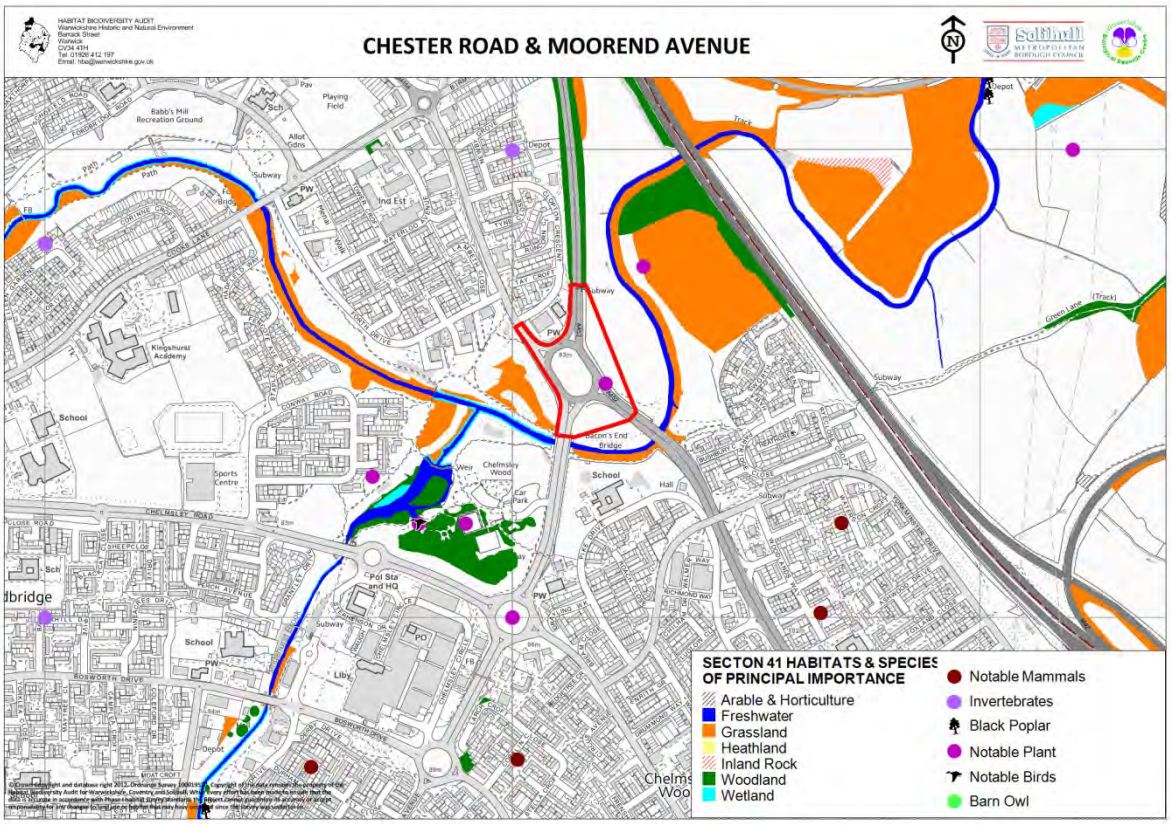

Figure 6 Section 41 Habitats and Species of Principal Importance

Habitat Connectivity

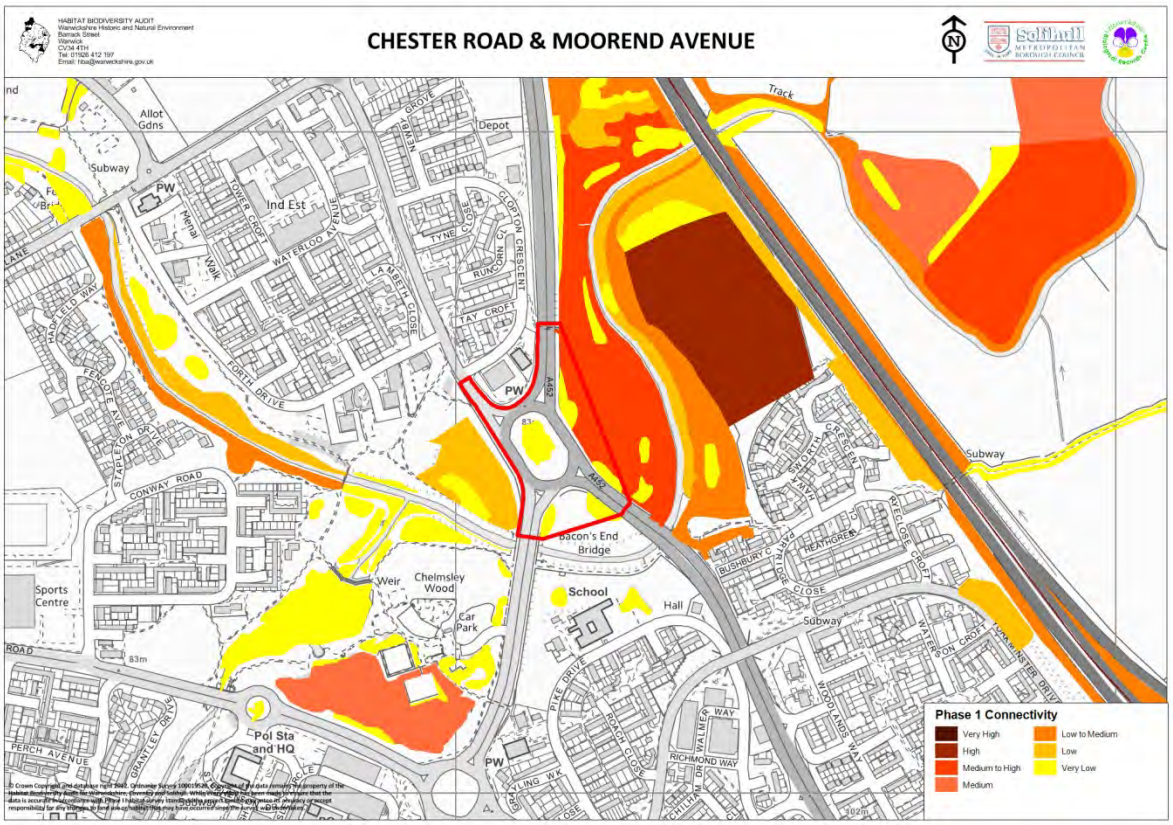

Figure 7 Habitat Connectivity

The important habitat sections providing wildlife corridors are to the south of the site along the River Cole, and to the east along the Cole Bank Park LWS.

Protected Species

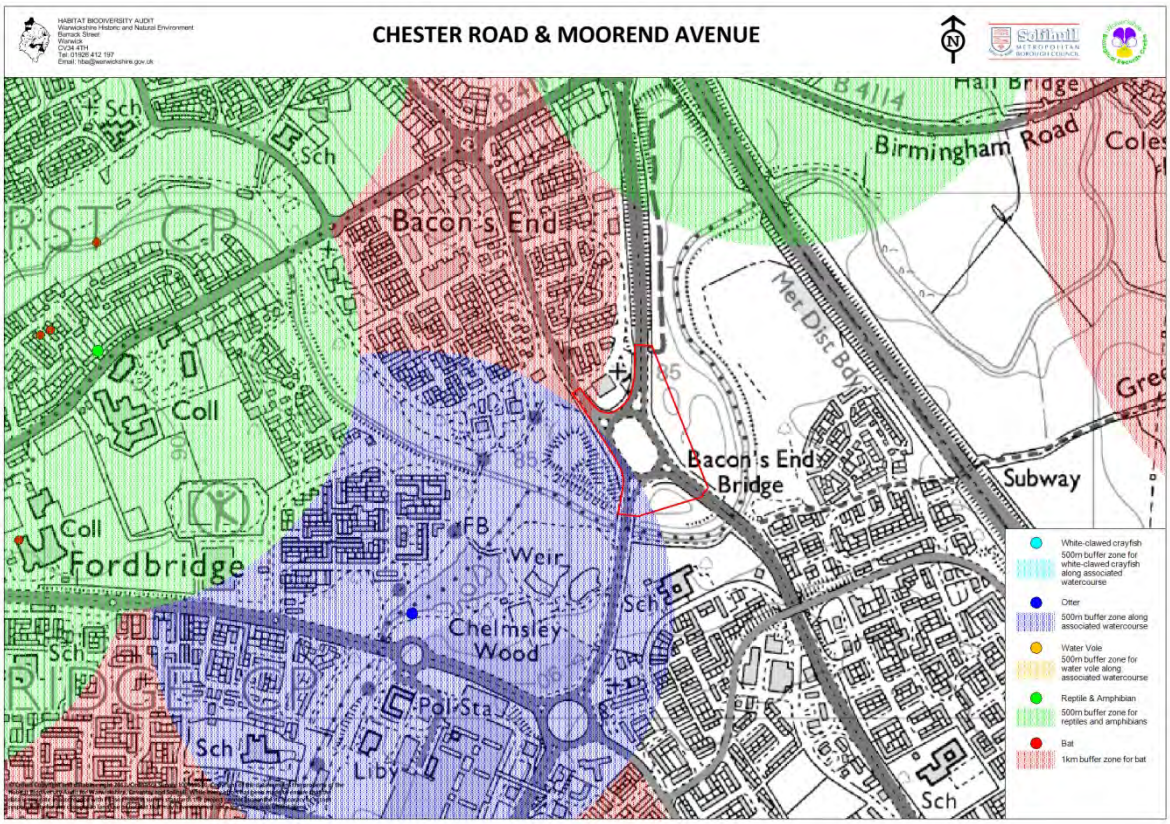

Figure 8 Protected Species

There are no protected or notable species records located within the site boundaries. We recommend that protected species are taken into consideration through more detailed ecological assessments in regard to works taking place close to Smiths Wood. Please take note than an absence of species records does not mean an absence of species.

EAST OF SOLIHULL

Area: 37 hectares

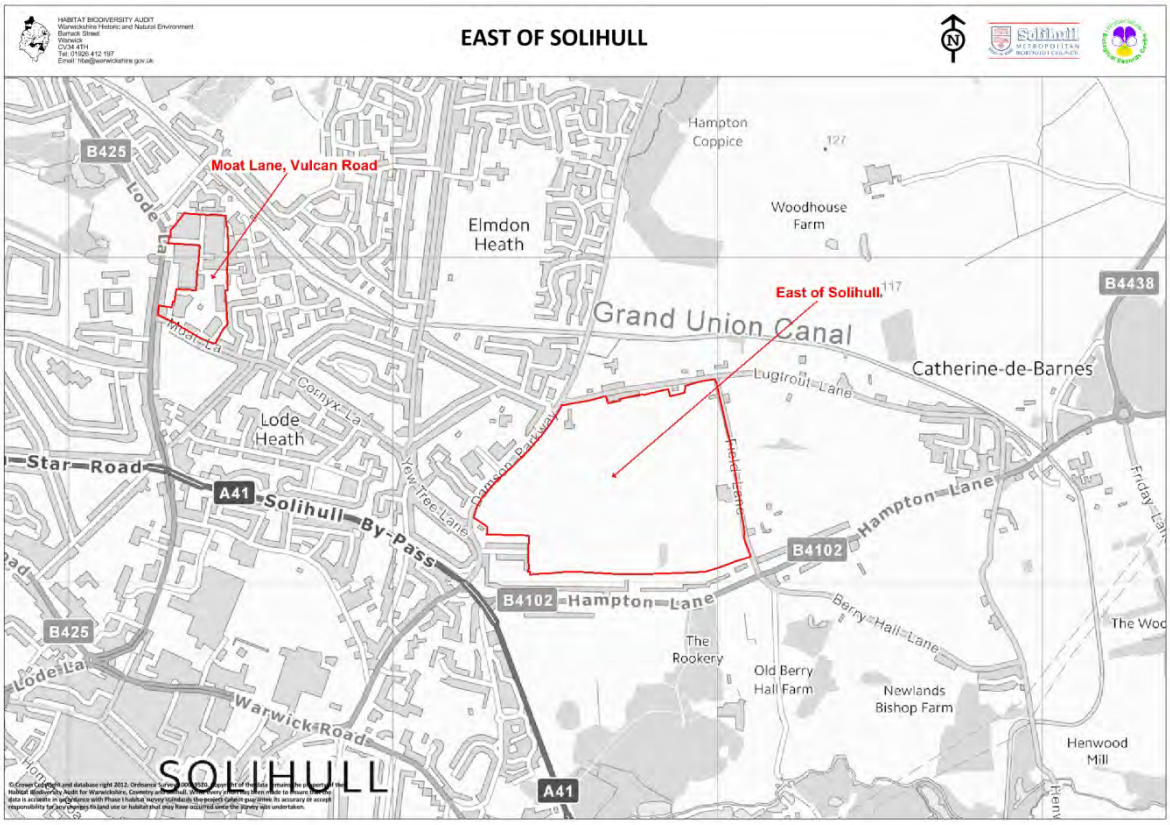

Figure 9 Site Location

Overview

The square development parcel is enclosed to the north by Lugtrout Lane with the Grand Union Canal further afield with Coldlands Colts Boys Football Club denoting the north-east corner accessed via Field Lane, which marks the eastern boundary incorporating the farmstead of Field Farm. Further east, approximately 570m lie's the village of Catherine-de-Barnes. The western boundary is marked by Damson Parkway joining the suburb of Lode Heath. The southern boundary is enclosed by residential properties off Hampton Lane.

Key Features

- Arable farmland
- Improved grassland
- Semi-improved neutral grassland
- Scrub
- Broad-leaved plantation
- Pinfold Nursery (SP18Q4)

Recommendations

It is preferential that the mosaic of good quality semi-natural habitats enclosed within the rejected LWS be subject to further survey with the aim of being designated as green open space. This is to facilitate the principal goal to improving access to existing green infrastructure in the locality and to mitigate landscape impacts from proposed development. The impact on biodiversity will be greatly diminished by the retention of better quality habitats present within the development parcel. Greater habitat connectivity will be achieved by the retention of the existing veteran trees and mature boundary features, retaining viable parcels of agricultural land and the planting of trees along its boundaries.

Constraints

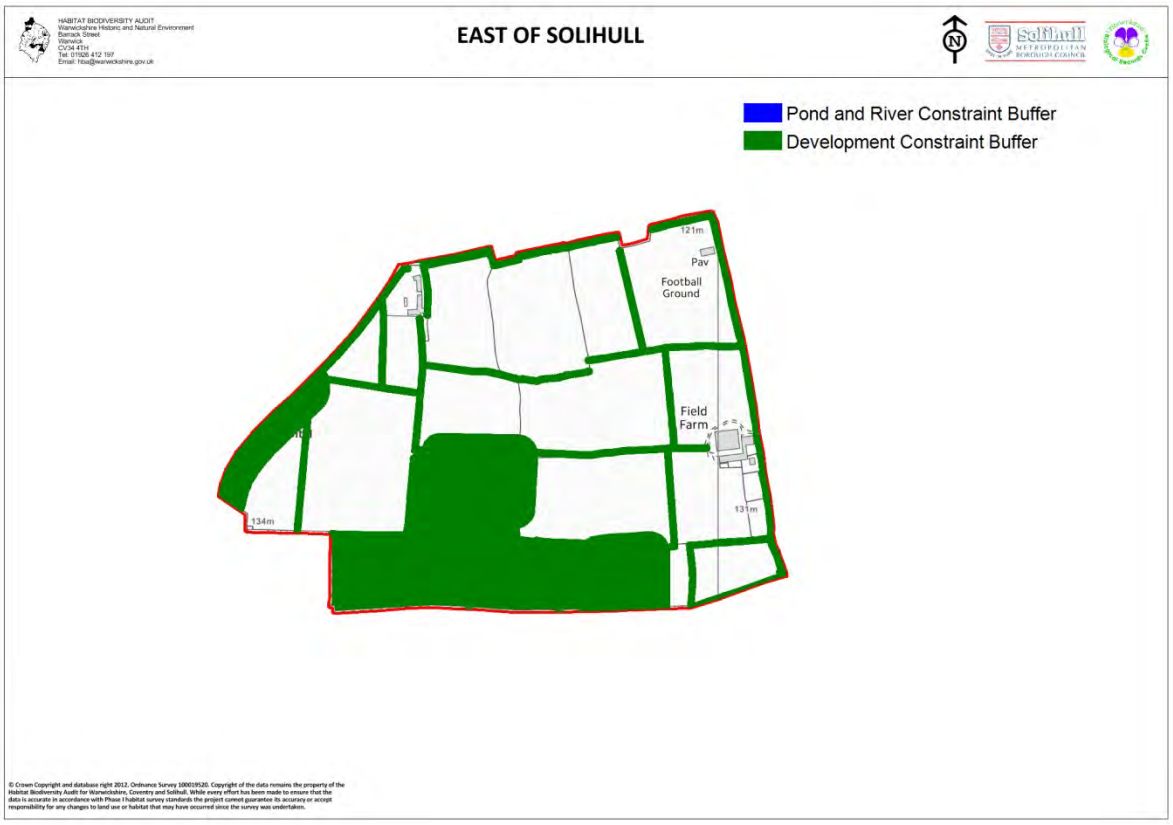

Figure 2 Constraints Map

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- 8m buffers around ponds
- 5m buffer either side of intact hedgerows

- Areas of medium to high distinctiveness grassland (Values 4, 5 & 6)

Designated Sites

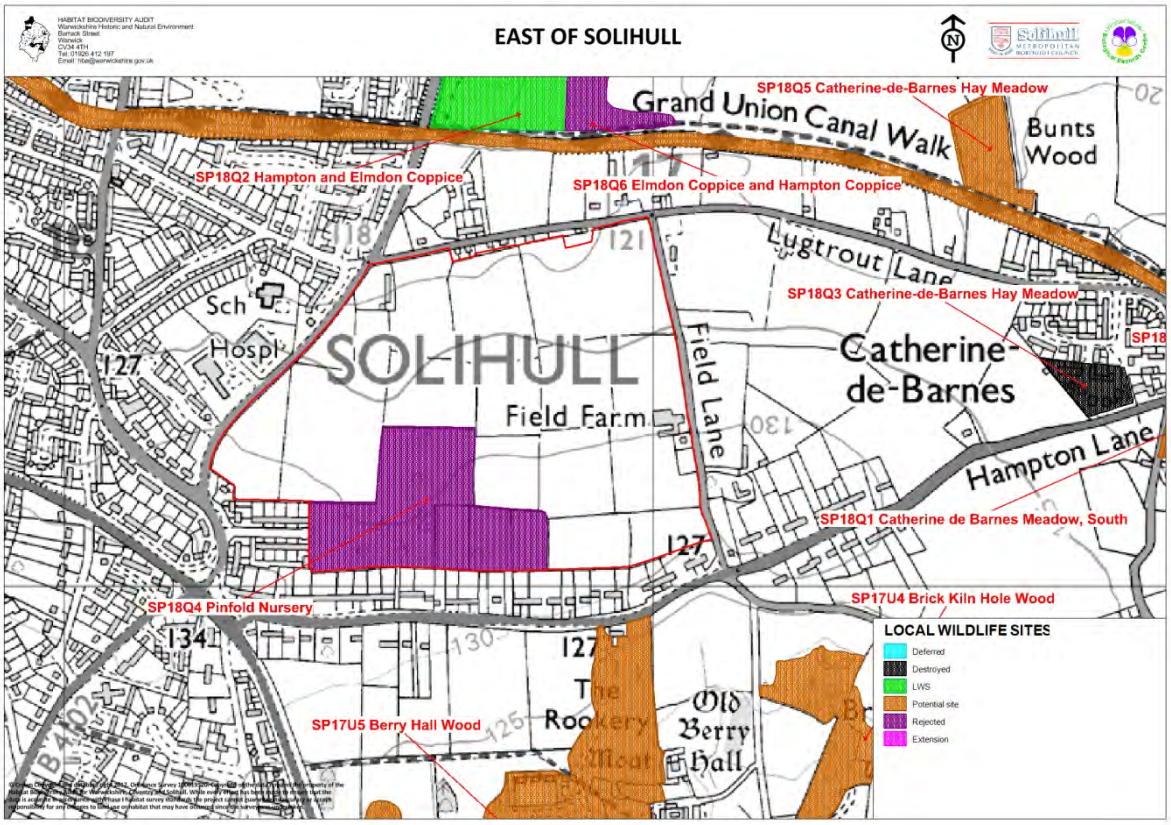


Figure 3 Site Designations

Local Wildlife Site

PINFOLD NURSERY REJECTED LWS[6] SP18Q4 **Area; 6.54 ha**

Pinfold Nursery remains rejected as per site surveys in 29/08/2002. However, the continued presence of good quality habitat identified as part of Phase 1 surveys carried out in 2010, it is recommended that this previously rejected site be subject to a walkover survey in the first instance to determine whether its current status is warranted.

[6] Local Wildlife Sites Project – SP18Q4 Pinfold Nursery 2002 HBA, Warwick

Habitat Description

Much of the development parcel remains rural with intensive farmland of 13.7 ha of improved grassland and 9.4 ha of arable farmland. Better quality habitats include 4.2 ha of good quality semi-improved neutral grassland, 2.5 ha poor semi-improved grassland and more woody marginal habitats of 1.8 ha dense scrub and 1.1 ha of broad-leaved plantation. Playing pitches of Coldlands Colts Boys Football Club equates to 2.6 ha of amenity grassland.

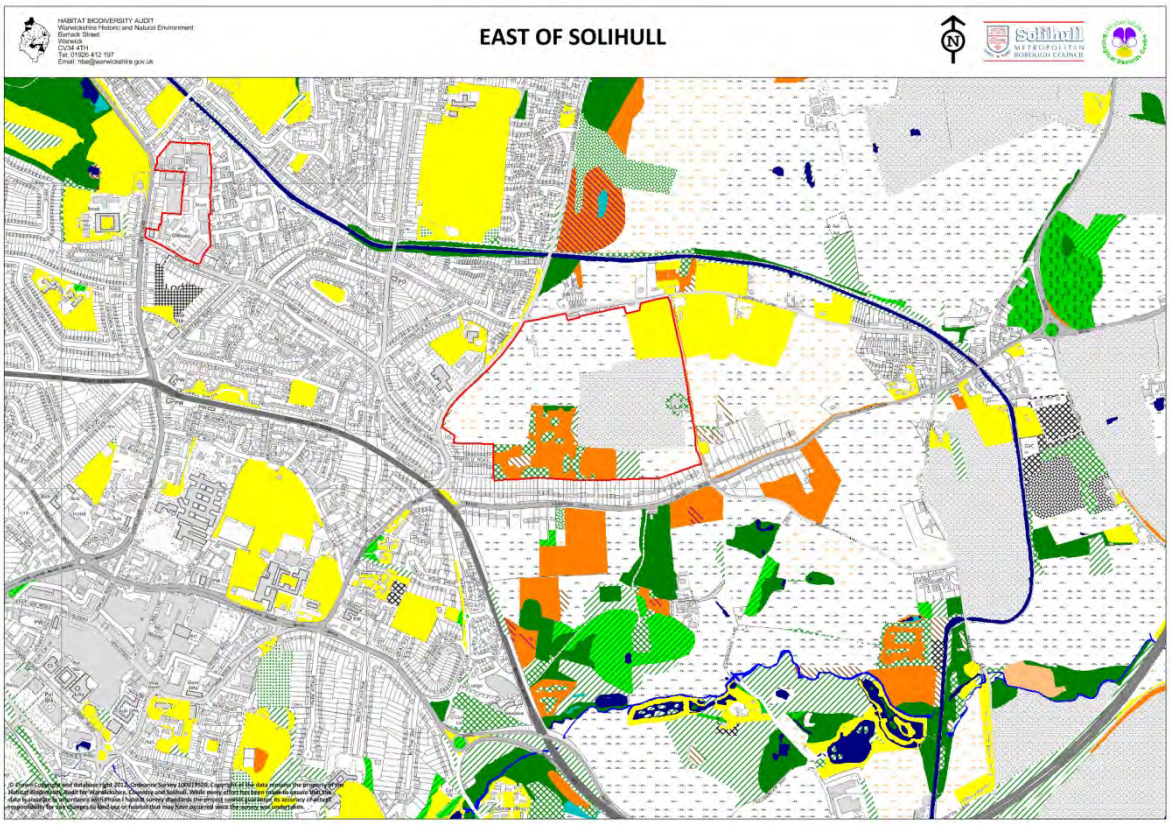


Figure 4 Phase 1 Habitats

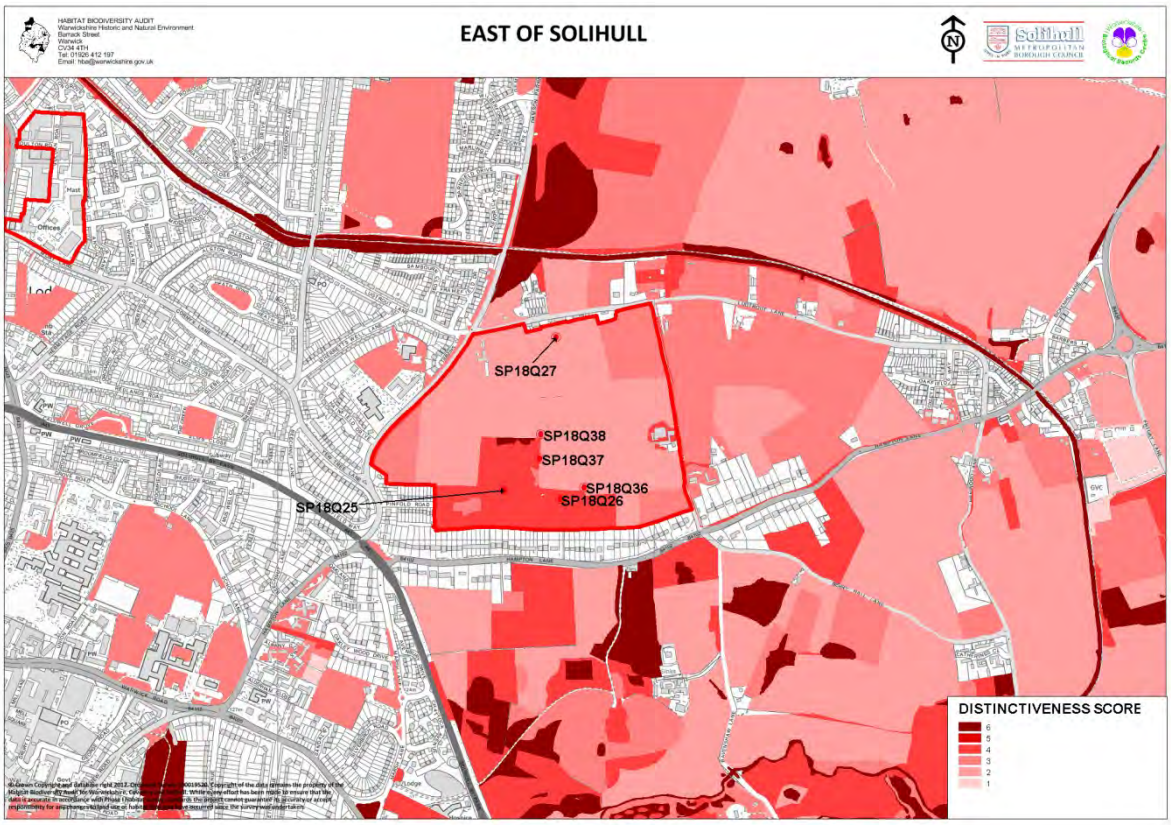


Figure 5 Habitat Distinctiveness & Target Notes

Highly distinct habitats important in relation to the conservation of biodiversity and development proposals are woodland and grassland habitats conserved within or adjacent to Berry Hall Wood pLWS (SP17U5) across Hampton Lane and neutral to poor semi-improved grasslands within Pinfold Nursery Rejected LWS (SP18Q4).

Target Notes

Number	Grid Reference	Survey Date
SP18Q25	**SP1660080121**	**17/09/2010**

Large rank area of grassland and scrub comprised of poor false oat-grass (Arrhenatherum elatius) with encroachment of bramble (Rubus fruticosus agg.), hawthorn (Crataegus monogyna) and cherry (Prunus spp.). A strong bird population exists including nesting skylark (Alauda arvensis).

SP18Q26 **SP1674980097** **17/09/2010**

Two small fields dominated by red fescue (Festuca rubra) and squirrel tail-fescue (Rhytidiadelphus squarrosus) with frequent field wood-rush (Luzula campestris), sweet vernal-grass (Anthoxanthum odoratum), hawkweed (Hieracium sp.), cat's ear (Hypochaeris radicata), dandelion (Taraxacum officinale agg.) common sorrel (Rumex acetosa), bulbous buttercup (Ranunculus bulbosus), ribwort plantain (Plantago lancelota), common vetch (Vicia sativa) and some sheep's sorrel (Rumex acetosella).

SP18Q27 **SP1673980526** **17/09/2010**

Two heavily cattle grazed poor semi-improved grasslands dominated by perennial rye-grass (Lolium perenne), crested dog's-tail (Cynosurus cristatus) and sweet vernal-grass (Anthoxanthum odoratum) with abundant dandelion (Taraxacum officinale agg.), cat's-ear (Hypochaeris radicata), ribwort plantain (Plantago lancelota), common bird's-foot-trefoil (Lotus corniculatus) and creeping buttercup (Ranunculus repens).

SP18Q36 **SP1681380128** **17/09/2010**

Species-rich hedge including English elm (Ulmus procera), hawthorn (Crataegus monogyna), blackthorn (Prunus spinosa), elder (Sambucus nigra), holly (Ilex aquifolium), field maple (Acer campestre), hazel (Corylus avellana), ash (Fraxinus excelsior), dog rose (Rosa canina), bramble (Rubus fruticosus agg.) red oak (Quercus rubra), horse chestnut (Aesculus hippocastanum), sessile oak (Quercus petraea). Regenerating hedge at a height of 3m tall with a mix of well-established trees and newer replacements.

SP18Q37 **SP1669580205** **17/09/2010**

Veteran coppiced Sycamore found here. Also a number of old trees and a species rich hedgerow including hazel (Corylus avellana), sycamore (Acer pseudoplatanus), English elm (Ulmus procera), hawthorn (Crataegus monogyna), blackthorn (Prunus spinosa) and pedunculate oak (Quercus robur).

SP18Q38 **SP1669880269** **17/09/2010**

Potential veteran holly tree (Ilex aquifolium).

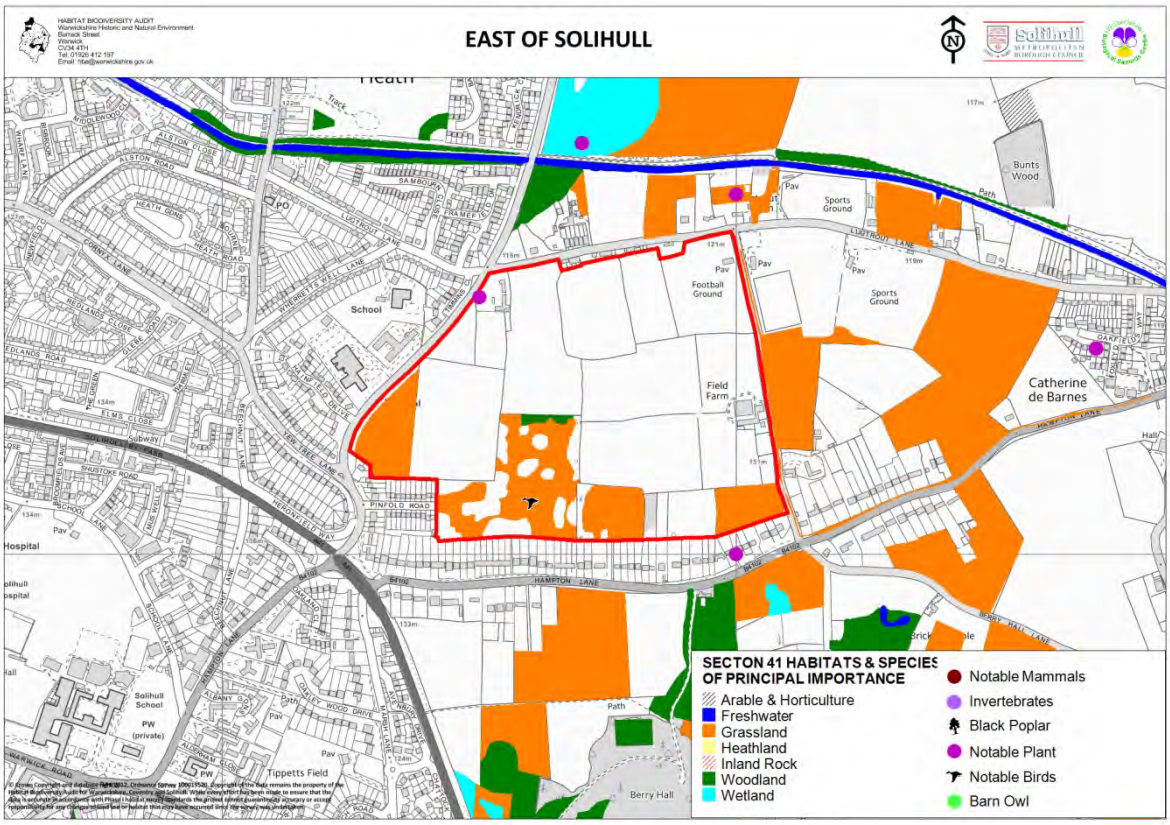


Figure 6 - Section 41 Habitats and Species of Principal Importance

Habitat Connectivity

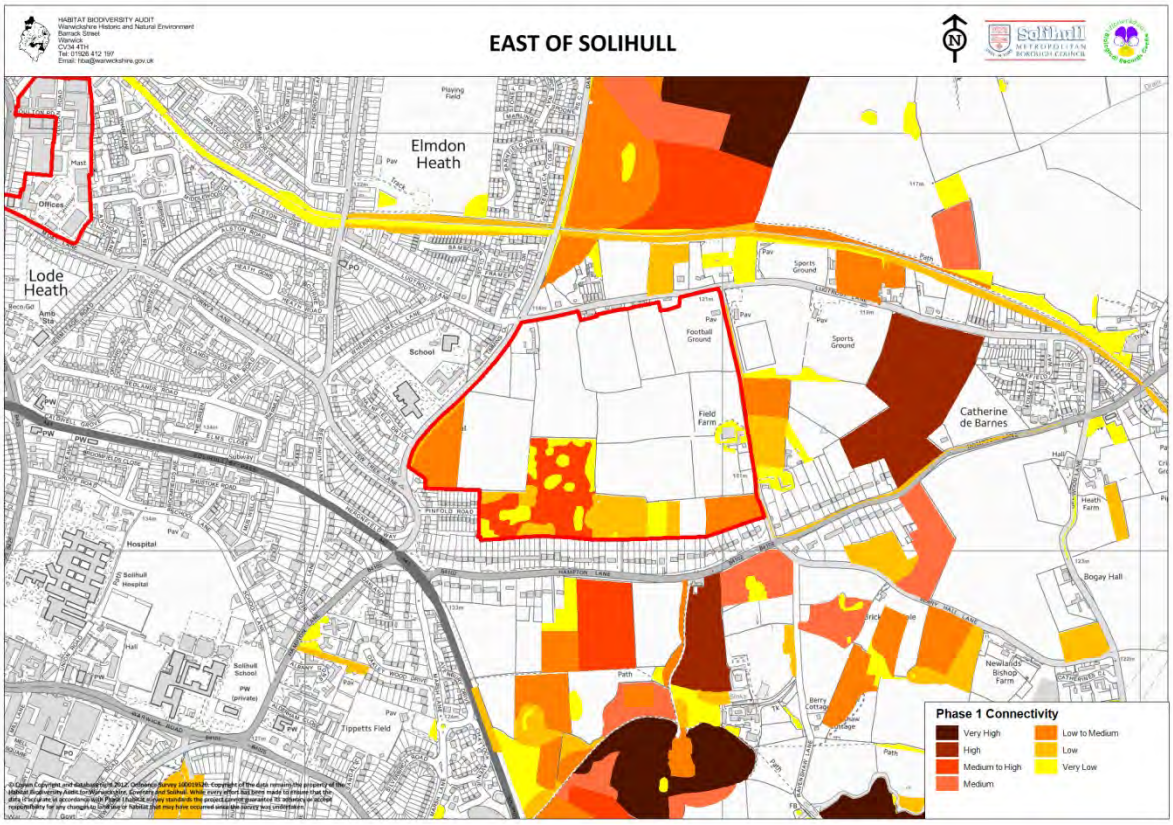


Figure 7 Habitat Connectivity

Habitat connectivity surrounding the development parcel is very strong particularly to the north, east and south. The western block is bounded by residential development of Elmdon and Lode Heath and consequently occupies low habitat connectivity.

The southern extent of the development parcel holds medium connectivity for neutral and poor semi-improved grasslands, woodlands and scrub and as such should be retained and enhanced.

Protected Species

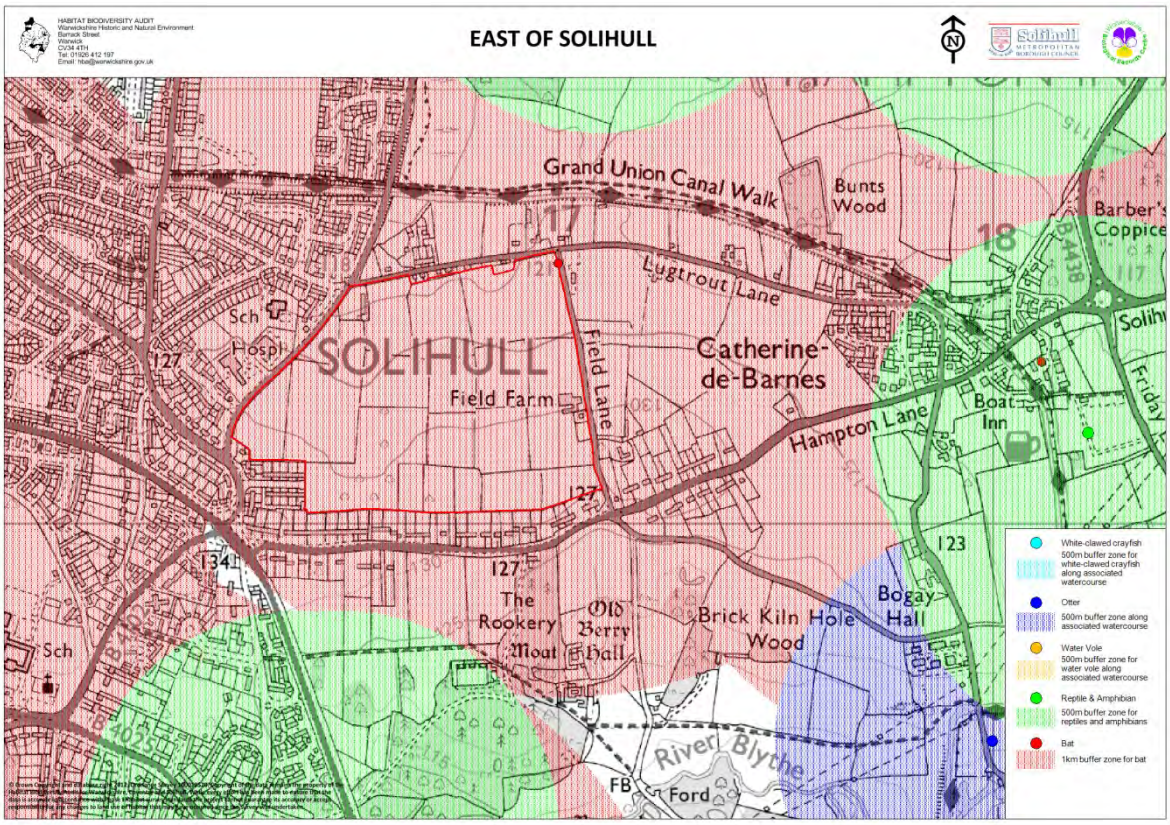


Figure 8 Protected Species

Modern and valid records exist for a pipistrelle bat species (Pipistrellus sp.) in 2015 on Field Lane in the upmost north-eastern corner of the development parcel within Hampton Football Club.

We recommend that protected species are taken into consideration through more detailed ecological assessments. Please take note than an absence of species records does not mean an absence of species.

SITE: FROG LANE

Area: 10 hectares

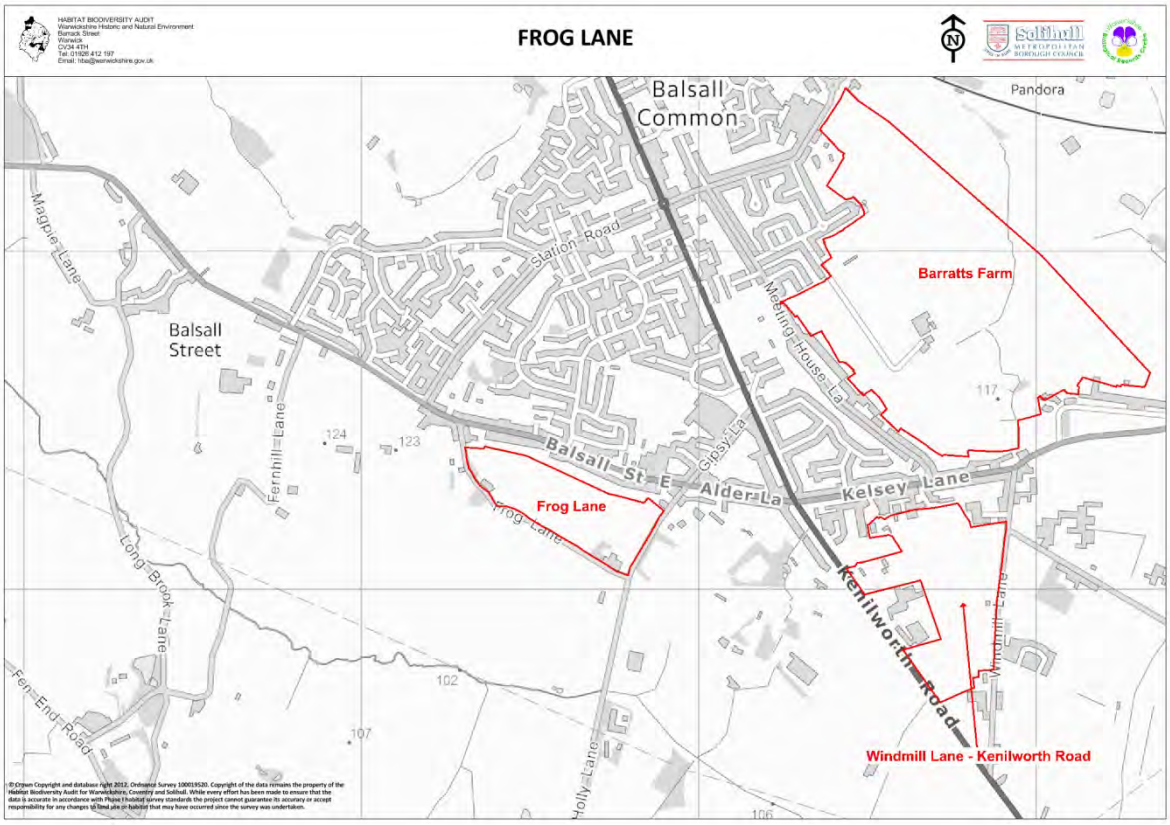


Figure 10 Site Location

Overview

Frog Lane is a triangular parcel area located along residential properties off Balsall Street East on the outskirts of the rural settlement of Balsall Common adjacent to Balsall Common Primary School. St Peter's Church and Church Hall marks the north-east corner where Holly Lane designates the eastern boundary. A well-developed hedgerow shadows Holly Lane encompassing St Peter's House, Holly Lane Allotments and Cottage Farm. Cottage Farm accessed from the southern parcel boundary of Frog Lane, which runs north-west to form the triangular development parcel encompassing Meadow View and The White Cottage.

The site consists of mainly improved grassland and scrub. The eastern edge of the site has a large field of neutral semi-improved grassland and broad-leaved woodland. Hedgerows are important features within and surrounding the development parcel.

Key Features

- Species-rich hedgerow with trees
- Semi-improved grassland
- Broad-leaved semi-natural woodland
- Veteran trees

Recommendations

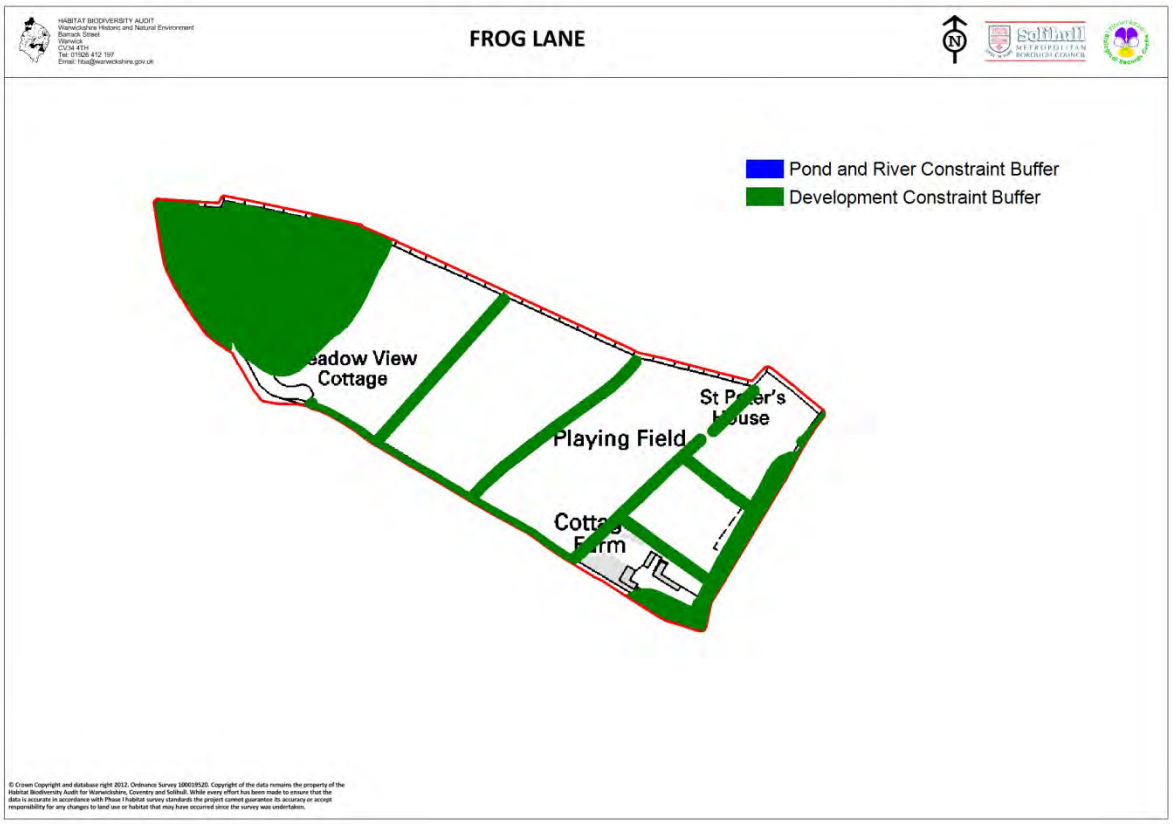
Retain the mosaic of semi-improved grassland and semi-natural woodland to the west of the development parcel contained within and adjacent to The White Cottage.

Any proposed development should stick strictly within the curtilage of the Site and the existing boundary infrastructure. Retaining the original boundary features of intact hedgerows with those medium sized to mature or veteran trees will retain much of the original biodiversity. Each hedgerow and tree should therefore be identified and protected to BS5837:2012. Veteran and mature trees particularly within hedgerows or should be retained and incorporated with the development in areas of open space. Green avenues will connect veteran trees that would otherwise be separated by development. An appropriate buffer zone of semi-natural habitat between the development and the veteran tree should be determined by an appropriate arboriculturist but a minimum buffer should be at least 15 metres.

The mature hedges that abound much of Holly and Frog Lane should be retained in-situ as the removal of the hedges and subsequent re-planting would not provide adequate mitigation given the character and age of the existing hedges.

The hedgerows should also be recorded and maintained to BS5837:2012. They form an important part of the local landscape and act as wildlife corridors.

Constraints



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Designated Sites

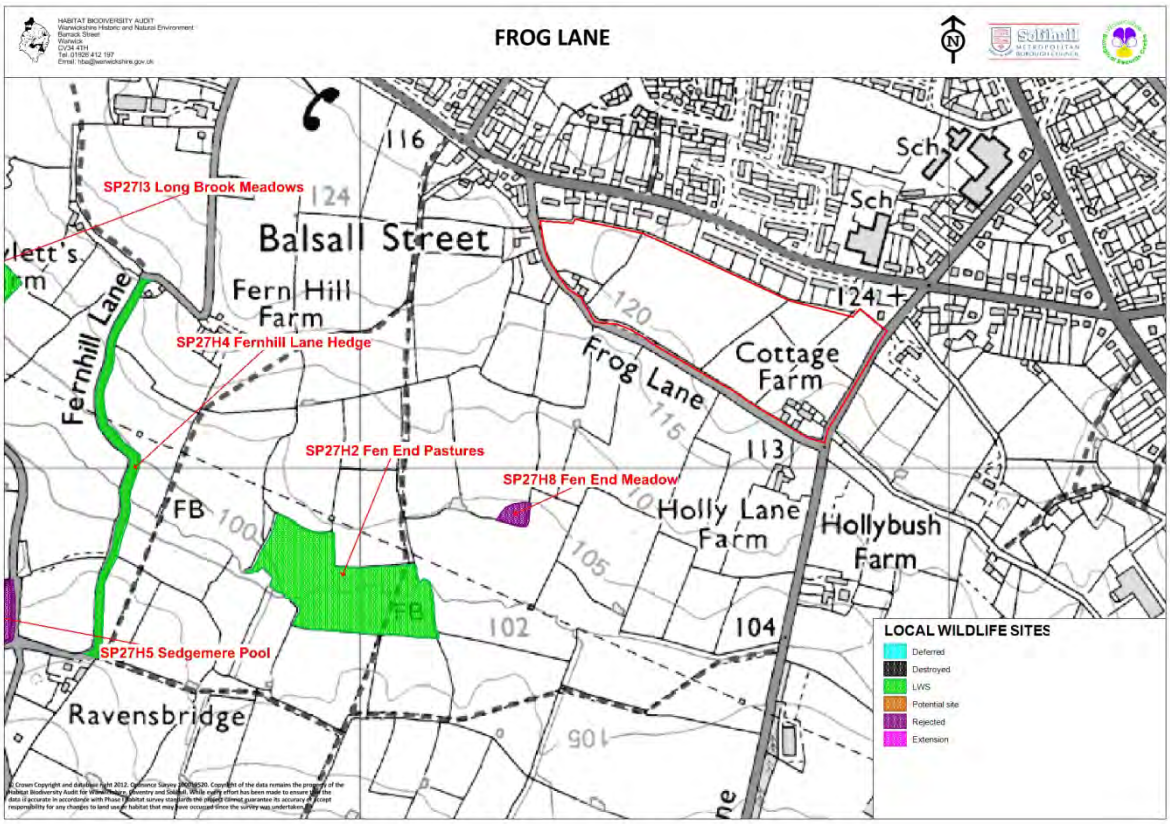

Figure 3 Site Designations

There are no designated or proposed local wildlife sites within or adjacent to Frog Lane.

Habitat Description

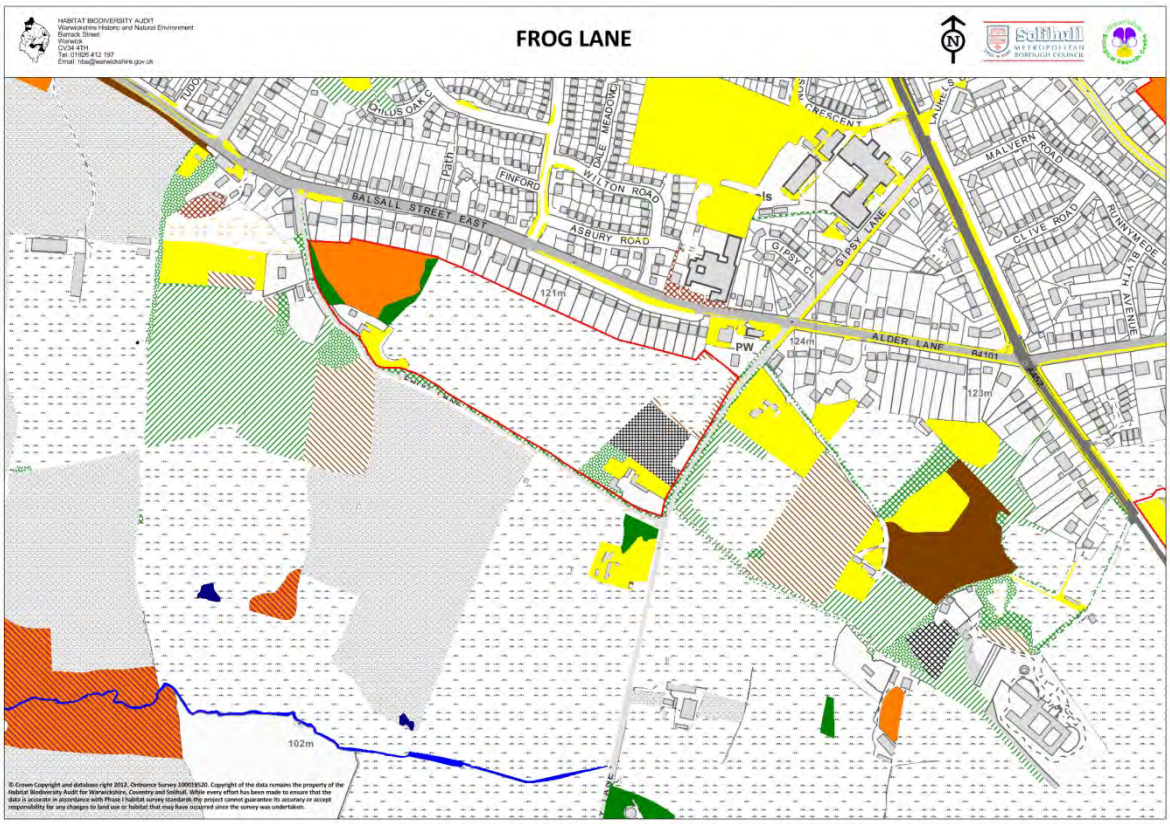

Figure 4 Phase 1 Habitats

The site consists mainly of improved grassland (B4) with a low habitat distinctiveness score. The main section of habitat interest is to the west with a semi-improved grassland (B22) surrounded by small stands of semi-natural woodland (A111) with high distinctiveness and dense scrub (A21) with a low to medium distinctiveness. Along Frog Lane is a species-rich hedgerow in addition to a hedgerow with trees along Holly Lane. The hedgerow provides a wildlife corridor along Frogmore Lane linking the small area of woodland to the east with broad-leaved plantation woodland and a hedgerow with trees along Holly Lane. Veteran trees (A3) mark the boundary between Holly lane Allotments and St Peter's House in the north-east corner.

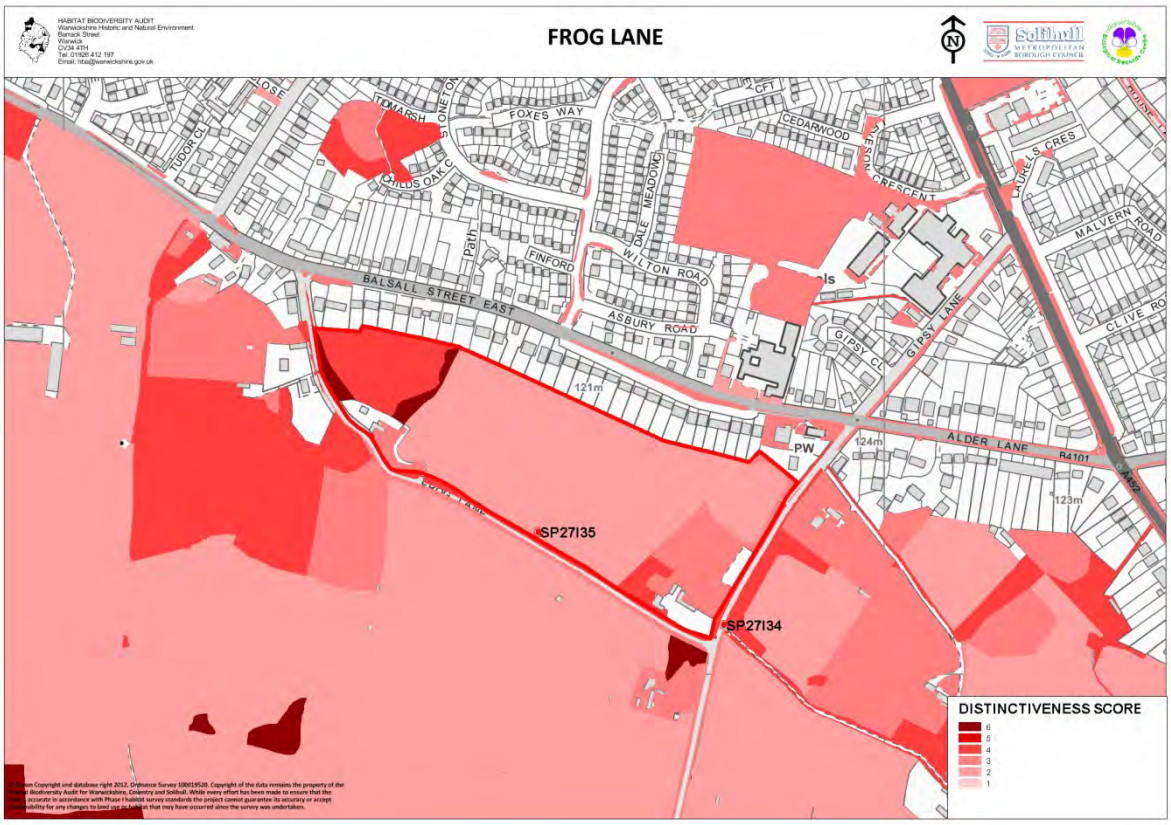

Figure 5 Habitat Distinctiveness & Target Notes

Highly distinct and valuable habitats of neutral semi-improved grassland surrounded by broad-leaved woodland are enclosed within a mosaic in the north-west corner of the development parcel. A row of veteran trees marks the boundary between two improved grasslands in the upmost north-east corner adjacent to St Peter's House.

Target Notes

Number	Grid Reference	Survey Date

SP27I35 **SP2357976162** **05/07/2012**

Species-rich hedgerow with trees along Frogmore Lane including specimens of mature sessile oak (Quercus petraea), holly (Ilex aquifolium), ash (Fraxinus excelsior), hawthorn (Crataegus monogyna) and field maple (Acer campestre) on raised bank with ditch.

SP27I34 **SP2380476049** **05/07/2012**

Species-rich hedgerows on either side of private road to White Cottage Farm which includes mature sessile oak (Quercus petraea), blackthorn (Prunus spinosa), hawthorn (Crataegus monogyna), ash (Fraxinus excelsior), sycamore (Acer pseudoplatanus), holly (Ilex aquifolium) and hazel (Corylus avellana). A plantation behind the hedge includes oak (Quercus robur), horse-chestnut (Aesculus hippocastanum), sweet chestnut (Castanea sativa), ash (Fraxinus excelsior) and silver birch (Betula pendula).

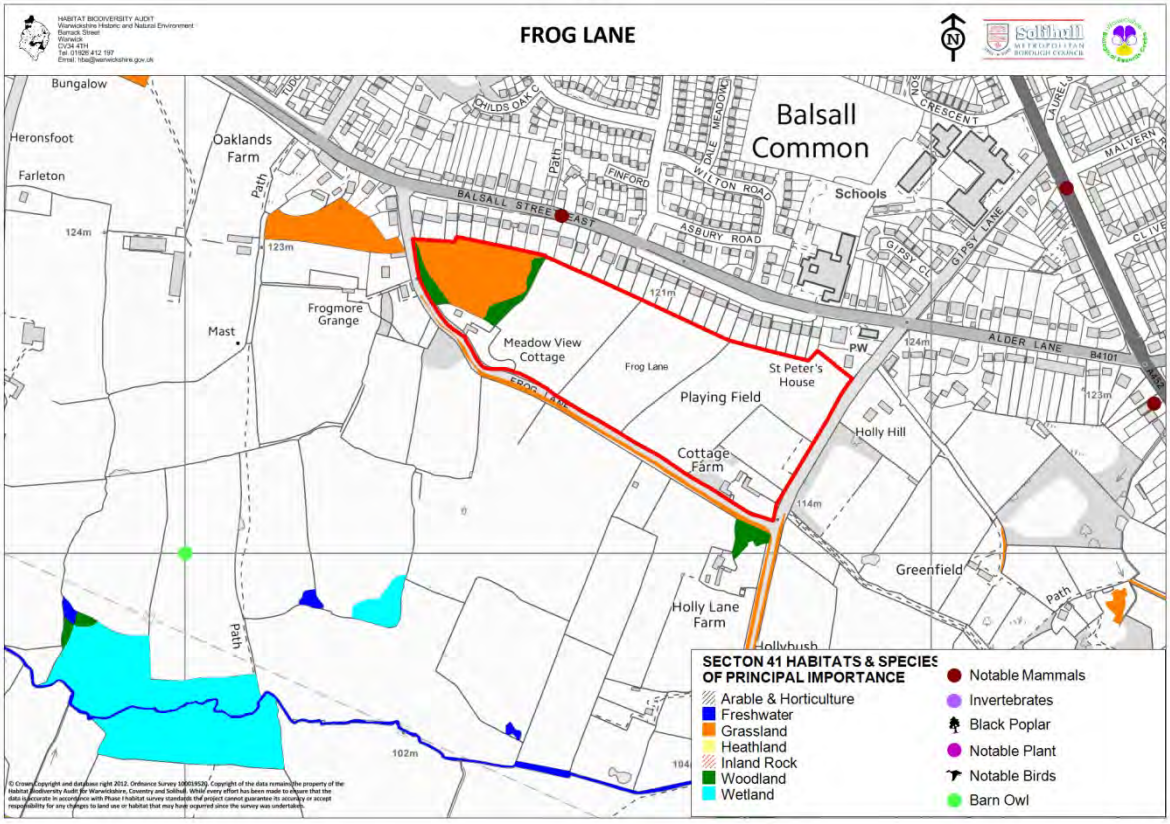

Figure 6 Section 41 Habitats & Species of Principal Importance

Habitat Connectivity

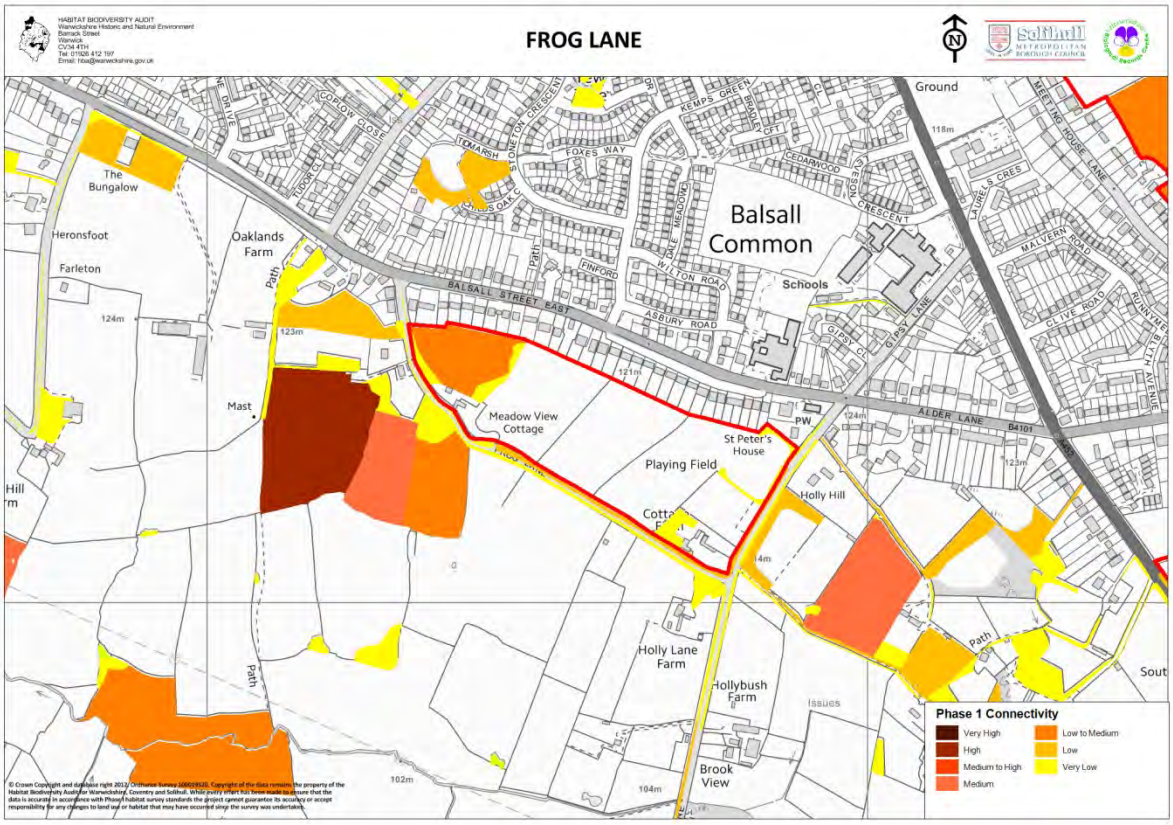

Figure 7 Habitat Connectivity

Connectivity for both woodlands and grasslands are medium to high at each westerly and easterly tip. The parcel is well-connected to the semi-habitats of Frogmore Grange and grasslands within Holly Hill and Greenfield farmsteads across from Holly Lane.

