RDF ecology
Consultant Ecologists

3 Bramble Close
Wickersley
Rotherham
South Yorkshire
S66 1FH

Tel: 01709 531 868
Web: www.rdfecology.co.uk

Newsome Avenue Development

Ecological Impact Assessment

Prepared for South Yorkshire Housing Association

February 2013



	Staff Member	Position
Extended Phase I Habitat Survey	Rob Frith BSc (Hons) MIEEM	Managing Director
Report prepared by	Rob Frith BSc (Hons) MIEEM	Managing Director
Approved by:	Dena Frith	Director
Notes:		

Report Status	Authorised for Release	Date	Position
Draft	Rob Frith 	20 November 2012	Managing Director
Final Draft	Rob Frith 	5 December 2012	Managing Director
Final (Updated with records from Barnsley Biological Records Centre)	Rob Frith 	13 February 2013	Managing Director

TABLE OF CONTENTS

1. INTRODUCTION 1
2. THE DEVELOPMENT PROPOSALS 2
3. SURVEY METHODOLOGY 3
3.1. STUDY AREA 3
3.2. DESKTOP STUDY 3
3.3. FIELD SURVEY 3
3.4. OTHER GROUPS 4
3.5. LIMITATION OF FIELD SURVEY 4
4. SURVEY RESULTS 5
4.1. GENERAL DESCRIPTION 5
4.2. DESK TOP STUDY 5
4.3. EXTENDED PHASE 1 HABITAT SURVEY RESULTS 6
4.4. OTHER GROUPS 10
5. EVALUATION OF SURVEY RESULTS 12
5.1. OVERALL APPROACH TO ASSESSMENT 12
5.2. DETERMINING VALUE 13
5.3. EVALUATION OF SURVEY RESULTS 14
5.4. EVALUATION SUMMARY 15
6. ASSESSMENT OF POTENTIAL ECOLOGICAL IMPACTS 16
6.1. IMPACT ASSESSMENT METHODOLOGY 16
6.2. SELECTION OF FEATURES TO BE ASSESSED 18
6.3. PREDICTED ECOLOGICAL EFFECTS OF THE DEVELOPMENT PROPOSALS 18
6.4. SIGNIFICANCE OF THE EFFECTS 19
7. BIBLIOGRAPHY 26
8. APPENDICES 27
8.1. APPENDIX 1—LIST OF SPECIES 27
8.2. APPENDIX 2—FIGURES 29
8.3. APPENDIX 3—VALUATION CRITERIA 30

LIST OF TABLES

Table 1—Risk Assessment for Trees 4
Table 2—Evaluation Summary Table 15
Table 3—Impact Predication Confidence Levels 16
Table 4—Summary Impact Table 24
Table 5—Ecological Importance Summary Table 34

LIST OF PHOTOGRAPHS

Photograph 1—developing plantation woodland adjacent to Newsome Avenue 6
Photograph 2—Plantation woodland along northern site boundary 7
Photograph 3—Open Bramble scrub along western site boundary with Youth Centre. 8
Photograph 4—Grassland with developing scrub and plantation woodland in background ... 9
Photograph 5—Cherry with limited lifting bark 10

1. INTRODUCTION

1.1. In July 2012, ***RDF*** Ecology Limited was appointed by South Yorkshire Housing Association Limited (SYHA) to prepare an ecological impact assessment for a proposed residential development at Newsome Avenue, Wombwell, Barnsley, South Yorkshire.

1.2. SYHA are seeking planning permission for the re-development of part of the site of the former High View Primary Learning Centre.

1.3. In order to fulfil the brief ***RDF*** Ecology Ltd completed the following:

- A desktop study and consultation
- An extended phase 1 habitat survey

1.4. This report describes the findings of the desktop study and field survey work, considers the potential impacts arising from the proposed development and proposes appropriate mitigation measures.

2. THE DEVELOPMENT PROPOSALS

2.1. The development proposals for the scheme are shown on SYHA drawing No: 901 Revision E dated July 2012. These proposals are for the creation of extra-care independent living accommodation with associated access and car parking and will result in the re-development of approximately 70% of the planning application site.

2.2. The landscape proposals are still been developed, but the aim is to maximise their value for wildlife wherever practicable.

3. SURVEY METHODOLOGY

3.1. Study Area

3.1.1. The development site study area is located north of Newsome Avenue Wobmwell, Barnsley, South Yorkshire and extends to approximately 1ha and is shown edged in red on Figure 1 in Appendix 2.

3.1.2. To the west of the site is the Highfields Youth Centre, car park and associated landscaping and the new Highview Primary Learning Centre School Buildings and grounds are adjacent to the eastern boundary.

3.1.3. The desktop study area extends to approximately 2km beyond the development site boundary.

3.2. Desktop Study

3.2.1. A range of data sources were consulted to obtain ecological information about the study area and its immediate surroundings and included the following:

- Barnsley Biological Records Centre
- Multi Agency Geographic Information for the Countryside (MAGIC) website
- Natural England web site and online SSSI database
- The National Biodiversity Network on-line Biological Records Database.

3.3. Field Survey

3.3.1. The extended phase I habitat survey was undertaken on 12 July 2012.

3.3.1. Extended Phase I Habitat Survey Methodology

3.3.1.1. During the site visits the whole of the development site was examined in detail and lists of all the plant species identified were compiled. Separate lists were produced for each habitat area identified. Detailed species lists are provided in Appendix 1.

3.3.1.2. The habitats within the study area were mapped according to the techniques described in the publication Handbook for Phase 1 Habitat Survey published by the Joint Nature Conservation Committee and updated in 2010. Figure 2 in Appendix 2 shows the results of the Phase 1 Habitat Survey.

3.3.1.3. An extended phase 1 habitat survey gathers sufficient information and detail on the composition of the vegetation of the study area to enable it to

be characterised and assessed. The survey also gathers data to allow an assessment of the sites potential value for supporting protected species.

3.3.2. Bat Survey Methods

Tree Assessment Survey

3.3.2.1. During the extended phase I habitat any mature trees within or adjacent to the boundary of the development site study area were examined to assess their potential value for roosting bats

3.3.2.2. The trees were examined from the ground (using binoculars where necessary) to look for features of potential value to roosting bats including old woodpecker holes, Ivy cover, lifted or flaking bark, rot holes and split limbs. Trees were also examined for any other evidence of occupation by bats such as staining, droppings and scratch marks.

3.3.2.3. The risk of trees or groups of trees to support roosting bats was assessed according to the criteria in Table 2 below:

Table 1—Risk Assessment for Trees

Low Risk	Medium Risk	High Risk
No cracks or crevices	Few small cracks and crevices	Woodpecker holes
No flaking bark	Deadwood in canopy or stem	Cracks/crevices
Low/no Ivy cover	Low/medium Ivy cover	Loose or flaking bark
Coniferous species	Small clusters of trees	Medium-dense Ivy cover
Single isolated trees	Hedgerow Trees	Deadwood in canopy or stem
		Snagged branches
		Hollow core, stem or limb
		Hole between buttresses
		Woodland or woodland edge location

3.4. Other Groups

3.4.1. During the site visit notes were made of features of potential value to other groups such as birds, mammals, amphibians, herptiles and invertebrates paying particular attention to protected species and any incidental records noted.

3.5. Limitation of Field Survey

3.5.1. The whole of the study area was examined during the field survey and the work was completed during the optimum survey period for plants. Given the simplicity and artificial nature of most of the habitats encountered it is unlikely that any significant species were overlooked during the survey and that this report will provide an accurate description of the ecological features of the study area.

4. SURVEY RESULTS

4.1. General Description

4.1.1. The development site comprises areas of developing broad-leaved plantation, Bramble underscrub and coarse neutral grassland containing a range of ruderal and robust perennial species.

4.2. Desk Top Study

4.2.1. Statutory Designated Sites

4.2.1.1. The desktop study indicated that a single site protected by a statutory designation was located within 2km of the proposed development site and this was Stairfoot Brickworks Site of Special Scientific Interest (SSSI) a site designated for its geological value which lies approximately 1.8km north-west of the development site.

4.2.1.2. Worsborough Country Park Local Nature Reserve (LNR) lies approximately 3km west of the development site boundary.

4.2.1.3. The location of these designated sites is shown in Figure 2 in Appendix 2

4.2.2. Non-Statutory Designated Sites

4.2.2.1. Natural Heritage Sites are the best examples of the different habitat types found in the Barnsley Metropolitan Borough and area only designated after an extensive survey of the semi-natural vegetation.

