Extended Phase 1 Assessment and Species Surveys - North Gawber, Mapplewell, Barnsley

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Client: Harworth Estates

AESL

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Bird Distribution Plan

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Introduction

1.0 The site is an area of land known as North Gawber located off Carr Green Lane (grid reference SE 330 097) Mapplewell, near Barnsley, South Yorkshire. The site is roughly rectangular in shape and measures approximately 400m x 450m. The site is bordered to the West, North and East by a mixture of existing housing and small scale industrial areas and to the south by woodland and open fields. The site is situated on terraced, sloping ground much of which is manmade, the higher point of the site is located in the north and the landform progressively slopes down to the south. Historically the area has supported at least one colliery and has been actively deep mined. It now consists of a series of spoil heaps/slopes which have been colonised primarily by young birch scrub and grassland. The topography of the site is irregular and surface waters appear to be impeded by the various layers of substrate resulting in a variety of wet hollows and dry slopes. The substrates in the north of the site, being higher are relatively dry and consequently vegetation is sparse though varied, the south of the site supports more wet hollows, ditches and small pools. Though the site has no official public access, routes have been made into the area from a number of locations around the site. The survey area was used heavily by the public for dog walking, mountain biking, motor biking and general recreation. This has resulted in heavy disturbance of the site through the creation of paths, littering and poaching of wetland habitats.

1.1 Ecological walkover surveys were initially undertaken by Applied Ecological Services Ltd (AESL) in 2004 and in 2005. Further ecological surveys were undertaken by Marishal Thompson in 2008 and again by AESL in February, March, April, May, June and July 2009. The baseline conditions relating to habitats and species present on site were identified through consultation, desktop surveys of national and local databases and from field surveys. The importance of these habitats and species were evaluated against regional, national and international importance criteria. A number of surveys were continued into July 2009. Mitigation that could be incorporated into the proposed development is identified.

1.2 Biodiversity and conservation is a material consideration in determining planning applications and therefore has to be examined during the assessment process. It encompasses both habitats and species that are specially protected under legislation

and those that may be important on a non-statutory basis and have to be taken into account in the definition of the scope of the Environmental Impact Assessment. The legal status of species and habitats were used in the evaluation of the site's nature conservation importance alongside other evaluation criteria. Where appropriate the potential effects of the development on these habitats and species will be considered. In addition to the relevant planning policy statements and the local plan the following legislation and other documents were used to assess the potential impacts of the proposed wider development on species and habitats:-

Planning Policy Statement 9 (PPS9) - Biodiversity and Geological Conservation

1.3 Planning Policy Statement (PPS) 9 (2005): Biodiversity and Geological Conservation. This document sets out guidance on how government policies for conservation and enhancement of flora and fauna should be reflected in land use planning. Other documents consulted as a part of this assessment included:-

The Wildlife and Countryside Act, 1981 (as amended)

1.4 This is the primary legislation for nature conservation in England and Wales. It confers varying degrees of protection on selected species according to their conservation status, ranging from making it an offence to take a species from the wild for profit, to full protection of a species and its habitat. Species are added or removed from the legislation from time to time, as their conservation status changes. The Act also gives guidance and instruction on statutory sites, such as sites of Special Scientific Interest (SSSIs). Licences exempting specific works can be granted by Natural England (NE). Such licences are only granted once a full assessment has been made and an appropriate, sustainable mitigation package devised.

The EC Habitats Directive (92/43/EEC)

1.5 This Directive draws together previous European conservation legislation and conventions, such as the Bern Convention, 1982. The Directive aims to give Europe-wide protection to certain rare and threatened habitats on land and at sea. It builds on legislation already established under the Birds Directive of 1979, and aims to establish a series of protected sites known as The Natura 2000 series. These sites are intended to protect the unique and special wildlife of Europe and to preserve it for future generations. In Britain these Natura 2000 sites include those areas designated as Special Areas of Conservation (SACs) and Special Protection Areas (SPAs). The Habitats Directive is implemented in the UK through the Conservation (Natural Habitats etc) Regulations, 1994.

The Countryside and Rights of Way Act, 2000

1.6 As well as providing measures to improve countryside access for walkers, ramblers and horse riders, this Act also strengthens the protection of species and designated sites made in the Wildlife and Countryside Act. This Act also encourages the promotion of nature conservation and biodiversity issues.

The Protection of Badgers Act, 1992

1.7 Allied to the Wildlife and Countryside Act, 1981 are subsidiary Acts such as the Protection of Badgers Act, 1992. Badgers are protected under the Protection of Badgers Act, 1992 (PBA), which consolidated and added to previous legislation. According to the PBA it is an offence to wilfully kill, injure or maim a badger. Badger setts are also protected from interference unless such activities are licensed. Any mitigation packages devised for badgers found on development sites must be agreed by NE and all mitigation activities must be fully licensed.

The UK Biodiversity Action Plan (UKBAP)

1.8 In 1993, the UK government consulted over three hundred organisations throughout the UK and held a two day seminar to debate the key issues raised at the Convention of Biological Diversity. The product of this was the launch of Biodiversity: the UK Action Plan in 1994 which outlined the UK Biodiversity Action Plan for dealing with biodiversity conservation in response to the Rio Convention. The UK Biodiversity Steering Group was created in 1994 and published Biodiversity: the UK Steering Group Report – meeting the Rio challenge. This established the framework and criteria for identifying species (1250 in number) and habitat types of conservation concern. From this list, action plans for 391 species and 45 broad habitat types. As well as having national priorities and targets, action was also taken at a local level. The Steering Group drew up a set of guidelines that were discussed with the Local Authority Association and the Local Government Board. Today there are 162 Local Biodiversity Action Plans (LBAPs) in England, Scotland and Wales and LBAPs are currently being set up in Northern Ireland.

Barnsley Biodiversity Action Plan (LBAP)

1.9 The Barnsley Biodiversity Action Plan was produced by the Barnsley Biodiversity Trust and sets out a framework for nature conservation in the District. This framework includes action plans for 19 species and 18 habitats and sets targets which will guide work to maintain and enhance their conservation status.

Great Crested Newt (*Triturus cristatus*)

1.10 The great crested newt is listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) which makes it an offence to:

- Intentionally kill, injure or take a great crested newt;
- Possess or control any live or dead specimen or anything derived from a great crested newt;
- Intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection by a great crested newt; and
- Intentionally or recklessly disturb a great crested newt while it is occupying a structure or place which it uses for that purpose.

1.11 The great crested newt is listed on Annex 2 (Designation of special areas of conservation) and Annex 4 (European protected species annex) of the Conservation of natural habitats and of Wild Fauna and Flora (UK Law Council Directive 92/43/EEC of 21st of May 1992) makes it an offence to:

- Deliberately capture or kill a great crested newt;
- Deliberately disturb a great crested newt;
- Deliberately take or destroy the eggs of a great crested newt; and
- Damage or destroy a breeding site or resting place of a great crested newt

1.12 The legislation applies to all life stages of the great crested newt. Licenses permit otherwise unlawful activities, and can only be granted for certain purposes including development. Licenses can be granted by Natural England formerly DEFRA under Regulation 44(2)(e) of the conservation (Natural Habitats and c.) Regulations 1994, for the purpose of preserving public health or public safety or other reasons of overriding public interest including those of a social or economic nature and beneficial of primary importance for the environment; or Regulation 44(2)(f) for the purpose of preventing the spread of disease; or Regulation 44(2)(g) for the purpose of preventing damage to livestock, foodstuffs for livestock, crops, vegetables, fruit, growing timber or any forms of property or to fisheries (English Nature 2001).

Water vole (*Arvicola terrestris*)

1.13 In April 2008 the water vole was given full legal protection in Britain under Schedule 5 of the Wildlife and Countryside Act (1981) as amended. Under the Act it is an offence to:

- Deliberately capture, posses or kill a water vole;

- Damage, destroy or obstruct access to any structure or place which water voles use for shelter or protection; and
- Disturb water voles whilst they are using such a place.

