Site Investigation for land at
Trough Laithe Farm, Barrowford Road, Lancashire

Appendix 5

Ecological Report

TEP

Reference: 2307.001

Dated: February 2010

PLANNING DESIGN ENVIRONMENT

RIVERSIDE BUSINESS PARK
NELSON, PENDLE
ECOLOGICAL ASSESSMENT 2010
(Report Ref: 2307.001)
FEBRUARY 2010

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APPENDICES

DRAWINGS

1.0 INTRODUCTION

1.1 TEP was originally commissioned by Peel Investments (North) in 2007 to undertake a range of ecological surveys at the proposed Riverside Business Park development site. The following surveys were undertaken in 2007 and are detailed in TEP Report Ref 1383.002, 1383.007, 1383.008 and 1383.010:

- Desktop study
- Habitat survey and assessment for species of conservation concern
- Breeding bird survey
- Amphibian survey
- Bat tree survey

1.2 TEP was commissioned in January 2010 by Peel Investments (North) to update the 2007 ecological assessment of the site. Since the 2007 work, a pond was infilled to allow the creation of a permanent road into the development site. A new pond was created as mitigation habitat.

1.3 This report has the following objectives:

- to describe the existing vegetation and give an overview of the habitats present on the site;
- to identify whether there are any features of conservation value; such as legally protected species or habitats of biodiversity importance[1];
- to advise of further surveys or mitigation requirements that might be needed prior to development of the sites.

1.4 A general overview of planning policy and legislation in England is available to download from the TEP website (www.tep.uk.com).

[1] Such as habitats prioritised in the UK Biodiversity Action Plan (BAP) or the Local BAP

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2.0 SITE DESCRIPTION

2.1 The site is located within a rural area of Nelson, Pendle and is centred at OS grid reference SD 851 387. The site is situated west of junction 13 of the M65. It is bounded to the south by Barrowford Road and to the east by Pendle Water. The north and west of the site is bounded by pastoral land which gives access to the wider countryside (Figure 1 below).

Figure 1: Aerial photograph of survey site and surrounding habitat

2.2 In brief, the site comprises of a series of pastoral fields, with several large areas showing evidence of wet soil conditions. A small network of ditches run through the site, some of which are dry. There is a range of semi-mature to mature trees located within the site, the majority of which form field boundaries. Seven small areas of new tree plantations are also present within the boundary. A new pond lies to the north eastern corner of the site.

3.0 METHODS

Desktop study

3.1 Information was requested/gathered from the following sources (Table 1):

Table 1: Sources of information accessed for desktop survey

CONSULTEE/SOURCE OF INFORMATION	NATURE OF INFORMATION
National Biodiversity Network Gateway	National online database for species records
Magic Map	Online geographical mapping system including national and statutory designated sites, habitat inventories etc
Lancashire Biodiversity Action Plan	Locally prioritised species and habitats and their conservation objectives
Biodiversity Action Plan	Nationally prioritised species and habitats and their conservation objectives
Windows Local Live	Aerial Photograph of the proposed development site
Natural England- Nature on the Map	National nature reserves, protected sites
Burnley Biological Records	Records of protected species and habitats within 1km of the site
Pendle Borough Council Local Plan	Local development plans and designations
Planning Policy Statement 9	Biodiversity and geological conservation guidance
South Lancashire Bat Group	Local bat records
Lancashire Badger Group	Local badger records

3.2 Correspondence and results of the desktop survey are presented at Appendix A.

Walkover habitat survey

3.3 The initial walkover survey was undertaken on the 21st February 2007 by TEP ecologists, Katrina Hoyle AIEEM and Sally Cowley AIEEM. The survey was carried out in general accordance with the assessment methods set out in JNCC 2007. The survey gives an overview of key habitats and wildlife corridors. Fieldwork was undertaken outside the optimum period recommended for Phase 1 surveys. However, due to the range of habitats on site it was considered that the available evidence of the site's vegetation was sufficient for findings to be mapped and described in Phase 1 terms.

3.4 An updated survey was carried out by TEP ecologist Sally Cowley AIEEM on 9th February 2010. Target notes provide a botanical list of the immediate area and any other additional information thought useful. Target notes are presented in Appendix B of this report.

Assessment for species of conservation concern

3.5 During the walkover survey, the habitats present were assessed for their potential to support species of conservation concern, particularly statutorily protected species or BAP priority species. Incidental observations of birds were also made during the walkover survey.

Amphibian Habitat Suitability Index

3.6 The general quality and range of the habitats present were assessed for their ecological value during an initial walkover of the site in 2007 and during the re-survey in 2010. In particular, the occurrence of habitats suitable for great crested newts was noted.

3.7 Suitability of ponds for great crested newt breeding is dependent upon the quality of a large number of pond characteristics. Ten of these characteristics have been isolated as being of particular importance to great crested newts (Swan & Oldham 1994). A Habitat Suitability Index (HSI) using these characteristics was subsequently developed (Oldham *et. al.* 2000) to quantify the likelihood of great crested newts using the waterbodies and surrounding habitat. The HSI assessment has been applied to the newly created waterbody located within the site boundary.

4.0 RESULTS

Desktop study

Protected sites

4.1 No designated ecological sites are identified within or adjacent to the proposed Riverside Business Park. The closest site is Lomeshaye Marsh Local Nature Reserve (LNR) which lies over 1km to the south west of the development site.

4.2 The closest nationally important protected site is the South Pennine Moors Special Area of Conservation (SAC) and Site of Specific Scientific Interest (SSSI) which lies approximately 6km southeast the proposed development. Further details are given in Appendix A.

Protected species

4.3 There were no records of any protected species held by the NBN (National Biodiversity Network) for this area of rural Nelson (north east of Burnley).

4.4 Data from the South Lancashire Bat Group identified 2 pipistrelle records within 1km of the proposed development. The nearest pipistrelle roost site is approximately 300m away to the north east.

4.5 No records of great crested newts were revealed within 1km of the site. No records of any other protected species, such as badger or water vole were revealed within the 1km search area around the site either.

Habitat survey

4.6 The habitat survey is illustrated at Drawing D2307.001. Target notes are presented at Appendix B. The following habitats are present on site:

- Scattered trees
- Plantation
- Scattered/dense scrub
- Semi-improved neutral grassland
- Amenity grassland
- Marshy grassland

- Tall ruderal herbs
- Pond
- Ditches
- Species poor hedge

4.7 Brief descriptions of the key species and relative importance of the habitats are set out below.

Scattered trees

4.8 There are many scattered trees around the site, the majority of which form linear belts with a few stand-alone hawthorns (*Crataegus monogyna*) within the pasture. The pattern and distribution of the trees suggests remnant hedges, or ditch boundaries. The trees range from mature to semi-mature and there are several in an advanced state of decline, in particular the trees along the north of Ditch 4. The dominant species are hawthorn, alder (*Alnus glutinosa*) and holly (*Ilex aquifoilium*).

Plantation

4.9 There are seven plots of young woodland plantations within the site boundary which all contain a similar mix of deciduous native tree species, such as cherry (*Prunus avium*), ash (*Fraxinus excelsior*), alder and willow (*Salix sp*.) (TN3 and TN9). An area of plantation in the west of the site has an understorey dominated by horsetail (*Equisetum arvense*) (TN5) and an area of plantation in the east of the site contained other species such as dog rose (*Rosa canina*), holly (*Ilex acquifolium*), guelder rose (*Viburnum opulus)* and also birch (*Betula pendula*) (TN10). The locations of the plantations around the site create a parial screen of the site from surrounding areas.

Scattered/dense scrub

4.10 Two areas of dense scrub were identified within the site, both located in the southwest. The largest area contains a species mix of willow herb (*Epiolbium sp*.), bramble (*Rubus fruiticosus*) and creeping thistle (*Cirsium arvense)*. A similar species mix of dense scrub along with scattered bramble (*Rubus fruiticosus*) is located on the south western boundary running alongside a garden wall of a residential property.

Semi-improved neutral grassland

4.11 Semi-improved neutral grassland forms the dominant habitat type on site. The grassland is formed by the poorly draining permanent pasture. It is defined by the presence of species such as creeping bent (*Agrostis stolenifera*), Yorkshire fog (*Holcus lanatus*) and soft rush (*Juncus effusus*) (TN1, TN2 and TN6). From the target notes it can be demonstrated that the sword is species poor. With a lack of abundance from species such as cock's-foot (*Dactilis glomerata)* and perennial rye-grass (*Lolium perenne)* it excluded the Phase 1 habitat type of improved grassland.