4.2.2.2. The development site is not covered by any non-statutory nature conservation designations and there are no Local wildlife sites within 1km of the development site boundary. The nearest site is Wombwell Wood Natural Heritage Site which lies approximately 1km south west of the study area. Two candidate LWS are located within 1.5km of the development site and these are Swaithe Flood Meadows Candidate LWS located 1.2km north west of the study area and Parkhill Nature Reserve Candidate LWS located 1.4km east of the study area.

4.2.2.3. The location of these designated sites is shown in Figure 2 in Appendix 2

4.2.3. Other Designations

4.2.3.1. The site falls within the South Yorkshire Forest project area.

4.2.4. Protected Species

4.2.4.1. The desktop study did not reveal any protected species or Local Biodiversity Action Plan Priority Species records relating to the study area.

4.2.4.2. The nearest records for European Protected Species were of Great Crested Newts *(Triturus cristatus)* at Wombwell Golf Course approximately 1.2km south east of the development site boundary and for Daubentons bats *(Myotis daubentonii)* at Parkhill Brickworks approximately 1.5km east of the site boundary and an old (2004) record for Common Pipistrelle *(Pipistrellus pipistrellus)* bats at Wombwell High School approximately 1.5km south east of the development site boundary.

4.2.4.3. There were also records for Barn Owl *(Tito alba)* but these were more than 1km from the development site boundary.

4.3. Extended Phase 1 Habitat Survey Results

4.3.1. Broad-leaved Plantation

4.3.1.1. Areas of Broad-leaved plantation were present along the southern boundary with Newsome Avenue and comprised a small number of species including Sycamore *(Acer pseudoplatanus)*, Alder *(Alnus glutinosa)*, Silver Birch *(Betula pendula)*, Hawthorn *(Crataegus monogyna)*, Ash *(Fraxinus excelsior)*, Flowering Cherry *(Prunus Sp.)*, wild Cherry *(Prunus avium)* and Goat Willow *(Salix caprea)*, with a dense understorey of Elder *(Sambucus nigra)* and occasional Hazel *(Corylus avellana)* and Ash saplings *(Fraxinus excelsior)*.



Photograph 1—developing plantation woodland adjacent to Newsome Avenue

4.3.1.2. Under the developing tree canopy the ground flora was poor and contained dense carpets of Ivy *(Hedera helix)* along with Bramble *(Rubus fruticosus)* underscrub and large stands of Common Nettle *(Urtica dioica)*. Other herb layer species comprised a limited range of coarse grasses including False Oat-grass *(Arrhenatherum elatius)*, Cock's-foot *(Dactylis glomerata)*, Common Couch *(Elytrigia repens)* and Yorkshire Fog *(Holcus lanatus)* along with an equally limited range of broad-leaved species including Garlic Mustard *(Alliaria petiolata)*, Cow Parsley *(Anthriscus*

sylvestris), Creeping Thistle *(Cirsium arvense)*, Cleavers *(Galium aparine)*, Hogweed *(Heracleum sphondylium)*, and Hedge Mustard *(Sisymbrium officinale)*.

4.3.1.3. Another area of plantation woodland exists along the northern site boundary and this was more open with a canopy containing Wild Cherry *(Prunus avium)*, Silver Birch *(Betula pendula)*, Rowan *(Sorbus aucuparia)*, Sycamore *(Acer pseudoplatanus)*, Field Maple *(Acer campestre)*, Hawthorn *(Crataegus monogyna)*, Hazel *(Corylus avellana)* and less frequent Sweet Chestnut *(Castanea sativa)*, Guelder Rose *(Viburnum opulus)* and Lime *(Tilia x vulgaris)*.

4.3.1.4. The ground vegetation here comprised coarse grasses including False Oat-grass *(Arrhenatherum elatius)*, Cock's-foot *(Dactylis glomerata)*, Common Couch *(Elytrigia repens)*, Yorkshire Fog *(Holcus lanatus)* and Perennial Rye-grass *(Lolium perenne)* along with a limited range of broad-leaved species including Garlic Mustard *(Alliaria petiolata)*, Cow Parsley *(Anthriscus sylvestris)*, Creeping Thistle *(Cirsium arvense)*, Cleavers *(Galium aparine)*, Hogweed *(Heracleum sphondylium)*, Nipplewort *(Lapsana communis)* and Hedge Mustard *(Sisymbrium officinale)* along with some large stands of Common Nettle *(Urtica dioica)* and developing Bramble *(Rubus fruticosus agg.)* underscrub.



Photograph 2—Plantation woodland along northern site boundary

4.3.2. Scrub

4.3.2.1. Around the margins of the plantation areas and along the western site boundary were stands of variable Bramble *(Rubus fruticosus agg.)* underscrub which in areas was dense and impenetrable and in others was more open and invading areas of adjacent neutral grassland but created a natural edge to the woodland and site boundaries.

4.3.2.2. In the dense stands, Bramble was dominant and other associated sub-ordinate species included a limited range of coarse grasses and tall perennial and ruderal species including False Oat-grass *(Arrhenatherum elatius)*, Cock's-foot *(Dactylis glomerata)*, Common Couch *(Elytrigia repens)*, Yorkshire Fog *(Holcus lanatus)* and Perennial Rye-grass *(Lolium perenne)* along with Cow Parsley *(Anthriscus sylvestris)*, Creeping Thistle *(Cirsium arvense)*, Spear Thistle *(Cirsium vulgare)*, Cleavers *(Galium aparine)*, Hogweed *(Heracleum sphondylium)*, Nipplewort *(Lapsana communis)*, Broad-leaved Dock *(Rumex obtusifolius)* and Hedge Mustard *(Sisymbrium officinale)* and some large stands of Common Nettle *(Urtica dioica)*

4.3.2.3. Elsewhere the Bramble *(Rubus fruticosus agg.)* underscrub was more open and supported a wider range of associates that included Common Bent *(Agrostis capillaris)*, Meadow Foxtail *(Alopecurus pratensis)*, Sweet Vernal-grass *(Anthoxanthum odoratum)*, False Oat-grass *(Arrhenatherum elatius)*, Crested Dog's-tail *(Cynosurus cristatus)*, Cock's-foot *(Dactylis glomerata)*, Red Fescue *(Festuca rubra)*, Perennial Rye-grass *(Lolium perenne)*, Timothy *(Phleum pratense)*, Smooth Meadow-grass *(Poa pratensis)* and Rough Meadow-grass *(Poa trivialis)*.



Photograph 3—Open Bramble scrub along western site boundary with Youth Centre.

4.3.2.4. Broad-leaved species were generally at low abundance due to the dominance of the coarse grass species and invading Bramble *(Rubus fruticosus agg.)* but included Yarrow *(Achillea millefolium)*, Cow Parsley *(Anthriscus sylvestris)*, Daisy *(Bellis perennis)*, Common Mouse-ear *(Cerastium fontanum)*, Smooth Hawk's-beard *(Crepis capillaris)*, Hogweed *(Heracleum sphondylium)*, Cat's-ear *(Hypochaeris radicata)*, Common Bird's-foot-trefoil *(Lotus corniculatus)*, Black Medick *(Medicago lupulina)*, Ribwort Plantain *(Plantago lanceolata)*, Self-heal *(Prunella vulgaris)*, Creeping Buttercup *(Ranunculus repens)*, Broad-leaved Dock *(Rumex*

obtusifolius), Ragwort *(Senecio jacobaea)*, Dandelion *(Taraxacum officinale agg.)*, Red Clover *(Trifolium pratense)*, White Clover *(Trifolium repens)*, Tufted vetch *(Vicia cracca)* and Hairy Tare *(Vicia hirsuta)*. Less frequently encountered species included Common Knapweed *(Centaurea nigra)*, Ivy *(Hedera helix)*, Meadow Vetchling *(Lathyrus pratensis)*, Autumn Hawkbit *(Leontodon autumnalis)*, Meadow Buttercup *(Ranunculus acris)* and Bush Vetch *(Vicia sepium)*.

4.3.3. Neutral Grassland

4.3.3.1. The largest area of habitat comprised coarse, tussocky and generally species poor neutral grassland with varying amounts of developing Alder *(Alnus glutinosa)* scrub and tall herb vegetation.

4.3.3.2. This comprised a very coarse tussocky sward dominated by False Oat-grass *(Arrhenatherum elatius)* with Cock's-foot *(Dactylis glomerata)* and Yorkshire Fog *(Holcus lanatus)* along with a range of other grasses including Common Bent *(Agrostis capillaris)*, Meadow Foxtail *(Alopecurus pratensis)*, Sweet Vernal-grass *(Anthoxanthum odoratum)*, Crested Dog's-tail *(Cynosurus cristatus)*, Red Fescue *(Festuca rubra)*, Perennial Rye-grass *(Lolium perenne)*, Timothy *(Phleum pratense)*, Smooth Meadow-grass *(Poa pratensis)* and Rough Meadow-grass *(Poa trivialis)*.