Badger (*Meles meles*)

1.14 In Britain certain species of wild mammal are protected under their own legal provisions. Specific legislation for protecting badgers is provided by the Badgers Act, 1992 (amended, for Scotland, by the Nature Conservation (Scotland) Act 2004). In Great Britain, legislation prohibits the taking, injuring, selling, possessing or killing of badgers and it is an offence to ill-treat any badger, damage, destroy, disturb or cause a dog to enter a badger sett. A person shall not be guilty of an offence if the badger is killed, taken or the badger sett interfered with, if they have a licence authorised by the appropriate authority. Badger foraging ground is not specifically protected under the legislation, although the removal through development may be classed as disturbance.

Birds

1.15 All wild birds, their nests and eggs are protected by law under Part 1 of the Wildlife and Countryside Act 1981 (as amended). In Britain the bird breeding season extends from March – July. A number of species can extend their breeding period into August and September, although this is highly dependent on the species, habitats available in a site and weather conditions. It is an offence to intentionally or recklessly:

- Kill, injure or take any wild bird (with certain exceptions for recognised game or pest species);
- Take damage or destroy the nest of any wild bird while it is in use or being built, and
- Take or destroy the egg of any wild bird.

Reptiles

1.16 *There are six reptile species native to Britain these include common lizard, sand* lizard, slow worm, smooth snake, grass snake and adder. Smooth snake and sand lizard are rare and have a limited distribution in the UK being mainly confined to the south and to the south and northwest of England, respectively. Adder, grass snake, slow worm and common lizard have a wider distribution in the UK and are recorded in northern England. The smooth snake and sand lizard are fully protected under the Conservation (Natural Habitats & c.) Regulations 1994 and the Wildlife and Countryside Act 1981 (as amended).

The adder, grass snake, common lizard and slow worm receive some protection, including from killing and injury, under the Wildlife and Countryside Act. The sand lizard is a priority species in the UK Biodiversity Action Plan. This species is also considered to be a Species of Principal Importance for the Conservation of Biodiversity in England under section 74 of the Countryside and Rights of Way Act 2000.

Bats

1.17 All bats are protected under the Wildlife and Countryside Act (Schedule 5). They are also included in Schedule 2 of the Conservation Regulations 1994. The Act and Regulations make it illegal to:

- Intentionally or deliberately kill, injure or capture (take) bats;
- Deliberately disturb bats (whether in a roost or not), and
- Damage, destroy or obstruct access to bat roosts

1.18 The Countryside and Rights of Way Act 2000 extended the protection given to bats to cover reckless damage or disturbance. A bat roost is interpreted as 'any structure or place which is used for shelter or protection', whether or not bats are present at the time.

Assessment Methods

1.19 Consultations were made with the appropriate bodies in an attempt to gain pre-existing information / data for the site. All surveys followed the nationally recognised Guidelines for Baseline Ecological Impact Assessment (IEA, 1995; IEEM, 2006) and recognised specialist methodologies for habitat mapping, great crested newt and other amphibian species, breeding birds, water voles, badger, reptiles and invertebrate surveys. The ecological surveys were undertaken at an appropriate time of year for surveying terrestrial and aquatic habitats and for those species identified above. The ecological survey has produced a comprehensive species list for the site but the list is not definitive. Data and other information gathered during all ecological surveys are limited by factors that affect the presence of plants and animals including time of year, migration patterns and behaviour. However, despite these limitations the information gained through these surveys was comparable with those results obtained from previous surveys undertaken on and near to the site. This shows that a representative and comprehensive species list has been achieved and all habitats present on site have been identified. This current assessment was undertaken as an update to the previous surveys and concentrated on updating the Phase 1 Habitat Survey results and included further searches for the presence of protected / notable species.

Consultations and desktop assessment

1.20 The following organisations and individuals were consulted as a part of this assessment:

- North and East Yorkshire Records Centre;
- Natural England (Wakefield Office;
- Barnsley Biodiversity Trust;
- Yorkshire Wildlife Trust

1.21 In addition government website 'MAGIC'[1] (Multi Agency Geographic Information for the Countryside) was consulted for details of any designed sites within 2 km of the survey area. The NBN gateway database was also consulted for records of protected species within a 2km search area.

Field surveys

1.22 Habitat types present in the site were identified and mapped following techniques developed by Nature Conservancy Council (1990). Target Notes describing habitats on site and ecological features are given in this chapter and on the Phase 1 Habitat Plan (Figure 1: Phase 1 Habitat Plan). Phase 1 Habitat Surveys were undertaken on site on the 12th and 19th of April, the 25th and 27th of May the 10th and 15th of June 2009 by field ecologists. In addition to the phase 1 survey additional notes were made on any incidental sightings of species observed in the site at the time of each survey.

Great crested newt surveys

1.23 Surveys for great crested newt and other amphibian species were undertaken in all suitable habitats located in the site. Surveys followed the nationally recognised methods detailed in the great Crested Newt Mitigation Guideline (English Nature 2001). Field surveys were undertaken on the 19th of March, 16th and 17th of April, 15th and 16th of May and the 10th of June 2009. In order to provide an assessment proportionate to the size of the site and the spatial distribution of the ponds in the site fieldwork was undertaken over a six day period, this resulted in a total of 12 man days being spent in the field.

[1] www.magic.co.uk

Water Vole surveys

1.24 Surveys for water vole followed those standard survey criteria developed by Strachan (1998). Standardised survey methods were adapted to suit those specific conditions found within the site and particularly in ditches and seasonal water bodies located in and on the periphery of the site. This involved the comprehensive recording of water vole field signs including sightings of individual animals, and searching for latrines, burrows, footprints, paths, grazed lawns and feeding remains within all aquatic, riparian and adjacent terrestrial habitats. Surveys for water vole and otter were undertaken on the 19th of March, 16th and 17th of April and the 23rd of June 2009.

Badger Surveys

1.25 Surveys for badger in and adjacent to the site followed those criteria developed by Neal, 1977 and Harris, 1990. Dedicated surveys were used to assess the presence / absence of badger setts within suitable habitats in the site and determine land utilisation within the site. Badger surveys were undertaken on the 19th of March, 16th of April and the 23rd of June 2009.

Reptile surveys

1.26 Survey criteria followed the National Amphibian and Reptile Recording Scheme (NARRS) Reptile Survey Guide, developed by the Herpetological Conservation Trust ((HCT 2006) (www.narrs.org.uk)), but were amended to suit those specific conditions found in the site. Initially potential suitable habitats were identified during the initial Phase 1 Habitat survey. A walkover of the site was undertaken on the 2nd of March 2009 prior to the onset of the actual surveys to identify potential basking sites and other suitable habitats for reptiles. Reptile surveys combined two techniques: visual searches and the placing of artificial refugia, in addition pre-existing materials (litter and dumped materials) were visually inspected on their undersides. Reptile surveys were conducted over a seven day period in suitable weather conditions between mid-March and mid-May. Prior to the onset of the actual field surveys artificial refugia were placed in suitable locations on the 3rd of March 2009.

Bird surveys

1.27 The first visit of the breeding season was made on the 20th of March and three subsequent visits were made on the 20th of April, 19th of May and the 23rd June 2009.

1.28 Survey work was carried out from early morning to midday on each survey day, since bird activity is more uniform throughout this period (Bibby *et al* 1992), reducing the likelihood of over-estimation of numbers that can occur if surveys are carried out during the dawn period of peak activity. Site visits were also undertaken in the evening periods, as this may prove helpful for recording some species that are at their most detectable during this period (e.g. Song Thrush) (Marchant 1983). During survey visits, a predetermined transect route, was walked at a slow pace so that all birds can be located, identified and recorded. Point counts were carried out from vantage points which were developed at strategic points overlooking as much of the site as possible; particularly useful for recording passage and movement of species across the survey area. The activity of all birds using the site was recorded from a series of fixed locations for a fixed length of time (2 hour watches). The use of natural or artificial cover allows all birds to be observed and recorded without disturbing them. To determine which species use the site throughout the day, point counts were carried out throughout different time periods (including dawn and dusk).

1.29 During the fieldwork all species observed were recorded and notes were made in relation to their behavior, abundance and utilisation in accordance with the British Trust for Ornithology coding system (BTO). All species are identified by their common name followed by their Latin equivalent. All birds that were observed during the surveys were recorded including breeding species, passing individuals and species on migration.

