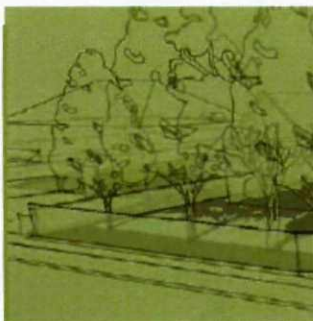




Ecological Assessment

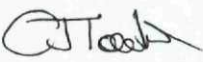
Land at Market Street
Hoyland
South Yorkshire

March 2011

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Executive Summary

	
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0	First Issue	10.02.11	Issued for comment
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B	Third Issue	16.03.11	Incorporates proposed landscaping plan into Calculations
C	Fourth Issue	22.03.11	For Planning

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1.0 INTRODUCTION

1.1 Background

1.1.1 In January 2011, Stroma Technology were commissioned by Litton Properties Ltd to undertake an Ecological Assessment at of the land at Market Street, Hoyland Hoyland (approximate National Grid Reference SE 37055 01195) South Yorkshire. The location of the site is illustrated in Appendix 1.

1.1.2 The proposed development will involve the construction of a retail foodstore (Use Class A1) with associated access, servicing, car parking and landscaping.

1.1.3 A biodiversity assessment is required as part of the planning application process (ODPM Circular 06/2005 Biodiversity and Geological Conservation – Statutory Obligations and their Impact within the Planning System). Planning Policy Statement 9 Biodiversity and Geological Conservation (PPS9) gives further direction with respect to biodiversity conservation and land use change/development. PPS9 states that not only should existing biodiversity are conserved, but importantly that habitats supporting such species should be enhanced or restored where possible. The policies contained within PPS9 may be material to decisions on individual planning applications.

1.1.4 The site was also assessed using the BREEAM Retail 2008 (BRE, 2008) assessment process; which considers whether a proposal will enhance or damage the ecological value of a site.

1.2 General approach to BREEAM assessment.

1.2.1 Conducting an ecological walkover survey following Extended Phase 1 Habitat Survey methodology is a standard technique for assessing the ecological value of development sites. Sufficient detail on the composition of the vegetation was obtained from the Phase 1 Habitat Survey, which enabled it to be successfully characterised and assessed.

1.2.2 Following the BREEAM Retail guidelines, a site visit carried out by suitably qualified ecologists which enabled an informed assessment of the ecological value of the site. The ecologist can then give advice on ecological enhancement, determine how any identified features of ecological value can be retained and protected and to what degree the ecological value of the site may be changed.

1.2.3 The full BREEAM assessment will be carried out by Rob Waiting of Stroma Technology, a registered assessor and the information in the LE3, LE4, LE5 and LE6 of this report is intended to assist with the BREEAM assessment by giving the likely credit rating. In addition, advice or recommendations are given as to how a higher credit rating could be achieved for this development.

- 1.3 Suitably qualified ecologist (SQE).
- 1.3.1 The field survey and report has been undertaken by Chris Toohie M Sc, MIEEM.
- 1.3.2 Expertise.
Phase 1 Habitat Field Surveys and Biodiversity Assessments, woodland management, orchards, bat surveys, great crested newt surveys, management planning, environmental grant schemes, community environmental projects and environmental interpretation planning.
- 1.3.3 Qualifications.
M Sc. Arboriculture and Community Forest Management
HND Countryside Management
Great Crested Newt License – 20101424.
Bat License – 20101386.
- 1.3.4 Professional Membership.
Member of the Institute of Ecology and Environmental Management.
- 1.3.5 Career Summary.
- 1.3.5.1 Chris has worked in the environmental sector for all of his working life. He is an experienced and competent site manager with well-developed organisational skills and a proven ability to deal with a variety of situations in pressurised and challenging environments. This has enabled him to gain an understanding of the functioning of local government and the skills to operate within such structures and multicultural environments.
- 1.3.5.2 Chris is heavily involved in local projects and has volunteered his time and resources to benefit local conservation projects that include Melton pond, Driffeld's Millennium Green and the East Riding of Yorkshire Council's road verge nature reserve project.
- 1.3.5.3 Through his previous employment, Chris has become a competent site manager with an attitude to deliver complex plans to a wide range of conflicting stakeholders. Chris is an excellent communicator and his enthusiasm for his work has enabled the successful deliverance of numerous conservation schemes. Chris has been instrumental in raising over £100,000 for environmental and community projects in the last 5 years. These have included grants from Natural England, landfill tax credits and Heritage Lottery funding
- 1.3.5.4 Chris has 10 years experience of managing some of the most important countryside sites in East Yorkshire. These include the Local Nature Reserves at Millington Wood (arguably the finest botanical woodland in the county), Beverley Parks Millennium Orchard and three reserves on the Flamborough Head Heritage Coast.

1.3.6 Project Experience in last 5 years.

1.3.6.1 Chris has undertaken over 250 bat surveys since 2006 including writing and implementing bat licenses. Phase 1 surveys and biodiversity assessments have included National Nature Reserves, SSSI's, local wildlife sites and urban sites. Reports also meet BREEAM/CODE criteria, when applicable. Contracts have included Natural England, English Heritage, East Riding of Yorkshire Council, Scarborough Borough Council, NPS, Hull City Council, Gateway, IMS Windpower and Pell Frischman.

1.3.6.2 Chris has also instigated accreditation from the Forest Stewardship Council at all East Riding of Yorkshire Council owned woodlands. As group manager, Chris ensures compliance with the UK Woodland Assurance Standard and demonstrates that the woodlands are managed in a socially, economically and environmentally sustainable manner.

1.3.7 Chris Toohie meets the criteria for a SQE by:

- Holding a Masters degree in Community Forestry and Arboriculture;
- Being employed as a practising ecologist with over 10 years relevant experience (within the last five years) and;
- Being a full member of the Institute of Ecology and Environmental Management (this makes him subject to peer review and bound by a professional code of conduct).

1.3.8 The field survey and report has been undertaken by Chris Toohie M Sc. MIEEM and signed off by Richard Baines MIEEM.

2.0 SURVEY METHODOLOGY AND SCOPE

2.1 Desktop study

- 2.1.1 The National Biodiversity Network and Natural England were researched in order to obtain any ecological information they are aware of, relevant to the study area (see 3.2). The Barnsley Ecological Data Centre was contacted but no information was returned.