Photograph 4—Grassland with developing scrub and plantation woodland in background

4.3.3.3. Broad-leaved species were generally at low abundance due to the dominance of the coarse grass species, although some of the scrambling species such as Hairy Tare *(Vicia hirsuta)* and Tufted Vetch *(Vicia cracca)* attained local abundance in parts of the sward. Species here included Yarrow *(Achillea millefolium)*, Cow Parsley *(Anthriscus sylvestris)*, Daisy *(Bellis perennis)*, Common Mouse-ear *(Cerastium fontanum)*, Smooth Hawk's-beard *(Crepis capillaris)*, Hogweed *(Heracleum sphondylium)*, Cat's-ear *(Hypochaeris radicata)*, Autumn Hawkbit *(Leontodon*

autumnalis), Common Bird's-foot-trefoil *(Lotus corniculatus)*, Ribwort Plantain *(Plantago lanceolata)*, Creeping Buttercup *(Ranunculus repens)*, Broad-leaved Dock *(Rumex obtusifolius)*, Ragwort *(Senecio jacobaea)*, Dandelion *(Taraxacum officinale agg.)*, Red Clover *(Trifolium pratense)* and White Clover *(Trifolium repens)*. Less frequently encountered species included Mugwort *(Artemisia vulgaris)*, Common Knapweed *(Centaurea nigra)*, Rosebay Willowherb *(Chamerion angustifolium)*, Meadow Vetchling *(Lathyrus pratensis)*, Meadow Buttercup *(Ranunculus acris)* and Common Ragwort *(Senecio jacobaea)*.

4.3.3.4. Within the grassland was some developing scattered Alder *(Alnus glutinosa)* saplings with occasional Hawthorn *(Crataegus monogyna)* and Goat Willow *(Salix caprea)*.

4.3.3.5. Along the western boundary with the youth centre was a line of young Cypress *(Cupressus/Cupressocyparis sp)* trees and nearby was a single isolated young Pear *(Pyrus communis)* trees.

4.3.3.6. Smaller areas of neutral grassland were present along the southern boundary of the site adjacent to Newsome Avenue and these contained a generally more impoverished version of the main grassland areas with once section being used as an informal car park and with areas of bare ground and heavily trampled vegetation.

4.4. Other Groups

4.4.1. None of the trees present in the development site, with the exception of a large flowering Cherry (Prunus sp), were considered to be of value to roosting bats being either too young or with no suitable features for roosting such as rot holes, cracks, fissures, flaking bark or dense ivy growth and consequently they were all assessed to provide low potential for roosting bats.



Photograph 5—Cherry with limited lifting bark

4.4.2. The large Flowering Cherry that was located close to Newsome Road has some areas of rot with lifting bark and was considered to be of Low-Medium risk for roosting bats.

4.4.3. A limited range of birds were recorded from the woodland areas including Robin *(Erithacus rubecula)*, Blackbird *(Turdus merula)*, Wren *(Troglodytes troglodytes)*, Blue Tit *(Cyanistes caeruleus)* and Greenfinch *(Carduelis chloris)*. It is likely that most of these species would breed in the areas of plantation.

4.4.4. A number of butterfly species were recorded during the field survey including Meadow Brown *(Maniola jurtina)*, Small Tortoiseshell *(Aglais urticae)*, Common Blue *(Polyommatus icarus)*, Small Copper *(Lycaena phlaeas)*, Small Skipper *(Thymelicus sylvestris)* and notably a small colony of Ringlet *(Aphantopus hyperantus)*.

4.4.5. A small number of Yellow Meadow Ant *(Lasius flavus)* colonies were recorded from the northern area of grassland.

5. EVALUATION OF SURVEY RESULTS

5.1. Overall Approach to Assessment

5.1.1. The overall approach to assessment adopted by the study team is based upon the guidelines for Ecological Impact published by the Institute of Ecological and Environmental Management Assessment (Terrestrial and Freshwater and Coastal (IEEM 2006) and Marine, Coastal and Estuarine (IEEM 2010) and can be summarised as below:

1. To identify the likely zone of influence (study area) arising from the whole lifespan of the project;
2. To identify and value the features of nature conservation interest within the ecological study area in a systematic way by establishing levels of interest for ecological features measured against definable criteria. The term Valued Ecological Receptor (VER) is used to describe the species, communities, habitats or sites selected for detailed study during the process of ecological impact assessment.
3. To identify the biophysical changes attributable to the project that are likely to affect valued ecological features and resources;
4. To assess whether these biophysical changes are likely to give rise to a significant ecological impact, defined as an impact on the integrity of a defined site or ecosystem and/or the conservation status of habitats or species within a given geographical area, including cumulative and in-combination impacts;
5. To consider appropriate refinement of the project to avoid or reduce identified negative impacts and incorporate mitigation measures and/or compensation measures for any residual significant negative impacts and ecological enhancement measures to improve the wider environment;
6. To undertake an assessment of the ecological impacts of the refined project and definition of the significance of these impacts, including cumulative and in-combination impacts;
7. To provide advice on the consequences for decision making of the significant ecological impacts, based on the value of the resource, feature or function; and

8. Where appropriate to make recommendations for monitoring the implementation and success of mitigation and compensation measures and ecological outcomes, including feedback in relation to predicted outcomes.

5.2. Determining Value

5.2.1. The IEEM guidelines advocates an approach to the valuation of ecological features using a geographical framework (full details in Appendix 3) based upon the following:

- International;
- National; (i.e. England/Northern Ireland/Scotland/Wales)
- Regional;
- County/Metropolitan
- District/Unitary Authority/City or Borough
- Local/Parish
- Within zone of influence only

5.2.2. The thorough evaluation of the ecological importance of the features of a site is essential in order to assess the significance of the ecological effects of the development proposals.

5.2.3. The evaluation criteria are given in detail in Appendix 2. Their aim is to consider the habitats, communities and species present on site in relation to the following:

1. The legislative framework (e.g. the Wildlife and Countryside Act 1981 and the EC Directive on the Conservation of Habitats and Wild Fauna and Flora (92/43/EEC) for the presence of protected species and habitats).
2. Nature conservation designations, including national site designations (Sites of Special Scientific Interest, National Nature Reserves etc), local designations (Sites of Importance for Nature Conservation, Local Nature Reserves, County Wildlife Sites etc).
3. Accepted criteria for species rarity and declining populations, and rarity of habitat types or communities, including species and habitats identified in the British Red Data Books, national biodiversity action plan, and species and habitats identified in regional or local biodiversity action plans where available.
4. Accepted criteria for overall site evaluation (including rarity, diversity, naturalness, historical factors and issues relating to landscape ecology).

5.3. Evaluation of Survey Results

5.3.1. Designations

5.3.1.1. The site is not covered by any statutory or non-statutory nature conservation designations. The nearest site covered by a statutory designation is Stairfoot Brickworks SSSI which lays approximately 1.8km north-west of the development site and is designated for its geological value and would not be directly or indirectly affected by the proposed development.

5.3.1.2. There are no LWS within 1km of the study area and mo LWS would be affected by the proposed development

5.3.2. Habitats

5.3.2.1. The habitats recorded within the development site include areas of young broad-leaved plantation, Bramble underscrub and coarse neutral grassland. All of the habitats are of fairly recent origin with the grassland and scrub having developed on the cleared site of the former High View Primary Learning Centre or from areas of unmanaged former amenity grassland, whilst the plantation was originally part of the Learning Centre landscape tree planting.

5.3.2.2. The grassland and scrub areas support a low-moderate species diversity which reflects their recent origins and the dominance of a range of coarse grasses. The plantation areas also support a low-moderate species diversity with the plantation adjacent to Newsome Avenue having a less diverse canopy and ground flora.

5.3.2.3. None of the habitats are considered rare or unusual in Barnsley Metropolitan Borough. However the Barnsley Biodiversity Action Plan (BAP) lists open mosaic habitats on previously developed land as one of its priority habitats and whilst this primarily relates to sparse, open and developing vegetation on derelict industrial sites such as former colliery sites, disused railways, mineral and clay extractions it also includes urban gardens, allotments and public open space and would therefore potentially include the grassland habitats within proposed development site. Consideration should therefore be given to retaining some of the existing habitat where practicable and incorporating this into the final landscape design for the development.

5.3.2.4. The habitats present with the site are assessed to be of value at the Parish/neighbourhood level.

5.3.3. Species

5.3.3.1. No notable or protected species were recorded during the field survey and the desktop study and data search did not reveal any protected species records for the proposed the site which has low potential for supporting protected species.