Amenity grassland

4.12 Areas bounding the residential area and the very southern tip of the site are described as amenity due to the closely and regularly mown regime with typical species such as perennial rye-grass. Generally this habitat is greatly lacking in both structural diversity and species-richness.

Marshy grassland

4.13 There are several areas of marshy grassland located within the neutral grassland and these occur throughout the site. These areas are marked by a dominance of soft rush.

Tall ruderal herbs

4.14 A notable area of Japanese knotweed was recorded in 2007, outside of the site boundary on the adjacent banks of Pendle Water. During the 2010 re-survey it was apparent that, although Japanese knotweed was not recorded on site, the offsite infestation has spread along the banks down stream.

Pond

4.15 There is one pond on site located within the north eastern corner of the site. The pond was created in 2007/2008 as part of a planning condition for the Riverside Business Park planning application 13/06/0442P to replace a pond lost during the access road construction.

4.16 The pond is a large tear-drop shape, not exceeding 50cm in depth, which supports a mix of aquatic plant species such as soft rush and water-starwort species (*Callitriche sp*) (TN7).

Ditches

4.17 There is a network of seven ditches present within the proposed development site. All of the ditches have shallow water levels, which dry out in places along Ditch 4, Ditch 5 and Ditch 7, and are associated with lines of scattered trees and hedgerows. Most of the ditches are devoid of vegetation due to the heavy shading but Ditch 1 and Ditch 4 contain species such as lesser celandine (*Ranunculus ficaria*) and soft rush (TN4 and TN8).

Species-poor hedge

4.18 There are four sections of remnant species-poor hedge located across the site. The hedgerows are not considered as "important" under the wildlife criteria of the *Hedgerow Regulations 1997*, but they provide valuable habitats and habitat links for species such as bats, birds, amphibians and invertebrates. Native hedgerows are listed on the UKBAP as priority habitats.

Wildlife Corridors

4.19 The hedgerows and tree lines within the site help to provide connectivity between the site and the surrounding green space. This increases foraging and commuting opportunities for species such as bats, birds and invertebrates.

4.20 Pendle Water is a watercourse along the north eastern boundary of the site and provides a wildlife corridor, linking the site to the surrounding countryside.

Assessment for species of conservation concern

Great crested newts

4.21 There is one pond on site located within the north eastern corner of the site. The pond was created in 2007/2008 as part of a planning condition for the Riverside Business Park planning application 13/06/0442P. The original pond onsite (which is now filled-in and dry) was trapped out to ensure that all amphibians were conserved.

4.22 There are no records of great crested newts within 1km of the site boundary and no great crested newts where found on site during the 2007 amphibian survey at the site (Full details can be found in TEP report ref 1383.008). A small population of smooth newt, palmate newt and common frog where recorded during the 2007 surveys.

4.23 There are a limited number of waterbodies within 500m of the site, looking at an ordnance survey map there are only 3-4 ponds within 1km of the site. The isolation of pond habitat within 500m of the site means that there will be limited movement and breeding opportunities for local amphibian populations.

4.24 The new pond located within the site boundary was assessed for its potential to support great crested newts. The pond scored a HSI of 0.61 which according to Oldham *et al* (2000) means that the pond on site is considered to have 'Average' suitability to support great crested newts.

Bats

4.25 During the 2007 surveys, all of the trees on site were assessed for bat roost potential by licensed bat ecologist Mike Freeman. During the daytime assessment in January 2010 a total of 12 individual trees and 3 groups of trees were found to have some bat roost potential, however no trees were considered ti have anything other than low potential to support roosting bats (in both 2007 and 2010). The results of the tree assessment are summarised in Table 1, below, and illustrated at Drawing D2307.002.

Table 2: Assessment of trees considered to have bat roost potential

Tree No.	Comments/features observed	Potential for bats?
T1	Mature ash tree with some cavities	Low
T2	Ash tree with small cavity	Unlikely
T3	Alder with a basal cavity	Low
T4	Hawthorn with a cavity low down in the trunk	Unlikely
T5	Alder with small basal cavities	Low
T6	Alder with small basal cavities	Low
T7	Alder with a basal cavity	Low
T8	Ash with some splits and small cavities	Low
T9	Sycamore with a cavity high up in the trunk	Unlikely
G1	A group of three dead trees with peeling bark and cavities	Low
G2	A group of seven trees with basal cavities	Low
G3	A group of eight trees that are ivy clad	Unlikely

4.26 Most of the trees on site are either not large enough to have potential to support roosting bats or do not possess suitable roosting features. The mature and semi-mature trees identified as having features with bat roost potential are generally considered to have only low roost potential. Some of these trees have cavities, many of them basal and others have ivy growth.

4.27 The downward angles of the crevices and cavities in most of these trees make them liable to water logging and therefore limit the roosting potential for bats.

4.28 Ditch 4, just north of the centre of the site, contains several trees with ivy growth (Group 3). The ivy was not dense enough to support a bat roost alone and there were no evident crevices within the trees.

4.29 A ground assessment of the trees on site did not therefore identify any specimens with high potential to support roosting bats. However, the site and surrounding area forms a good habitat for foraging and commuting bats. It is likely that the trees on site are used by foraging bats.

Badgers

4.30 No signs of badgers using the site or land adjacent to the site were found during the course of the daytime site visit in February 2010 (or in previous surveys in 2007).

Water voles

4.31 There is a network of seven ditches present within the proposed development site. The ditches are dry in places and some are heavily shaded and devoid of vegetation. No evidence was found during surveys in 2007 and 2010 to indicate that water voles are active or have been active anywhere within the survey area.

Birds

4.32 Incidental records of birds seen or heard on site were recorded during the 2007 and 2010 walkover surveys. These included:

- Blackbird (2007 & 2010)
- Blue tit (2007 & 2010)
- Carrion crow (2007 & 2010)
- Chaffinch (2007 & 2010)
- Coal tit (2007)
- Dipper (on Pendle Water) (2007)
- Dunnock (2007 & 2010)
- Great tit (2007 & 2010)
- Firecrest (2007)
- Grey heron (2010)
- Kestrel (2007)
- Magpie (2007 & 2010)
- Mallard (2007 & 2010)
- Robin (2007 & 2010)
- Wood pigeon (2007 & 2010)
- Wren (2007)

4.33 Firecrest is a Schedule 1 protected bird species. Dunnock and kestrel are all UK Amber listed species of medium conservation concern.

4.34 A total of 30 bird species were recorded during the 2007 Breeding Bird Surveys at land of Barrowford Road, Nelson, including one listed as UK Biodiversity Action Plan Priority (song thrush), four Red-listed species (dunnock, house sparrow, song thrush and starling) and five Amber-listed species (grey wagtail, house martin, kestrel, swallow, willow warbler). Full details can be found in TEP report ref 1383.007.

5.0 CONCLUSIONS AND IMPLICATIONS

5.1 TEP undertook a range of ecological assessments at the Riverside Business Park site in 2007. An updated ecological assessment of the site and its potential to support species of conservation concern was undertaken in February 2010. The Habitat Survey is illustrated at Drawing D2307.001. Appendix A provides any desktop survey correspondence received from consultees and Appendix B gives target notes taken on site at the time of survey.

Protected sites

5.2 There are no designated wildlife sites within the site or within 1km of the site. The closest is Lomeshaye Marsh LNR, which lies over 1km to the south west of the development site and will not be affected by the site proposals.

Species of conservation concern

Great crested newts

5.3 Due to lack of records in the wider area, the absence of great crested newts in 2007 and the isolation of breeding habitat it is considered unlikely that great crested newts will have started using the site since the 2007 survey.

5.4 Due to the low possibility of great crested newts being present on site, the survey information to date is sufficient to support the outline planning application for Riverside Business Park. However since there may be a pre-longed time period between outline planning determination and commencement of development, we would recommend that an updated amphibian survey of the site be undertaken prior to granting of reserved matters. During consultation, this approach has already been agreed with the Environment Agency.

5.5 In the unlikely event that great crested newts are found, then a Natural England development licence will be required to permit development at the Riverside Business Park site.

Bats

5.6 Records collected from the desktop survey found evidence of bats within 1km of the site and a pipistrelle roost 300m to the north east of the site.