2.2 Field survey methodology

- 2.2.1 During the site visit, the whole of the study area and accessible neighbouring land was examined in detail. All habitats were assessed for their potential to hold protected species such as birds, mammals, amphibians, reptiles, invertebrates; and their overall biodiversity contribution to the area.
- 2.2.2 Target notes were used to provide locations and descriptions of the main habitats found on the site, including information about data recorded on the survey, potential species composition, habitat structure, evidence of planting/management.

2.3 Limitation of field survey

- 2.3.1 Whilst the majority of the study area was examined during the baseline survey, the biodiversity assessment primarily provides information on the potential for biodiversity interest. It is not the purpose of this survey to collect biological data through the use of a specific survey methodology. However, an assessment of this nature, supported by a thorough desk top survey, is sufficient to make a number of general assumptions about the ecological value of the site.
- 2.3.2 This report will serve to indicate the possible value of the site in nature conservation terms based upon the survey and desk top data gathered. As with any survey of this kind, it cannot be seen as a definitive description of the site and its associated habitats and species.
- 2.3.3 Midwinter is not the ideal time of year to undertake a plant survey – however it is considered possible to ascertain the broad character of the vegetation at this time. A summer survey would doubtless extend the list of species, and allow more plants (especially trees and shrubs) to be identified to species level. In particular, some annual or ruderal species may not be detected at all during the winter months.

3.0 EXTENDED PHASE 1 HABITAT SURVEY

- 3.1 A site visit was carried out by on the 1st February 2011. This was to determine the ecological value of the site. The methodologies used for the field survey and evaluation are given in section 2 and Appendix 6.
- 3.2 Desktop study
- 3.2.1 The desk top study identifies land parcels of nature conservation value within 1km locality of Wombwell Road. The following data resources were searched:
- Sites of Special Scientific Interest;
 - Special Protection Areas;
 - National Parks;
 - National Reserves;
 - Special Areas of Conservation;
 - RAMSAR sites;
 - Areas of Outstanding Natural Beauty and;
 - Local Nature Reserves.
- 3.2.2 There are no statutory sites within 1km of the study area.
- 3.2.3 All the Natural England Habitat Inventories were searched, including the woodland inventory and grassland inventory. No areas of notable habitat from the Habitat Inventories list were found within 1km of the study area.
- 3.3 Species records
- 3.3.1 Currently there is no pre-existing information on bats at the site. Data for the 10km grid square SE30 shows records of brown long-eared *Plecotus auritus*, noctule *Nyctalus noctula*, lesser noctule *Nyctalus leisleri*, Natterer's *Myotis nattereri*, Daubenton's *Myotis daubentonii*, Whiskered/Brandts *Myotis mystacinus/brandtii*, common pipistrelle *Pipistrellus pipistrellus* and soprano pipistrelle *Pipistrellus pygmaeus* (Source - NBN Gateway 2011).
- 3.3.2 Data for the 10km grid square SE30 shows records of otter *Lutra lutra* and water vole *Arvicola terrestris* (Source - NBN Gateway 2011). There are no watercourses within 50m of the study area, no further surveys or constraints are recommended.
- 3.3.3 Great crested newt *Triturus cristatus* is recorded within the 10km grid square SE 30 (source – NBN Gateway 2011). There are no ponds within 500m of the development area; this excludes garden ponds. Although great crested newts may use gardens, studies indicate that they are generally of lower value for this species (English Nature, 2001). In addition, the great crested newt mitigation guidelines (English Nature – 2001) consider roads as a physical barrier to great crested newt dispersal. No further amphibian surveys or constraints are recommended.

3.3.4 Grass snake *Natrix natrix*, slow worm *Anguis fragilis* and common lizard *Zootoca vivipara* is recorded within the 10km grid square SE 30 (source – NBN Gateway 2011).

3.3.5 Badger *Meles meles* is recorded in and within the 10km grid square SE 30 (source – NBN Gateway 2011).

3.4 Field survey

3.4.1 This is the site of a former school, from which the buildings have been removed, except for a footprint of extensive concrete hard-standing and a few brick walls which are used for retaining soil banks around the perimeter. The whole area is surrounded by a metal palisade fence which excludes the public and larger mobile species. The entire vegetation has a rank and derelict feel, and most areas away from the hard-standing are in a state of advanced succession towards scrub or young woodland. No short, 'amenity' grassland remains, but there are nevertheless fragments of grassland, which now contain a dense and tussocky sward characteristic of abandoned fertile land.

3.4.2 The site is immediately surrounded by private gardens and a similar area of successional habitat located to the south. Habitat connectivity is limited with Wombwell Road and Market Street restricting terrestrial fauna's dispersal onto the site. However, woodland and tree cover is prominent on neighbouring land and the mosaic of habitats (grassland, woodland, scrub, open areas, mature trees and gardens) within the locality offer excellent habitats for a wide range of fauna.

3.4.3 The following Phase 1 habitats (JNCC, 1993) were recorded on site:

- Broadleaved woodland
- Scrub
- Tall ruderal
- Neutral grassland
- Bare ground

3.4.4 These habitats are described in the following tables. A map showing the main features and distribution of habitats on the site are illustrated in Appendix 2.

Phase 1 Habitat Name		Broadleaf woodland	Code	A1	Area (m ²)	6974
Description	Mostly occurring around the edges of the site, this habitat comprises a narrow band of relatively poor-quality secondary woodland with little ground flora. There are few or no trees of any great age (most are rather scrubby), although one or two somewhat larger specimens may pre-date the abandonment of the school. Although this secondary woodland on fertile soil is not of a type usually considered valuable in conservation terms, it nevertheless contains a good variety of both native and other trees, which could provide food plants for a wide range of phytophagous invertebrates, as well as nesting sites for birds. Prominent amongst the					

	species present are maples (<i>Acer</i> spp.), birches (it is considered that both <i>Betula pendula</i> and <i>B. pubescens</i> are present, with some very white-barked specimens possibly pointing to other cultivated taxa), cherries (<i>Prunus</i> spp. certainly including ornamental spp.), Italian alder <i>Alnus cordata</i> , and willows <i>Salix</i> spp. (overwhelmingly of the broad-leaved taxa, probably <i>Salix caprea</i> and its hybrids, but possibly also <i>S. cinerea</i> , as well as some specimens with coloured twigs probably belonging to garden species or cultivars). There is no hard and fast line between the woodland habitat and scrub.
Key Species	Bullfinch, maples sp., birch sp. and hawthorn