Breeding Status:

Confirmed Breeder

DD	Distraction display or injury feigning
UN	Used nest or eggshells found from this season
FL	Recently fledged young or downy young
ON	Adults entering or leaving nest site in circumstances indicating occupied nest
FF	Adult carrying faecal sac or food for young
NE	Nest containing eggs
NY	Nest with young seen or heard

Probable Breeder – Evidence accumulated during the survey indicates that the bird species is breeding on site

P	Pair in suitable nesting habitat
T	Permanent territory (defended over at least 2 survey occasions)
D	Courtship and display
N	Visiting probable nest site
A	Agitated behaviour
I	Brood patch of incubating bird (from bird in hand)
B	Nest building or excavating nest-hole

Possible Breeder – Evidence accumulated during the survey indicates that the bird species could be breeding on site, but the evidence is less conclusive than that obtained for probable breeders.

H	Observed in suitable nesting habitat
S	Singing male

Non-breeder

F	Flying over
M	Migrant
U	Summering non-breeder
UH	Observed in unsuitable nesting habitat

The UK's birds can be split in to three categories of conservation importance - red, amber and green. Red is the highest conservation priority, with species needing urgent action. Amber is the next most critical group, followed by green. Birds in the red and amber lists will be subject to at least one of the relevant factors listed below.

Red list criteria

- Globally threatened
- Historical population decline in UK during 1800–1995
- Rapid (> or =50%) decline in UK breeding population over last 25 years
- Rapid (> or =50%) contraction of UK breeding range over last 25 years

Amber list criteria

- Historical population decline during 1800–1995, but recovering; population size has more than doubled over last 25 years
- Moderate (25-49%) decline in UK breeding population over last 25 years
- Moderate (25-49%) contraction of UK breeding range over last 25 years
- Moderate (25-49%) decline in UK non-breeding population over last 25 years
- Species with unfavourable conservation status in Europe (SPEC = Species of European Conservation Concern)
- Five-year mean of 1–300 breeding pairs in UK
- or =50% of UK breeding population in 10 or fewer sites, but not rare breeders
- or =50% of UK non-breeding population in 10 or fewer sites
- or =20% of European breeding population in UK
- or =20% of NW European (wildfowl), East Atlantic Flyway (waders) or European (others) non-breeding populations in UK

Green list criteria

- No identified threat to the population's status

Introduced

1.30 This is not a conservation status category, but indicates a species that has escaped and bred in the wild or has been deliberately released into the wild at some point in the UK's history. As these species are not native to the UK, they have no specific conservation status here.

Bats surveys

1.31 Provisional surveys undertaken by AESL in March 2009 found no evidence of suitable structures that would support bats within the site. A risk assessment for the effect on bats was undertaken from the habitats present. The Bat Mitigation Guidelines (BMG) indicate the types of structures and landscape features that increase the risk of bats being present and this was used to undertake a risk assessment of potential effects. The risk assessment included the visual inspection of structures including trees, and other features for their potential to support bats. In addition two night time surveys were conducted on the 22nd and 23rd of June during suitable weather conditions to detect bats flying in the site. Further evening surveys were undertaken on the 12th and 17th of July 2009.

Invertebrate surveys

1.32 Dedicated surveys for invertebrate species were undertaken in the site. Surveys for invertebrates including butterfly species followed standardised methods for sampling in brown field sites. Surveys commenced in April and are continuing to date. A number of methods suitable for sampling habitats in the site were employed during the surveys. The main methods employed were sweep netting, hand searching and visual observation.

Baseline Information

Consultations and desktop assessment

2.0 **Table 1: Consultations and responses**

Organisation	Individual	Contacted by	Response
North and East Yorkshire Records Centre	Simon Pickles	Phone	They do not cover our area, though they hold data they are not permitted to pass it on and there are no records centres covering our area. Also informed us there is no county Ecologist covering Barnsley. Suggested we speak with Brian Davis of Natural England, Wakefield office
Natural England- Wakefield office	Brain Davis	Phone	No response
Barnsley Biodiversity Trust (also Natural England)	Jeff Lunn	Phone and E-mail	Very helpful, provided many local records- see results
Yorkshire Wildlife Trust	Jenny Hayward	Phone	No response

Table 2: Designated sites identified within 2 km of the survey area

Site Name	Designation	Location	Brief Overview
Barnsley canal at Wilthorp	Natural heritage Site/Local Wildlife Site	SE 336084 Approx 850m to the SE of our site	Disused canal, river, marsh and swamp including unimproved species rich grassland. Botanically diverse, supports a diversity of breeding birds, invertebrates and amphibians including GCN. Also Water Vole and grass snake.[2]
Notton Wood	Local Nature Reserve	1.6km to the NNE	No details available

Pre-existing protected species records

2.1 There were no records for protected / notable species found within the site. Water vole and great crested newt are recorded at various locations along the River Dearne Catchment, but no records exist for the site.

Phase 1 Habitat survey

2.2 Due to the site history the area surveyed supports a matrix of habitats, spoil from mining has been deposited on the site at varying depths and gradients. These areas have differing hydrology, erosion by walkers (more erosion on flat areas) and therefore show different levels of colonisation by plant species.

2.3 The habitat types recorded on site are detailed below and their approximate boundaries are mapped on the Phase 1 Habitat Plan. This is a heterogeneous site and habitats grade gradually into each other often at a very small scale. Further details on species composition

can be found in the Target notes, and in Appendix 2 where a complete species list for the site is presented.

Woodland and scrub

2.4 Much of the centre of the site supports semi-mature silver birch, *Betula pendula* scrub and woodland classified here as Semi-natural broadleaved woodland. Much of this woodland only reaches a height of approximately two - three metres and will have colonised the site over the last 10-15 years. Many paths and small clearings exist within the woodland which has a relatively species poor ground flora (target note 22 & 16). The woodland will provide some nesting opportunities for birds but will be of more value for feeding due to the young spindly nature of trees.

2.5 More species rich broadleaved woodland of more value to nesting birds, was found in narrow belts along the eastern edge of the site and along the ditch in the south of the site (target notes 20 & 11). Scattered broadleaved trees were recorded along the western edge of the site with a small patch of Broad-leaved plantation woodland (target note 1) present along the north western edge.

2.6 Scrub species recorded on site consist predominately of silver birch with non-native rose species, *Rosa sp,* brambles, *Rubus fruticosa agg.* some hawthorn, *Crataegus monogyna* a patch of broom, *Sarothamnus scoparius* in the north and occasional elder, *Sambucus nigra,* and gorse, *Ulex europaea.*

Plate 1: Woodland and scrub



Grassland

2.7 Other than birch scrub/woodland the remainder of the site can be divided roughly into either bare ground or grassland with small wetland areas. The bare ground to grassland ratio is perhaps 4:6, often with a gradual transition between the two. The more established grassland is found in the north western and north eastern corners (target note 2 & 23) and to a lesser extent on slopes where walkers and riders have eroded and compacted the ground less (target note 3). The grassland on site has been classified simply as Neutral grassland. The division into unimproved/ semi-improved or improved was not considered appropriate here due to the site history, i.e. that vegetation is derived from natural colonisation from the surrounding seed bank over time and has not (to our knowledge) been seeded, managed or improved in any way. The grassland across the majority of the site has a very open sward due to the slow accumulation of organic matter on the deposited spoil.

2.8 The varied topography and hydrology across the site creates a high diversity of ecological niches. This in turn results in a correspondingly high diversity of plant species being present across the site (Appendix 2). Individual areas of grassland however are often fairly species poor (target note 2, 3, 4 & 10). Of note, however, within the grassland is a relatively large population of southern marsh orchids, *Dactylorhiza praetermissa* (target note 13, 19 & 21). A total of around 300 orchids were observed, the majority of which are the unspotted variety but var *junialis* with spotted leaved was also present. Figure 2 illustrates their location within the site.

Ephemeral - short perennial vegetation

2.9 Barer areas of ground, often at the inter-phase between grassland and bare ground supported Ephemeral/short perennial vegetation this has not been mapped due to the small scale and complexity of its distribution. Species recorded here included white clover, *Trifolium repens,* black medic, *Medicago lupulina,* common cat's ear, *Hypochoeris radicata* and ragwort, *Senecio* species.