5.7 Some of the trees on site only had low potential to support a bat roost and no evidence of roosting bats was identified during the daytime assessment. However, it is likely that bats use the tree lines and hedgerows on site for foraging and commuting.

Badgers

5.8 No evidence of badgers using the site or land adjacent to the site was found during the course of the daytime site visit in February 2010. There are therefore no apparent implications to development with regard to badgers.

Water vole

5.9 There are six ditches present within the development site, none of which provide suitable habitat to support water voles.

5.10 Pendle water will require an 8m stand-off from development. If development or construction works are to come within 8m of the Pendle Water banks then there may be a need for further ecological surveys, such as water vole surveys.

Birds

5.11 Firecrest, a Schedule 1 protected bird species were recorded on site during the 2007 habitat walkover, however it was not recorded during either of the 2007 breeding bird survey visits and it was not recorded on site during the 2010 survey visit. Several UKBAP and/or Birds of Conservation Concern were recorded over the 2007 and 2010 surveys (dunnock, kestrel, house sparrow, song thrush, starling, grey wagtail, house martin, swallow, willow warbler).

5.12 In a local context, the site is provides good habitat for a range of woodland species but it does not appear to be of any outstanding value for ground nesting birds due to the high disturbance of the pasture and access to the general public i.e. dog walkers.

5.13 Virtually all UK wild birds are protected at the nest under the *Wildlife and Countryside Act 1981 as amended*, which makes it an offence (in addition to possession, control and sale offences) to kill, injure or take any wild bird; 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. Best practice interprets this legislation such that UK wild birds receive protection from the point of constructing a nest to fledging the young birds and vacating the nest. Generally this period is considered to last from March to August inclusive, although there is variation between species and latitude. There is no derogation from this legislation by means of a licence for the purpose of disturbing nesting UK wild birds in the course of a development.

Other issues

5.14 The walkover identified four notable areas of Japanese knotweed (*Fallopia japonica*) stands located outside the site boundary on the adjacent banks of Pendle Water (Drawing D2307.001).

5.15 Although it is located off-site, the extent of the infestation has spread since the 2007 survey visits. Japanese knotweed regeneration occurs vegetatively from the smallest rhizome/stem fragments (weighing less than 1 gram) in both soil and aquatic environments. Dispersal of rhizome/regenerating material occurs by watercourse translocation and by human activity.

6.0 RECOMMENDATIONS

6.1 Detailed site proposals were not available at the time of writing this report. The following provides general recommendations for development of the site.

Habitats

6.2 Native hedges (for example hawthorn hedges) and ponds (when they support protected and/or UKBAP species) are UKBAP priority habitats. PPS9 requires that local planning authorities should seek to maintain and enhance biodiversity when considering planning applications. As such, UKBAP habitats may be a material consideration in any planning application. Development proposals should therefore

consider retaining hedgerows and ponds in the final design. If this is not possible, then replacement habitat creation should be incorporated into any site proposals.

6.3 Consideration could be given to planting new hedgerows, with native species along the boundaries of the site, which could incorporate existing trees. Additionally, internal hedgerows or linear native planting across the site would help strengthen wildlife corridors through the greenspace.

6.4 It is recommended that the mature trees on site be retained and protected where possible. Replacement planting should compensate for any tree loss. Additional native tree, shrub and wildflower planting could be incorporated across the site to provide an enhancement on current conditions.

6.5 Trees to be retained within the new business park landscape should, in future, be provided with at least 0.5m radius buffer from mowing around the base of the trunk. Under groups of trees larger unmown areas should be established, with the opportunity taken in the future to introduce native woodland groundflora species that are tolerant of shady conditions once an overall canopy has become established. Grass areas left to flower and seed provide enhanced foraging opportunities for bird and invertebrate species as well as providing more shelter and habitat than uniform short-mown swards. Any areas of grass in full light that are left unmown will need to be cut at least once, late in the year, with all mowings collected and removed from site for composting. All areas of unmown grass are more likely to collect blown litter and therefore regular collection and removal will need to be arranged.

6.6 Areas of grassland which are not used frequently for formal activities hold potential for enhancement for wildlife by changes in management; introducing a differential mowing regime for example. The grass sward in selected areas of the greenspace could be left to establish during the summer months by less frequent cutting (mid-late July) and/or cutting to a higher sward height. Removal of the cuttings after mowing would prevent further enrichment of the soil and enhance conditions for planting "plugs", or sowing seeds, of locally native wildflower species.

Bats

6.7 The trees on site provide foraging and commuting opportunities for bats. Bats use linear features such as tree lines and hedgerows for foraging and for commuting between roosts and foraging sites. Gaps of 10m or more may force bats to abandon or alter flight paths, roosts or foraging sites. The removal of selected trees at the site should not significantly impact upon linear features. However, replacement planting, with native and wildlife friendly species, is recommended where possible to retain links with the wider area.

6.8 Sensitive lighting during the evening should be considered in the new development to avoid directly shining on tree canopies and foliage as they may impact on any bats that use the site for foraging and for commuting at night.

6.9 Other potential enhancement measures include the provision of wildlife refuge features such as log piles (using material from felled trees), insect houses and bat and bird boxes (see Appendix C), which could be incorporated into the landscaping or attached to the buildings within the new development.

Birds

6.10 Within the context of future development and in line with UK Biodiversity Action Plan targets and objectives, measures to maintain the presence of UKBAP/Red list birds at Riverside Business Park should include:

- The retention of corridors of scrub and mature trees that provide nest sites and food sources for song thrush.
- The planting of native trees and shrubs (particularly the planting of species that produce berries and fruits to benefit bullfinches) and hedge planting would benefit wintering birds (including flocks of tits, finches and other birds) by providing shelter and feeding areas. Trees, shrubs and hedgerows would benefit breeding birds by providing nesting and feeding areas.
- Retaining some areas / corridors of neutral grassland, marshy grassland.
- The retention and/or creation of wetlands combined with beneficial management for reed buntings.

Japanese knotweed

6.11 Although there is no Japanese knotweed present within the development site at the moment, regular monitoring of the Pendle Water banks should be made to ensure early detection of Japanese knotweed so it can be prevented from further spread. Further advise should be sought if Japanese knotweed is detected on site.

Pendle Water

6.12 Pendle Water should be protected from pollution and run-off, both during development and post-development. Measures should consider proposals to divert surface water run-off away from the beck and the use of sustainable urban drainage schemes (SUDS), including permeable surfacing.

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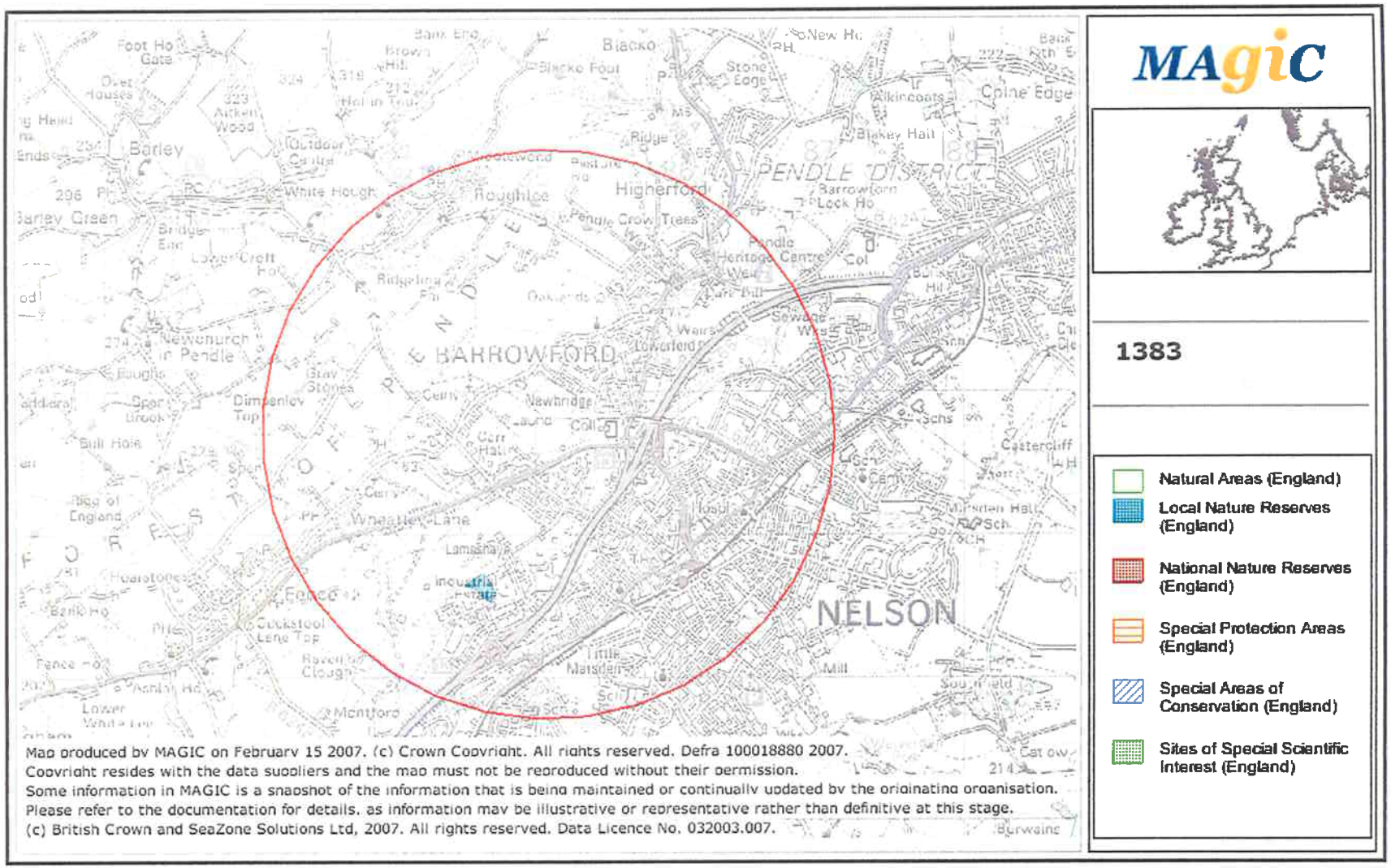
APPENDIX A
Desktop survey information


