

# Biodiversity Analysis of Sevenoaks District

Sevenoaks District Council

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# Quality information

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# 1. Executive Summary

AECOM was commissioned by Sevenoaks District Council to undertake an assessment and analysis of the biodiversity value of land within the District to inform the District's emerging Local Plan and to be used in determining future planning applications. This biodiversity assessment was commissioned in response to an estimate of objectively assessed housing need (OAHN) for the District in September 2015 which was published in the Sevenoaks and Tunbridge Well's Strategic Housing Market Assessment (SHMA). The OAHN, which had regard to relevant underlying trends (including the latest available demographic projections, anticipated economic growth and market signals), established a need for 12,400 dwellings to be delivered in the District over the period 2015-2035.

In order to strategically assess the siting of potential future housing and employment developments, and to identify areas of suitable for habitat enhancement, all land within the District was digitised using GIS. Each area of land was digitised using polygons and was categorised as 'low', 'medium' or 'high' biodiversity value. This assessment was based on a protocol related to known biodiversity value (such as statutory or non-statutory designations for wildlife, areas previously identified as priority habitats), and analysis of habitat types based on aerial photography.

Each of the potential development sites in the Strategic Housing and Economic Land Availability Assessment (SHELAA) was assessed based on their suitability for development and potential for ecological enhancement, respectively. Sites were ranked according to their biodiversity value, proximity to settlements, presence within the green belt or wildlife site, and presence of priority habitats. This information will feed into the site appraisal process when selecting sites for potential development in the draft Local Plan. In addition 42 sites were identified as potentially suitable for potential ecological enhancement opportunities.

#### 2. Introduction

#### 2.1 Project background

AECOM was instructed by Sevenoaks District Council to undertake an assessment and analysis of the biodiversity value of land within the District. The report was commissioned in response to an estimate of objectively assessed housing need (OAHN) for the District in September 2015 which was published in the Sevenoaks and Tunbridge Well's Strategic Housing Market Assessment (SHMA, 2015). The OAHN, which had regard to relevant underlying trends (including the latest available demographic projections, anticipated economic growth and market signals), established a need for 12,400 dwellings to be delivered in the District over the period 2015-2035. This equates to an average of 620 new dwellings per annum.

The selection of development sites within Sevenoaks District is significantly constrained by national and local wildlife, landscape and other designations (e.g. 93% of the District is covered by the Metropolitan Green Belt and 60% by AONB). Moreover, several Sites of Special Scientific Interest (SSSIs) are located adjacent to the built up area of Sevenoaks town, including the Dryhill SSSI, the Sevenoaks Gravel Pits SSSI, the Greatness Brickworks SSSI, the Knole Park SSSI and the Hubbards Hill SSSI, while Westerham is flanked by Westerham Woods SSSI and the Westerham Mines SSSI.

Given the constraints in the District, it is understood that it will be challenging to sustainably accommodate this need. Therefore the Council are ensuring that all reasonable development options are fully considered and fully evidenced.

The National Planning Policy Framework (NPPF) was published in March 2012 (Department for Communities and Local Government, 2012) and details the Government's planning policies for England and how these are expected to be applied. The NPPF states the commitment of the UK Government to minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity. The NPPF emphasises that "[p]ursuing sustainable development involves seeking positive improvements in the quality of the built, natural and historic environment, as well as in people's quality of life, including (but not limited to):... moving from a net loss of bio-diversity to achieving net gains for nature" (paragraph 9). Moreover, "[l]ocal planning authorities should: set out a strategic approach in their Local Plans, planning positively for the creation, protection, enhancement and management of networks of biodiversity and green infrastructure" (paragraph 114).

In light of the need to reconcile the delivery of new development during the plan period (to 2015 - 2035) with the conservation and enhancement of biodiversity in line with the NPPF, the Council identified the need to establish a robust biodiversity evidence base to support the choice of housing and employment allocations through the Sevenoaks District Local Plan (2015 - 2035) (Sevenoaks District Council, 2017) and to potentially deliver net gain (e.g. through identifying lower value land for biodiversity which could be proactively enhanced through developer contributions). The evidence base will also be used by Development Management to determine future planning applications.

This document is intended to help support the evidence base by assisting in the site selection for the Local Plan. It also identifies sites that could potentially be subject to ecological enhancement.