Protected Species

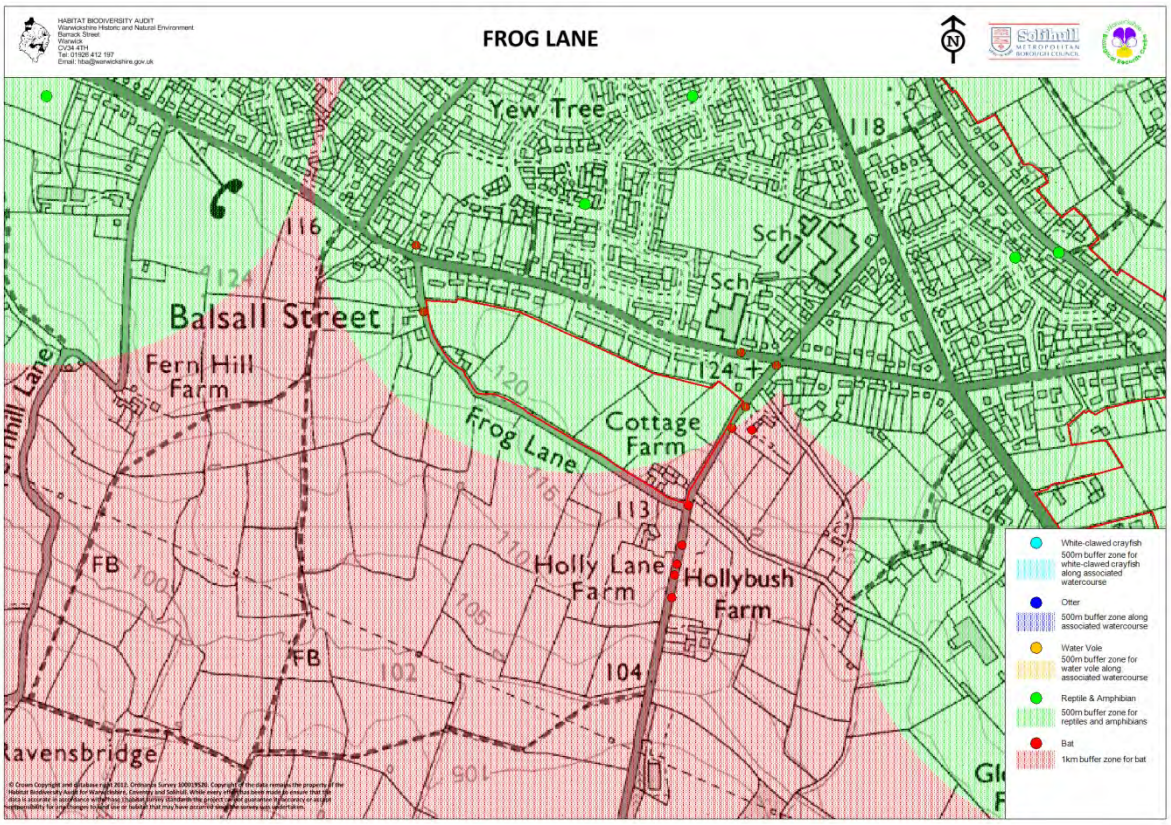

Figure 8 Protected Species

Numerous valid records range from three distinct years particularly 2005, 2007 and 2013 with a single roost site and numerous foraging records of common pipistrelle (Pipistrellus pipistrellus) bats recorded as part of Bat Conservation Trust surveys along Holly Lane.

Now defunct records for common frog (Rana temporaria) occurred within 1km of the development parcel within sub-urban gardens off Stoneton Crescent.
We recommend that protected species are taken into consideration through more detailed ecological assessments particularly for bats. Please take note than an absence of species records does not mean an absence of species.

SITE: HAMPTON ROAD

Area: 10 & 2 hectares

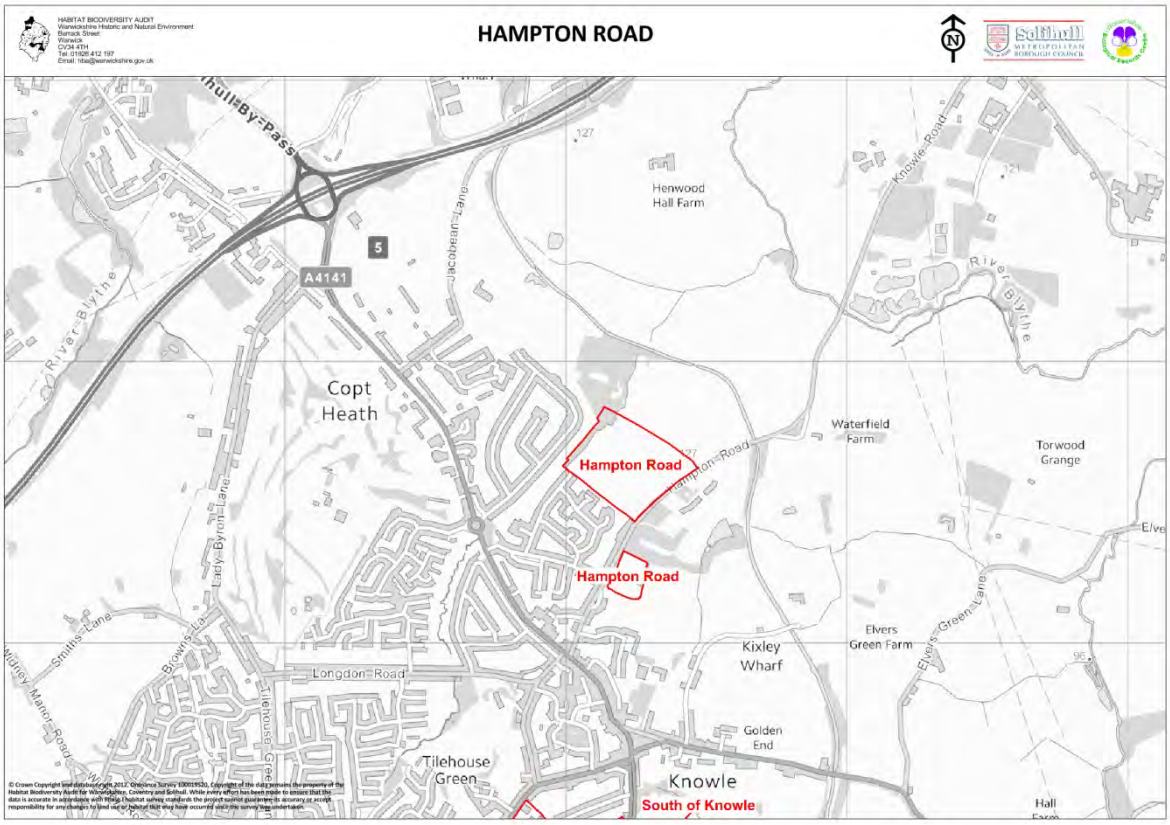

Figure 11 Site Location

Overview

The development parcel comprises two sections. The northern section is composed of 6.3 hectares of arable farmland, 0.07 ha of semi-natural broad-leaved woodland and 3.2 ha of tall ruderal vegetation. The northern parcel encompasses two Local Wildlife Sites particularly because of the biodiversity value of Purnell's Brook, associated wet and broad-leaved woodland and tall ruderal vegetation enclosed within Purnell's Brook Meadow pLWS.

The second parcel embodies Knowle Football Club incorporating amenity playfields, changing rooms and pavilions.

Improved grassland has been urbanised with modern housing immediately abutting the southern parcel and the western edge of Knowle Wet Meadow LWS (SP17Y1).

Both parcels are bordered by the Hampton Road on the eastern fringe of sub-urban Copt Heath, north of the village of Knowle. The southern parcel sits immediately south of Grimshaw Hall and north of Knowle Church of England Primary School and newly

developed Wootton Close. Yew Tree Farm lies further east beyond Knowle Wet Meadow along Kixley Lane encircled by Kixley Wharfe.

Key Features

Northern Parcel

- Wet woodland
- Semi-natural broad-leaved woodland
- Purnell's Brook
- Purnell's Brook Meadow pLWS (SP17Y5)
- Purnell's Brook Woodland LWS (SP17Y3)

Southern Parcel

- Amenity Grassland
- Hedgerow with trees
- Broad-leaved plantation woodland
- Knowle Wet Meadows LWS (SP17Y1)

Recommendations

Northern Parcel

Purnell Brook Meadows pLWS should be extended to include a section of tall ruderal vegetation beyond the existing footpath and as such be subject to a full Local Wildlife Site survey at an appropriate time of year.

The section of semi-natural broad-leaved woodland included within the development parcel and designated as part of Purnell's Brook Woodland LWS should be excluded from development. Purnell's Brook Woodland is important mixed woodland surrounded by housing and arable farmland. It acts as an important habitat corridor connecting semi-natural habitats of the Grand Union Canal and Purnell Brook meadows plws. The potential impacts on both Purnell's Brook and its associated woodland from development are likely to include disturbance, fragmentation, invasion by non-native species and all those cumulative effects.

Encroachment activities range from waste disposal, woodland recreation, garden extension and garden plant invasion. It is essential that Purnell Brook woodland is protected and enhanced as part of mitigation and management solutions from potential development. The same should apply to Purnell Brook Meadows if it is deemed as Local Wildlife Site standard. Therefore the implementation of an adequate buffer is recommended for both Purnell's Brook woodland and the watercourse itself.

Southern Parcel

Development should be kept within the curtilage of the existing site with all boundary features being of particular importance with relatively high biodiversity value. The southern boundary of the newly-developed Wootton Close comprises of middle-aged specimens of hawthorn (Crataegus monogyna), ivy (Hedera helix), field maple (Acer campestre), elm (Ulmus sp.), elder (Sambucus nigra) and bramble (Rubus fruitcosus agg.) accompanied in the ground flora by garden hollyhock (Alcea rosea). A hedge on the eastern periphery separates Knowle Village Cricket Club and acts as an important habitat corridor in context of the site only. The western boundary consisting of a shrubby hedge with tree standards edges Hampton Road connecting to the woodlands of Grimshaw Hall estate which constitutes the northern periphery of the parcel.

The hedge contains trees of oak (Quercus robur) and ash (Fraxinus excelsior) with middle-aged hawthorn (Crataegus monogyna), holly (Ilex aquifolium) and field maple (Acer campestre) with dog-rose (Rosa canina), bramble (Rubus fruticosus agg.) and ivy (Hedera helix). The entrance to the parcel is characterised by a purple beech (Fagus sylvatica purpurea). All those hedgerows and trees that form the development boundary should be retained and enhanced. Each hedgerow and tree should be identified and protected to BS5837:2012. Grass margins at a width of 1.5-6 m adjacent to hedgerows will deliver significant wildlife benefits.

A suitable buffer should be implemented on the western borderline of Knowle Wet Meadow LWS to prevent continued edge effects resulting from intended development and to compensate for a lack of suitable mitigation from the original urbanisation of Wootton Close.

Constraints

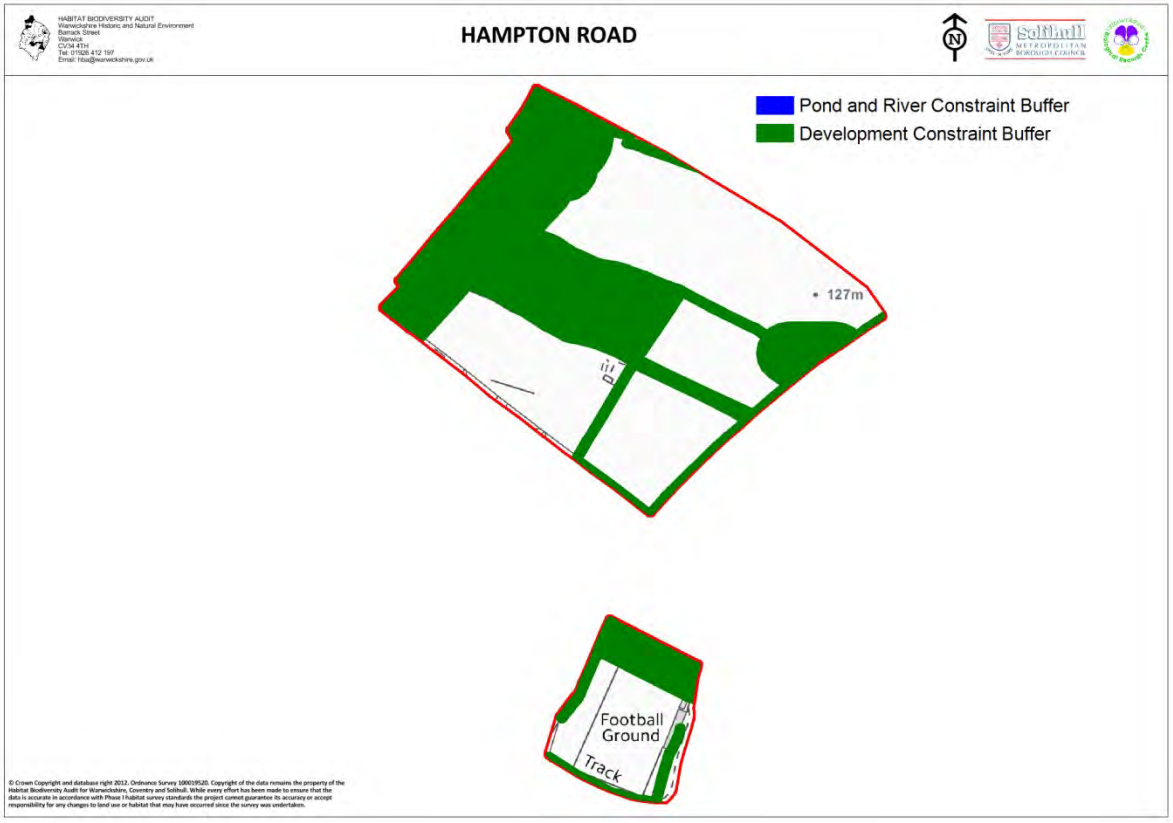

Figure 2 Constraints Map

The areas marked in green and blue on the above constraints map indicate where development should be avoided and ecological enhancement encouraged.

They include:

- 30m buffer around woodland
- 8m buffer either side of adjacent to watercourses
- 8m buffers around ponds
- 5m buffer either side of intact hedgerows
- Areas of medium to high distinctiveness grassland (Values 4, 5 & 6)

Designated Sites

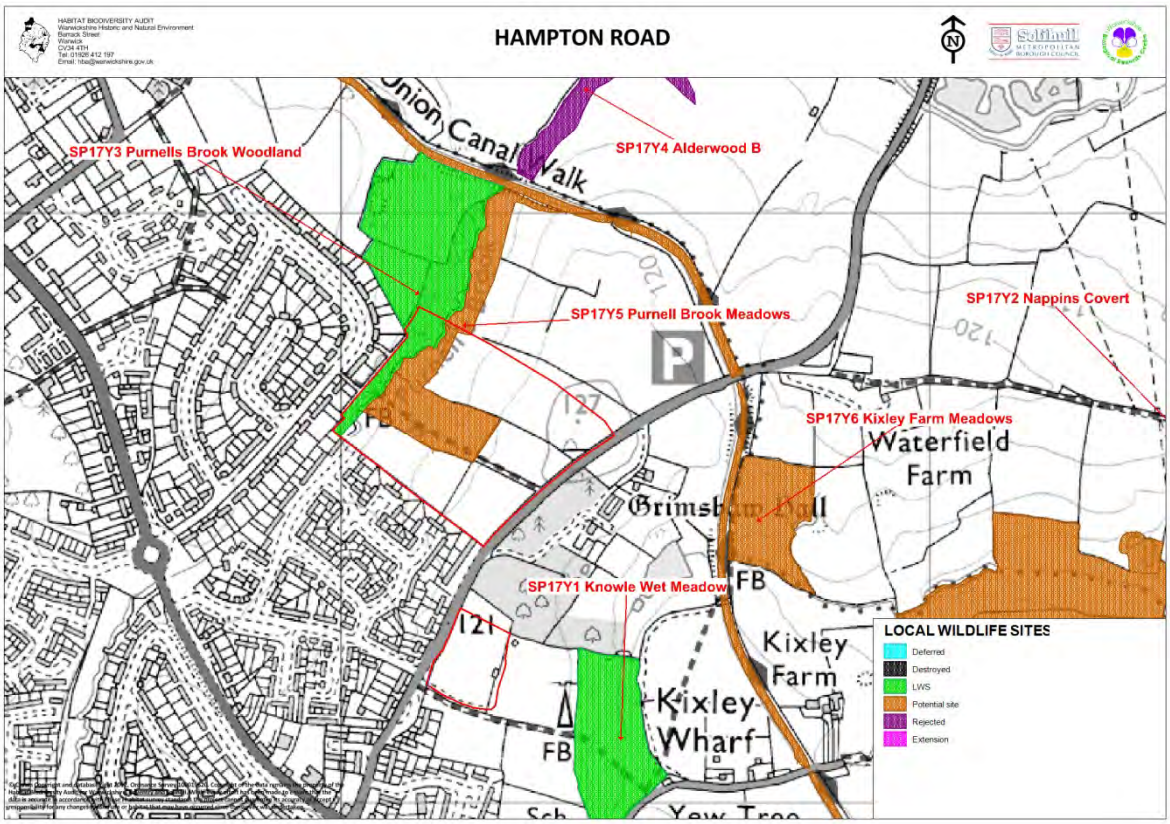

Figure 3 Site Designations

The northern parcel directly incorporates the southern segment of Purnells Brook Woodland Local Wildlife Site (SP17Y3) and a larger segment of Purnell Brook Meadows (SP17Y5) potential Local Wildlife Site.

The southern parcel is 120m west of Knowle Wet Meadow Local Wildlife Site (SP17Y1)

Local Wildlife Site

PURNELLS BROOK WOODLAND LWS SP17Y3[7] **Area; 5.4 ha**

Survey Date; 16/05/2006

This site is bordered to the north by the Grand Union Canal, along the eastern side by Purnells Brook, and by housing and arable land on the southern and western sides. It is a small mixed woodland site with stands of Alder, Oak, and areas of dense scrub. The site is divided into four sections:

[7] Local Wildlife Sites Project SP17Y3 Purnells Brook Woodland 2007 HBA Warwick

- **East:** The eastern side of the site is Alder woodland with occasional Crack Willow (Salix fragilis) and Oak (Quercus robur) over occasional Holly (Ilex aquifolium), Blackthorn (Prunus spinosa), Elder (Sambucus nigra) and Hawthorn (Crataegus monogyna). Purnells Brook meanders along the eastern boundary. The stream side vegetation is quite diverse and includes occasional Hart's-tongue (Phyllitis scolopendrium), very locally frequent Bittersweet (Solanum dulcamara), Gypsywort (Lycopus europaeus), Pignut (Conopodium majus). Gardens back onto the south-western edge of the woodland and the areas adjacent contain a number of garden escapees.

- **Centre:** The central area is dominated by dense Hawthorn scrub with Elder and Blackthorn. The ground is very shaded and is partly dominated by Feather Moss (Eurhynchium praelongum). There is also frequent Nettle, Wood Avens, Ivy, occasional patches of locally abundant Moschatel (Adoxa moschatellina), occasional Lords and Ladies (Arum maculatum) with Enchanters Nightshade (Circaea lutetiana), Herb Robert (Geranium robertianum) and Ground Ivy (Glechoma hederacea). The area also includes a dense thicket of young Ash (Fraxinus excelsior) and Hawthorn to the west. The ground is very shaded and the ground vegetation is dominated by Ivy with frequent Cow Parsley.

- **North:** In the north of the site the canopy comprises young Oak (Q.robur) with Alder and locally frequent Aspen (Poplar tremula) over Hawthorn (Crataegus monogyna) and Hazel (Corylus avellana). The ground vegetation is generally sparse with locally abundant Nettle, occasional Lords and Ladies, Wood Avens and Wood Millet. The area includes a dry pond to the west. The ground is very uneven with some disturbance and appears to be used as a play area. It is surrounded by mature Ash over Hawthorn and Elder.

- **West:** The western edge of the site is steeply banked. The canopy comprises Ash and Oak over Hawthorn, Blackthorn and Field Maple (Acer campestre).

KNOWLE WET MEADOW LOCAL WILDLIFE SITE (SP17Y1)[8] Area; 3.2 ha

Survey Date; 25/07/2005

Wet meadow with vegetation characteristic of MG9 Holcus lanatus-Deschampsia cespitosa (Yorkshire Fog-Tufted Hair-grass) grassland. The sward in the wetter areas is mostly dominated by close tussocks of Tufted Hair-grass (Deschampsia cespitosa) but around which there is a diverse if mostly patchy herb flora. Species include frequent to locally abundant Greater Bird's-foot Trefoil (Lotus uliginosus), frequent Meadow Vetchling (Lathyrus pratensis), Lesser Stitchwort (Stellaria graminea), Hairy Sedge (Carex hirta), occasional to locally abundant Sharp-flowered Rush (Juncus acutiflorous), occasional/locally frequent Betony (Stachys officinalis), occasional Sneezewort (Achillea ptarmica), Marsh Willowherb (Epilobium palustre), Marsh Thistle (Cirsium palustre), Black Knapweed (Centaurea nigra), Tufted Vetch (Vicia cracca), Meadowsweet (Filipendula ulmaria), Bittersweet (Solanum dulcamara), Common

[8] Local Wildlife Sites Project SP17Y1 Knowle Wet Meadow 2005 HBA Warwick

Marsh-bedstraw (Galium palustre),Compact Rush (Juncus conglomeratus), Soft Rush (Juncus effusus), Common Sorrel (Rumex acetosa), with rare Oval Sedge (Carex ovalis), Lady's Smock (Cardamine pratensis), Wavy Bittercress (Cardamine flexuosa) and Water Horsetail (Equisetum fluviatile).
In drier areas, Tufted Hair-grass is quite scattered, and the sward is instead mostly dominated by other course tussocky grasses. Grass species include abundant Yorkshire Fog (Holcus lanatus), Red Fescue (Festuca rubra), frequent Cock's-foot (Dactylis glomerata), False Oat-grass (Arrhenatherum elatius), Creeping Bent (Agrostis stolonifera), Common Bent (Agrostis capillaris), Sweet Vernal-grass (Anthoxanthum odoratum), Crested Dog's-tail (Cynosurus cristatus), occasional Rough Meadow-grass (Poa trivialis), Meadow Foxtail (Alopercurus pratensis), Timothy (Phleum pratense) and rare Tall Fescue (Festuca arundinacea). Among the herbs there is frequent to abundant Creeping Buttercup (Ranunculus repens), frequent Ribwort Plantain (Plantago lanceolata), Common Sorrel, Soft Rush, Sharp-flowered Rush, Meadow Vetchling, Common Bird's-foot Trefoil (Lotus corniculatus), occasional to locally frequent Red Clover (Trifolium pratense),White Clover (Trifolium repens), Lesser Stitchwort, occasional Meadow Buttercup (Ranunculus acris) and rare Devil's-bit Scabious (Succisa pratensis).

Tall herb vegetation is found in places along the perimeter and in open areas at the southern end of the field with locally abundant Creeping Thistle (Cirsium arvense), Nettle (Urtica dioica), Cleavers (Galium aparine) and Rosebay Willowherb (Chamerion angustifolium).

A heavily vegetated stream passes through the site with occasional to frequent Great Willowherb (Epilobium hirsutum), Brooklime (Veronica beccabunga), Plicate Sweet-grass (Glyceria notata), Bittersweet, Soft Rush, with rare Male Fern (Dryopteris filix-mas) and Broad Buckler-fern (Dryopteris dilatata) found on the banks.

The field is enclosed by tall hedgerows or by lines of tall trees. Species include Ash (Fraxinus excelsior), Oak (Quercus robur), Alder (Alnus glutinosa), Crack Willow (Salix fragilis), Hazel (Corylus avellana), Hawthorn (Crataegus monogyna), English Elm (Ulmus procera) and Elder (Sambucus nigra).

Potential Local Wildlife Site

PURNELLS BROOK MEADOW SP17Y5 **Area; 3.1 ha**

GRAND UNION CANAL SP18Li2a2 **Area; 4.6 ha**

Habitat Description

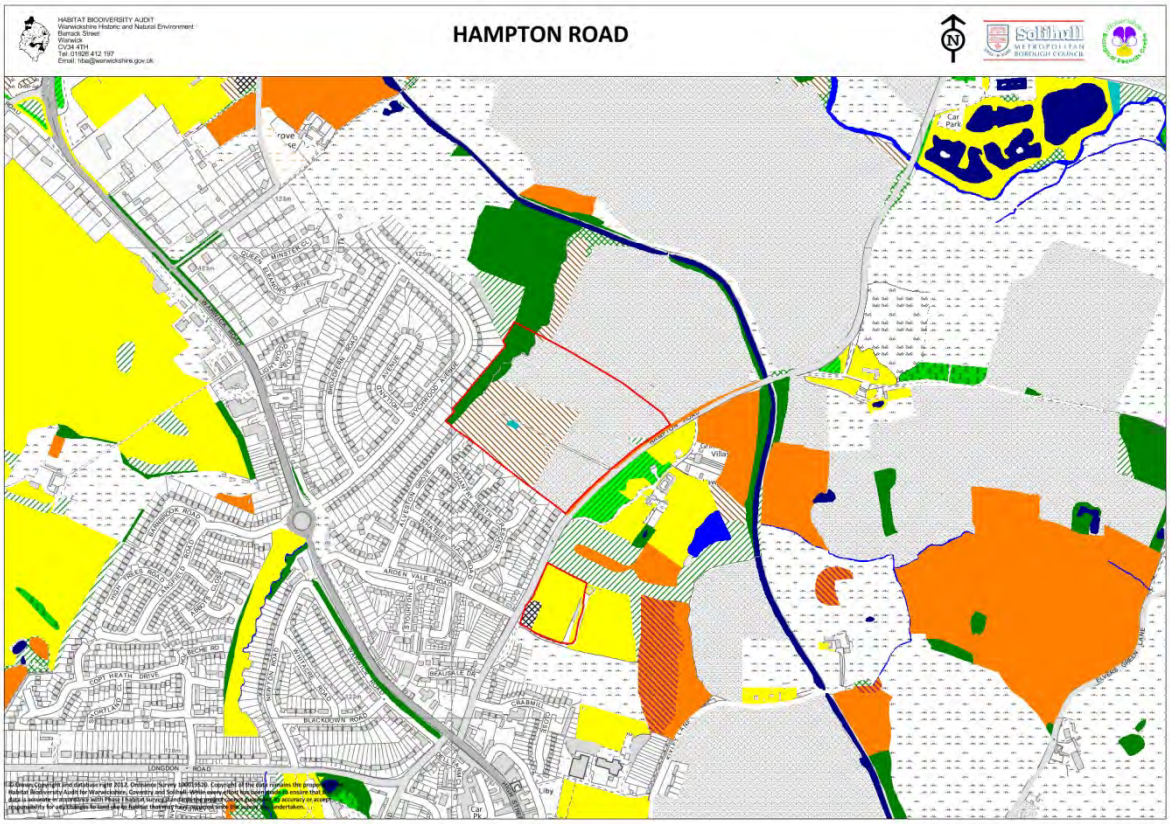

Figure 4 Phase 1 Habitats

The northern section comprises of a mix of arable farmland (J11), semi-natural broad-leaved woodland (A111) and tall ruderal vegetation (C31) with a small patch of swamp (F1).

The southern parcel is composed almost predominately of amenity grassland (J12) of Knowle Football Club surrounded by important hedgerows with trees (J23) and broad-leaved plantation woodland sheltered to the north contained within Grimshaw Hall. Important habitats of marshy (B5) and neutral semi-improved grassland (B22) shield football pitches further east of the development parcel.

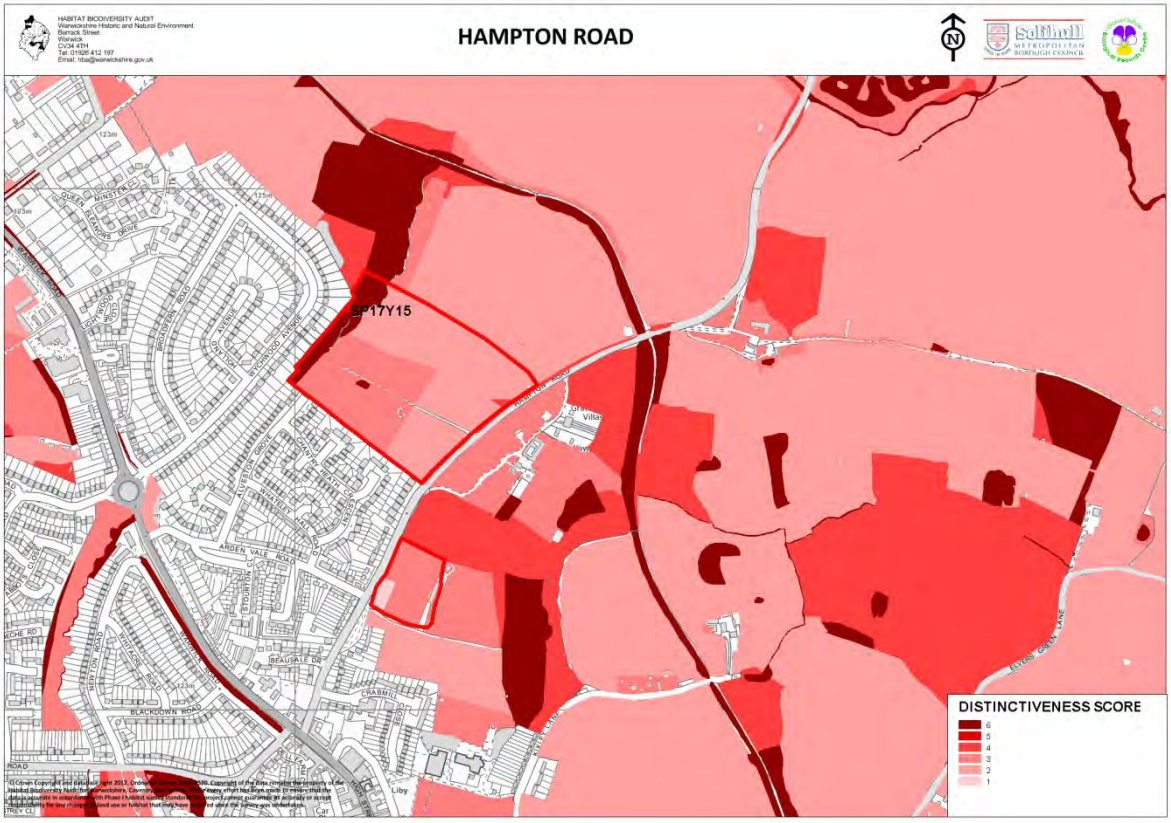

Figure 5 Habitat Distinctiveness & Target Notes

Distinct habitats within and immediately adjacent to the development parcels include the broad-leaved plantation woodland (A112), the neutral semi-improved (B22) and the marshy grasslands (B5) north and east of the southern development parcel contained within Grimshaw Hall and Knowle Wet Meadow LWS (SP17Y1). Distinct habitats of the northern parcel comprise tall ruderal vegetation (C31) and swamp (F1) habitat consequently designated within Purnells Brook Meadow potential Local Wildlife Site (SP17Y5) adjacent to the broad-leaved semi-natural (A111) and wet woodland (A6) of Purnells Brook Woodland LWS (SP17Y3)

Target Notes

Number	Grid Reference	Survey Date
SP17Y15	**SP1810277758**	**05/02/1999**

Alder (Alnus glutinosa) woodland with some crack willow (Salix fragilis) and a ground flora dominated by common nettle (Urtica dioica) and includeS abundant creeping buttercup (Ranunculus repens), frequent bramble (Rubus fruticosus agg.), wild angelica (Angelica sylvestris), red campion (Silene dioica) (Silene dioica), cleavers (Galium aparine), male fern (Dryopteris filix-mas), wood meadow-grass (Poa nemoralis), lesser celandine (Ranunculus ficaria), ivy (Hedera helix), patches of great willowherb (Epilobium hirsutum) and Reed canary-grass (Phalaris arundinacea). A network of water features and ditches supports frequent pendulous sedge (Carex pendula), hart's-tongue (Phyllitis scolopendrium) and broad buckler-fern (Dryopteris dilatata) with a

large swamp at the southern edge dominated by watercress (Rorippa nasturtium-aquaticum). Drier areas have been colonised by greater periwinkle (Vinca major).

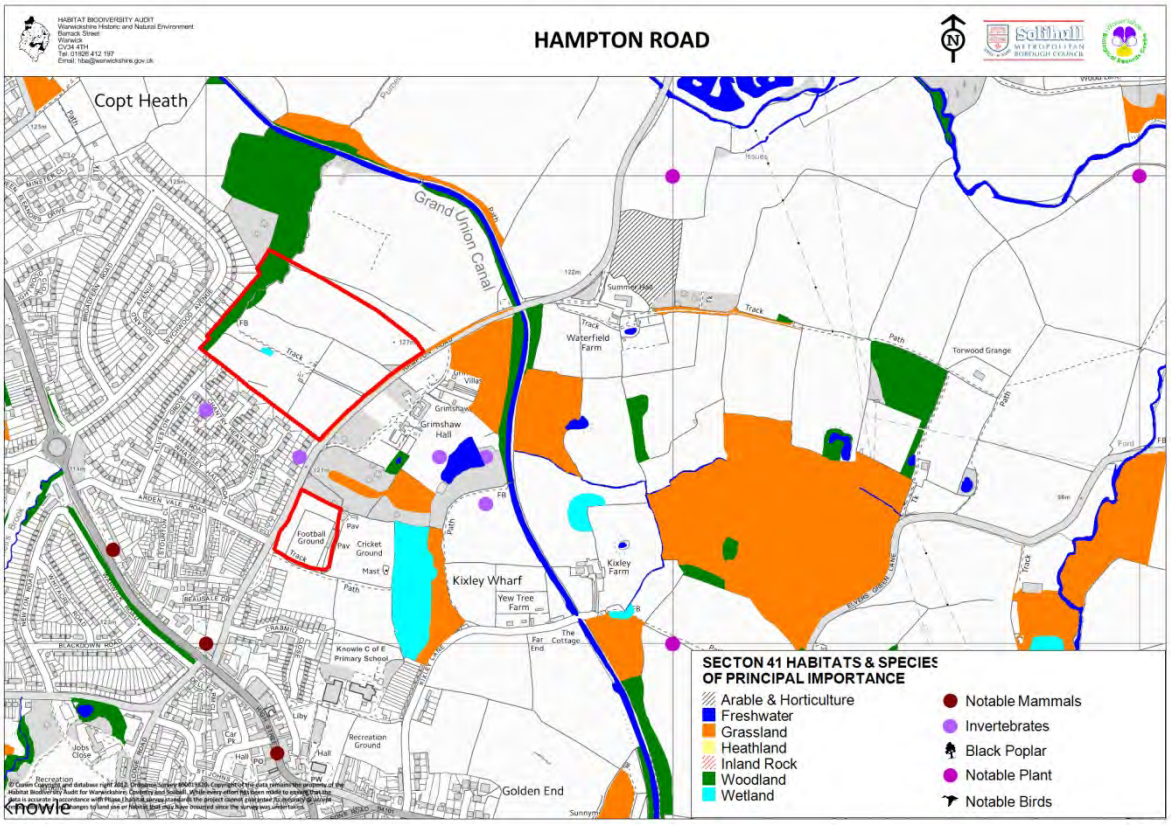

Figure 6 Section 41 Habitats & Species of Principal Importance

Habitat Connectivity

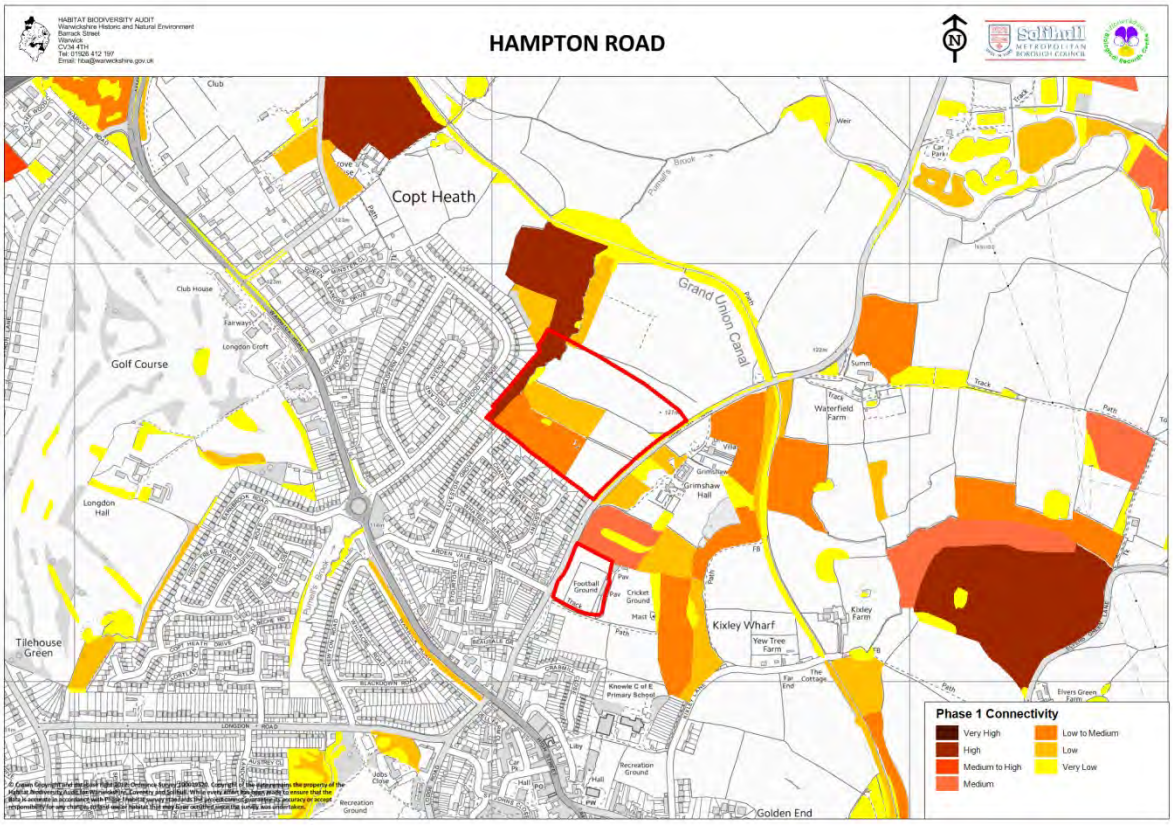

Figure 7 Habitat Connectivity

Strongly connected habitats are associated with the valuable and distinct habitats nominated within Local Wildlife Sites and potential Local Wildlife Sites surrounding and contained within the development parcels. Woodland and grassland connectivity is strong with a band of high connectivity orbiting the northern and eastern limits of the southern development parcel.

The northern development boundary holds very highly connected woodland with low to medium connected buffer habitats associated with the Purnell Brook.

Protected Species

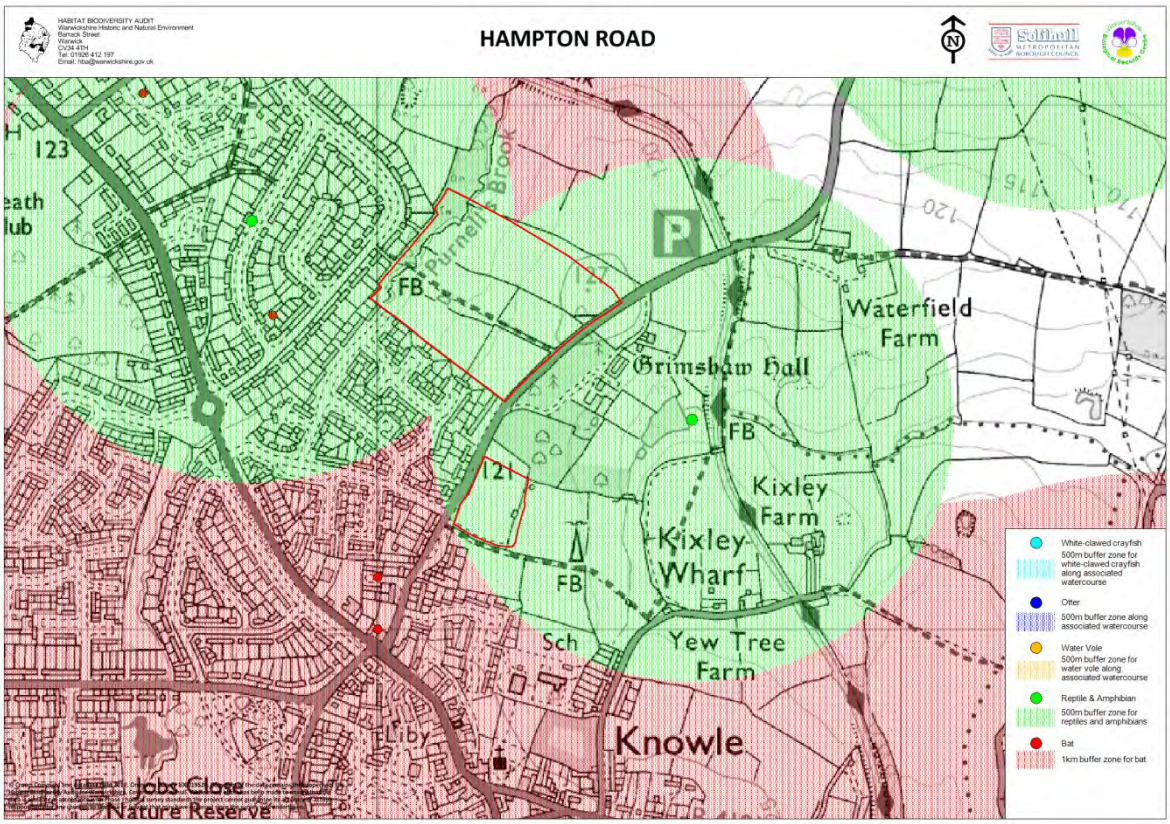

Figure 8 Protected Species

General and dated records of foraging bats and common widespread amphibians common frog (Rana temporaria) and common toad (Bufo bufo) alongside a modern record of a garden breeding pond for frogs are present within residental Knowle. A dated record for toad (Bufo bufo) exists within Grimshaw Hall 324m from the southern parcel boundary. Modern records do exist for pipistrelle (Pipistrellus spp.) bats along Knowle Highstreet, 245m from the southern parcel in 2012.

An external and internal bat survey particularly of the southern parcel will be required to determine the presence and absence of roosting bats and potential levels of bat activity across the Site.

SITE: JENSEN HOUSE & AUCKLAND DRIVE

Area: 4 hectares

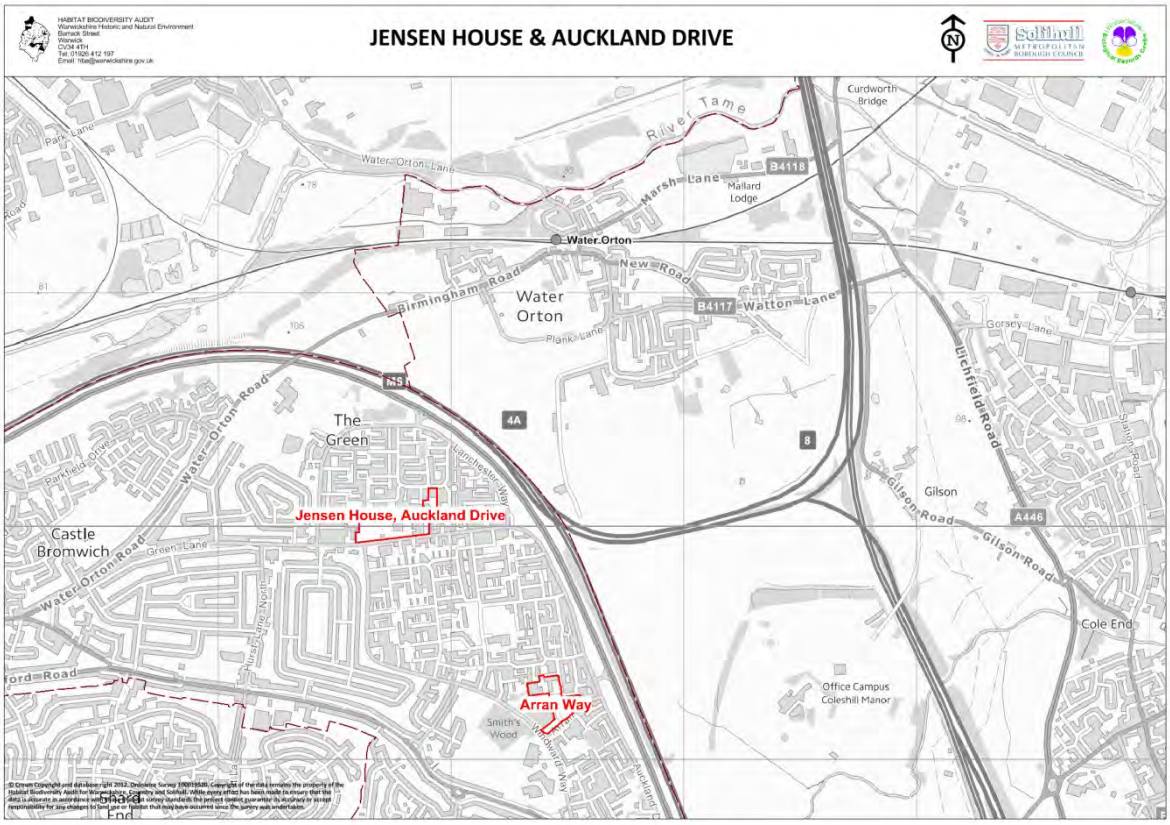

Figure 12 Site Location

Overview

The 4 ha site currently comprises of Bosworth Wood Primary School, ecological features of interest include 2.1 ha of amenity and sports playing pitches accompanied in parts by veteran parkland trees. Retaining selected blocks of trees throughout the site and along boundaries will provide mature habitat linkage. In all cases trees should be checked for bat potential prior to any works taking place. It is recommended that a detailed tree survey be carried out to document all trees on site. The managed amenity grassland is of limited ecological value and as such does not restrict proposed development plans.

Key Features

- Amenity grassland
- Veteran Parkland Trees

Recommendations

Excluding protected species surveys as part of a detailed ecological appraisal carried out at an appropriate time of year it is considered that few ecological constraints are

likely to be present in reference to much of the proposed development of the site. The managed amenity grassland is of limited ecological value and as such does not restrict proposed development plans. Of a much higher ecological value is the mix of native and planted parkland trees that occur across the site but are most prevalent in the school grounds to the east.

Trees within the development parcel that are subject to a Tree Preservation Order (TPO; Town and Country Planning Act 1990), require consent from the local planning authority before such protected trees are cut down, topped or lopped.

Veteran and mature trees particularly within boundary hedgerows and those that form small copses within the school grounds should be retained and incorporated with the development in areas of open space. The inclusion of green bridges formed from hedgerows, tunnels or avenues will connect veteran trees that would otherwise be separated by development. An appropriate buffer zone of semi-natural habitat between the development and the veteran tree should be determined by an appropriate arboriculturist but a minimum buffer should be at least 15 metres.

During construction, screening barriers will protect veteran trees from dust and pollution. Veteran trees are irreplaceable and therefore compensation measures can only partially compensate for damage, the management of aged trees and replacing lost veteran trees is a last resort. Planting young trees of similar species can help compensate for removed veteran trees and should be near those trees that they are replacing.

Likewise the management of nearby veteran trees including dead trees can help compensate for lost veteran trees. The intact hulk of the veteran tree should be left intact to benefit invertebrates and fungi. Otherwise dead wood should be moved adjacent to other veteran trees within the development parcel.

It is recommended that a detailed tree survey be carried out to document all trees on site. On advice from a professional arborist, a tree protection plan and arboricultural method statement should be implemented to inform those recommended tree works that may form part of any proposed development. As part of proposals, a programme of works should be identified to improve the quality of planted and non-planted trees on site; particularly those larger trees on site. Trees that may be removed or encouraged should be carefully considered in relation to the overall landscaping plan for the Site and the wider landscape. Any tree work recommendations as part of the proposed development should be considered environmentally sensitive and conservation orientated.

Boundary hedgerows should be retained and enhanced, with development proposals kept within the curtilage of these important boundary features. Replacement of these mature features is ill-advised and soft landscaping areas should be composed of native species already present on site.

Constraints

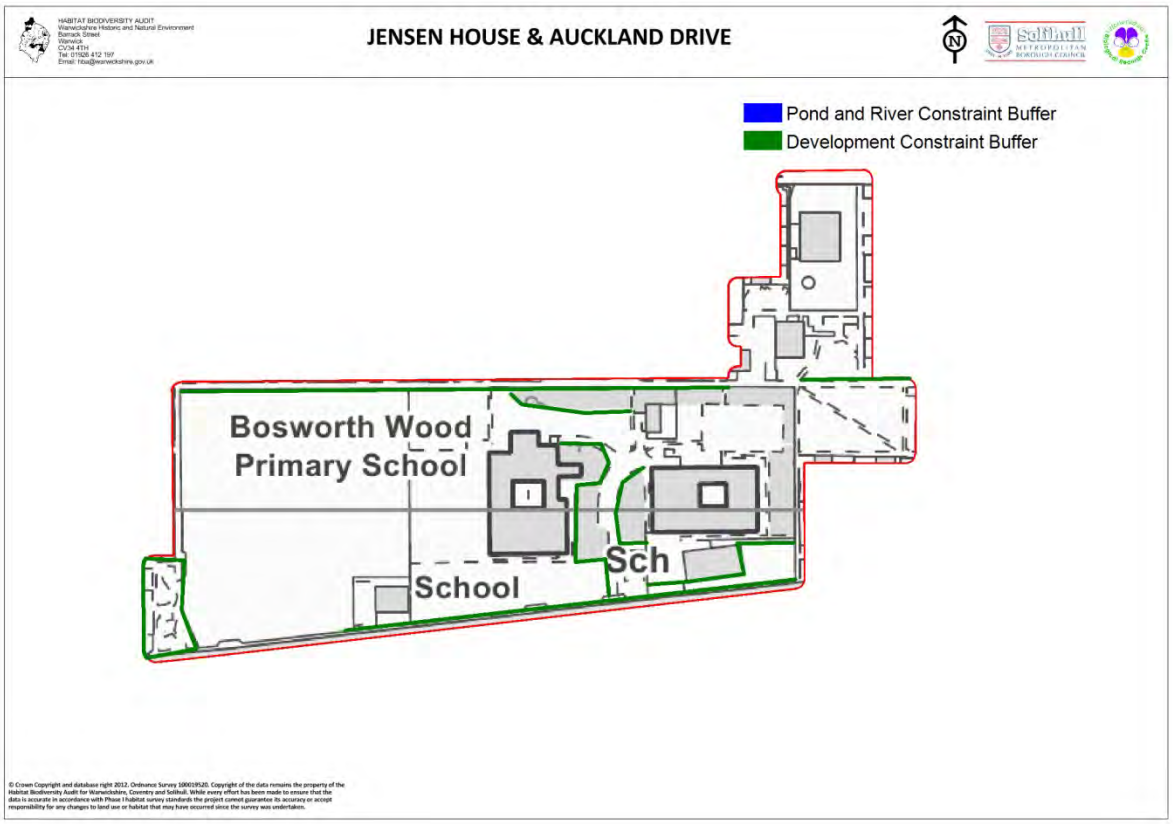

Figure 2 Constraints Maps

The areas marked in green and blue on the above constraints map indicate where development should be avoided and ecological enhancement encouraged.

They include:

- 30m buffer around woodland
- 8m buffer either side of adjacent to watercourses
- 8m buffers around ponds
- 5m buffer either side of intact hedgerows
- Areas of medium to high distinctiveness grassland (Values 4, 5 & 6)

Designated Sites

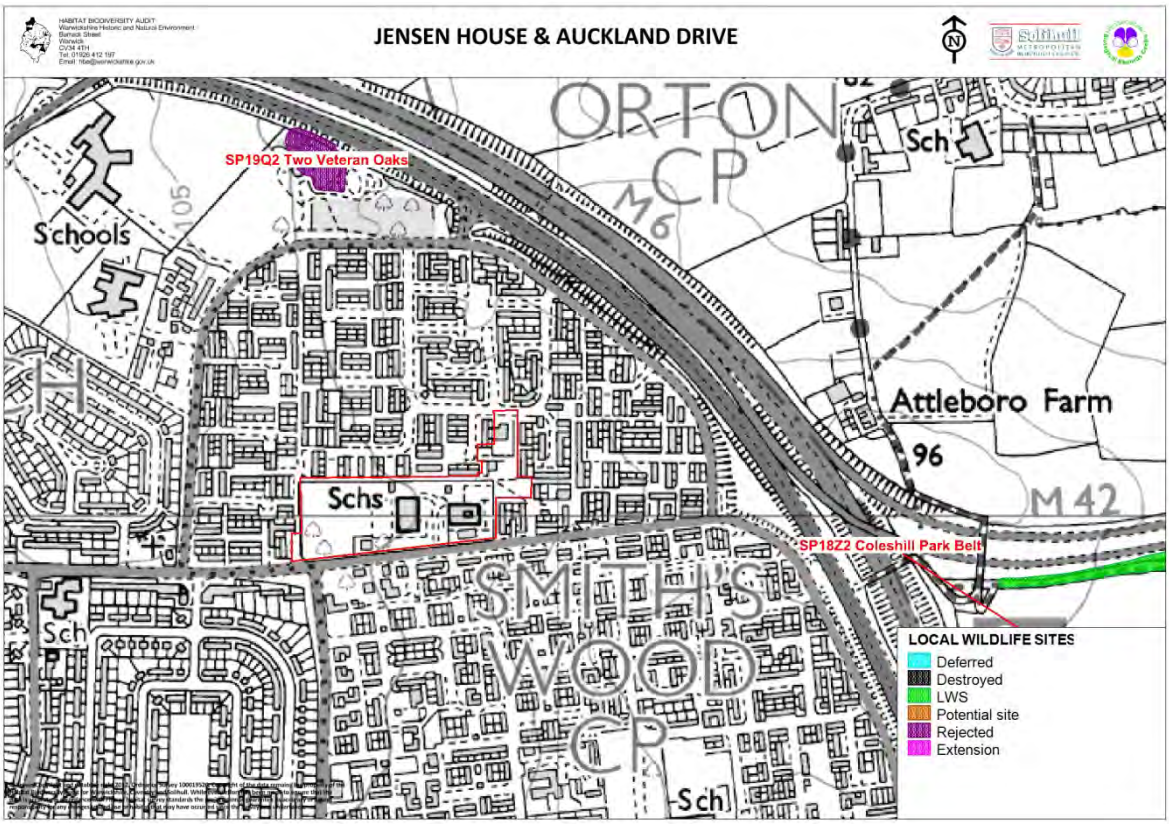

Figure 3 Site Designations

There are no designated sites within or adjacent to the development parcel.

Habitat Description

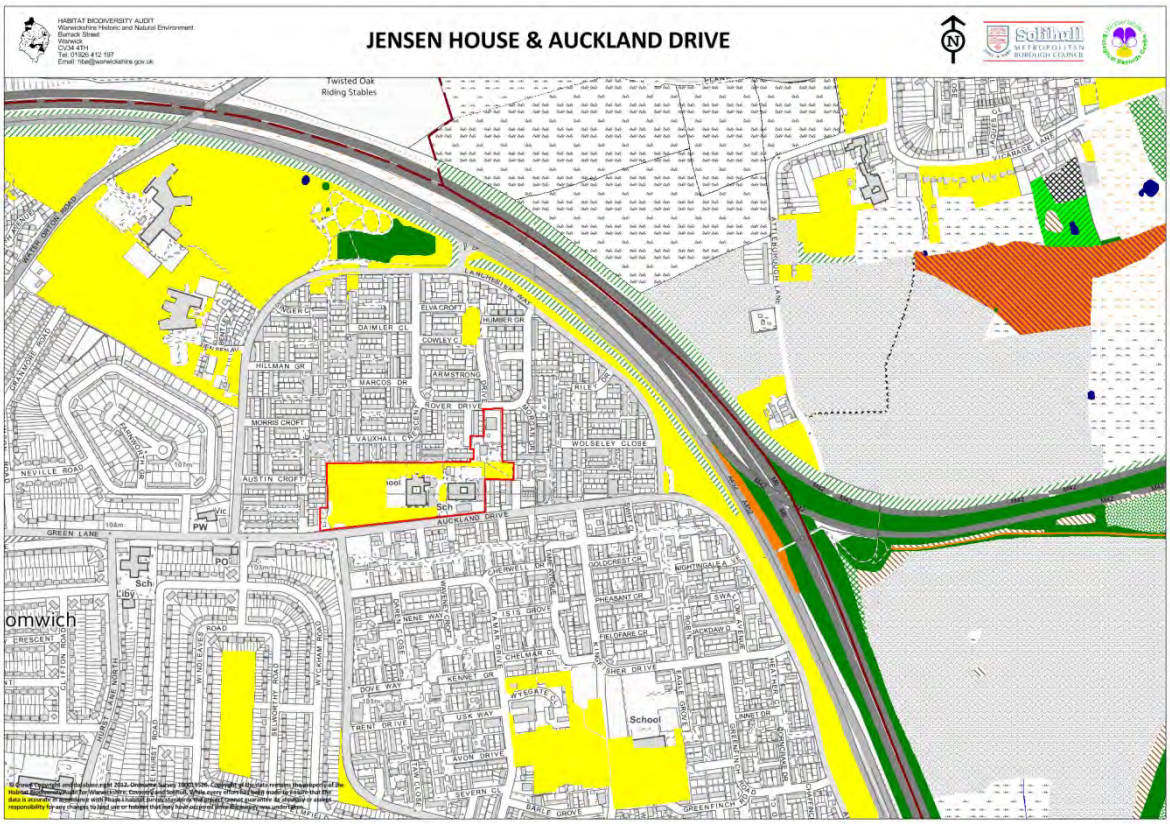

Figure 4 Phase 1 Habitats

The development parcel comprises predominately of amenity grassland (J12) associated with Bosworth Wood Primary School Playing Fields and mature amenity trees (A3) planted to complement the school grounds.

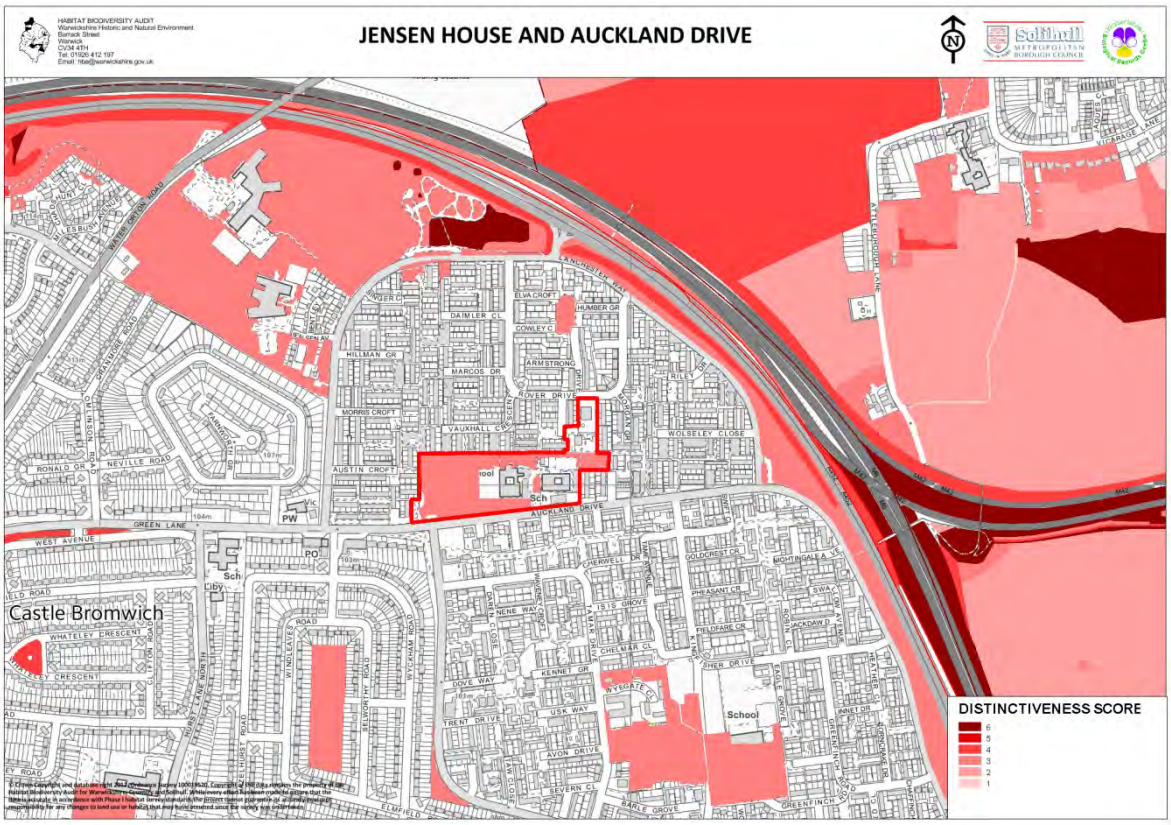

Figure 5 Habitat Distinctiveness & Target Notes

Distinct habitats include the amenity grassland and veteran trees surrounded by intact hedgerows with trees.

Target Notes

There are no target notes recorded for this site.

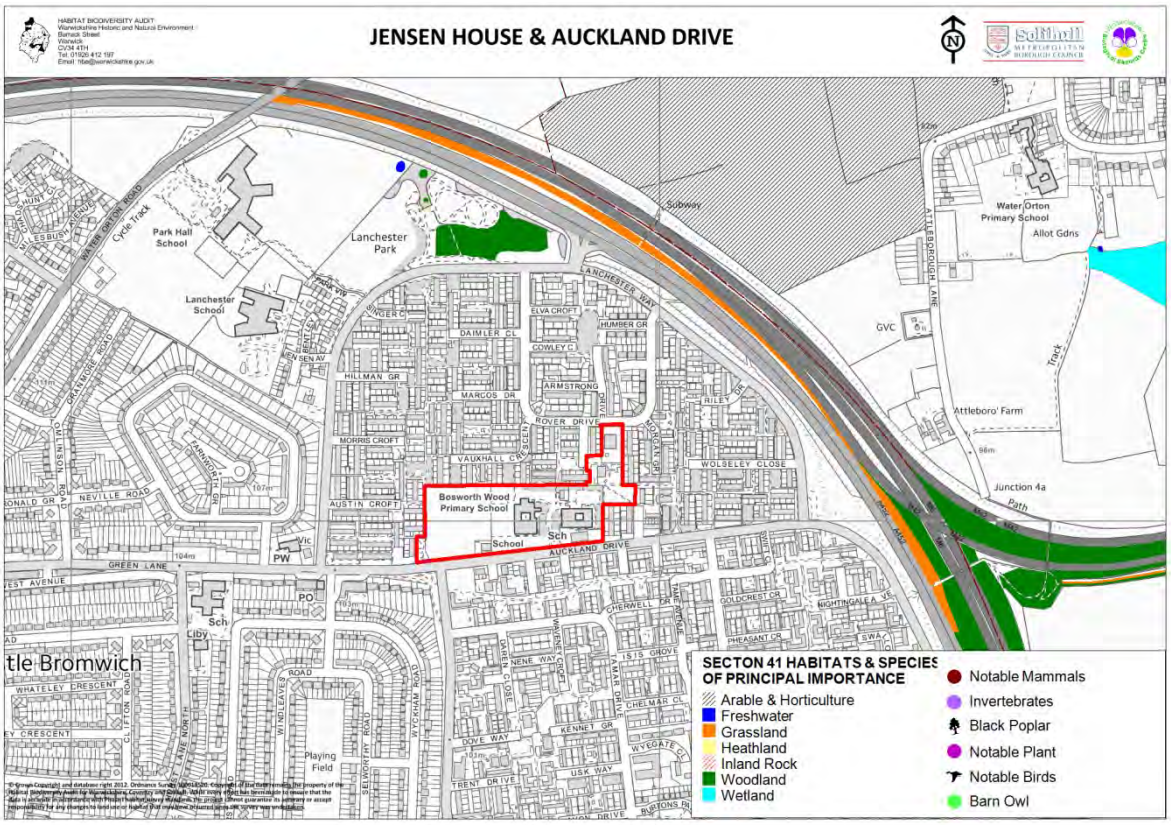

Figure 6 Section 41 Habitats & Species Importance

Habitat Connectivity

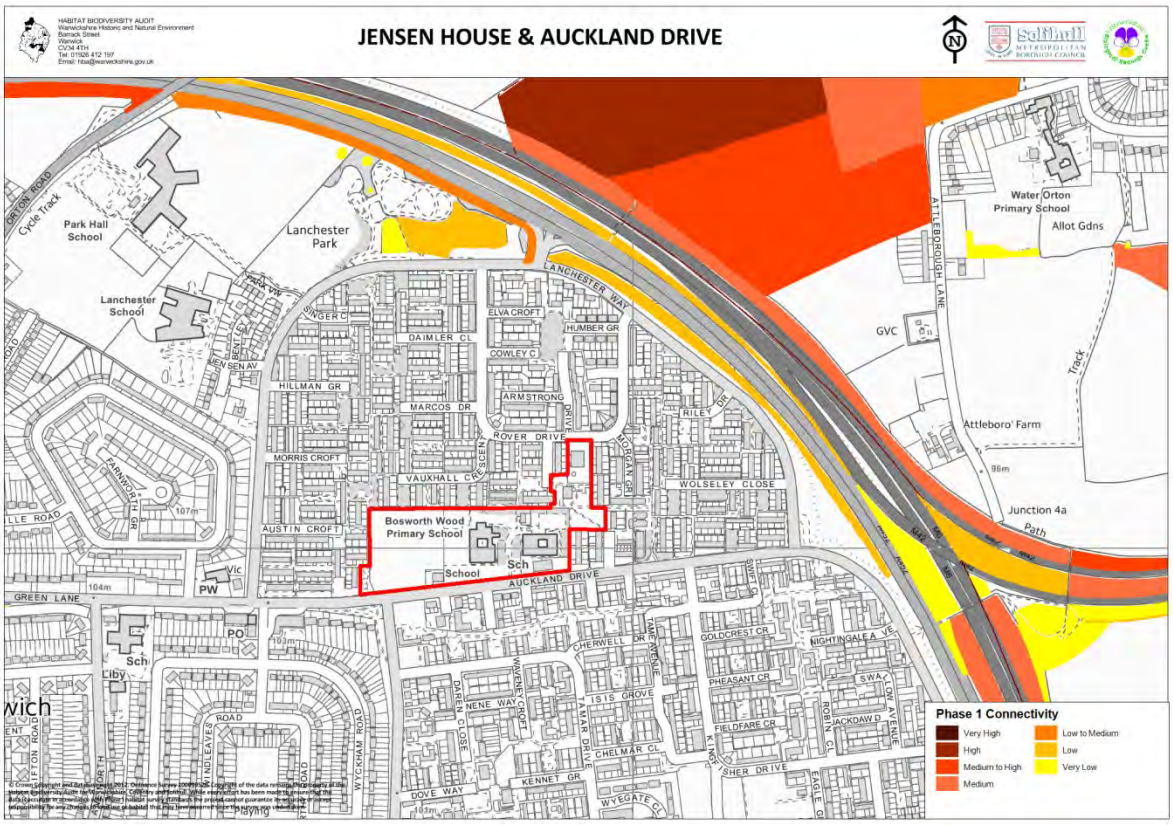

Figure 7 Habitat Connectivity

The development parcel remains very isolated surrounded by the urban environment of Smiths Wood and Castle Bromwich sandwiched between the M6, M42 and the A452 (Newport Road).