MAGIC
1383
Natural Areas (England)
Local Nature Reserves (England)
National Nature Reserves (England)
Special Protection Areas (England)
Special Areas of Conservation (England)
Sites of Special Scientific Interest (England)
BARROWFORD
NELSON
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Barley
Higherford
Newchurch in Pendle
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Site Check Report

Report generated on February 15 2007.

You clicked on the point:
Grid Ref: SD851387
Full Grid Ref: 385100 , 438700

The following features have been found within 2,000 metres of your search point:

Natural Areas (England)

Reference	Name	Hotlink
13	LANCASHIRE PLAIN AND VALLEYS	http://www.english-nature.org.uk/science/natural/na_details.asp?na_id=13&s=&r=2

Local Nature Reserves (England)

Reference	Name
1084807	LOMESHAY MARSH

National Nature Reserves (England)

There are no features within your search area.

Special Protection Areas (England)

There are no features within your search area.

Special Areas of Conservation (England)

There are no features within your search area.

Sites of Special Scientific Interest (England)

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approximately 6km away from Barrowford Business Park (to the S.E).

Country	England
Unitary Authority	Barnsley; Bradford; Calderdale; Cheshire; Derbyshire; Kirklees; Lancashire; Leeds; North Yorkshire; Oldham; Rochdale; Sheffield; Staffordshire; Tameside
Grid Ref*	SK144960
Latitude	53 27 37 N
Longitude	01 46 59 W
SAC EU code	UK0030280
Status	Designated Special Area of Conservation (SAC)
Area (ha)	64983.13

* This is the approximate central point of the SAC. In the case of large, linear or composite sites, this may not represent the location where a feature occurs within the SAC.

General site character

Inland water bodies (standing water, running water) (1%)
Bogs. Marshes. Water fringed vegetation. Fens (42.7%)
Heath. Scrub. Maquis and garrigue. Phygrana (45.5%)
Dry grassland. Steppes (4.8%)
Humid grassland. Mesophile grassland (4.8%)
Broad-leaved deciduous woodland (1%)
Mixed woodland (0.1%)
Non-Forest areas cultivated with woody plants (including orchards, groves, vineyards, (0.1%)

Boundary map and associated biodiversity information on the NBN Gateway.

Natura 2000 data form for this site as submitted to Europe (PDF format, size 30kb).

Interactive map from MAGIC (Multi-Agency Geographic Information for the Countryside).

Annex I habitats that are a primary reason for selection of this site

4030 European dry heaths

The site is representative of upland dry heath at the southern end of the Pennine range, the habitat's most south-easterly upland location in the UK. Dry heath covers extensive areas, occupies the lower slopes of the moors on mineral soils or where peat is thin, and occurs in transitions to acid grassland, wet heath and **7130 blanket bogs**. The upland heath of the South Pennines is strongly dominated by heather *Calluna vulgaris*. Its main NVC types are H9 *Calluna vulgaris – Deschampsia flexuosa* heath and H12 *Calluna vulgaris – Vaccinium myrtillus* heath. More rarely H8 *Calluna vulgaris – Ulex gallii* heath and H10 *Calluna vulgaris – Erica cinerea* heath are found. On the higher, more exposed ground H18 *Vaccinium myrtillus – Deschampsia flexuosa* heath becomes more prominent. In the cloughs, or valleys, which extend into the heather moorlands, a greater mix of dwarf shrubs can be found together with more lichens and mosses. The moors support a rich invertebrate fauna, especially moths, and important bird assemblages.

7130 Blanket bogs * Priority feature

This site represents **blanket bog** in the south Pennines, the most south-easterly occurrence of the habitat in Europe. The bog vegetation communities are botanically poor. Hare's-tail cottongrass *Eriophorum vaginatum* is often overwhelmingly dominant and the usual bog-building *Sphagnum* mosses are scarce. Where the blanket peats are slightly drier, heather *Calluna vulgaris*, crowberry *Empetrum nigrum* and bilberry *Vaccinium myrtillus* become more prominent. The uncommon cloudberry *Rubus chamaemorus* is locally abundant in bog vegetation. Bog pools provide diversity and are often characterised by common cottongrass *E. angustifolium*. Substantial areas of the bog surface are eroding, and there are extensive areas of bare peat. In some areas erosion may be a natural process reflecting the great age (9000 years) of the south Pennine peats.

91A0 Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles

Around the fringes of the upland heath and bog of the south Pennines are blocks of **old sessile oak woods**, usually on slopes. These tend to be dryer than those further north and west, such that the bryophyte communities are less developed (although this lowered diversity may in some instances have been exaggerated by the effects of 19th century air pollution). Other components of the ground flora such as grasses, dwarf shrubs and ferns are common. Small areas of alder woodland along stream-sides add to the overall richness of the woods.

Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site

4010 Northern Atlantic wet heaths with *Erica tetralix*

7140 Transition mires and quaking bogs

Annex II species that are a primary reason for selection of this site

Not applicable.

Annex II species present as a qualifying feature, but not a primary reason for site selection

Not applicable.

Many designated sites are on private land: the listing of a site in these pages does not imply any right of public access.

Approximately 6km away from Barrowford Business Park to the South East.

County: West Yorkshire, Lancashire, Greater Manchester, North Yorkshire.

Site Name: South Pennine Moors

District: Bradford, Calderdale, Kirklees, Leeds, Craven, Burnley, Pendle, Oldham, Rochdale.

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act, 1981

Local Planning Authority:
Bradford Metropolitan District Council
Calderdale Metropolitan Borough Council
Kirklees Metropolitan District Council
Leeds City Council
Craven District Council
Burnley District Council
Pendle District Council
Oldham Metropolitan Borough Council
Rochdale Metropolitan Borough Council

National Grid Reference: SD 920300 **Area:** 20,938.05 (ha)

Ordnance Survey Sheet 1:50,000: 103, 104, 109, 110

1:10,000:
SD 82 NE
SD 83 SE
SD 91 NW, NE, SW, SE
SD 92 NW, NE, SW, SE
SD 93 NW, NE, SW, SE
SD 94 SW, SE
SE 00 NW
SE 01 NW, SW
SE 02 NW, SW
SE 03 NW, SW, SE
SE 04 NW, SW, SE
SE 14 NW, NE, SW, SE

Date Notified (Under 1981 Act): 26 September 1994 **Date of Last Revision:** –

Other Information:

1. This site incorporates the existing Haworth Moor, Derby Delph, Pule Hill and Standedge Road Cutting SSSIs.
2. This site includes land which has been proposed for designation as a Special Protection Area under the EC Directive 79/409 on the Conservation of Wild Birds.