#### 2.2 Scope

The scope of the analysis of biodiversity within this report was as follows:

- make an initial assessment of the biodiversity value of land within the District through the creation of a Geographical Information System (GIS) geodatabase;
- Create a digital map to illustrate areas of low, medium and high biodiversity value within the District;
- Identify areas where further ecological survey may be required to assess the biodiversity value in detail; and
- Identify areas of land that provide opportunity for ecological enhancement.

#### 3. Methods

#### 3.1 Habitat Digitisation

Habitats within the Sevenoaks District were digitised into spatial data and transposed onto a map of the District using GIS using the following methodology.

Existing geodatabase files were loaded onto the District map before digitisation of remaining land was undertaken. These files were obtained from Sevenoaks Local District Council and Kent and Medway Biological Record Centre (KMBRC) and contained data relating to sites designated for nature conservation, priority habitats, Biodiversity Opportunity Areas, existing settlements, wildlife reserves, country parks, historical parks and gardens, the National Forest Inventory, Sevenoaks Public Rights of Way (PRoW) and flood zones. In addition, aerial photography of the District was used within the GIS as a reference with respect to current habitat.

Initially, all areas covered by the following were assigned a value of high biodiversity:

- Within an existing designation for nature conservation, country park, historical park and gardens or the National Forest Inventory;
- · within the boundary of a previously identified priority habitat; and
- Habitat within 50m of a SSSI.

Following this initial step, polygons were digitised manually around remaining habitats within the District visible on aerial photography. Each habitat was assessed to be have either 'low', 'medium' or 'high' biodiversity value, as per the protocol on Table 1. From this analysis, a GIS layer was created depicting the spatial makeup of the District's land and accompanying biodiversity value.

Table 1 Assessment criteria for assessing the biodiversity value of habitats/land

Biodiversity Value	Qualifying habitats/land
Low	Large residential areas
	Buildings
	<ul> <li>Road verges (other than identified road verge designations)</li> </ul>
	Car parks
	Working quarries
	Amenity grassland, sports pitches and gardens
	Arable fields
	<ul> <li>Derelict sites (e.g. spoil heaps, large areas of bare ground)</li> </ul>
	Airfields
	Construction sites
	Filter beds
	Industrial sites
	Motor racing tracks
	Tennis courts
Medium	Pasture
	Parkland

- Small networks of pasture and arable fields
- Brownfield
- Grassland with scrub
- Scrub habitats
- Plantation woodland
- · Areas of grassland habitat
- Disused quarries
- Golf courses
- Allotments
- Cemeteries

Biodiversity Value	Qualifying habitats/land					
	Treelines (wind breaks)					
High	Nature conservation designation (statutory or non-statutory)					
· ·	Habitat within 50m of a SSSI					
	Ancient woodland					
	Country parks					
	<ul> <li>Priority habitat (UK BAP) e.g. lowland heathland, lowland meadow, ponds, lowland mixed deciduous woodland, parkland, acid grassland, calcareous grassland</li> </ul>					
	Woodland strips					
	Habitat with substantial connectivity					

- Ponds, open water, lakes, streams, wet ditches, rivers
- Wildlife Trust Reserves
- Nature Reserves (other) e.g. Roadside Nature Reserves

#### 3.2 Site Analysis

A list of sites being considered by the SHELAA was provided by Sevenoaks District Council. Using a set of criteria provided by the Council these sites were analysed and the results will be used to assist in identifying suitable sites for proposed allocation. In addition, a list was produced of sites recommended for ecology survey representing opportunities for potential ecological enhancement/habitat creation.

The hierarchy applied in preparing this evidence were as follows:

- Land outside the green belt;
- 100% brownfield habitat within the green belt;
- Part green/part brownfield within the green belt;
- Greenfield on the edge of a settlement; and
- Greenfield within the greenbelt.

Using these criteria, an analysis was run using GIS to determine the percentage overlap of all digitised sites with habitat of low, medium and high biodiversity value, with the greenbelt, with wildlife sites and nature conservation designations. All sites were then assessed either for their potential suitability for development and/or for future ecological enhancement.

#### 3.2.1 Consideration of Potential Development Sites

Site analysis for development opportunities not only took into account biodiversity value, but other factors such as proximity to settlements and designated sites. The assessment criteria listed in Table 2 was used to identify sites where biodiversity would not prohibit development. This information will feed into the wider site appraisals ahead of identifying potential development sites in the draft Local Plan.