Protected Species

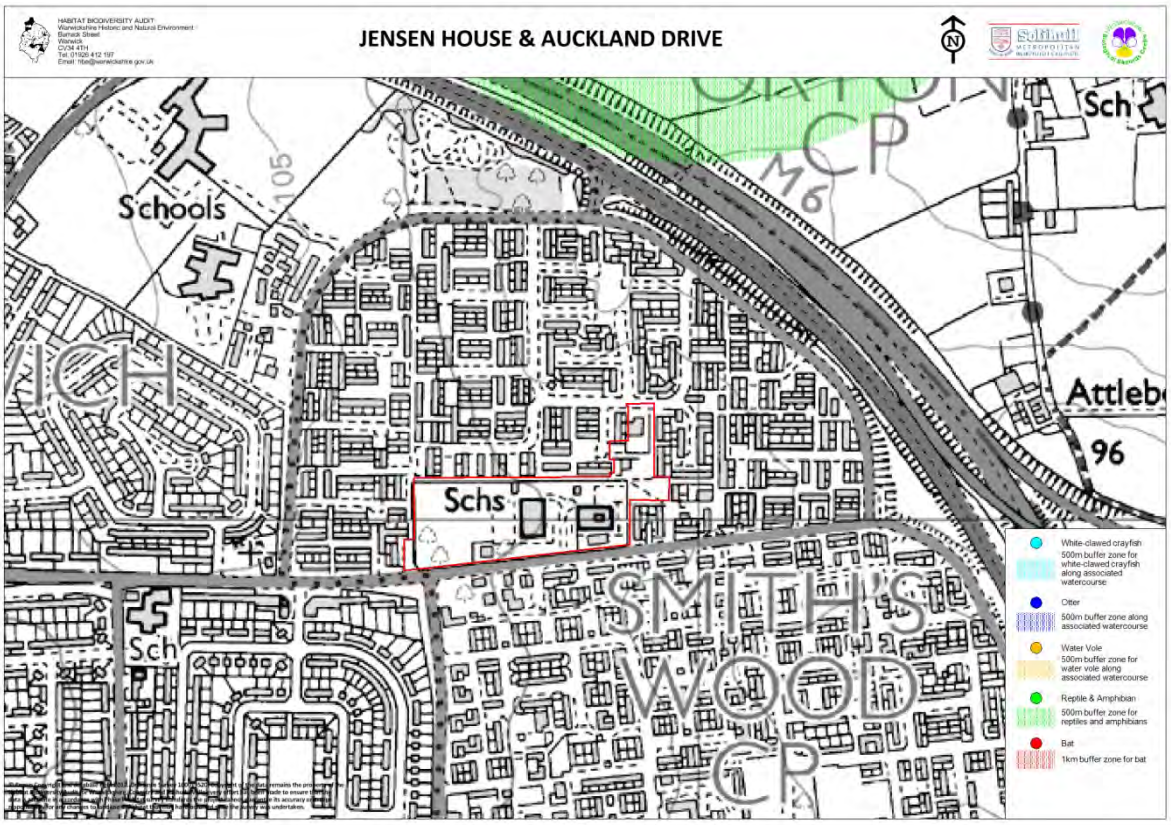

Figure 8 Protected Species

There are no protected or notable species records located within the site boundaries. We recommend that protected species are taken into consideration through more detailed ecological assessments. Please take note than an absence of species records does not mean an absence of species.

SITE: KINGHURST VILLAGE CENTRE

Area: 3 hectares

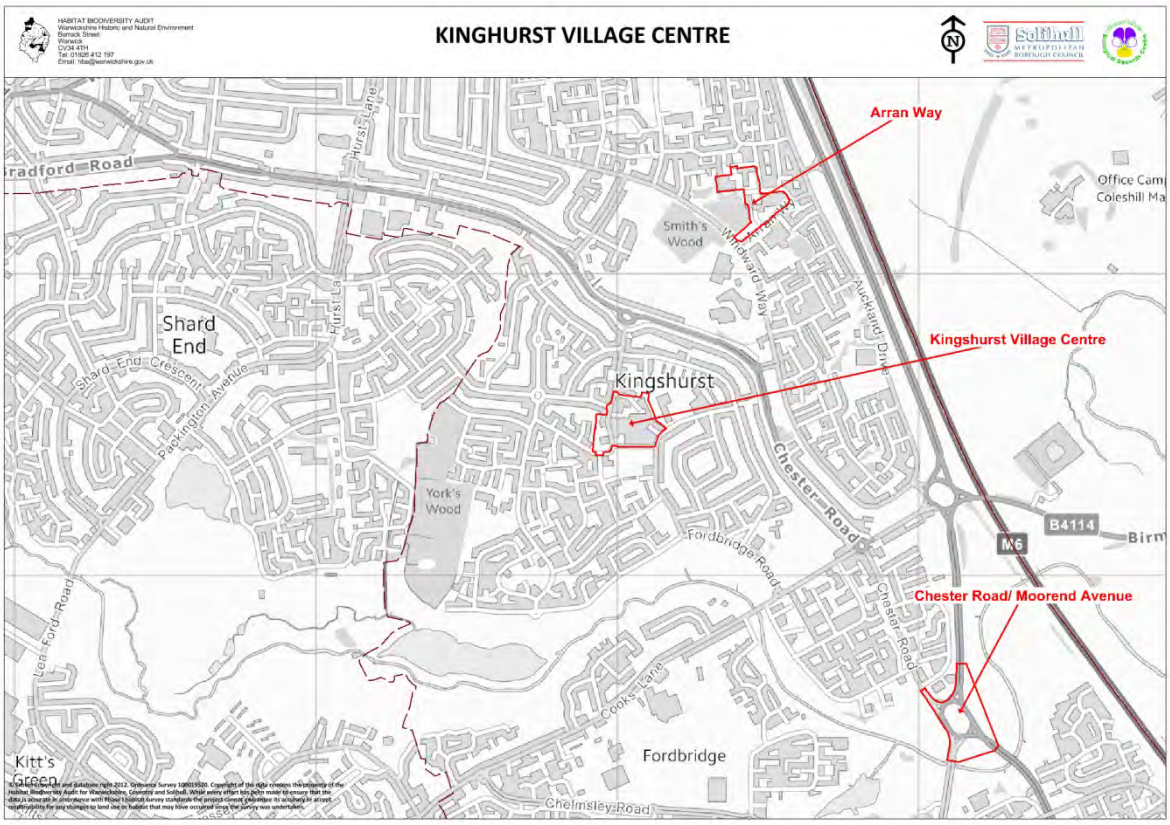

Figure 13 Site Location

Overview

Kinghurst Village Centre sits in the civil parish of Kingshurst within the post-war housing estate comprising of a mix of retail outlets sandwiched between Colling Walk and Church Close on the northern and eastern periphery adjacent to the former/refurbished Kinghurst Primary School off Gilson Way. Marston Drive and Kingshurst Park denotes the southern boundary with residential properties and a small cleared brownfield site off Over Green Drive overlooking the south west-corner. St Barnabas Hall part of the Church of England dominates the northern-eastern section of the development parcel currently accessed from Church Close with an accompanying car park.

Key Features

- Amenity grassland
- Broad-leaved plantation
- Planted amenity trees

Recommendations

As the footprint of the proposed development largely falls within the boundary of land tracts previously developed, the encompassing land is considered of low ecological value. However, planted trees of varying ages and species comprise areas of broad-leaved plantation particularly to the north-east. These should be retained to enhance green infrastructure and open space within this urban centre of Kingshurst.

Good quality, well-sited trees can make a significant contribution to the amenity value of any proposed development. Hereby enhance any new development and sustain amenity within the local area. The British Standard (BS 5837:1991 – Guide for Trees in Relation to Construction) first published in 1980, provides guidance on preparing Pre-development Tree Surveys and establishing retention values for trees within development sites.

The development parcel encompassing the south-west corner of the development parcel comprises of ruderal, ephemeral and short perennial grassland developed in absence of management since the site was initially cleared. If this section continues to be left un-managed it may development into habitats suitable for common and widespread reptiles and amphibians.

Constraints

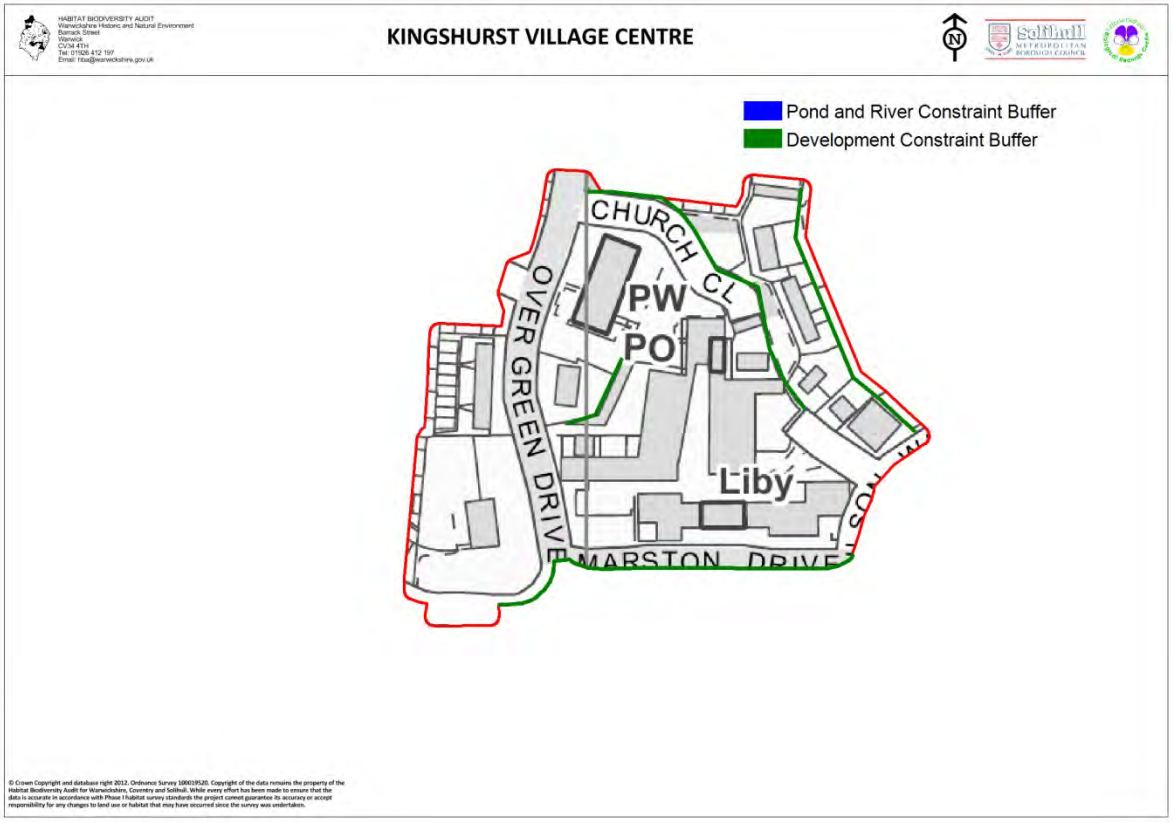

Figure 2 Constraints Map

The areas marked in green and blue on the above constraints map indicate where development should be avoided and ecological enhancement encouraged.

They include:

- 30m buffer around woodland
- 8m buffer either side of adjacent to watercourses
- 8m buffers around ponds
- 5m buffer either side of intact hedgerows
- Areas of medium to high distinctiveness grassland (Values 4, 5 & 6)

Designated Sites

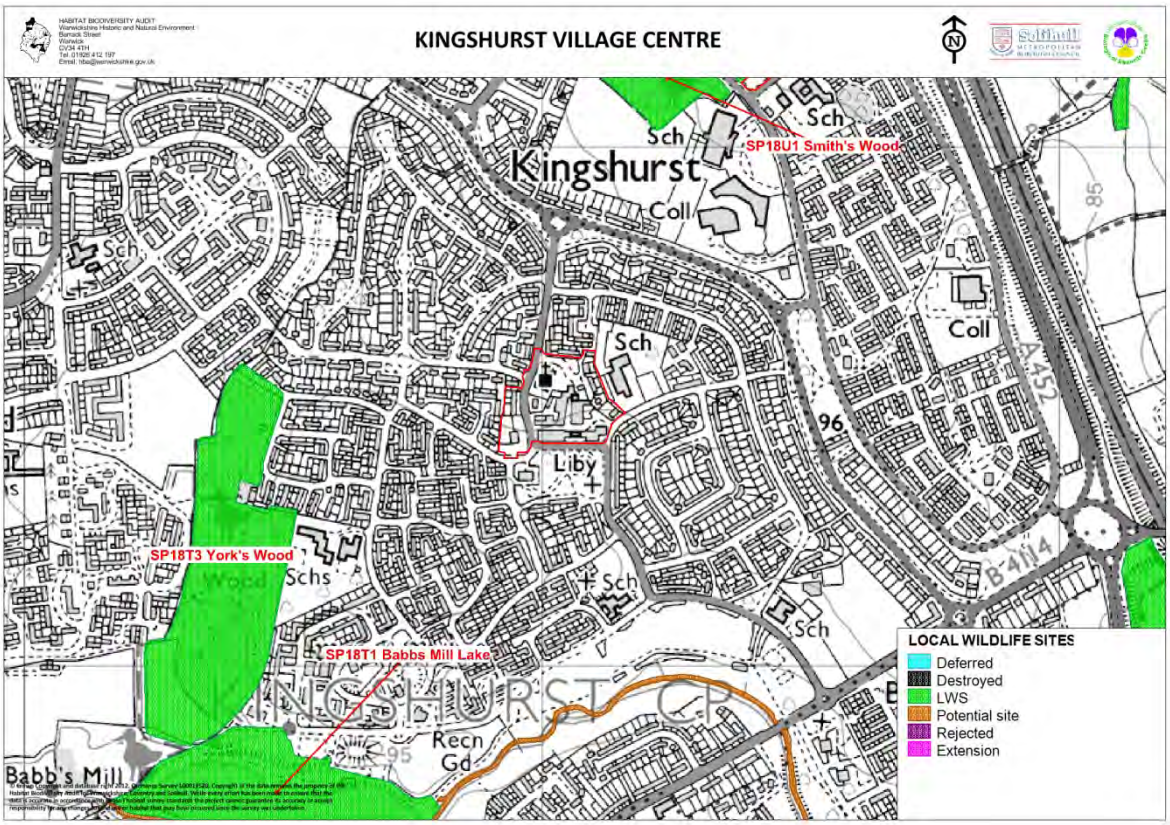

Figure 3 Site Designations

There are no designated sites associated with the site or within the immediate surrounds.

Habitat Description

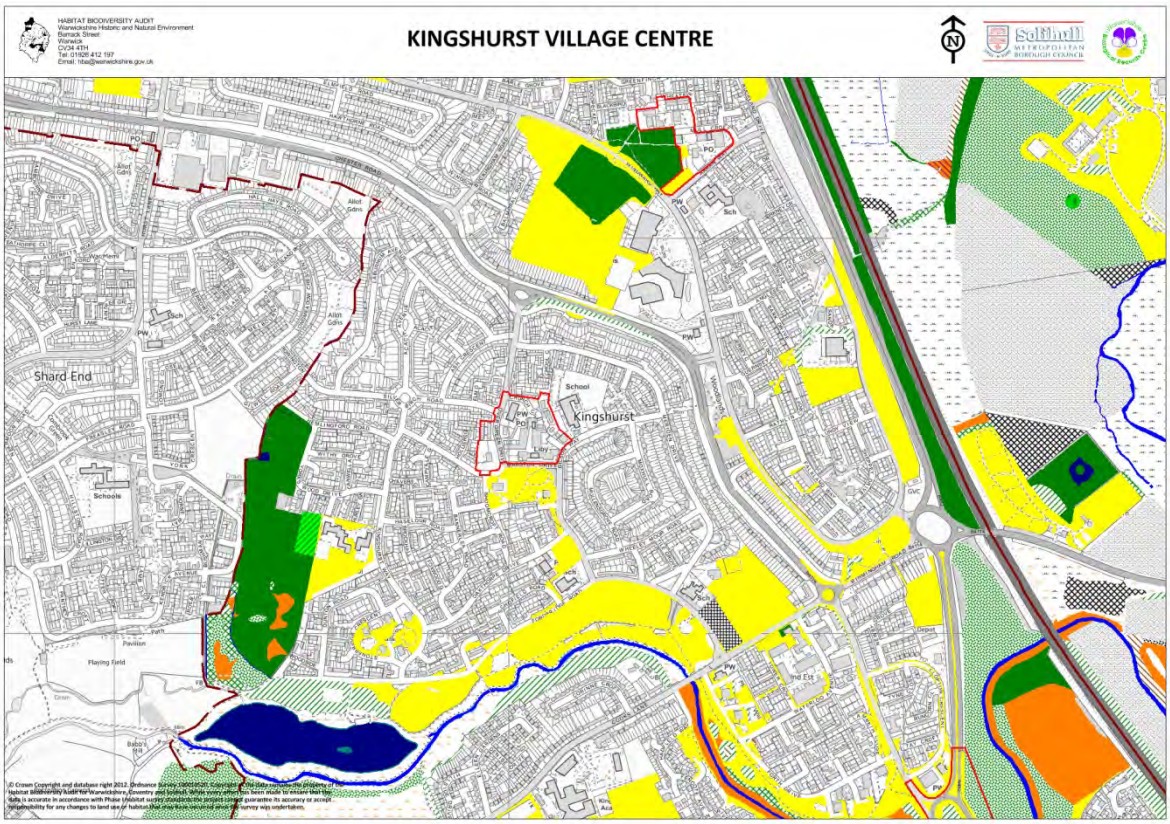

Figure 4 Phase 1 Habitats

Kingshurst Village Centre is most associated with habitats of amenity grassland (J11) and linear trees (A3) comprising patches of broad-leaved plantation (A112) contained within road verges and along paths and borders.

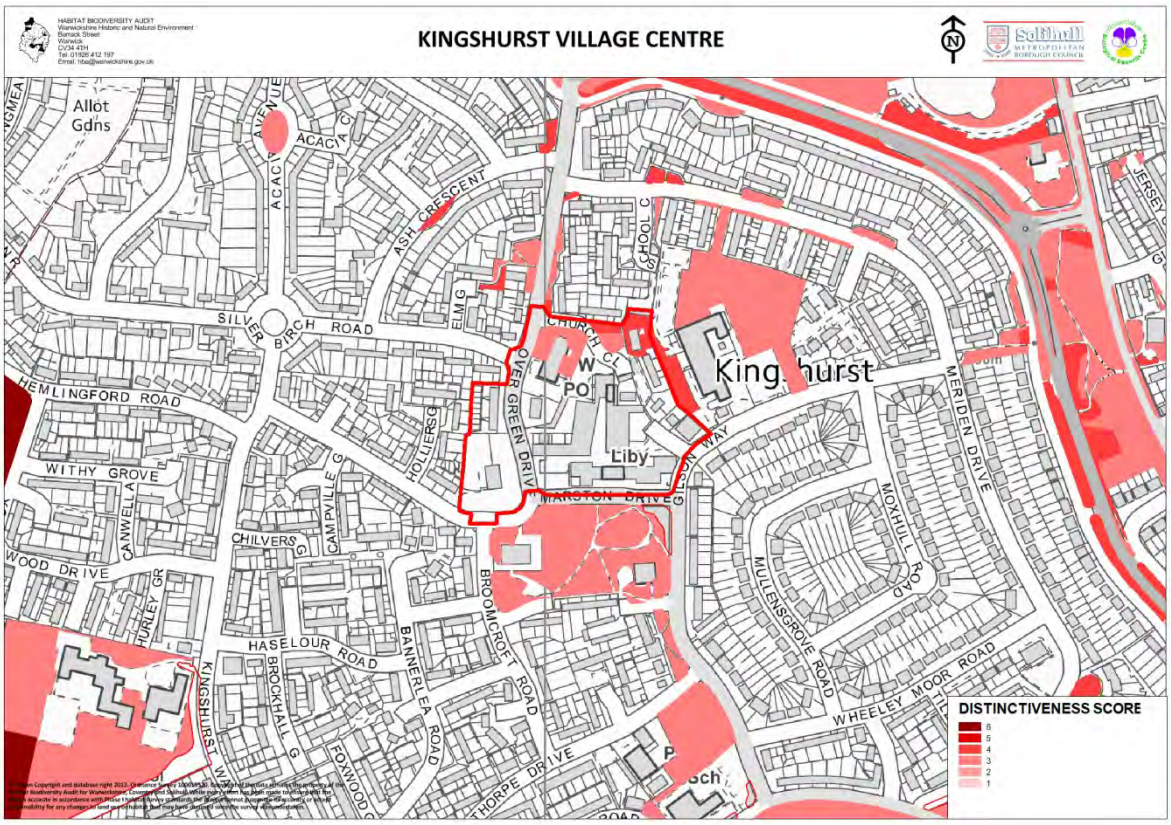

Figure 5 Habitat Distinctiveness & Target Notes

Distinct habitats are associated with amenity areas named sections of amenity grassland and planted trees grouped into broad-leaved plantation woodland.

Target Notes

There are no target notes recorded for the development parcel.

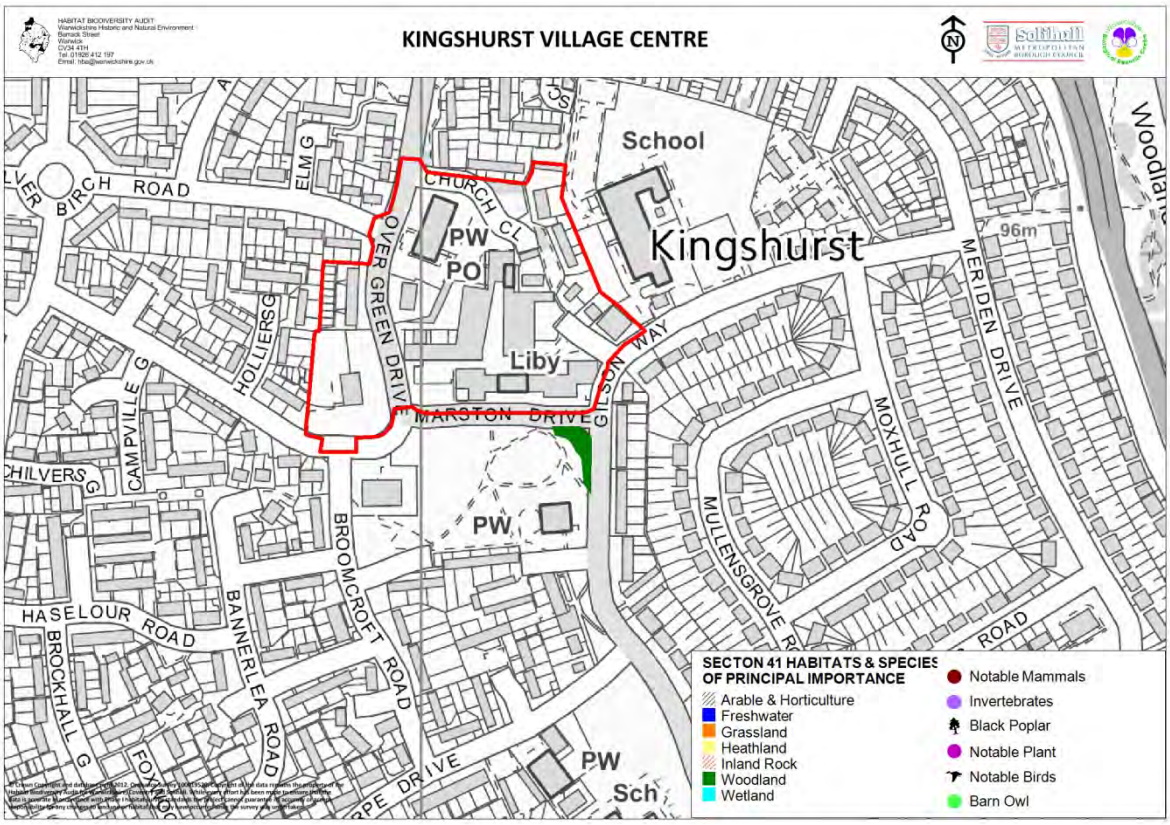

Figure 6 Section 41 Habitats & Species of Principal Importance

Habitat Connectivity

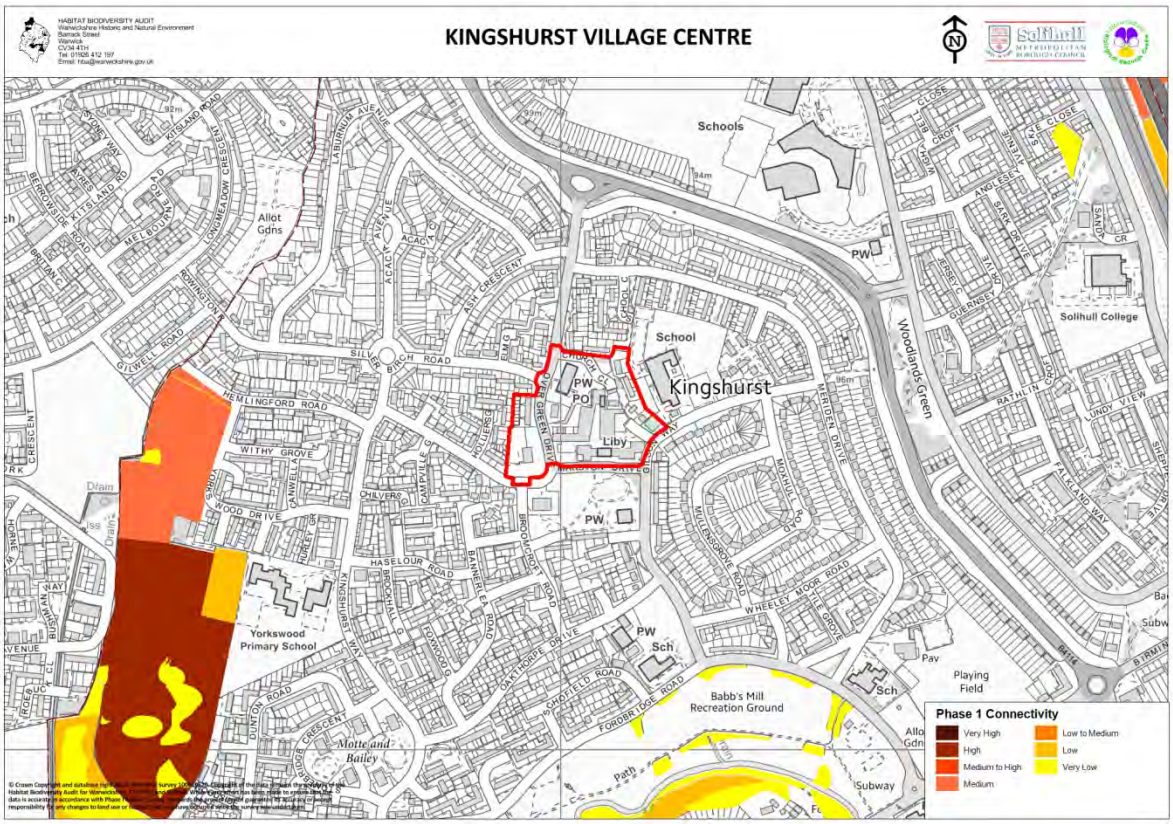

Figure 7 Habitat Connectivity

The development parcel occupies no habitat connectivity within its immediate surrounds but attempts should be made to develop a link of planted trees and green infrastructure between the Kingshurst Village Centre, Kingshurst Park and Babb's Hill Recreation Ground.

Protected Species

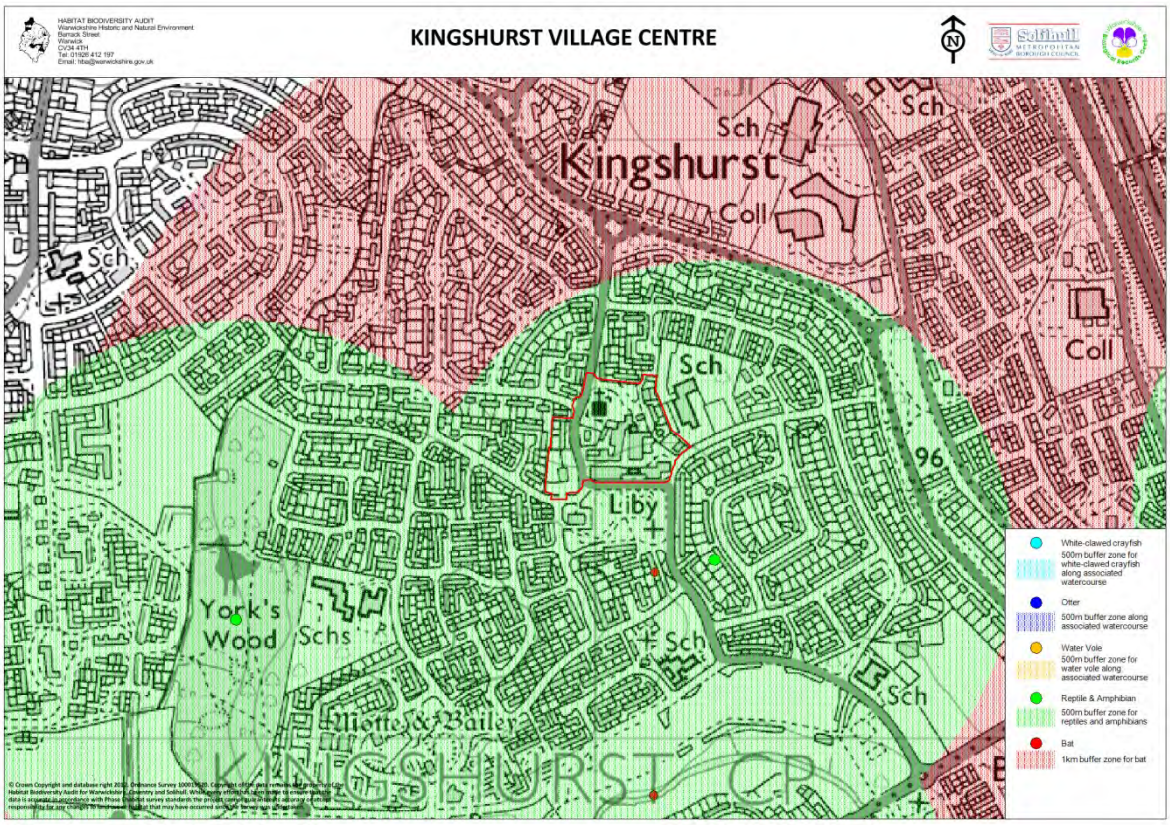

Figure 8 Protected Species

A roosting record for a pipistrelle bat (Pipestrellus sp.) emerging from a residential property in Didgley Grove in 2012, exists 160 m from the site boundary.

Likewise, a dated record occurs for common frog (Rana temporaria) from a residential pond in 1997, a similar distance from the developments southern boundary.

It is not anticipated that any protected species will be affected by development proposals for Kingshurst Village Centre. However, we recommend that protected species are taken into consideration through more detailed ecological assessments. Please take note than an absence of species records does not mean an absence of species. Therefore it is advised that prior to development works qualified ecologists carry out appropriate inspections for any building suitable for bats.

SITE: LAND AT DAMSON PARKWAY

Area: 94 hectares

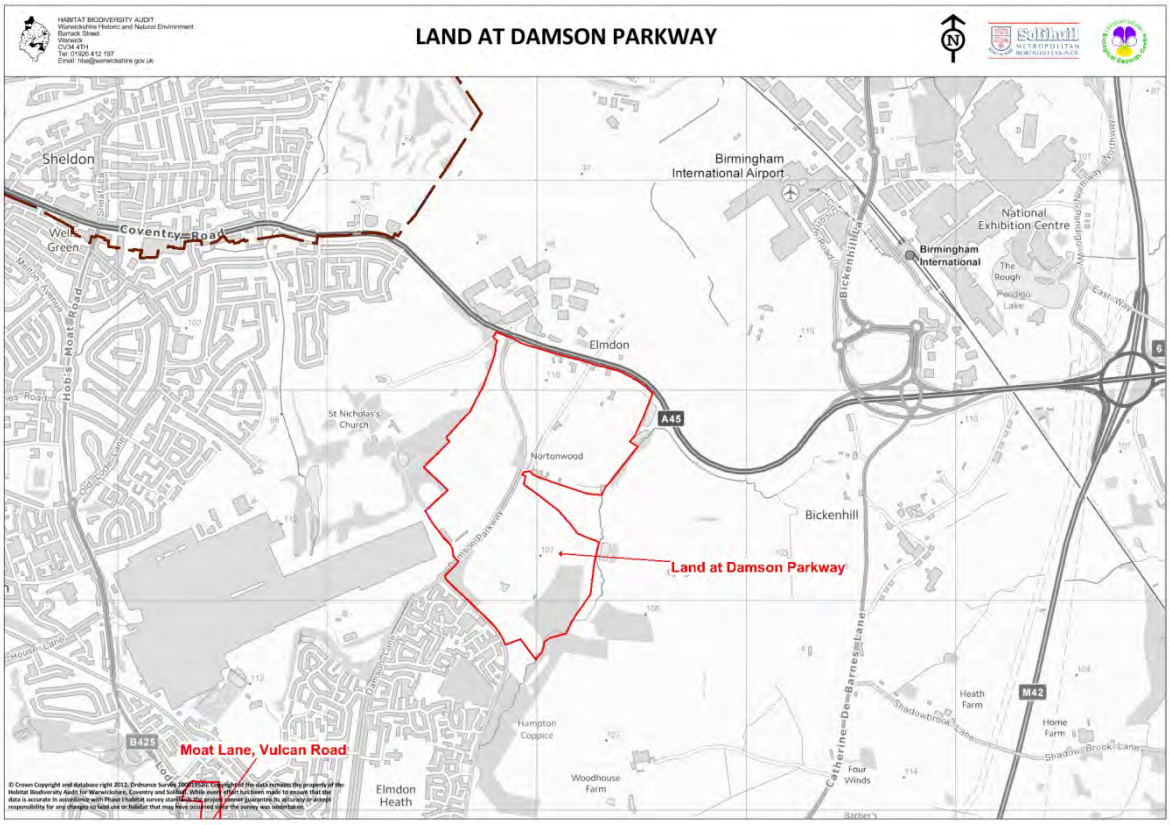

Figure 14 Site Location

Overview

The development parcel is located approximately 1km to the south-west of Birmingham International Airport along the A45 Coventry Road beyond the residential village of Elmdon. Damson Parkway Road separates the development parcel down its centre into clearly defined sections.

The Old Damson Lane further divides the north-eastern half. It leads to a combination of agricultural and mixed use holdings enclosed within the small hamlet of Nortonwood namely Gables Hotel, Birmingham Exiles Rugby Football Club and Dustan Farm. The shared driveway of the Gables Close Gypsy and Traveller Site and Parkway Kennels and Cattery exits onto Old Damson Lane, close to its junction with Damson Parkway.

The eastern boundary traces the Low Brook encompassing a wooded copse named the Jungle and by-passing the Gables Close complex. Further east is open countryside with an extensive area of priority grassland designated as Castle Hill Farm Meadows Local Wildlife Site. A section of the proposed development site includes fields belonging to this LWS. The associated Castle Hills Farmhouse lies a minimum of 400 metres connected by a footpath to the east of the site. It is a designated heritage asset (grade 2

listed farmhouse) with surviving arms of a moat and remains of a motte and bailey castle, moated manor house and mediaeval deer park boundary.

The southern boundary sits along the built up area of the Damson Parkway Estate bounded by the Damson Parkway Road and Hampton and Elmdon Coppice Local Wildlife Site.

The western boundary encompasses Solihull Moors Football Club comprising a club house, car park and sports fields with agricultural land to the north immediately abutting the important sites of Elmdon Park an area of public open space which includes a Nature Reserve and Local Wildlife Site.

Within the proposed site the fields are mostly arable with a mix of species poor grassland and semi-improved grassland with areas of amenity grassland, dense scrub and small stands of woodland. The fields are bisected by hedgerows.

Key Features

- Elmdon Manor Local Nature Reserve (SP18R1)
- Castle Hill Farm Meadows Local Wildlife Site (SP18R2) hosting semi-improved and un-improved grasslands
- Elmdon Grange Wood (SP18R3)
- Elmdon Nature Park Local Wildlife Site (SP18R4)
- Hampton & Elmdon Coppice Local Wildlife Site (SP18Q2)
- The Low and Kingshurst Brook potential Local Wildlife Site (SP18T8)
- Habitat mosaic incorporating ponds and woodland in addition to well-connected hedgerows

Recommendations

The key recommendation is to keep the existing local wildlife sites intact and interconnected. The proposed development incorporates part of the extensive Castle Hill Farm Meadows; one of the largest priority grassland areas in the Warwickshire sub-region.

Consideration should be given to habitat creation to establish a link between Elmdon Park and Castle Hill Farm Meadows along the southern edge incorporating Kingshurst Brook potential LWS together with Hampton and Elmdon Coppice LWS to create a continuous wildlife corridor and habitat buffer.

The LWS grasslands should be re-assessed and updated together with management plans for the combined sites. The extensive priority grasslands together with the additional mosaic habitats should be incorporated into an overall management plan which should be considered as part of the on-site and off-site mitigation.

There is also the possibility that the rejected Castle Hill Farm Meadows could be restored as part of the on-site mitigation. This could also be incorporated into the grasslands management plan.

This site-specific long-term management plan is required to prevent domination of the sward by scrub and aggressive species. Long term-management should include a monitoring and evaluation programme that will enable the management regime to be adapted as necessary with the aim to determine the extent of the grassland establishment (% ground cover, bald patches and presence of leaf litter) and sward composition (grass to herb ratio, positive indicator species, negative indicator species, species with local distinctiveness).

A regime of cutting and light grazing is essential for maintaining species richness.

It is preferential that the development be contained within or incorporates existing boundary features within site design as to facilitate the principal goal to improve access to existing green infrastructure in the locality and to mitigate landscape impacts resulting from large development across a distinct landscape. A continuity of tree cover should be a priority creating a sequence of linked wooded spaces across the development parcel combining to priority grasslands to provide a mosaic of valuable habitats for a range of wildlife.

This should be achieved by the retention of the existing veteran trees and mature boundary features within and surrounding the development parcel. It is likely that development proposals could incur a significant loss of hedgerows including the removal of tree standards particularly mature oaks (Querus robur).

Veteran trees are irreplaceable and therefore compensation measures can only partially compensate for damage, the management of aged trees and replacing lost veteran trees is a last resort. An appropriate buffer zone of semi-natural habitat between the development and the veteran tree should be determined by an appropriate arboriculturist but a minimum buffer should be at least 15 metres. During construction, screening barriers will protect veteran trees from dust and pollution. Planting young trees of similar species can help compensate for removed veteran trees and should be near those trees that they are replacing. Likewise the management of nearby veteran trees including dead trees can help compensate for lost veteran trees. The intact hulk of the veteran tree should be left intact to benefit invertebrates and fungi. Otherwise dead wood should be moved adjacent to other veteran trees within the development parcel.

Any potentially important, characteristic or species-rich hedgerows should be subject to a full hedgerow survey detailed in the Hedgerow Survey Handbook (2nd edition) under The Hedgerows Regulations (made under Section 97 of the Environment Act 1995). The regulations were introduced in England and Wales in 1997 to protect this characteristic element of the countryside. The Regulations prohibit the removal of most countryside hedgerows without first submitting a hedgerow removal notice to the local planning authority.

The western parcel boundary immediately abuts Elmdon Park and Elmdon Nature Reserve. A 30-50m buffer should be instigated to prevent detrimental edge effects on the Local Nature Reserve and Local Wildlife Site.

Constraints

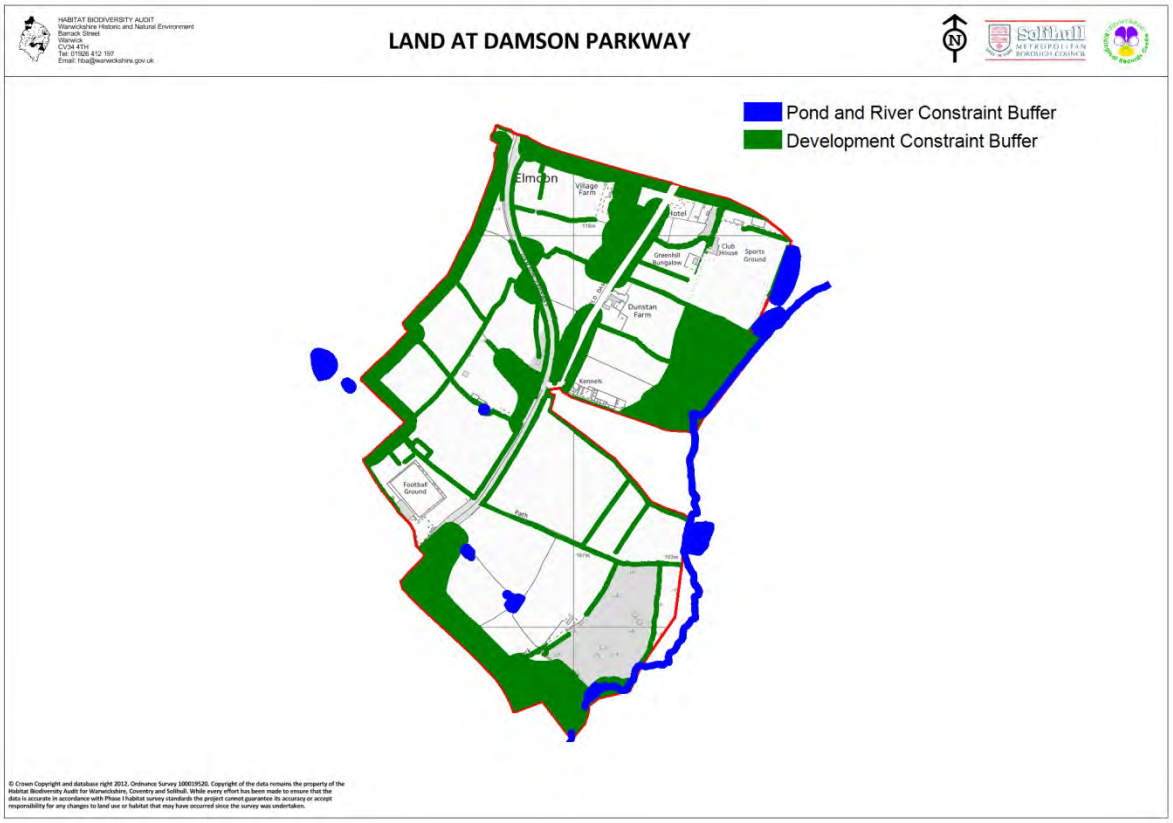

Figure 2 Constraints Map

The areas marked in green and blue on the above constraints map indicate where development should be avoided and ecological enhancement encouraged.

They include:

- 30m buffer around woodland
- 8m buffer either side of adjacent to watercourses
- 8m buffers around ponds
- 5m buffer either side of intact hedgerows
- Areas of medium to high distinctiveness grassland (Values 4, 5 & 6)

Designated Sites

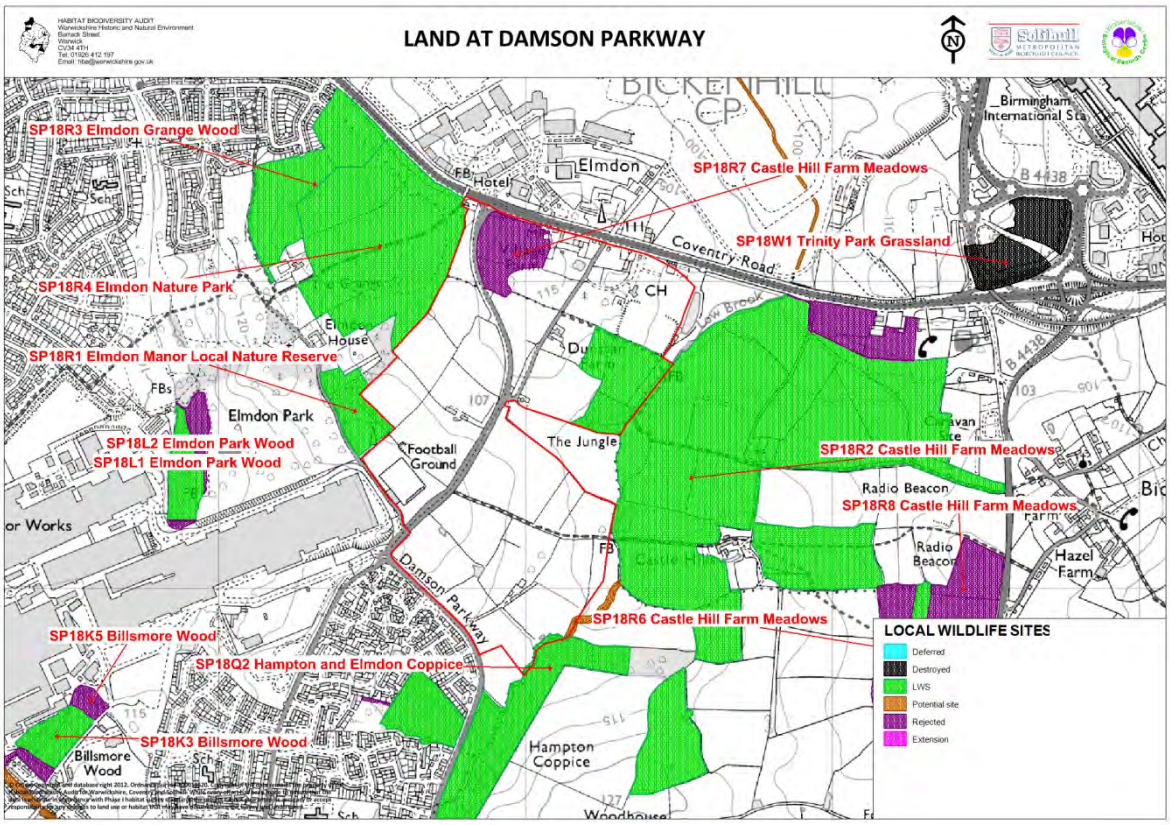

Figure 3 Site Designations

The development parcel impacts a number of designated sites within the immediate vicinity and surrounding area. Elmdon Manor Local Nature Reserve is dually designated as both a Local Nature Reserve and Local Wildlife Site. Castle Hill Meadows LWS intersects the eastern boundary with a rejected section south of Coventry Road abutting the northern parcel boundary. Hampton and Elmdon Coppice touch the south east-corner along with the Kinghurst Brook potential Local Wildlife Site. This potential LWS should be extended along the length of the development parcel to include the Low Brook which runs adjacent to the eastern parcel boundary.

Local Wildlife Sites:

ELMDON MANOR LOCAL NATURE RESERVE SP18R1[9] Area; 3.4 ha

Survey Date; 21/07/2005

A Local Nature Reserve owned by Solihull Borough Council and managed by Warwickshire Wildlife Trust. The reserve has developed in the grounds of the Old Manor gardens. It is a relatively small site but possesses a diverse range of habitats

[9] Local Wildlife Sites Project Elmdon Manor Local Nature Reserve SP18R1 2006, HBA Warwick

including semi-natural woodland, plantation woodland, dense scrub, semi-improved grassland, swamp and open water habitat. The site has high community value. The reserve appears to be well used by the public and its wildlife and recreational appeal is clearly valued by local people. The site supports attractive vegetation that has a aesthetic appeal. The mosaic of different habitat types, transitional habitats and aquatic features also provide the site with educational value.

CASTLE HILL FARM MEADOWS SP18R2[10] Area; 85.9 ha

Survey Date; 04/08/2000 & 23/02/2011 Ex.

Castle Hills Farm Meadows is one of the largest and most important Grassland SINCs/WSs in the county. The site comprises 21 fields to the West of Bickenhill and South of Birmingham Airport. Hampton and Elmdon Coppice LWS (SP18Q2) is adjacent to the South-West. Bickenhill Meadows SSSI borders part of the LWS to the East.

Most of the LWS is traditionally managed hay meadow with aftermath cattle grazing. A few of the fields are permanent pasture or neglected and the site also includes tall ruderal habitats.

As the site is so large the naturalness of the vegetation varies but generally the grasslands have had little agricultural improvement.

The vegetation of the most natural areas of the site corresponds to MG5 Cynosurus cristatus-Centaurea nigra grassland (Crested Dog-s-tail-Lesser Knapweed grassland).

ELMDON NATURE PARK SP18R4[3] Area; 24.4 ha

Survey Date; 07/08/2007

This is a roughly circular area of land adjoining the Elmdon Manor LWS on the north-east side. This area was until recent years four rectangular fields of improved grassland situated on a gentle north-east facing incline overlooking Birmingham International Airport. Through sympathetic management it is now a large area of unmown summer neutral grassland with an increasing diversity of flowering plants. Several areas have been planted up with native shrubs, while original hedgerows have been retained as well as two small field ponds.

There is a network of footpaths across the site and a circular bridle track which encloses the main block of grassland. The site is much used and appreciated by local people and is especially important as it is situated so close to the heavily built-up areas of north Solihull and Sheldon. The wildlife and community value of this site is considered high enough for the site to become an addition to the pre-existing Elmdon Manor SINC.

[10] Local Wildlife Sites Project Castle Hill Farm Meadows SP18R2 2002 HBA, Warwick

ELMDON GRANGE WOOD SP18R11[12] **Area; 9.82 ha**

Survey Date; 27/09/2012

The site is located on the north-west side of Elmdon Nature Park LWS, which is situated within a green space on the densely populated eastern margin of the Birmingham-Solihull conurbation, sandwiched between the A45 Coventry Road to the north and the Solihull Rover Motor Works to the south. This large open space, which also contains Elmdon Park and Elmdon Manor LNR (which is also a LWS), is vitally important to the local area as a green lung, as it is in a rapidly developing district which is directly impacted by the expanding Birmingham Airport across the A45 to the north.

The LWS consists mainly of well-drained scrub and scrub woodland which is part planted and part naturally colonised, but there are still many glades and open areas containing tall herb and grassland habitats within the block. It formerly comprised two semi-improved pasture fields, and an extensive area of rough grassland still exists in the interior of the northern field, although this is now scrubbing over rapidly. About 20 years ago there was still some species-rich grassland in this field but this has now disappeared through the spread of scrub, Bramble, tall herb and tussock grassland. The site complements the adjoining LWS at Elmdon Nature Park, which is mainly open grassland, and together form a large block of contiguous semi-natural habitats which are vitally important to wildlife in the local (largely built-up) area.

There have been past issues with the lack of management at this site, but it is not too late to improve the site for both people and wildlife following a carefully designed management plan.

There is open access to the larger southern "field" and this is crossed by a number of paths. A public right of way runs from north to south along the western border of this part. The northern block is becoming increasingly impenetrable due to the lack of management and there are no paths here.

The site is situated on the north-east facing slope of a hill, with the altitude dropping gently from 120m ASL on the western side down to below 110m in the north-eastern corner where it abuts the A45.

It is very important to the future standing of this LWS that habitat management is undertaken to preserve and improve the mosaic of woodland, scrub and grassland habitats within the site. Without management, biodiversity will swiftly decline as the woodland develops into uniformly closed-canopy woodland, where the poor light penetration prevents the establishment of a structured shrub layer or diverse ground flora.

[11] Local Wildlife Sites Project Elmdon Nature Park SP18R4 2008 HBA, Warwick
[12] Local Wildlife Sites Project Elmdon Grange Wood SP18R3 2013 HBA, Warwick

HAMPTON AND ELMDON COPPICE SP18Q2[13] **Area 25.41 ha**

Survey Date; 29/06/2000

Hampton and Eldon Coppice LWS is an area of wood and marsh situated on the urban fringe of Solihull. Hampton coppice was previously one of the largest areas of semi natural woodland in Solihull until the Eastern half of the wood was felled, it appears in the late seventies or early eighties. The SINC also includes Elmdon Heath Marsh, an area of marshy grassland to the South of Hampton coppice. The total SINC area is 25.41ha. Castle Hills Farm Meadows; a large area of semi-improved mesotrophic grassland is nearby to the North East and the Grand Union Canal runs perpendicular to the Southern Boundary of the site.

Potential Local Wildlife Site

KINGSHURST BROOK SP18T8 **Area; 10.4 ha**

The Kinghurst or Low Brook extends north and south of the development parcels eastern boundary. The potential LWS should be extended to include the entire length of the Low Brook. The whole watercourse close to the development parcel should then be subject to LWS standard survey.

Rejected Local Wildlife Site

CASTLE HILL FARM MEADOWS SP18R7 **Area; 8.39 ha**

The grassland was rejected as an LWS dating back to 2000, a LWS standard survey should determine whether the site should retain this status.

[13] Local Wildlife Sites Project: Hampton & Elmdon Coppice SP18Q2 2000, HBA Warwick

Habitat Description

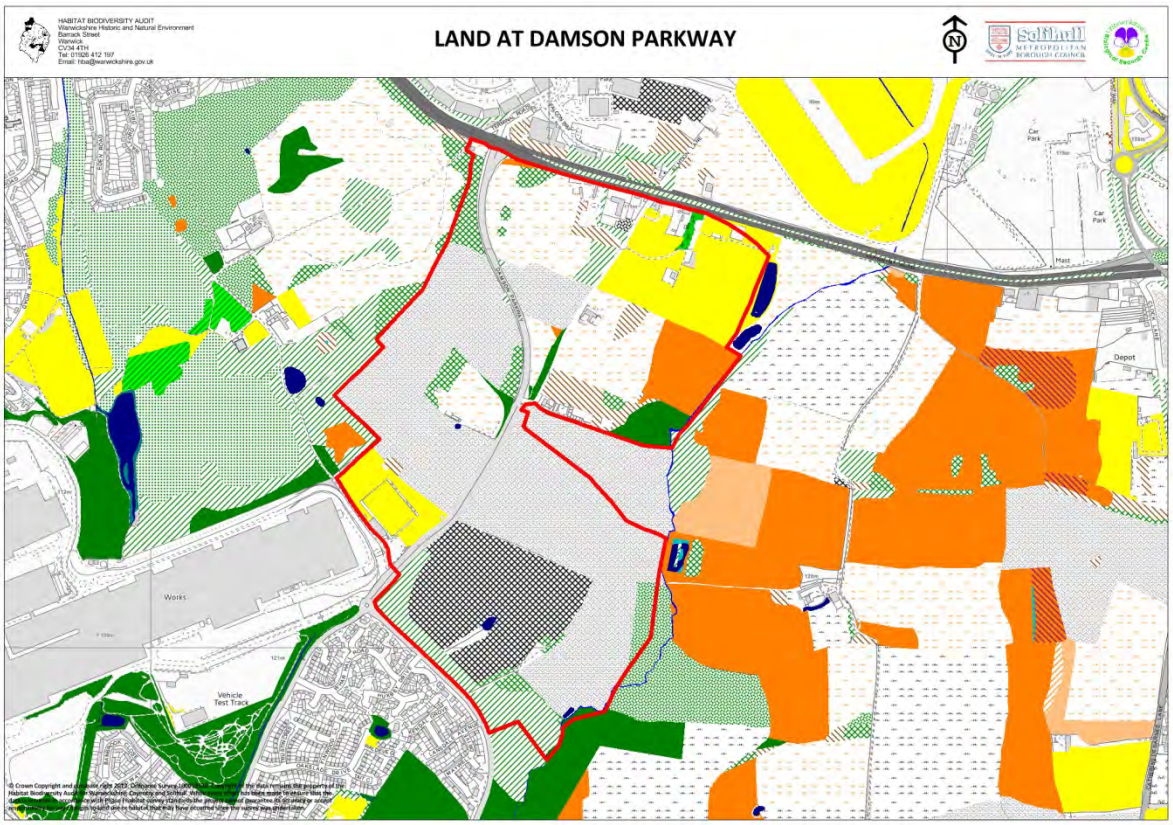

Figure 4 Phase 1 Habitats

The proposed development site consists primarily of arable fields (J11) with poor habitat distinctiveness. Along the Coventry Road is an area of species poor semi-improved grassland (B6) which was rejected as part of the Castle Farm Meadows LWS complex (see Target Notes SP18R14, R49 and R50). Part of the proposed development includes the Castle Farm Meadow semi-improved grassland (B22) (Target note SP18R17, R18, R19) with a medium to high distinctiveness score. This section of the LWS also has a small stand of semi-natural woodland (A112) (Target Note SP18R27).

The remaining areas of grassland have given over to amenity (J12) grassland with medium habitat distinctiveness.

Along the southern edge of the parcel sits an area of linear broad-leaved plantation (A112) with a medium to high distinctive score, acting as a woodland buffer along the Damson Parkway connecting and extending towards semi-natural woodland of both Hampton and Elmdon Coppice LWS.

Within the site are also pockets of habitat including ponds (G1) (Target Notes SP18R1 and SP18Q16) and a section of Kinghurst Brook (G2) with high habitat distinctiveness. Dense scrub (A21) where former open grassland has become dominated by invasive scrub (Target notes SP18R13) resulting in a lower habitat distinctiveness score.

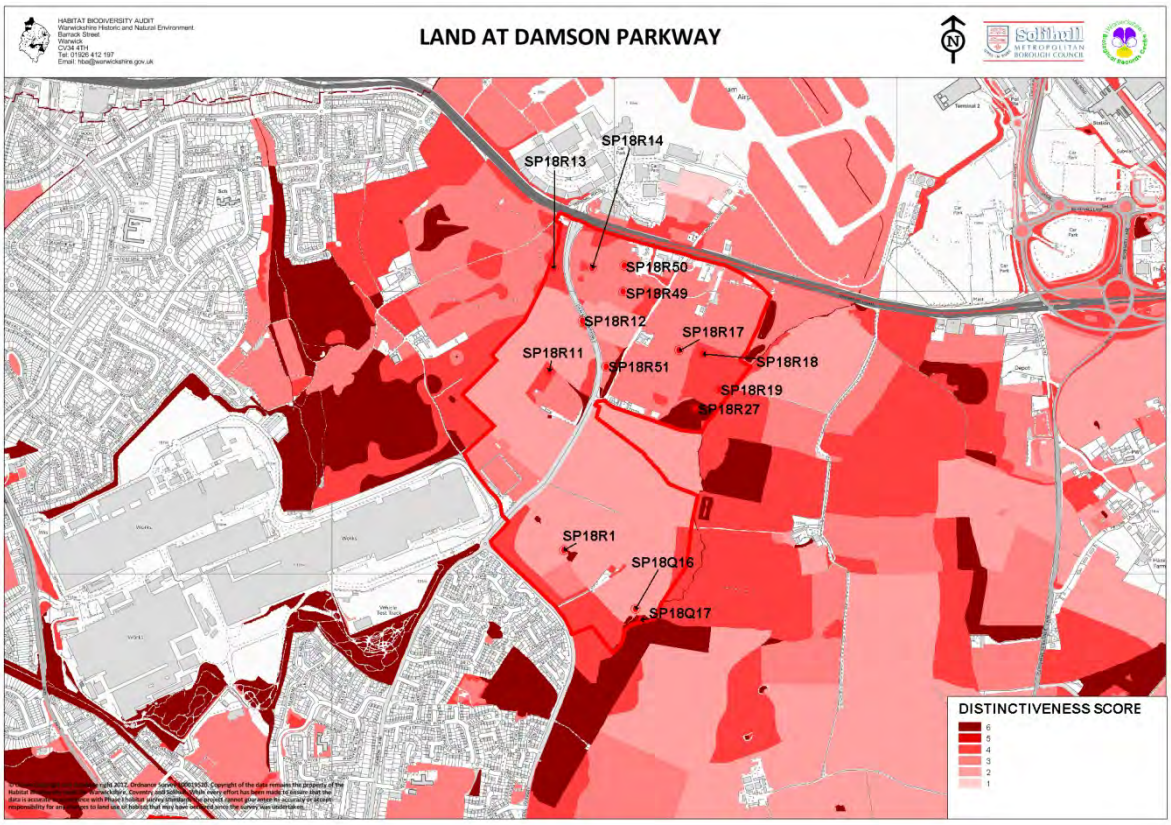

Figure 5 Phase 1 Habitat Distinctiveness & Target Notes

Target Notes

Number	Grid Reference	Survey Date
SP18Q16	**SP1707581862**	**17/09/2010**

Large farm pond surrounded by alder (Alnus glutinosa) and mature pedunculate oak (Quercus robur) with marginal vegetation of soft rush (Juncus effusus), Carex paniculata and remote sedge (Carex remota) occuring along the pond banks with wavy hair-grass (Deschampsia flexuosa), (Mnium hornum), (Rhytidiadelphus squarrosus), (Pseudoscloropodium purum) and creeping soft-grass (Holcus mollis) occurring on higher banks.

SP18Q17	**SP1709281826**	**17/09/2010**

Old alder wood coppice (Alnus glutinosa) with hazel (Corylus avellana), hawthorn (Crataegus monogyna) and elder (Sambucus nigra) containing a mosaic of dominant species including bramble (Rubus fruticosus agg.), ramsons; bluebell (Hyacinthoides non-scripta) and meadowsweet (Fillipendula ulmaria). Ground-ivy (Glechoma hederacea), lesser celandine; Dryopteris dilatata; tufted hair-grass (Deschampsia cespitosa), red campion (Silene dioica), wood anemone and wood avens (Geum urbanum) also occur.

SP18R1 **SP1682082070** **04/08/2010**

Large pond surrounded by mature pedunculate oak (Quercus robur). Sparsely vegetated with soft rush (Juncus effuses), remote sedge (Carex remota), branched bur-reed (Sparganium erectum), great willowherb (Epilobium hirsutum), common nettle (Urtica dioica), black bryony (Tamus communis) cleavers (Galium aparine), hogweed (Heracleum sphondylium) and rosebay willowherb (Chamerion angustifolium) on the higher banks.

SP18R11 **SP1676882704** **04/08/2010**

Abandoned sports field now poor semi-improved grassland dominated by Yorkshire-fog (Holcus lanatus), creeping bent (Agrostis stolonifera), creeping buttercup (Ranunculus repens) and patches of nettle (Urtica dioica). Accompanied by barren brome (Anisantha sterilis), dandelion (Taraxacum officinale agg.), rosebay willowherb (Chamerion angustifolium), meadow buttercup (Ranunculus acris), silverweed (Potentilla anserina), meadow fox-tail (Alopecurus pratensis), creeping (Cirsium arvense) and spear thistle (C. vulgare), hogweed (Heracleum sphondylium) and a large patch of great horsetail (Equisetum telematia) near to derelict buildings. Greater stitchwort (Stellaria holostea) is abundant along an elm (Ulmus spp.) dominated hedge abounding Damson Parkway road.

SP18R13 **SP1678583069** **04/08/2010**

Neglected area of poor semi-improved grassland with a considerable degree of hawthorn (Crataegus monogyna) scrub encroachment.

SP18R14 **SP1692183072** **04/08/2010**

Semi-improved grassland dominated by crested dog's-tail (Cynosurus cristatus) with abundant Yorkshire-fog (Holcus lanatus), red fescue (Festuca rubra), meadow fox-tail (Alopecurus pratensis), common bent (Agrostis capillaris), sweet vernal-grass (Anthoxanthum odoratum), thyme-leaved speedwell (Veronica serpyllifolia), creeping cinquefoil (Potentilla reptans), black medick (Medicago lupulina), clover (Trifolium spp.), yarrow (Achillea millefolium), common bird's-foot-trefoil (Lotus corniculatus), common ragwort (Senecio jacobaea), daisy (Bellis perennis), meadow vetchling (Lathyrus pratensis), common knapweed (Centaurea nigra), common vetch (Vicia sativa), field wood-rush (Luzula campestris), bulbous buttercup (Ranunculus bulbosus), cat's-ear (Hypochaeris radicata) and hairy sedge (Carex hirta). Thought to have once been heavily horse grazed becoming neglected with encroaching gorse (Ulex spp.), blackthorn (Prunus spinosa), bramble (Rubus fruticosus agg.) and hawthorn (Crataegus monogyna).

SP18R17 **SP1722882780** **04/08/2010**

Semi-improved ridge and furrow pasture partly used as a cart track with large mounds of dumped soil form a circuit dominated by common nettle (Urtica dioica) and other ruderals with recorded grasses of common bent (Agrostis capillaris), sweet-vernal grass (Anthoxanthum odoratum), red fescue (Festuca rubra) and Yorkshire-fog (Holcus

lanatus). Herbs include frequent white clover (Trifolium repens) with locally frequent common bird's-foot-trefoil (Lotus corniculatus) and common ragwort (Senecio jacobaea) with frequent to occasional ribwort plantain (Plantago lancelota), cat's-ear (Hypochaeris radicata) and selfheal (Prunella vulgaris). Occasional creeping thistle (Cirsium arvense), creeping buttercup and rare yarrow (Achillea millefolium), common knapweed (Centaurea nigra) and common sorrel (Rumex acetosa).

SP18R18 SP1731282768 04/08/2010

Largely un-improved horse grazed pasture over ridge and furrow comprising of MG5 grassland, currently difficult to assess due to intensity of grazing. Grasses include frequent common bent (Agrostis capillaris), crested dog's-tail (Cynosurus cristatus) and Yorkshire-fog (Holcus lanatus) with rare sweet vernal-grass (Anthoxanthum odoratum), cock's-foot (Dactylis glomerata), red fescue (Festuca rubra) and perennial rye-grass (Lolium perenne). Mostly herb rich containing frequent common knapweed (Centaurea nigra), common bird's-foot-trefoil (Lotus corniculatus), ribwort plantain (Plantago lancelota), selfheal (Prunella vulgaris), white clover (Trifolium repens) and autumn hawkbit (Leontodon autumnalis). Occasional common mouse-ear (Cerastium fontanum), creeping buttercup (Ranunculus repens), common sorrel (Rumex acetosa) and red clover (Trifolium pratense) with rare yarrow (Achillea millefolium), creeping thistle (Cirsium arvense), greater plantain (Plantago major), marsh cudweed (Gnaphalium uliginosum), common ragwort (Senecio jacobaea), dandelion (Taraxacum officinale agg.) and common nettle (Urtica dioica) .

Meadow brown butterfly (Maniola jurtina) present with locally abundant bulbous buttercup (Ranunculus bulbosus) with field wood-rush (Luzula campestris).

SP18R19 SP1737082641 04/08/2010

Narrow field of largely un-improved horse grazed pasture. The vegetationis patchy with ungrazed areas dominated by Yorkshire-fog (Holcus lanatus) with occasional hairy sedge (Carex hirta), Juncus articulatus and creeping buttercup (Ranunculus repens) and grazed areas with MG5 vegetation. The latter includes frequent crested dog's-tail (Cynosurus cristatus), common bird's-foot-trefoil (Lotus corniculatus), common knapweed (Centaurea nigra), autumn hawkbit (Leontodon autumnalis), selfheal (Prunella vulgaris), ribwort plantain (Plantago lancelota), white clover (Trifolium repens) and red clover (T. pratense) with frequent to occasional common bent (Agrostis capillaris). Occasionally sweet vernal-grass (Anthoxanthum odoratum), timothy (Phleum pratense), yarrow (Achillea millefolium), meadow buttercup (Ranunculus acris), great burnet (Sanguisorba officinalis), common mouse-ear (Cerastium fontnaum), creeping thistle (Cirsium arvense), cat's-ear (Hypochaeris radicata) with rare perennial rye-grass (Lolium perenne), meadow barley (Hordeum secalinum), lady's-mantle (Alchemilla micans), great plantain (Plantago major), broad-leaved dock (Rumex obtusifolius) and common nettle (Urtica dioica). Observed lepidoptera included small copper (Lycaena phlaeas), meadow brown (Maniola jurtina), gatekeeper (Pyronia tithonus), common blue (Polyommatus icarus) and cinnabar moth larvae (Tyria jacobaeae).

Additionally field wood-rush (Luzula campestris), bulbous buttercup (Ranunculus

bulbosus), thyme-leaved speedwell (Veronica serpyllifolia), pignut (Conopodium majus) and oxeye daisy (Leucanthemum vulgare) were present.

SP18R27 SP1728682574 04/08/2010

Woodland neighbouring the Low Brook called The Jungle. High forest stand becoming open contains locally abundant English oak (Quercus robur) and crack willow (Salix fragilis) with frequent alder (Alnus glutinosa) and occasional ash (Fraxinus excelsior) and rare birch (Betula spp.). The shrub layer is sparse with only occasional hawthorn (Crataegus monogyna), elder (Sambucus nigra) and hazel (Corylus avellana). The ground layer is mostly dominated by common nettle (Urtica dioica) in wet areas with locally frequent meadowsweet (Filipendula ulmaria), creeping buttercup (Ranunculus repens) and bramble (Rubus fruticosus agg.). Occasional wild angelica (Angelica sylvestris), great willowerb (Epilobium hirsutum) ground-ivy (Glechoma hederacea), ivy (Hedera helix), red campion (Silene dioica) and rare false wood brome (Brachypodium sylvaticum), giant fescue (Festuca gigantean), remote sedge (Carex remota), wood sedge (Carex sylvatica), hard rush (Juncus inflexus), male-fern (Dryopteris filix-mas), cleavers (Galium aparine), bluebell (Hyacinthoides non-scripta) and water figwort (Scrophularia auriculata). Japanese knotweed is locally abundant (Fallopia japonica). Speckled wood (Pararge aegeria) butterfly seen.