Tall ruderal vegetation

2.10 This habitat type was widespread around the edge of the site and dominant along fence lines and other peripheral habitats. Species composition of individual stands ranged from single stands of stinging nettle *Urtica dioica,* to communities supporting rank grasses, rosebay willowherb, common ragwort, cow parsley and hogweed.

Marshy grassland and aquatic habitats

2.11 Areas of Marshy grassland on site have been target noted and described individually as they vary (Target notes 7, 8, 12, 14, 15 and 17). Deeper areas of water, the ditches on site

(target notes 7, 12, 14 and 15) support predominately reedmace, *Typha latifolia* with common reed, *Phragmites australis* also within the main ditch which runs to target note 14 and 15. The grassland at target note 8 and 17 is more diverse with species such as common spike rush, *Eleocharis palustris,* common cotton grass, *Eriophorum angustifolium* and common hare's tail, *Eriophorum vaginatum* recorded. See Appendix 1 for full species list. Along the western site edge a small seasonally wet stream runs through lush grassland and tall ruderal's, few aquatic species were recorded here.

Plate 2: Marshy grassland



2.12 Three small areas of Open water were observed on site (target notes 7, 15 and 12) all of these were heavily disturbed by the public and contained litter and debris with little obvious invertebrate life. During dry periods these pools contain little to no water. All could be enhanced for wildlife, if they are to be retained and fenced off to the public. Appendix 1 details plant species recorded.

Plate 3: Open water fly-tipping / rubbish dumping was evident within all waterbodies situated in the site



Acid heath / grassland

2.13 In the south of the site (Target note 10) is a small area of acid grassland supporting a small stand of heather located on very thin soils. Other than scattered heather, *Calluna vulgaris* very few species typical of acid heathland are present here. Other species recorded include sheep's fescue, *Festuca ovina,* red fescue, *Festuca rubra,* tufted hair grass, *Deschampsia cespitosa,* common cat's ear, *Hypochoeris radicata,* red clover, *Trifolium pratensis,* and common bent, *Agrostis capilaris.*

Plate 4: Stands of heather



Protected / notable species

2.14 The following results are presented in summary, full details of protected species surveys will be presented in the final report and impact assessment document. In general the high incidences of human disturbance within the site will limited its value to most protected / notable species. Waterbodies within the site were dry until the end of April 2009 at which time many amphibians species had begun breeding their breeding cycle elsewhere.

Great crested newt and other amphibian species surveys

2.15 No great crested or other newt species were found in the site. Common frog and frogspawn and the spawn of common toad were recorded in a ditch in the southeast corner of the site, this was desiccated due to the drying out of the ditch in early May 2009.

Water vole surveys

2.16 No water vole or characteristic signs indicating the utilisation of the site by this species were observed or recorded during this survey period. In general, due to the transient nature of watercourses located in the site it is highly unlikely that this species would colonise the site. However, it is likely that if new more permanent watercourses were established then water vole would be quick to colonise these features.

Badger surveys

2.17 There were no characteristic signs found during the course of these surveys to indicate the presence or utilisation of the site by this species. Woodland located on the periphery and to the south of the site was also inspected during these survey periods and no characteristic field signs of this species were observed.

Reptile surveys

2.18 The initial walkover surveys and potential hibernacula searches revealed the presence of a number of potential resting places for reptile species including grass snake and slow worms. However, no reptile species were observed during the dedicated surveys.

Bird surveys

2.19 A total of 35 bird species were recorded in the site. Eight species recorded were red listed, five species amber listed and 20 green listed and 2 introduced (not listed in UK).

Table 3: Survey dates and weather conditions

Survey Visit	Date	Weather Conditions	Limiting Factors
1	20.03.09	Dry,cold, some sun, 6°C	None
2	20.04.09	Dry, overcast, 11°C	None
3	19.05.09	Dry, sunny,16°C	None
4	23.06.09	Dry, humid, light winds, 23°C	None

Table 4: Bird species recorded in the site

Species	Latin name	Survey 1 20.03.09	Survey 2 20.04.09	Survey 3 19.05.09	Survey 4 23.06.09	Breeding status	Conservation Status
Blackbird	*Turdus merula*	2	2	4	6	S, P, FF	Green
Blackcap	*Sylvia atricapilla*	1	3		2	S	Green
Blue tit	*Cyanistes caeruleus*		2	7		D, P	Green
Bullfinch	*Pyrrhula pyrrhula*				2	FL	Red, UKBAP
Carrion Crow	*Corvus corone*		8		1	F	Green
Chaffinch	*Fringilla coelebs*	2		1	2	S	Green
Chiffchaff	*Phylloscopus collybita*	4	2	2	2	S, P	Green
Coal tit	*Periparus ater*		2	5		H	Green
Collard Dove	*Streptopelia decaocto*			2	4	P	Green
Dunnock	*Prunella modularis*			3	1	H	Amber
Garden Warbler	*Sylvia borin*	3	2		1	S	Green
Goldfinch	*Carduelis carduelis*			2	4	F, P	Green
Great Tit	*Parus major*	4	4	2	6	S, FL	Green
Greenfinch	*Carduelis chloris*	4	4	6		P	Green
House Martin	*Delichon urbica*			9	6	F	Amber
House Sparrow	*Passer domesticus*	3	6	6	4	S, P	Red, UKBAP
Kestral	*Falco tinnunculus*	1				F	Amber
Linnet	*Carduelis cannabina*			8	2	F	Red, UKBAP, LBAP
Long Tailed Tit	*Aegithalos caudatus*		8		7	S,FL	Green
Magpie	*Pica pica*	1		3		F	Green
mallard	*Anas platyrhynchos*		2				Green
Partridge reg leg	*Alectoris rufa*	2					Introduced
pheasant	*Phasianus colchicus*		3				Introduced
Pied Wagtail	*Motacilla alba*				1	F	Green
Reed Bunting	*Emberiza schoeniclus*		2	2	4	S, FL	Red, UKBAP
Robin	*Erithacus rubecula*	2	2	4	3	S, FL	Green
skylark	*Alauda arvensis*		14	8		S, FL	Red, UKBAP, LBAP
Song Thrush	*Turdus philomelos*	1	2	3	3	S	Red, UKBAP, LBAP
sparrowhawk	*Accipiter nisus*		1			F	Green
Whitethroat	*Sylvia communis*	2			2	S	Amber
Willow Tit	*Poecile montanus*		2	2	5	FF, FL	Red, UKBAP
Willow Warbler	*Phylloscopus trochilus*	4	8	6	10	S	Amber
Wood Pigeon	*Columba palumbus*	14	22	60+	40	D, H, F	Green
Wren	*Troglodytes troglodytes*		4		4	S	Green
Yellowhammer	*Emberiza citrinella*				1	S	Red, UKBAP

Bat surveys

2.20 There were no structures observed within the site that would provide roosting potential for bats. Semi-mature trees situated in the site were not deemed suitable for supporting bats and there was no evidence found in the site suggesting the presence of underground structures. Common pipistrelle bats were recorded flying close to the southeast and northern

boundaries of the site on all evening surveys but these individuals quickly dispersed between adjacent gardens and built structures located outside of the site.

Invertebrate surveys

2.21 Except for dingy skipper all invertebrates recorded in the site were common and widespread. Aquatic surveys could not be undertaken due to the high incidences of human disturbance in waterbodies and the transient nature of the aquatic features.