Table 2 Assessment criteria and associated categories for potential development sites

Selection criteria	Associated categories		Criteria hierarchy		
Is the Site located within the green belt?	Yes, no or partially	1.	No		
		2.	Partial		
Has the Site been previously	Yes, partial yes, partial no or no.	1.	Yes		
developed?			Partial		
		3.	No		
Biodiversity value	Low, medium or high	1.	Low		
		2.	Medium		
		3.	High		
Is the Site located within 500m of an existing development?	Yes, no	1.	Yes		
Is the Site within a wildlife site?	Yes (>90%), no or partially	1.	No		
		2.	Partial		
Does the site contain potential NERC	Yes or no (determined by descriptions of current land use)		No		
Act, Section 41 habitats?			Yes		

#### 3.2.2 Opportunities for Ecological Enhancement

Site analysis and prioritisation for ecological enhancement took into account biodiversity value, proximity to settlements and designated sites. By assessing all sites' ratings for development a shortlist of sites remained after eliminating sites based on the criteria listed in Table 3. Any sites located within the green belt or within a wildlife site were ranked as a high priority. Once shortlisted, the sites were collectively ranked based on a combination of variables. Consideration for a higher ranking was given based on the presence of priority habitat, location within 500m of a development and for land that had not previously been developed (Table 3). Where possible, these locations were also selected based on the potential for enhanced sites to create a corridor between existing habitat.

Table 3 Assessment criteria and associated categories for selecting sites for ecological enhancement

Selection criteria	Associated categories	Criteria hierarchy		
Is the Site located within the green belt?	Yes, no or partially	1. Yes		
		2. Partial		
Has the Site been previously	Yes, partial yes, partial no or no.	1. No		
developed?		2. Partial no		
		3. Partial yes		
		4. Yes		
Biodiversity value	Low, medium or high	1. Low		
		2. Medium		
		3. High		
Is the Site located within 500m of an	Yes, no	1. No		
existing development?		2. Yes		
Is the Site within a wildlife site?	Yes (>90%), no or partially	1. Partial		
		2. No		
		3. Yes		
Does the site contain potential NERC	Yes or no (determined by descriptions of	1. Yes		
Act, Section 41 habitats?	current land use)	2. No		

#### 3.3 Quality assurance

All AECOM Ecologists involved with authoring this report are members, at the appropriate level, of the Chartered Institute of Ecology and Environmental Management (CIEEM) and follow their code of professional conduct when undertaking ecological work.

AECOM is BS EN ISO 9001:2008, BS EN ISO 14001:2004 and OHSAS 18001:2007 Health and Safety accredited.

#### 4. Results

#### 4.1 District Biodiversity Value

An initial assessment of the biodiversity value of land within Sevenoaks District is depicted in Figure 1. The GIS layer containing these data will be issued to the Council alongside this report.