Phase 1 Habitat Name	Scrub	Code	A2.1	Area (m ²)	1818
Description	In places, low, scrubby secondary woodland has an impenetrable 'skirt' of blackthorn thicket or dense brambles. Many young or sapling trees amongst the scrub here indicate that succession to scrubby woodland is well underway wherever this habitat occurs. A relatively species-poor habitat, nevertheless providing the best habitat on the site for breeding birds, as well as foodplants and nectar sources for insects when in flower.				
Key Species	Blackthorn and bramble				

Phase 1 Habitat Name	Neutral grassland	Code	B2	Area (m ²)	8226
Description	Some patches of grassland remain, which whilst presumably once managed as amenity grassland when part of the school grounds, are now very rank and overgrown. The grassland is now very tussocky, and comprises overwhelmingly Red Fescue <i>Festuca rubra</i> and False Oat <i>Arrhenatherum elatius</i> with some Cocksfoot <i>Dactylis glomerata</i> . This type of grassland, which can be described as an 'MG1' in terms of the National Vegetation Classification, is a common habitat characteristic of neglected, fertile ground. Few herb species can tolerate the competition from coarse grasses, and in this case Red Fescue has created a particularly dense thatch, eliminating all but the most competitive herbs. However, in some areas, there is invasion by Creeping Thistle <i>Cirsium arvense</i> , Rosebay Willowherb <i>Chamerion angustifolium</i> and Bramble <i>Rubus fruticosus</i> agg. Tussocky grassland can provide good habitat for small mammals (rodents and shrews), nesting bumblebees, invertebrates requiring complex vegetation structure such as spiders, and those using these grass species as foodplant (e.g. some butterflies and moths and some sawflies). If there are flowers nearby as a source of pollen and nectar, the value of tussocky grassland to wildlife is increased.				
Key Species	Red fescue, cocks foot and false oat grass				

Phase 1 Habitat Name	Tall ruderal	Code	C3.1	Area (m ²)	1129
Description	This category is relatively-poorly delimited on this site, merging imperceptibly with hard-standing on one side, and various types of				

	grassland and scrub on the other. It is characterised here by an abundance of early-successional, 'weedy' species occurring at more or less continuous cover, in which woody species have not yet taken a hold. The kind of species occurring in this heterogeneous habitat might include Rosebay Willowherb <i>Chamerion angustifolium</i> , Teasel <i>Dipsacus fullonum</i> , Cleavers <i>Galium aparine</i> , Dead-nettles <i>Lamium</i> , spp., and docks <i>Rumex obtusifolius</i> and <i>R.sanguineum</i> .
Key Species	Rosebay Willowherb, teasel

Phase 1 Habitat Name	Bare ground	Code	J4	Area (m ²)	5444
Description	Much of this site comprises concrete hard-standing from which the school buildings have been removed. Whilst substantially bare concrete except for occasional mats of bryophytes, a good range of higher plant species occur in cracks, pockets of soil, and along the edges of these concrete areas. Sapling trees occur in places, as do other low woody species, but the flora here mostly comprises common ruderal species. In places, the flora in pockets of soil hint at a 'better' grassland flora, including Ox-eye Daisy <i>Leucanthemum vulgare</i> , Yarrow <i>Achillea millefolium</i> , Ribwort Plantain <i>Plantago lanceolata</i> , Self-heal <i>Prunella vulgaris</i> , Cat's-ear <i>Hypochaeris radicata</i> and Red Clover <i>Trifolium pratense</i> ; species apparently excluded from the remaining fragments of grassland which are now very tussocky.				
Key Species	N/A				

3.4.5 Fauna

3.4.5.1 The only fauna recorded on site during the field survey were bullfinch *Pyrrhula pyrrhula*, blue tit *Cyanistes caeruleus*, long tailed tit *Aegithalos caudatus*, magpie *Pica pica*, robin *Erithacus rubecula* and chaffinch *Fringilla coelebs*. Fox *Vulpes vulpes* was also smelt throughout the site but no den was observed.

3.4.5.2 The bullfinch is a UK Biodiversity Action Plan species and is a fairly common and widespread resident species found in woodland, in orchards and on farmland, where it is closely associated with dense shrubs, scrub and untrimmed hedges. Numbers in Britain have decreased from an estimated population of 300-350,000 pairs in 1984 to 190,000 by 1988-91. The Common Bird Census indicates that there has been a 75% decline on farmland and a 47% decline in woodland between 1968 and 1991. The UK Biodiversity Action Plan, published in 1994, was the UK Government's response to signing the Convention on Biological Diversity (CBD) at the 1992 Rio Earth Summit. The plan set out a programme for conserving the UK's biodiversity. It also led to the production of 436 action plans between 1995 and 1999 to help many of the UK's most threatened species and habitats to recover. On August 28, 2007, the new Biodiversity Action Plan identified 1,149 species and 65 habitats in the UK that need conservation and greater protection.

3.4.6 Bats

- 3.4.6.1 There were no buildings on site and the trees are of a young age (<50 years old) and consequently, do not exhibit any cracks and crevices suitable for roosting bats. Whilst no bat roosts were identified within the study area, the local habitat composition and linear features such as scrub, broadleaf woodland, trees and grassland suggest that the survey area is used by foraging bats.

3.4.7 Badgers

- 3.4.7.1 All features of potential value to badgers are surveyed; including areas of woodland (including plantation), small copses, hedgerows, embankments, rock outcrops etc. The surveyor observations included any areas where there were noticeable changes in the topography providing sloping ground into which the badgers could excavate setts. The following field signs indicate the presence of badgers.

- Badger setts and associated soil excavation;
- Badger latrines and dung pits;
- Badger prints;
- Badger hairs;
- Badger paths and;
- Evidence of badger foraging activity.

- 3.4.7.2 No main setts, annexe setts or foraging activity was located within 50m of the development area. No further mitigation is required.

3.4.8 Reptiles

- 3.4.8.1 Ideal reptile habitat has a complex, messy vegetation structure, with a mixture of plant heights and lots of edges ('ecotones'). Tangled or thorny areas offer good protection but there must always be short or bare places for basking.