Table 5: List of invertebrates recorded in the site

Invertebrates: Butterflies	
Small heath	*Coenonympha pamphilus*
Dingy skipper	*Erynnis tages*
Peacock	*Inachis io*
Speckled wood	*Pararge aegeria*
Large white	*Pieris brassicae*
green veined white	*Pieris napi*
Common blue	*Polyommatus icarus*
Large Red damselfly	*Pyrrhosoma nymphula*
Painted lady	*Vanessa cardui*
Wall Brown	*Lasiommata maera*
Meadow Brown	*Maniola jurtina*
Ringlet	*Aphantopus hyperanius*
Small Tortoiseshell	*Aglais urticae*
Small Skipper	*Thymelicus sylvestris*
Invertebrates: Bugs	
	Acanthosomatidae
	Elasmucha grisea (Linnaeus)
	Pentatomidae
	Pentatoma rufipes
	Nabidae
	Nabicula limbata
	Cimicidae
	Anthocoris nemoralis
	Anthocoris nemorum
	Lygaeidae
	Kleidocerys resedae
	Miridae
	Deraeocoris ruber
	Orthotylus virescens
	Lygocoris pabulinus
	Capsus ater
	Stenodema calcaratum
	Stenodema holsatum (Fabricius)
	Leptopterna dolabrata
	Notonectidae
	Notonecta glauca
	Corixdae
	Callicorixa praeusta
	Sigara dorsalis
	Cercopidae
	Philaenus spumarius
	Cicadellidae
	Eupelix cuspidata

Conclusion and Mitigation Potential

2.22 The site exists as a highly disturbed environment which is dominated by made ground, grassland, woodland and scrub. Habitat diversity in the site was relatively low owing mainly to the high incidence of human disturbance and the absence of suitable management. The site has only a low potential to support protected / notable species and this suite of surveys has confirmed the absence of such species within the site. Bird species diversity was relatively high given the amount of disturbance witnessed in the site, but water vole, great crested newt and badger were not recorded. There were a number of potential mitigation opportunities recognised within the site (1) the retention of the southern portion of the site including woodland, scrub, running watercourses and management of those habitats within it; (2) the extension of the reedbed / marshy grassland areas in the southwest of the site including the enhancement and further management of retained waterbodies; (3) the translocation of orchid colonies, either within the retained areas in the site or to an alternative receptor site outside of the site. Potential areas for orchid translocation situated outside of the site will need to be explored fully and ground conditions assessed prior to translocation being undertaken. Translocation of orchids would be undertaken in conjunction with the local biodiversity group.

Appendix 1: Target notes

1	Mixed broadleaved trees planted perhaps for screening purposes. Species include silver birch to 6m, mostly smaller, hawthorn, young oak, and white beam.
2	Fairly established grassland with a closed sward. Grasses recorded include Yorkshire fog, red fescue, cocksfoot, crested dogs tail grass and common bent with herbs including, red clover, ribwort plantain, yarrow, common cats ear, kidney vetch, common vetch, horseshoe vetch, daisy and hairy tare.
3	On the slopes here herbs dominate over grasses creating a colourful sward. Oxeye daisy is also present along with abundant red clover, cats ear and kidney vetch.
4	Species here are similar to target note 2 though the vegetation is less diverse and sparser. Species include both red and white clover, ribwort plantain, yarrow, kidney vetch, crested dogs tail, red fescue, cocksfoot, soft brome, and daisy. Leaves of a *Centaurium*, not yet in flower were also observed on barer areas.
5	A small patch of tufted hair grass with one tussock of the acid grassland species wavy hair grass, this species was not recorded elsewhere on site.
6	A waterlogged area of rank grassland and ruderals. Species recorded include meadow foxtail, false oat grass, hogweed, marsh willowherb and nettles.
7	Open water measuring approximately 4x10m, as it extends another 15 m to the west it becomes a reed mace bed. The pool contains debri such as tires and wood and is poached by dogs and bikes. Marginal species include yellow iris, marsh yellow cress, comfrey, soft rush, jointed rush and common spike rush with starwort present within the water body. This pool is within the area proposed for retention so could be cleaned up and enhanced. Dingy skipper was recorded just to the east of here in the grassland.
8	Wet grassland supporting hard rush, reed mace, common spike rush, and water plantain with abundant glaucous sedge around its periphery indicating possible base enrichment.
9	Birch scrub/woodland with some willow and other species perhaps colonising from planted trees to the south.
10	Acid heath land forms a mosaic with birch scrub, bare ground and more neutral grassland. Other than ling no typically acid loving species were recorded and diversity was very low. Species recorded include sheep's fescue, red fescue, tufted hair grass, common cat's ear, red clover and common bent.
11	This ditch is within steep wooded banks with no marginal vegetation visible. Tree species recorded include fairly mature silver birch, hawthorn, field maple and willow. These trees provide good foraging and nesting potential for small birds.
12	A small area of open water, less than 2m square with reedmace, marsh willow herb and woody nightshade.
13	Grassland here support around 250 southern marsh orchids, see figure x
14	Marshy grassland here is dominated by common reeds though hare's tail cotton grass is present at its western end.
15	A small area of open water grades into a reed mace dominated ditch which runs to the west. Other species include, water plantain, soft rush and common reed. A pair of reed bunting were breading here.
16	Dense, spindly silver birch woodland with a limited ground flora of creeping soft grass, cocksfoot and nipplewort.
17	Marshy grassland approximately 10 x 20 m dominated by both soft and hard rush with abundant common cotton grass.
18	A mound, possibly fairly recently deposited, which has been colonised by tall ruderals. Species include nettles, false oat grass, brambles, comfrey and cow parsley. White throat were behaving territorially here and pheasant was nesting.
19	More southern marsh orchids (see figure 2) A bore hole here appears to have destroyed more orchids as n area of bare ground is surrounded by approximately 70 orchids.
20	Mature trees including sycamore, willow and silver birch.
21	Small patch,13, southern marsh orchids
22	Silver birch woodland ground flora includes creeping soft grass, cocksfoot, hawthorn seedlings, nipplewort, and rowan seedlings and in wetter areas tufted hair grass.
23	Fairly established grassland supporting cocksfoot, red fescue, perennial rye grass, Yorkshire fog, horse shoe vetch, red clover, ribwort plantain, yarrow, black medic and common mouse ear. On both visits dingy skipper was recorded in this part of the site.
24	A large stand of the non-native red valerian is present here on slopes along with broom, brambles and hogweed.
25	Much of the north of the site contains areas of hard standing and remnants of concrete structures, this is such a structure with bare ground to the east.
26	A large stand of red valerian dominates this area.

Appendix 2: Plant species list and list of incidental sighting of other species

Latin name	English name
Forbs	
Achillea millefolium	Yarrow
Alisma Plantago-aquatica	Water plantain
Anthyllis vulneraria	Kidney vetch
Artemisia vulgare	Mugwort
Bellis perennis	Daisy
Callitriche sp	Water starwort sp
Calluna vulgaris	Heather/ling
Centaurea nigra	Common knapweed
Centaurium sp	Centaury sp
Centranthus robur	Red valerian
Cerastium holosteoides	Common mouse-ear
Chamerion angustifolium	Rosebay willowherb
Chrysanthemum Leucanthemum	Oxeye daisy
Cirsium arvense	Creeping thistle
Cirsium vulgare	Spear thistle
Dactylorhiza praetermissa	Southern marsh orchid
Dactylorhiza praetermissa var junialis	spotty form of above
Dipsacus fullonum	Teasel
Epilobium hirsutum	Marsh willow herb
Galium aparine	Sticky bur
Heracleum sphondylium	Hogweed
Hieracium aurantiacum	Fox and cubs
Hypericum sp	St Johns wort sp
Hypochaeris radicata	Common Cat's-ear
Iris pseudacorus	Yellow iris
Lapsana communis	Nipplewort
Lathyrus pratensis	Meadow vetchling
Leontodon sp	
Lepidium heterophyllum	Smiths pepperwort
Linum catharticum	Fairy flax
Lotus corniculatus	Horse-shoe vetch
Medicago lupulina	Black medick
Pilosella officinarum	Mouse-ear-hawkweed
Plantago lanceolata	Ribwort plantain
Potentilla reptans	Creeping cinquefoil
Ranunculus repens	Creeping buttercup
Reseda luteola	Weld
Reseda luteola	Wild Mignonette
Rorippa palustris	Marsh yellow-cress
Rumex acetosa	Common sorrel
Rumex crispa	Curly dock
Rumex obtusifolia	Broad leaved dock
Sedum acre	Biting stonecrop
Senecio sp	Ragwort sp
Silene vulgaris	Bladder campion
Solanum dulcamara	Woody nightshade
Sonchus oleraceus	Smooth sowthistle
Symphytum officinalis	Common comfrey
Taraxacum officinale	Dandelion
Tragopogon pratensis	Goat's beard
Trifolium pratense	Red clover
Trifolium repens	White clover
Trifolium dubium	Black medic
Tussilago farfara	Coltsfoot
Urtica dioica	Common nettle
Vicia hirsuta	Hairy tare
Vicia sativa	Common vetch
Grasses, Rushes and Sedges	
Aira praecox	Early hair-grass
Agrostis capillaris	Common bent
Agrostis stolonifera	Creeping bent
Alopecurus pratensis	Meadow foxtail
Arrhenatherum elatius	False oat grass