SP18R49 SP1703282986 04/08/2010

Neglected and rank MG1 grassland dominated by false oat-grass (Arrhenatherum elatius) with small patches of common bent (Agrostis capillaris), cock's-foot (Dactylis glomerata) and tufted hair-grass (Deschampsia cespitosa). Generally herb poor with abundant creeping thistle (Cirisum arvense) with very local common knapweed (Centaurea nigra), yarrow (Achillea millefolium) and common bird's-foot-trefoil (Lotus corniculatus). One specimen of burnet saxifrage (Pimpinella saxifraga) was recorded. Spoil heaps to the east hold tall herb vegetation with abundant great horsetail (Equisetum telematea) and occasional common centaury (Centaurium erythraea). Other species which stand recorded are mugwort (Artemisia vulgaris), glaucous sedge (Carex flacca), hairy sedge (Carex hirta), compact rush (Juncus conglomeratus), soft rush (Juncus effusus), hard rush (J. inflexus), common knapweed (Centaurea nigra), rosebay willowherb (Chamerion angustifolium), great willowherb (Epilobium hirsutum), lady's bedstraw (Galium verum), cut-leaved crane’s-bill (Geranium dissectum), meadow vetchling (Lathyrus pratensis), greater plantain (Plantago major), creeping cinquefoil (Potentilla reptans), selfheal (Prunella vulgaris), creeping buttercup (Ranunculus repens), curled dock (Rumex crispus), broad-leaved dock (R. obtusifolius), common ragwort (Senecio jacobaea) and upright hedge-parsley (Torilis japonica).

SP18R50 SP1703583079 04/08/2010

Neglected semi-improved grassland grazed lightly by rabbits with some peripheral scrub. The prevalent scrub dominates to the north with bramble (Rubus fruticosus agg.) gorse (Ulex spp.), broom (Cytisus scoparius), hawthorn (Crataegus monogyna) and blackthorn (Prunus spinosa).

The grass sward includes Yorkshire-fog (Holcus lanatus), common bent (Agrostis

capillaris) and ocally dominant to abundant sweet vernal-grass (Anthoxanthum odoratum). Frequent to occasional meadow foxtail (Alopecurus pratense), hairy sedge (Carex hirta), red fescue (Festuca rubra) and rare creeping soft-grass (Holcus mollis), false oat-grass (Arrhenatherum elatius), soft brome Bromus hordeaceus, crested dog's-tail (Cynosurus cristatus), cock's-foot (Dactylis glomerata), tufted hair-grass (Deschampsia cespitosa), perennial rye-grass (Lolium perenne), timothy (Phleum pratense) and rough meadow-grass (Poa trivialis).

Herbs are only occasional with rough ground embellished by vehicle ground disturbance. In the disturbed areas, more abundant herbs include abundant creeping buttercup (Ranunculus repens), common knapweed (Centaurea nigra), common bird's-foot-trefoil (Lotus corniculatus), scentless mayweed and lesser stitchwort (Stellaria graminea) with frequent selfheal (Prunella vulgaris) and common mouse-ear (Cerastium fontanum), occasional yarrow (Achillea millefolium) and red clover (Trifolium pratense) in addition to rare agrimony (Agrimonia eupatoria). Other species recorded are scarlet pimpernel (Anagallis arvensis), horse-radish (Armoracia rusticana), mugwort (Artemisia vulgaris), creeping thistle (Cirsium arvense), spear thistle (Cirsium vulgare), wild teasel (Dipsacus fullonum), cat's ear, compact rush (Juncus conglomeratus) and soft rush (Juncus effusus). Toad rush (Juncus bufonius), meadow vetchling (Lathyrus pratensis), creeping cinquefoil (Potentilla reptans), selfheal (Prunella vulgaris), meadow buttercup (Ranunculus acris), common sorrel (Rumex acetosa), broad leaved dock, procumbent pearlwort, common ragwort (Senecio jacobaea), prickly sow-thistle (Sonchus asper), lesser trefoil (Trifolium dubium), red clover (Trifolium pratense), white clover (Trifolium repens), colts foot, common nettle (Urtica dioica), tufted vetch (Vicia cracca), bush vetch (Vicia sepium), smooth tare, knotgrass, spurge and marsh cudweed. Lepidoptera recorded include common blue (Polyommatus icarus), gatekeeper (Pyronia tithonus), the cinnabar (Tyria jacobaeae), peacock (Aglais io), and small skipper (Thymelicus sylvestris). Swallows (Hirundo rustica) where numerous and one house martin (Delichon urbica) was seen also, they appear to be breeding in the farm buildings to the east. The owner lives in Village Farm House.

Additional species include thyme-leaved speedwell, black medick (Medicago lupulina), field wood-rush (Luzula campestris) and bulbous buttercup (Ranunculus bulbosus).

SP18R51 SP1697082722 04/08/2010

Horse grazed semi improved pasture. Viewed from the edges it appears to be dominated by Yorkshire-fog (Holcus lanatus) with common bent (Agrostis capillaris), perennial rye-grass (Lolium perenne) and cock's-foot (Dactylis glomerata). Red clover (Trifolium pratense) is abundant and common bird’s-foot trefoil (Lotus corniculatus) frequent. Cat's-ear (Hypochaeris radicata) and agrimony (Agrimonia eupatoria) are rare.

Encroachment by abundant bramble (Rubus fruticosus agg.), hedge bindweed (Galium mollugo) and New Zealand pygmyweed (Crassula helmsii).

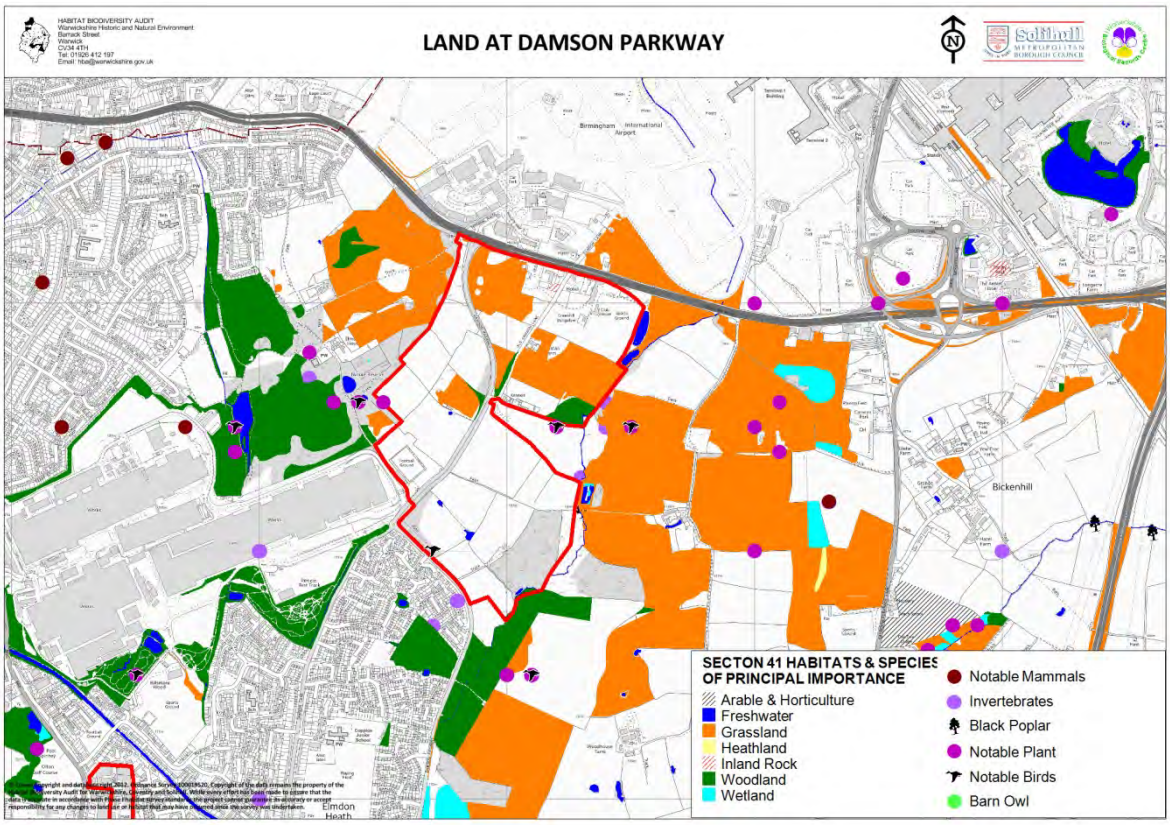

Figure 6 Section 41 Habitats & Species of Principal Importance

Habitat Connectivity

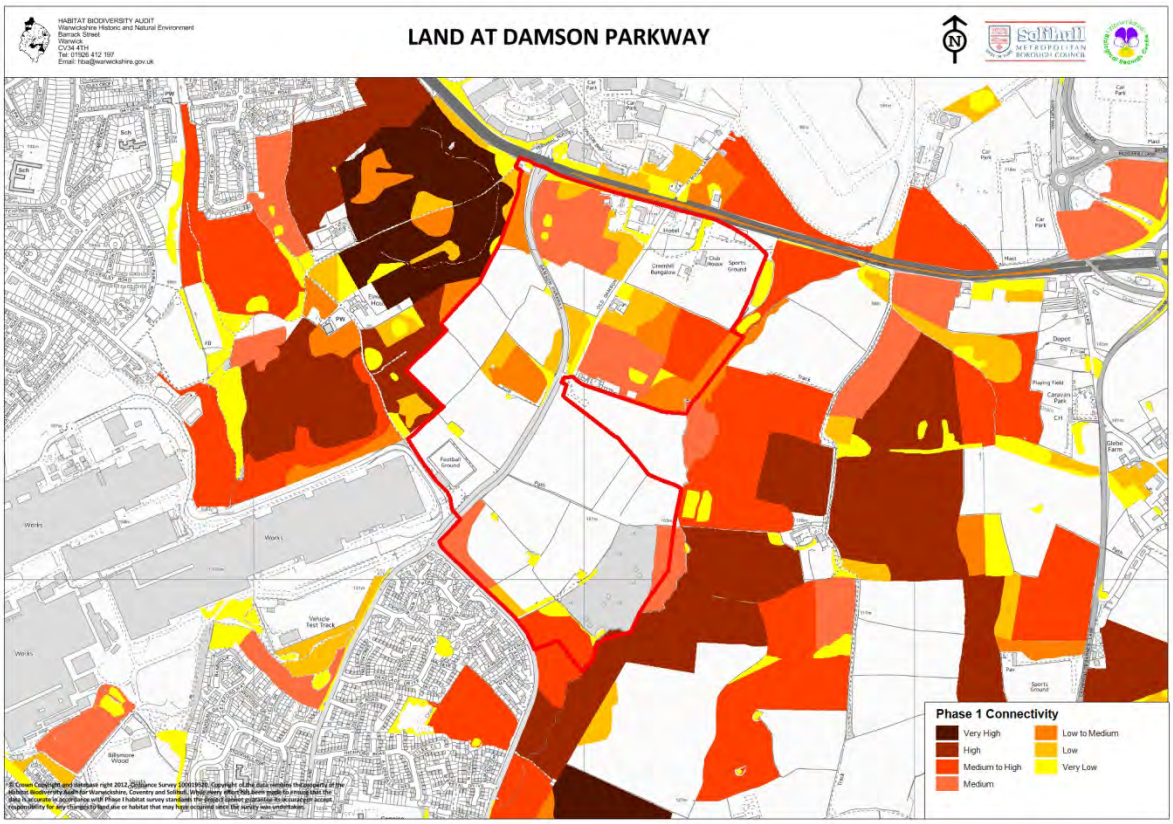

Figure 7 Habitat Connectivity

The development parcel occupies high connectivity predominately to the south-east, east and west contained within the extensive priority grasslands at Castle Hill Farm Meadows LWS and the Elmdon Park Local Nature Reserve and Local Wildlife Site.

The other area of connectivity prevails along the southern edge of the site boundary connecting wooded areas within Hampton and Elmdon Coppice LWS along with the Kinghurst and Low Brook acting as an important habitat corridor.

As the development parcel contains high habitat connectivity a primary goal should be to retain and enhance this connectivity consequently shielding against habitat fragmentation and isolation and buffering habitat edge effects. As a possible consequence of development, the three main compartments of good semi-natural habitat may become isolated by development. It is therefore essential that 'stepping stones' be provided throughout development proposals and avoidance of those zones highlighted in Figure 2 Constraints Map

Protected Species

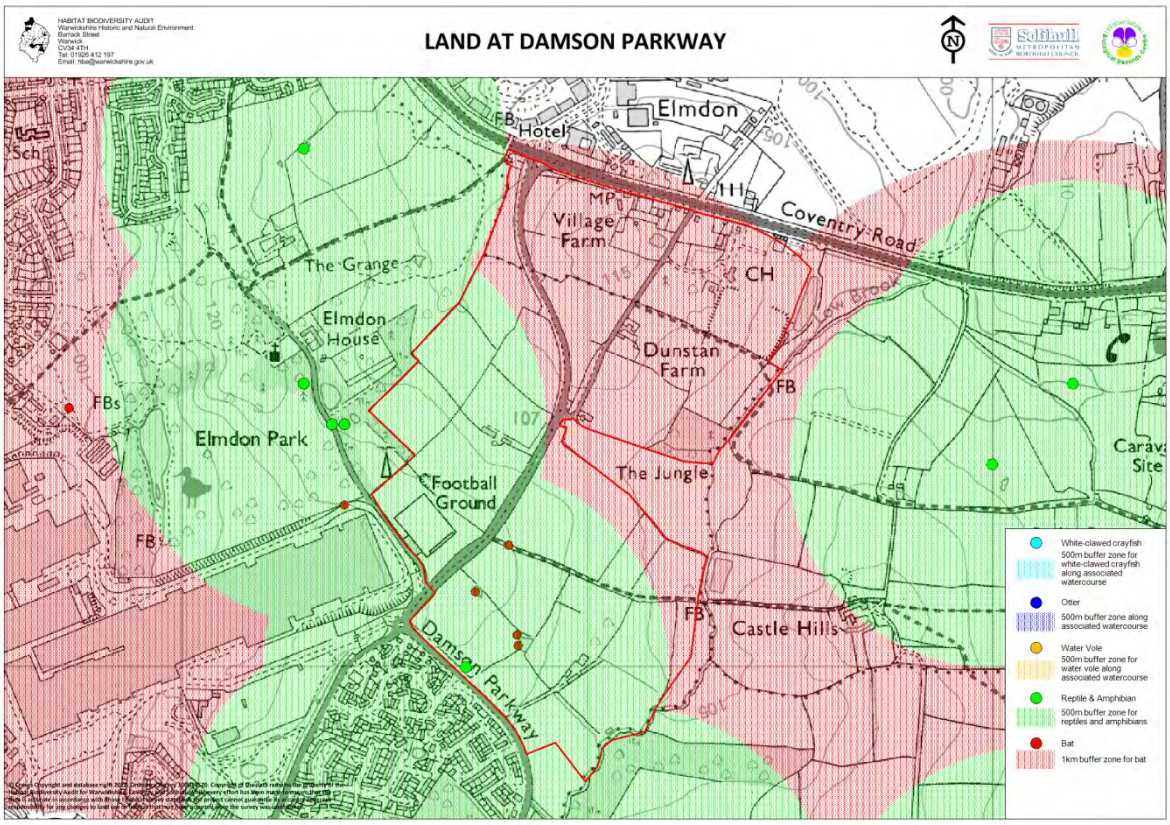

Figure 8 Protected Species

A large number of smooth newt (Lissotriton vulgaris), common frog (Rana temporaria) and common toad (Bufo bufo) records indicate the presence of strong and viable populations of common and widespread amphibians within Elmdon Park in addition to the presence of the protected great crested newt.

Recent records from May to June 2013 for common toad, smooth newt and common frog recorded by a professional ecological consultancy as part of extended development works specified amphibian populations on the southern development parcel boundary.

As part of those same protected species surveys, four species of bat were confirmed roosting in trees close to an existing pond.

Roughly 10 ha of previously arable farmland including a mosaic of hedgerows, veteran trees and the named pond were developed. Mitigation measures only went part of the way to mitigating the impacts on the mix of habitats and the biodiversity present particularly in regards to tree and habitat connectivity. Consequently as part of new larger proposals, new mitigation measures should rectify previous inadequacies averting the loss of biodiversity.

The presence of a pond network and suitable terrestrial habitat supporting great crested newts necessitates the requirement for assessment of the status and distribution of the population. Development proposals should be designed to avoid

habitat fragmentation by creating corridors or steeping stones of habitat to join up populations, altering road routes and other barriers to connectivity and newt passage, as well as installing green bridges and creating new breeding and terrestrial habitats on both sides of barriers to prevent population isolation.

It is essential that hard landscaping avoid trapping amphibians by using sloping kerbs either side of gully pots, creating draining schemes without sumps and not using kerbs. The development parcel lies in Solihull's Hedgehog Improvement Area and as such any development should result in a net gain for hedgehogs as part of delivering a hedgehog-friendly building development with permeable fencing solutions.

SITE: MERIDEN ROAD

Area: 5 hectares

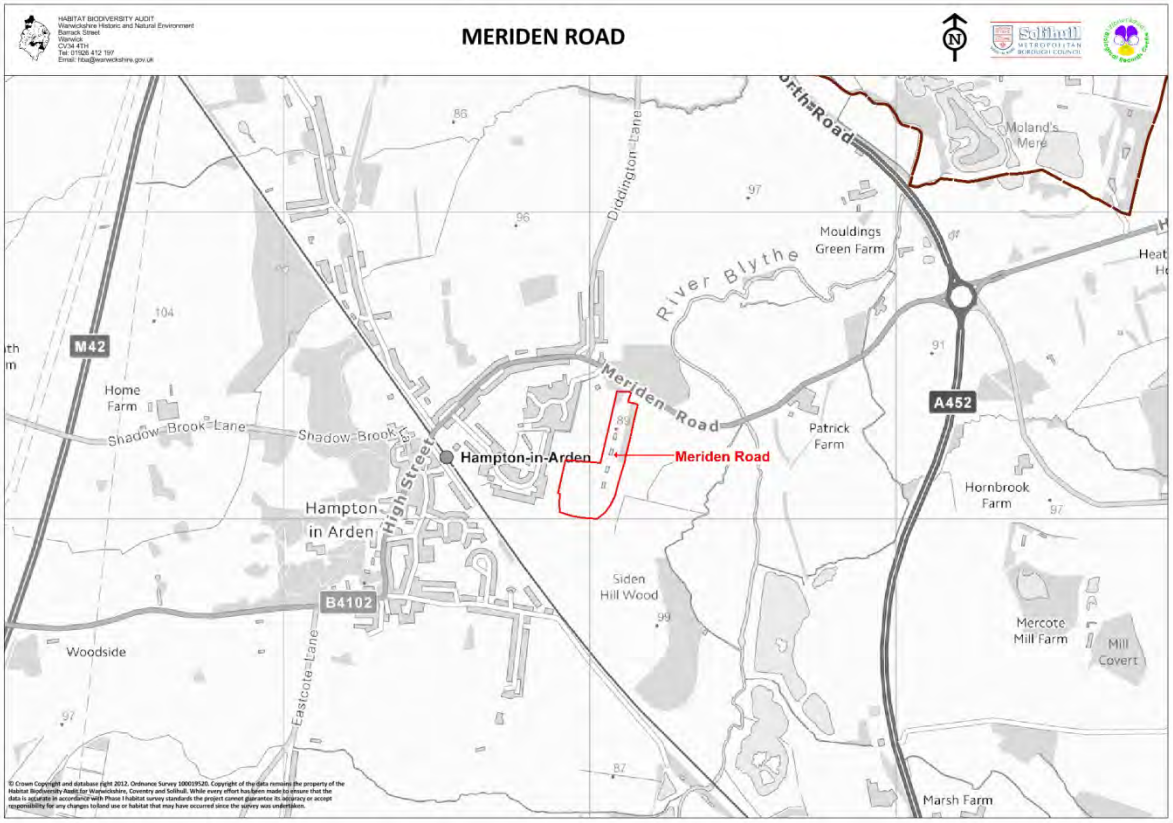

Figure 15 Site Location

Overview

The Meriden Road site is adjacent to existing housing off Lapwing Drive and The Crescent to the west within the village and civil parish of Hampton-in-Arden with open countryside to the east curbed by the River Blythe and southwards by Siden Hill Wood. The southern boundary is again marked by open countryside checked only by West Coast Main Railway Line. The northern boundary is the Meriden Road across which are the priority grasslands of the River Blythe Hampton Depot potential wildlife site (SP28A9).

The development parcel itself is mostly brown field with hard standing for vehicles and some areas of scrubland. The parcel also includes a single arable field bordered by an important hedgerow.

Key Features

- Open scrubland with potential to connect to priority grasslands contained with River Blythe Hampton Depot potential local wildlife site (SP28A9).
- Hedgerows

Recommendations

Along the eastern boundary is the opportunity to have a wildlife corridor and buffer between the proposed development site and the open countryside. The buffer would connect to the River Blythe-Hampton Depot potential local wildlife site priority grasslands, which we would recommend for survey as part of development proposals.

Retention of all existing hedgerows within and around the proposed development is recommended with implementation of a 10m buffer around boundary features.

Constraints

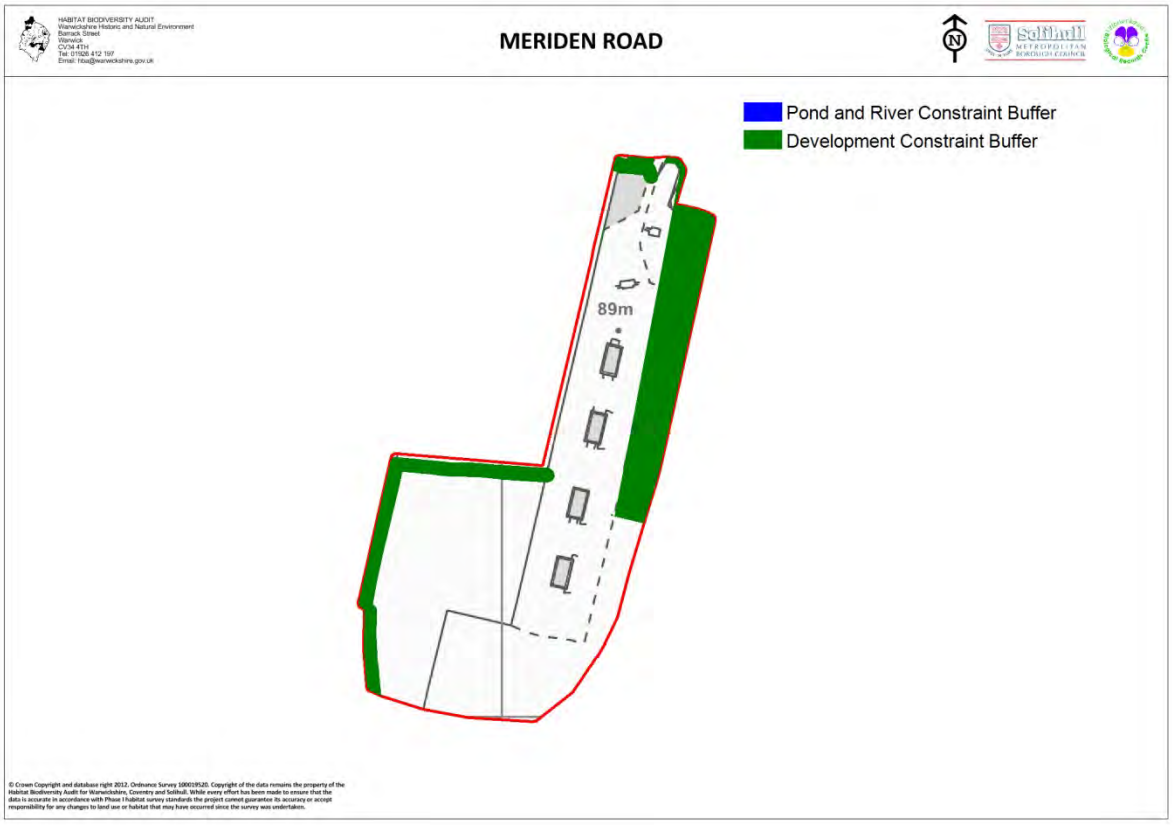

Figure 2 Constraints Map

The areas marked in green and blue on the above constraints map indicate where development should be avoided and ecological enhancement encouraged.

They include:

- 30m buffer around woodland
- 8m buffer either side of adjacent to watercourses
- 8m buffers around ponds
- 5m buffer either side of intact hedgerows
- Areas of medium to high distinctiveness grassland (Values 4, 5 & 6)

Designated Sites

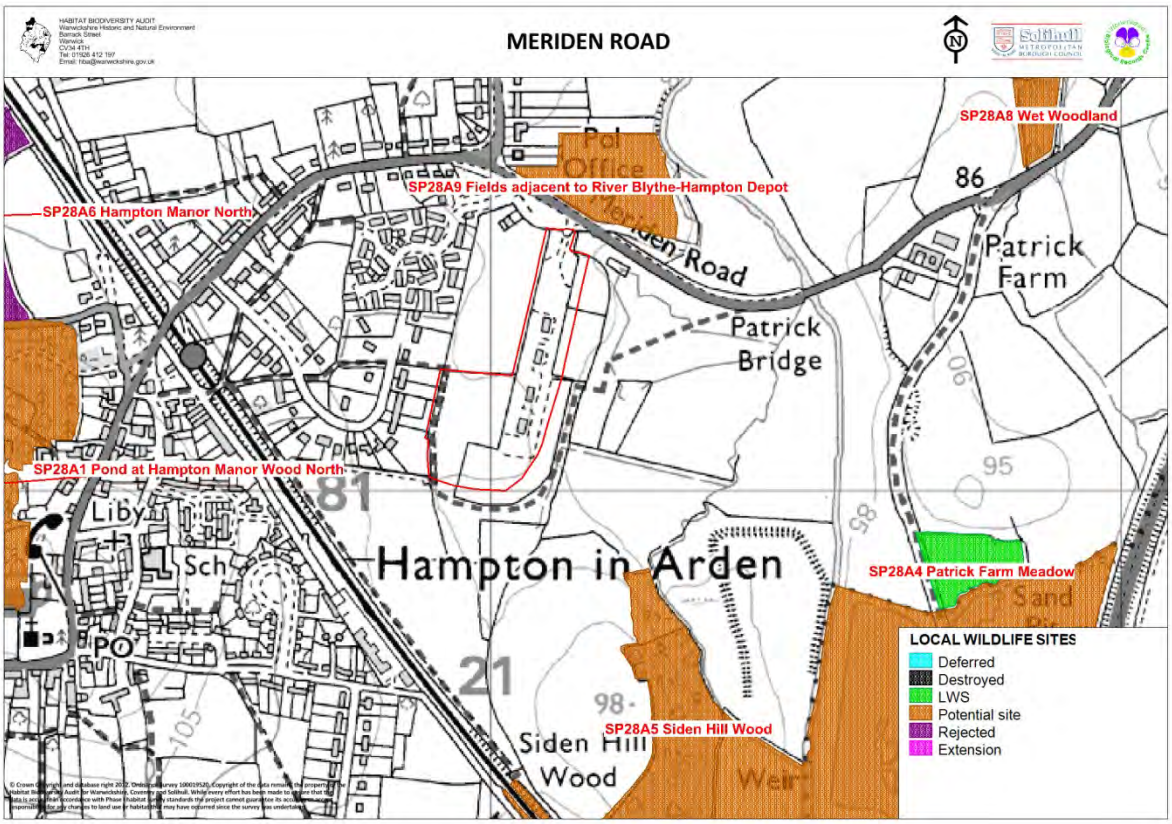

Figure 3 Site Designations

There are no existing or potential local wildlife sites present within the development boundary. Immediately adjacent to the entrance of the site across Meriden Road sits the River-Blythe-Hampton Depot potential Local Wildlife Site (SP28A9). Southwards lies Siden Hill Wood potential Local Wildlife Site (SP28A5).

Potential Local Wildlife Site

FIELDS ADJACENT TO RIVER BLYTHE-HAMPTON DEPOT (SP28A9)

Area; 2.6 ha

Habitat Description

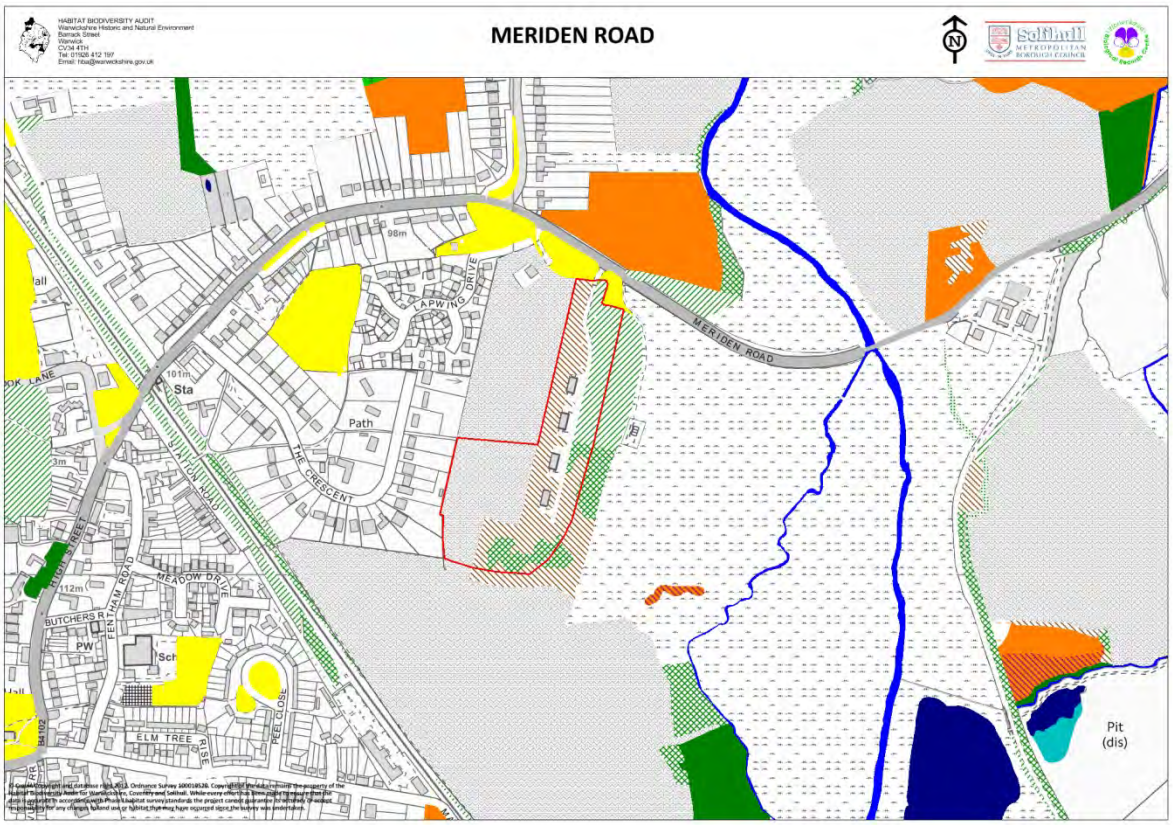

Figure 4 Phase 1 Habitats

The main area of the site has been recorded as being tall ruderal (C31), however since the last survey the site has been cleared and now appears to be mostly an area of hard standing. There are small areas of dense scrub (A21) and tall ruderal (C31) with medium habitat distinctiveness and an arable field (J11) with a low distinctiveness score.

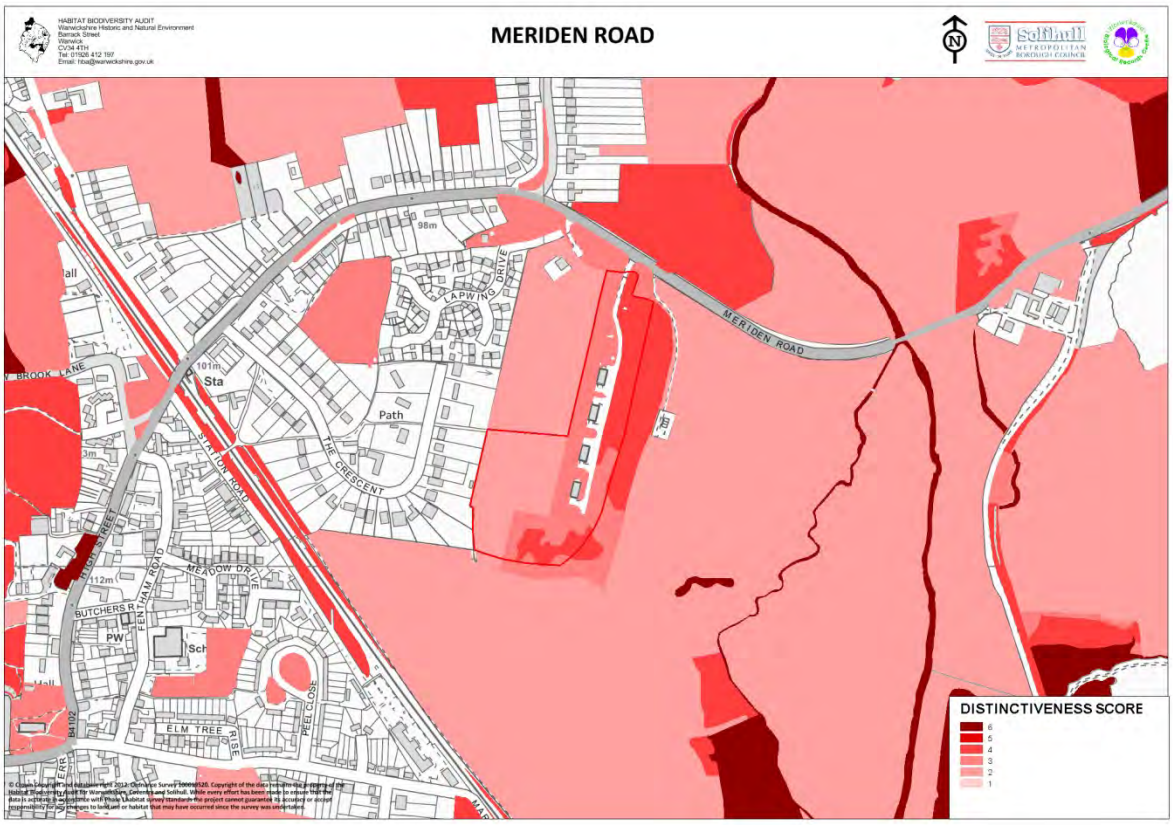

Figure 5 Habitat Distinctiveness & Target Notes

Highly distinct habitats are identified as the tall ruderal, scrub and broad-leaved woodland compartments within the development parcel itself, those priority grasslands contained within River Blythe Hampton Depot potential local wildlife site and those woodland and running water habitats of Siden Hill Wood potential Local Wildlife Site (SP28A5) and the River Blythe.

Target Notes

There are no target notes recorded for the site.

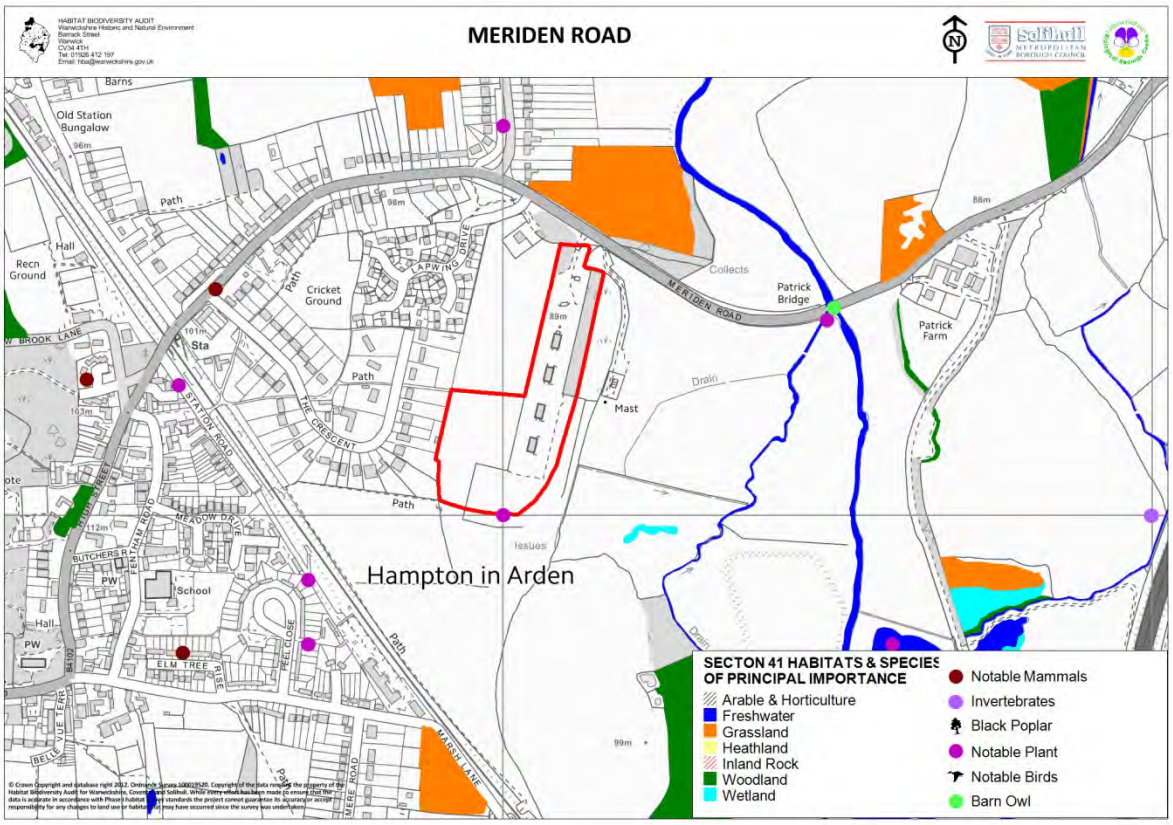

Figure 6 Section 41 Habitats & Species of Principal Importance

Habitat Connectivity

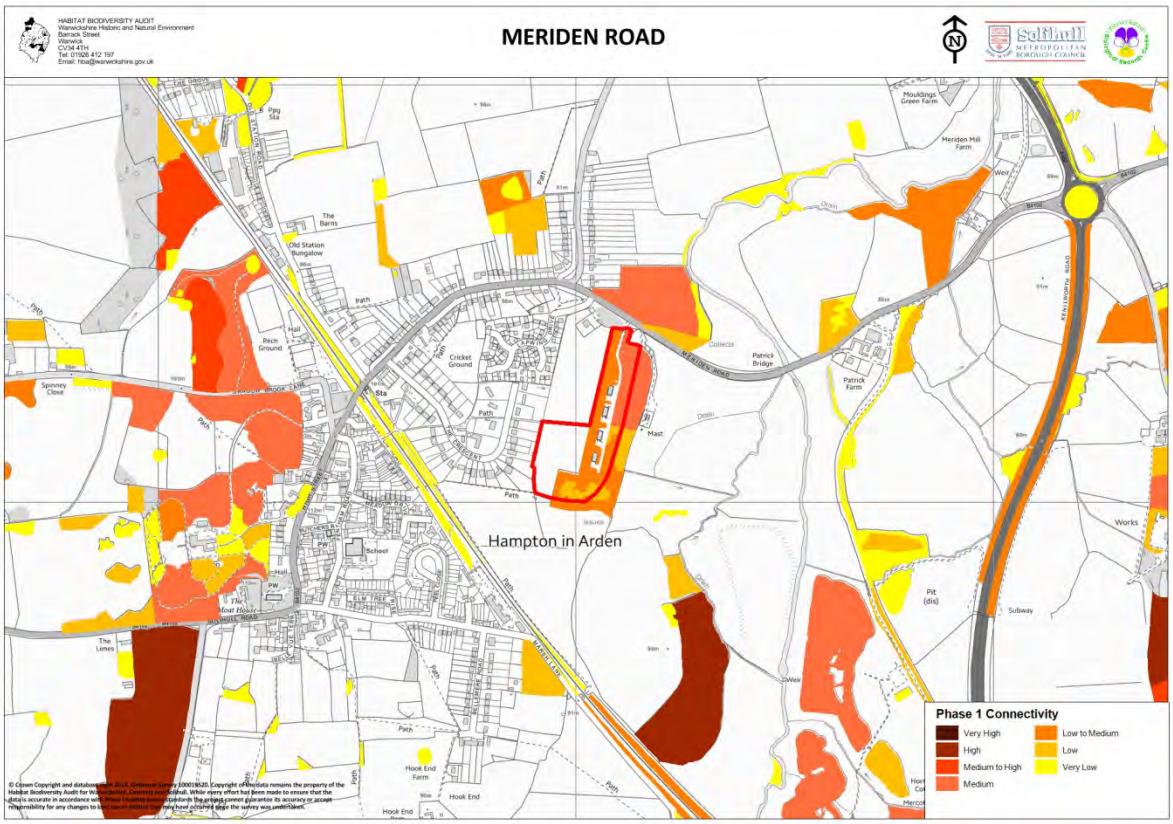

Figure 7 Habitat Connectivity

Primary connectedness occurs between the tall ruderal, scrub and small broad-leaved plantation woodland habitats of the development parcel with priority grasslands of River Blythe Hampton Depot potential local wildlife site (SP28A9) and those habitats contained within Siden Hill Wood potential Local Wildlife Site (SP28A5).

Protected Species

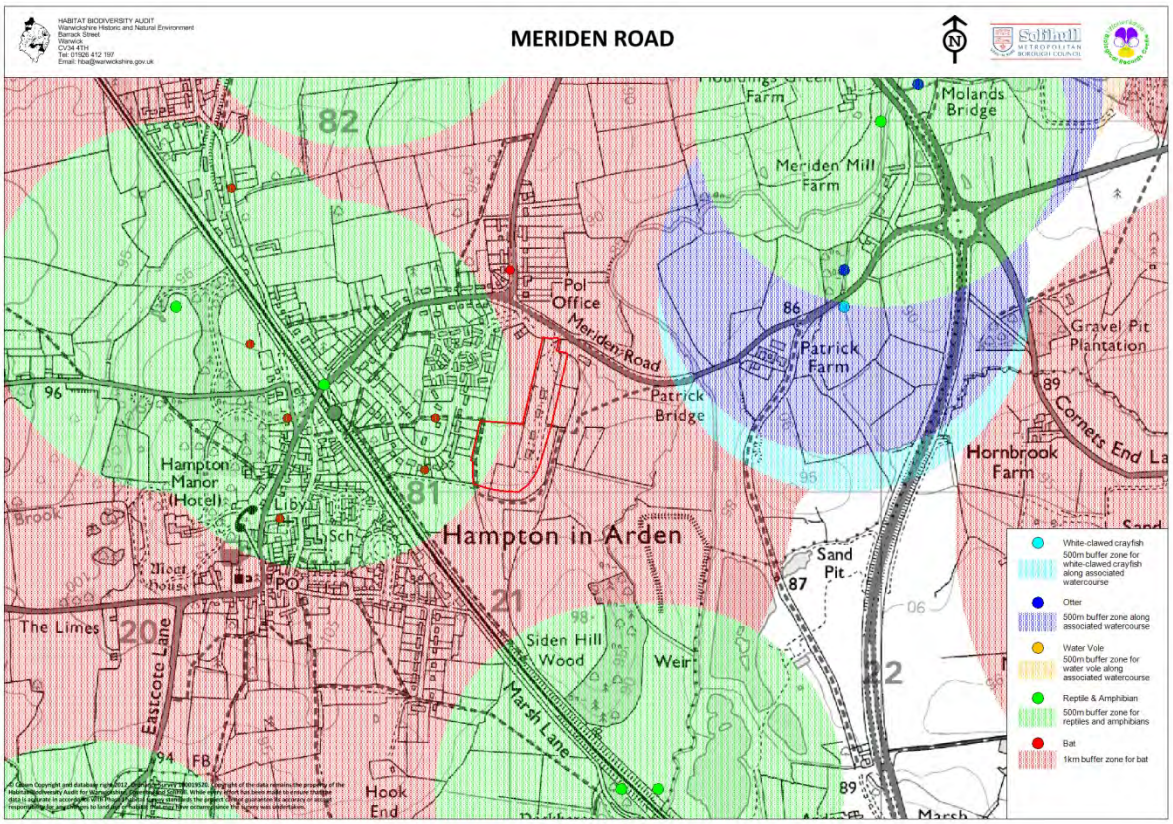

Figure 8 Protected Species

Confirmed roosting records endure for Brown long-eared bat (Plecotus auritus) in residential properties along the Crescent in 2012 and 2013, 130-180 m away from the western site boundary. Therefore the development may provide foraging habitat for this species of bat and as such protective species surveys may be required following more extensive surveys prior to any development.

A recent record denotes the presence of slow worm within the surroundings of Hampton-in-Arden Train Station in 2014, 450m west of the development parcel. During consequent surveys, the presence or absence of slow worm should be determined and as such appropriate action taken to avoid harming slow worm (Anguis fragilis).

SITE: MOAT LANE & VULCAN ROAD

Area: 5 hectares

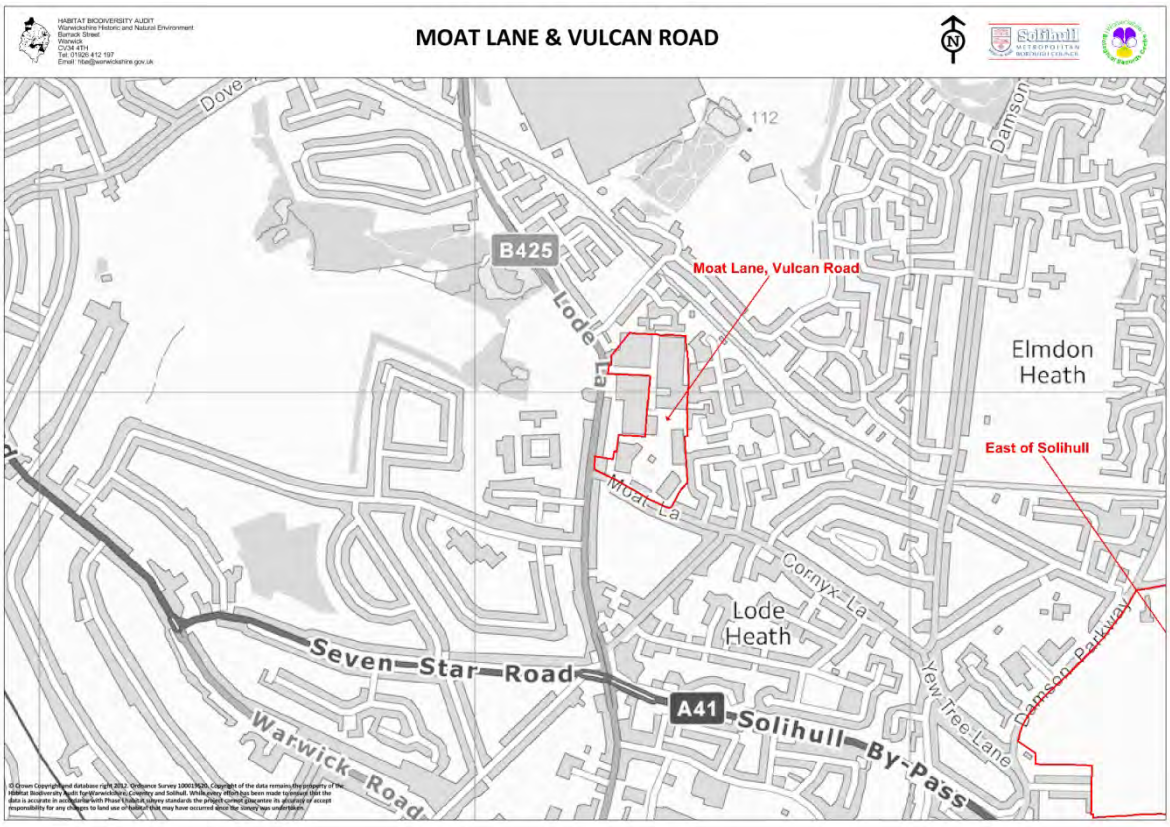

Figure 16 Site Location

Overview

The development parcel currently comprises the Solihull Metropolitan Borough Council Central Depot accessed from Moat Lane.

Millpool Spinney Local Wildlife Site lies 200m from the development parcel separated by Lode Lane and the grounds of Lode Heath School. The Grand Union Canal pLWS lies 190m from the northern corner of the development parcel separated by further industrial units and residential properties. Billsmore Wood LWS lies further northwards approximately 400m crossing a large sports field of the Land Rover Sports and Social Club. In conclusion, it is not considered that any Local Wildlife Sites will be affected by any proposed works regarding the development parcel. However, the enhancement of habitat linkage with the Grand Union Canal is the most important consideration in view to development proposals.

Key Features

- Industrial Units
- Grand Union Canal potential Local Wildlife Site (SP18Li2a3)

- Enhancement of soft landscaping and habitat connectivity with the Grand Union Canal

Recommendations

Due to the existing nature of the development parcel as working industrial units, outside of specific site and protected species surveys as part of an detailed ecological appraisal carried out at an appropriate time of year it is considered that few ecological constraints are likely to be present in reference to proposed development of the site. The development parcel is considered as holding little or no ecological value. Any development should take the opportunity to site and design soft landscaping areas to support nature conservation. Creating areas that are beneficial to wildlife of sufficient size and width as to become effective wildlife corridors are recommended. Habitat corridors and buffer strips to hard development in the form of linear trees and native scrub should be provided within the development footprint particularly to provide habitat linkage with the Grand Union Canal. Proposals should retain as many natural features as possible.

Constraints

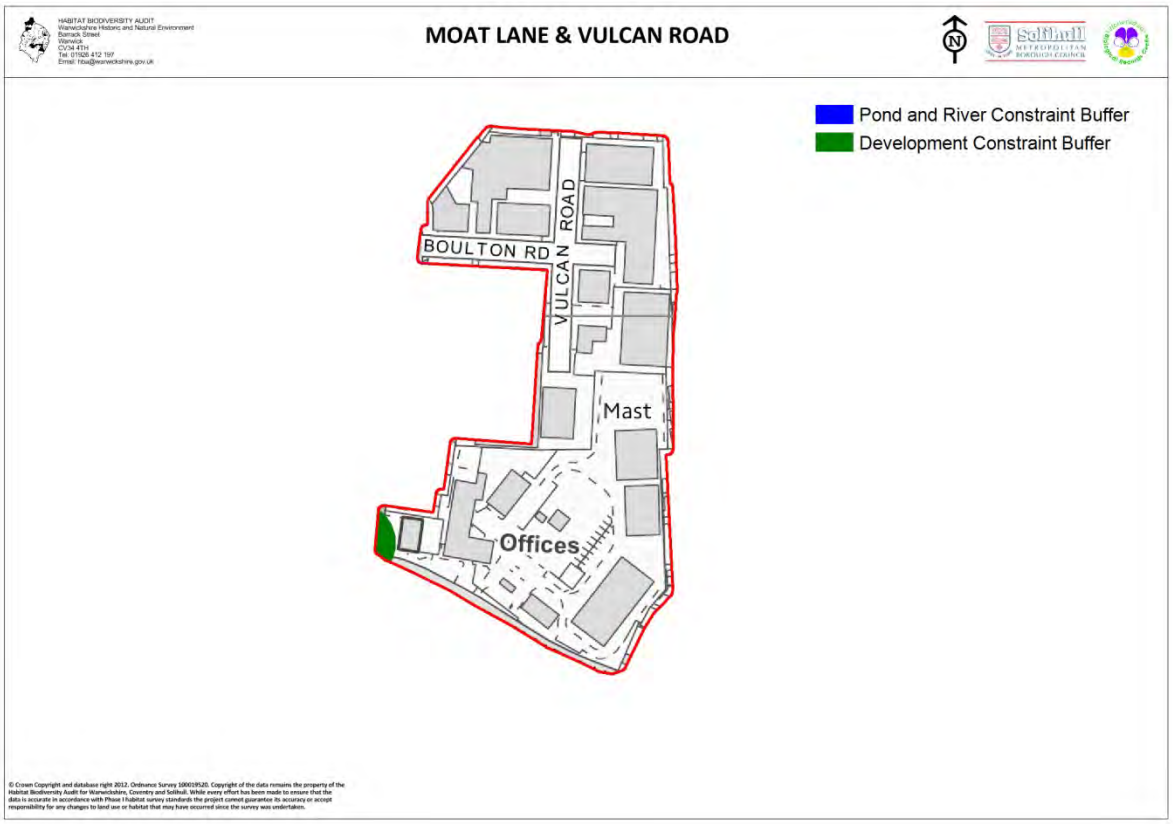

Figure 2 Constraints Map

The areas marked in green and blue on the above constraints map indicate where development should be avoided and ecological enhancement encouraged.

They include:

- 30m buffer around woodland
- 8m buffer either side of adjacent to watercourses
- 8m buffers around ponds
- 5m buffer either side of intact hedgerows
- Areas of medium to high distinctiveness grassland (Values 4, 5 & 6)

Designated Sites

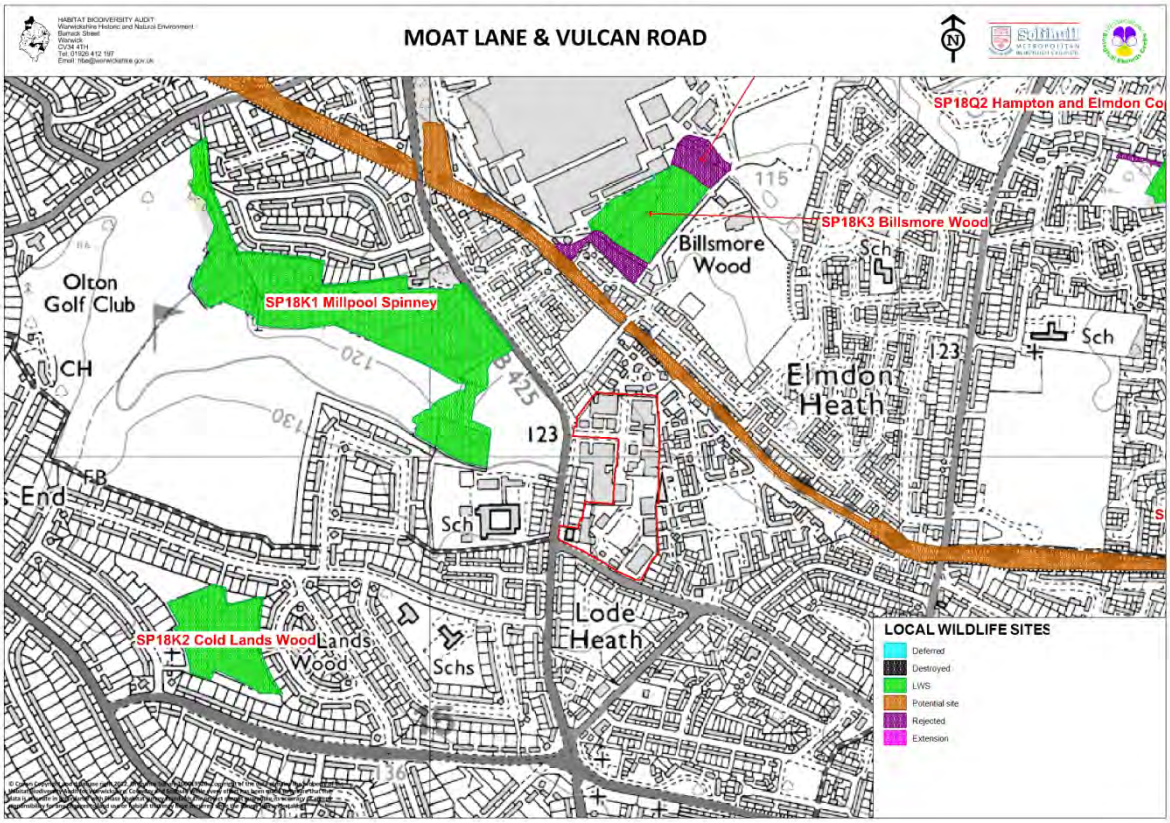

Figure 3 Site Designations

There are no designated or potential local wildlife sites present at the Moat Lane and Vulcan Lane site, the nearest Local Wildlife Site is Mill Pool Spinney approximately 200 metres from the proposed development with the Grand Union Canal potential Local Wildlife Site (SP18Li2a3) m from the northern border.

Local Wildife Site

MILL POOL SPINNEY SP18K1 LWS[14] **Area; 11.8 ha**

Survey Date; 01/09/2014 and 29/09/2014

Mill Pool Spinney, located about 1km north of Solihull town centre, is a corridor of mixed habitats but dominated by wet woodland, extending for around 1km along the northern and eastern perimeter of Olton Golf Course. The original LWS which was surveyed in 2001 comprised about 8ha of wet woodland and the former Olton Mill Pool, which is owned by the 1st Solihull Scout Group. However the new LWS now includes extensions to the north-west and south-east, taking in semi-natural woodland on the adjoining Olton Golf Course and in the grounds of Lode Heath School, the latter also including a large pond.

[14] Local Wildlife Sites Project Mill Pool Spinney SP18K1 2014, HBA Warwick

Since the 1950s the site has become increasingly isolated within the built-up suburbs of Solihull, but it was still connected to the open countryside until (probably) the 1970s when the suburb of Elmdon Heath began to be developed, via a corridor of land including Billsmore Wood LWS. It is now bordered by housing estates to the north, by the B425 Lode Lane to the north-east, by Lode Heath School and playing field to the east and south-east, and by the extensive Olton Golf Course to the south and west. The latter at least provides some patches of semi-natural habitat amongst the vigorously mown fairways, including groves of mature trees and small patches of semi-improved grassland, including some of a sub-acidic character. Billsmore Wood, 400m to the north-east, is the nearest LWS and it too includes wet woodland. Coldlands Wood LWS is situated 600m south and Olton Mere (also part wet woodland) LWS 1km to the west, but both are surrounded by urban development.

The LWS occupies a narrow but shallow valley drained by a headwater stream of the Hatchford Brook, which after joining the Kingshurst Brook eventually enters the River Cole about 6km to the north-east at Chelmsley Wood. There had probably been a water mill near the site since at least the 11th century and the remains of a large bank suggests that the original mill pool was quite extensive and occupied much of the valley now containing the LWS. Records only survive from the 16th century which is when the present mill pool may date to. Olton Mill itself was located across Lode Lane and has now been replaced by housing. The woodland is mostly of 19th century origin and in the First edition OS Map (surveyed 1828-30) almost the whole of the site was marked as open land, presumably under pasture or hay meadow. The only woodland was a very small piece at the west end of Mill Pool Spinney and several small pools are also marked at this end, thought to be the result of marl or gravel digging. There was however a large wood, possibly ancient in origin to the south on the present Olton Golf Course and this was accessed by the "Occupation Road", a drovers track which ran south from Dovehouse Lane and through the LWS, parts of which can still be seen. By 1885 most of the valley had become mixed woodland and was part of Olton Mill Farm. Following the death of the last miller in 1921 the mill ceased working and the land was sold off in lots.

The underlying geology of the site comprises Pleistocene sands and gravels overlying the Mercia Mudstone group. The altitude is around 120m ASL, with the highest ground along the north side of the site. There is no general public access to any part of the LWS.

Potential Local Wildlife Site

GRAND UNION CANAL (SP18Li2a3) Area; 11.8 ha

Habitat Description

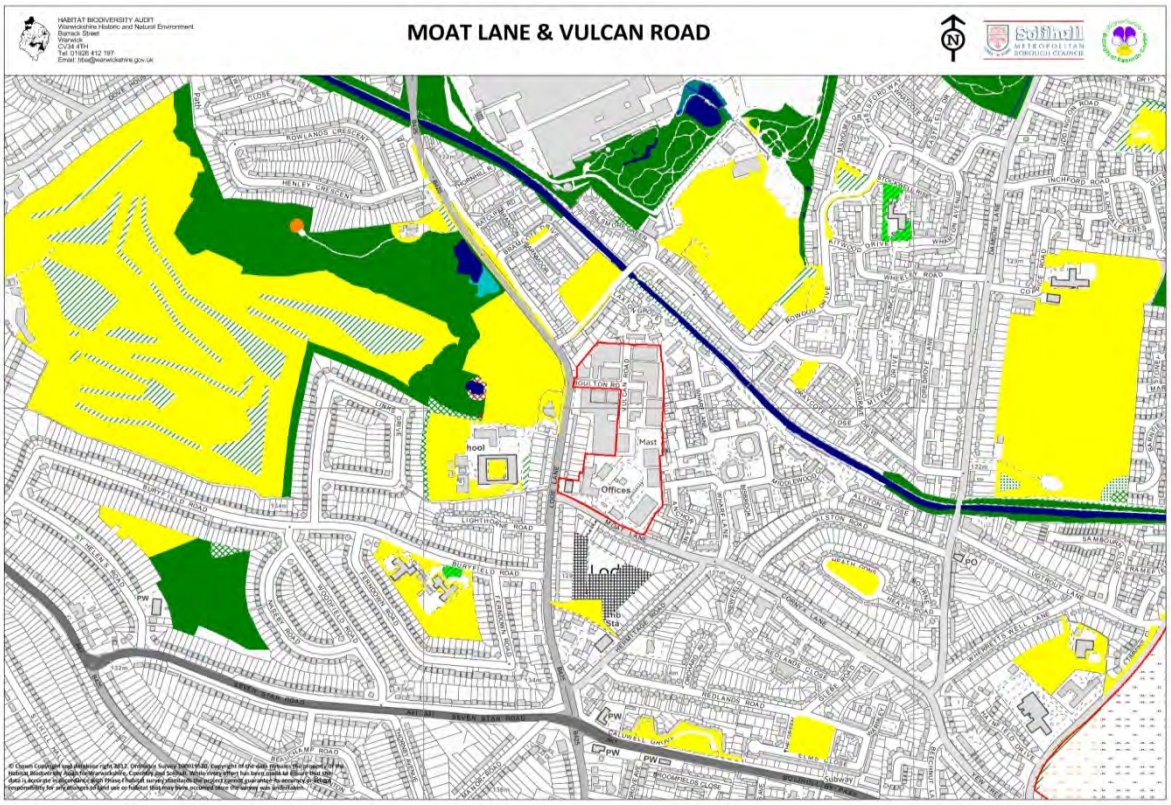

Figure 4 Phase 1 Habitats

The obvious lack of semi-natural habitats within the development parcel alludes to the industrial use of Solihull Metropolitan Borough Council Central Depot. Important habitats nearby comprise of amenity grassland contained within Lode Heath School, the amenity grassland (J12), semi-natural broad-leaved (A111) and planation woodland (A112) of Olton Golf Course, Mill Pool Spinney and Billsmore Wood in addition to the playing fields of the Land Rover Sports and Social Club. The enhancement of habitat linkage between the development proposal and the Grand Union Canal is the most important consideration in view to enhancing biodiversity.

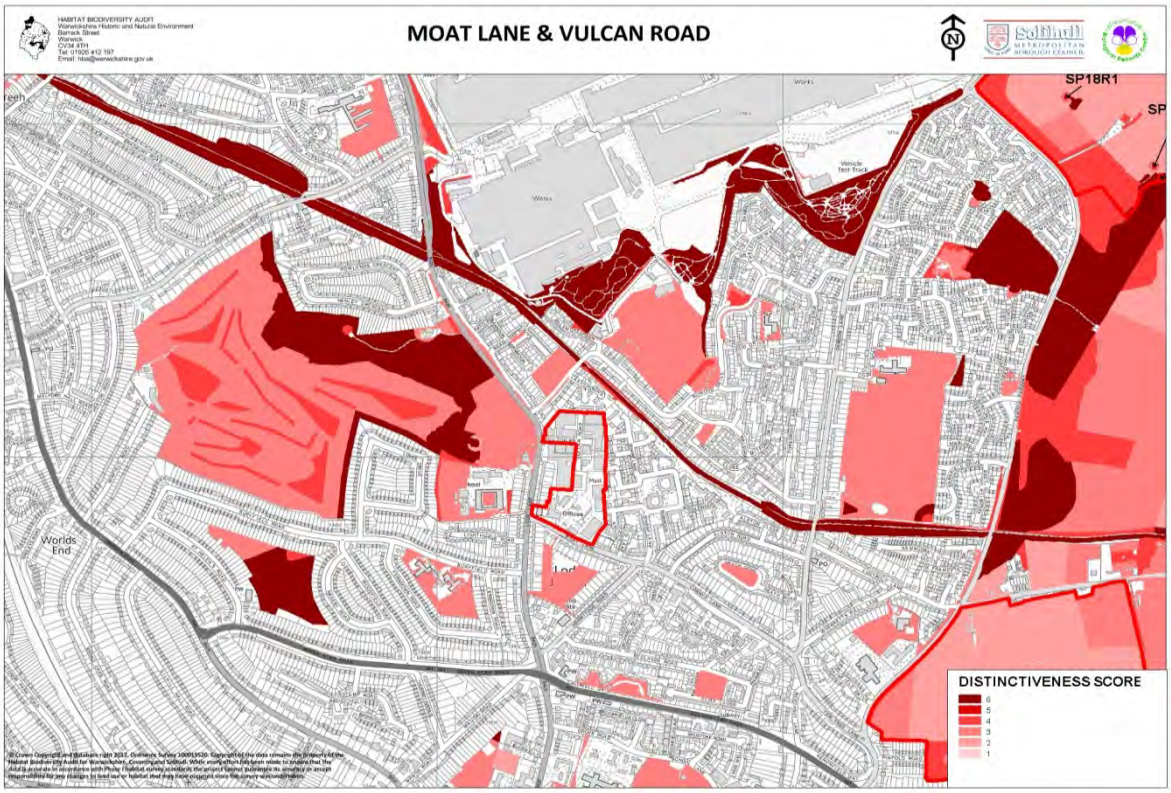

Figure 5 Habitat Distinctiveness & Target Notes

The major habitats of priority distinctiveness are included within Olton Golf Course and Mill Pool Spinney LWS (SP18K1), the Grand Union Canal (SP18Li2) and Billsmore Wood (SP18K3).