Description and Reasons for Notification:

This site forms part of the Southern Pennines lying between Ilkley in the north and the Peak District National Park boundary in the south. The majority of the site is within West Yorkshire but it also covers areas of Lancashire, Greater Manchester and North Yorkshire. The largest moorland blocks are Ilkley Moor, the Haworth Moors, Rishworth Moor and Moss Moor.

The underlying rock is Millstone Grit which outcrops at Boulsworth Hill and on the northern boundary of Ilkley Moor. The moorlands are on a rolling dissected plateau between 300m and 450m AOD with a high point of 517m at Boulsworth Hill. The greater part of the gritstone is overlain by blanket peat with the coarse gravely mineral soils occurring only on the lower slopes.

The site is the largest area of unenclosed moorland within West Yorkshire and contains the most diverse and extensive examples of upland plant communities in the county. Extensive areas of blanket bog occur on the upland plateaux and are punctuated by species rich acidic flushes and mires. There are also wet and dry heaths and acid grasslands. Three habitat types which occur on the site are rare enough within Europe to be listed on Annex 1 of the EC habitats and Species Directive (92/43) EEC. These communities are typical of and represent the full range of upland vegetation classes found in the South Pennines.

This mosaic of habitats supports a moorland breeding bird assemblage which, because of the range of species and number of breeding birds it contains, is of regional and national importance. The large numbers of breeding merlin *Falco columbarius*, golden plover *Pluvialis apricaria* and twite *Carduelis flavirostris* are of international importance.

The southern end of the site has good exposures of the Millstone Grit series and three localities are described under the heading 'Geology'.

Vegetation:
The blanket bogs of the South Pennine Moorlands are dominated by cotton-grass *Eriophorum* spp., and heather *Calluna vulgaris*. Other dwarf shrubs such as crowberry *Empetrum nigrum* and bilberry *Vaccinium myrtillus* occur in varying amounts. Crowberry is abundant on the eroding margins of the blanket bogs of the South Pennine Moors. Unusually it is also abundant in some areas of the cotton grass and heather moors. This crowberry dominant moor is restricted to the South Pennines and is particularly extensive on Ilkley Moor. Areas of wet heath containing cross-leaved heath *Erica tetralix* and cranberry *Vaccinium oxycoccos* have also developed on the blanket mires.

The lower slopes are dominated by heather moorland with large areas of acid grassland. Some parts of the heather moors are burnt for red grouse *Lagopus lagopus* and sheep management. Other dwarf shrubs occur on the heather moors including bilberry, crowberry and the locally uncommon cloud berry *Rubus chamaemorus*.

The large areas of acid grassland on former heathland reflect patterns of heavy grazing and burning. These grasslands are dominated by mat-grass *Nardus stricta* and wavy hair-grass *Deschampsia flexuosa*. On wet slopes purple moor grass *Molinia caerulea* is dominant with the wettest areas supporting heath rush *Juncus squarrosus*.

The most species rich and diverse habitats are the acidic flushes, mires and seepage lines. The more acidic flushes on the blanket peat are dominated by cotton-grass *Eriphorum vaginatum* with sedges like carnation sedge *Carex panicea*, star sedge *C. echinata* and commons sedge *C. nigra* present. In some of these flushes bog asphodel *Narthecium ossifragum* is present or even dominant amongst the moss *Sphagnum* spp/*Polytrichum* spp carpets which also often have dense populations of cranberry. The majority of flushes are less acidic and soft rush *Juncus effusus* tends to dominate in these wetlands with a few herbs like marsh bedstraw *Galium palustre* or bog stichwort *Stellaria alsine* present. Where the waters are richer in minerals, e.g. below springs, a wider range of herbs occur. Marsh violet *Viola palustris*, marsh

pennywort *Hydrocotyle vulgaris* and blinks *Montia fontana* are most common but in a few places rarer species like bogbean *Menyanthes trifoliata* and round-leaved sundew *Drosera rotundifolia* occur. The latter is now very rare in West Yorkshire. The most notable species in these flushes is the pale forget-me-not *Myosotis stolonifera*. This nationally scarce plant is found in only 32 1km squares in Britain, but occurs at two locations on the South Pennine Moors.

There are several regionally important plant communities within the site. Green Withins holds the largest population of bog pondweed *Potamogeton polygonifolius* within West Yorkshire and Ilkley Moor has the only known locality for chickweed wintergreen *Trientalis europaea* in the county. The latter is close to the site where the famous 17th century botanist John Ray found this species in the 1600s. Crags within the cloughs have ungrazed ledge communities which include ferns not found in other parts of the moors. The beech fern *Phegopteris connectilis* which is now very rare in West Yorkshire survives in at least on clough at the southern end of the site.

Birds:
The moorlands support nationally important numbers of golden plover *Pluvialis apricaria*, curlew *Numenius arquata*, merlin *Falco columbarius* and twite *Carduelis flavirostris*.

These species and the rest of the moorland breeding bird assemblage require the mosaic of habitats and large area of the moors for their survival. The blanket bogs are the main breeding grounds for the golden plover and dunlin *Calidris alpina*. These birds need relatively short vegetation to nest in and access to wet areas to feed, a combination provided by the blanket mires. The South Pennine Moors hold 1.3% of the British breeding population of golden plovers. The very large number of meadow pipits *Anthus pratensis* nesting on the bogs are a major food source for the merlin.

The deeper cover provided by the heather provides nest sites for a range of other species. The merlin population of the South Pennine Moors is particularly important. 4.7% of the British population nests on these moors and the numbers appear to be increasing. Merlin prefer nest sites in the older leggy heather, bracken beds or small trees on the moorland edge and they feed on skylarks *Alauda arvensis* and meadow pipits. Most reliant on the heather moors are the red grouse *Lagopus lagopus scoticus* a sub-species of the willow grouse restricted to the British Isles. Their stronghold is on the managed moors of the Haworth Moors complex. Golden plover are also known to nest on recently burnt areas of heather.

Curlews favour the wet acid grasslands and semi-improved areas on the edge of the moors to breed. A significant number (0.8%) of the British curlew population breed on the South Pennine Moors sharing this habitat with lapwing *Vanellus vanellus* and in the wettest areas snipe *Gallinago gallinago* and redshank *Tringa totanus*.

Twite *Carduelis flavirostris* on the South Pennine Moors represent 1% of the British breeding population. These birds are an isolated southern out-post of the race *pipilans* that occurs only in Scandinavia and the British Isles and is itself isolated from the rest of the world population in the mountains of Central Asia. The birds on the South Pennine Moors are vital to maintain the present world distribution. Twite use virtually all the moorland habitats at different stages of their lifecycle. They prefer heather for nesting but also use bracken, boulder screes, grass tussocks and dry stone walls. Feeding on small seeds they utilise grassy areas throughout the moorlands, weedy areas on the moorland edge, semi-improved pastures and even areas of burnt *Molinia* grassland.

Peregrine *Falco peregrinus* nest in small numbers on suitable crags and disused quarries and up to three pairs of short-eared owl *Asio flammeus* have nested in recent years. The moors also support wheatear *Oenanthe oenanthe*, whinchat *Saxicola rubetra*, ring ouzel *Turdus torquatus* and in some years stonechat *Saxicola torquata.*

The large reservoirs within and adjacent to the site provide feeding areas for moorland nesting birds like dunlin as well as nesting habitat for common sandpiper *Actitis hypoleucos* and grey wagtail *Motacilla cinerea.*

Two more unusual species that nest on the reservoirs are the little ringed plover *Charadrius dubius* and the shelduck *Tadorna tadorna.* The pair of shelduck nesting at Blackstone Edge reservoir are believed to be the highest altitude (1100 feet) nesting birds of this species in Britain. The streams draining the reservoirs and the moors support small numbers of dippers *Cinclus cinclus.*

Geology:
Three locations of special geological interest are identified within the South Pennine Moors: two areas of deltaic sedimentary rocks and a type locality for two diagnostic fossils.

Derby Delph Quarry (SE 017161). This quarry is of considerable sedimentological interest, it displays sandstones of Namurian age displaying two distinct bed form types, one consisting of large scale cross-bedded units and the other showing undulatory bedding. The latter type of structure was first described from this locality, and its relationship to the cross-bedded units is clearly visible. The interpretation of these structures has been a key factor in establishing a model for coarse sediment deposition in distributary channels, and thus for deltaic sedimentation as a whole.