Bromus molle	Soft brome
Carex flacca	Glaucous sedge
Carex nigra	Common sedge
Cynosurus cristatus	*Crested dog's-tail grass*
Dactylis glomerata	Cocksfoot
Dactylorhiza fuchsii	Common spotted orchid
Deschampsia cespitosa	Tufted hair grass
Deschampsia flexuosa	Wavy hair grass
Desmazeria rigida	Fern grass
Eleocharis palustris	Common spike rush
Eriophorum angustifolium	Common Cotton grass
Eriophorum vaginatum	Hare's-tail cotton grass
Festuca ovina	Sheep's fescue
Festuca pratensis	Meadow fescue
Festuca rubra	Red fescue
Glyceria fluitans	Floating reed grass
Holcus lanatus	Yorkshire fog
Holcus mollis	Creeping soft grass
Juncus articulatus	jointed rush
Juncus conglomeratus	Common rush
Juncus effuses	Soft rush
Juncus inflexus	Hard rush
Lolium perenne	Perennial rye grass
Luzula campestris	Field woodrush
Phragmites australis	Common reed
Typha latifolia	Reed mace
Sparganium erectum	*Branched bur-reed*
Ferns and horsetails	
Dryopteris affinis	Scaly Male-fern
Dryopteris dilatata	Broad buckler-fern
Equisetum arvensis	Common horsetail
Pteridium aquilinum	Bracken
Trees and shrubs	
Acer campestris	Field maple
Acer pseudoplatanus	Sycamore
Alnus glutinosa	Alder
Betula pendula	Silver birch
Cotoneaster sp	
Crataegus monogyna	Hawthorn
Fraxinus excelsior	Ash
Quercus robur	Oak
Rosa sp	Non-native planted variety
Rosa canina	Dog rose
Rubus fruticosus agg.	Brambles
Salix sp	Willow sp
Salix viminalis	Osier
Sambucus nigra	Elder
Sarothamnus scoparius	Broom
Sorbus aucuparia	Rowan
Sorbus sp	Whitebeam sp
Ulex europaea	Gorse
Mammals	
Oryctolagus cuniculus	Rabbit
Birds	
Apus apus	Swifts
Carduelis cannabina	Linnet
Carduelis carduelis	Gold finch
Columba palumbus	Woodpigeon
Cuculus canorus	Cuckoo
Delichon urbica	House martin
Erithacus rubecula	Robin
Emberiza schoeniclus	Reed bunting
Falco tinnunculus	Kestrel
Hirundo rustica	Swallow
Parus major	Great tit
Parus caerulus	Blue tit
Passer domesticus	House sparrow

Perdix perdix	Grey partridge
Phasianus colchicus	Pheasant
Phylloscopus collybita	Chiffchaff
Phylloscopus trochilus	Willow warbler
Pica pica	Magpie
Prunella modularis	Dunnock
Sylvia communis	Whitethroat
Streptopelia decaocto	Collard dove
Sturnus vulgaris	Starling
Turdus merula	Black bird
Turdus philomelos	Song thrush
Invertebrates	
Coenonympha pamphilus	Small heath
Erynnis tages	Dingy skipper
Inachis io	Peacock
Pararge aegeria	Speckled wood
Pieris brassicae	Large white
Pieris napi	green veined white
Polyommatus icarus	Common blue
Pyrrhosoma nymphula	Large Red damselfly
Vanessa cardui	Painted lady

Appendix 3 Local Wildlife Site Citation

Site Name: Barnsley Canal at Wilthorpe Parish:

Grid Reference: SE 336084 Area: 33.3 ha

SITE DESCRIPTION

The disused Barnsley Canal at Wilthorpe and its surrounding habitats are located between the River Dearne and the railway line, north of Wilthorpe at an altitude of 50 m AOD. The site includes a stretch of the canal, part of the old course of the river, swamp and grassland.

The disused canal is largely dry in the west of the site and dominated by reed-grass (Glyceria maxima). To the west it is also dominated by great reedmace (Typha latifolia) with bur-reed (Sparganium erectum) and saplings of birch (Betula species). The canal has water further east and a complete cover of common duckweed (Lemna minor). East of the next footbridge the water is open and contains broad-leaved pondweed (Potamogeton natans), Canadian pondweed (Elodea canadensis) and whorled water-milfoil (Myriophyllum verticillatum), a nationally scarce plant. Towards Smithy Bridge the canal is dry and dominated by reed-grass with unbranched bur-reed (Sparganium emersum). Brown sedge (Carex disticha) grows on the site and is a rare plant in the district. An increasing dominance of Typha and Glyceria were noted in 2003 together with a marked increase in willow scrub.

A variety of habitats are found either side of the canal. In the west and south of the canal is a large area of short turf, unimproved neutral grassland. The dominant grass is crested dog's-tail (Cynosurus cristatus) with common bent (Agrostis capillaris) and a rich diversity of meadow flowers including autumnal hawkbit (Leontodon autumnalis), centaury (Centaurium erythraea), meadow buttercup (Ranunculus acris), sneezewort (Achillea ptarmica), marsh thistle (Cirsium palustre), field scabious (Knautia arvensis), bladder campion (Silene vulgaris) and common tormentil (Potentilla erecta). The grassland is broken up by a small wooded area of hawthorn (Crataegus monogyna) and a dry pond dominated by hard rush (Juncus inflexus).

North of the canal is the site of Wilthorpe Marsh, which has been drained. A few small marshy areas remain and these are dominated by great reedmace with soft rush (Juncus effusus) water-plantain (Alisma plantago-aquatica), common water-starwort (Callitriche stagnalis) and autumnal starwort (C. hermaphroditica), a nationally scarce plant. Other plants include water mint (Mentha aquatica) jointed rush (Juncus articulatus), marsh bedstraw (Galium palustre), common skullcap (Scutellaria galericulata) and lesser water-parsnip (Berula erecta), a rare plant in the district.

The old course of the River Dearne contains great reedmace, bur-reed, common duckweed, green water-cress (Nasturtium officinale), curled pondweed (Potamogeton crispus) and fennel-pondweed (P. pectinatus), Canadian pondweed, water-plantain and lesser water-parsnip.

Between the old river and the canal is an area of acid grassland dominated by common bent and red fescue (Festuca rubra) with a variety of herb species including common tormentil, devil's-bit scabious (Succisa pratensis), common knapweed (Centaurea nigra) and yarrow (Achillea millefolium).

An area of swamp with small pools north of the river is dominated by great reedmace with lesser pond sedge (Carex acutiformis), a rare plant in the district, and lesser water-parsnip with small pools. Adjacent to the swamp is a slope of grassland with common bent grass, devil's-bit scabious and hawkweeds (Hieracium species). A small marsh dominated by dense soft rush with sneezewort, devil's-bit scabious, common skullcap and gipsywort (Iycopus europaeus) is found north of the larger swamp area.

The site supports breeding sedge and reed warbler, lesser whitethroat, kingfisher (a Bird of Conservation Concern) and sparrowhawk. Snipe, redshank and little ringed plover visit the site on passage. In autumn there is a large roost of swallows using the areas of great reedmace. In winter areas of scrub are used by feeding and roosting thrushes, finches and buntings, sometimes in large numbers. The old course of the river is used for fishing and contains good diverse fish populations of roach, perch, tench, bream, carp, dace, bleak and pike. The area supports populations of amphibians such as common toad, common frog and smooth newt. Great created newt have also been reported at Willowbank (pers. Comm. J Lunn 2003).

Wilthorpe Marsh was a very rich site entomologically and it is not known how much of this interest has been lost due to the drainage scheme. A rare sawfly, Dolerus megapterus is found on the vegetation of the canal and this is the first record for this species in Yorkshire. Dragonflies and damselflies on the site include the brown aeshna Aeshna grandis, emerald damselfly Lestes sponsa, a rare species in South Yorkshire and common sympetrum Sympetrum striolatum.