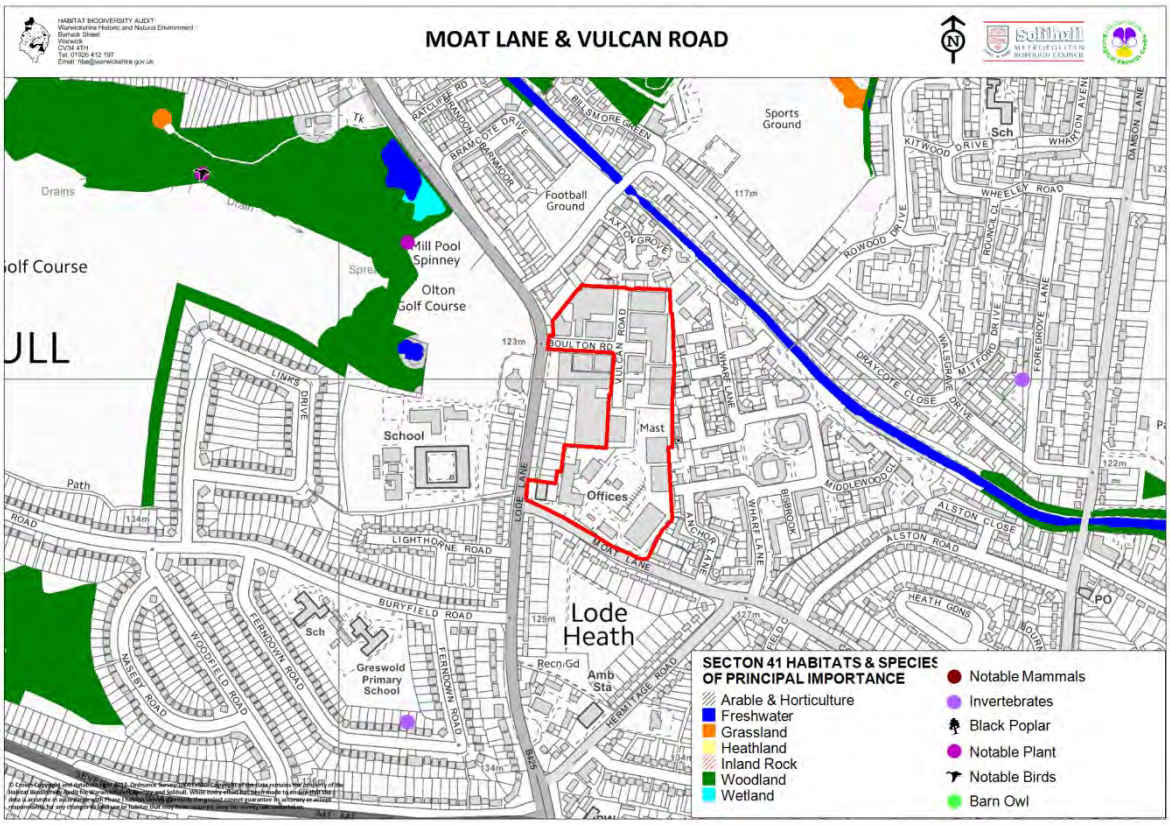

Figure 6 Section 41 Habitats and Species of Principal Importance

Target Notes

There are no target notes recorded for the site.

Habitat Connectivity

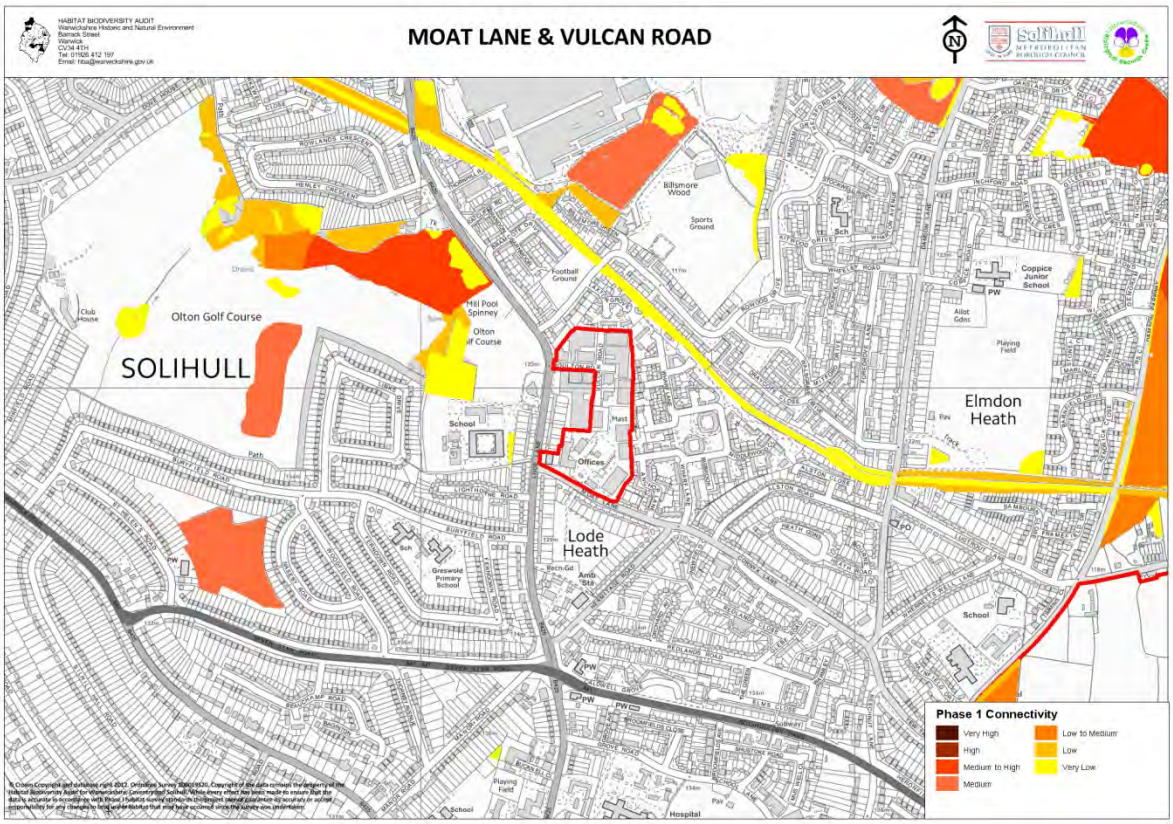

Figure 7 Habitat Connectivity

The lack of any identifiable habitats with in the development parcel connotes very low to absent connectivity of the existing site. Consequently, opportunities do exist to improve habitat connectivity in the immediate surrounds of the site and to develop habitat linkage with Grand Union Canal.

Protected Species

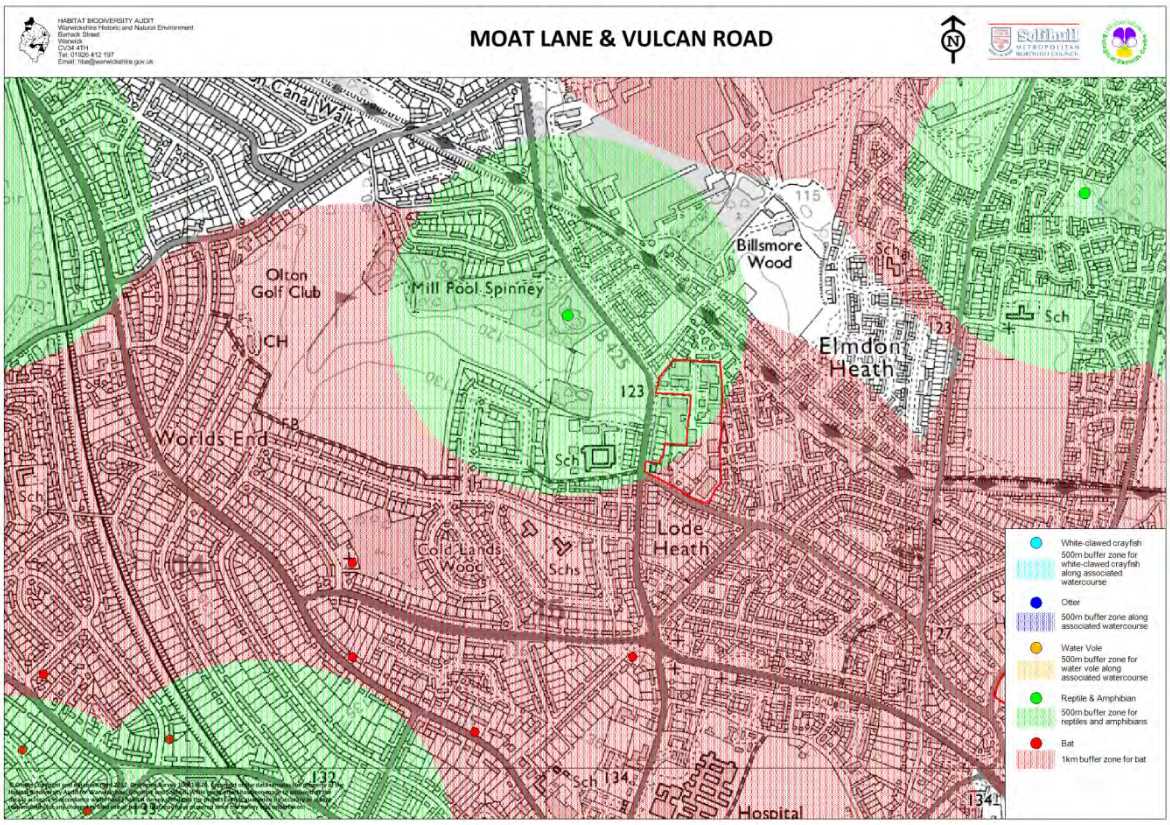

Figure 8 Protected Species

Dated and obsolete records occur for smooth newt (Lissotriton vulgaris) and common frog (Rana tempoaria) within a pond in Mill Pill Spinney in 1974, 300m from the parcel boundary separated by the major barrier of Lode Lane.

Common pipistrelle (Pipistrellus pipistrellus) were detailed as possibly roosting in dwellings along Manor Road in 2007 within the residential suburb of Lode Heath, 474m from the southern boundary.

SITE: SHARMANS CROSS ROADS

Area: 4 hectares

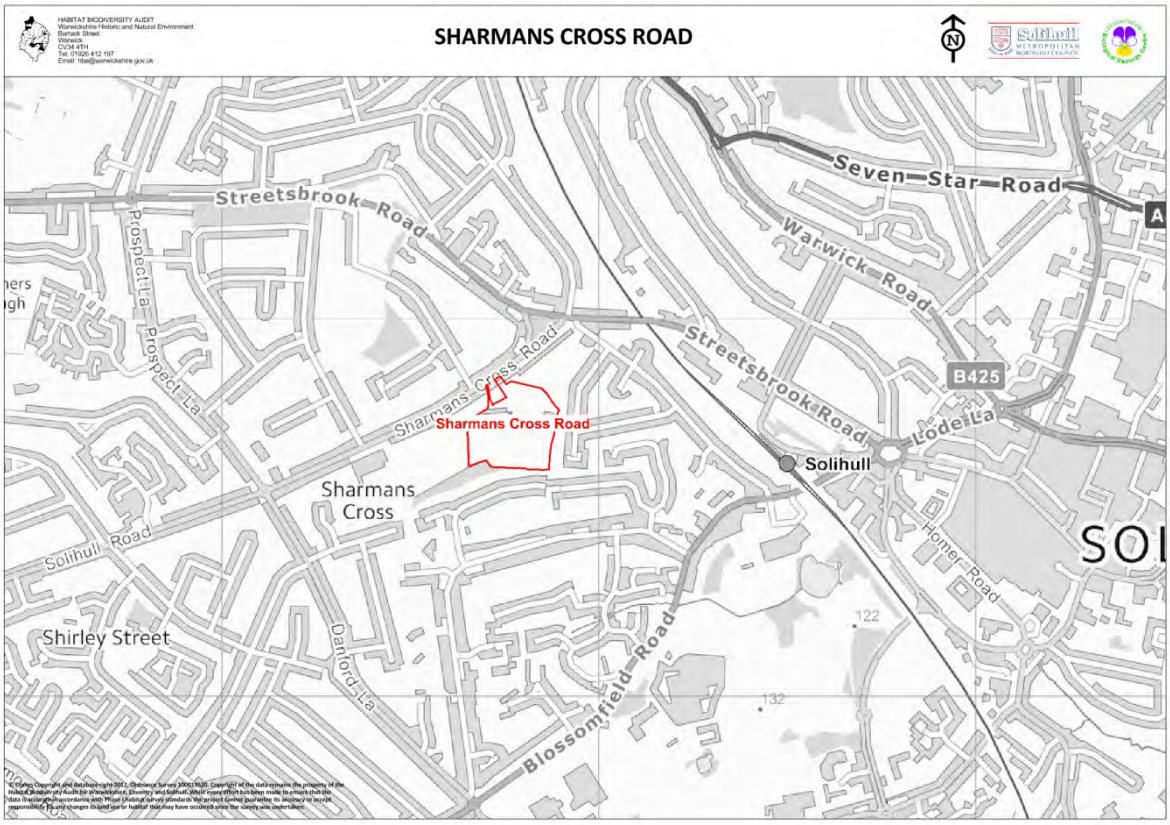

Figure 1 Site Location

Overview

The development parcel encompasses the grounds of Solihull Arden Club and the former rugby ground of Birmingham and Solihull R.F. C. The development parcel is sandwiched to the east by Winterbourne Road, Pow Grove LWS and Welcombe Grove to the south with Sharmans Cross Junior School and its associated recreation grounds to the west. Residential properties off Sharmans Cross Road denote the northern boundary.

In the wider sense, much of the development parcel holds limited ecological value and as such does not limit any potential development proposals. Amenity grassland equates to 2.4 ha and previously developed land of the former sports complex comprises roughly 1.6 ha.

The prevalent ecological constraint relates to the proximity of Pow Grove LWS and those associated hedgerows and mature trees that abound much of former sports grounds boundaries.

Lacking direct ecological connectivity, Pow Grove LWS (SP17J2) is one of several small isolated woodlands in the local area. It is important to retain this range of semi-natural woodlands in the urban environment of Sharmans Cross. Therefore a 30m buffer should be implemented around woodland with at least a 10m buffer around mature trees and hedgerows.

Key Features

- Hedgerows with trees
- Pow Grove LWS (SP17J2)
- Veteran Trees

Recommendations

Despite the destruction of much of Pow Grove in the 1970s, the surviving woodland is still a good example of Oak-Bracken-Bramble woodland. It still contains a section of ancient wood bank. Having suffered from the effects of long neglect, it is also at risk from garden encroachment and the dumping of garden waste. The latter is especially important as such small woodland could easily become over-run with alien plants.

Any potential development is likely to increase these cumulative effects, the implementation of a 30m wooded buffer zone and the use of passive management techniques such as fencing should protect against edge effects and encroachment activities.

Veteran and mature trees particularly within adjacent hedgerows particularly on the eastern and western edge should be retained and incorporated within woodland buffer zones. An appropriate buffer zone of semi-natural habitat between the development and the veteran tree should be determined by an appropriate arboriculturist but a minimum buffer should be at least 15 metres.

The western boundary marked by old hedge bank that separates the development parcel from Sharmans Cross Junior School is of particular importance and designated as such within Pow Grove LWS (SP17J2).

During construction, screening barriers will protect veteran trees from dust and pollution. Veteran trees are irreplaceable and therefore compensation measures can only partially compensate for damage, the management of aged trees and replacing lost veteran trees is a last resort.

Mitigation measures resulting from development proposals should seek to improve Pow Grove woodland. Species diversity can still be significantly improved by introducing some management, notably thinning out some of the denser areas of Holly, opening out pathways and rides, and the introduction of selective coppicing. However some areas of thick shrub layer should be retained for nesting birds. Alien species should be removed and local residents dissuaded from planting further specimens and from dumping green waste, perhaps by allowing them to adopt the wood as a nature reserve.

Constraints

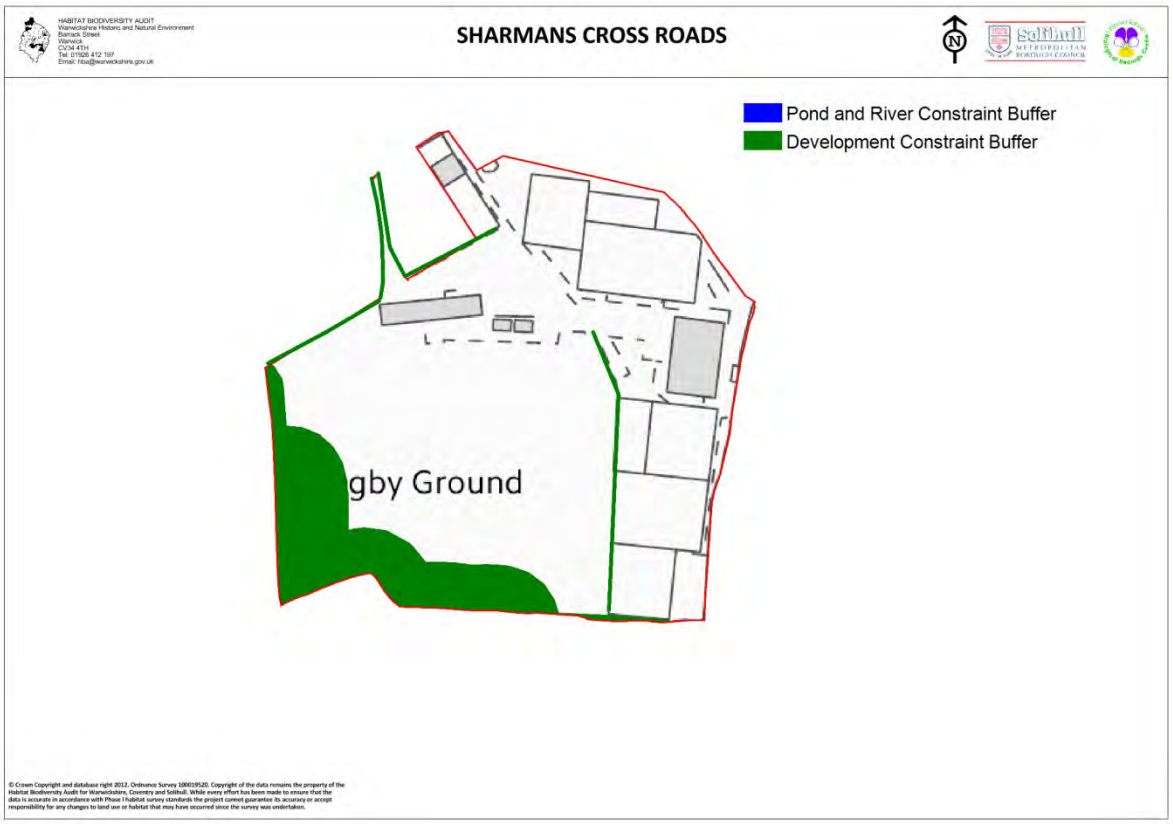

Figure 2 Constraints Map

The areas marked in green and blue on the above constraints map indicate where development should be avoided and ecological enhancement encouraged.

They include:

- 30m buffer around woodland
- 8m buffer either side of adjacent to watercourses
- 8m buffers around ponds
- 5m buffer either side of intact hedgerows
- Areas of medium to high distinctiveness grassland (Values 4, 5 & 6)

Designated Sites

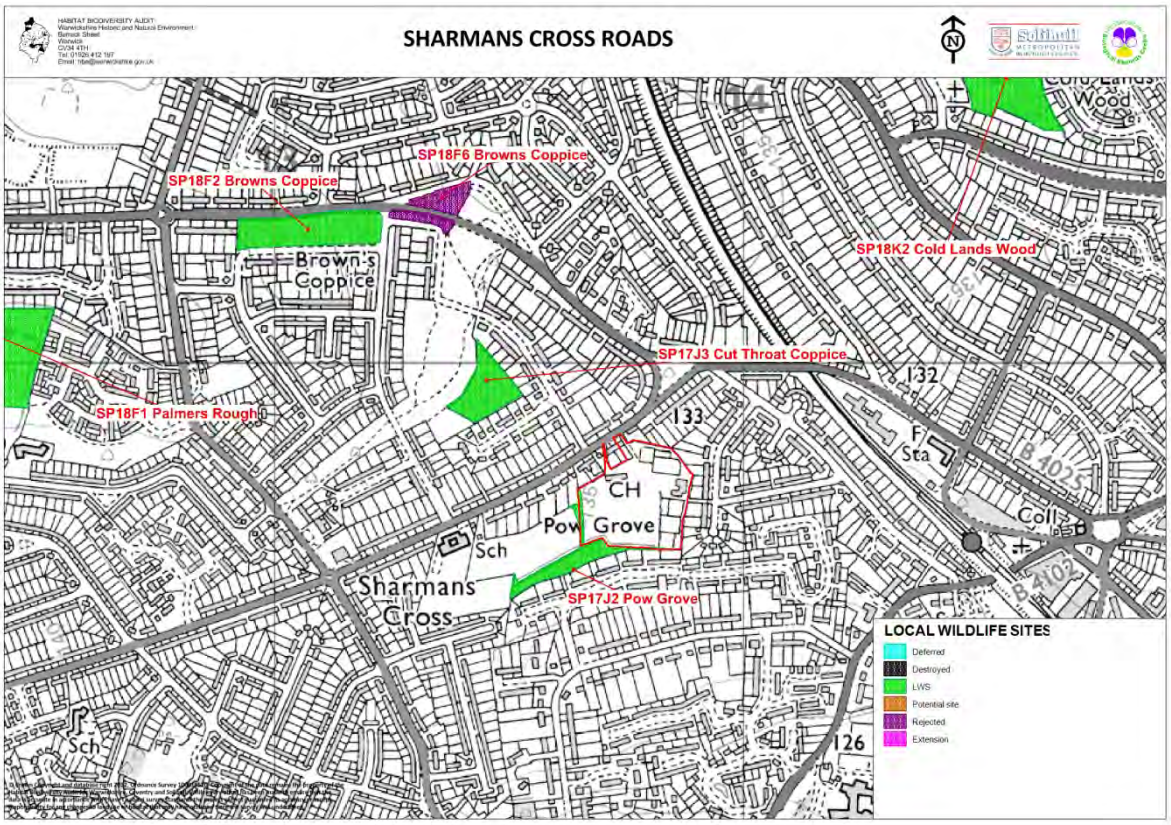

Figure 3 Site Designations

The development parcel directly buffers the Pow Grove Local Wildlife Site (SP17J2) with Cut Throat Coppice LWS (SP17J3), Browns Coppice (SP18F2) and Palmers Rough (SP18F1) separated by residential and road infrastructure to the north-west.

Local Wildlife Site

POW GROVE SP17J2[15] LWS **Area; 0.89 ha**

Survey Date; 10/08/2012

Pow Grove is a very small piece of ancient oak/birch woodland situated in the suburban area of Sharmans Cross, 1.5km west of Solihull town centre. It is all that remains of a larger coppice woodland which was first recorded as Puck or Powke Grove in 1638 (*Place names of Warwickshire*), but is probably of much earlier origin. By the first edition of the OS Map, surveyed in 1828-30, it had been reduced to perhaps 5ha in extent and by the late 20th century was down to 3.5ha. During the post-war period the surrounding land has changed from farmland to suburbia and the wood gradually became surrounded by housing estates, but with the land immediately to the north being converted to small sports pitches. Finally in about 1975 most of the wood was

[15] Local Wildlife Sites Project Pow Grove SP17J2, 2012 HBA, Warwick

felled and replaced by a new development of houses off Alderbrook Road, centred around Welcombe Grove.

All that now remains is the northern perimeter of the old woodland, including parts of the old wood bank, which forms a belt 200m long and from 20m wide at the western end to up to 50m wide at the east end. The LWS also includes an old wooded boundary bank that runs due north from the grove for 100m towards Sharmans Cross Road and crossing the sports club fields.

Although now rather ecologically isolated by development there are several other small isolated woodland Local Wildlife Sites in the area with a similar history, the nearest being Cut Throat Coppice LWS situated 450m to the north-north-west across Sharmans Cross Road.

The woodland has not been managed since the development occurred and although of open access, is now partly inaccessible due to the growth of a dense Holly shrub layer which has also led to the reduction in ground flora. Some of the former paths are also no longer accessible including the main one off the entrance to the wood in Welcombe Grove, which has been blocked where it enters the sports field. Garden waste is frequently tipped into the wood from adjoining gardens and there are some signs of minor boundary moving. There are also still areas of tipped builders rubble and soil left over from the building of the housing estate.

The wood is situated on a capping of acidic Pleistocene sands and gravels at around 135m ASL and is fairly level but uneven. A minor stream drains eastwards along the outside of the former wood bank which forms the northern boundary, but this is only noticeable to the east of the northern appendage to the LWS.

Northern Appendage

This wooded appendage gives some local connectivity to the wood. The southern half of this old hedge bank is dominated by a strip of mature Pedunculate Oak and Silver Birch woodland, with a small patch of Aspen and Bramble dominant below. Creeping Soft-grass is abundant on the more open areas of the bank and there are several patches of Bluebells. To the north of this woodland is an open area dominated by Bracken, with some Bramble and Bluebell, and this has spread out to cover the extreme corner of the western sports field where mowing has ceased. To the north of the Bracken the bank alongside the adjoining garden is dominated by scrub, mainly Holly, Hazel, Hawthorn and Bramble, which ends with a mature Ash tree. Other species present here include Broom, Elder and Common Gorse.

Habitat Description

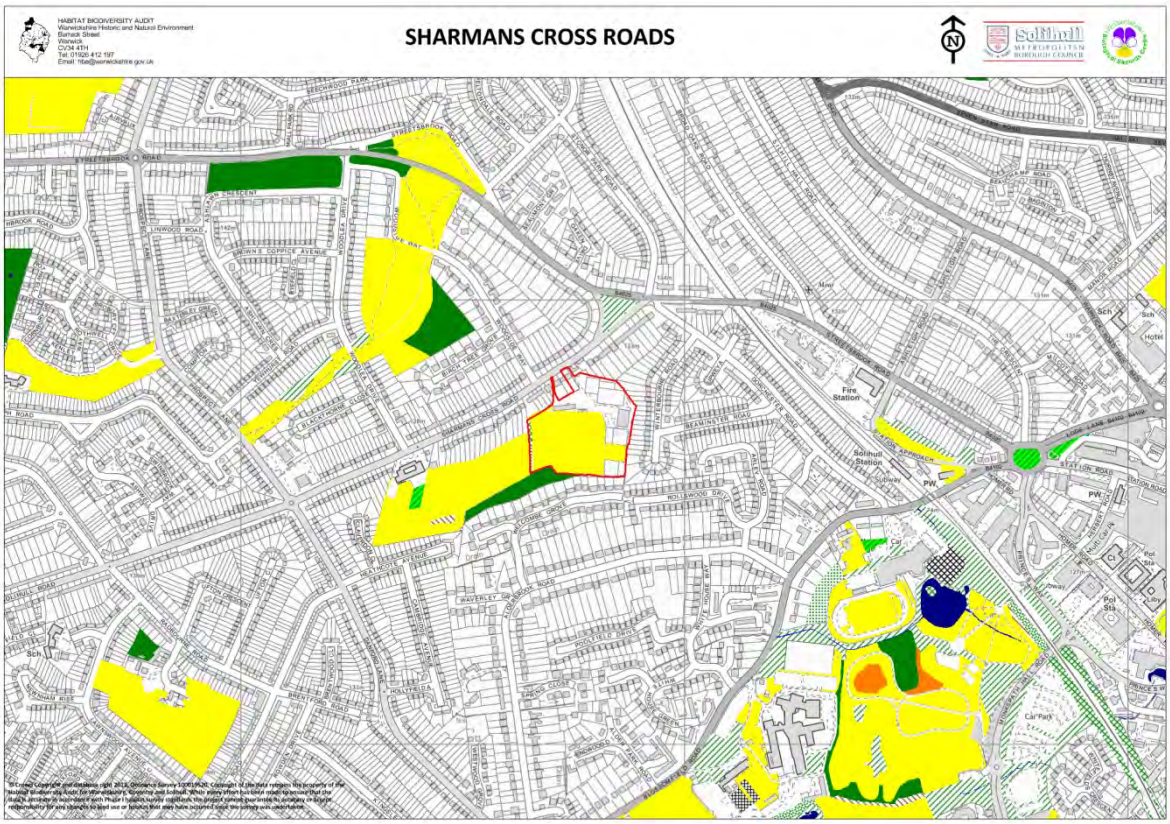

Figure 4 Phase 1 Habitats

The proposed development site consists almost entirely of amenity grassland (J12) with a medium distinctiveness score. Along the western boundary is a narrow section of dense scrub (A21) and linear trees which connects to the semi-natural woodland (A111) at Pow Grove LWS which has the high distinctiveness score. Connectivity is limited to due to the surrounding built up areas.

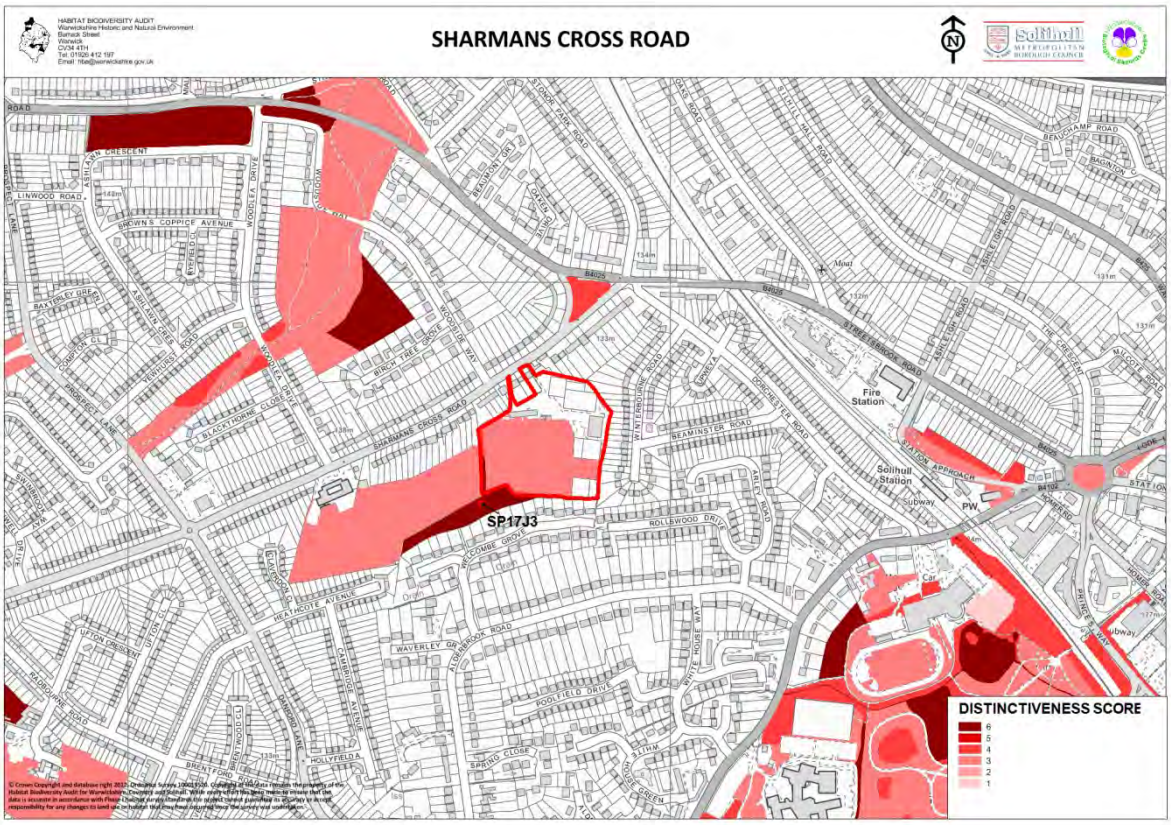

Figure 5 Habitat Distinctiveness & Target Notes

Target Notes

Number	Grid Reference	Survey Date
SP17J3	**SP1365179581**	**14/09/1998**

Oak woodland (Quercus robur) with frequent to locally abundant birch (Betula sp.) rowan (Sorbus aucuparia) and an understorey dominated by holly (Ilex aquifolium) with hazel (Corylus avellana), elder (Sambucus nigra) and grape-laurel. The ground flora contains abundant bramble (Rubus fruticosus agg.), ivy (Hedera helix) and wood meadow-grass (Poa nemoralis) with bluebell (Hyacinthoides non-scripta), foxglove (Digitalis purpurea) and broad-buckler fern (Dryopteris dilatata).

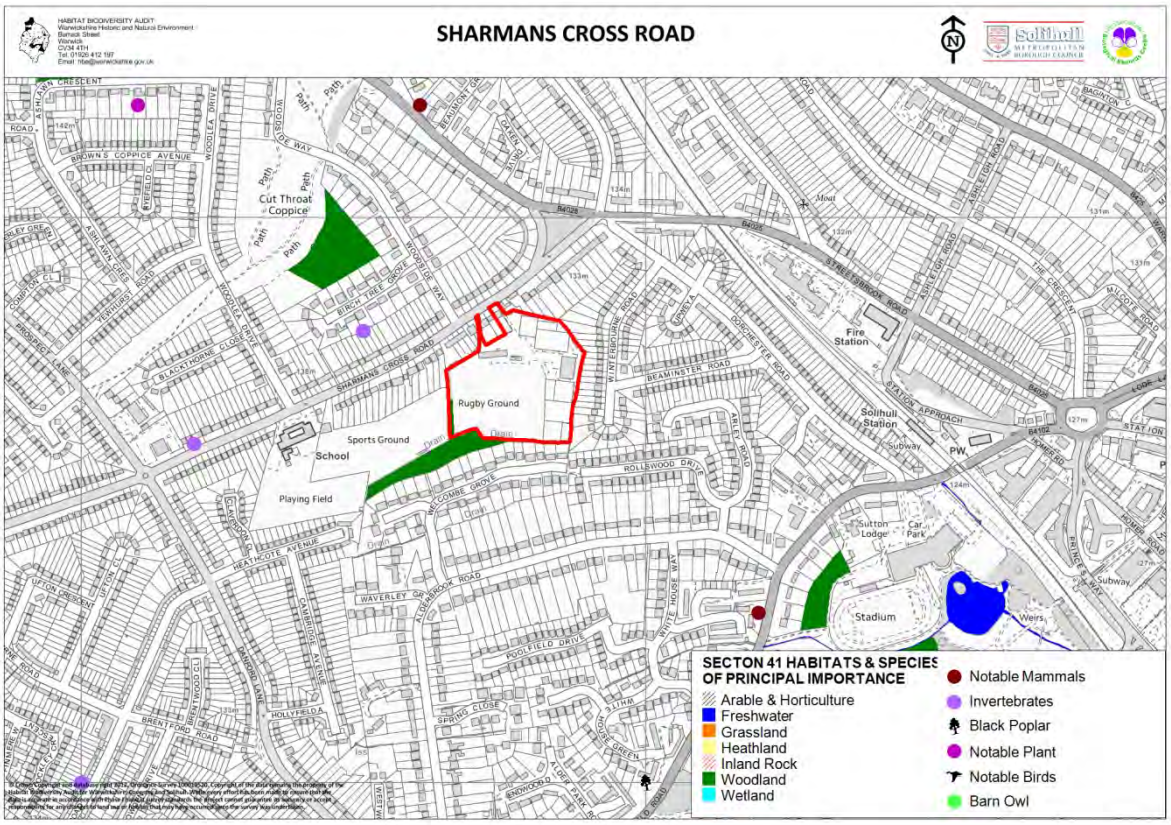

Figure 6 Section 41 Habitats & Species of Conservation Importance

Habitat Connectivity

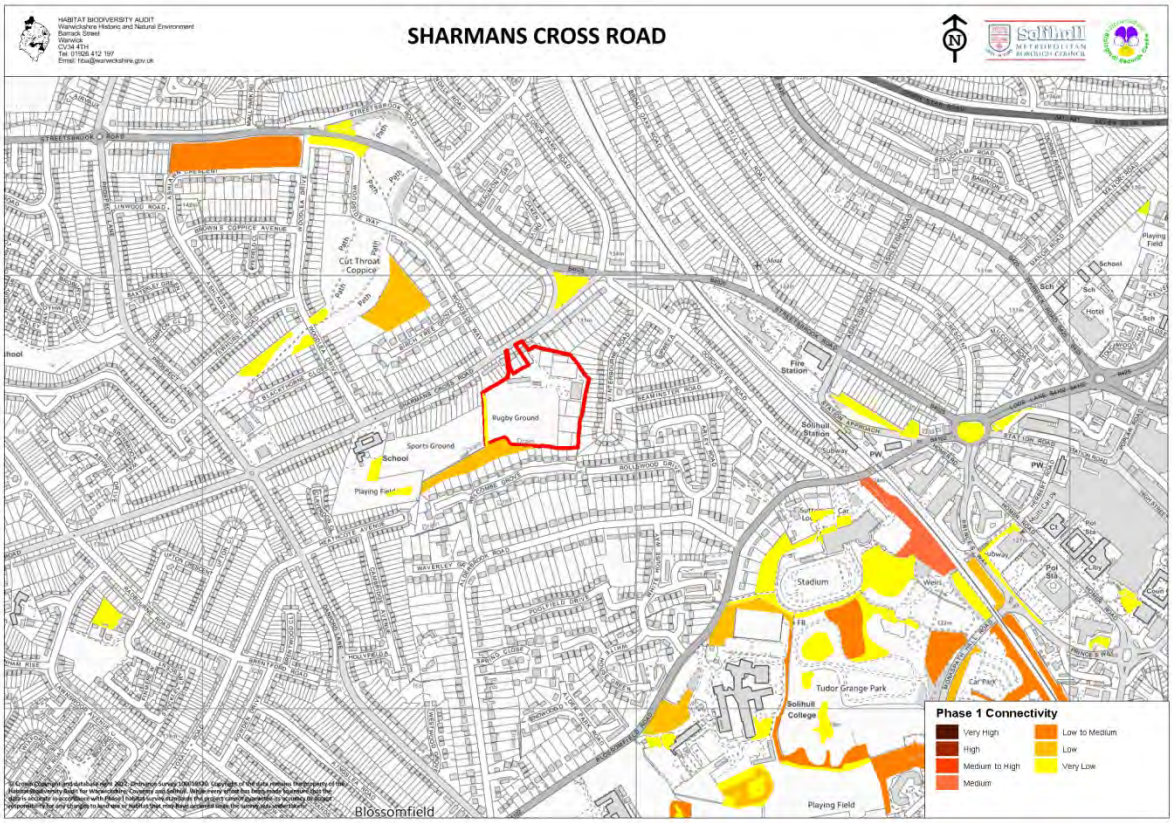

Figure 7 Habitat Connectivity

Habitat connectivity for woodland belts within Sharmans Cross is low to very low or absent with much of the site occupying amenity grassland. The bands of woodland and mature trees should be retained whilst enhancing a network of green infrastructure to connect to other segmented woodlands of Cut Throat Coppice LWS (SP17J3), Browns Coppice (SP18F2) and Palmers Rough (SP18F1).

Protected Species

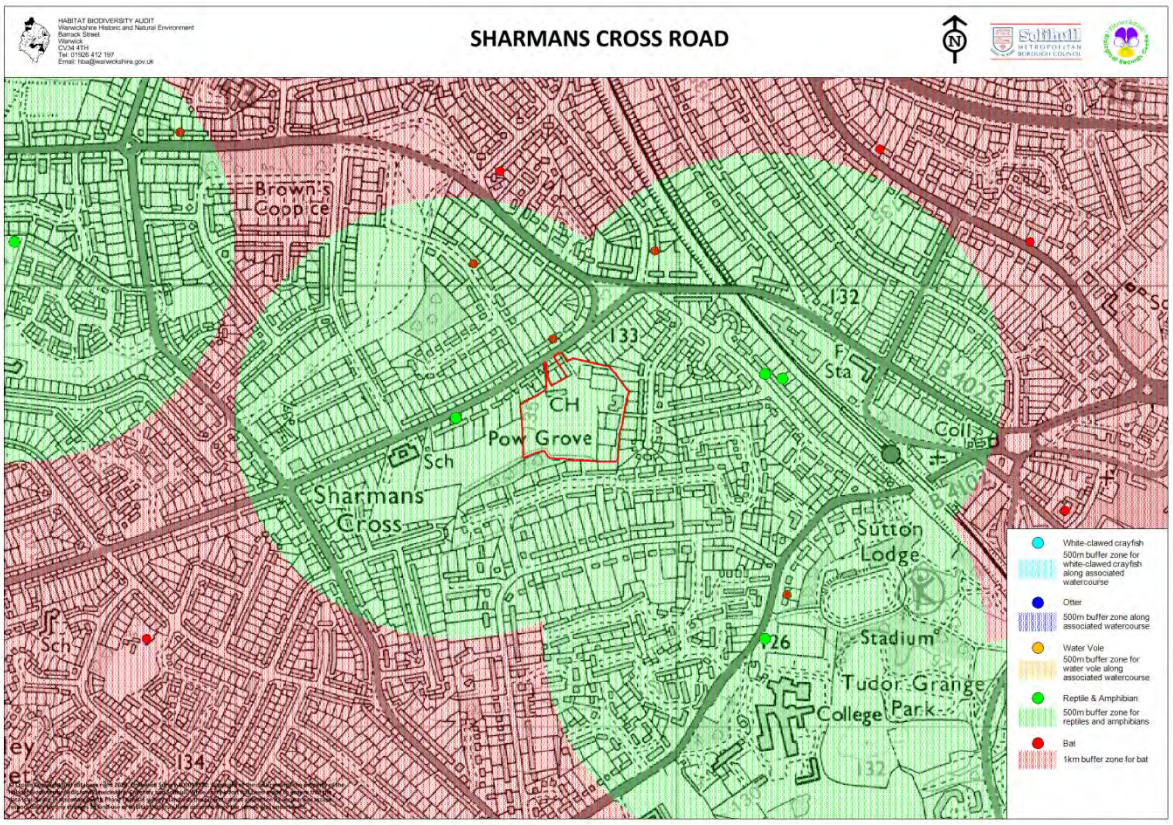

Figure 8 Protected Species

A confirmed breeding pond for smooth newt (Lissotriton vulgaris) exists 140 m from the sites western boundary in a dwelling along in 1997 . Records exist for smooth newt and common frog (Rana temporaria) within a breeding pond along Dorcester Road in 2004.

Good numbers of commuting and foraging bats of brown long-eared bat (Plecotus auritus), soprano pipistrelle (Pipistrellus pygmaeus), common pipistrelle (Pipistrellus pipistrellus) and noctule bat (Nyctalus noctula) were recorded along Woodside Way in 2014, 280m from the northern boundary.

Foraging and commuting common pipistrelle bats (Pipistrellus pipistrellus) were recorded in 2009 immediately adjacent to the site entrance fronting Sharmans Cross Road and along Stonor Park Road in 2004, 300m from the north-east periphery.

SITE: SOUTH OF DOG KENNEL LANE

Area: 46 hectares

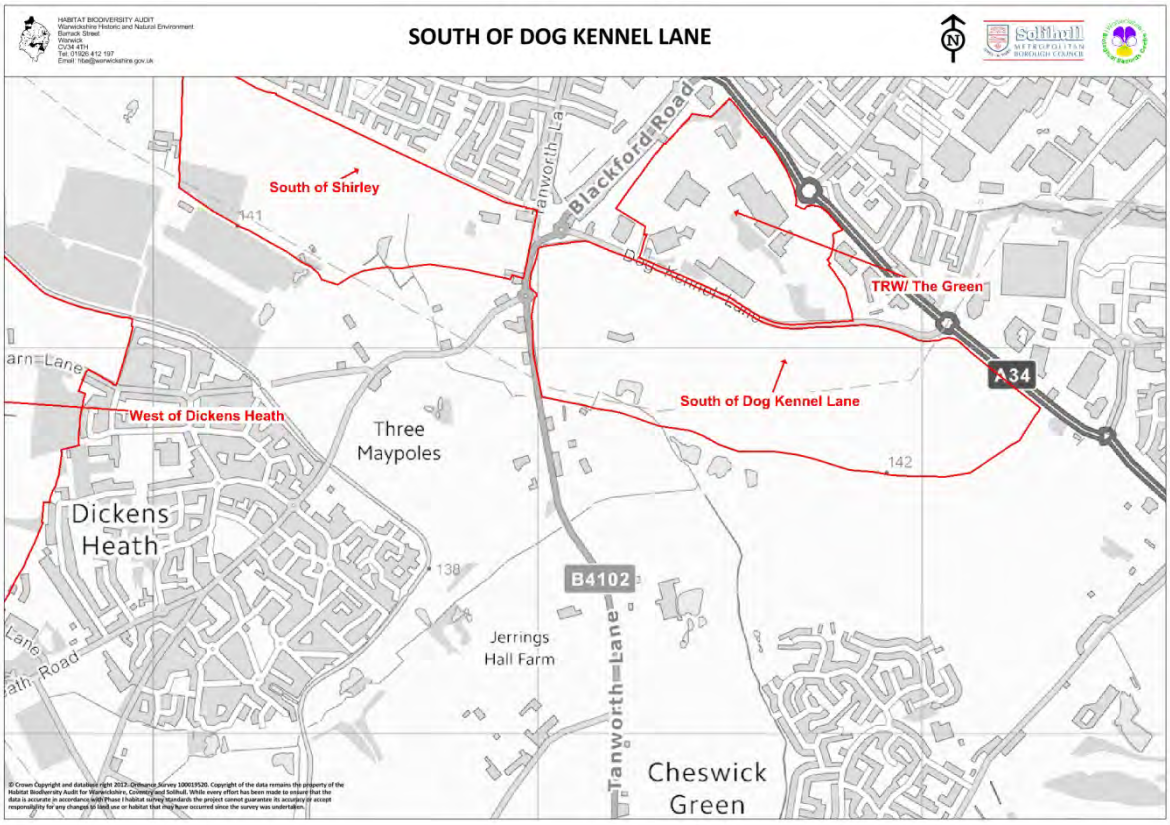

Figure 17 Site Location

Overview

South of Dog Kennel Lane is located immediately south of proposed development named TRW & The Green. Separated by Dog Kennel Lane, it extends from west to east from Tanworth Lane to the A34. To the south is open agricultural land.

The parcel comprises mostly arable farmland and improved grassland. There is a small area of semi-improved grassland, open scrubland and broad-leaved semi-natural woodland around Light Hall Farm. There is also a large pond surrounded by the aforementioned woodland to the south of the farm.

The remaining hedgerows appear to be linear scrub and linear trees. A cluster of field ponds lies outside of the southern parcel boundary surrounded in parts by scattered scrub and wet woodland.

A tributary of the River Blythe intersects the southern boundary crossing Tanworth Lane above Solihull Transport Ltd, PAB Motor Services Ltd and Baroda Farm.

Key Features

- Pond Network
- Semi-natural woodland and grassland close to Light Hall Farm
- Hedgerows and tree standards
- Open running water

Recommendations

Retain and enhance the existing pond and woodland south of Light Hall Farm down to the other nearby ponds outside of the development parcel and to the two field ponds close to the eastern boundary. Consideration should be given to linking up viable parcels of habitat and successive boundary features into proposal designs.

All ponds within and adjacent to the development should be subject to an LWS standard survey as part of a pond network in co-ordination with protected species surveys particularly to determine the presence or absence of great crested newts.

The green corridor and public footpath leading off from Dog Kennel Lane would make a suitable wildlife corridor for the proposed development site to connect to the open countryside beyond. The hedgerow and trees could be extended and managed as a viable green lane.

Strips of grasslands and buffer strips along hedgerows and an adequate buffer zone should be place between any proposed development and the tributary of the River Blythe, as not to adversely affect the character and value of the small watercourse and its usefulness as a habitat corridor.

Any proposed development at a minimum should not be within 8 metres of the brook.

The vegetated buffer zone of native plant species will allow the retention of any trees and shrubs along this boundary.

Constraints

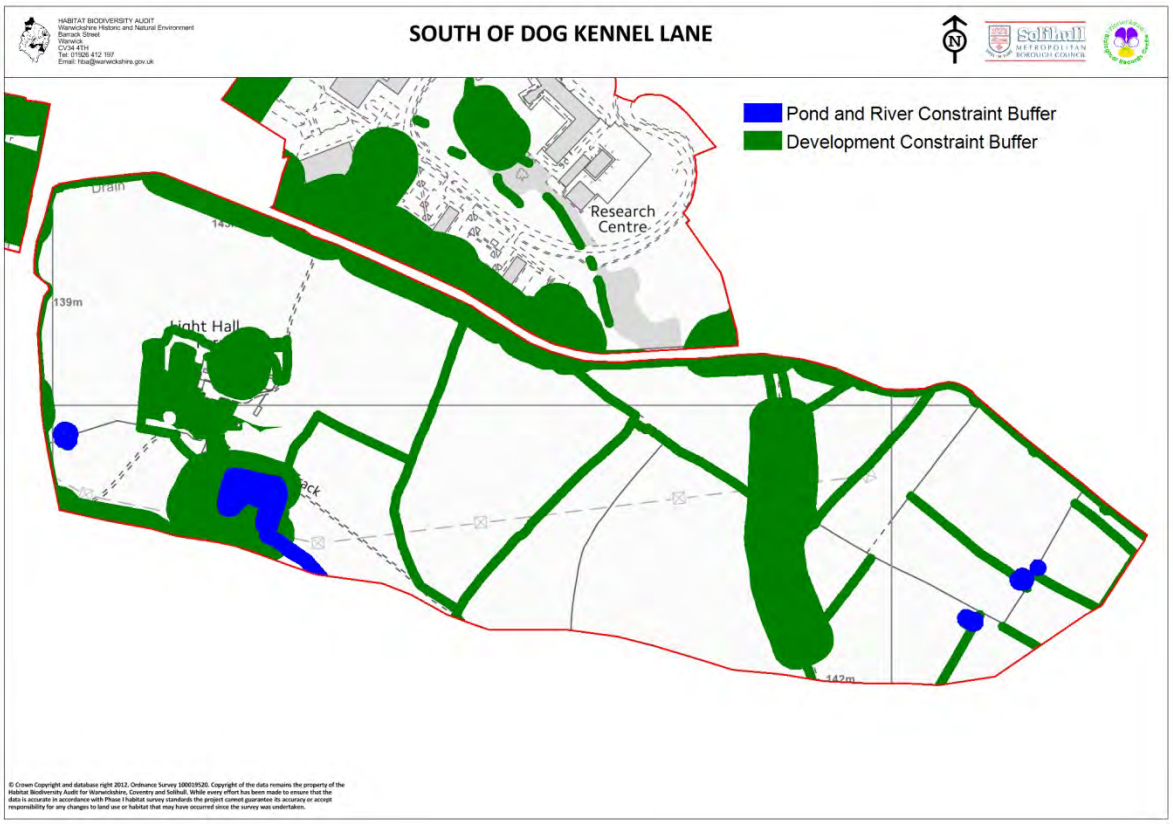

Figure 2 Constraints Map

The areas marked in green and blue on the above constraints map indicate where development should be avoided and ecological enhancement encouraged.

They include:

- 30m buffer around woodland
- 8m buffer either side of adjacent to watercourses
- 8m buffers around ponds
- 5m buffer either side of intact hedgerows
- Areas of medium to high distinctiveness grassland (Values 4, 5 & 6)

Designated Sites

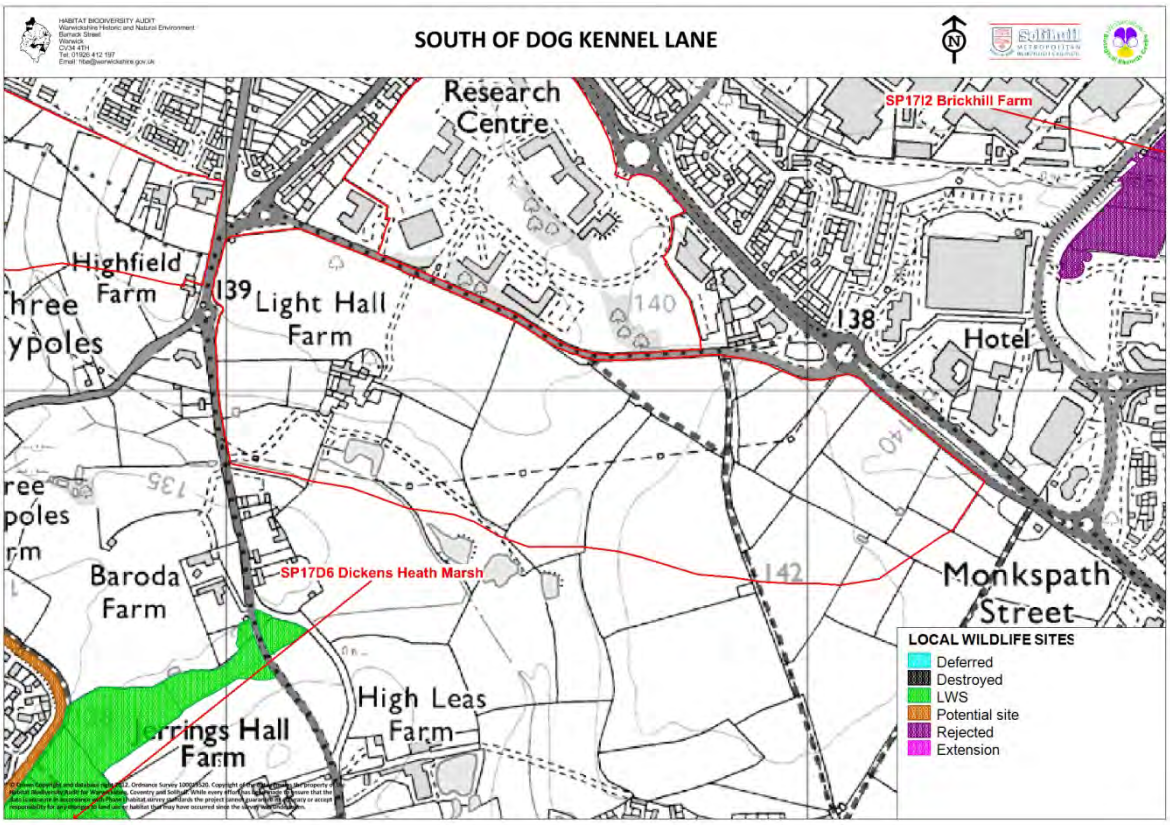

Figure 3 Site Designations

There are no designated or potential sites present on the site. Dickens Heath Marsh LWS (SP17D6) lies m from the southern site boundary beyond Baroda and High Leas Farm.

Habitat Description

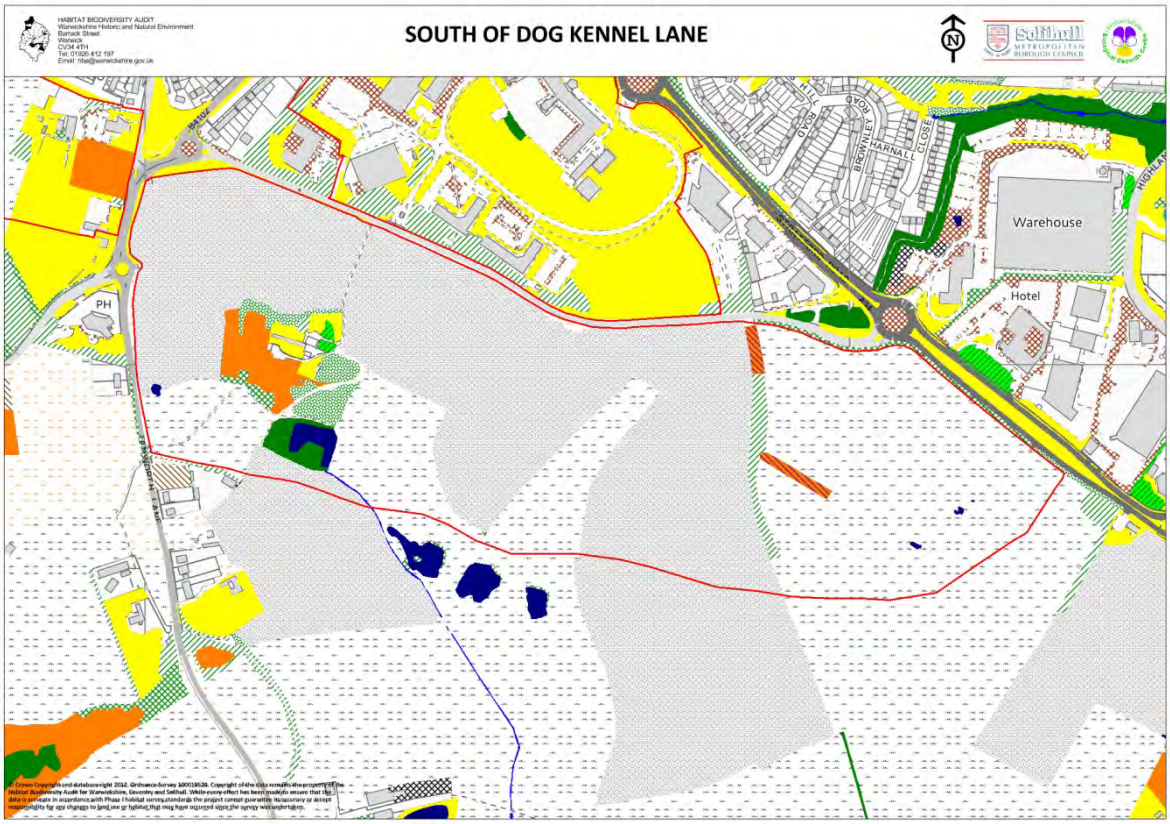

Figure 4 Phase 1 Habitats Map

The habitats present are mostly associated with an agricultural ley system including arable fields (J12) and improved grassland (B4), both holding low distinctiveness. There are patches of semi-improved grassland (B22) and open scrub (A22) with medium to high distinctiveness scores of 4 and 5 respectively around Light Hall Farm. Likewise, south of the farm the pond (G1) and semi-natural woodland both occupy high distinctiveness (6). There is also a green corridor with associated linear trees and hedgerows with sections of marshy grassland (B5) marking field boundaries vertically down from Dog Kennel Lane.

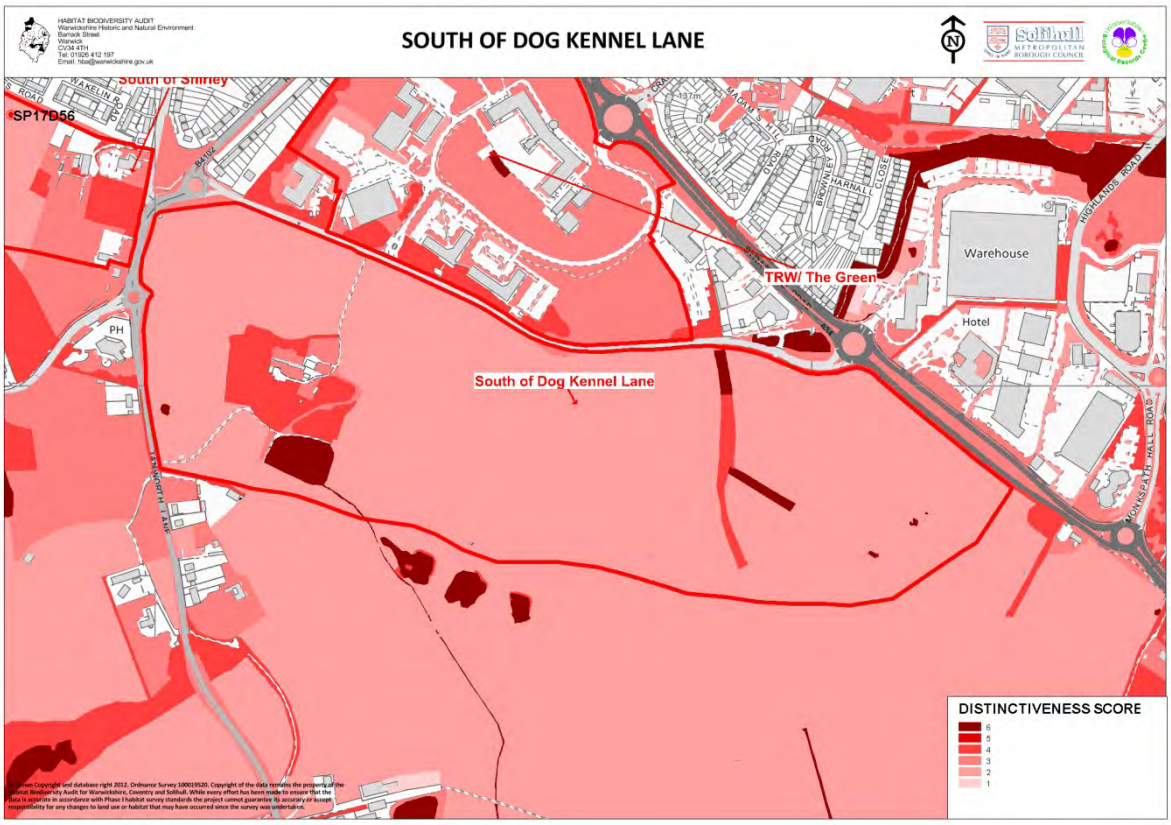

Figure 5 Habitat Distinctiveness

Those features that represent high distinctiveness are those semi-natural habitats surrounding and associated with Light Hall Farm. A band of marshy grassland, linear trees and marked hedgerows occupy high distinctiveness towards the east of the development parcel.

Target Notes

There are no target notes for the site.

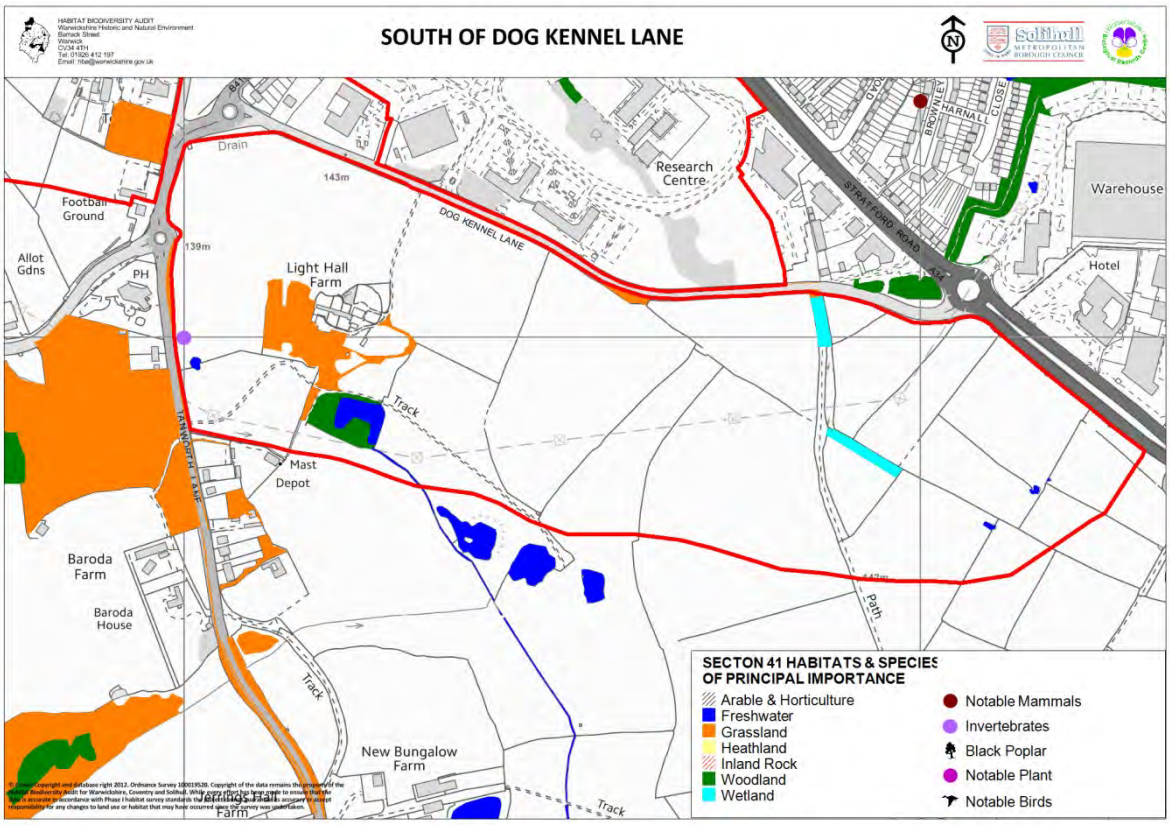

Figure 6 Section 41 Habitats and Species of Principal Importance

Habitat Connectivity

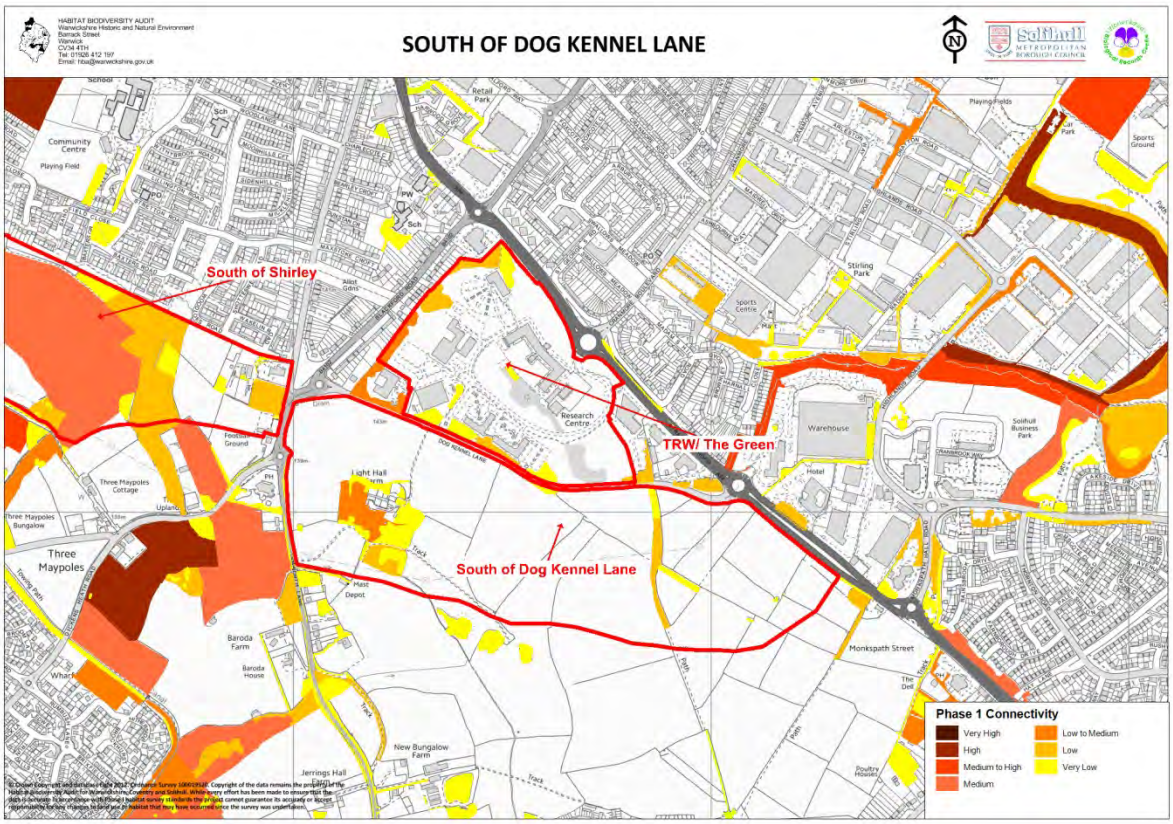

Figure 7 Habitat Connectivity

The habitats with high distinctiveness occupy low to medium connectivity marked by large scale development northwards with a relatively barren farming landscape to the south. The western parcel boundary represents the greatest opportunity to improve connectivity. Connectivity to the grassland habitats north and west of Baroda Farm should be enhanced providing stepping stones or other de-fragmentation measures to reconnect remaining populations and habitats.