In layman's terms, the quarry and rock outcrops within this site provide excellent exposures of sandstone layers of the Namurian Series, formed during the Carboniferous Period of geological history, about 315 million years ago. The sandstones originally accumulated on the bed of a major river delta, perhaps comparable to the modern Mississippi delta. The form of the sandstone layers is remarkably well displayed and detailed research here has enabled geologists to understand for the first time some of the characteristics of sand deposits formed in river deltas. This is thus an important site for geological study of the Namurian which has made a significant contribution to the understanding of river-bed deposits.

Standedge Road Cutting (SE 018095-023098). This site provides one of the most complete sections through the Namurian Kinderscout Grit, almost in their entirety, with the Butterly Marine Band intervening. The readily accessible sequence presents an excellent example of deltaic cyclotherms, with shales and sandstones capped by seat earths and thin coals.

A key section of great sedimentological interest in a thick stratigraphically important sandstone sequence.

In layman's terms, this road cutting provides important exposures of the Kinderscout Grit which formed during the Carboniferous Period of geological time, about 320 million years ago. The rock sequence consists of thick sandstone layers separated by layers of shale, clay and thin coal seams. The rocks accumulated on a large river delta and contain important layers rich in the fossilised remains of marine animals which accumulated during periods when the delta became flooded by the sea. The rock layers accumulated in a repeated (or cyclic) sequence characteristic of sediments formed on a river delta. This is an important site for geological

study of the Namurian series, and is of special interest as a reference section for comparative purposes.

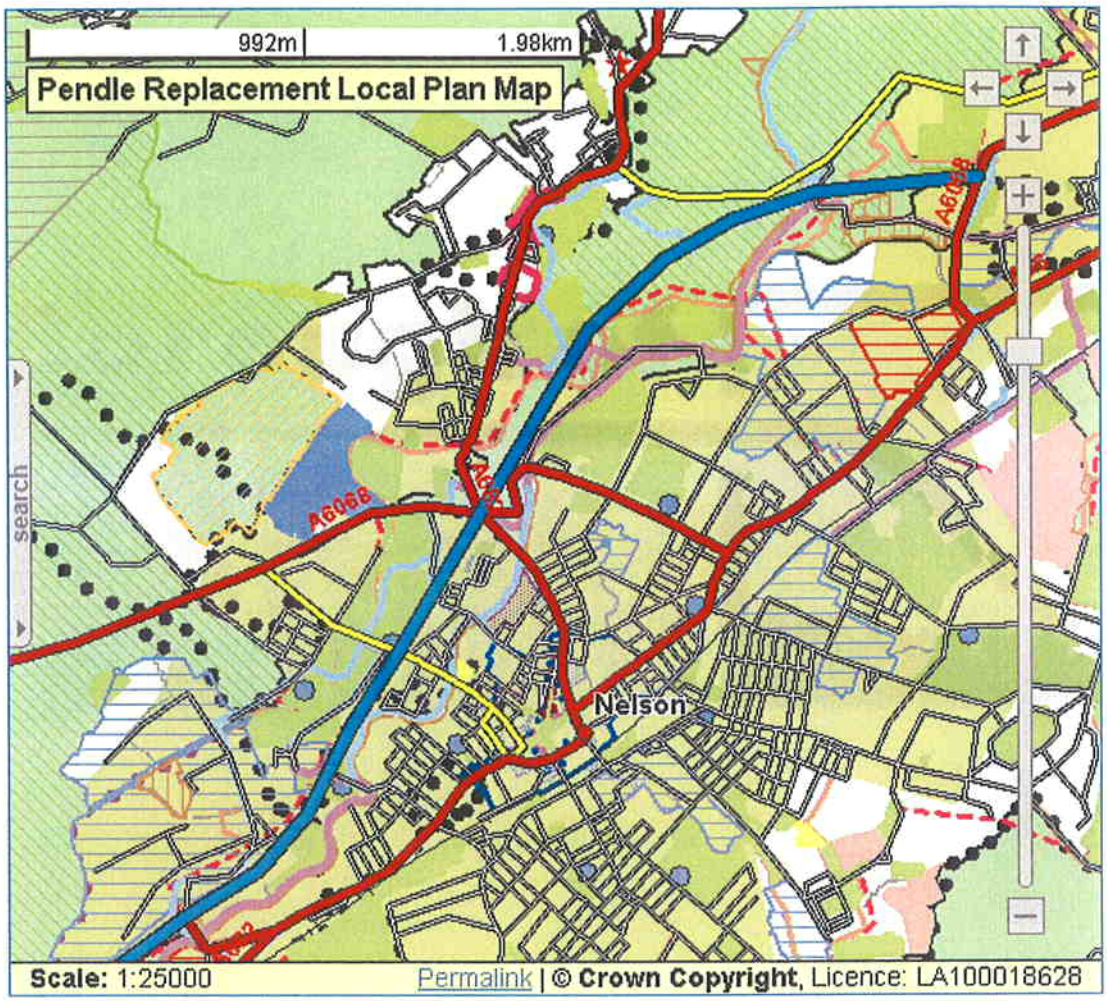
Pule Hill (SE 032112-0321117). The section here exposed contains the Namurian Pule Hill Grit, at its type locality, overlying a sequence of goniatite-bearing shales. These constitute the type locality of the stratigraphically diagnostic goniatites *Reticuloceras bilingue* and *R. gracile*. The Pule Hill Grit is of particular interest at this locality for containing abundant bivalve and gastropod fauna. A key locality for studies of Upper Carboniferous goniatites with important implications for stratigraphic studies of the late Namurian (Marsdenian Stage).

In layman's terms, the quarry faces and rock outcrops within this site provide excellent exposures of rocks of the Namurian Series originally formed during the Carboniferous Period of geological history, about 320 million years ago. The rocks consist of shales overlain by a thick sandstone layer known as the Pule Hill Grit, both rock-types containing fossils of particular interest. The most important fossils here are the remains of marine animals known as goniatites which can be used to accurately date the rocks for the purposes of comparison with rock sequences elsewhere in Britain and overseas. Pule Hill is the locality where two particularly useful goniatites were first found and described. This is an important site for geological study of the Namurian Series especially in respect of the fossils used for dating rocks of this age.