- 3.4.8.2 Habitat suitable for reptiles is available within the study area and includes long grass, tussocky grass, scrub, bramble, dense herbs, uneven and undulating topography, sunny banks/slopes, bare ground, habitat edges (ecotones) and habitat mosaics interspersed with moss/lichen patches and bare ground patches. The above habitats are all present within the study area and potential habitat 'hotspots' are:

- South and east facing banking
- Concrete footprint of the former school building
- South facing access roads
- Woodland edge
- Grassland areas

- 3.4.8.3 It is recommended that a reptile presence or absence survey is undertaken during the months of highest activity; April/May and September, when there is adequate sun but the nights are cool enough to require basking during the day.

The optimum season is spring when there is an increase in mating activity and the best times of day are 0900 to 1100, and 1600 to 1900, when reptiles are most likely to be basking in open locations. The survey guidelines insist on at least 7 visits during the specified active periods.

- 3.5 Assessment of the ecological value and protection of ecological features.
- 3.5.1 This evaluation is based on the standard criteria given in Appendix 7.
- 3.5.2 The site largely comprised woodland and neutral grassland with hard-standing, scrub and ruderal habitat. Like many abandoned urban sites, this former school and its surrounds provide a heterogeneous, mixed-structure habitat likely to provide habitat for a wide range of common species. From a botanical point of view it is relatively unlikely to contain rarities (although a summer survey may find more). 'Brownfield' sites can however provide some of the very richest habitats for invertebrates. Hard-standing is a habitat which warms up very quickly and allows mobile species to travel easily, and therefore may be of value to many invertebrates and reptiles. Whilst the ground flora appears (in winter) to be relatively uninteresting, fragments of tussocky grassland are of value to small mammals and invertebrates requiring complex vegetation structure, especially if closely juxtaposed with flowers, for sources of nectar. The wide range of woody species present, both native and ornamental, is likely to provide foodplants for a wide variety of phytophagous invertebrate (many more invertebrates are specific to trees and shrub species than to forbs or grasses), as well as providing nest sites for common birds. All scrub and trees on site are over 1m in height and are considered to provide excellent nesting opportunities for birds. However, no tree is old enough to make either tree holes or dead wood a consideration here.
- 3.5.3 During the Extended Phase 1 Habitat Survey, consideration is also given to the potential of the site to support protected species. Evaluation of the habitats has shown that the site has potential to support reptiles and nesting birds.
- 3.5.4 Stroma Technology recommends the following additional surveys are undertaken:
 - 3.5.4.1 A survey for reptiles should be conducted to establish their presence/likely absence from the site prior to any site clearance works;
 - 3.5.4.2 Any broadleaved trees and shrubs to be removed should be cleared outside of the bird nesting season (i.e. clearance should be undertaken between September and February inclusive) or be carefully checked by an ecologist or other suitably qualified individual to confirm no active nests are present- prior to removal during the summer period. If nesting birds are found during the watching brief, works will need to stop until the young have fledged.

3.6 BREEAM LE3 – ECOLOGICAL VALUE OF SITE AND PROTECTION OF ECOLOGICAL FEATURES

- 3.6.1 One credit point is available where evidence is provided that the construction zone is defined as land of low ecological value and all existing features of ecological value will be fully protected from damage during site preparation and construction works. The aim of LE3 is to encourage development on land that already has limited value to wildlife and to protect existing features from substantial damage during site preparation and construction works.
- 3.6.2 Based on the field survey and information in section 3.0, the development site comprises the following features that define the site as not having a low ecological value:
- Trees or hedges above 1m high or with a trunk diameter greater than 100mm.
- 3.6.3 **No credit point** should therefore be available under LE3.

4.0 BREEAM LE4 – MITIGATING ECOLOGICAL IMPACT

4.1 Background

- 4.1.1 Under LE4, credits are awarded if measures are taken to minimise reductions or increase the ecological value of the site. BREEAM bases the ecological value of a site on the number of plant species per hectare (counting native species or those with a known value to local wildlife only). This is worked out using numbers of species for the various landscape types on site both before and after development. Credit points are available as listed in the table below.

Table 1: Credits available under LE4 – Mitigating Ecological Impact

Credit Points	Criteria
1	Where evidence provided demonstrates that the change in the site's existing ecological value, as a result of the development, is <i>minimal</i> . (A minimal change is defined by BREEAM as 'a change of ecological value of between less than zero and equal to, or less than, minus-nine species.
2	Where evidence provided demonstrates that there is <i>no negative change</i> in the site's existing ecological value as a result of development.

4.2 Species before development

- 4.2.1 A total of five types of habitat were identified on site. The number of species identified in each habitat type is summarised in the following table in accordance with BREEAM guidelines (2008). This can be used to calculate the average number of species before development. A full list of the species identified in each habitat is given in Appendix 3.

Table 2: Summary of landscape types

Plot type (Habitat)	Area on site (m ²)	Number of native species		Species x area of plot type
Broadleaved woodland	6174	13.8		4.39
Scrub	1618	13.8		1.15
Neutral grassland	6726	17.6		6.10
Tall ruderal	929	17.6		0.84
Hard standing / Ephemeral/short perennial	3944 (approx. 10% of which is vegetated)	11.6		0.24
Total site area =	19391		Total =	12.72

Plot type (Habitat)	Area on site (m ²)	Number of native species		Species x area of plot type
Species before development = (Total species x area of plot type/Total site area)				12.72

4.3 Species after development

4.3.1 Following development, the site will largely consist of buildings and hard-standing. However, the proposal includes the retention of woodland, scrub and neutral grassland. No additional soft landscaped areas are planned, though there may be limited space for planters.

4.3.2 By multiplying the number of native species post development by the area of each landscaping type, the average number of species after development can be calculated.

4.3.3 One credit point could be achieved if the change in the site's existing ecological value, as a result of the development, is *minimal*. The change in ecological value that is shown in the following table:

Plot type (Habitat)	Area on site (m ²)	Number of native species		Species x area of plot type
Broadleaf woodland and scrub	6174	13.8		4.39
Neutral grassland	3692	17.6		3.35
Building	2594	0		0
Bare ground (hard standing)	6931	0		0
Total site area =	19391		Total =	7.74
Species after development = total species x area of plot type/total site area				7.74

4.3.4 Changes in ecological value.

4.3.5 The total change in species can be calculated as follows:

Total no. species after development		Total no. species before development		Total change in species
7.74	-	12.72	=	-4.98 (For one credit)

4.4 Conclusion

4.4.1 Based on the above figures, **one credit point** is available as the change in the site's existing ecological value, as a result of the development, is *minimal*.