5.3.3.2. A single tree in the plantation area adjacent to Newsome Avenue was assessed to have a low-medium potential for supporting roosting bats. If roosting bats were to be present the tree would be assessed to be of value at the District level, but currently would be assessed to be of value of value within the zone of influence only. Furthermore, it is understood that it is proposed to retain this tree along with some adjacent vegetation and to be supplemented by additional tree planting and would therefore be protected during the development works.

5.3.3.3. However the site supported a range of common and widespread butterfly species including a small colony of Ringlet *(Aphantopus hyperantus)* which has a more localised distribution due to its tendency to live in discrete colonies. The butterfly interest is due to the range of food and nectar plants present on site and in particular the large, sheltered areas of Bramble scrub and it is likely that all species breed within the development site. Based upon the butterfly interest recorded the site is assessed to be of value at the Parish/neighbourhood level.

5.4. Evaluation Summary

5.4.1. The table below summarises the value of the ecological resource of the proposed development site.

Table 2—Evaluation Summary Table

Resource	Assessed Importance	Reasons
Broad-leaved Plantation	Parish/neighbourhood	Species poor plantation with poor ground flora
Bramble Scrub	Parish/neighbourhood	Species poor areas of Bramble scrub and neutral grassland mosaics but supports a good range of common and widespread butterflies.
Neutral grassland	Parish/neighbourhood	Coarse, species poor, grass dominated grassland with ruderal vegetation supporting a limited range of common and widespread species. Supports a good range of common and widespread butterflies and a small number of Meadow Ant colonies.

6. ASSESSMENT OF POTENTIAL ECOLOGICAL IMPACTS

6.1. Impact Assessment Methodology

6.1.1. Effect Magnitude and Significance

6.1.1.1. Effects may be negative or positive. The characteristics of an effect involve several factors such as magnitude (e.g. number of individuals killed, total or partial loss of habitat structure and function), extent (the area over which it occurs), duration (the time over which the effect occurs), reversibility (whether the effect is temporary or permanent) and its timing/frequency. A level of confidence (e.g. certain/probable/unlikely) should be attached to both the occurrence of a predicted impact and the assessment of its ecological effect in accordance with the following:

Table 3—Impact Predication Confidence Levels

Probability of Impact occurring	Confidence Level
Certain/near-Certain	Probability estimated at 95% chance or higher.
Probable	Probability estimated above 50% but below 95%.
Unlikely	Probability estimated above 5% but less than 50%.
Extremely Unlikely	Probability estimated at less than 5%.

6.1.1.2. Consideration of the above characteristics leads to a determination of the significance of the effect and the probability of it occurring. The IEEM (2006) guidance defines a significant impact as an effect "(negative or positive) on the integrity of a defined site or ecosystem and/or the conservation status of habitats or species within a defined geographical area". The importance level of the ecological feature concerned then defines the geographical level at which the effect is significant, although it may also be the case that the effect could be considered significant at a lower geographical level than that at which the feature is important, depending on the magnitude of the effects.

6.1.1.3. The concept of integrity is applied principally to site/ecosystems and is defined as follows. "The integrity of a site is the coherence of its ecological structure and function across its whole area, that enables it to sustain the habitat, complex of habitats and/or the levels of populations of species for which it was classified" (Scottish Executive 2000). A site that achieves this coherence is said to be in favourable condition. Effects on the integrity of a site/ecosystem will move it towards (positive) or away from (negative) favourable condition by, for instance, changing or removing ecosystem processes; changing the nature, extent, structure and function of component habitats; or by changing the average

population size or viability of component species. Sites with international designations (SACs, SPAs) frequently have conservation objectives (or similar) against which likely changes (and hence potential effects on the site's integrity) should be assessed. SSSIs may also have similar criteria.

6.1.1.4. Guidance on considering a development proposal that might affect a European site is set out in the National Planning Policy Framework and *ODPM Circular 06/2005* (Government Circular: Biodiversity and Geological Conservation—Statutory Obligations and their Impact within the Planning System)

6.1.1.5. Where a proposal is not directly connected with or necessary to site management for nature conservation and the proposal is unlikely to have a significant effect on the internationally important interest features of the site, alone or in combination with other plans and projects, planning permission may be granted without the need for an appropriate assessment. The decision on whether an appropriate assessment is necessary should be made on a precautionary basis and an appropriate assessment is required where there is a probability or a risk that the plan or project will have significant effects on a site.

6.1.1.6. The IEEM (2006) guidance also recommends that the concept of conservation status is used to determine whether effects are likely to be ecologically significant, using the following definitions:

- "for habitats, conservation status is determined by the sum of the influences acting on the habitat and its typical species, that may affect its long-term distribution, structure and functions as well as the long-term survival of its typical species within a given geographical area;
- "for species, conservation status is determined by the sum of the influences acting on the species concerned that may affect the long-term distribution and abundance of its populations within a given geographical area".

6.1.1.7. Potential effects on conservation status should be considered in the same way as potential effects on integrity.

6.1.1.8. The assessment process used determines the unmitigated impacts and their significance, considers appropriate mitigation, enhancement and compensation and finally makes an assessment of the significance of the residual impacts.

6.2. Selection of Features to be Assessed

6.2.1. The habitats directly affected by the proposed residential development include the plantation woodland adjacent to Newsome Road along with some areas of neutral grassland and Bramble underscrub which are all assessed to be of value at the Parish/neighbourhood level. These areas that would be lost as a result of the proposed development amount to approximately 70% of the total site habitat area

6.2.2. After consideration of the baseline descriptions and the potential zone of influence of the proposed development the ecological features selected for assessment are:

- The areas of naturally developing neutral grassland
- The areas of naturally developing Bramble *(Rubus fruticosus agg.)* underscrub
- The areas of broad-leaved plantation
- The butterfly assemblage present and the habitats that support it.

6.3. Predicted Ecological Effects of the Development Proposals

6.3.1. The development will result in the loss of areas of plantation woodland, bramble scrub and neutral grassland amounting to approximately 70% of the total site habitat area. Therefore the ecological effects of habitat loss will need to be assessed.

6.3.2. The development site is located in an area of mixed residential development, is well used by local residents for dog walking and lies adjacent to Highfields Youth Centre and the new Highview Primary Learning Centre and as a consequence is subject to low to moderate levels of disturbance on a regular basis. The new development is likely to lead to increased disturbance within the site in some areas, but areas of quiet landscaping will also be created that will be subject to similar or reduced levels of disturbance. Consideration of ecological impacts arising from disturbance will need to be assessed.

6.3.3. Without mitigation, the potential ecological effects of the development proposals shown on drawing SYHA drawing No: 901 Revision F dated July 2012 can be summarised as follows:

- Loss of naturally developing habitats including neutral grassland, bramble scrub and plantation woodland.
- Loss of habitat supporting an assemblage of common butterflies
- Changes to habitat disturbance

6.4. Significance of the Effects

6.4.1. Loss of naturally developing habitats

Unmitigated Impacts and significance

6.4.1.1. The development will result in the loss of habitats across approximately 70% of the development site area.

6.4.1.2. It is **certain** that the unmitigated effects of the development would have a **negative effect** upon the habitats of Parish/neighbourhood value that would be lost in the course of implementing the development.

6.4.1.3. With regard to habitats retained on site (approximately 30% of the development site area) it is **probable** that the unmitigated effects of the development would have a **neutral effect** upon these habitats of Parish/neighbourhood value.

Mitigation, Enhancement and Compensation

6.4.1.4. The development will result in the loss of habitats across approximately 70% of the development site, but it is intended to retain the remaining habitats where practicable. In light of this the following mitigation is proposed:

- To mark up areas of habitat and trees to be retained prior to works commencing on site, in particular the large Flowering Cherry assessed to be of low-medium risk for roosting bats.
- To install fences around features to be protected to prevent accidental damage to these areas during the construction phase.
- To ensure that the need for the habitat protection forms part of any on site briefing for construction staff to re-enforce the need to avoid damage to these areas.
- To use native trees, shrubs and wildflower seed mixes of local or UK provenance in the final landscape scheme to create new areas of sheltered woodland edge, bramble scrub habitat and wildflower grasslands. The final landscape proposals illustrated on drawing R-1398-1B and detailed drawings R-1398-2 and R-1398-3 show the creation of extensive areas of wildflower grassland including areas of wildflower lawns (sown with Emorsgate Flowering Lawn seed mix EL1 or similar UK provenance mix) extending to approximately 1,782m^2 along with new areas of wildflower meadow (sown with Emorsgate Meadow mix EN1 or similar UK provenance mix) extending to approximately 2,021m^2. In addition there will be native hedgerow

planting amounting to approximately 345m^2 and native shrub planting amounting to approximately 204m^2 using locally occurring native species including Hawthorn *(Crataegus monogyna),* Hazel *(Corylus avellana),* Holly *(Ilex aquifolium),* Guelder Rose *(Viburnum opulus),* Dogwood *(Cornus sanguinea),* Blackthorn *(Prunus spinosa),* Field Maple *(Acer campestre*) and Bramble *(Rubus fruticosus agg.).* In addition a further 75 trees will be planted comprising predominantly of locally occurring native species including Pedunculate Oka *(Quercus robur)*, Silver Birch *(Betula pendula)*, Downy Birch *(Betula pubescens)*, Field Maple *(Acer campestre)*, Small-leaved Lime *(Tilia cordata)*, Wild Cherry *(Prunus avium)*, Crab Apple *(Malus sylvestris)*, Rowan *(Sorbus aucuparia)* and Whitebeam *(Sorbus aria)*.