Protected Species

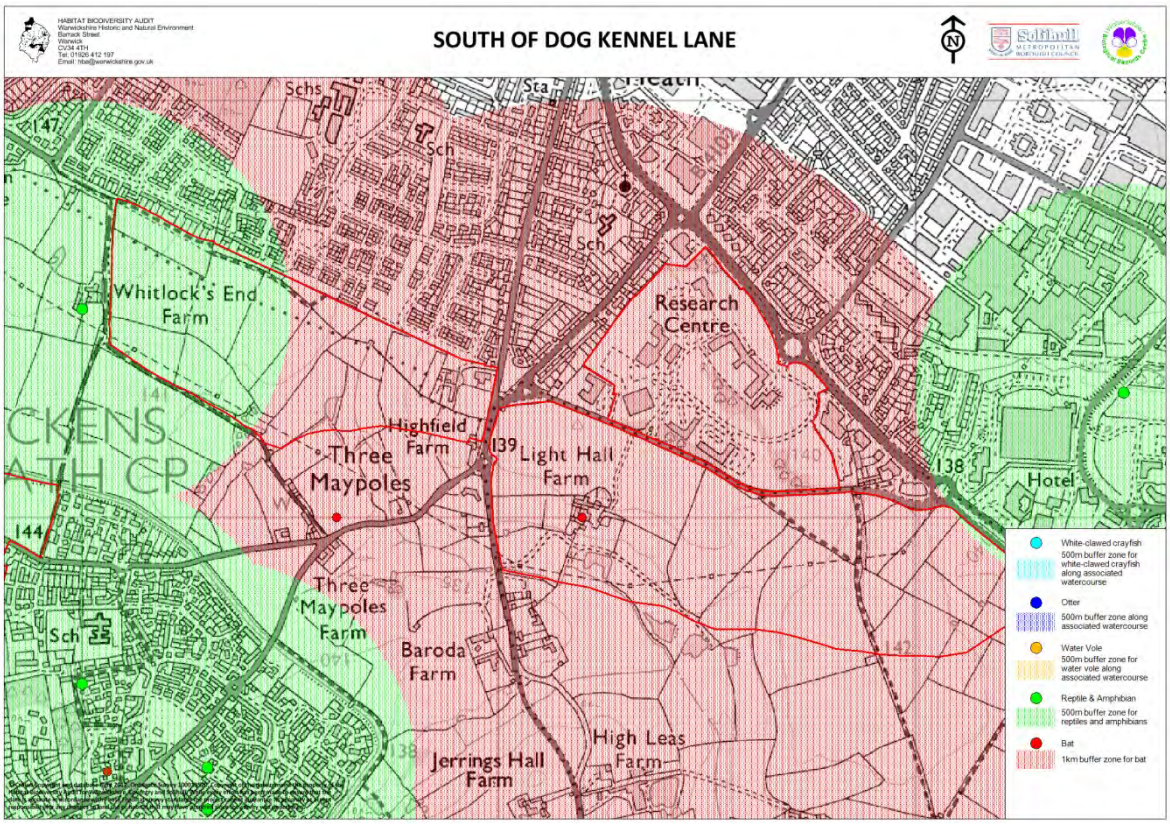

Figure 8 Protected Species

Dated records for un-determined bat activity for both common (Pipistrellus pipistrellus) and soprano pipistrelle (Pipistrellus pygmaeus) were recorded from Light Hall Farm in 1999 by Warwickshire Bat Group.

Given the presence of a pond complex within the development parcel and dated records for bats we recommend that protected species are taken into consideration through more detailed ecological assessments. Please take note than an absence of species records does not mean an absence of species.

SITE: SOUTH OF KNOWLE

Area: 49 hectares

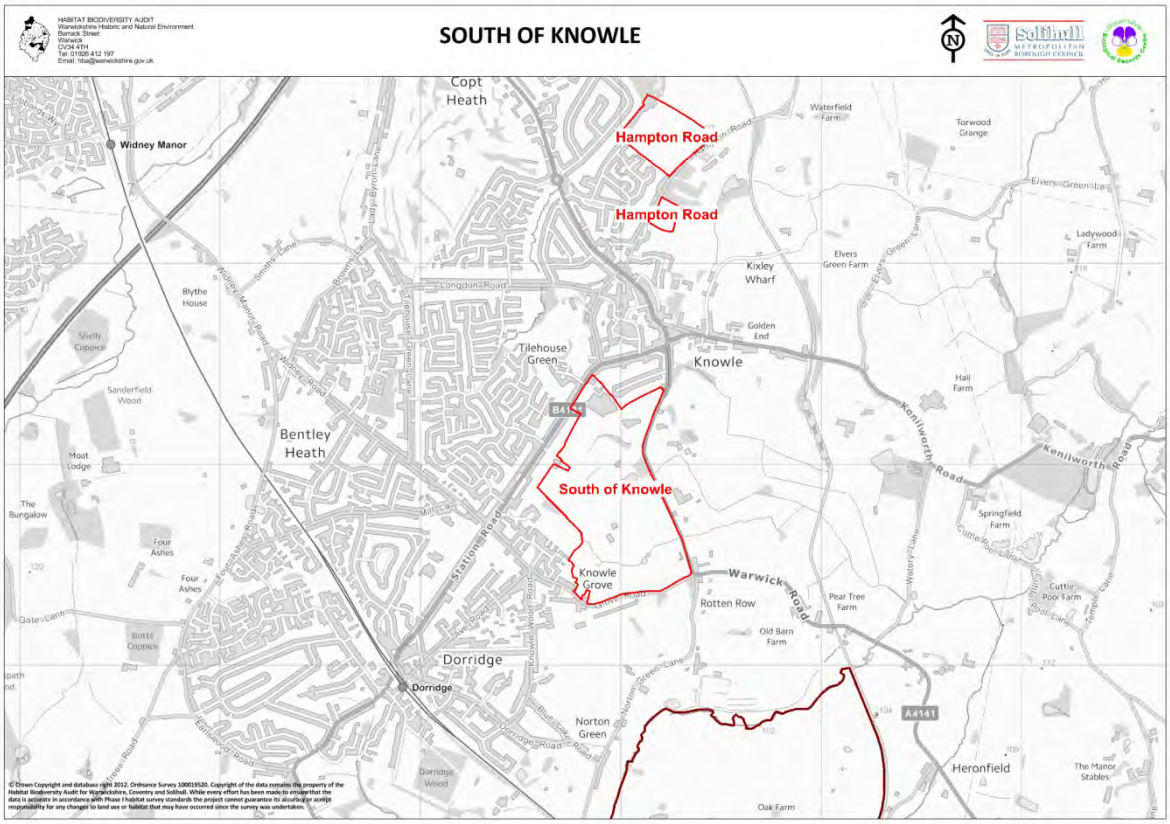

Figure 18 Site Location

Overview

The proposed development parcel consists of the playing fields around the Arden Academy with the surrounding farmland consisting of arable fields and pasture.

The centre of the development parcel is dominated by Lansdowne Farm with Stripes Hill House and Gresholde House comprising elements of the parcel to the east and north- west. The Cuttle Brook runs through the eastern boundary below Lansdowne Farm with a 0.2 ha pond named the Boat House adjacent to woodland off the eastern boundary of Warwick Road (A4141). The southern boundary is marked by Grove Road with the residential properties of Barton Drive and Hertford Way denoting the south-western corner. The western boundary lines the back of dwellings off Station Road before meeting Gresholde House and Arden Academy in the north-western corner.

Key Features

- Priority grasslands of semi-improved neutral grassland
- Hedgerows and small stands of semi-natural woodland
- Ponds
- Rotten Row Fields Local Wildlife Site (SP17X6)
- Meadows Near Landsdowne Farm Potential Local Wildlife Site (SP17S7)

Recommendations

Rotten Row Field Local Wildlife Site (SP17X6) requires a re-survey and full condition assessment with the aim of producing detailed management recommendations.
The potential Local Wildlife Site named Meadows Near Landsdowne Farm (SP17S7) should be surveyed, ideally at the same time as the Rotten Row Field re-survey.

Consideration should be given for incorporating where possible all qualifying fields into a single Local Wildlife Site incorporating both the existing LWS and the potential LWS.

Should the mix of grassland be identified to Local Wildlife Site standard, the grassland mosaic should be excluded from development in the first instance to minimise biodiversity loss. Secondly, to compensate for any loss of grassland, enhancement of any remaining grassland areas to species rich grassland within the development footprint would be recommended.

There should be a strong commitment to a long term management regime of the species-rich grassland present with the development parcel. A site-specific long-term management plan is required to prevent domination of the sward by scrub and aggressive species. Long term-management should include a monitoring and evaluation programme that will enable the management regime to be adapted as necessary with the aim to determine the extent of the grassland establishment (% ground cover, bald patches and presence of leaf litter) and sward composition (grass to herb ratio, positive indicator species, negative indicator species, species with local distinctiveness).

A regime of cutting and light grazing is essential for maintaining species richness.

All ponds within the development should be subject to an LWS survey as part of a pond network in co-ordination with protected species surveys particularly to determine the presence or absence of great crested newts.

Veteran and mature trees are scattered across the development parcel and are prominent landscape features particularly within hedgerows or small copses.

These large trees especially along the driveway to Lansdowne Farm should be retained and incorporated with the development in areas of open space. The inclusion of green bridges, hedgerows, tunnels or avenues will connect woodland and veteran trees that would otherwise be separated by development. An appropriate buffer zone of semi-natural habitat between the development and the veteran tree should be determined by an appropriate arboriculturist but a minimum buffer should be at least 15 metres.

During construction, screening barriers will protect veteran trees from dust and pollution. Veteran trees are irreplaceable and therefore compensation measures can only partially compensate for damage, the management of aged trees and replacing lost veteran trees is a last resort. Planting young trees of similar species can help compensate for removed veteran trees and should be near those trees that they are replacing. Likewise the management of nearby veteran trees including dead trees can help compensate for lost veteran trees. Dead veteran trees should be left standing and intact to benefit invertebrates and fungi. Otherwise dead wood should be moved adjacent to other veteran trees within the development parcel.

The outer boundaries of the parcel are well-developed and would provide important screening in regards to any proposed development. As such sensitive design should incorporate important habitat corridors. Any potentially species-rich hedgerow should be subject to a full hedgerow survey detailed in the Hedgerow Survey Handbook (2nd edition) under The Hedgerows Regulations (made under Section 97 of the Environment Act 1995). The Regulations set out criteria (simplified below) to be used by the local planning authority in determining which hedgerows are important;

1. Marks a pre-1850 parish or township boundary.
2. Incorporates an archaeological feature.
3. Is part of, or associated with, an archaeological site.
4. Marks the boundary of, or is associated with, a pre-1600 estate or manor.
5. Forms an integral part of a pre-parliamentary enclosure field system.
6. Contains certain categories of species of birds, animals or plants listed in the Wildlife and Countryside Act.
7. Includes:
a) at least seven woody species, on average, in a 30 metre length;
b) at least six woody species, on average, in a 30 metre length and has at least three associated features;
c) at least six woody species, on average, in a 30 metre length, including a black poplar tree, or large-leaved lime, or small-leaved lime, or wild service tree; or
d) at least five woody species, on average, in a 30 metre length and has at least four associated features. The list of 56 woody species comprises mainly shrubs and trees. It generally excludes climbers (such as clematis, honeysuckle and bramble) but includes wild roses.
8. Runs alongside a bridleway, footpath, road used as a public path, or a byway open to all traffic and includes at least four woody species, on average, in a 30 metre length and has at least two of the associated features listed below. The associated features are:
i) a bank or wall supporting the hedgerow;
ii) less than 10% gaps;
iii) on average, at least one tree per 50 metres;
iv) at least three species from a list of 57 woodland plants;
v) a ditch;
vi) a number of connections with other hedgerows, ponds or woodland; and
vii) a parallel hedge within 15 metres.

Constraints

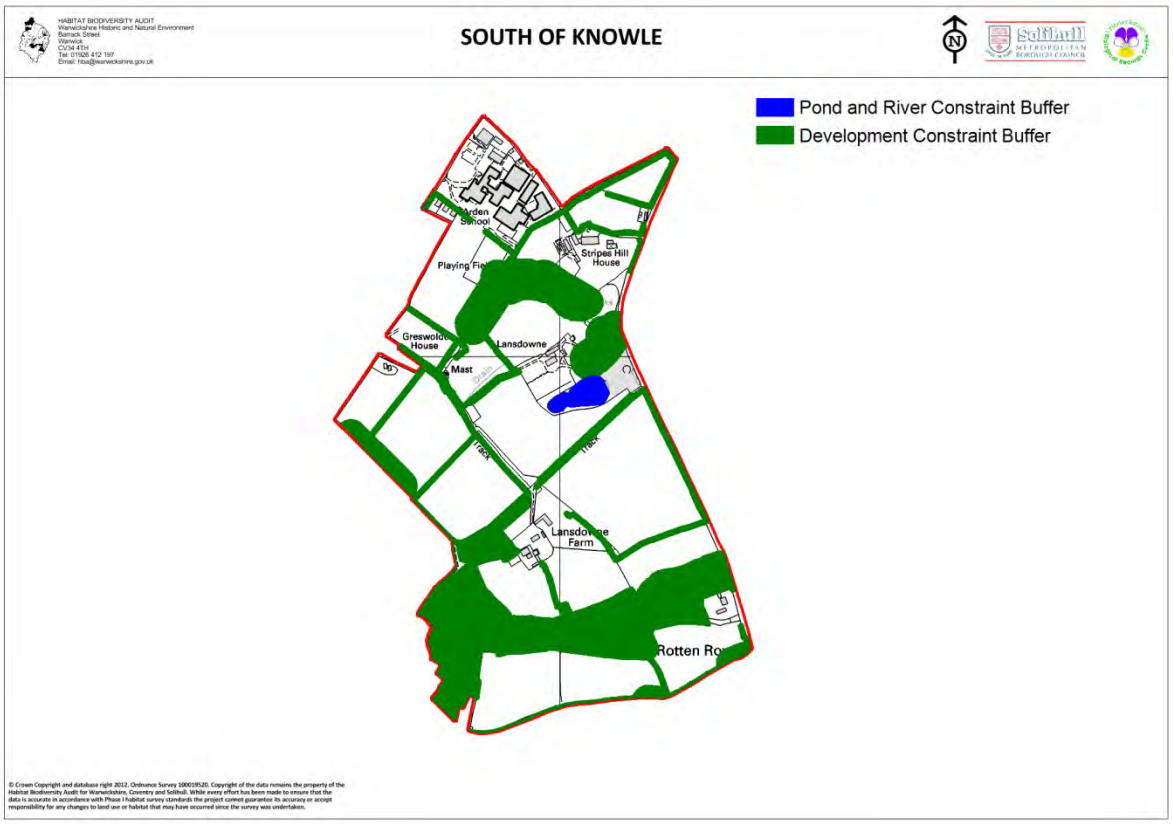

Figure 2 Constraints Map

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They include:

- 30m buffer around woodland
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- 8m buffers around ponds
- 5m buffer either side of intact hedgerows
- Areas of medium to high distinctiveness grassland (Values 4, 5 & 6)

Designated Sites

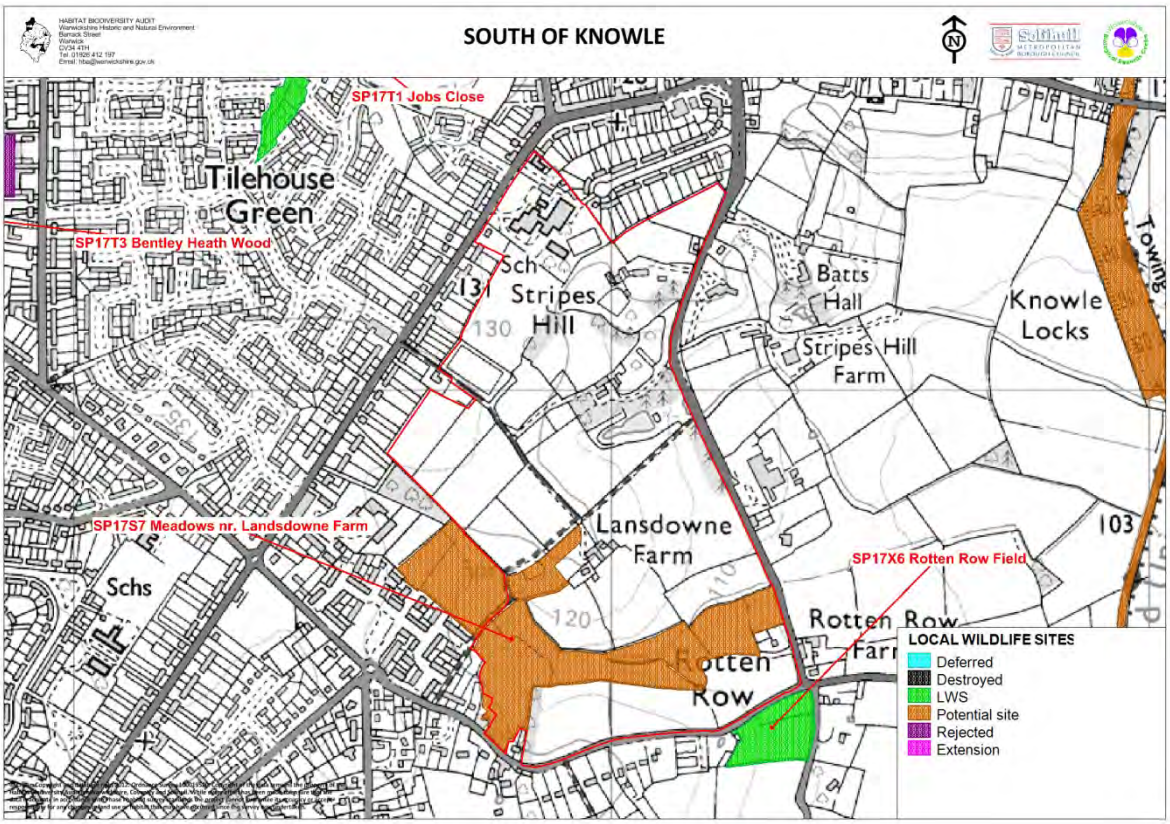

Figure 3 Site Designations

The development directly contains a potential Local Wildlife Site and lies adjacent to a Local Wildlife Site.

Local Wildlife Site

ROTTEN ROW FIELD LWS[16] **Area; 1.5 ha**

Survey Date; 22/07/03

Rotten Row Field is located on the outer edge of the proposed development parcel and is situated approximately 1km south of Knowle. The site entrance is at Barn End on Grove Road, close to the junction with the Warwick Road (A4141).

This is a relatively un-improved meadow that has become somewhat rank through lack of management in recent years. The meadow is surrounded by tall unmanaged hedges, scrub and mature trees. There is a slight incline from east to west.

The site consists of two fields, the first and larger field has not been mown or grazed for several years and the vegetation is tall (>1m) with frequent tussocks. A range of grasses and herbs are present. Lack of management has resulted in the spread of scrub into the

[16] Local Wildlife Sites Project –SP17X6 Rotten Row Field 2004 HBA, Warwick

grassland. There are small, but well-established, Oak trees at the eastern end of the field where the vegetation is most diverse, and dense Bramble at the western end and along the northern edge.

The vegetation in the smaller northern field is less diverse with encroaching Oak scrub at the eastern end of the field and dense Bramble along the other edges.
The field boundaries consist of tall, unmanaged hedges and scrub with some mature trees. The tall unmanaged hedges and trees along the boundary screen the site from the road. There is no public access to this site.

The site qualified as a Local Wildlife Site, although unmanaged, retained the characteristics of an un-improved meadow, which retains a good range of species including several un-improved grassland indicators such as Great Burnet, Black Knapweed, Meadow Vetchling, Devil's-bit Scabious and Betony. The quality of the grassland would un-doubtedly improve with appropriate management.

Potential Local Wildlife Site

MEADOWS NEAR LANDSDOWNE FARM SP17S7 Area; 9.2 ha

The meadows are summarised in the Phase 1 Target Notes. The present condition and biodiversity potential appears to be similar to Rotten Row Field LWS and as such should be surveyed to LWS survey standards.

Habitat Description

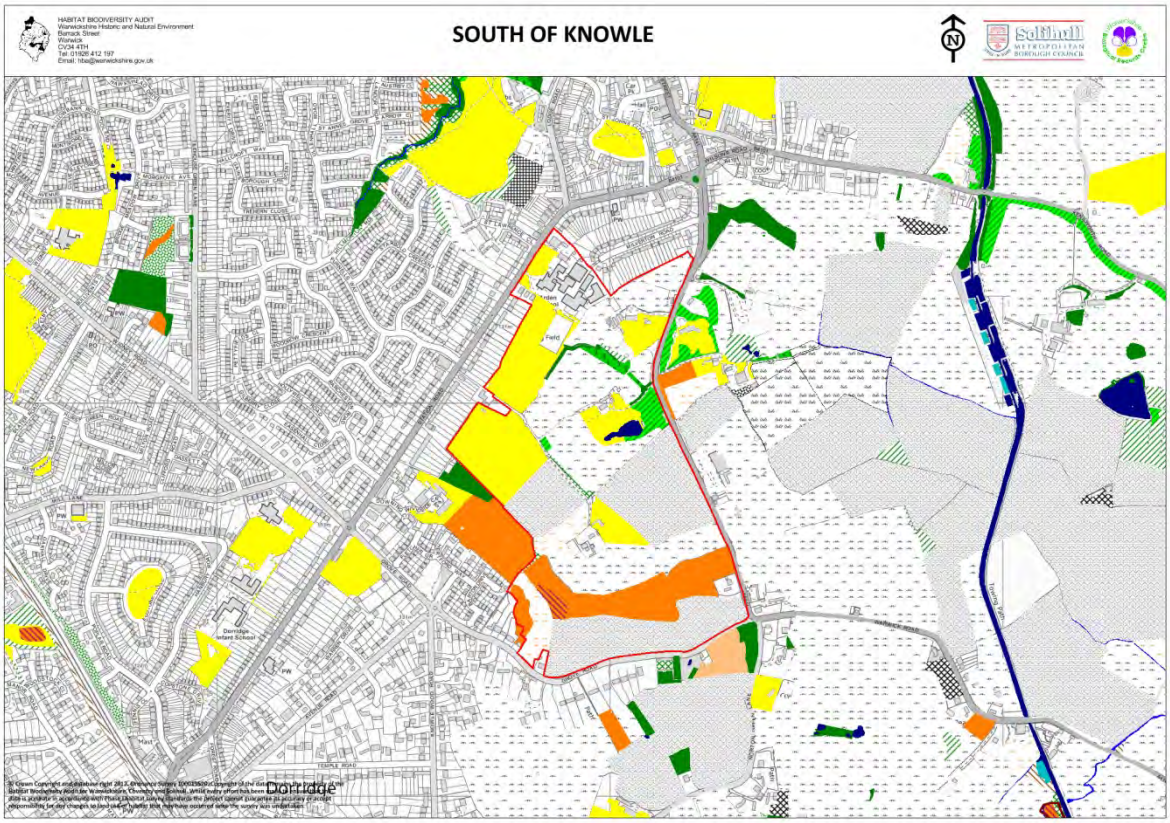

Figure 4 Phase 1 Habitats

The habitats on site consist of a mix of grasslands ranging from agriculturally improved grasslands (B4) with a low distinctiveness score through to amenity grassland (J12) with low to medium distinctiveness and semi-improved grassland (B22) with high to medium distinctiveness. The remaining habitats are mainly arable (J12) with low habitat distinctiveness and small patches of semi-natural woodland (A111), marshy grassland (B5) and ponds (G1) with high distinctiveness. The hedgerows are mainly shrubby but do provide connectivity across the area linking the small areas of semi-natural woodland.

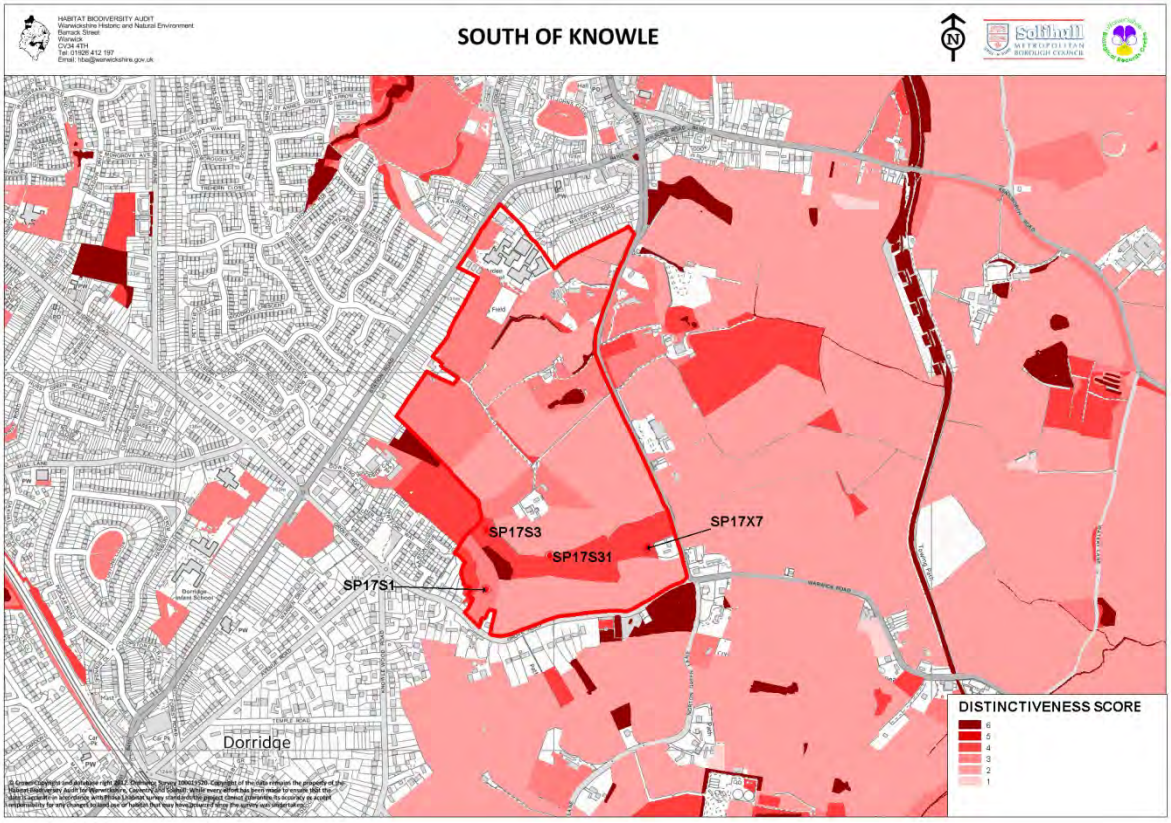

Figure 5 Phase 1 Habitat Distinctiveness & Target Notes

Target Notes

Number	Grid Reference	Survey Date
SP17X7	**SP1824675524**	**16/02/1999**

Poor neglected rank semi-improved grassland dominated by false oat-grass (Arrhenatherum elatius), cock's-foot (Dactylis glomerata) and common bent (Agrostis capillaris) with some locally frequent common knapweed (Centaurea nigra). Full assessment hampered by restricted access. Grassland appears to be used predominately for dog walking by neighbouring kennels.

SP17S31	**SP1799075503**	**03/08/2011**

Network of small fields which appear to be old pasture with a mix of wet and neutral semi-improved grassland. Not able to gain access but may merit further investigation. Possible potential Local Wildlife Site requires a detailed survey.

SP17S3 SP1782275570 03/08/2011

Poor horse grazed semi-improved grassland dominated by false oat-grass (Arrhenatherum elatius) and cock's-foot (Dactylis glomerata) with frequent hogweed (Heracleum sphondylium) and common nettle (Urtica dioica).

UPDATED 03/08/2011

Unable to gain full access, the field was grazed at time of visit and appears to be inappropriately managed as semi-improved neutral grassland and thus its condition may have deteriorated. Species present include timothy (Phleum pratense), broad-leaved dock (Rumex obtusifolius) and occasional common ragwort (Senecio jacobaea). Various meadow grasses are also present.

SP17S1 SP1782075414 03/08/2011

Disturbed perennial rye-grass (Lolium perenne) grassland re-seeded as part of drainage systems for a recently built housing estate. Some areas could be described as poor semi improved and contain species such as red clover (Trifolium pratense) and hairy tare (Vicia hirsuta).

UPDATED 03/08/2011

Private land with no public access or right of way detailed as Homes and Communities Agency.

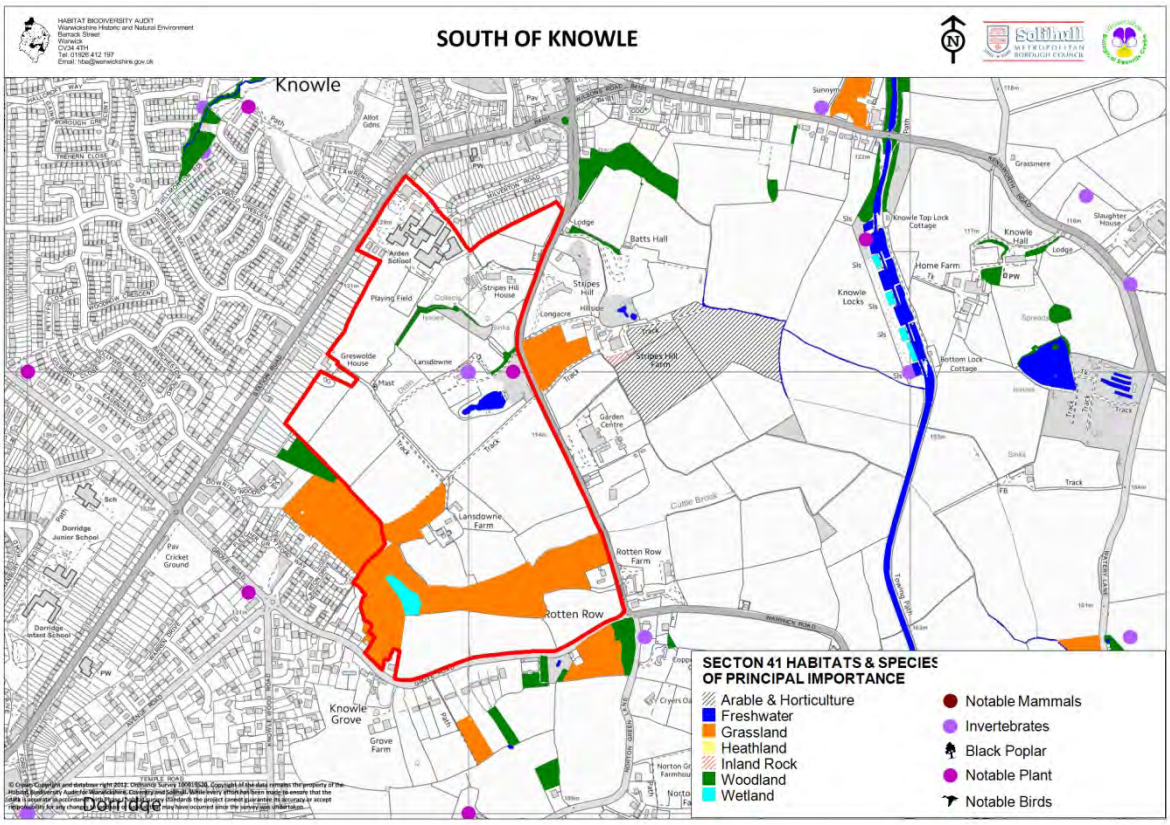

Figure 6 Section 41 Habitats & Species of Principal Importance

Habitat Connectivity

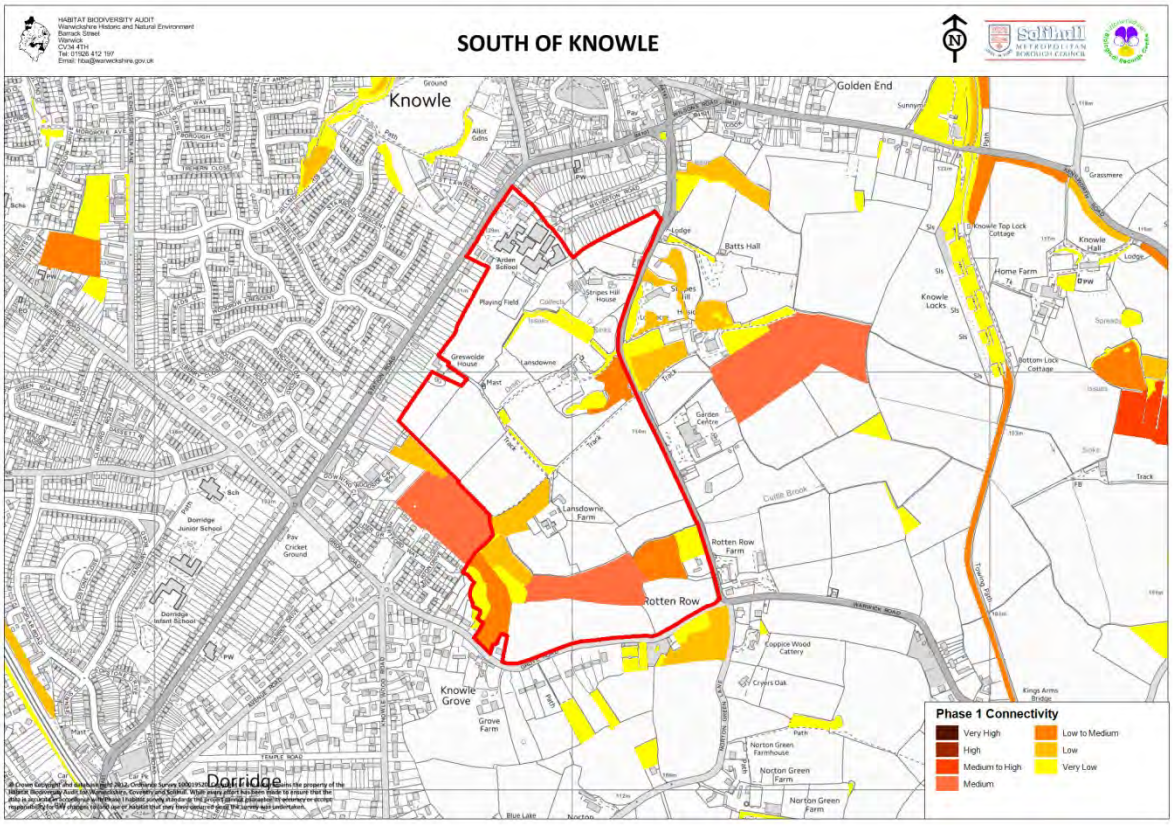

Figure 7 Habitat Connectivity

Grassland connectivity is particularly high within the development parcel represented by priority grasslands designated within Rotten Row LWS (SP17X6) and Meadows Near Landsdowne Farm pLWS (SP17S7).

Protected Species

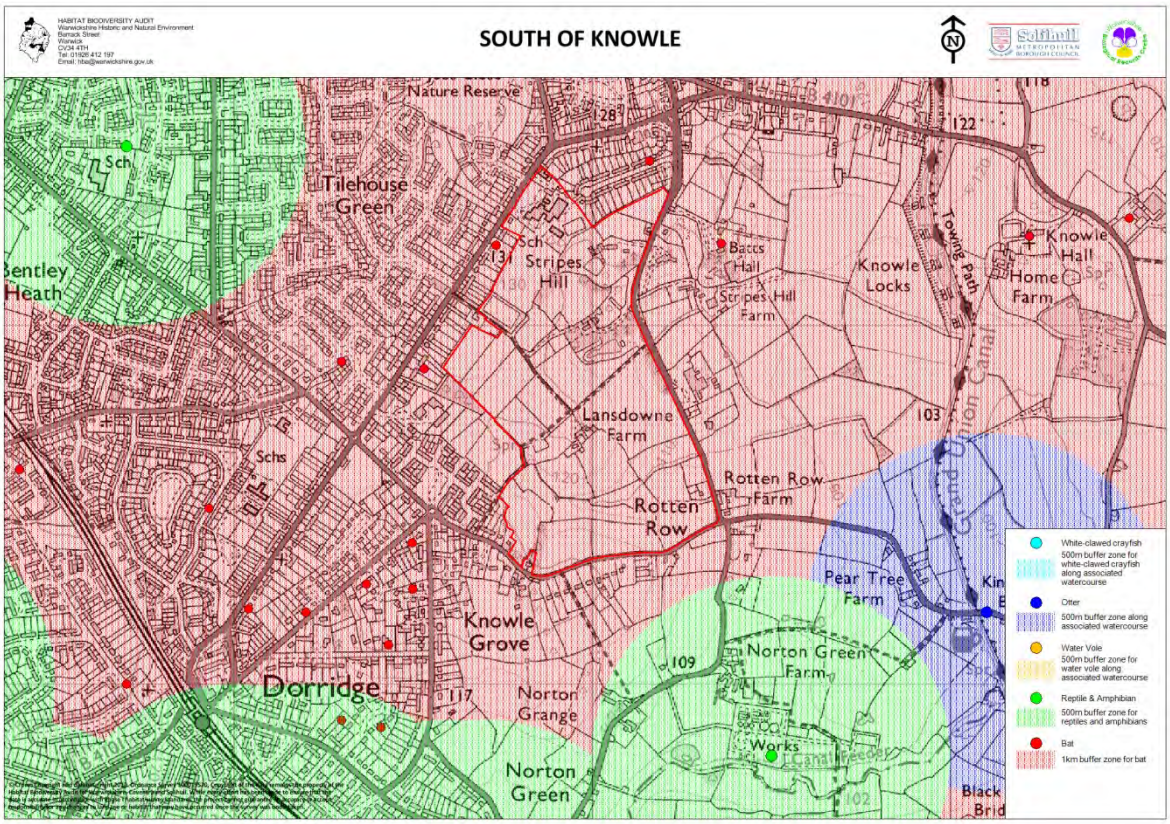

Figure 8 Protected Species

There are no protected or notable species records located within the Site boundaries but there are records of protected species nearby mainly within residential properties of the suburbs of Tilehouse Green and town of Dorridge including recent records of a roost site for three species of bat within 283m from the south-western corner of the development parcel. Other records date back to 2005 for foraging, commuting and potential roosting bats particularly Brown Long-Eared (Plecotus auritus) and Common Pipistrelle (Pipistrellus pipistrellus) bats.

We recommend that protected species are taken into consideration through more detailed ecological assessments. Please take note than an absence of species records does not mean an absence of species.

SITE: SOUTH OF SHIRLEY

Area: 29 hectares

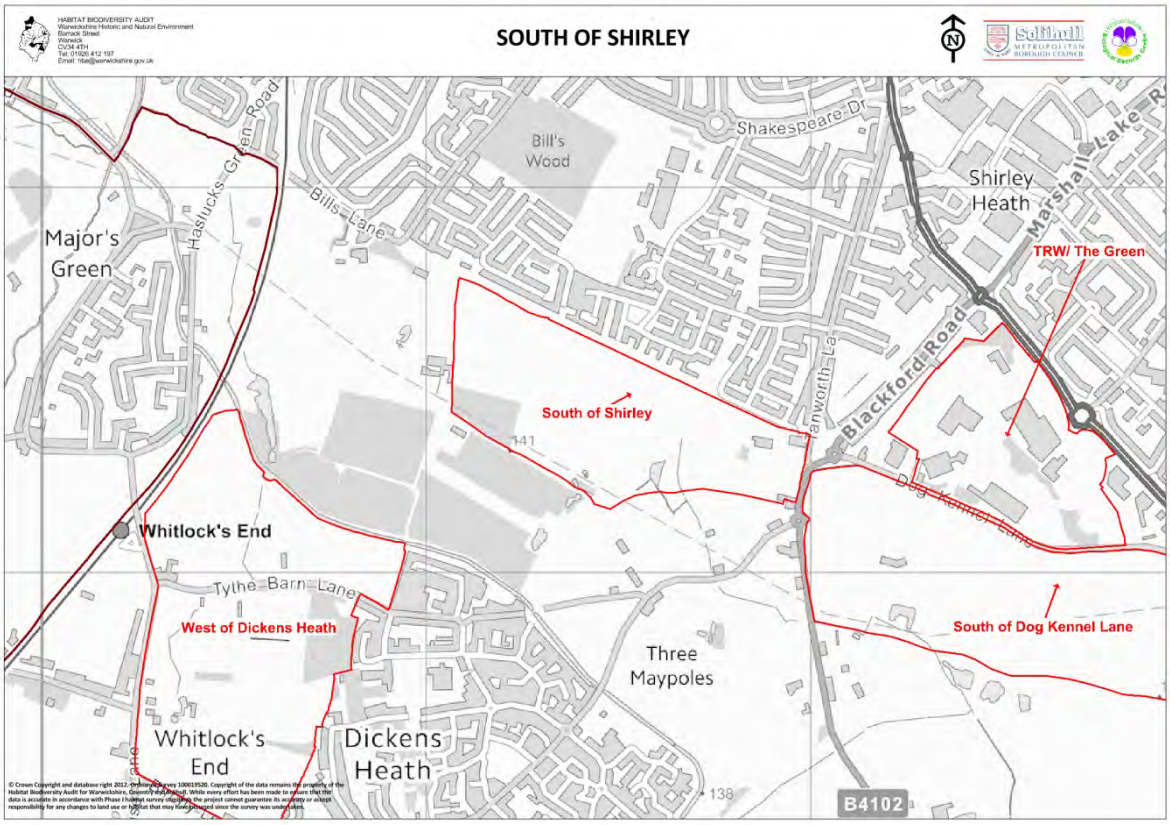

Figure 19 Site Location Map

Overview

The development parcel is bordered to the north by the continuous built-up mixed residential and retail neighbourhood of Shirley. The northern boundary adjoins the rear of properties of a number of cul-de-sacs off the more major routes of Bills Lane, Hathaway and Stretton Road close to Bill's Wood and the secondary and specialist academy of Light Hall School. The south-western boundary is dominated by large stands of coniferous plantation managed as Whitlock's End Farm with improved grassland extending to the Stratford-on-Avon Canal. To the east lies open farmland with a mix of field ponds and a small brook which joins a tributary of the River Blythe. This complex of ponds extends again to the Stratford-upon-Avon-Canal. Within the development parcel a series of small fields is surrounded by species-rich hedgerows with the more diverse grasslands along the north-east edge.

Key Features

- Priority grasslands
- Species-rich hedgerows
- Pond complex with associated broad-leaved semi-natural woodland

Recommendations

Grass margins at a width of 1.5-6 m adjacent to hedgerows and watercourses will deliver significant wildlife benefits. The enhancement and retention of such high value habitats such as hedgerows, ponds and brooks should be incorporated within development proposals.

The pond complex and their surrounding semi-natural woodland should be properly surveyed to determine local wildlife site status. This complex is also an important potential site for amphibians and reptiles, which should also be assessed in conjunction with the LWS survey.

The linear section of semi-natural grassland should be retained as green space and an important set-a-side wildlife area between the existing built up area of Shirley and the proposed development. The presence of this semi-improved neutral and marshy grassland means that there should be a strong commitment to a long term management regime of the species-rich grassland present with the development parcel. A site-specific long-term management plan is required to prevent domination of the sward by scrub and aggressive species. Long term-management should include a monitoring and evaluation programme that will enable the management regime to be adapted as necessary with the aim to determine the extent of the grassland establishment (% ground cover, bald patches and presence of leaf litter) and sward composition (grass to herb ratio, positive indicator species, negative indicator species, species with local distinctiveness).

A regime of cutting and light grazing is essential for maintaining species richness.

The species-rich hedgerows should be retained wherever possible and incorporated into site design, as they provide valuable habitat and act as important wildlife corridors connecting the district of Shirley to the open countryside to the south.

Any potentially species-rich hedgerows should be subject to a full hedgerow survey detailed in the Hedgerow Survey Handbook (2nd edition) under The Hedgerows Regulations (made under Section 97 of the Environment Act 1995). The regulations were introduced in England and Wales in 1997 to protect this characteristic element of the countryside. The Regulations prohibit the removal of most countryside hedgerows without first submitting a hedgerow removal notice to the local planning authority. Local planning authorities are able to order the retention of 'important' hedgerows but not others. The Regulations set out criteria (simplified below) to be used by the local planning authority in determining which hedgerows are important;

1. Marks a pre-1850 parish or township boundary.

2. Incorporates an archaeological feature.
3. Is part of, or associated with, an archaeological site.
4. Marks the boundary of, or is associated with, a pre-1600 estate or manor.
5. Forms an integral part of a pre-parliamentary enclosure field system.
6. Contains certain categories of species of birds, animals or plants listed in the Wildlife and Countryside Act.
7. Includes:
a) at least seven woody species, on average, in a 30 metre length;
b) at least six woody species, on average, in a 30 metre length and has at least three associated features;
c) at least six woody species, on average, in a 30 metre length, including a black poplar tree, or large-leaved lime, or small-leaved lime, or wild service tree; or open to all traffic and includes at least four woody species, on average, in a 30 metre length and has at least two of the associated features listed below. The associated features are:
i) a bank or wall supporting the hedgerow;
ii) less than 10% gaps;
iii) on average, at least one tree per 50 metres;
iv) at least three species from a list of 57 woodland plants;
v) a ditch;
vi) a number of connections with other hedgerows, ponds or woodland; and
vii) a parallel hedge within 15 metres.
d) at least five woody species, on average, in a 30 metre length and has at least four associated features. The list of 56 woody species comprises mainly shrubs and trees. It generally excludes climbers (such as clematis, honeysuckle and bramble) but includes wild roses.
8. Runs alongside a bridleway, footpath, road used as a public path, or a byway

Constraints

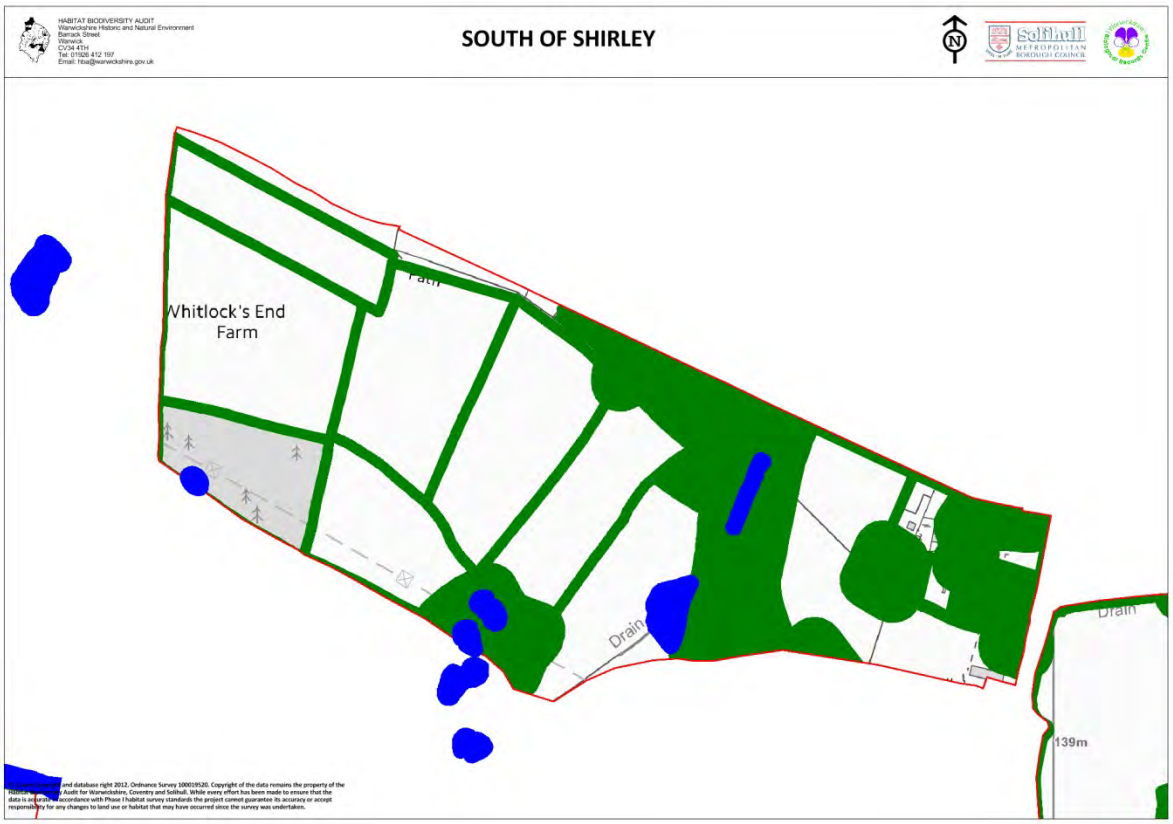

Figure 2 Constraints Map

The areas marked in green and blue on the above constraints map indicate where development should be avoided and ecological enhancement encouraged.

They include:

- 30m buffer around woodland
- 8m buffer either side of adjacent to watercourses
- 8m buffers around ponds
- 5m buffer either side of intact hedgerows
- Areas of medium to high distinctiveness grassland (Values 4, 5 & 6)

Designated Sites

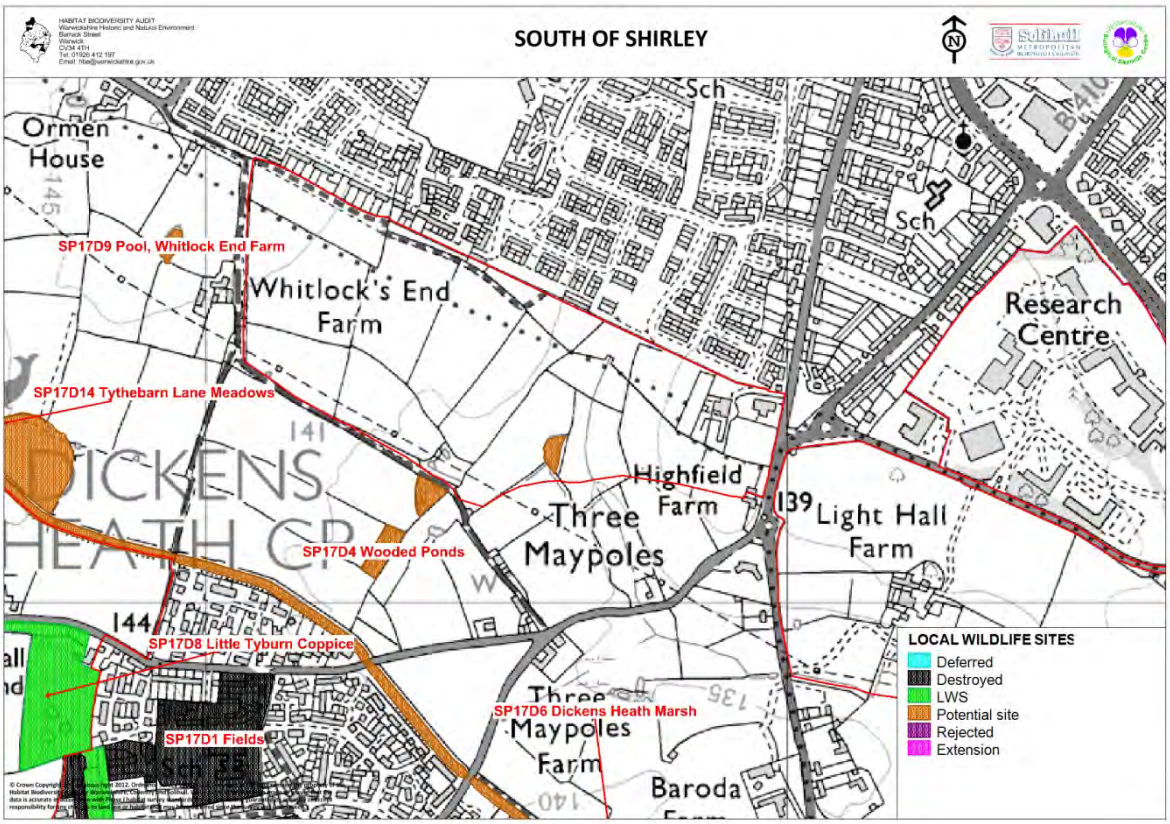

Figure 3 Site Designations

There are no designated sites within the proposed development site, there is however a potential local wildlife site consisting a series of ponds surrounded by small patches of semi-natural woodland connected by species-rich hedgerows.

Potential Local Wildlife Site

WOODED PONDS – SP17D4 **Area; 0.6 ha**

Those highlighted ponds should be subject to LWS standard survey to determine their conservation importance.

Habitat Description

The site consists mainly of species poor grassland (B6) with a medium distinctiveness score of 3 and coniferous plantation (A122) which has a low distinctiveness habitat score of 2. The higher scoring habitats are small patches of semi-natural grassland (B22) with a medium to high distinctiveness score of 5 and the small areas of semi-natural woodland (A111) and ponds (G1) with high distinctiveness scores of 6. The remaining areas are improved grasslands (B4) with low distinctiveness scores of 2 and low to medium amenity grassland (J12) with a distinctiveness score of 3.

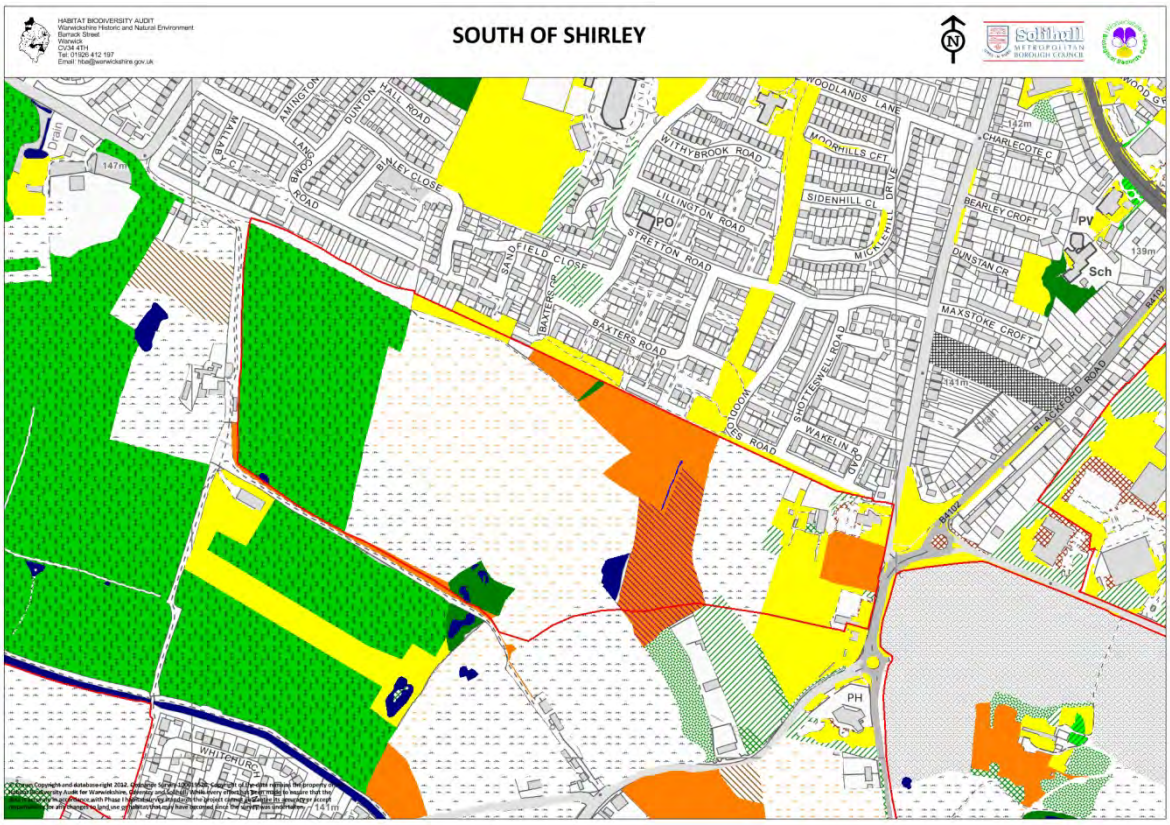

Figure 4 Phase 1 Habitats

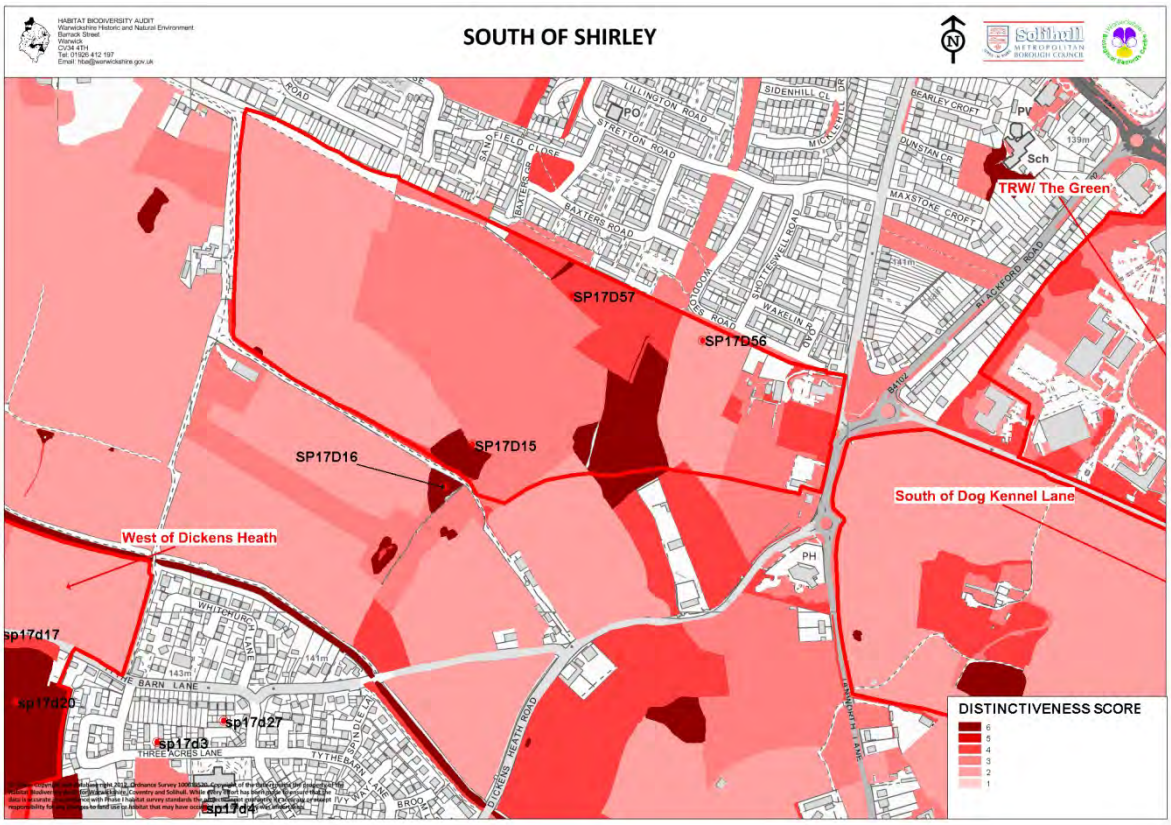

Figure 5 Habitat Distinctiveness & Target Notes

Target Notes

Number	Grid Reference	Survey Date
SP17D15	**SP1142877244**	**29/09/2011**

Small mature oak and wet alder woodland with some crack willow (Salix fragilis) in the wettest parts which contain locally dominant yellow iris (Iris pseudacorus), common nettle (Urtica dioica), great willowherb (Epilobium hirsutum), meadowsweet (Filipendula ulmaria) and reed canary-grass (Phalaris arundinacea). Within the drier areas pedunculate oak (Quercus robur) predominates with hazel (Corylus avellana) and includes bramble (Rubus fruticosus agg.), greater stichwort (Stellaria holostea), wood sage (Teucrium scorodonia) and wavy hair-grass (Deschampsia flexuosa).

SP17D16	**SP1138777179**	**21/07/1998**

Small wooded wetland feature with open water surrounded by pedunculate oak (Quercus robur) and ash (Fraxinus excelsior) woodland with some crack willow (Salix fragils) . The understorey includes hazel (Corylus avellana), holly (Ilex aquifolium), sycamore (Acer pseudoplatanus), elder (Sambucus nigra) and dog rose (Rosa canina) with a ground flora dominated by bramble (Rubus fruticosus agg.), locally abundant common nettle (Urtica dioica), hedge woundwort (Stacys sylvatica), ivy (Hedera helix), scaly male-fern (Dryopteris dilatata), honeysuckle (Lonicera periclymenum) and rosebay willowherb (Chamerion angustifolium).

SP17D56 **SP1178077402** **29/09/2011**

Series of small semi-improved grassland fields with public access throughout, fields appear to be mown rather than grazed at the time of survey. Each field is enclosed by tall trees consisting mainly of pedunculate oak (Quercus robur).

SP17D57 **SP1158077470** **29/09/2011**

Species-rich hedgerows throughout with bank and ditches comprising of mature pedunculate oaks (Quercus robur) with predominantly blackthorn (Prunus spinosa), holly (Ilex aquifolium), dog rose (Rosa canina), occasional ash (Fraxinus excelsior) androwan (Sorbus aucuparia).

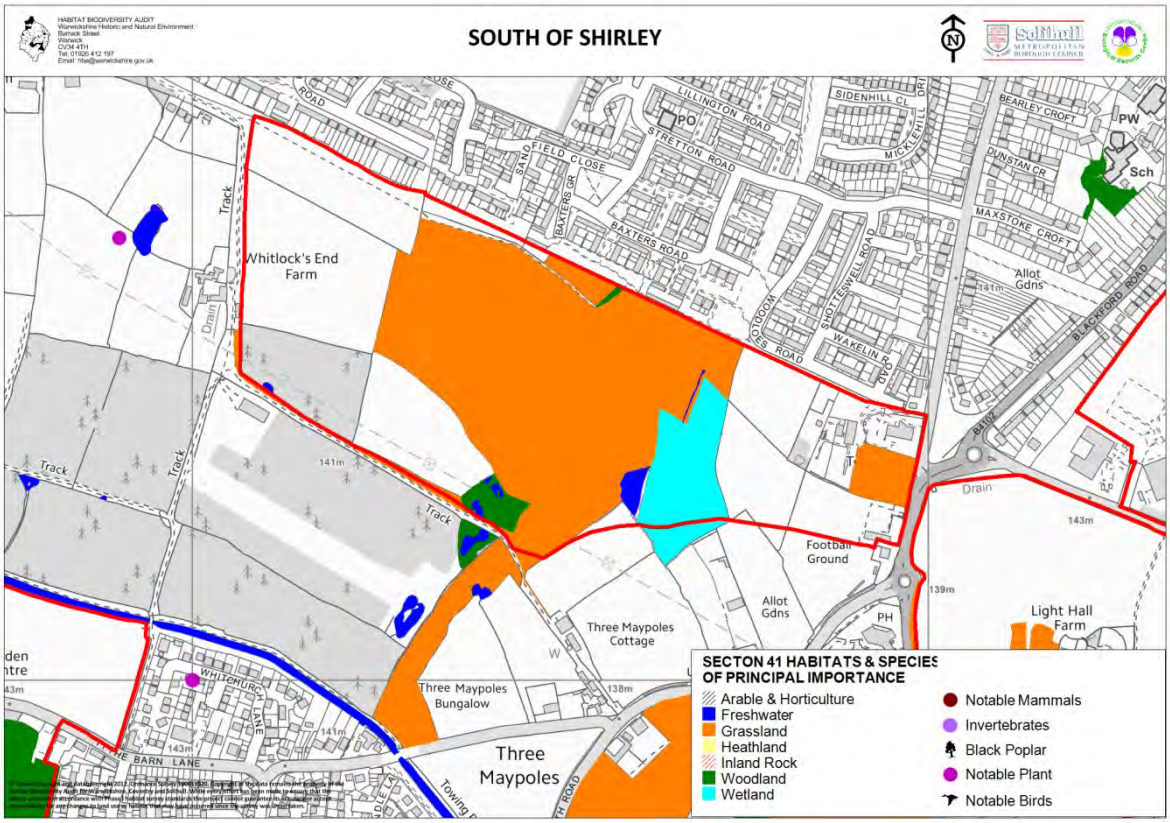

Figure 6 Section 41 Habitats & Species of Principal Importance

Habitat Connectivity

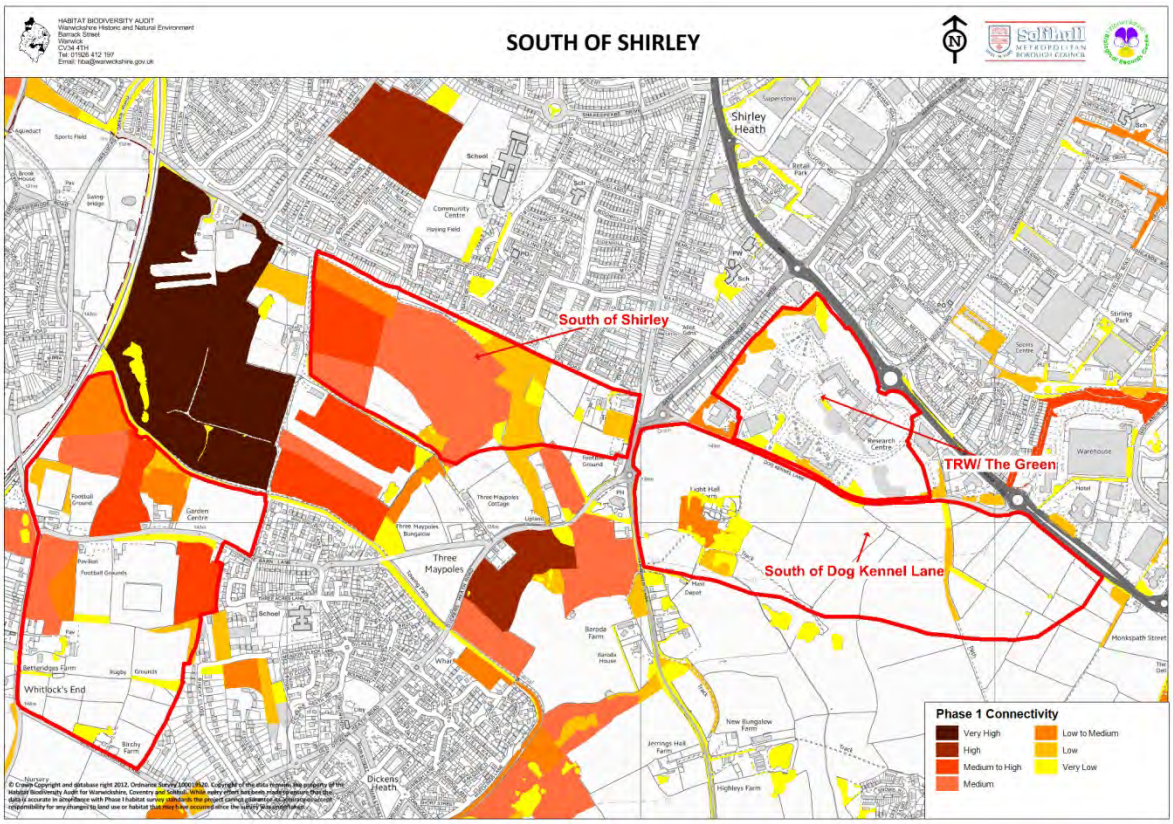

Figure 7 Habitat Connectivity

The development parcel retains good grassland connectivity because of a central band of priority grasslands joining well-connected semi-natural habitats particularly plantation woodland to the west and south-west.