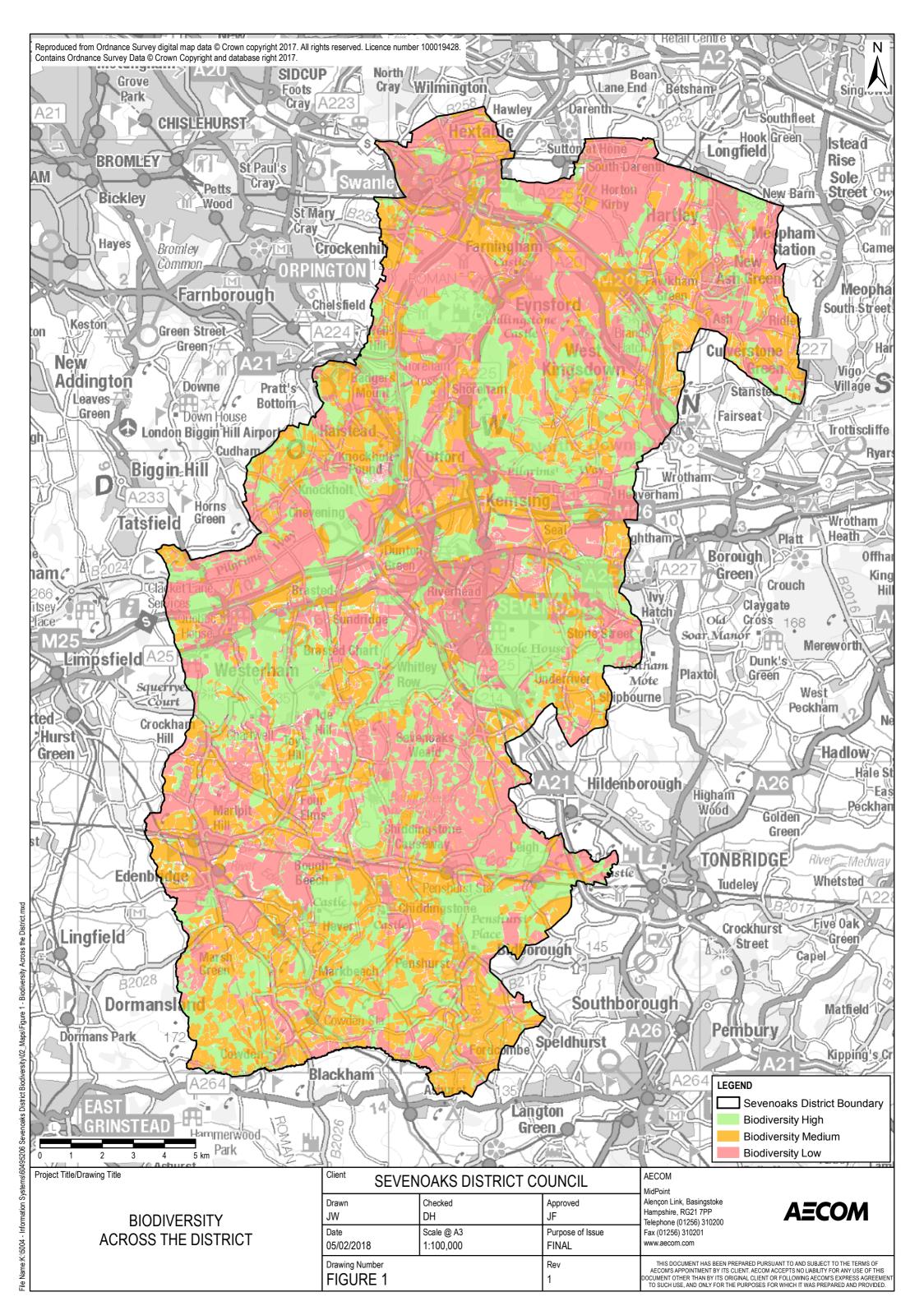
#### 4.2 Identification of Sites for Survey

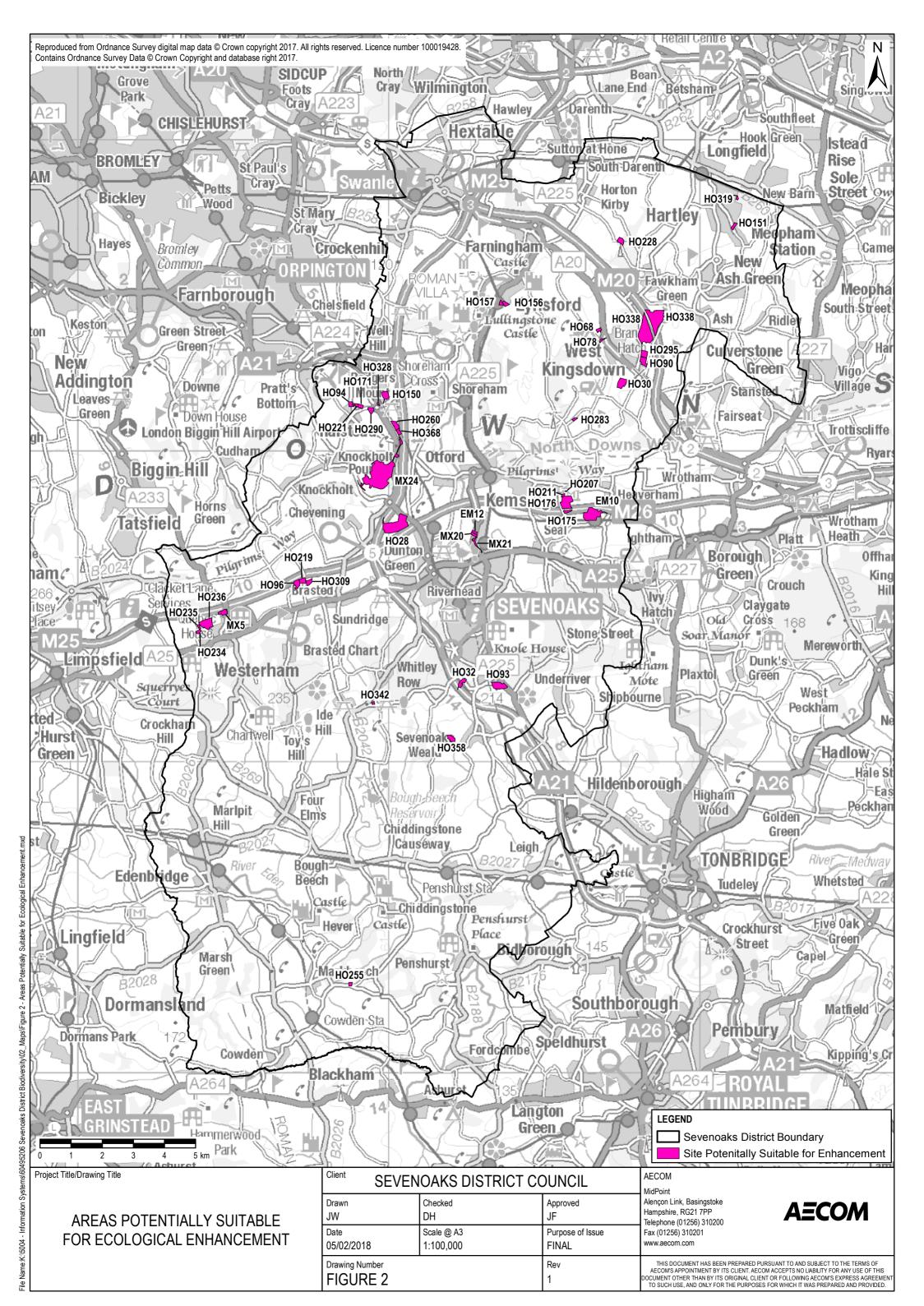
#### 4.2.1 Consideration of Potential Development Sites