- Areas of created to create flower rich vegetation will be managed to allow flowering and seeding of native species. Some areas close to pathways and access roads and within the formal landscape areas would be managed more intensely to show that the site is being cared for.

Residual Significance of Impacts

6.4.1.5. After implementation of the proposed mitigation it is **certain** that the development would have a **negative effect** upon the habitats of Parish/neighbourhood value that would be lost in the course of implementing the development. However it is **probable** that after implementing the proposed habitat creation as part of the landscaping scheme that the development would have a **positive effect** by creating new habitats of greater value than those of Parish/neighbourhood value.

6.4.2. Loss of habitats supporting an assemblage of butterfly species

Unmitigated Impacts and significance

6.4.2.1. The development will result in the loss of habitats across approximately 70% of the development site area including habitats (grassland and bramble underscrub) that support an assemblage of common and widespread butterflies.

6.4.2.2. However important areas of habitat would remain undamaged during the course of the development including areas of south facing plantation woodland with a fringe of sparse developing Bramble underscrub and neutral grassland. This was an area where the main population of ringlet butterflies was centred and where all of the other butterfly species were also recorded along with their food plants.

6.4.2.3. It is **probable** that the unmitigated effects of the development would have a **slight negative effect** upon the habitats supporting the assemblage of butterflies, but is unlikely to result in the loss of all species from the site because some areas of important habitat would be retained.

Mitigation, Enhancement and Compensation

6.4.2.4. The development will result in the loss of approximately 70% of the habitats within the development site. However with regard to habitats of value to butterflies the development would result in the loss of approximately 45% of the total area of grassland and 60% of the areas of Bramble scrub. Therefore the impact upon habitats supporting the butterfly assemblage across of the development site is less than the effect upon habitats overall. Moreover, it is intended to retain the remaining habitats where practicable. The following mitigation is proposed to minimise the impacts upon the butterfly assemblage:

- To mark up areas of habitat and trees to be retained prior to works commencing on site.
- To install fences around features to be protected to prevent accidental damage to these areas during the construction phase.
- To ensure that the need for the habitat protection forms part of any on site briefing for construction staff to re-enforce the need to avoid damage to these areas.
- To use native trees, shrubs and wildflower seed mixes of local or UK provenance in the final landscape scheme to create new areas of sheltered woodland edge, bramble scrub habitat and wildflower grasslands. The final landscape proposals illustrated on drawing R-1398-1B and detailed drawings R-1398-2 and R-1398-3 show the creation of extensive areas of wildflower grassland including areas of wildflower lawns (sown with Emorsgate Flowering Lawn seed mix EL1 or similar UK provenance mix) extending to approximately 1,782m^2 along with new areas of wildflower meadow (sown with Emorsgate Meadow mix EN1 or similar UK provenance mix) extending to approximately 2,021m^2. In addition there will be native hedgerow planting amounting to approximately 345m^2 and native shrub planting amounting to approximately 204m^2 using locally occurring native species including Hawthorn *(Crataegus monogyna),* Hazel *(Corylus avellana),* Holly *(Ilex aquifolium),* Guelder Rose *(Viburnum opulus),* Dogwood *(Cornus sanguinea),* Blackthorn *(Prunus spinosa),* Field Maple *(Acer campestre*) and Bramble *(Rubus fruticosus agg.).* In

addition a further 75 trees will be planted comprising predominantly of locally occurring native species including Pedunculate Oka *(Quercus robur)*, Silver Birch *(Betula pendula)*, Downy Birch *(Betula pubescens)*, Field Maple *(Acer campestre)*, Small-leaved Lime *(Tilia cordata)*, Wild Cherry *(Prunus avium)*, Crab Apple *(Malus sylvestris)*, Rowan *(Sorbus aucuparia)* and Whitebeam *(Sorbus aria)*.

- To restore areas of grassland to create sheltered areas of flower rich vegetation that will be managed to allow flowering and seeding of native species to provide food plants and nectar sources for the butterflies recorded on site.

Residual Significance of Impacts

6.4.2.5. After implementation of the proposed mitigation it is **probable** that the development would have a **neutral or slight positive effect** upon the habitats supporting the recorded assemblage of butterflies by creating new areas of woodland edge and scrub habitat along with more flower rich grassland.

6.4.3. Changes to habitat disturbance

Unmitigated Impacts and significance

6.4.3.1. The development site is located in an area of mixed residential development, is well used by local residents for dog walking and lies adjacent to Highfields Youth Centre and the new Highview Primary Learning Centre and as a consequence is subject to low to moderate levels of disturbance on a regular basis which limits the sites value for nesting birds. The grasslands are too small and disturbed to be of value to ground nesting birds and the main breeding bird interest is likely to be in the areas of plantation woodland.

6.4.3.2. The new development is likely to lead to increased disturbance within the site in some areas, particularly around the new buildings and areas of communal usage. However the general use of the site by dog walkers and children is likely to be reduced and this is likely to lead to a balancing out of disturbance levels. Moreover the retained woodland along the northern boundary of the site is likely to have reduced levels of disturbance as access to this area would be limited to residents within the proposed development site.

6.4.3.3. It is **probable** that the unmitigated effects of the development would have a **neutral effect** upon the development site and habitats of Parish/neighbourhood value.

Mitigation, Enhancement and Compensation

6.4.3.4. The site will be enclosed by security fencing which will discourage general use of the site by dog walkers and others leading to a reduction in the disturbance caused by dogs and dog walkers.

6.4.3.5. The landscape design will seek to create secluded areas of natural habitat within the development site for the benefit of wildlife and this is likely to have reduced levels of disturbance than the existing site although these areas may be used by residents within the development although the latter are more likely to use the formal landscaped areas around the development.

Residual Significance of Impacts

6.4.3.6. It is **probable** that after mitigation effects of the development would continue to have a **neutral effect** upon habitats and species of Parish/neighbourhood value.

Table 4—Summary Impact Table

Proposed Activity	Characterisation of Unmitigated impact on Feature	Significance without mitigation and confidence level	Mitigation and Enhancement	Residual Significance and Confidence Level
Loss of Habitat	The development as proposed will result in the loss of areas of species poor neutral grassland, bramble scrub and plantation woodland.	It is **certain** that the unmitigated effects of the development would have a **negative effect** upon the habitats of Parish/neighbourhood value that would be lost in the course of implementing the development. With regard to habitats retained on site (approximately 30% of the development site area) it is **probable** that the unmitigated effects of the development would have a **neutral effect** upon these habitats of Parish/neighbourhood value.	The loss of habitat will be mitigated by the creation of new areas of flower rich neutral grassland using native species appropriate to the area along with additional screening planting again using native species appropriate to the area. However there will still remain a net loss of habitat after completion of the development.	After implementation of the proposed mitigation it is **certain** that the development would have a **negative effect** upon the habitats of Parish/neighbourhood value that would be lost in the course of implementing the development. However it is **probable** that after implementing the proposed habitat creation as part of the landscaping scheme that the development would have a **positive effect** by creating new habitats of greater value than those of Parish/neighbourhood value.
Loss of habitats supporting an assemblage of butterfly species	The development as proposed will result in the loss of areas of some areas of species poor neutral grassland, bramble scrub and plantation woodland of value to butterflies recorded at the site	It is **probable** that the unmitigated effects of the development would have a **slight negative effect** upon the habitats supporting the assemblage of butterflies, but is unlikely to result in the loss of all species from the site because some areas of important habitat would be retained.	The loss of habitat will be mitigated by the creation of new areas of flower rich neutral grassland using native species appropriate to the area along with additional screening/woodland edge planting again using native species appropriate to the area. However there will still remain a net loss of habitat after completion of the development.	After implementation of the proposed mitigation it is **probable** that the development would have a **neutral or slight positive** effect upon the habitats supporting the recorded assemblage of butterflies by creating new areas of woodland edge and scrub habitat along with more flower rich grassland.