Species listed on Lancashire Local Biodiversity Action Plan

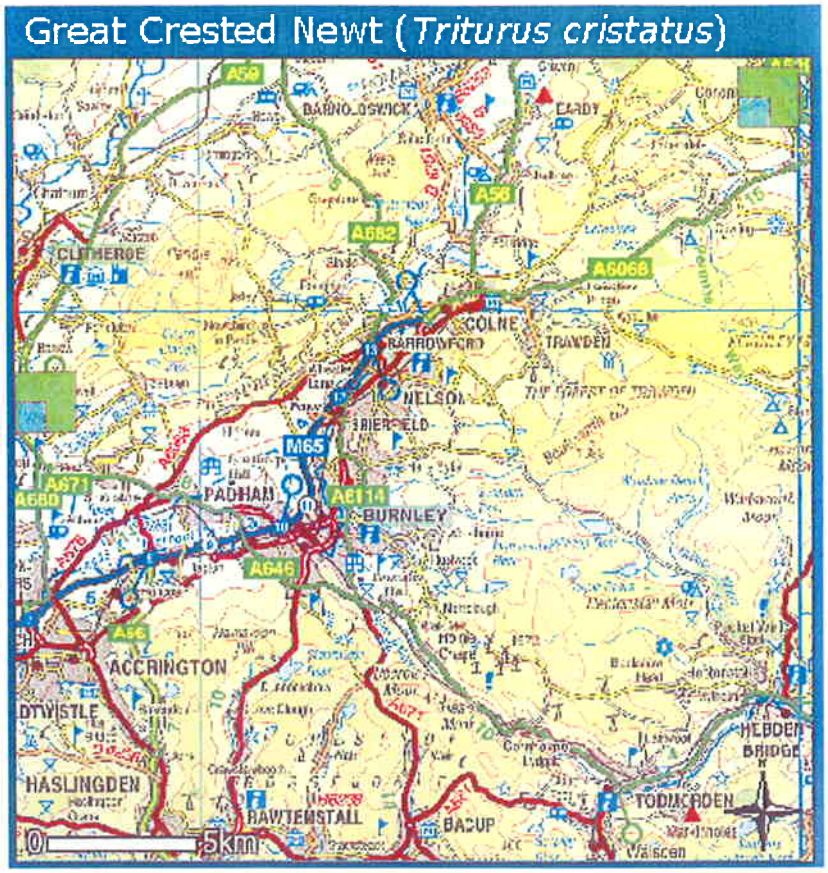
Group	Species
Amphibians	Natterjack Toad (*Bufo calamita*)
Amphibians	Great Crested Newt (*Triturus cristatus*)
Ants	Southern wood ant (*Formica rufa*)
Ants	Shining Guest Ant (*Formicoxenus nitidulus*)
Bees/wasps	a Mason Bee (*Osmia parietina*)
Birds	Skylark (*Alauda arvensis*)
Birds	Reed Bunting (*Emberiza schoeniclus*)
Birds	Grey Partridge (*Perdix perdix*)
Birds	Song Thrush (*Turdus philomelos*)
Butterflies	High Brown Fritillary (*Argynnis adippe*)
Butterflies	Northern Brown Argus (*Aricia artaxerxes*)
Butterflies	Pearl-bordered Fritillary (*Boloria euphrosyne*)
Crustaceans	Freshwater White-clawed Crayfish (*Austropotamobius pallipes*)
Flies	a Hoverfly (*Doros profuges*)
Local species	Carduelis flavirostris (Twite)
Local species	Coenononympha tullia (Large Heath)
Local species	Grouped plan for Bats
Local species	Sorbus lancastriensis (Lancaster Whitebeam)
Local species	Vanellus vanellus (Lapwing)
Local species	Vertigo alpestris (Wall Whorl Snail)
Local species	Vertigo pusilla (Mountain Whorl Snail)
Mammals	Water Vole (*Arvicola terrestris*)
Mammals	Brown Hare (*Lepus europaeus*)
Mammals	Otter (*Lutra lutra*)
Mammals	Pipistrelle Bat (*Pipistrellus pipistrellus*)
Mammals	Red Squirrel (*Sciurus vulgaris*)
Molluscs	Freshwater Pearl Mussel (*Margaritifera margaritifera*)
Moths	Belted Beauty (*Lycia zonaria britannica*)
Vascular plants	Lady's Slipper Orchid (*Cypripedium calceolus*)
Vascular plants	Purple Ramping-fumitory (*Fumaria purpurea*)
Vascular plants	a Rock sea-lavender (*Limonium britannicum*)
Worms	Freshwater nemertean (*Prostoma jenningsi*)

Borough of Pendle



- Local Shopping Centre Boundary (25, 26)
- Out of Centre Retail Allocation (25, 27)
- Primary Shopping Frontage (26)
- Secondary Shopping Frontage (26)
- Town Centre Boundary (25, 26)
- Existing Cycle Network (30)
- Proposed Cycle Network (30)
- Area Development Framework (ADF) Boundary (17, 18)
- HMR Reserved Housing Land (17)
- Equipped Area for Play (21, 33, 34)
- New Community Facility Allocation (32)
- Open Space (14, 21, 33, 34)
- Biological Heritage Site (4C)
- Conservation Area (10)
- Green Belt (3)
- Local Nature Reserve (4C)
- Mineral Consultation Area
- Housing Market Renewal Intervention Area (18)
- LRRAP Priority Area (24)
- Protected Employment Area (B1 only) (22, 23)
- Protected Employment Area (Mixed Use) (22, 23)
- Open Countryside (1)
- Protected Area (3A)
- Settlement Boundary (1)
- Site of Local Natural Importance (4C)

NBN data-


Great Crested Newt (*Triturus cristatus*)
A59
BARNOLDSWICK
CLITHEROE
A682
A6068
COLNE
BARROWFORD
TRAWDEN
NELSON
BRIERFIELD
M65
A671
A680
PADIHAM
A6114
BURNLEY
A646
A56
ACCRINGTON
DITTISLE
HASLINGDEN
RAWTENSTALL
BACUP
HEBDEN BRIDGE
TODMORDEN
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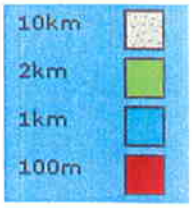
5km


10km
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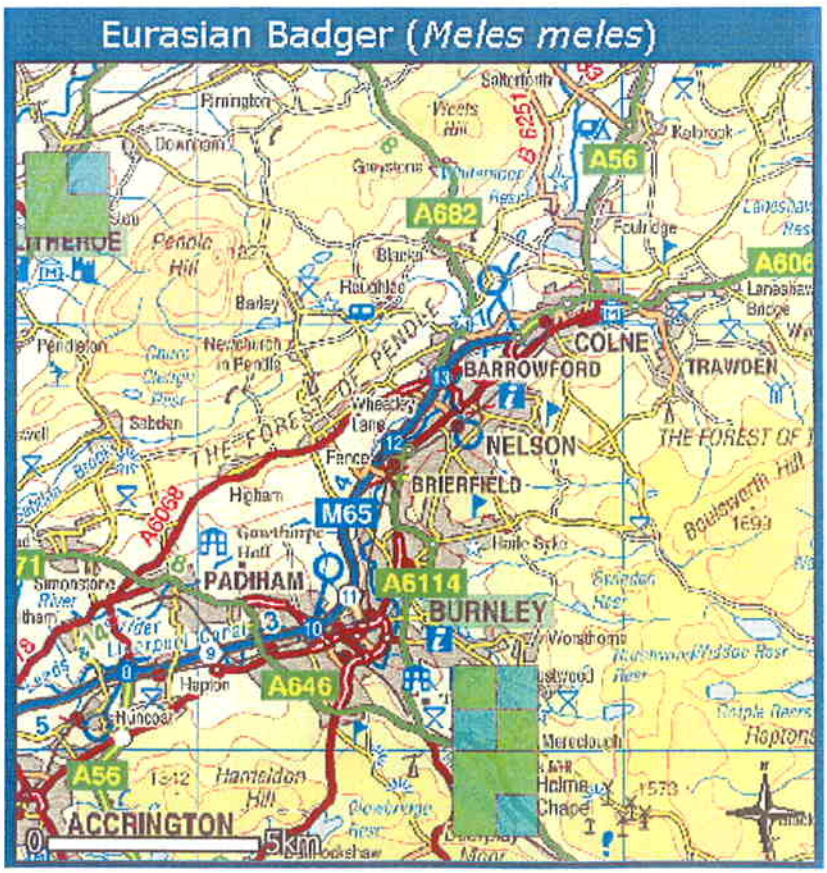
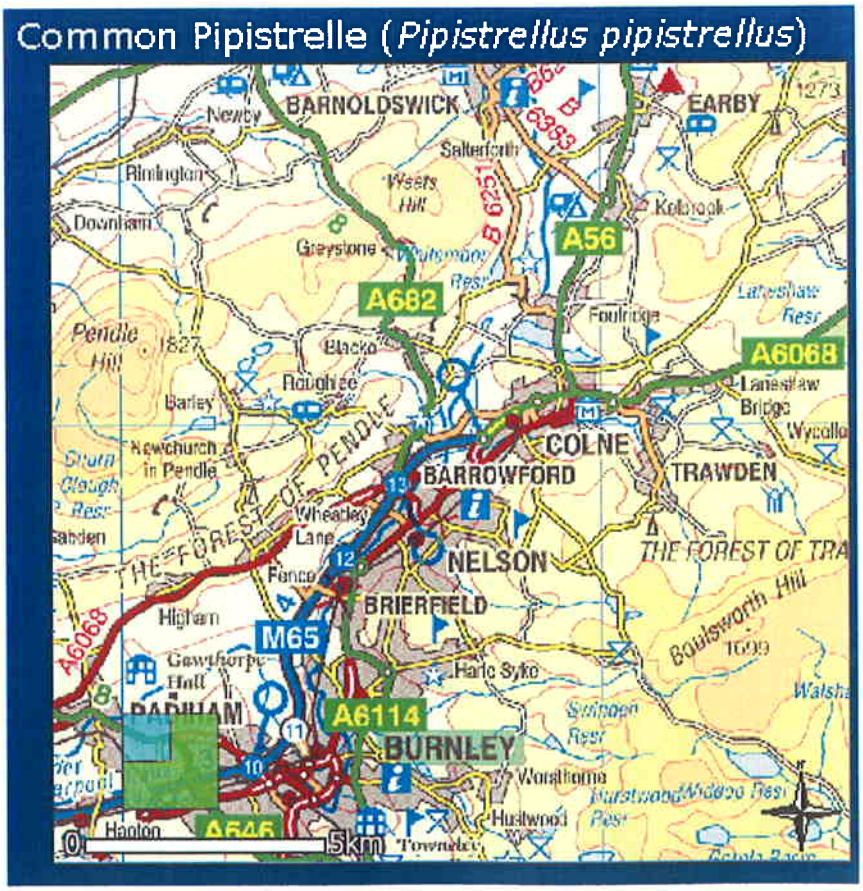
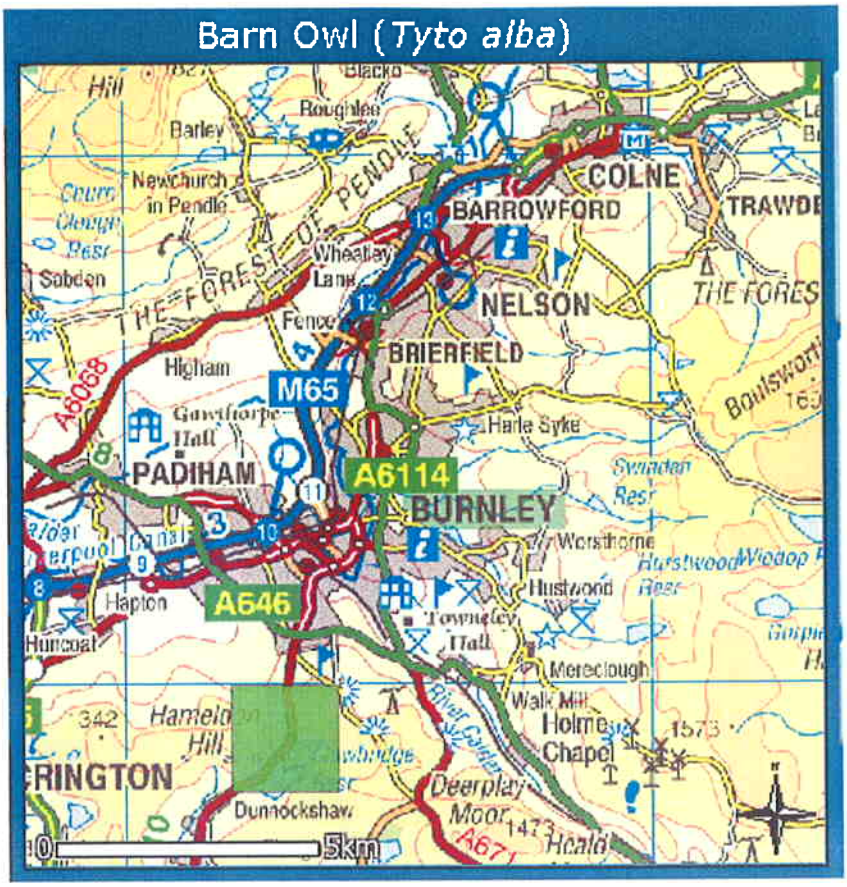