The results of the biodiversity value analysis of the SHELAA sites will be included in the detailed site appraisals to inform the draft Local Plan. They will be used to identify potential sites as well as help to determine design and development guidance for any potential allocations.

#### 4.2.2 Opportunities for Enhancement of Biodiversity

Following screening, 42 sites were identified as potential opportunities for biodiversity enhancement within the District (refer to Appendix A). Figure 2 depicts all sites screened for ecological enhancement using the criteria set out in Table 3 within the District.





#### 5. Discussion

#### 5.1 Proposal for Site Surveys

#### 5.1.1 Consideration of Potential Development Sites and Opportunities for Biodiversity Enhancement

Following screening, 42 sites were identified as potential opportunities for biodiversity enhancement within the District (Appendix A). It is recommended that these sites are subject to further field survey, in order to obtain more detailed information about the biodiversity value of these sites. In addition, following the site appraisals to identify potential development sites in the draft Local Plan, some other sites may benefit from field surveys. On the basis of further survey work, a more informed decision can be made about the potential suitability of each site for allocation as a development site or an area of biodiversity enhancement.

#### 5.2 Proposed Survey Methodology

It is recommended that all sites identified for further survey should be subject to an extended Phase 1 habitat survey, following the methodology set out by JNCC (2010). The purpose of this survey will be to detail all habitats present within each site, each habitats biodiversity value and also scope the site for signs of protected species.

As part of the extended Phase 1 habitat survey, the following assessment for protected and/or notable species should be considered at each site (where application)

- Assess the site's suitability to support roosting bats, using current best practice guidelines (Collins, 2016);
- Habitat Suitability Index assessment of waterbodies present for great crested newt (*Triturus cristatus*), based on the methodology set out by Oldham et al. (2000); and
- General assessment of each site's potential to support protected and/or notable species such as hazel dormice (Muscardinus avellanarius), badger (Meles meles), reptiles and notable invertebrate species.

#### 5.3 Further Analysis for Areas Suitable for Ecological Enhancement

It is recommended that, once further survey work has been completed, further analysis to identify areas for ecological enhancement should be undertaken. This analysis should follow the principles of "Making Space for Nature" (Lawton et al, 2010.), with the aims of creating a resilient ecological network within the District that is "bigger, better and joined".

Further in-depth analysis would focus on habitat types (i.e. woodland and grassland), within a potential site and its surrounding area, the distance of sites from known high biodiversity value habitats and potential cost of enhancement. Within GIS, it would be possible to model potential enhancement with respect to

- Increasing connectivity between areas of high-value habitat through habitat creation;
- · Providing ecosystem services such as flood alleviation/mitigation; and
- Creating new areas of public open space with biodiversity value.