5.0 LES – ENHANCING SITE ECOLOGY

5.1 Background

5.1.1 Three credit points are available here if steps are taken to protect and enhance the ecological value of the site following development.

5.1.2 One point is available if a suitably qualified ecologist is appointed to advise and report on enhancing and protecting the ecological value of the site; and the ecologist's recommendations for general enhancement and protection of site ecology are implemented.

5.1.3 Additional credit points are available for a positive increase in the ecological value of the site, provided the first credit point has been achieved. These are listed in the table below.

Total Credit Points	Criteria
2	For a positive increase in the ecological value of the site up to (but not including) six native plant species.
3	For a positive increase in the ecological value of the site of six native plant species or greater.

5.2 Appointed Professional Ecologist.

5.2.1 Chris Toohie has been appointed as a professional ecologist to advise the client on ecological enhancement and protection of ecological features. Chris is a suitably qualified ecologist in this case, as indicated in the introduction of this report.

5.3 Recommendations

5.3.1 The proposed development scheme largely comprises a building and hard-standing areas with some retention of woodland, scrub and neutral grassland. It was noted during the site visit that there is habitat present with the potential to support nesting birds and reptiles.

5.3.2 Recommendations concerning the protection of ecological features, European protected species on the site are as follows and will ensure compliance with the Conservation of Habitats and Species Regulations 2010:

- A survey for reptiles should be conducted to establish their presence/likely absence from the site prior to any site clearance works;
- Any broadleaved trees and shrubs to be removed should be cleared outside of the bird nesting season (i.e. clearance should be undertaken between September and February inclusive) or be carefully checked by an ecologist or other suitably qualified individual to confirm no active nests are present- prior to removal during the summer period. If nesting birds

are found during the watching brief, works will need to stop until the young have fledged.

- All trees to be retained should be protected by barriers erected following guidelines given in BS5837 "Trees in Relation to Construction".
- Deadwood habitats are an ever decreasing but most valuable habitat, especially for fungi and invertebrates. They can easily be created by stacking small sticks and twigs, stacking logs, or placing whole trunks of felled trees. Habitat log piles can easily be incorporated into furniture within the grounds. The figures below illustrates an example of a hibernation seat created at a Local Nature Reserve and has proved to enhance biodiversity whilst being functional. Log piles and wildlife towers should be placed in partial shade, if they are sited in sunny places it is recommended that holes of varying sizes are drilled for solitary bees to nest in. This will also provide additional hibernation sites for minibeasts.

Hibernation seat



Wildlife tower



- In order to increase nesting opportunities for birds, it is recommended that 8 Schwegler bird boxes are erected throughout the site. A summary of recommended bat boxes are listed below :

Name	Description	Number
Schwegler Nest Box 1B	Entrance hole 32 mm	2
Schwegler Nest Box 1B	Entrance hole 32 mm	2
Schwegler Nest Box 2GR	Oval entrance hole	1
Starling box 3S	Oval entrance hole	2
Schwegler Nest Box 2H	Open fronted	1

5.3.3 Implementing these recommendations would result in one extra credit point being awarded.

5.4 Further increase in ecological value

5.4.1 Further credits are available under LE5 if evidence is provided to demonstrate a positive increase in the ecological value of the site of up to (but not including) six species. This would allow a further credit point to be awarded. The planting scheme will incorporate the following species and a credit point is awarded.

Trees	
Common Name	Species name
Silver birch	<i>Betula pendula</i>
Field maple	<i>Acer campestre</i>
Rowan	<i>Sorbus aucuparia</i>
Hornbeam	<i>Carpinus betulus</i>
Alder	<i>Alnus glutinosa</i>
Small-leaved lime	<i>Tilia cordata</i>

Shrubs	
Common Name	Species name
Blackthorn	<i>Prunus spinosa</i>
Hawthorn	<i>Crataegus monogyna</i>
Hazel	<i>Coryllus avellana</i>

5.5 Conclusion

5.5.1 **One credit point** should be achieved as a suitably qualified ecologist has been appointed to advise and report on enhancing and protecting the ecological value of the site; and the ecologist's recommendations for general enhancement and protection of site ecology are implemented.

5.5.2 **An additional credit point** should be awarded as the proposed planting scheme increases the ecological value of the site up to (but not including) six native plant species.

6.0 BREEAM LE6 - LONG TERM IMPACT ON BIODIVERSITY

6.1 Background

6.1.1 One credit is available if all mandatory requirements and at least two additional requirements under the BREEAM Retail 2008 guidelines are committed to.

6.1.2 A second credit point is available if all the mandatory requirements and at least four additional requirements are carried out.

6.2 Mandatory Requirements

6.2.1 Mandatory requirements are that:

- A suitably qualified ecologist (SQE) has been appointed prior to commencement of activities on site;
- The SQE has confirmed that all relevant UK and EU legislation relating to protection and enhancement of ecology has, or will be, complied with during the design and construction process; and
- An appropriate landscape and habitat management plan is produced covering at least the first five years after project completion.

6.3 Suitably Qualified Ecologist

6.3.1 Chris Toohie is the suitably qualified ecologist as indicated in the introduction of this report and was appointed prior to commencement of building activities on site.

6.4 Legal and Planning Policy Issues

6.4.1 The only known ecological legal issue potentially affecting this site are:

- Breeding birds
- Reptiles

6.4.2 Birds

6.4.2.1 The site provides habitat suitable for breeding birds. This includes the scrub and the trees on site. All wild birds in the UK are protected under the Wildlife and Countryside Act 1981 (as amended). This legislation protects the birds themselves from killing and injury (including young), and prohibits damage or destruction of their nests and eggs. In order to avoid damage or destruction of nests and eggs or killing or injury of young birds in nests, site clearance within suitable habitat will be timed to avoid the breeding season of common bird species. All nests should remain undisturbed and intact until after the breeding bird season – 1st March to 31st August.

- 6.4.2.2 If the above timing is not possible, all areas to be cleared should firstly be checked by an ecologist for active nests. This would visual monitoring of bird activity and undertaking a detailed hand search to look for active nest sites.