SITE EVALUATION

Criteria

Size: This is a fairly large site with a mosaic of habitats including a large area of species -rich unimproved grassland.

Diversity: The site is centred on the canal which contains a diversity of aquatic plants. Diversity is added to the sit by the inclusion of species-rich neutral grassland and acid grassland and swamp areas. The site supports breeding, wintering and passage birds, amphibians and a variety of insect life.

Naturalness: The canal is man-made and the vegetation communities on the site are semi-natural and unmanaged.

Rarity: Myriophyllum verticillatum is a nationally scarce plant found in 75 10 x 10 km squares in Great Britain (NCC, 1989). Callitriche hermaphroditica is a nationally scarce plant found in 79 10 x 10 km squares in Great Britain. Berula erecta and Carex disticha are rare plants in Barnsley. Carex acutiformis is only found in one other site in the district. Dolerus magapterus is a rare insect in Britain and the first record for this species in Yorkshire. (Lestes sponsa) is a rare insect in South Yorkshire (G. Blunt, 1987)

Fragility: The site for Callitriche hermaphroditica is vulnerable to drying out as it exists in the remnants of a previous marsh, now drained for agricultural improvement. Myriophyllum verticillatum is found in a stretch of the canal with algae which could increase and smother out the rare plant. Much of the site was be subject to a proposal for opencast coal mining in 1993.

Typicalness: The various wet and dry habitats in the site contain a typical range of plant species for the particular vegetation communities. A variety of characteristic animal life is found in the habitats on the site.

Evaluation of important features

Site Feature	Importance	
1.	Habitat type	District
	Woodland	Low
	Grassland	High
	Standing water	High
	Swamp	High
	Marsh	Average

2.	Species	National	County	District
	Myriophyllum verticillatum	High*		
	Callitriche hermaphroditica	High*		
	Berula erecta			Average*
	Carex acutiformis			Average*
	Carex disticha			Average*
	Breeding birds			Average
	Passage birds			Average
	Dolerus megapterus	Average*	High*	
	Lestes sponsa			High*.

Species	National	County	District
	Great Crested Newt	Average*	High*

* Requires survey to verify current status.

Existing site designations: NHS

Site justifications: The Barnsley Canal at Wilthorpe is a rich mosaic of wet and dry habitats centred on the disused canal, some of which are vulnerable and may be lost. The habitats of particular note include the canal itself, a large area of unimproved, neutral species-rich grassland and swamp communities. The site contains two nationally scarce plants, Myriophyllum verticillatum and Callitriche hermaphroditica. It supports a variety of fauna including good populations of freshwater fish, amphibians, breeding and passage birds and the rare sawfly Dolerus megapterus, a first record for Yorkshire.

Barnsley Biodiversity Action Plan
HAP 7 Flood Plain Grazing March
HAP 8 Lowland Meadows
HAP 9 Lowland Dry Acid Grassland
HAP 14 Ponds and Canals