Proposed Activity	Characterisation of Unmitigated impact on Feature	Significance without mitigation and confidence level	Mitigation and Enhancement	Residual Significance and Confidence Level
Changes in disturbance levels.	The development site is currently subject is subject to low to moderate levels of disturbance on a regular basis which limits the sites value for nesting birds.	It is **probable** that the unmitigated effects of the development would have a **neutral effect** upon the development site and habitats of Parish/neighbourhood value.	The site will be enclosed by security fencing which will discourage general use of the site by dog walkers and others leading to a reduction in the disturbance caused by dogs and dog walkers. The landscape design will seek to create secluded areas of natural habitat within the development site for the benefit of wildlife and this is likely to have reduced levels of disturbance than the existing site although these areas may be used by residents within the development although the latter are more likely to use the formal landscaped areas around the development.	It is **probable** that after mitigation effects of the development would continue to have a **neutral effect** upon habitats and species of Parish/neighbourhood value.

7. BIBLIOGRAPHY

Barnsley Biodiversity Action Plan 2008-2012 Barnsley MBC

Barnsley Core Strategy February 2010

Barnsley UDP

BCT (2007) Bat surveys: good practice guidelines. Bat Conservation Trust, London.

IEEM (2006)—Guidelines for Ecological Impact Assessment in Britain and Ireland—Terrestrial and Freshwater

IEEM (2010)—Guidelines for Ecological Impact Assessment in Britain and Ireland—Coastal and Marine

Institute of Environmental Assessment (1995) Guidelines for Baseline Ecological Assessment First Edition, E & FN Spon, London.

Joint Nature Conservation Committee Handbook for Phase 1 Habitat Survey (2010)

Mitchell-Jones, A.J (2004) Bat mitigation guidelines. English Nature, Peterborough.

Mitchell-Jones, A.J and McLeish, A.P (2004) Bat Workers Manual. Joint Nature Conservation Committee, Peterborough

Stace, C.A., (1995) New flora of the British Isles. First Edition Cambridge: Cambridge University Press.

8. APPENDICES

8.1. Appendix 1—List of Species

English Name	Scientific Name	Broad-leaved Plantation	Bramble Scrub	Neutral Grassland
Field Maple	*Acer campestre*	R		
Norway Maple	*Acer platanoides*	R		
Sycamore	*Acer pseudoplatanus*	F		
Yarrow	*Achillea millefolium*		O	O-LF
Horse-chestnut	*Aesculus hippocastanum*	R		
Common Bent	*Agrostis capillaris*	R	O-LF	O-LF
Garlic Mustard	*Alliaria petiolata*	O	O	
Alder	*Alnus glutinosa*		R	O
Meadow Foxtail	*Alopecurus pratensis*		O	O-LF
Sweet Vernal-grass	*Anthoxanthum odoratum*		O	O-F
Cow Parsley	*Anthriscus sylvestris*	O	O	O
False Oat Grass	*Arrhenatherum elatius*	O	O-LF	F-LA
Mugwort	*Artemisia vulgaris*	O	O	R
Daisy	*Bellis perennis*		O	O
Silver Birch	*Betula pendula*	F	R	R
Soft-brome	*Bromus hordeaceus*	R		R
Butterfly-bush	*Buddleja davidii*	R	R	R
Hedge Bindweed	*Calystegia sepium*	O-LF	O	
Sweet Chestnut	*Castanea sativa*	R		
Common Knapweed	*Centaurea nigra*		R	O-LF
Common Mouse-ear	*Cerastium fontanum*		O-LF	O-LF
Rosebay Willowherb	*Chamerion angustifolium*	O	O	O
Creeping Thistle	*Cirsium arvense*	O	O-LF	O-LF
Spear Thistle	*Cirsium vulgare*	R	O	O
Hazel	*Corylus avellana*	O		R
Hawthorn	*Crataegus monogyna*	F	O	F
Crested Dog`s Tail	*Cynosurus cristatus*		R	R-O
Cock`s Foot	*Dactylis glomerata*	O	O-LF	F-LA
Tufted Hair Grass	*Deschampsia cespitosa*			R
Common Couch	*Elytrigia repens*	O	O	O-LF
Tall Fescue	*Festuca arundinacea*			R
Red Fescue agg.	*Festuca rubra agg.*		F	F
Ash	*Fraxinus excelsior*	O		R
Cleavers	*Galium aparine*	F-A	F-A	O-LF
Ivy	*Hedera helix*	F-A	R	
Hogweed	*Heracleum sphondylium*	O	O	O
Yorkshire Fog	*Holcus lanatus*	O	F	F-A
Wall Barley	*Hordeum murinum*	R		R
Cat's-ear	*Hypochaeris radicata*		O	O-LF
White Dead Nettle	*Lamium album*	R	R	
Nipplewort	*Lapsana communis*	O	O	O

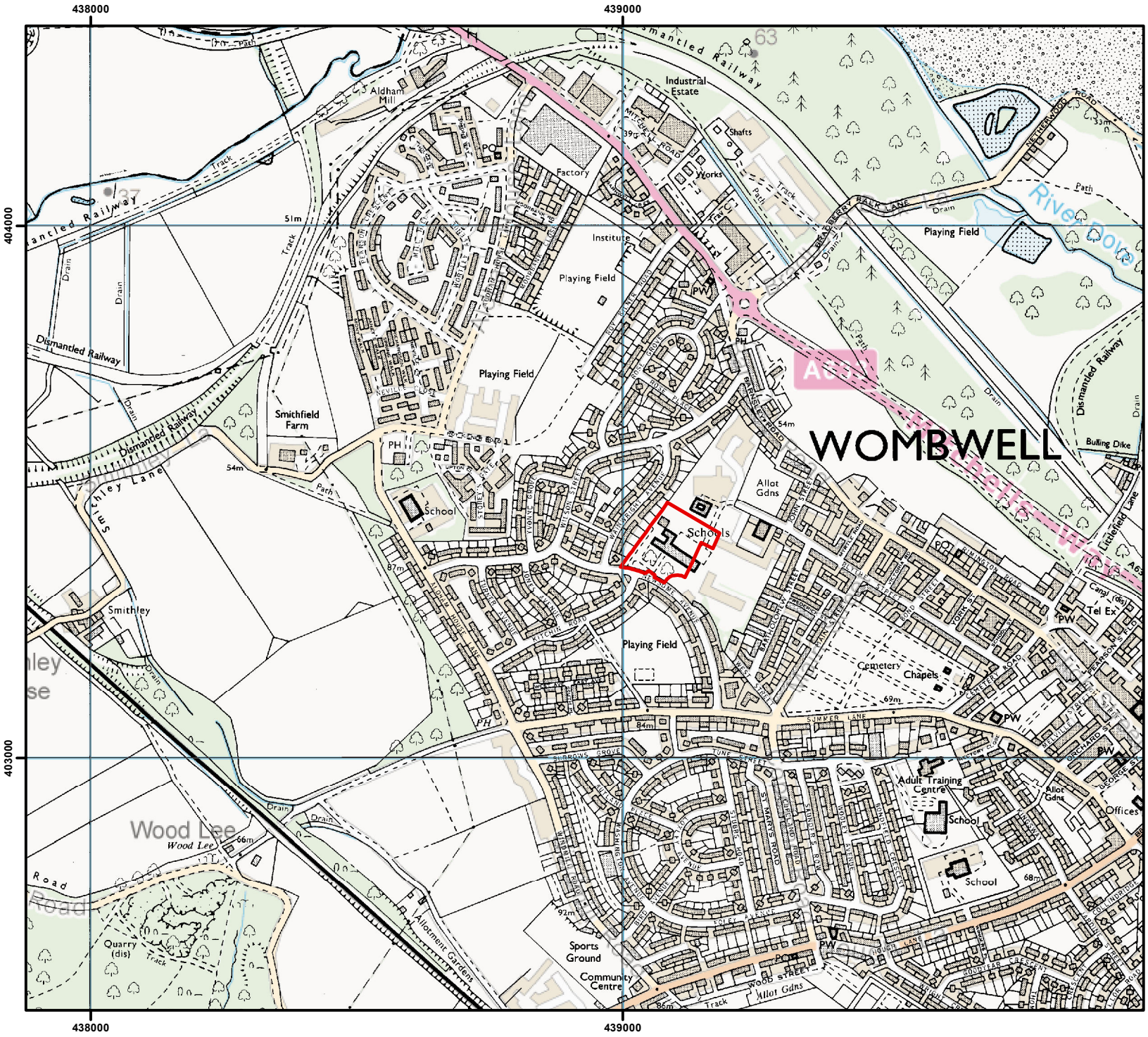
English Name	Scientific Name	Broad-leaved Plantation	Bramble Scrub	Neutral Grassland
Meadow Vetchling	*Lathyrus pratensis*		R	R-LF
Autumn Hawkbit	*Leontodon autumnalis*		R	O
Perennial Ryegrass	*Lolium perenne*	O	O	O-LF
Bird`s-foot-trefoil	*Lotus corniculatus*		O	O-LF
Crab Apple	*Malus sylvestris*	R		
Pineapple Weed	*Matricaria discoidea*			R
Timothy Grass	*Phleum pratense*		O	O
Ribwort Plantain	*Plantago lanceolata*		O	O-LF
Greater Plantain	*Plantago major*			R
Annual Meadow-grass	*Poa annua*	R	O	O
Smooth Meadow-grass	*Poa pratensis*		O-LF	O-LF
Rough Meadow-grass	*Poa trivialis*		O-LF	O-LF
Aspen	*Populus tremula*	O		R
Selfheal	*Prunella vulgaris*		O	O
Wild Cherry	*Prunus avium*	F		R
Pear	*Pyrus communis*			R
Meadow Buttercup	*Ranunculus acris*		O	O
Creeping Buttercup	*Ranunculus repens*		O-LF	O-LF
Dog Rose agg.	*Rosa canina agg.*	O	O	R
Bramble agg.	*Rubus fruticosus agg.*	F	F-LD	O-LF
Curly Dock	*Rumex crispus*		R	R
Broad-leaved Dock	*Rumex obtusifolius*	O	O	O
Goat Willow	*Salix caprea*	O	R	R
Grey Willow	*Salix cinerea*	R		
Elder	*Sambucus nigra*	O		
Ragwort	*Senecio jacobaea*	R	O	O
Hedge Mustard	*Sisymbrium officinale*	O	O	O
Rowan	*Sorbus aucuparia*	R		
Dandelion	*Taraxacum officinale agg.*	R	O-LF	O-LF
Lime	*Tilia x vulgaris*	R		
Lesser Trefoil	*Trifolium dubium*		R	R-O
Red Clover	*Trifolium pratense*		O-LF	F
White Clover	*Trifolium repens*		O-LF	F
Common Nettle	*Urtica dioica*	F-LA	F	O-LF
Guelder Rose	*Viburnum opulus*	R		
Tufted Vetch	*Vicia cracca*		O-LF	O-LF
Hairy Tare	*Vicia hirsuta*		O-LF	O-LA
Common Vetch	*Vicia sativa*		O	O
Bush Vetch	*Vicia sepium*		R	O
Total Species Count	***80***	**47**	**58**	**65**