6.4.3 Reptiles

- 6.4.3.1 Four reptile species, slow-worm *Anguis fragilis*, viviparous (or common) lizard, grass snake and adder *Vipera berus* also have protection under the Wildlife and Countryside Act 1981. Their inclusion on Schedule 5 gives 'partial protection' (i.e. only parts of section 9 apply). In addition to the restrictions on sale they are also protected from intentional killing or injuring. (Note that this latter protection was bestowed through amendments to their original listing on the 1981 Act through Variation of Schedules Orders in 1988, www.opsi.gov.uk/si/si1988/Uksi_19880288_en_1.htm and 1991 www.opsi.gov.uk/SI/si1991/Uksi_19910367_en_1.htm).

Since its original enactment, the Wildlife and Countryside Act has been subject to many changes (notably via Schedule 12 of the Countryside and Rights of Way Act 2000 and the Conservation of Habitats and Species Regulations 2010). These have in particular affected penalties and enforcement. Offences under section 9 of the Act are now 'arrestable'. Enforcement is usually by the Police and less frequently by Natural England. However, section 25(2) of Wildlife and Countryside Act also states that a local authority may institute proceedings. Prosecutions can result in a level five fine (currently £5000) for each offence (and the Act is specific that killing/injuring of each individual animal can constitute a separate offence), the forfeiture of any equipment, etc., used to perpetrate that offence and (under the Countryside and Rights of Way Act 2000) up to six months imprisonment.

- 6.4.3.2 It is recommended that a reptile presence or absence survey is undertaken during the months of highest activity; April/May and September, when there is adequate sun but the nights are cool enough to require basking during the day. The optimum season is spring when there is an increase in mating activity and the best times of day are 0900 to 1100, and 1600 to 1900, when reptiles are most likely to be basking in open locations. The survey guidelines insist on at least 7 visits during the specified active periods.

6.5 Management Plan

- 6.5.1 A management plan is necessary to ensure that all measures taken to enhance the ecology of the site are sustainable. Assuming all recommendations for ecological enhancement are implemented, the suggested management plan would need to include the following:

- Areas of woodland and scrub may be trimmed to maintain access and sight lines. This should be undertaken outside of the bird breeding season (i.e. management should be undertaken between September and February inclusive). Any dead or diseased specimens should be replaced with new stock using the same or similar native species

- All bird boxes should be inspected at least once a year (in autumn or winter to avoid disturbing nesting birds) and cleaned out when necessary. Any damaged or otherwise obsolete boxes should be removed and replaced as necessary.
- The responsibilities for carrying out the management plan should also be addressed.

6.6 Additional Requirements

6.6.1 The following additional requirements need to be implemented by the contractor under LE6 (in addition to the mandatory requirements) in order to gain one or two credit points include the following:

1. The contractor nominates a 'Biodiversity Champion' to influence site activities and to ensure that detrimental impacts on biodiversity are minimised in line with the recommendations of an suitably qualified ecologist
2. The contractor trains the work force on the protection of site ecology during the project
3. The contractor records actions taken to protect biodiversity and monitor their effectiveness throughout key stages of construction (these records must be made publicly available upon request)
4. Management of any new, existing or enhanced habitats
5. The contractor has programmed site works to minimise disturbance to wildlife

6.6.2 In order to comply with points 1, 2, 3 and 5 above it would be necessary to take steps to safeguard breeding birds and reptiles. Breeding birds and reptiles should be safeguarded following the recommendations under LE5 and Section 6.2.

6.6.3 A member of the workforce with sufficient time and authority on site should be nominated as a 'Biodiversity Champion' to ensure that the steps above are undertaken. A record should be kept of the steps taken to ensure these steps are carried out and to report on their ultimate effectiveness.

6.6.4 One credit point should be awarded if all the mandatory requirements and at least two of the additional requirements are adhered to. Complying with at least four of the above additional requirements (in addition to the mandatory requirements) would result in a second credit point being awarded.

6.7 Conclusion

6.7.1 If the recommendations given in LE5 and section 6.2 are followed and a suitable management plan is produced, it should be possible to comply with all mandatory requirements and at least four of the additional requirements by taking the steps indicated above. This would result in **two credit points** being available.

7.0 SUMMARY

- 7.1 In January 2011, Stroma Technology were commissioned by Litton Properties Ltd to undertake an Ecological Assessment at a site off Wombwell Road, Hoyland (approximate National Grid Reference SE 37055 01195) in South Yorkshire.
- 7.2 The site was assessed using the BREEAM Retail 2008 (BRE, 2008) assessment process; which considers whether a proposal will enhance or damage the ecological value of a site.
- 7.3 LE3 – Ecological Value of Land and Protection of Ecological Features
- 7.3.1 The development site comprises the following features that define the site as not having a low ecological value:
- Trees or hedges above 1m high or with a trunk diameter greater than 100mm.
- 7.3.2 **No credit point** should therefore be available under LE3.
- 7.4 LE4 – Mitigating Ecological Impact
- 7.4.1 Based on the figures in section 4.0, **one credit point** is available as the change in the site's existing ecological value, as a result of the development, is *minimal*.
- 7.5 LE5 – Enhancing Site Ecology
- 7.5.1 **One credit point** should be achieved if the above recommendations are adopted. A further credit point is achieved as the number of species introduced has resulted in an increase of up to 6 species.
- 7.6 LE6 – Long Term Impact on Biodiversity
- 7.6.1 If the recommendations given in LE5 and section 6.2 are followed and a suitable management plan is produced, it should be possible to comply with all mandatory requirements and at least four of the additional requirements by taking the steps indicated above. This would result in **two credit points** being available.
- 7.7 In order to provide a comprehensive protected species assessment of the study area, the following surveys are recommended:
- **Reptiles, presence or absence survey**
- 7.8 Species list within this report may be forwarded to the local biodiversity records centre to be included on their national database. No personal information will be sent. Please contact Chris Toohie if you do not wish the species accounts and six figure grid references to be shared.