#### 6. References

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# **Appendix A Ecological Enhancement Site Prioritisation**

Site reference code	Biodiversity value - High/Medium/Low	Greenbelt (Y/N/Partial)	Greenbelt % overlap	Within wildlife site (Y/N)	Within 500m existing dev (Y/N)	Type/ size of nearby settlement	Potential for NERC S41 habitat Y/N	Existing land use	Previously developed? Y/N/Part Y/ Part N	Survey prioty ranking
HO93	Low	Yes	100	Partial	Yes	Town	No	Agricultural	No	1
HO30	Low	Yes	100	Partial	Yes	Village	No	Equestrian stables and grazing	No	2
HO338	Low	Yes	100	Partial	Yes	Village	No	Agricultural	No	3
HO228	Low	Yes	100	Partial	No		No	Caravans and field	Partial N	4
HO255	Low	Yes	100	Partial	No		No	Agricultural	Yes	5
HO150	Low	Yes	100	Partial	No		No	Commercial (B8)	Yes	6
HO368	Low	Yes	100	Partial	No		No	Restaurant, offices and residential	Yes	7
HO319	Medium	Partial	84.35	Partial	Yes	Village	No	Residential and field	No	8
HO175	Medium	Yes	100	Partial	Yes	Village	No	Agricultural	No	9
HO234	Medium	Yes	100	Partial	Yes	Village	No	Field	No	10
EM10	Medium	Yes	100	Partial	Yes	Village	No	Agricultural	No	11
HO260	Medium	Yes	100	Partial	No		No	Field	No	12
MX24	Medium	Yes	100	Partial	No	Hamlet	No	Commercial	Yes	13
EM12	High	Partial	95.78	Partial	Yes	Town	No	Vacant	No	14
HO68	High	Partial	95.39	Partial	Yes	Village	No	Grazing	No	15
HO78	High	Partial	36.01	Partial	Yes	Village	No	Residential and caravan park	Partial Y	16
HO32	High	Yes	100	Partial	Yes	Town	No	Equestrian stables and grazing	No	17
MX20	High	Yes	100	Partial	Yes	Town	No	Vacant	No	18
MX21	High	Yes	100	Partial	Yes	Town	No	Commercial, retail and residential	Yes	19
HO156	Low	Yes	100	N	Yes	Village	No	Agricultural	No	20
HO157	Medium	Yes	100	N	Yes	Village	No	Agricultural	No	21
HO176	Low	Partial	99.77	N	Yes	Village	No	Agricultural	No	22
HO207	Medium	No	#REF!	N	Yes	Village	No	Open space	No	23

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HO211	Low	Partial	99	N	Yes	Village	Yes	Scrubland	No	24
HO290	Medium	Yes	100	N	No		No	Agricultural	No	25
HO328	Low	Yes	100	N	No		No	Agricultural	Partial N	26
HO171	Low	Partial	98.59	N	Yes	Village	No	Agricultural	No	27
HO221	Low	Partial	96.36	N	Yes	Village	No	Agricultural	No	28
HO94	Low	Yes	100	N	Yes	Village	No	Agricultural	No	29
HO235	Medium	Yes	100	N	Yes	Village	No	Field	No	30
HO236	Low	Yes	100	N	Yes	Village	No	Field	No	31
MX5	Medium	Yes	100	N	Yes	Village	No	Commercial and agricultural	Partial Y	32
HO309	High	Yes	100	N	Yes	Village	No	Grazing	No	33
HO219	Medium	Yes	100	N	Yes	Village	No	Agricultural	No	34
HO96	Medium	Yes	100	N	Yes	Village	No	Commercial	No	35
HO283	Medium	Yes	100	Yes	No		No	Field	No	36
HO151	High	Yes	100	N	Yes	Village	Yes	Woodland and vacant	No	37
HO28	Medium	Yes	100	N	Yes	Town	No	Equestrian grazing	No	38
HO295	High	Yes	100	N	Yes	Village	Yes	Agricultural and woodland	No	39
HO342	High	Yes	100	N	Yes	Village	No	Residential and garden	Partial Y	40
HO358	Low	Yes	100	N	Yes	Village	No	Field	No	41
HO90	High	Yes	100	N	Yes	Village	No	Grazing	No	42