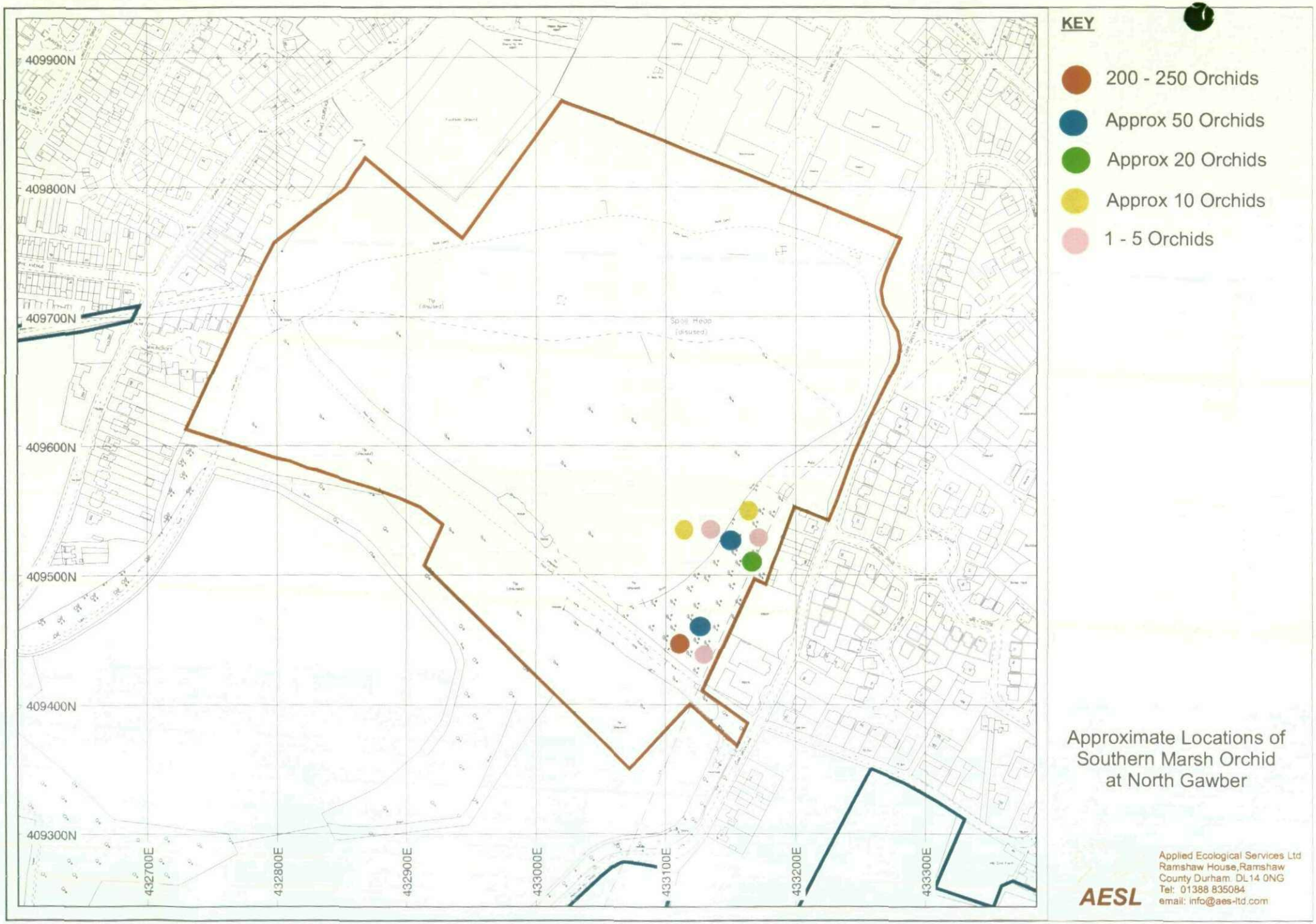


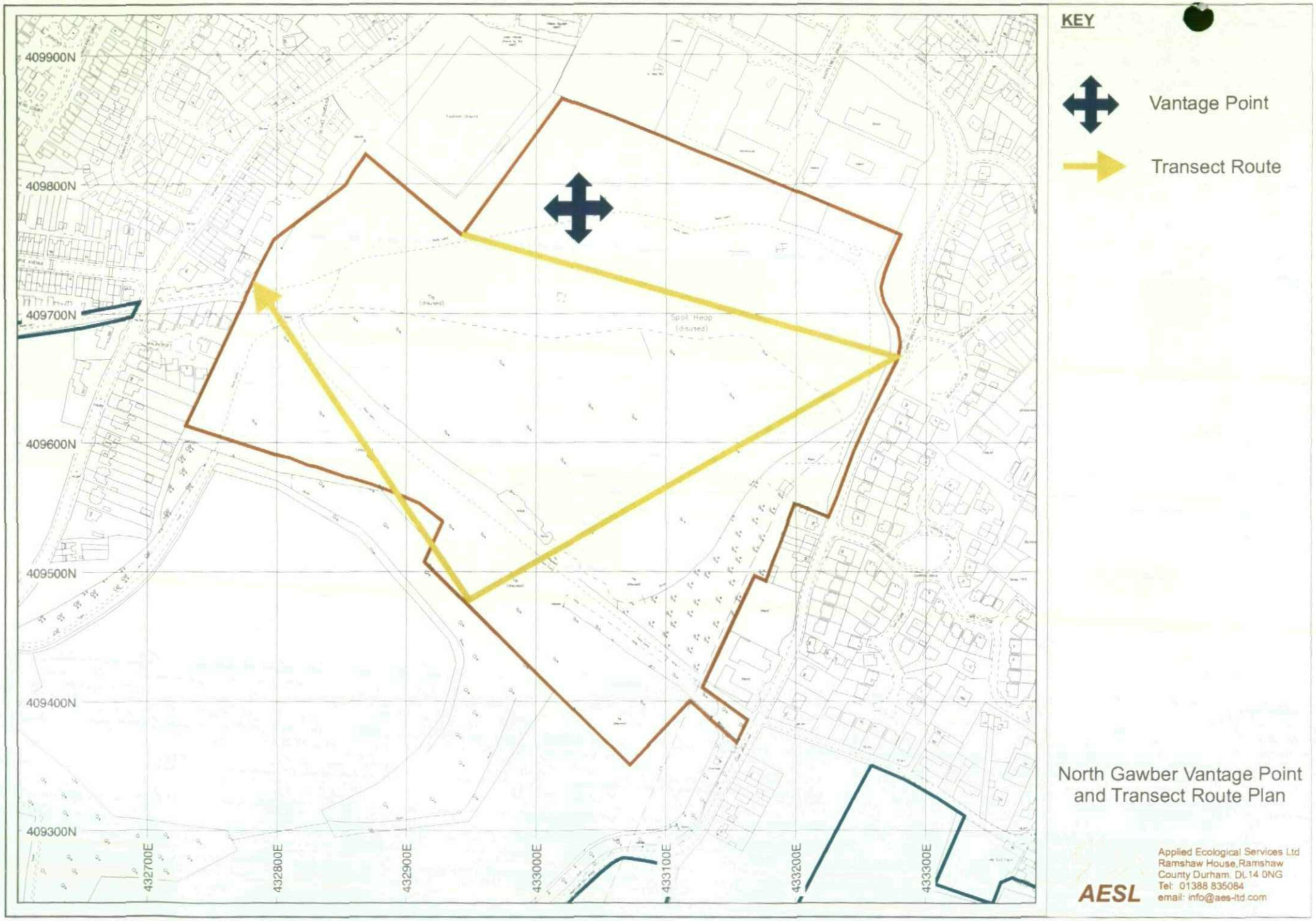
KEY

- Broad-leaved plantation
- Broad-leaved semi natural woodland
- Recently felled broad-leaved woodland
- Scattered scrub
- Individual trees
- Unimproved neutral grassland
- Marsh/marshy grassland
- Continuous bracken
- Tall ruderal
- Acid heathland
- Standing water
- Dry ditch
- Earth bank
- Hardstanding
- Bare ground
- Target note

North Gawber
Phase 1 Habitat Plan

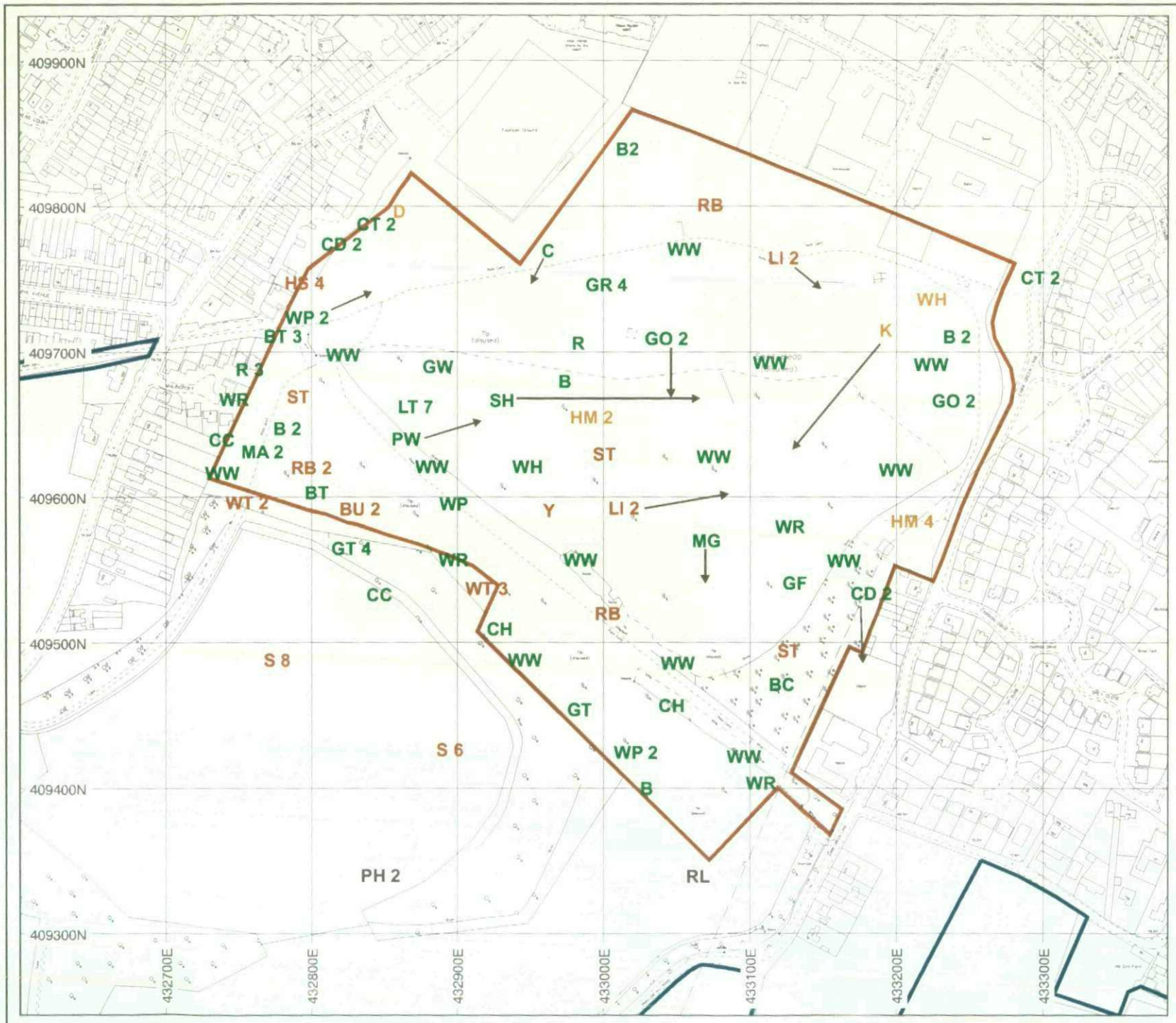
AESL
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432700E
432800E
432900E
433000E
433100E
433200E
433300E
Spoil Heap
(disused)
KEY
200 - 250 Orchids
Approx 50 Orchids
Approx 20 Orchids
Approx 10 Orchids
1 - 5 Orchids
Approximate Locations of
Southern Marsh Orchid
at North Gawber
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North Gawber Vantage Point and Transect Route Plan

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KEY

B	Blackbird
BC	Blackcap
BT	Blue Tit
BU	Bullfinch
C	Carrion Crow
CC	Chiffchaff
CD	Collard Dove
CH	Chaffinch
CT	Coal Tit
D	Dunnock
GO	Goldfinch
GT	Great Tit
GR	Green Finch
GW	Garden Warbler
HM	House Martin
HS	House Sparrow
K	Kestral
LI	Linnet
LT	Long Tailed Tit
MA	Mallard
MG	Magpie
PH	Phesant
PW	Pied Wagtail
R	Robin
RB	Reed Bunting
RL	Red Leg Partridge
S	Skylark
SH	Sparrowhawk
ST	Song Thrush
WH	Whitethroat
WP	Wood Pigeon
WR	Wren
WT	Willow Tit
WW	Willow Warbler
Y	Yellowhammer

North Gawber Breeding Bird Distribution Plan

AESL

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