8.0 BIBLIOGRAPHY

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9.0 APPENDICES

Appendix 1 – Location Map



Wombwell Road study area

Appendix 2 – Phase 1 Habitat Map (Scale 1:500)

N



Key

	Neutral grassland
	Bare ground.
	Broadleaf woodland.
	Tall ruderal.
	Introduced shrub.
	Site boundary

Appendix 3 – Botanical species list

Trees and Shrubs

<i>Acer campestre</i>	Field Maple
<i>Acer platanoides</i>	Norway Maple
<i>Acer pseudoplatanus</i>	Sycamore
<i>Alnus cordata</i>	Italian Alder
<i>Berberis sp. (cult)</i>	Berberis
<i>Betula pendula</i>	Silver Birch
<i>Betula pubescens</i>	Downy Birch
<i>Buddleia davidii</i>	Buddleia
<i>Corylus avellana</i>	Hazel
<i>Crataegus monogyna</i>	Hawthorn
<i>Escallonia sp.</i>	Escallonia
<i>Fraxinus excelsior</i>	Ash
<i>Hebe sp.</i>	Hebe
<i>Hedera helix</i>	Ivy
<i>Ilex aquifolium</i>	Holly
<i>Pinus nigra</i>	Corsican Pine
<i>Prunus lusitanica</i>	Portugese Laurel
<i>Prunus spinosa</i>	Blackthorn
<i>Prunus spp (cherries)</i>	Cherry spp.
<i>Ribes sp.</i>	Currant sp.
<i>Rosa cf canina</i>	Dog Rose
<i>Rubus fruticosus agg.</i>	Bramble
<i>Salix cf caprea</i>	Goat (?) Willow
<i>Tilia sp.</i>	Lime

Grasses

<i>Arrhenatherum elatius</i>	False Oat
<i>Dactylis glomerata</i>	Cocksfoot
<i>Deschampsia caespitosa</i>	Tufted Hair Grass
<i>Festuca rubra</i>	Red Fescue
<i>Holcus lanatus</i>	Yorkshire Fog
<i>Lolium perenne</i>	Perennial Ryegrass
<i>Poa annua</i>	Annual Meadow Grass

Forbs

<i>Achillea millefolium</i>	Yarrow
<i>Anthriscus sylvestris</i>	Cow Parsley
<i>Antirrhinum majus</i>	Snapdragon
<i>Artemisia sp.</i>	Wormwood sp.
<i>Cerastium fontanum</i>	Common Mouse-ear
<i>Chamerion angustifolium</i>	Rosebay Willowherb
<i>Cirsium arvense</i>	Creeping Thistle
<i>Cirsium vulgare</i>	Spear Thistle

<i>Conium maculatum</i>	Hemlock
<i>Dipsacus fullonum</i>	Teasel
<i>Epilobium hirsutum</i>	Great Hairy Willowherb
<i>Galium aparine</i>	Cleavers
<i>Geranium pratense</i>	Meadow Cranesbill
<i>Heracleum sphondylium</i>	Hogweed
<i>Hieracium pilosella</i>	Mouse-ear Hawkweed
<i>Hypericum perforatum</i>	Common St John's-wort
<i>Hypochaeris radicata</i>	Cat's-ear
<i>Lamium album</i>	White Dead-nettle
<i>Leucanthemum vulgare</i>	Ox-eye Daisy
<i>Malva sylvestris</i>	Common Mallow
<i>Plantago lanceolata</i>	Ribwort Plantain
<i>Plantago major</i>	Great Plantain
<i>Polygonum aviculare</i>	Knotgrass
<i>Potentilla reptans</i>	Creeping Cinquefoil
<i>Prunella vulgaris</i>	Self-heal
<i>Ranunculus repens</i>	Creeping Buttercup
<i>Rumex obtusifolius</i>	Broad-leaved Dock
<i>Rumex sanguineus</i>	Wood Dock
<i>Sedum</i> sp.	Stonecrop sp.
<i>Senecio jacobaea</i>	Ragwort
<i>Sonchus asper</i>	Prickly Sowthistle
<i>Taraxacum officinale</i> agg.	Dandelion
<i>Trifolium dubium</i>	Lesser Yellow Trefoil
<i>Trifolium pratense</i>	Red Clover
<i>Tripleurospermum inodorum</i>	Scentless Mayweed
<i>Urtica dioica</i>	Nettle

Appendix 4 – Summary of desktop study.

Organisation.	Response Summary.	Date.
Natural England.	Local designations.	January 2011
Natural England.	UKBAP species and habitats within 2 km of Wombwell Road.	January 2011
Biodiversity Action Plan.	Local Biodiversity Action Plan habitat and species list.	January 2011
National Biodiversity Network	Species lists within 2 km of Wombwell Road.	January 2011

Appendix 5 -Legal protection and policy framework

Species	Key Legal Protection
Birds	Birds are afforded various levels of protection and levels of conservation status on a species by species basis. The most significant general legislation for British birds lies within Part 1 of the Wildlife and Countryside Act 1981 (as amended). Under this legislation it is an offence to, kill, injure or take any wild bird, take, damage or destroy the nest of any wild bird while that nest is in use or being built, take or destroy an egg of any wild bird.
Reptiles	All native reptiles are listed on schedule 5 of the Wildlife and Countryside Act 1981 and are afforded different levels of protection. For the four most commonly occurring species and those that are relevant to this project; adder (<i>Vipera berus</i>), grass snake (<i>Natrix natrix</i>), common lizard (<i>Lacerta vivipar</i>) and slow worm (<i>Anguis fragilis</i>) this act makes it illegal to intentionally kill or injure these species.

Appendix 6 - Field Survey Methodology

The habitats within the study area were mapped according to the techniques described in the publication *Handbook for Phase 1 Habitat Survey* (JNCC 1993).

Target notes (where applicable) provide descriptions of the main habitats found on the site, including information about species composition, habitat structure, evidence of management, habitats too small to map and transitional or mosaic habitats.

Sufficient detail on the composition of the vegetation was obtained from the Phase 1 Habitat Survey, which enabled it to be successfully characterised and assessed.

During the site visit, notes were made of features of potential value to other groups such as birds, mammals, amphibians, reptiles and invertebrates, paying particular attention to species protected by law.

Appendix 7 – Evaluation criteria.

Guidelines for ecological evaluation and the assessment of impacts have been published by Institute of Environmental Assessment (1995) and the Institute of Ecology and environmental Management (Regini 2000 and IEEM 2002).

Legislative Framework.

Species, communities, or habitats receiving legal protection under UK or EC law have high importance on national (and international) scales.

Species with special protection under UK law are listed on the schedules of the Wildlife and Countryside Act 1981 and amendments. The act also gives rise to statutory site designations i.e. National Nature Reserves, Sites of Special Scientific Interest, Areas of Special Protection for Birds, and orders e.g. Limestone Pavement Orders.