Protected Species

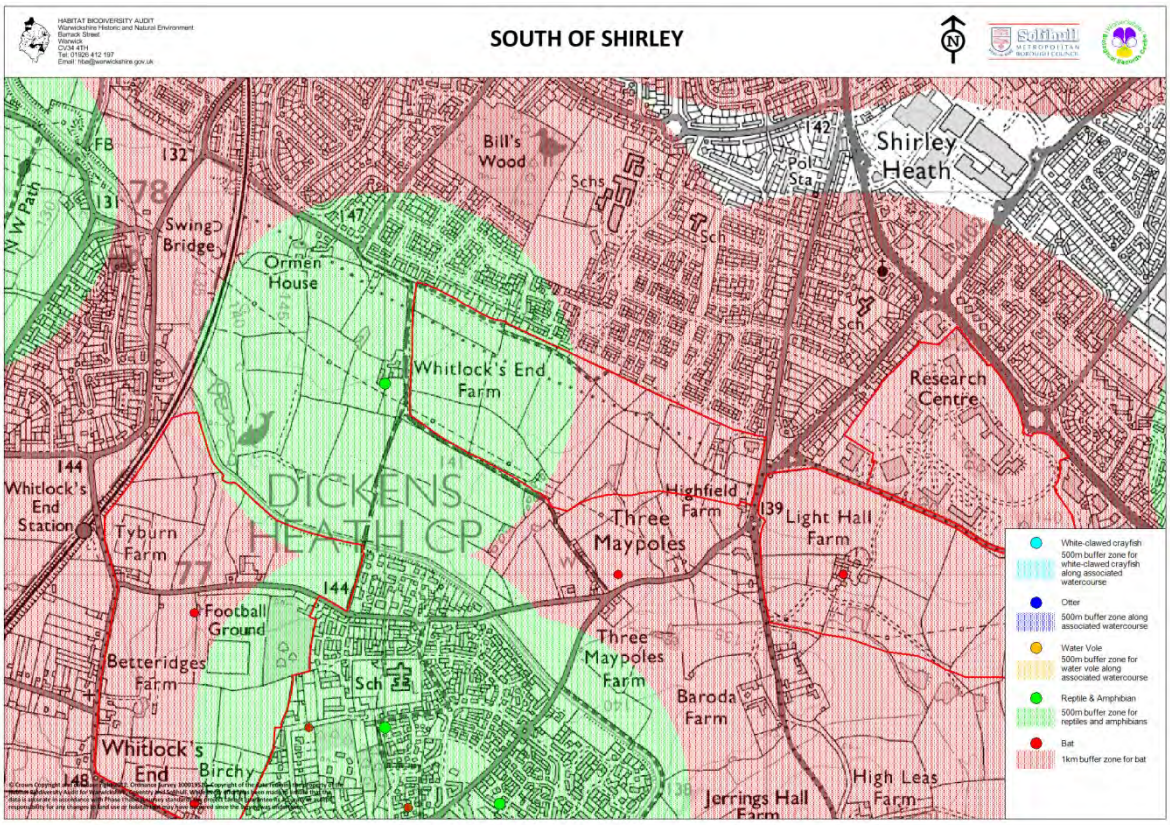

Figure 8 Protected Species

Common pipistrelle (Pipistrellus pipistrellus) were recorded roosting along the Stratford-Upon-Avon-Canal in 2006. Records of Smooth newt (Lissotriton vulgaris) were recorded within Whitlock's End Farm as part of protected species surveys carried out in 2007.

The presence or absence of great crested newts within the network of ponds on site will need to be confirmed prior to development proposals and works. Should the presence of great crested newts be confirmed an assessment of the status and distribution of the population will be required.

TRW & THE GREEN

Area: 20 hectares

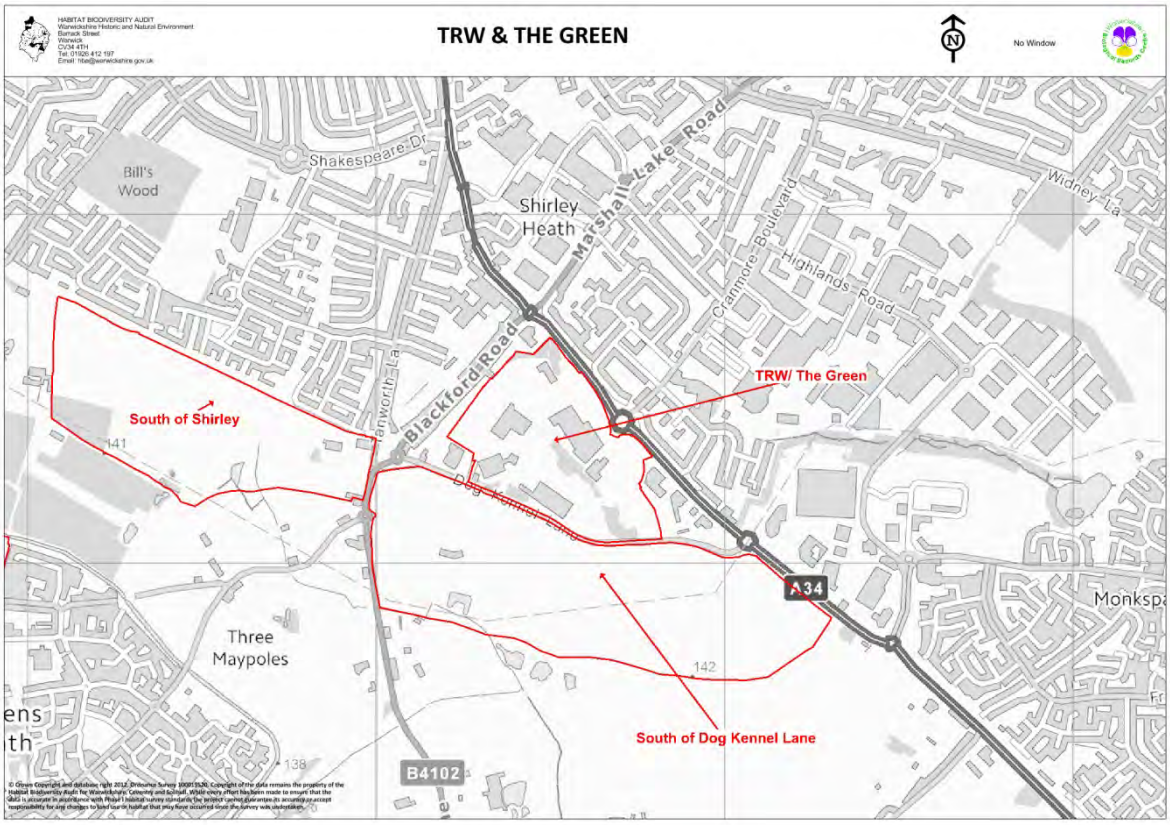

Figure 20 Site Location Map

Overview

The development parcel embraces the TRW and Conekt Engineering Technical Centre and small retail complex surrounded by amenity grassland, introduced scrub and areas of plantation woodland and individual trees. The site forms a triangle between Blackford Road to the east and the Stratford Road (A34) to the west with open farmland encompassing Light Hall Farm beyond the southern boundary of Dog Kennel Lane.

Mature trees particularly pedunculate oak (Quercus robur) are scattered across the development parcel and are important features in an otherwise developed landscape.

Key Features

- Broad-leaved plantation woodland
- Mature trees

Recommendations

The areas of existing plantation woodland should be retained and where possible increased to create continuous areas or corridors of woodland.

Trees within the development parcel that are subject to a Tree Preservation Order (TPO; Town and Country Planning Act 1990), require consent from the local planning authority before such protected trees are cut down, topped or lopped.

Veteran and mature trees particularly within hedgerows be retained and incorporated with the development in areas of open space. The inclusion of hedgerows and avenues will connect woodland and veteran trees that would otherwise be separated by development. An appropriate buffer zone of semi-natural habitat between the development and the veteran tree should be determined by an appropriate arboriculturist but a minimum buffer should be at least 15 metres. During construction, screening barriers will protect veteran trees from dust and pollution.

The proposed change of land use should use sensitive management and design and incorporate appropriate native planting to increase site biodiversity and create and enhance wildlife corridors. Mature hedgerows interspersed with well-developed trees marking the periphery of the site in relation to the no net loss of bioveristy should almost certainly be retained.

Veteran trees and mature hedgerows are irreplaceable and therefore compensation measures can only partially compensate for damage, the management of aged trees and replacing lost veteran trees is a last resort.

Constraints

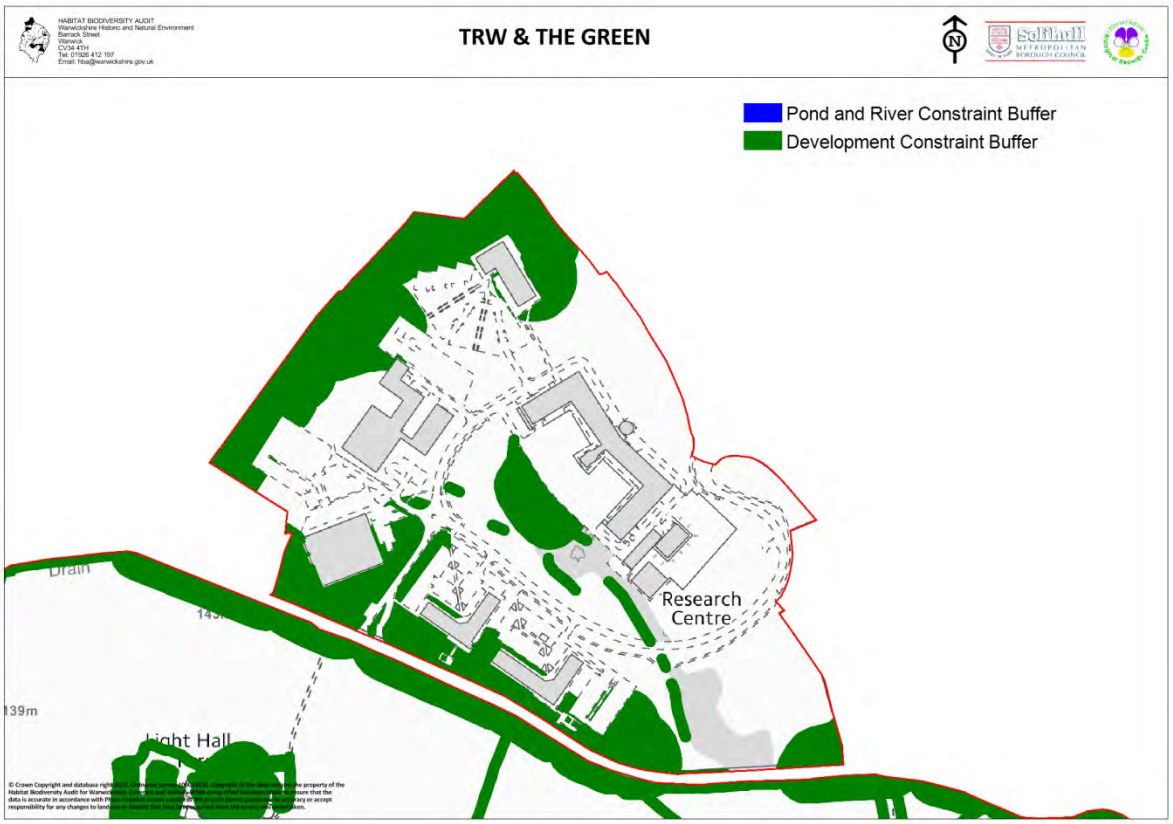

Figure2 Constraints Map

The areas marked in green and blue on the above constraints map indicate where development should be avoided and ecological enhancement encouraged.

They include:

- 30m buffer around woodland
- 8m buffer either side of adjacent to watercourses
- 8m buffers around ponds
- 5m buffer either side of intact hedgerows
- Areas of medium to high distinctiveness grassland (Values 4, 5 & 6)

Designated Sites

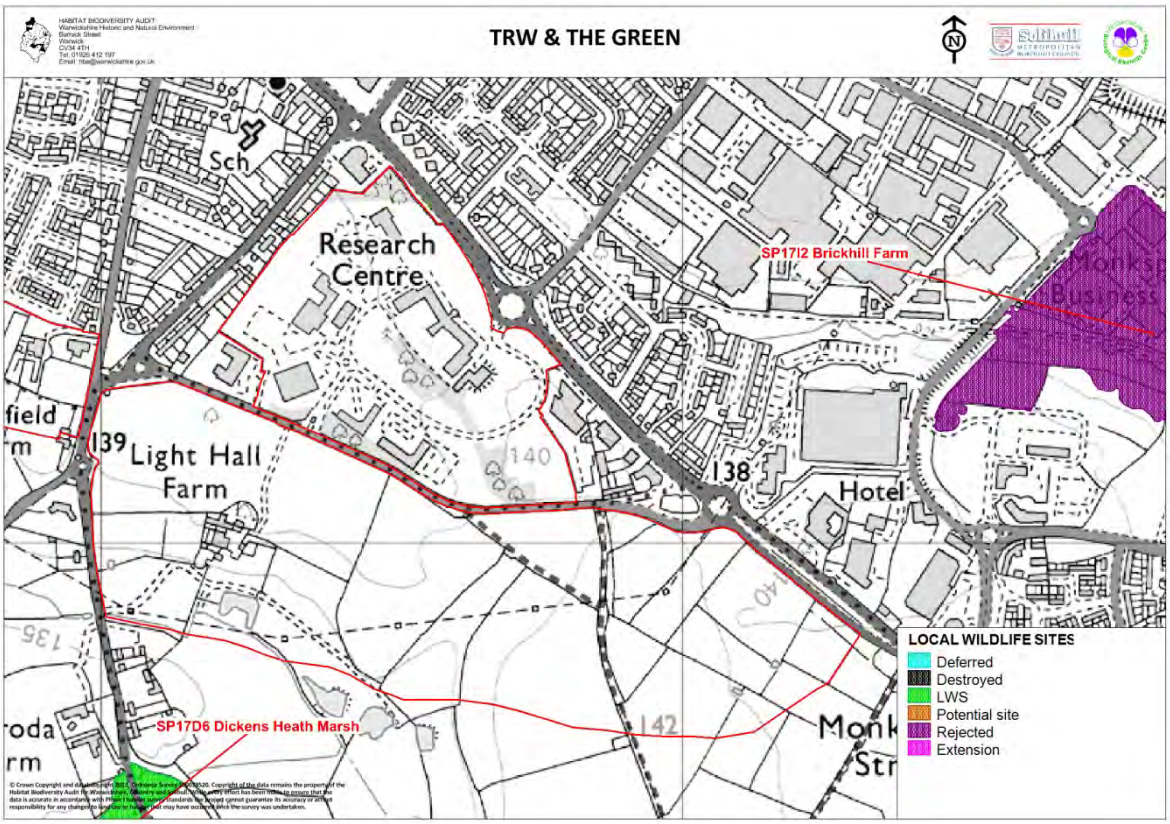

Figure 3 Designated Sites

There are no designated or potential sites present within or close to the development parcel.

Habitat Description

The site consists mainly of amenity grassland (J12) with low to medium habitat distinctiveness surrounding existing buildings and small stands of broad-leaved plantation woodland (A112) with a habitat medium distinctiveness score of 3.

Introduced scrub (J14) accompanies amenity areas particularly surround access roads and office fronts.

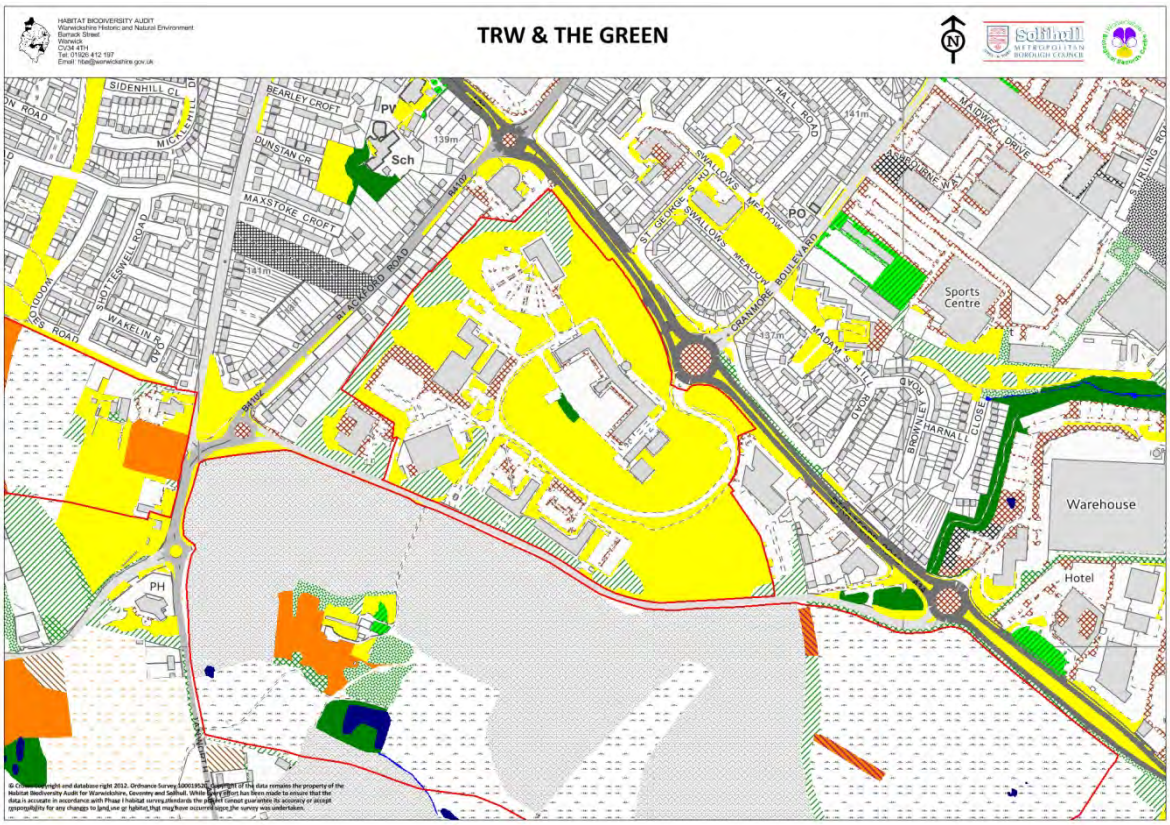

Figure 21 Phase 1 Habitats

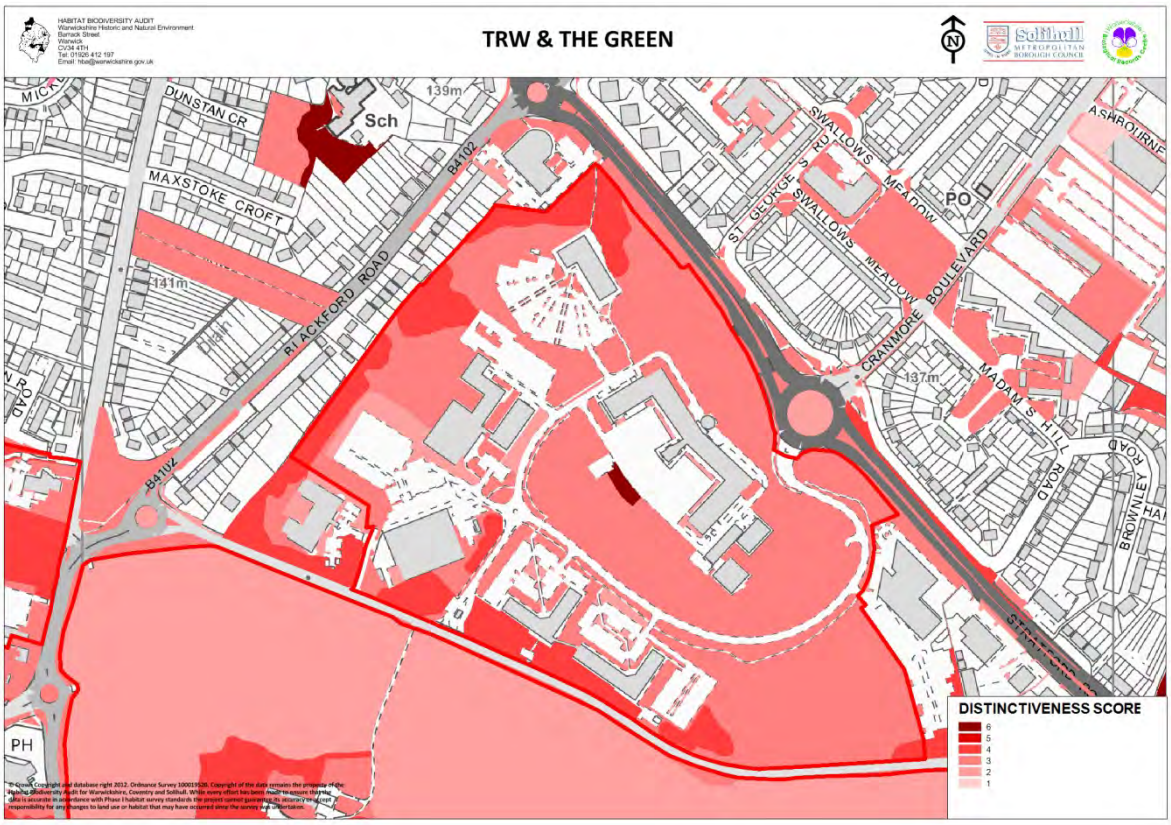

Figure 22 Phase 1 Habitat Distinctiveness &Target Notes

Highly distinct habitats comprise of broad-leaved plantation woodland and veteran trees particular on the periphery of the parcels boundaries.

Target Notes

There are no target notes recorded within or close to the site.

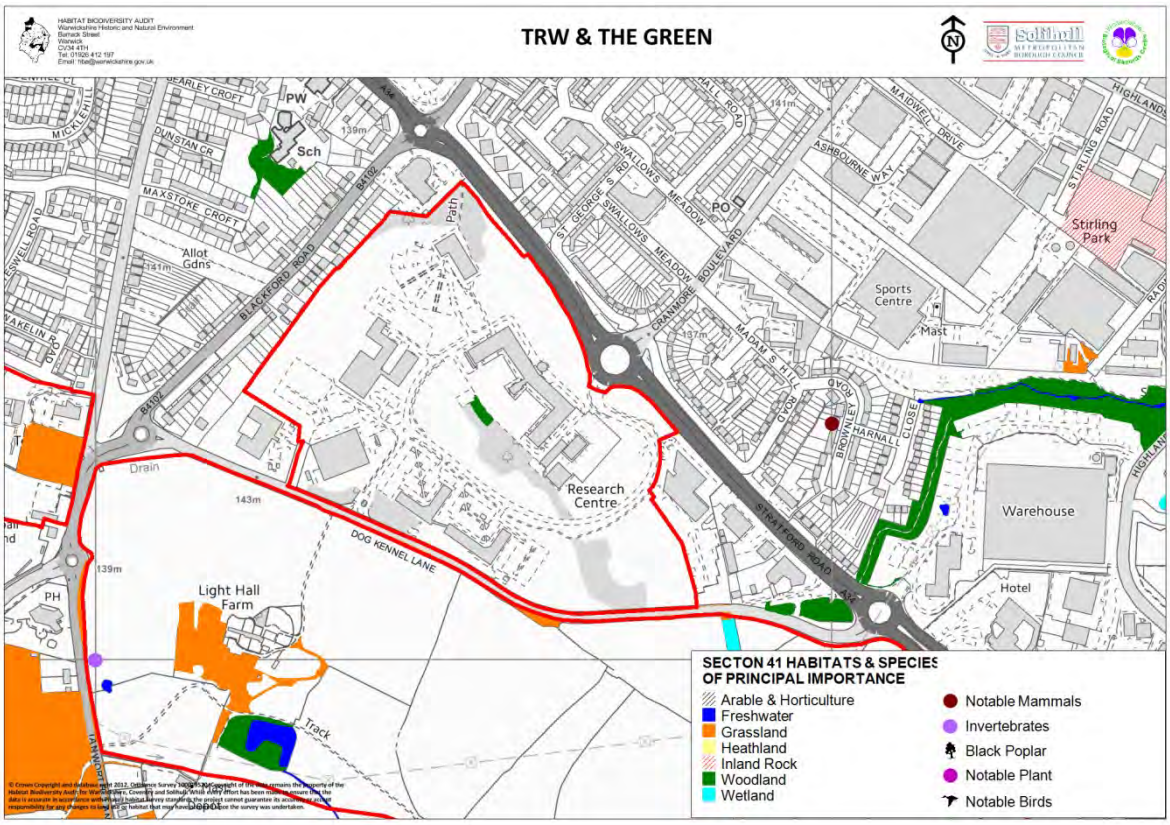

Figure 23 Section 41 Habitats and Species of Conservation

Habitat Connectivity

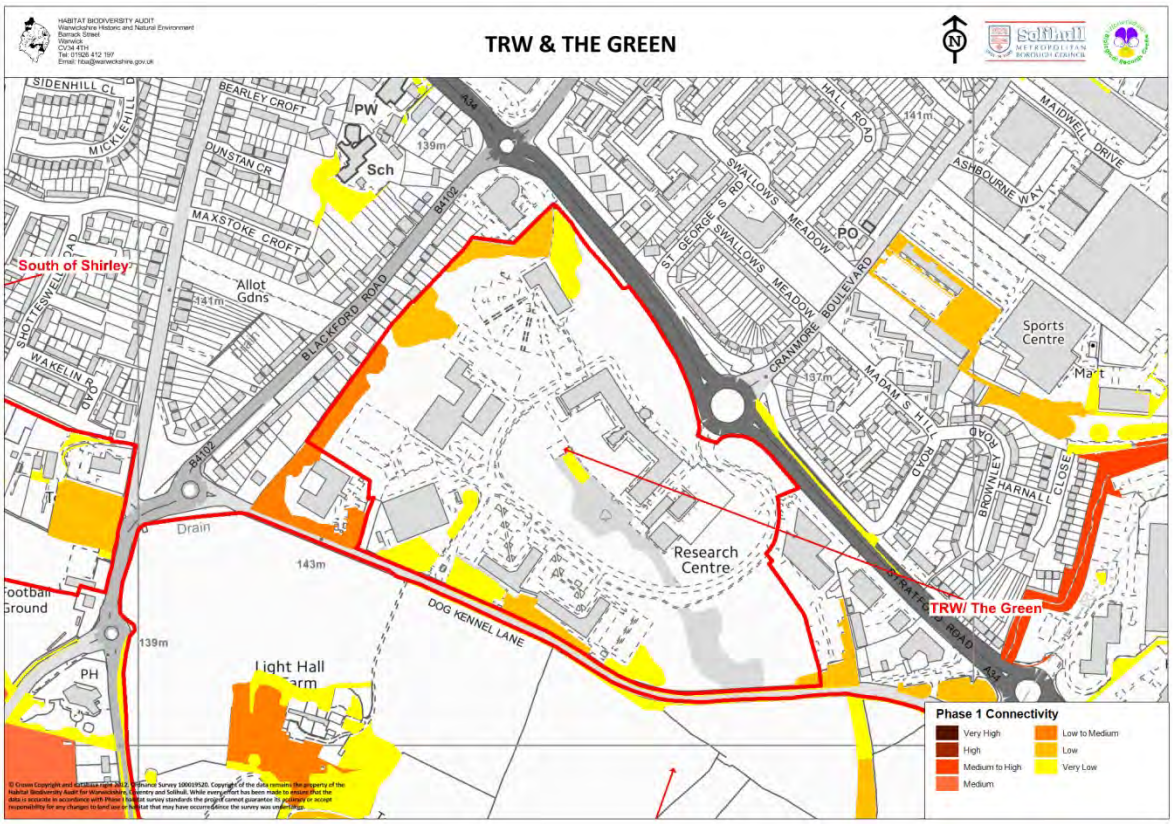

Figure 24 Phase 1 Habitat Connectivity

Broad-leaved plantation woodland and stands of veteran and planted amenity trees occupy Low to Medium connectivity. As part of any proposed works these corridors of woodlands and trees should be enhanced to provide a network of tree cover suitable for supporting a range of biodiversity.

Protected Species

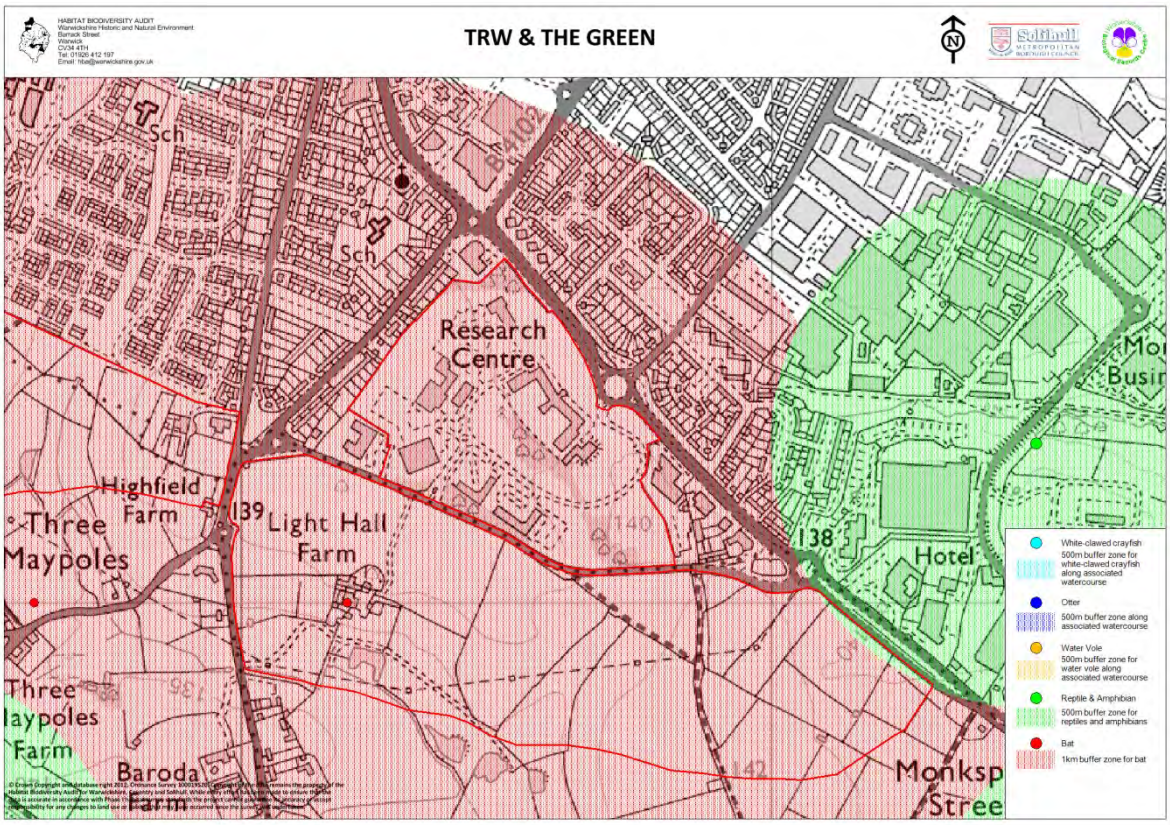

Figure 25 Protected Species

Dated records for un-determined bat activity for both common (Pipistrellus pipistrellus) and soprano pipistrelle (Pipistrellus pygmaeus) were recorded from Light Hall Farm under 1km from the development parcel in 1999 by Warwickshire Bat Group.

We recommend that protected species are taken into consideration through more detailed ecological assessments particularly with regards the potential for bats to be roosting within the veteran and mature trees on site.

WEST OF DICKENS HEATH

Area: 46 hectares

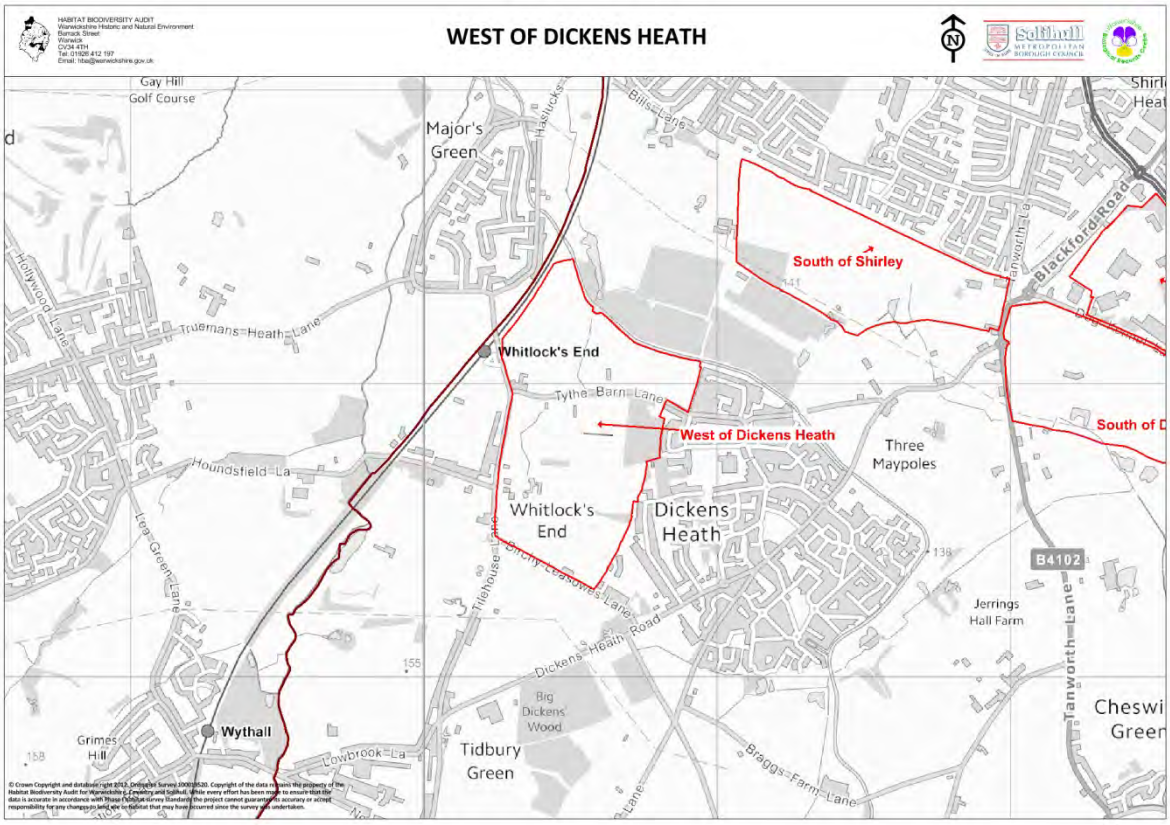

Figure 26 Site Location Map

Overview

The development parcel is 46 hectares bounded by the existing residential village of Dickens Heath to the east and the smaller settlement of Whitlock's End to the west. The northern boundary tracks the Stratford-on-Avon-Canal before the eastern boundary traces the rural/urban fringe of those residential properties contained within Dickens Heath.

The southern boundary shadows Birchy Leasowes Lane containing Birchy Farm before opening out to the wider rural landscape. The western margin finds Tilehouse Lane encompassing the hamlet of Whitlock's End including Betteridges Farm and Tidbury Stables. The western edge continues northwards enclosing Tyburn Farm and the junction of Tythe Barn Lane before drawing eastwards along the North Warwickshire Rail Line after meeting Whitlock's End Railway Station.

Tythe Barn Lane splits the northern section of the development parcel from the Stratford-upon-Avon Canal. The northern section embodies Akamba Heritage and Garden Centre together with Shirley Town Football Club. Leafield Athletic Football Club is accessed off Tythe barn Lane together with Highgate United F.C and Old Yardleians R.F.C. in the southern section.

The site incorporates two local wildlife sites, Tythebarn Lane Meadows and Little Tyburn Coppice. The northern section of the site also includes Tythebarn Lane Meadows potential Local Wildlife Site Extension. These sites incorporate important areas of priority grassland including MG5 meadow grassland which has been declining nationally and the nationally scarce MG4 wet grassland. These areas of priority grassland have been increasingly poorly managed due primarily to over-grazing.

The remaining grasslands are either used as amenity grassland embraced within sports playing pitches or have been improved as part of intensive agriculture.

The field parcels are connected by a rich network of hedgerows which are characteristic landscape features and important wildlife corridors for the surrounding area.

A number of potential local wildlife sites have been lost due to the expansion of Dickens Heath including semi-improved grasslands and semi-natural woodland. This urban development of Dickens Heath has created a series of isolated habitat patches.

Key Features

- Tythebarn Meadows Local Wildlife Site (SP17D3)
- Tythebarn Lane potential Local Wildlife Site (SP17D14)
- Tyburn Coppice Local Wildlife Site (SP17D8)
- Stratford-upon-Avon Canal potential Local Wildlife Site (SP15Li1T)
- Priority grassland meadows and wet/marshy grassland
- Broad-leaved semi-natural woodland
- Species rich-hedgerows and important habitat corridors

Recommendations

Consideration should be given to maintaining, improving and joining together the remaining areas of semi-improved grasslands to prevent habitat isolation and the continued fragmentation of both the woodlands and grasslands present within the wider landscape and in close proximity to the development parcel.

Likewise, the existing network of hedgerows should be retained and enhanced as far as possible to provide an interconnected corridor both within the development site and the surrounding countryside parallel to grassland and woodland compartments. Any potentially species-rich, important or periphery hedgerows should be subject to a full hedgerow survey detailed in the Hedgerow Survey Handbook (2nd edition) under The Hedgerows Regulations (made under Section 97 of the Environment Act 1995). The regulations were introduced in England and Wales in 1997 to protect this characteristic element of the countryside. The Regulations prohibit the removal of most countryside hedgerows without first submitting a hedgerow removal notice to the local planning authority.

There are opportunities to create a wildlife buffer along the Stratford-upon-Avon Canal which could also incorporate semi-improved grassland. An adequate buffer zone should

be placed between any proposed development and the canal as not to adversely affect the character and value of the watercourse. Any proposed development at a minimum should not be within 8 metres of the canal, the vegetated buffer zone of native plant species will allow the retention of any trees and shrubs along this boundary. Given the isolated and rural nature of this section of the Stratford-upon-Avon Canal it is recommended that this buffer be increased exponentially.

We would recommend a re-survey of the existing Tythebarn Lane Meadows LWS and a survey of the potential extension to the northern meadows along the Stratford-upon-Avon Canal. By re-assessing the areas of priority grassland it would be possible to then create a continuous area of grassland with an integrated mosaic of existing small woodland patches and interconnecting hedgerows. Priority grasslands should be protected and appropriately managed for their conservation interest rather than for amenity use.

Consequently a steadfast approach to access and appropriate land use should be included within a long term management regime of the species-rich grassland present with the development parcel. A site-specific long-term management plan is required to prevent domination of the sward by invasive, opportunistic and aggressive species. In addition to controlling and preventing localized human-induced disturbance like increased levels of human encroachment activities, grassland recreation, dog fouling and the increased likeliness of garden plant introduction, litter and fly-tipping.

Long term-management should include a monitoring and evaluation programme that will enable the management regime to be adapted as necessary with the aim to determine the extent of the grassland establishment (% ground cover, bald patches and presence of leaf litter) and sward composition (grass to herb ratio, positive indicator species, negative indicator species, species with local distinctiveness).

A regime of cutting and light grazing is essential for maintaining species richness.

A wooded buffer of 30m and the use of passive management techniques such as fencing should be applied to the semi-natural broad-leaved woodland comprised within Little Tyburn Coppice (SP17D8) if development proceeds to limit woodland disturbance, protect against woodland edge effects and intrusion activities therefore clearly delineating private from public land use. Intrusion activities range from waste disposal, woodland recreation, garden extension and garden plant invasion.

Constraints

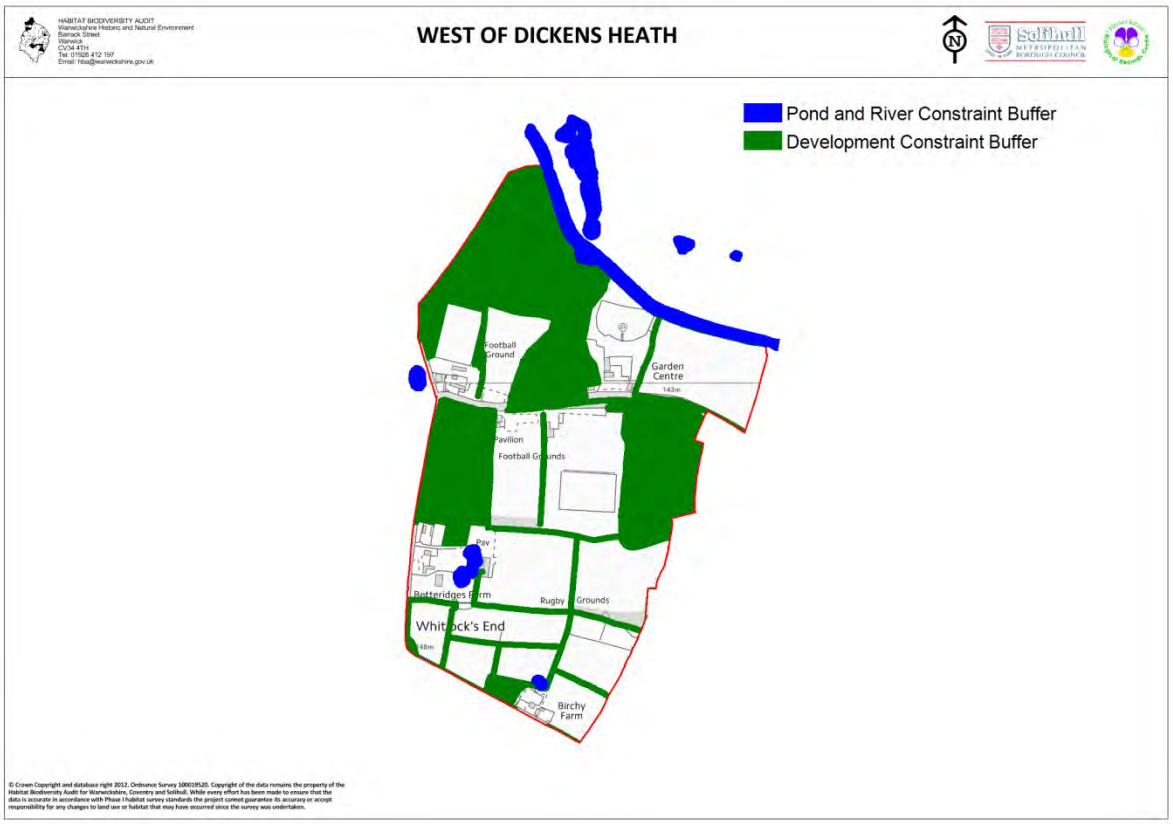

Figure 2 Constraints Map

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They include:

- 30m buffer around woodland
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- Areas of medium to high distinctiveness grassland (Values 4, 5 & 6)

Designated Sites

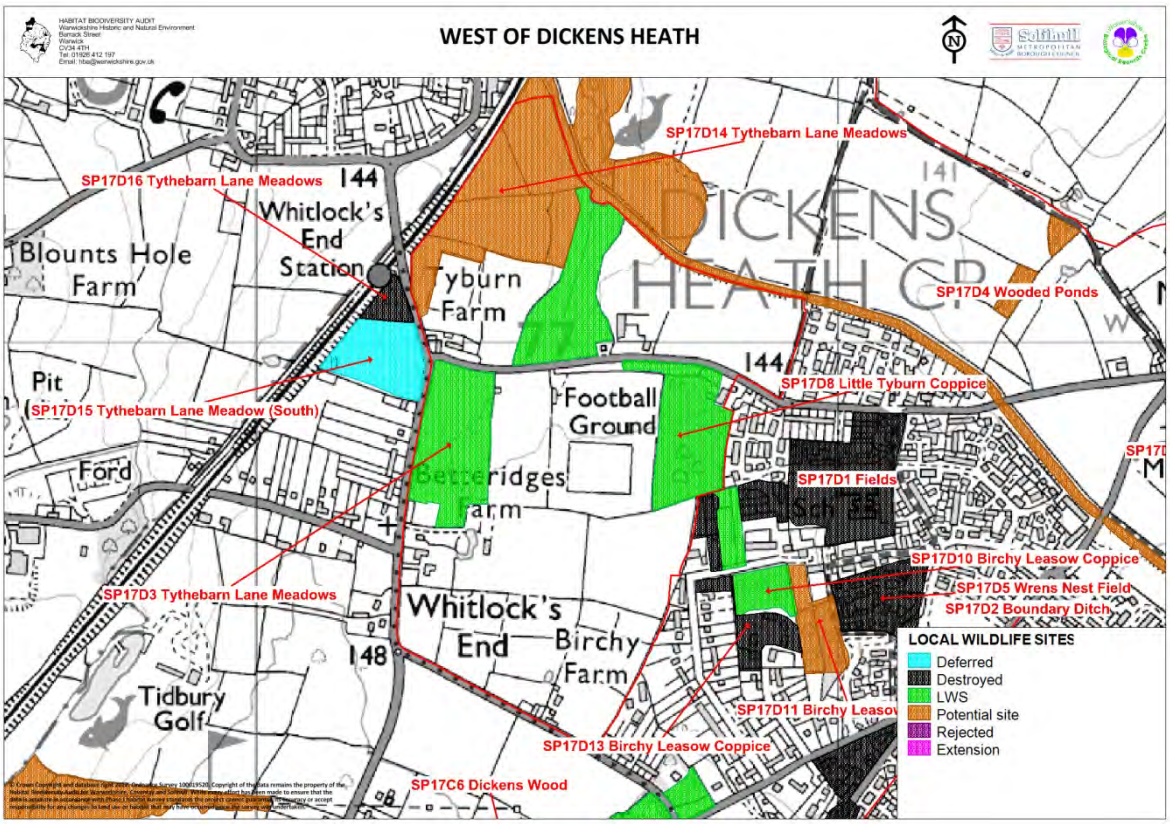


Figure 27 Designated Sites

The development parcel encompasses two LWS, two pLWS and lies adjacent to a series of destroyed sites now enclosed within residential development inside the village of Dickens Heath.

Local Wildlife Site

TYTHEBARN LANE MEADOWS LWS[17] SP17D3 Area; 6 ha

Survey Date; 29/05/2000

Tythebarn Lane Meadows consists of two fields either side of Tythebarn lane in the south west of Solihull District. These two fields are part of a larger area of several semi-improved fields managed by the same owners for horse grazing. The Stratford upon Avon Canal forms the Northern boundary to the site which is otherwise surrounded by amenity grassland, housing and improved grassland. Little Tyburn Coppice LWS is adjacent to the East. Tythebarn Lane Meadows LWS is comprised of two mesotrophic grassland pastures of approximately 3 ha each.

[17] Local Wildlife Sites Project SP17D3 – Tythebarn Lane Meadows 2000 HBA, Warwick

All the semi-improved fields south of the canal were considered for inclusion in the Tythebarn Lane Meadows LWS. Only two of these fields where selected for inclusion despite Phase 1 Habitat Data indicating they were all of similar quality. The LWS Phase II Survey found them to be heavily grazed and species-poor. They may recover to become LWS quality if an appropriate grazing regime is re-established.

SP17D8 LITTLE TYBURN COPPICE LWS[18] Area; 2.8 ha

Survey Date; 10/05/2000

Little Tyburn Coppice LWS consists of 2.15 ha of woodland and 0.33 ha of pasture situated to the north of Dickens Heath village. Dickens Woods is native woodland situated to the south of the village about 1/2 km away. Tythebarn Lane Meadows LWS is also nearby, 50m to the North-West. Small remnants of Birchy Leasow Coppice ancient woodland are immediately adjacent to the south.

Potential Local Wildlife Sites

TYTHEBARN LANE MEADOWS SP17D14;

This pLWS contains multiple owners and contact for permissions has proven very difficult. Locating the owner of each parcel has been problematic due to boundaries transecting roads and canal paths – **UPDATED 2012**

STRATFORD-UPON-AVON CANAL SP15Li1t;

Valuable wildlife and habitat corridor.

[18] Local Wildlife Sites Project SP17D8 – Little Tyburn Coppice 2000 HBA, Warwick

Habitat Description

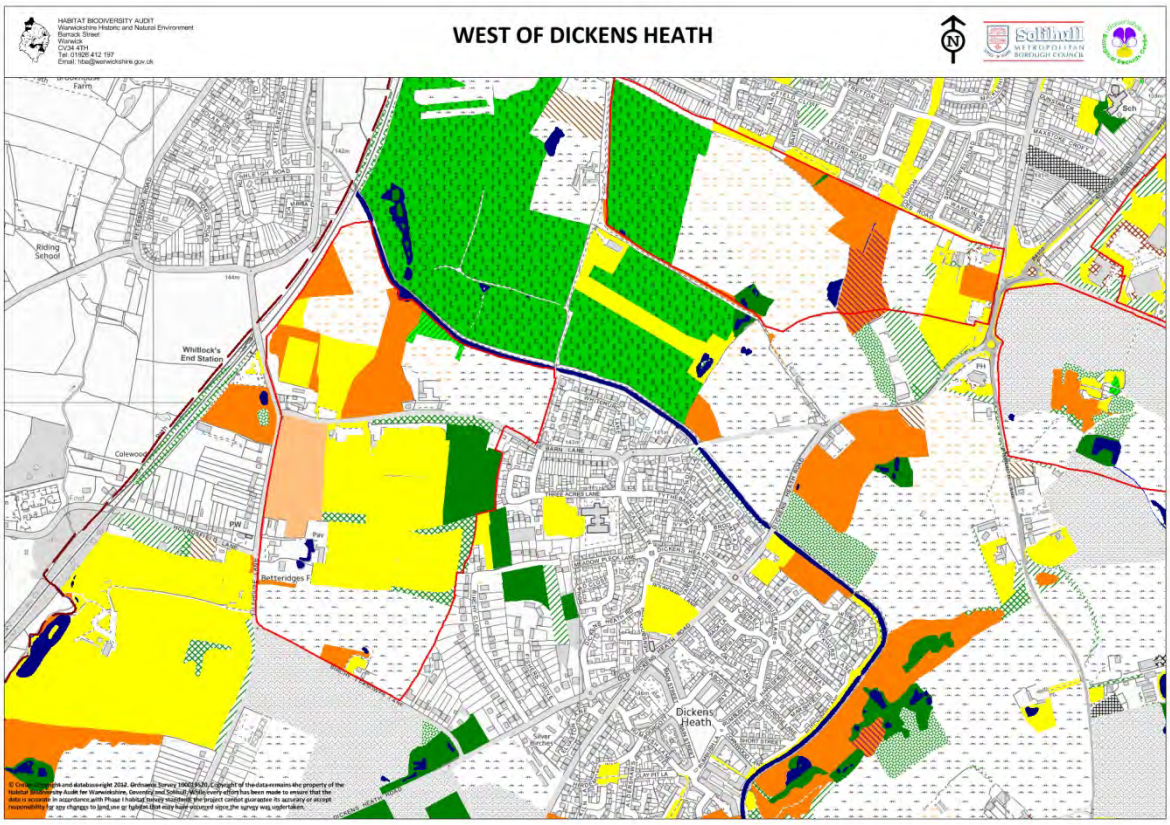


Figure 28 Phase 1 Habitats

West of Dickens Heat consists of a mix of grassland habitats including semi-improved (B22) and wet/marshy grasslands (B5), with high and medium to high distinctiveness.

The areas of amenity grassland (J12) have a medium distinctiveness whilst improved grasslands (B4) occupy low distinctiveness and are considered the least valuable of all the grasslands included within the development parcel.

Highly valuable and distinct habitats include semi-natural woodlands (A111) and standing water incorporating both canals and ponds (G1). The Phase 1 survey habitats are shown in Figure 3 and the corresponding distinctiveness map Figure 4.

The target notes identify and briefly describe the habitat features present including plant indicator species and any management or detrimental impact on the habitat.

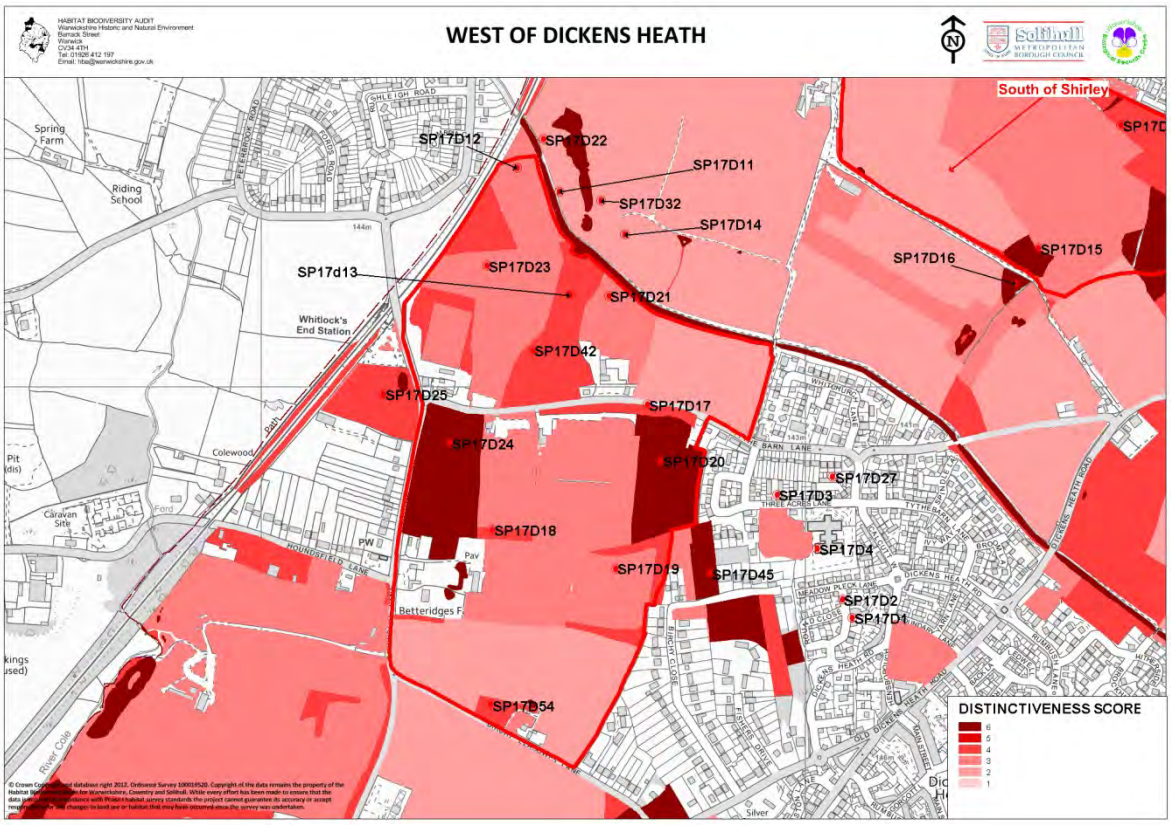


Figure 29 Habitat Distinctiveness & Target Notes

Highly distinct and valuable habitats are contained within potential and Local Wildlife Sites west and east of the southern segment bordering Tythe Barn Lane Road and north of Tythe Barn Farm.

Target Notes

Number	Grid Reference	Survey Date
SP17D1	**SP1108676564**	**29/09/2011**

Semi-improved grassland dominated by Yorkshire-fog (Holcus lanatus) with sweet vernal-grass (Anthoxanthum odoratum), frequent common knapweed (Centaurea nigra), common sorrel (Rumex acetosa), lesser stitchwort (Stellaria graminea), common bird's-foot-trefoil (Lotus corniculatus), tormentil; red fescue (Festuca rubra), common bent (Agrostis capillaris), field wood-rush (Luzula campestris), pignut (Conopodium majus), selfheal and locally frequent marsh thistle. Hedge woundwort occurs within a bank of nettle with some garden lady's-mantle (Alchemilla mollis) towards the centre of the parcel. Field is now part of a housing development.

SP17D11	**SP1054777348**	**21/07/1998**

Series of fishing pools partly surrounded by a young spruce plantation and an area of dense broom (Cytisus scoparius) and gorse scrub (Ulex sp.) along the Stratford-upon-Avon Canal side. Also contains some mature pedunculate oak (Quercus robur) and a

scattered ground flora of common bent (Agrostis capillaris), false oat-grass (Arrhenatherum elatius), rosebay willowherb (Chamerion angustifolium) and foxglove (Digitalis purpurea).

SP17D12 SP1047077391 29/09/2011

Semi-improved grassland which been improved by cattle grazing and the seeding of white clover (Trifolium repens) interspersed by abundant crested dog's-tail (Cynosurus cristatus) with frequent meadow buttercup (Ranunculus acris), common knapweed (Centaurea nigra), common bird's-foot-trefoil (Lotus corniculatus) and cat's ear (Hypochaeris radicata) with occasional marsh thistle (Cirsium palustris) near the Stratford-upon-Avon Canal. Now poor semi-improved grassland heavily overgrazed by horses.

SP17D13 SP1056777158 21/07/1998

Damp semi-improved mesotrophic grassland forming part of Tythebarn lane meadows SINC with three ditches present along the east and west boundaries and through the centre. Several grass species form the sward of which the following appear to be most dominant; sweet vernal-grass (Anthoxanthum odoratum), Yorkshire-fog (Holcus lanatus), common bent (Agrostis capillaris), meadow foxtail (Alopecurus pratensis) and perennial rye-grass (Lolium perenne). Common sedge (Carex nigra) is also locally frequent in the southern part of the field. Marsh foxtail (Alopecurus geniculatus), crested dog's-tail (Cynosurus cristatus), hairy sedge (Carex hirta), cock's-foot (Dactylis glomerata), field horsetail (Equisetum arvense), red fescue (Festuca rubra), soft rush (Juncus effusus). Field wood-rush (Luzula campestris), annual meadow-grass (Poa annua) smooth meadow-grass (Poa pratensis) and rough meadow-grass (Poa trivialis) were also recorded. Meadow buttercup (Ranunculus acris) is by far the dominant herb throughout the field. Other herbs which are more localised include great burnet (Sanguisorba officinalis), common knapweed (Centaurea nigra), pignut (Conopodium majus), red clover (Trifolium pratense), cuckooflower (Cardamine pratensis), ribwort plantain (Plantago lancelota) and field forget-me-not (Mysotis arvensis). The rich south east corner is dominated by sweet vernal-grass (Anthoxanthum odoratum) with abundant common knapweed (Centaurea nigra), locally frequent common sedge (Carex nigra) and rare great burnet (Sanguisorba officinalis). Other herbs present include cuckooflower (Cardamine pratensis), common mouse-ear (Cerastium fontanum), creeping thistle (Cirsium arvense), cat's-ear (Hypochaeris radicata), yellow iris (Iris pseudacorus), ox-eye daisy (Leucanthemum vulgare), common bird's-foot-trefoil (Lotus corniculatus), gypsywort (Lycopus europaeus), creeping buttercup (Ranunculus repens), common sorrel (Rumex acetosa), curled dock (Rumex crispus), common chickweed (Stellaria media), tufted vetch (Vicia cracca) and germander speedwell (Veronica chamaedrys). At the time of survey the field was lightly grazed by two horses but it has been cut for hay in the past.

SP17D14 SP1066877269 29/09/2011

Poor semi-improved grassland dominated by Yorkshire-fog (Holcus lanatus) with abundant common bent (Agrostis capillaris), some timothy (Phleum pratense), false oat-grass (Arrhenatherum elatius), meadow fox-tail (Alopecurus pratensis), ribwort

plaintain (Plantago lancelota) and hogweed (Heracleum spondylium) with occasional cat's-ear (Hypochaeris radicata), ox-eye daisy (Leucanthemum vulgare), marsh thistle (Cirsium palustre) and creeping buttercup (Ranunculus repens). Field is now a conifer plantation.

SP17D17 SP1070976956 29/09/2011

Narrow grassland strip with common bent (Agrostis capillaris), Yorkshire-fog (Holcus lanatus), tufted hair-grass (Deschampsia cespitosa), sweet vernal-grass (Anthoxanthum odoratum), compact rush (Juncus conglomeratus), creeping soft-grass (Holcus mollis), pignut (Conopodium majus), rosebay willowherb (Chamerion angustifolium), wood sage (Teucrium scorodonia), greater bird's-foot-trefoil (Lotus pedunculatus), locally abundant heath bedstraw (Galium saxatile), common sorrel (Rumex acetosa), lesser stitchwort (Stellaria graminea), yarrow (Achillea millefolium), some bluebell (Hyacinthoides non-scripta) and ribwort plantain (Plantago lancelota). Becoming overgrown with scrub and tall ruderal.

The grassland has scrubbed over with birch (Betula spp.), hazel (Corylus avellana), ash (Fraxinus excelsior), bramble (Rubus fruticosus agg.) holly (Ilex aquifolium), lime (Tilla europaeus) and occasional mature pedunculate oak (Quercus robur).

SP17D18 SP1042376726 21/07/1998

Neglected wet grassland strip dominated by tufted hair-grass (Deschampsia cespitosa) with greater common bird's-foot-trefoil (Lotus corniculatus), creeping and meadow buttercup (Ranunculus acris). Broom (Cytisus scoparius) trees and scrub have encroached onto the site.

SP17D19 SP1065176655 21/07/1998

Neglected amenity grassland which is dominated by common bent (Agrostis capillaris) with abundant cat's-ear (Hypochaeris radicata) white clover (Trifolium repens) and some red clover (Trifolium pratense).

SP17D2 SP1106876599 29/09/2011

Poor semi-improved grassland dominated by Yorkshire-fog (Holcus lanatus) with common bent (Agrostis capillaris), sweet vernal-grass (Anthoxanthum odoratum), smooth meadow-grass (Poa pratensis), creeping buttercup (Ranunculus repens), lesser stitchwort (Stellaria graminea), common bird's-foot-trefoil (Lotus corniculatus), ragged-

robin (Lychnis flos-cuculi), oval sedge (Carex ovalis), cat's ear (Hypochaeris radicata) and selfheal (Prunella vulgaris). Now a housing development.

SP17D20 SP1073376853 21/07/1998

Oak woodland with some birch (Betula spp.) and an understorey of rowan (Sorbus aucuparia), young ash (Fraxinus excelsior), elder (Sambucus nigra), hazel (Corylus avellana) and hawthorn (Crataegus monogyna). The ground flora is dominated by bramble (Rubus fruticosus agg.) with nettle (Urtica dioica) and bracken (Pteridium aquilinum). Hedge woundwort (Stacys sylvatica), yellow pimpernel (Lysimachia nemorum), black hair-cap moss (Polytrichum formosum), broad-buckler fern (Dryopteris dilatata), male-fern (Dryopteris filix-mas) and wood sorrel (Rumex sanguineus).

SP17D21 SP1063877156 21/07/1998

Poor semi-improved grassland dominated by Yorkshire-fog (Holcus lanatus) with false oat-grass (Arrhenatherum elatius), frequent hairy tare (Vicia hirsuta), creeping buttercup (Ranunculus repens), some tufted vetch (Vicia cracca), cat's-ear (Hypochaeris radicata) and red clover (Trifolium pratense). Patches of damp marshy grassland occur with reed canary-grass (Phalaris arundinacea), soft rush (Juncus effusus), greater bird's-foot-trefoil (Lotus pedunculatus) and meadow vetchling (Lathyrus pratensis) with some willow (Salix sp.) encroachment.

SP17D22 SP1051877444 21/07/1998

Stratford-upon-Avon Canal lined with frequent coppiced alder (Alnus glutinosa) with greater bird's-foot-trefoil (Lotus pedunculatus), hemlock water-dropwort (Oenanthe crocata), marsh thistle (Cirsium palustre), jointed rush (Juncus articulates), reed sweet-grass (Glyceria maxima), gypsywort (Lycopus europaeus), great willowherb (Epilobium hirsutum), marsh bedstraw (Galium palustre) with cat's ear (Hypochaeris radicata), common knapweed (Centaurea nigra), cyperus sedge (Carex pseudocyperus), soft rush (Juncus effusus). male-fern (Dryopteris filix-mas) and foxglove (Digitalis purpurea).

SP17D23 SP1041477212 21/07/1998

Poor semi-improved grassland being heavily horse and cattle grazed but contains meadow buttercup (Ranunculus acris) and a small amount of ox-eye daisy (Leucanthemum vulgare).

SP17D24 **SP1034676886** **29/09/2011**

Damp semi-improved mesotrophic grassland forming part of Tythebarn Lane Meadows LWS with MG5 Cynosurus cristatus-Centaurea nigra grassland vegetation. A wet ditch passes through the middle of the field. It was difficult to assess the grass species and their abundance due to the level of grazing. Cynosurus cristatus is probably dominant with abundant sweet vernal-grass (Anthoxanthum odoratum). Oval sedge (Carex ovalis) and field wood-rush (Luzula campestris) are both frequent components of the sward.

Meadow buttercup (Ranunculus acris) is the dominant forb whilst common knapweed (Centaurea nigra) and common bird's-foot-trefoil (Lotus corniculatus) are frequent to abundant throughout the field. Other species noted where yarrow (Achillea millefolium), daisy (Bellis perennis), lady's smock (Cardamine pratensis), common sedge (Carex nigra), common mouse-ear (Cerastium fontanum), pignut (Conopodium majus), eyebright; cat's-ear (Hypochaeris radicata), ox-eye daisy (Leucanthemum vulagre), ribwort plantain (Plantago lancelota), selfheal (Prunella vulgaris) creeping buttercup (Ranunculus repens), common sorrel (Rumex acetosa), curled dock (Rumex crispus), common ragwort (Senecio jacobaea), dandelion (Taraxacum officinale agg.), red clover (Trifolium pratense), white clover (Trifolium repens) and brooklime (Veronica beccabunga). At the time of the survey the field was grazed by 4 horses. Un-grazed meadow visited later in the year.

Habitat Connectivity

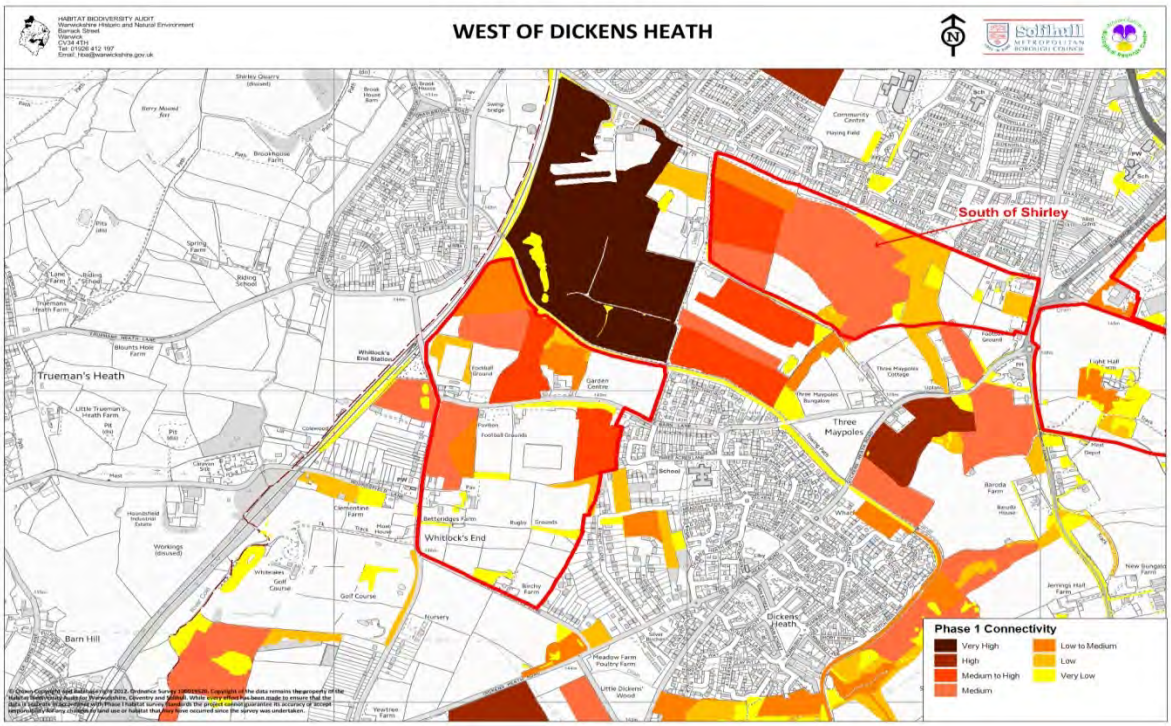


Figure 30 Habitat Connectivity

The habitat connectivity map shown above represents the combined connectivity for priority Phase 1 Habitats including grasslands, woodlands and wetlands. Well-connected areas north of the site incorporate the Stratford-upon-Avon Canal. Strongly connected habitats transpire the limit of rural settlements particular Dickens Heath, Shirley and Major's Green. Limited connectivity exists south of the development parcel.