8.2. Appendix 2—Figures

Figure 1—Location Plan

Figure 2—Designations

Figure 3—Habitats



Newsome Avenue Residential Development

KEY

Site Boundary

Scale 1:10,000

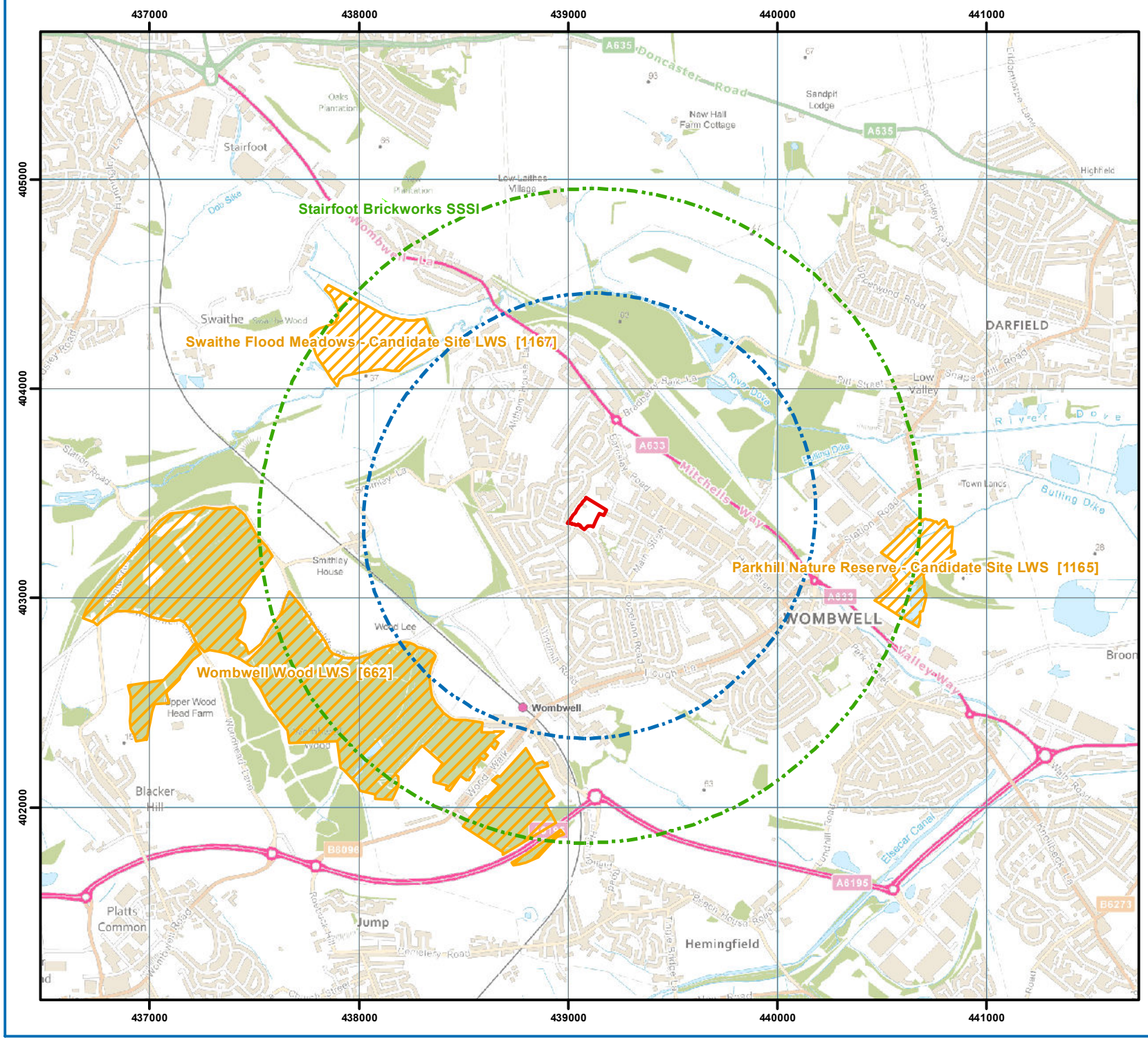
N

RDF ecology
Consultant Ecologists

3 Bramble Close
Wickersley
Rotherham
South Yorkshire
S66 1FH

Tel 01709 531 868
e-mail enquiries@rdfecology.co.uk

Fig: 1 Location Plan



Newsome Avenue Residential Development

KEY

- Site Boundary

Buffer Zones

- 1km
- 1.5km
- Site of Special Scientific Interest
- Local Nature Reserve
- Local Wildlife Sites