Species, communities or habitats requiring protection under EC law are listed on schedules I and II (whose conservation requires the designation of Special Areas of Conservation), IV (species in need of strict protection) and V (species whose exploitation may be subject to management measures) of the EC Directive on the Conservation of Habitats and Wild Fauna and Flora (92/43/EEC). The enabling legislation for the UK is the Conservation of Habitats and Species Regulations 2010. Species may also be scheduled under Appendix 1 of the Convention on the Conservation of European Wildlife and Natural Heritage 1979 (Bern Convention).

Other sites of international importance designated under international obligations include Biosphere Reserves (UNESCO Man and Biosphere Programme), Ramsar Sites (Convention on Wetlands of International Importance especially as Wildfowl Habitat 1971) and Special Protection Areas (EC Wild Birds Directive 79/409).

UK Site Designations.

Sites of national importance include the statutorily designated Sites of Scientific Interest (SSSI) and National Nature Reserves (NNR's).

Lower levels of importance attach to locally designated sites such as those non-statutory site designations applied by Local Authorities or Wildlife Trusts e.g. Sites of Importance for Nature Conservation (SINC's or equivalent) or Local Nature Reserves designated under the National Parks and Access to the Countryside Act 1949. Such sites may be considered to be of High Local Importance i.e. important at the county or metropolitan level (Regini 2000).

Rarity of Species and Habitats.

The British Red Data Book for vascular plants (Perring and Farrell, 1983) lists 317 species or subspecies as extinct, endangered, vulnerable and rare. Nationally rare species are defined as occurring in 1-15 10 km squares of the national grid in Britain, nationally scarce species occurring in 16 - 100 10 km squares. The presence of a breeding population of any nationally rare species is of national importance whereas a breeding population of a nationally scarce species is of

regional importance. Assemblages of 2 or more species may increase the importance of a site further.

Regional rarities are defined as occurring in 15 or fewer localities or 1 km squares in a former Nature Conservancy Council region (NCC, 1989).

Biodiversity: The UK Steering Group Report contains a "Long List" of key species in the UK that fall into 1 or more of the following categories: threatened endemics or globally threatened; where the UK holds greater than 25% of the world population; where numbers or range have declined by more than 25% in the last 25 years; nationally rare species; and statutorily protected species. Presence of viable populations of such species may be of high importance.

County floras and biodiversity action plans, or district action plans may identify species that are rare at the county or district level. Viable populations will therefore have conservation importance in these contexts.

Further information on species rarity may be found in *Scarce Plants in Britain* (Stewart et al 1994) and the *Atlas of the British Flora* (Perring and Walters, 1962) and subsequent revisions.

Biodiversity: The UK Steering Group Report has identified a number of key habitats under the following criteria: those for which the UK has international obligations; rare habitats or those with high rates of decline; functionally critical habitats (marine areas); and habitats that are important for key species. Sites containing good examples of viable areas of any key habitat may be considered nationally important.

Importance may be attached to plant community types defined in the National Vegetation Classification (Rodwell, 1991 etc) that are also described as rare, declining or with restricted distributions or are identified as being of particular botanical importance (NCC, 1989).

Criteria for Overall Site Evaluation.

The accepted criteria for site evaluation are set out by Ratcliffe (1977) in a *Nature Conservation Review* and are also explained in *Guidelines for the Selection of Biological SSSI's* (NCC, 1989). The principal criteria are briefly outlined below:

Naturalness. Truly natural habitats are valued highly but are rare in Britain and most sites are modified and semi-natural at best. Physical habitat modifications vary greatly in their impact, some being beneficial whilst others are harmful. A greater degree of conformity of a particular community or site with semi-natural rather than highly modified vegetation types in the National Vegetation Classification (NVC) and the absence of species indicating disturbance are likely to lead to attachment of higher importance. However, note that communities that appear to be intermediate between semi-natural NVC types are not necessarily of lesser quality.

Size. The area of a site or habitat judged to be viable varies greatly between different habitat types and with factors such as the condition of the habitat, the shape of the habitat area and surrounding land use. In addition, the territorial requirements of particular species within the site/habitat and habitat management factors may need consideration.

In general, larger sites or areas of habitat tend to be valued more highly because of the greater population sizes and hence more robust populations of the species within them; the potential for increased site or habitat diversity and hence greater species-richness over a larger area; and a reduced importance of edge effects (pollution drift, habitat degradation/change for other reasons at the site edge) if the site is block rather than ribbon shaped. Small sites become increasingly important in areas of little semi-natural habitat.

Rarity. Criteria for rarity of species and habitats are outlined above. The scarcer the habitat or species then the higher the level of importance attached.

Diversity. Diversity tends to be valued positively as it increases. At the phytosociological level, some habitats are more species-rich than others and so have a higher value, provided that the richness does not involve non-native species. Some plant communities are intrinsically more species-rich than others so comparisons should only be made between the same community types.

The standard of floristic diversity is guided by the floristic tables within the National Vegetation Classification (NVC) (Rodwell, 1991 etc). A community having more than 75% of the total plant species list for its type in the NVC would be rated very highly. Diversity of different communities within a vegetation formation (e.g. woodland) may also be rated highly as may structural diversity (e.g. rides, glades and differing age structures or canopy layering in woodland). Habitat diversity across a site may also increase its importance.

Fragility. Fragility is a measure of the intrinsic sensitivity of nearly all natural and semi-natural habitats and species to human impact. It is the fragility of such habitats and species which causes them to be more highly valued than any of the artificial substitutes which replace them through human activity; and the greater their fragility the greater their value. Fragility is therefore clearly related irreplaceability or non-recreatability. Re-creation of habitats that have taken centuries to develop, sometimes with centuries of traditional management, is impossible to the full extent of their former complexity.

Typicalness. Typicalness is an indication of how characteristic the features of a site are compared to its particular ecosystem. It is intended as a guard against designation of those sites with unusual features as being always the most important.

Position in an Ecological/Geographical Unit. This is a landscape ecological criteria designed to identify sites or habitats which may be important to maintaining the viability of a larger group thereof; or which is essential in maintaining the population of a species with a large territory spanning several sites; or is one of a number of sites important to a metapopulation of a species in fragmented landscapes; or may be important in a wildlife corridor or network of habitat patches.

Amenity Value

The amenity value of a site in ecological terms is generally seen as its value for the study or quiet enjoyment of wildlife. Sites with high intrinsic appeal and good access are therefore regarded as important in this context. Also important are issues such as site safety, proximity to schools and population centres and site management difficulties.