Consideration should be given to providing a link between this area and a band of semi-natural habitats immediately south-east of Dickens Heath. This would ensure a belt of highly connected habitats effectively enclose the already expanding village of Dickens Heath. Hedgerows have not been included in the map but they do provide the important link between sites and should be retained and enhanced.

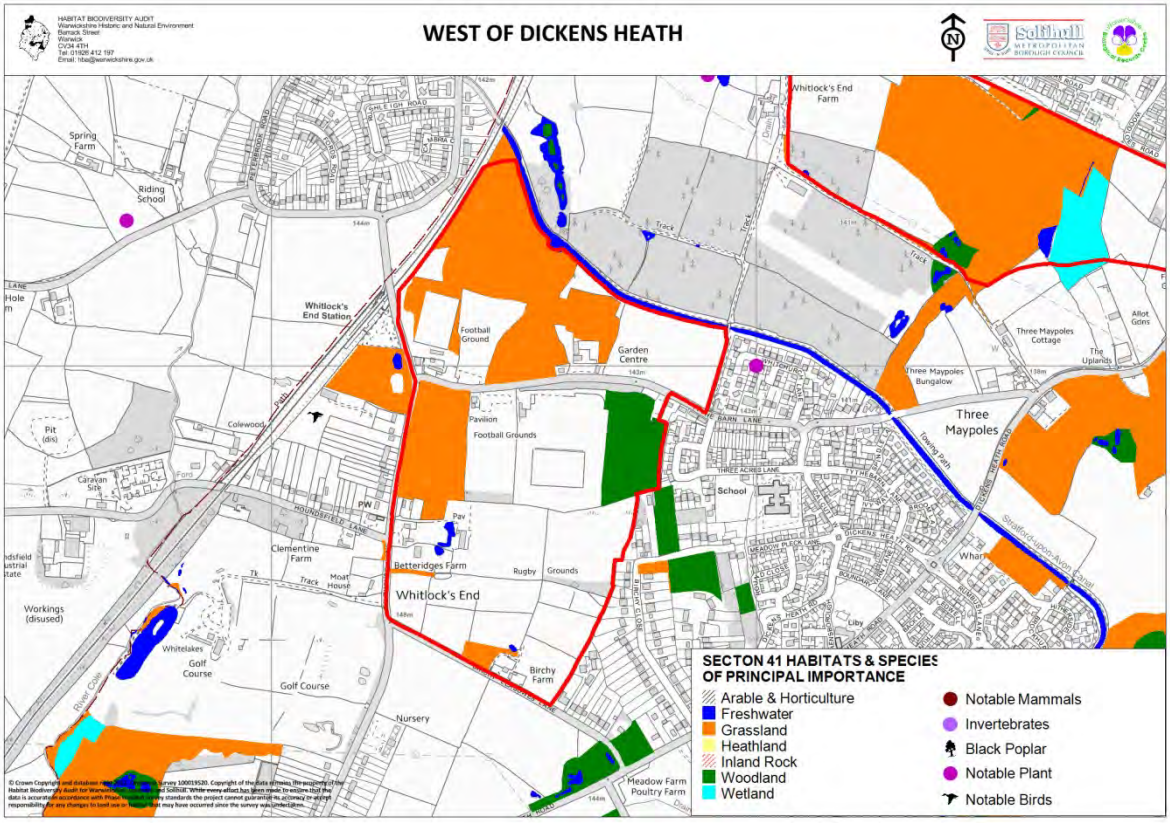


Figure 31 Section 41 Habits and Species of Conservation Importance

Protected Species

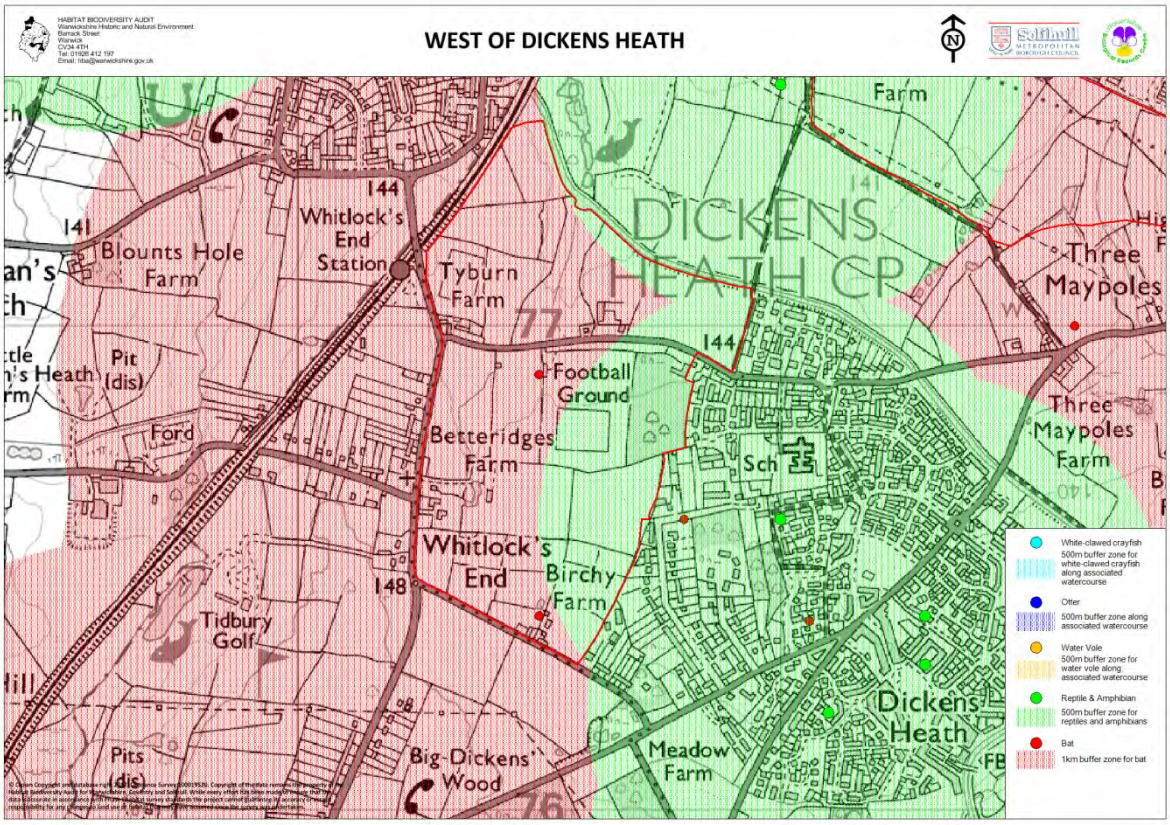


Figure 32 Protected Species

Valid and recent records are present within the development parcel for foraging pipstrelle (Pipistrellus spp.) bats, collected in 2012 within Highgate United Football Ground.

In addition, roosting records exist for properties within Birchy Farm and foraging records utilizing mature oaks trees along Birchy Leasowes Lane. These legitimate records were sourced from environmental consultants in 2007.

Verified accounts for both common pipistrelle and soprano pipistrelle exist 76 m from the development parcel with urban woodland parcels close to Birchy Close.

Likewise, recent evidence collected in 2014 for roosting bats exists 382 m from the development parcel. Documentation indicates the continued presence of common frog (Rana temporaria) and smooth newts (Lissotrition vulgaris) within the residential village of Dickens Heath.

SITE: WEST OF MERIDEN

Area: 4 hectares

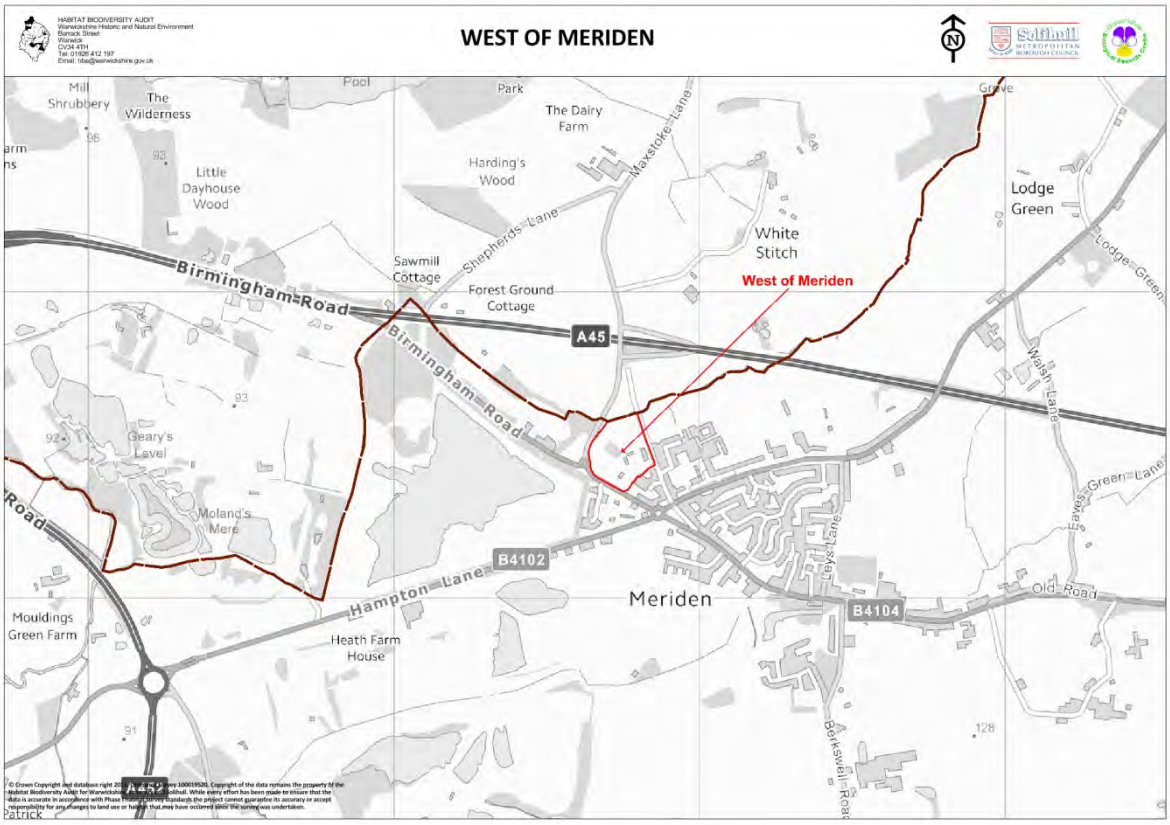


Figure 33 Site Location

Overview

West of Meriden is located between the Birmingham Road (B4104) and Maxstoke Lane. The site is a proposed extension to existing housing development to the west of Meriden along Maxstoke Close and Maxstoke Lane to the east. Beyond the Maxstoke Lane lies open countryside. To the south across the Birmingham Road is a former gravel extraction site which is now filled with water, known as Area G of Meriden Quarry Holdings. The gravel quarry is surrounded by broad-leaved plantation woodland.

The site itself contains some existing buildings surrounded by grassland and scrubland. The site also has a large pool on the western edge of the site, and to the north is a small stream. The site is surrounded by hedgerows that have become dense scrub. Housing development has taken place close to the site south of the brook on the northern extent of residential Meriden.

Key Features

- Fields Potential Local Wildlife Site (SP28G4)
- Semi-improved grassland

- Scrubland
- Pond
- Hedgerows

Recommendations

The site is part of a potential local wildlife site (Fields SP28G4) which has been recommended for survey but permission to survey has not been granted. The site has an interesting mix of habitats and there is potential for it to be incorporated into a larger local wildlife site incorporating the grassland, open scrub and pond with other nearby habitats.

There are on site and offsite opportunities to restore the grassland to semi-improved quality, reduce the density of scrub and protect the pond and maintain habitat connectivity along the stream and amongst stretches of hedgerows.

Scrub can be very valuable for a wide range of wildlife, providing a continued source of nectar, fruits, seeds, shelter, breeding and roosting sites. A stand of scrub with varied plant species, age and structure will support a great variety of species. Scrub is the transitory stage between open habitats such as grassland and closed canopy woodland and as such has to be managed to maintain a mosaic within more open habitats.

Scrub is particularly important for invertebrates, amphibians and reptiles, birds and mammals. It is important to maintain a balance between scrub and open habitat with species of particular conservation importance. Work on scrub is preferably best carried out in autumn/winter ideally early February and never between the bird breeding season from March – August. Berry bearing scrub is best delayed until after December has to retain valuable autumn and winter food sources.

The aim would be to establish a scrub of varied age, species and structure maintaining all growth stages, from bare ground through to young and older growth. The scrub should be cut in rotation aiming at retaining these varied ages of scrub by cutting small patches equating to 20% every three years between September and February

To prevent prolific scrub encroachment, accompanying grassland should be cut every 3-5 years. The excessive scrubbing up of the grassland will reduce habitat diversity.

Cutting rank grasslands can have a great impact on invertebrate and particularly reptile populations. Parts of the site should be left uncut to accommodate refuges for less mobile species. Sudden management changes should be avoided and may not encourage greater diversity.

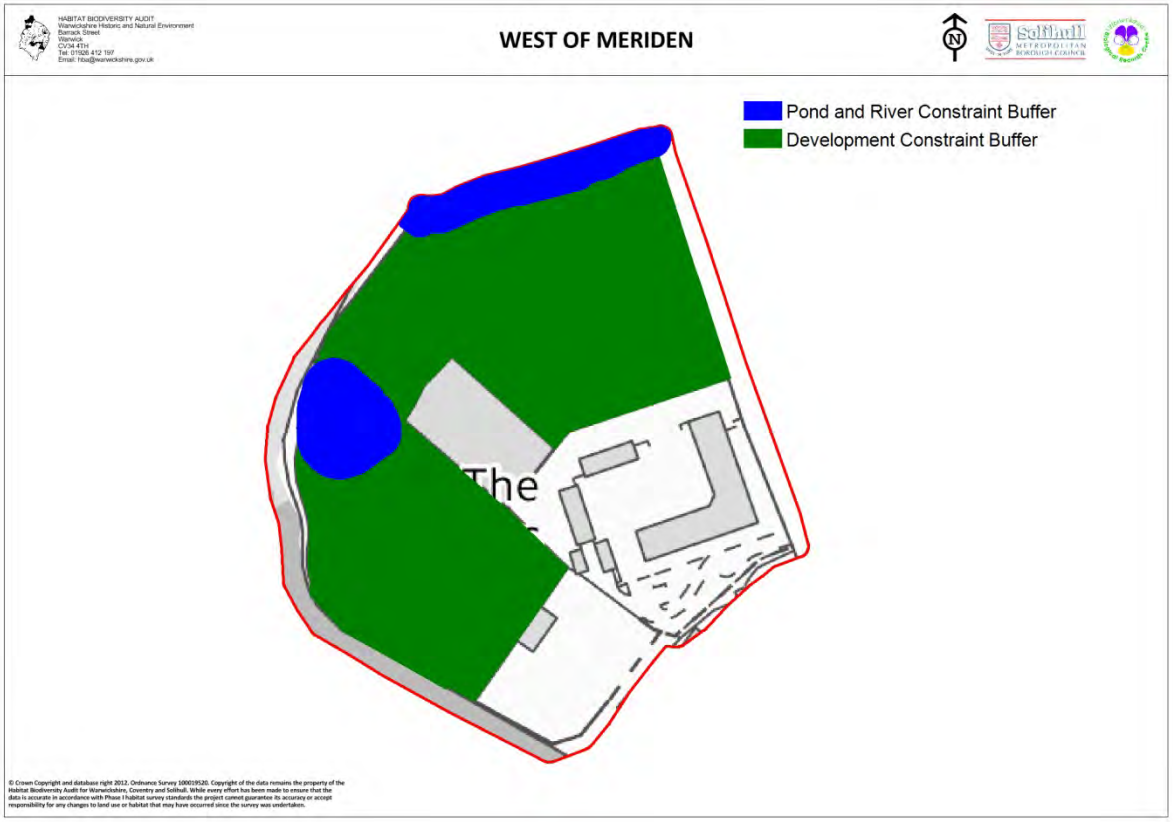
Cuttings should be removed to avoid smothering low-growing herbs and fine grasses.

Isolated specimens of scrub should be retained in-situ but maintained by periodic coppicing every 3-5 years.

Any associated potentially species-rich or characteristic hedgerows should be subject to a full hedgerow survey detailed in the Hedgerow Survey Handbook (2nd edition) under The Hedgerows Regulations (made under Section 97 of the Environment Act 1995).

The brook should be managed and maintained in accordance with the scrub and accompanying hedgerows. It should be cleaned every five years and overhanging branches cut likewise. Cleaning ditches or sections infrequently will keep them moist whilst retaining aquatic plants and decomposing debris. Any marginal habitat should be mown every three years on a rotational basis. Larger trees like willows and sallows should be coppiced on an approximately 3-5 year cycle to maintain young thick growth and the products from coppicing should be stacked as woodpiles.

Constraints



The areas marked in green and blue on the above constraints map indicate where development should be avoided and ecological enhancement encouraged.

They include:

- 30m buffer around woodland
- 8m buffer either side of adjacent to watercourses
- 8m buffers around ponds
- 5m buffer either side of intact hedgerows
- Areas of medium to high distinctiveness grassland (Values 4, 5 & 6)

Designated Sites

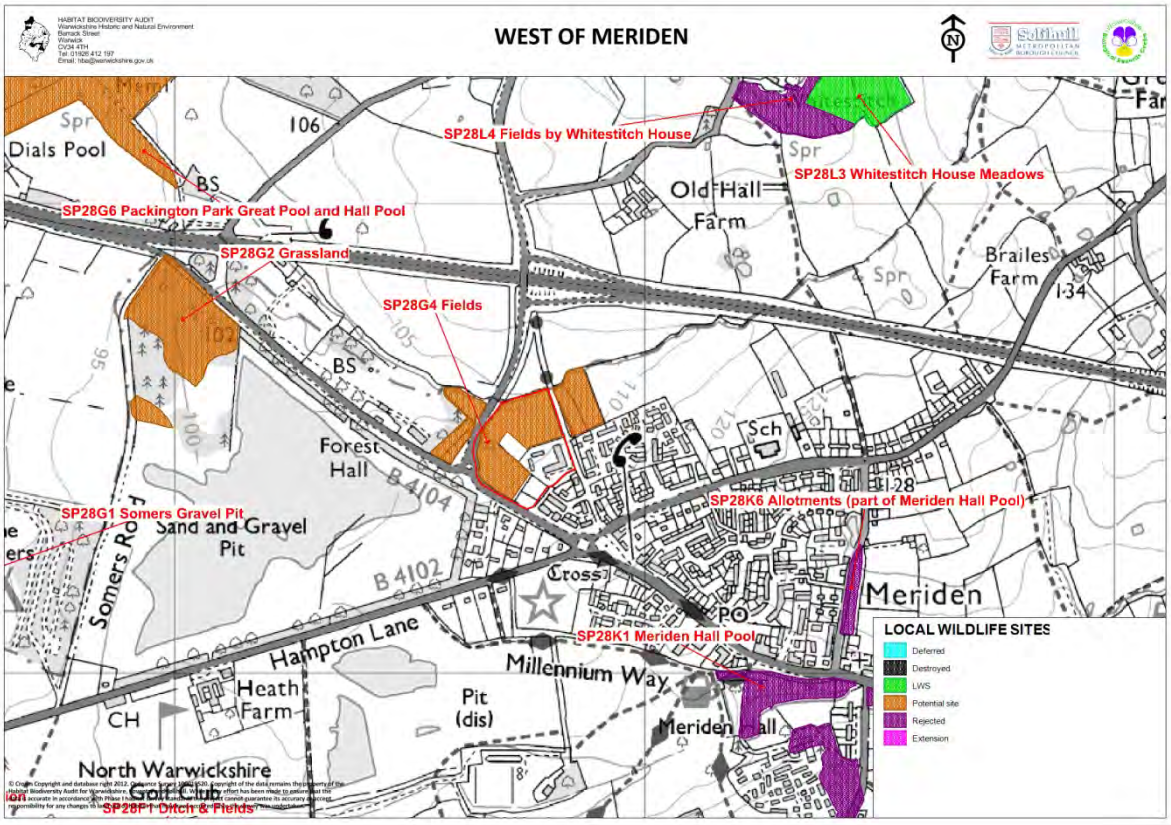


Figure 34 Site Designations

A large component of the development encompasses a potential Local Wildlife Site and as a consequence the site should be subject to an LWS standard survey.

Potential Local Wildlife Site

FIELDS SP28G4[19] **Area; 3.84 ha**

The site contains a potential local wildlife site consisting of four fields including ones that are outside of the proposed development area. The proposed LWS appears to have been surveyed in part, in 2002. Two additional fields could not be properly surveyed due to the installation of new road layout and roundabout. Noted for re-survey in 2010 but access permission was denied.

[19] Local Wildlife Sites Project SP28G4 – Fields SP28G4, 2012, HBA, Warwick

Habitat Description

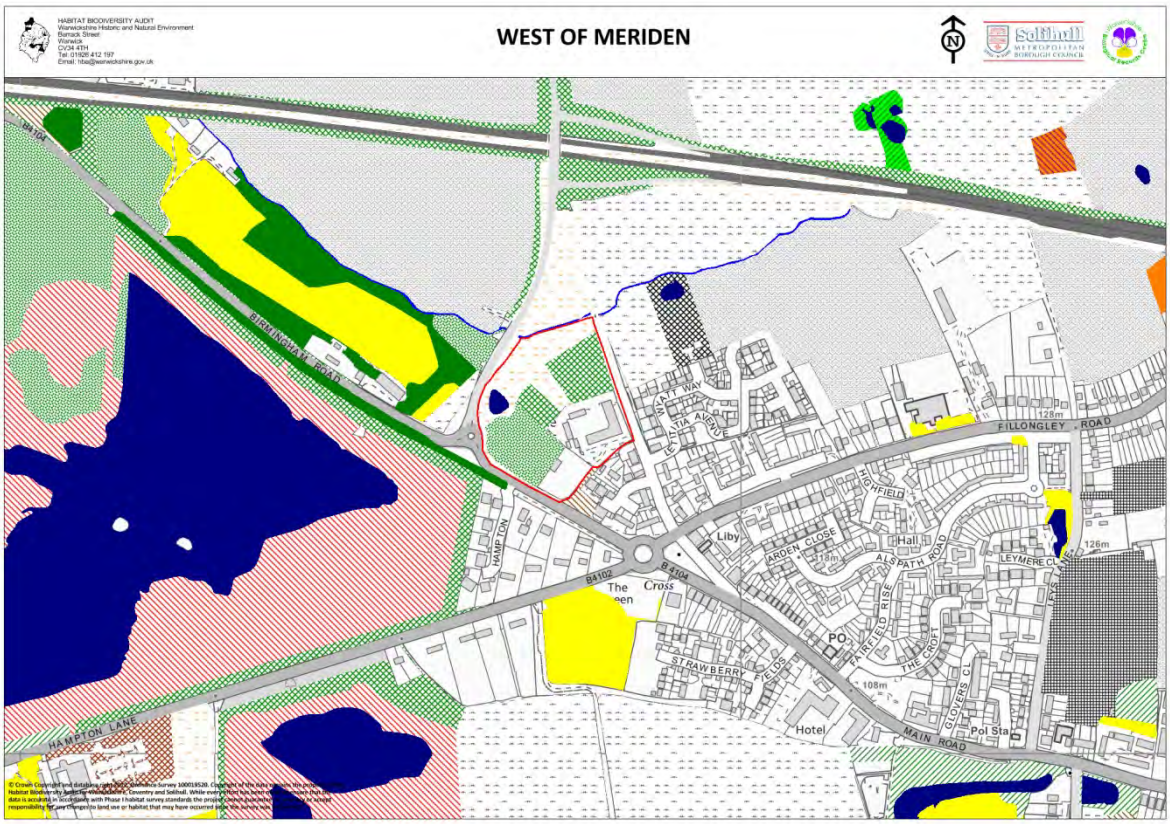


Figure 35 Phase 1 Habitats

The site consists of area of poor semi-improved grassland (B6) with a medium habitat distinctiveness and open scrubland (A22) with a medium to high distinctiveness. Dense scrub (A21) occupies medium distinctiveness. The site contains a large pond (G1) which is a priority habitat with high distinctiveness.

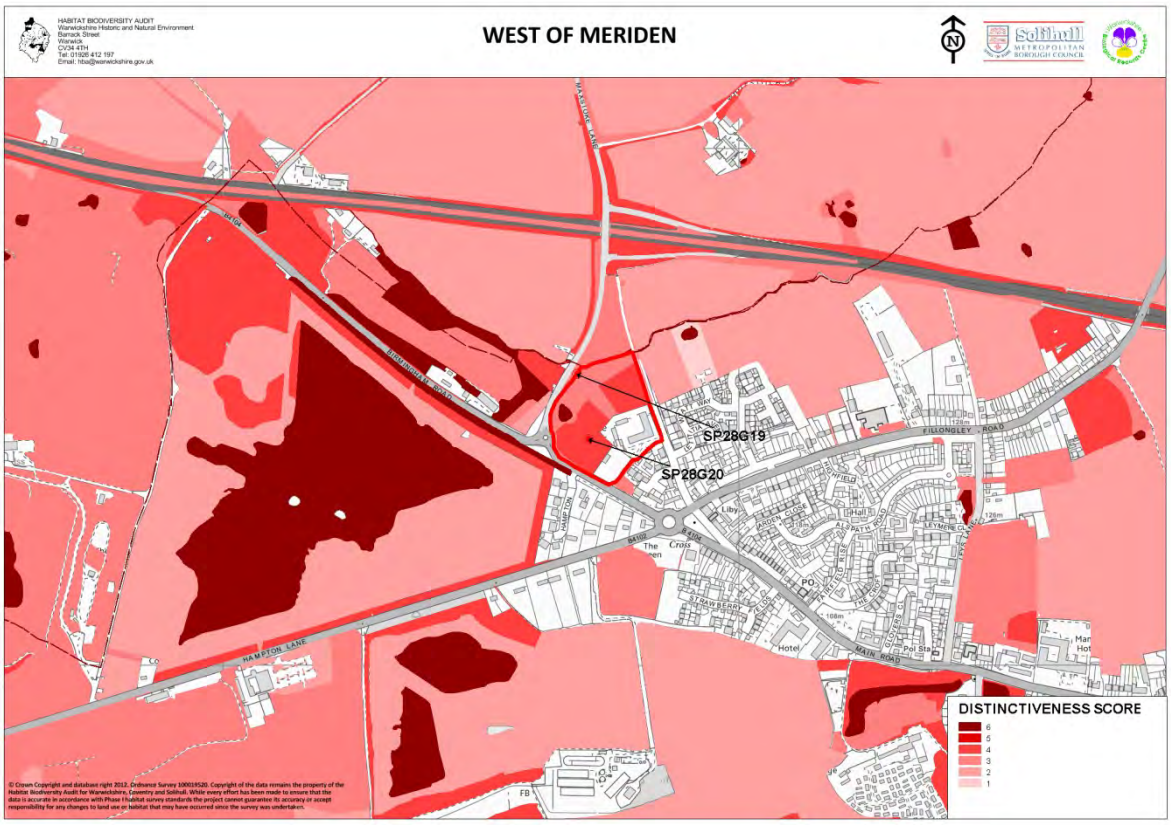


Figure 36 Habitat Distinctiveness & Target Notes

Distinct habitats of scrub, poor semi-improved grassland, pond and a brook of running water are of particular importance.

Target Notes

Number	Grid Reference	Survey Date
SP28G19	**SP2368682553**	**15/12/1998**

Large area of poor semi improved grassland dominated by cock's-foot (Dactylis glomerata) with frequent to abundant false oat-grass (Arrhenatherum elatius), common bent (Agrostis capillaris), ribwort plantain (Plantago lancelota), common ragwort (Senecio jacobaea), common nettle (Urica dioica) and hogweed (Heracleum sphondylium).

SP28G20	**SP 2370982427**	**15/12/1998**

Two horse-grazed semi-improved grasslands which were difficult to assess due to grazing intensity but contains common bent (Agrostis capillaris) with Yorkshire-fog (Holcus lanatus), red clover (Trifolium pratense), common sorrel (Rumex acetosa), creeping (Ranunculus repens) and meadow buttercup (R. acris), yarrow (Achillea millefolium) and autumn hawkbit (Leontodon autumnalis).

The grassland is accompanied by a sizeable pond that contains branched bur-reed (Sparganium erectum), soft rush (Juncus effusus), Yellow water-lily (Nuphar lutea), duckweed (Lemna spp.) and water forget-me-not (Myosotis scorpioides). Good potential for amphibians.

UPDATE 26/06/2013

Mosaic of scattered scrub developed from poor-semi-improved grassland surrounded by dense scrub off Birmingham Road. Pond was un-accessible due to dense scrub and restricted access.

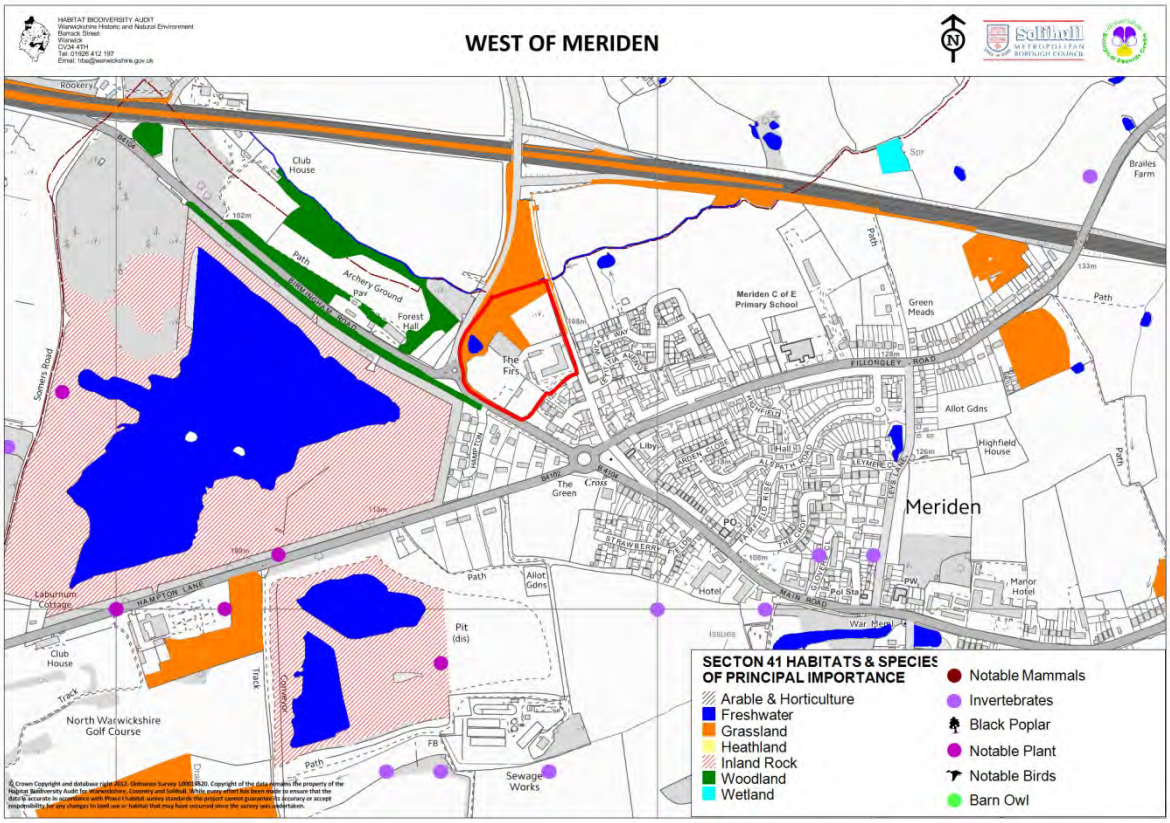


Figure 37 Section 41 Habitats and Species of Conservation Importance

Habitat Connectivity

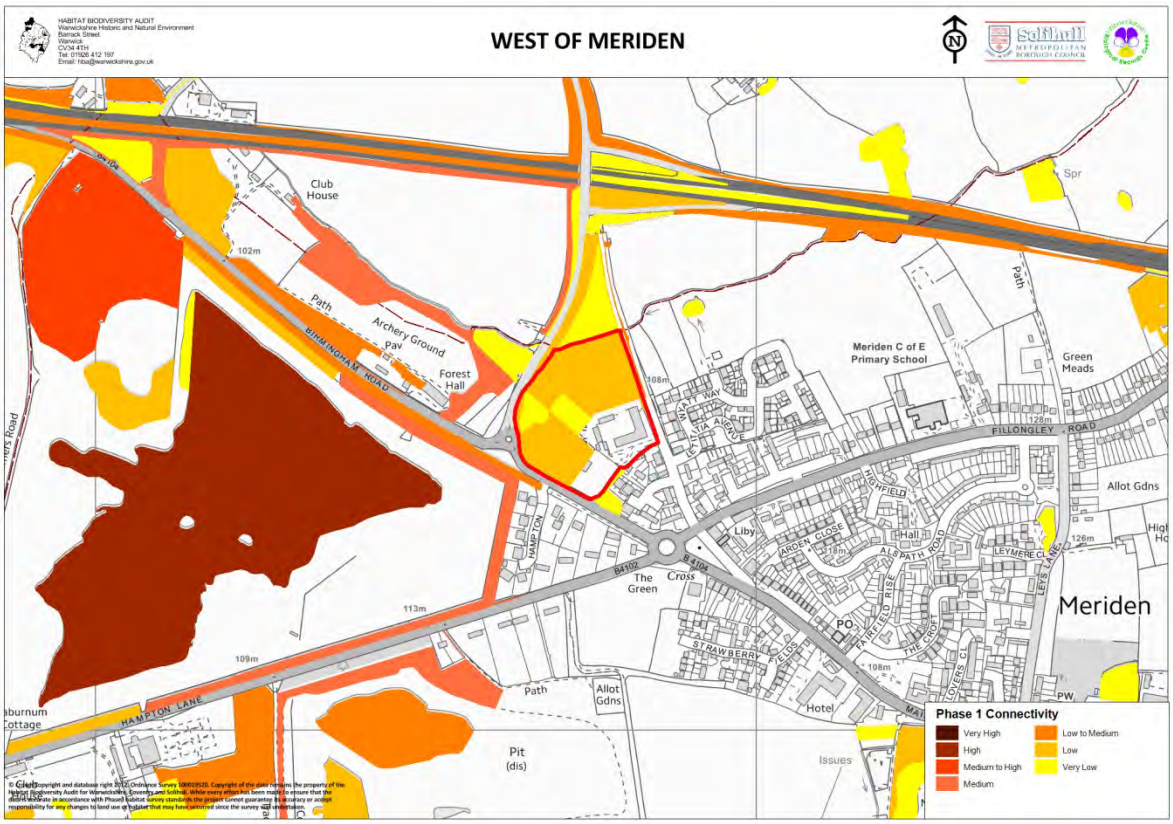


Figure 38 Habitat Connectivity

The open scrub and grassland habitats within and immediately adjacent to the development parcel occupy low to very low habitat connectivity principally due to habitat fragmentation and isolation caused by the intersecting road network with Meriden acting as a residential barrier to the east.

Protected Species

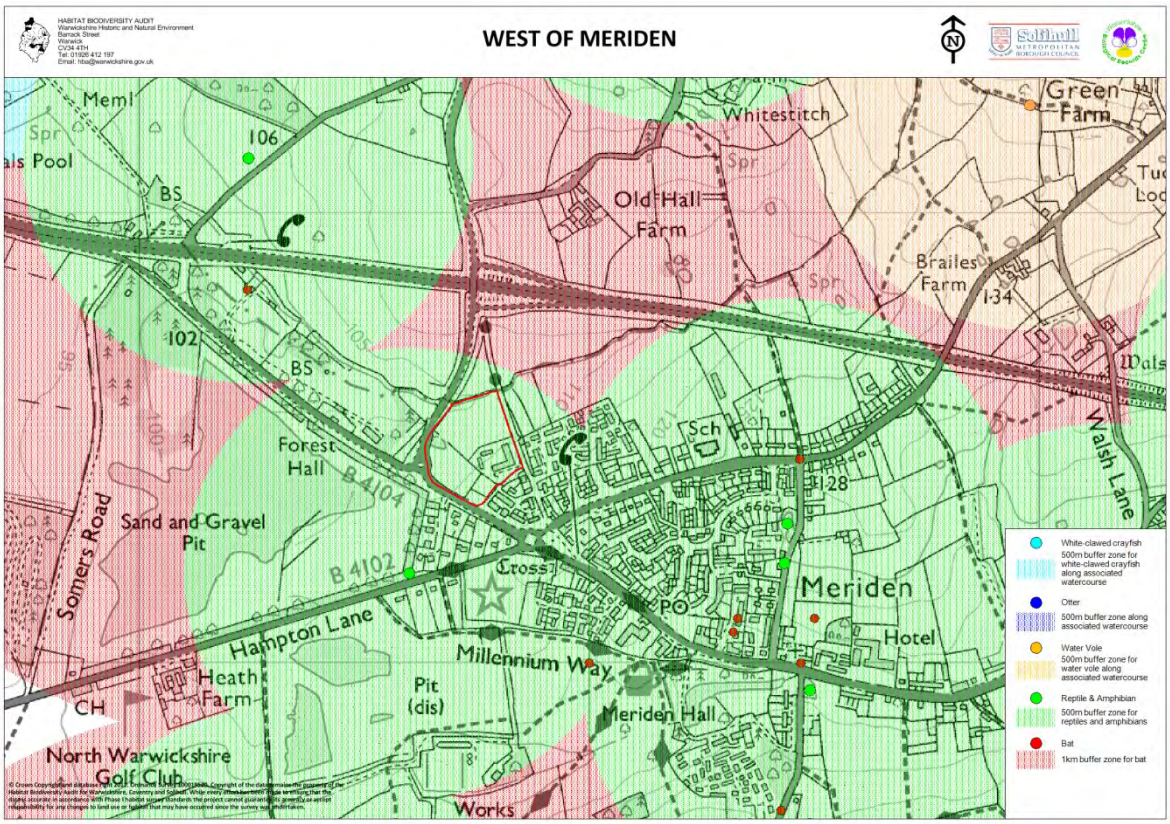


Figure 39 Protected Species

Records for common frog (Rana temporaria) and common toad (Bufo bufo) occurred in 1996 within broad-leaved plantation woodland immediately adjacent to Area G with Meriden Quarry Holdings 225m away from the development parcel.

Likewise, recent records exist from 2011 to 2014 for common frog, common toad and smooth newt (Lissotriton vulgaris) on Leys Lanes lying along the western border of the village of Meriden.

In regard to bat activity, foraging and roosting records do occur within and adjacent to residential properties of Meriden ranging from the years of 1992, 2000, 2010 and 2014 respectively.

SITE: WINDMILL LANE & KENILWORTH ROAD

Area: 15 hectares

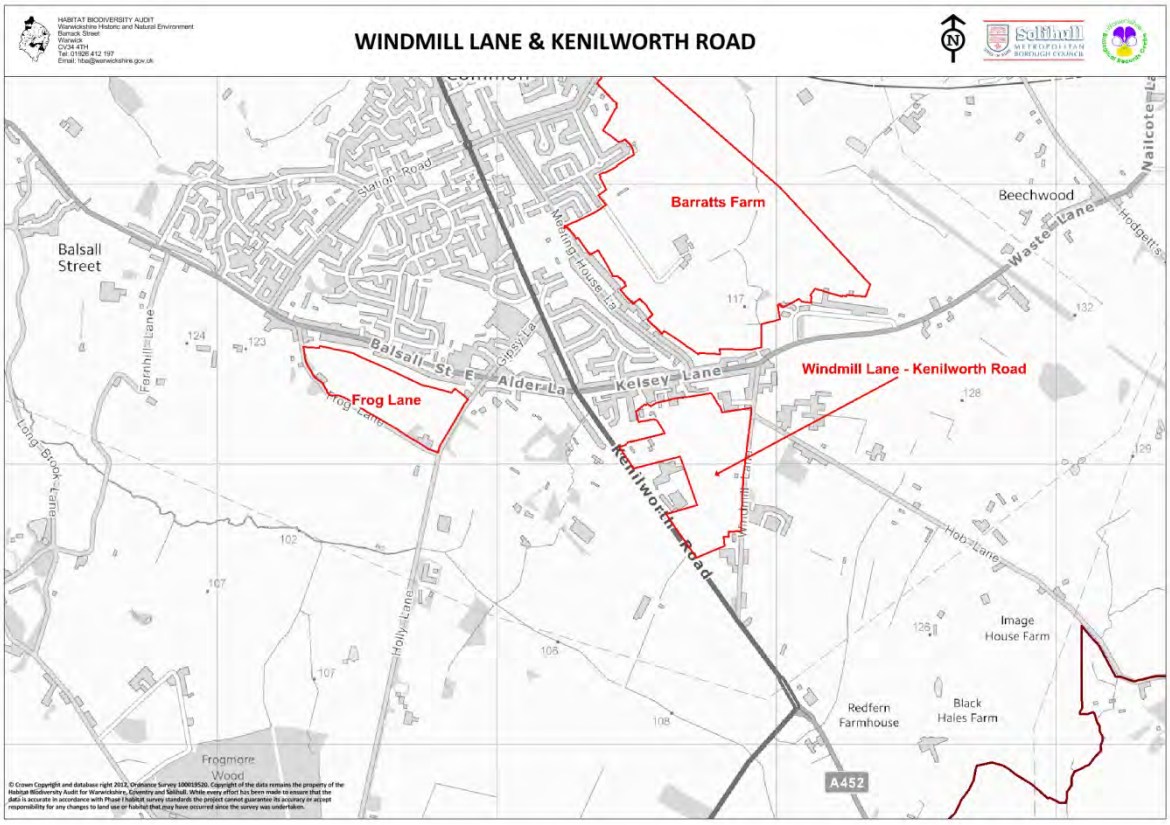


Figure 40 Site Location Map

Overview

The development parcel abuts the southern extent of the sub-urban commuter village of Balsall Common consisting of small fields of grassland, scrub and arable farmland. Fields are separated by neglected hedgerows that have become shrubby with frequent gaps creating sections of linear trees. Some grasslands contain characteristics of flood-meadow with patches of swamp and marshy grassland.

Residential properties of Kelsey Lane and Wellfield Close determine the northern boundary transposing to Windmill Lane enclosing small-holdings of Wellington House, The Hollies and Windmill House abutting the Oak Mount property just outside of the development parcel.

Berkswell Windmill, The Dell and Windmill Park lie directly opposite, the other-side of Windmill Lane. A public footpath crosses the parcel where the western boundary follows Kenilworth Road skirting around the new development housing unit of Elysian Gardens.

Key Features

- Wet marsh and marshy grasslands
- Neutral semi-improved grassland
- Pond

Recommendations

The existing stand of semi-natural woodland should be retained and hedgerows where possible should be retained and restored. Consideration should be given to the wet marshy grasslands as areas for habitat creation as wetland retention areas incorporating ponds and patches of inundated vegetation.

Constraints

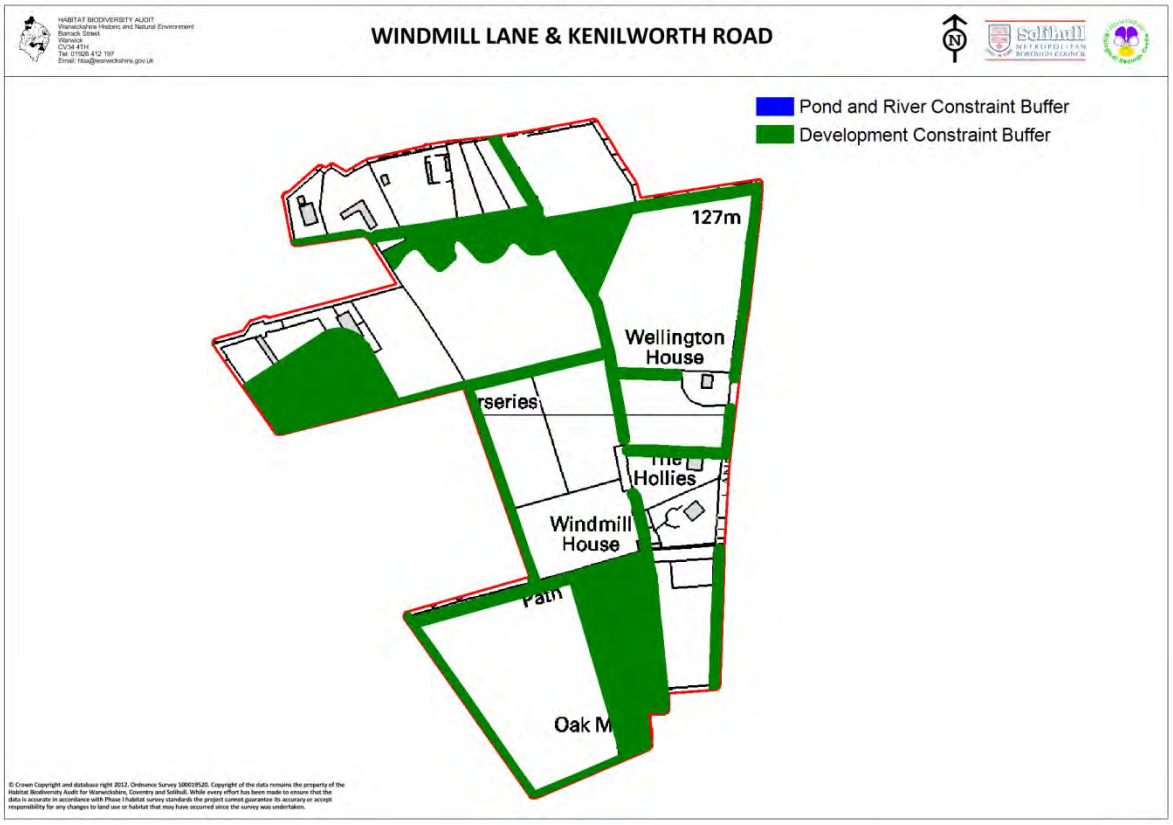


Figure 2 Constraints Map

The areas marked in green and blue on the above constraints map indicate where development should be avoided and ecological enhancement encouraged.

They include:

- 30m buffer around woodland

- 8m buffer either side of adjacent to watercourses
- 8m buffers around ponds
- 5m buffer either side of intact hedgerows
- Areas of medium to high distinctiveness grassland (Values 4, 5 & 6)

Designated Sites

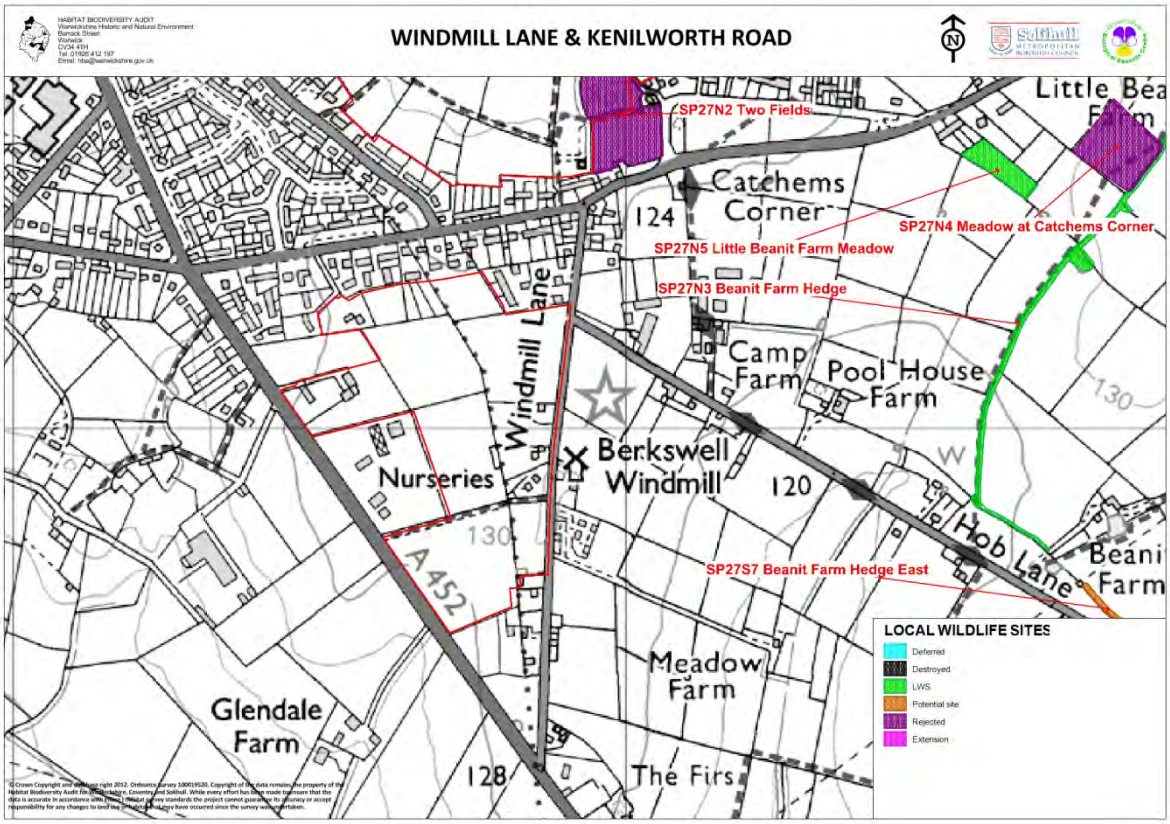


Figure 3 Site Designations

There are no designated or potential sites in or nearby to the proposed development site. It is not considered that any designated sites including Local Wildlife Sites will be affected by any proposed works regarding the development parcel.

Habitat Description

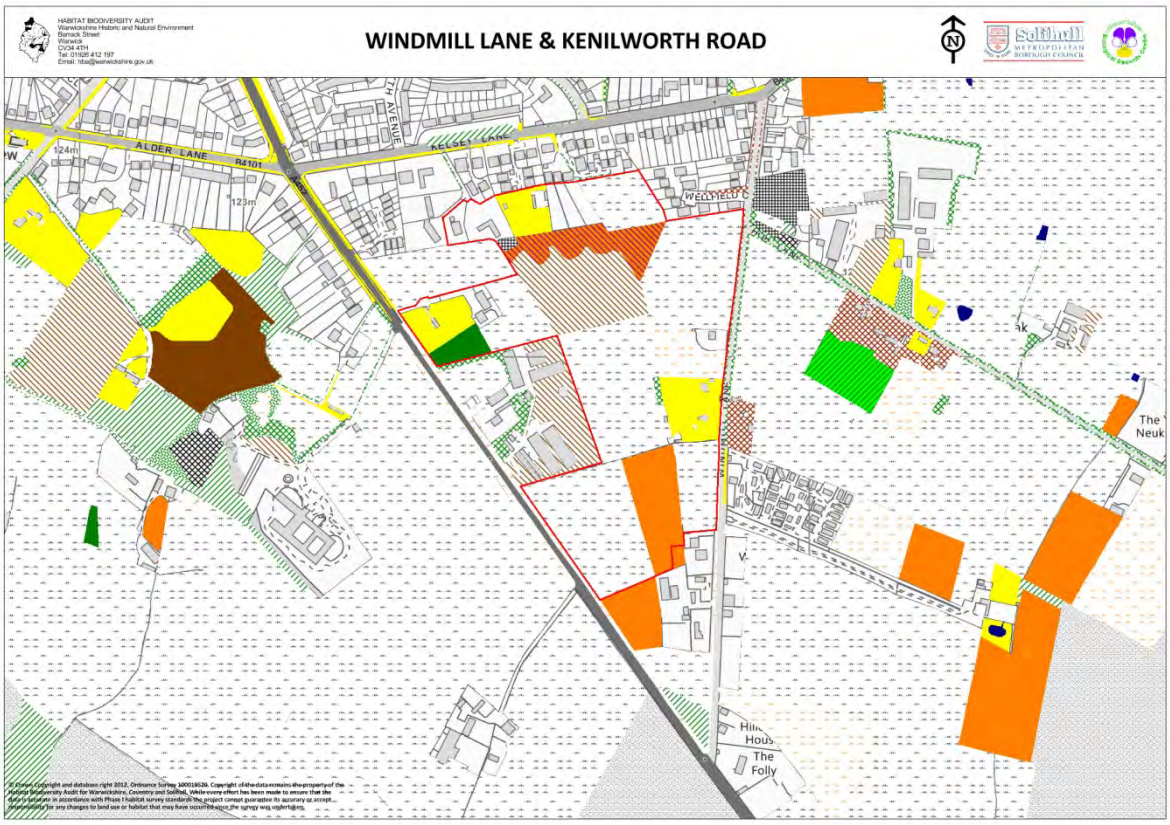


Figure 4 Phase 1 Habitats

The site consists mostly of improved grassland (B4) with low habitat distinctiveness with some fields considered to be semi-improved (B22) with medium distinctiveness and grassland characteristic of flood-meadow grassland with swamp and marshy grassland (B5) with high distinctiveness. The other high distinctiveness habitat is the small area of semi-natural woodland (A111) along the Kenilworth Road.

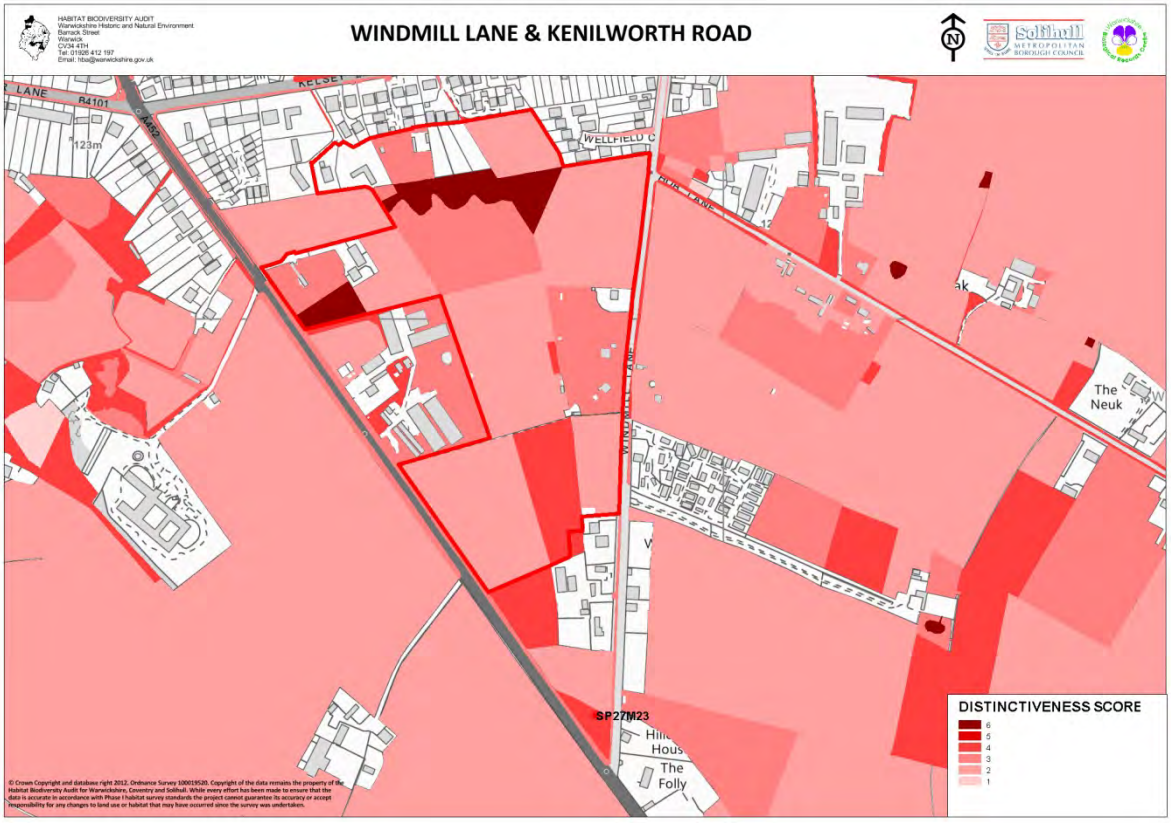


Figure 5 Habitat Distinctiveness & Target Notes

Target Notes

There are no target notes recorded for this area.

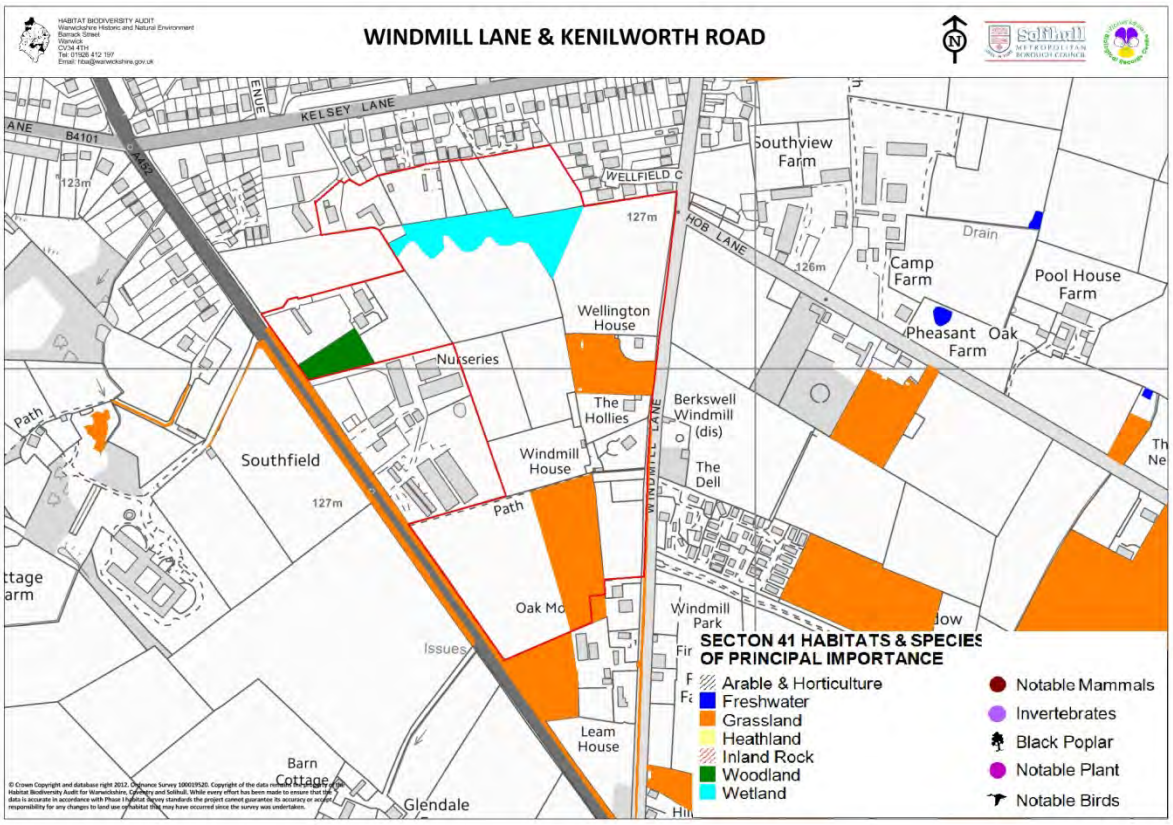


Figure 6 Section 41 Habitats and Species of Conservation Importance

Habitat Connectivity

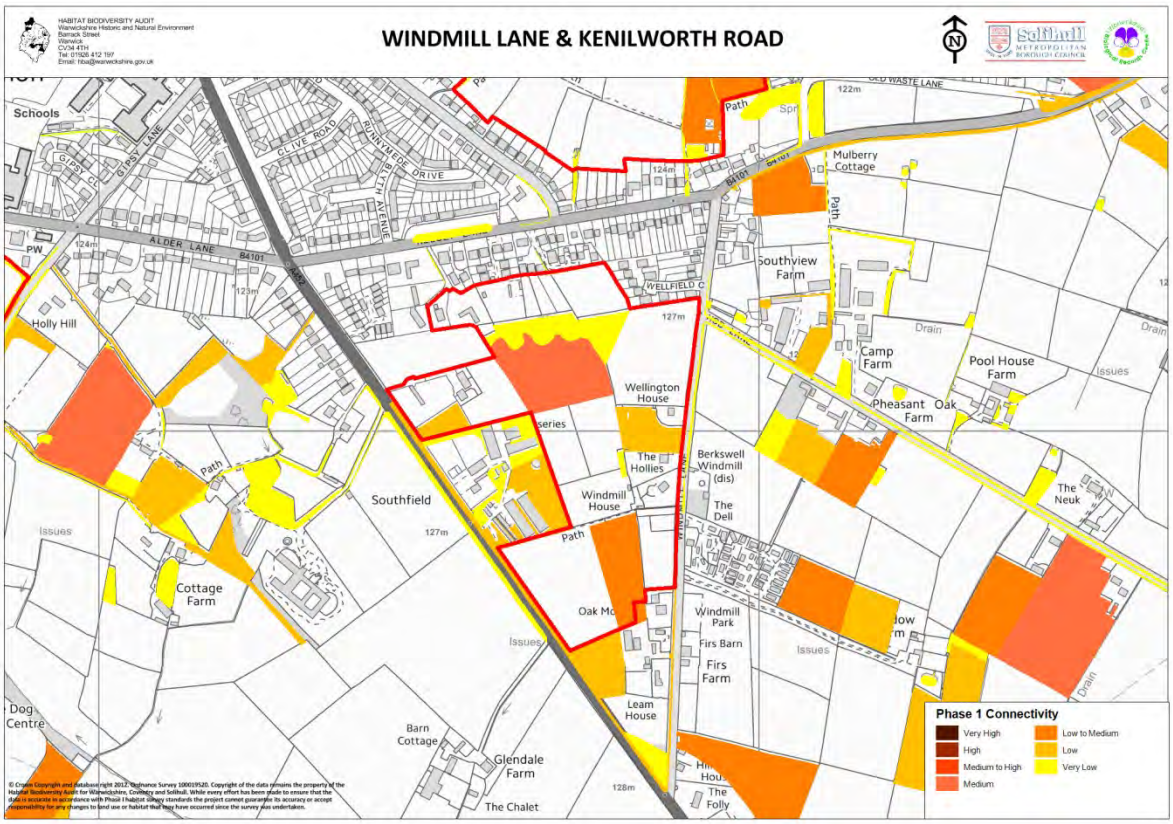


Figure 7 Habitat Connectivity

Those low to medium connectivity habitats outside of the proposed western boundaries have been removed by recent development works.

Protected Species

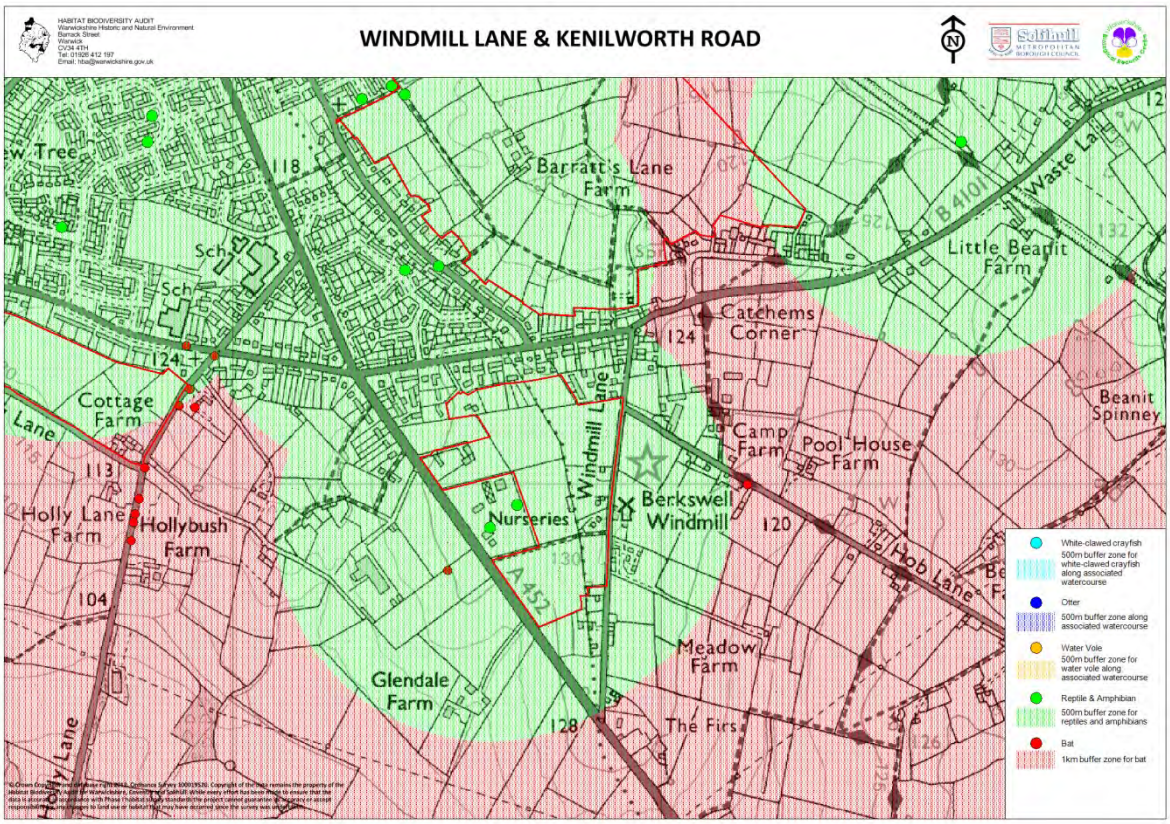


Figure 8 Protected Species

There is a number of protected or notable species recorded close to the western boundary relating to a new housing development named Elysian Gardens. As part of protected species surveys, smooth newt (Lissotrition vulagris), common frog (Rana temporaria) and great crested newts (Tristatus cristatus) were recorded within a pond on the eastern outskirts of the newly developed parcel by professional ecologists in 2014. Likewise, recent records for roosting and foraging Brown long-eared bats (Plecotus auritus) are present 100m east of the development on the other side of Kenilworth Road.

Redundant records for a bat species are present on Hob Lane 315m west of the proposed development parcel.