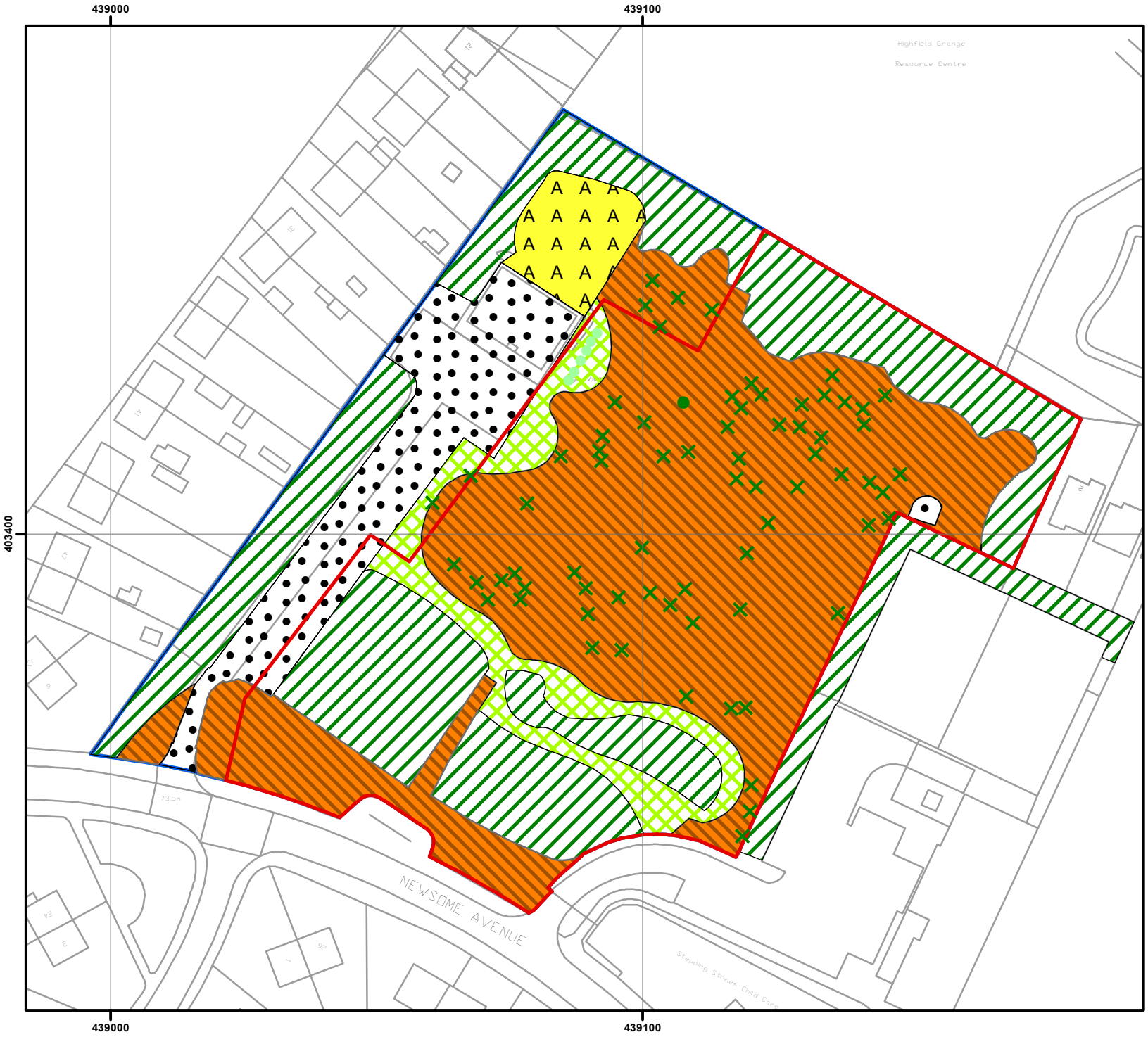
Scale 1:25,000

RDF ecology
Consultant Ecologists

3 Bramble Close
Wickersley
Rotherham
South Yorkshire
S66 1FH

Tel 01709 531 868
e-mail enquiries@rdfecology.co.uk

Fig: 2 Designations



Newsome Avenue Development

KEY

Boundaries

- Development Site Boundary
- Site Onwership

Woodland and Scrub

- Broadleaved woodland plantation
- Bramble Scrub dense/continuous

Grassland and Marsh

- Unimproved neutral grassland/tall ruderal mosaic

Miscellaneous

- Bare ground
- Cultivated/disturbed land amenity grassland
- Broadleaved Parkland scattered trees
- Coniferous Parkland scattered trees
- Scrub - scattered

Scale 1:1,000

N

RDF ecology
Consultant Ecologists
3 Bramble Close
Wickersley
Rotherham
South Yorkshire
S66 1FH

Tel 01709 531 868
e-mail enquiries@rdfecology.co.uk

Fig: 3 Phase I Habitats

8.3. Appendix 3—Valuation Criteria

8.3.1. 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 (IEEM 2006 and 2010).

8.3.2. The value that is attached to an ecological resource influences:

- whether, as part of screening, potentially affected features or resources are considered sufficiently valuable that there could be a significant effect that would trigger an EIA;
- whether, as part of scoping, ecological features or resources are considered for inclusion in the EcIA—this is influenced by their value in relation to a 'threshold' level of value that should be defined during scoping;
- deciding what mitigation is appropriate and
- considering legal and policy implications.

8.3.1. Legislative Framework

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

8.3.1.2. Internationally important sites include Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Ramsar sites. In the UK candidate SACs, potential SPAs and proposed Ramsar sites should be given the same consideration as designated sites in accordance with country specific policies and supporting guidance.

8.3.1.3. 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 (Natural Habitat, &c) 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).

8.3.1.4. 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).

8.3.1.5. 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.

8.3.2. UK Site Designations

8.3.2.1. Sites of national importance include the statutorily designated Sites of Scientific Interest (SSSI) and National Nature Reserves (NNRs).

8.3.2.2. 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 (IEEM 2006).

8.3.3. Rarity of Species and Habitats

8.3.3.1. 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 10km squares of the national grid in Britain, nationally scarce species occurring in 16–100 10km 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.

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

8.3.3.3. 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.

8.3.3.4. 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.

8.3.3.5. 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.

8.3.3.6. 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.

8.3.3.7. 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).

8.3.4. Criteria for Overall Site Evaluation

8.3.4.1. 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:

8.3.4.2. **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 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 type.

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.

8.3.5. Amenity Value

8.3.5.1. 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. Less emphasis is placed on the criteria outlined in section 9.1.4 in such situations.

8.3.6. Ecological Importance Summary Table

8.3.6.1. The following table has slightly modified from Regini (2000). Its definitions are adopted in this report. Where species, habitats or sites occur in more than one category, the highest level of importance is applicable. Sites that meet the criteria for a particular designation are afforded the level of importance corresponding to that designation whether or not they are actually designated.

Table 5—Ecological Importance Summary Table

Level of Value	Examples
International	An internationally designated site or candidate site (SPA, pSPA, SAC, cSAC, pSAC , Ramsar site, Biogenetic Reserve). A viable area of a habitat type listed in Annex I of the Habitats Directive, or smaller areas of such habitat which are essential to maintain the viability of a larger whole. Any regularly occurring population of an internationally important species, which is threatened or rare in the UK. i.e. it is a UK Red Data Book species or listed as occurring in 15 or fewer 10km squares in the UK (categories 1 and 2 in the UK BAP) or of uncertain conservation status or of global conservation concern in the UK BAP. A regularly occurring, nationally significant population of any internationally important species. Also a regularly occurring and nationally significant number of an internationally important species during a critical phase of its life cycle.
National	A nationally designated site (SSSI, ASSI, NNR, Marine Nature Reserve) or a discrete area, which meets the published selection criteria for national designation (e.g. SSSI selection guidelines). A viable area of a priority habitat identified in the UK BAP, or of smaller areas of such habitat which are essential to maintain the viability of a larger whole. Any regularly occurring population of a nationally important species which is threatened or rare in the region or county (see local BAP). A regularly occurring, regionally or county significant population of any nationally important species. Also a regularly occurring and regionally or county significant number of a nationally important species during a critical phase of its life cycle.

Level of Value	Examples
Regional	Viable areas of key habitat identified in the Regional BAP or smaller areas of such habitat which are essential to maintain the viability of a larger whole; Viable areas of key habitat identified as being of Regional value in the appropriate Natural Area profile; Any regularly occurring, locally significant population of a species listed as being nationally scarce which occurs in 16-100 10km squares in the UK or in a Regional BAP or relevant Natural Area on account of its regional rarity or localisation; A regularly occurring, locally significant number of a regionally important species during a critical phase of its life cycle; Sites which exceed the County-level designations but fall short of SSSI selection guidelines, where these occur.
County / Metropolitan	Semi-natural ancient woodland greater than 0.25 ha; County/Metropolitan sites and other sites which meet the published ecological selection criteria for designation, including Local Nature Reserves selected on County / metropolitan; A viable area of habitat identified in County BAP; Any regularly occurring, locally significant population of a species which is listed in a County/Metropolitan "red data book" or BAP on account of its regional rarity or localisation; A regularly occurring, locally significant number of a County/Metropolitan important species during a critical phase of its life cycle.
District / Borough	Semi-natural ancient woodland smaller than 0.25 ha; Areas of habitat identified in a sub-County (District/Borough) BAP or in the relevant Natural Area profile; Local Nature Reserves selected on District/ Borough criteria Sites/features that are scarce within the District/Borough or which appreciably enrich the District/Borough habitat resource; A diverse and/ or ecologically valuable hedgerow network; A population of a species that is listed in a District/Borough BAP because of its rarity in the locality or in the relevant Natural Area profile because of its regional rarity or localisation; A regularly occurring, locally significant number of a District / Borough important species during a critical phase of its life cycle.
Parish / Neighbourhood	Areas of habitat considered to appreciably enrich the habitat resource within the context of the Parish or neighbourhood, e.g. species-rich hedgerows. Local Nature Reserves selected on Parish criteria.
Negligible	Low grade, widespread and common habitats.