Eurasian Badger (*Meles meles*)
A56
A682
A6068
COLNE
BARROWFORD
TRAWDEN
NELSON
BRIERFIELD
M65
PADIHAM
A6114
BURNLEY
A646
ACCRINGTON
0
5km

European Water Vole (*Arvicola terrestris*)

Common Pipistrelle (*Pipistrellus pipistrellus*)



Barn Owl (*Tyto alba*)



South Lancashire Bat Group Records Report

SOUTH LANCASHIRE BAT GROUP

Registered Charity Number 1109519

Attn. Sally Cowley
TEP
Genesis Centre
Birchwood Science Park
Warrington
WA3 7BH

SLBG Ref: TEP.1.2007

DATE: 19/02/2007

Re: Bat Record Search Barrowfield Business Park SD851387 Purchase Order No 008008, job ref 1383

Neither the general area around the site, or the site itself on your request has been surveyed for bats, however casual sightings have been found in the area around your site as detailed below.

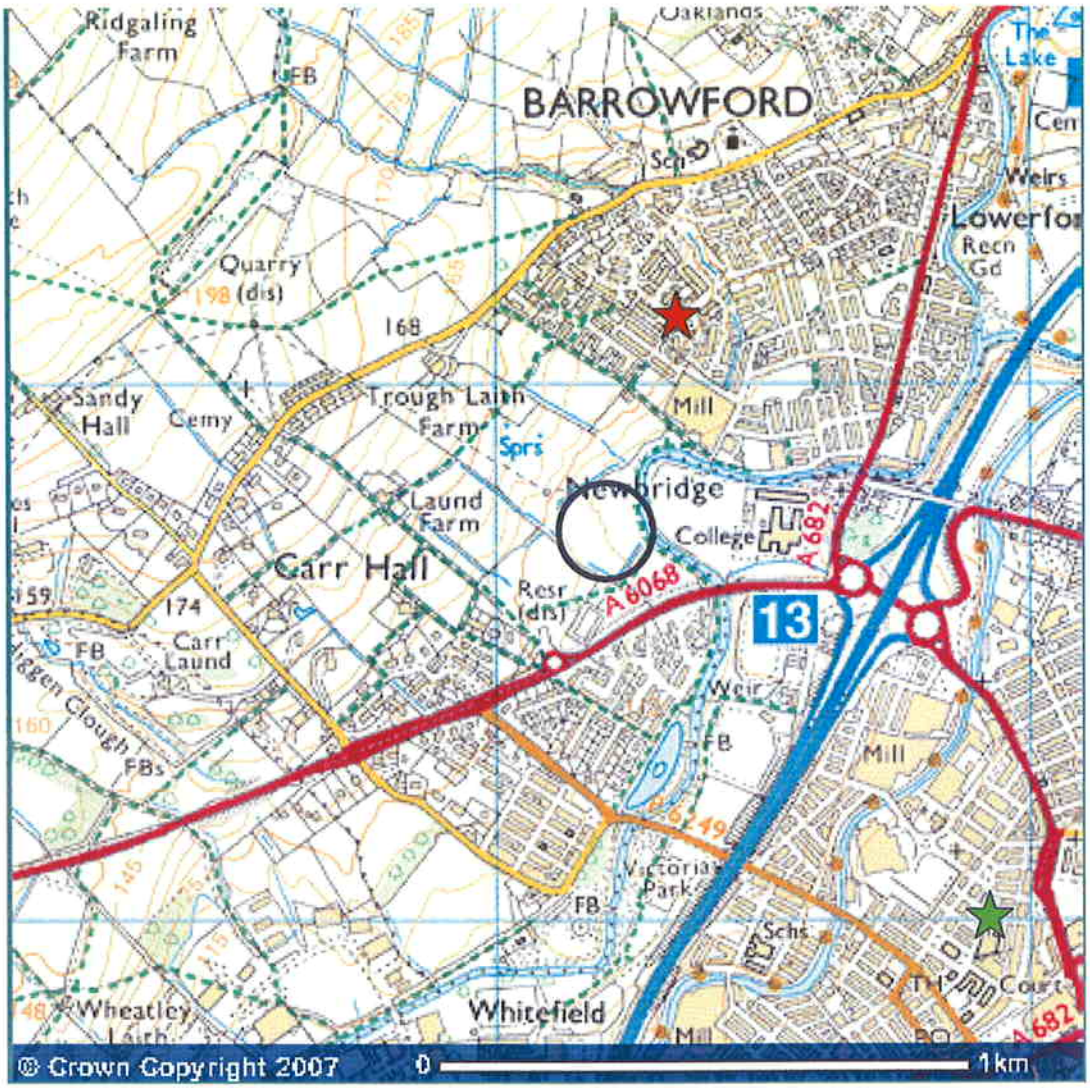
Please Note:

- **The records are to be used only for the specific survey requested, and are valid only up until the date listed above.**
- **Records remain the property of South Lancashire Bat Group.**
- **Your report should indicate that these records have been obtained from South Lancashire Bat Group.**
- **Lack of records does not indicate that bats do not use the area but simply that they have not been reported to the Bat Group.**

Date	Detail	Grid Reference	Species
13/08/2004	Roost	SD852391	Pipistrelle
15/03/2004	Bat in house	SD859379	Pipistrelle

If you have any queries about this report please contact Steve Parker on 0161 764 8850 (leave a message) or e-mail enquiry@slbg.org.uk

South Lancashire Bat Group Records



Barrowfield Business Park Site Location

Pipistrelle bat roost (approx 300m away from Barrowfield Business Park development site)

Pipistrelle bat sighting in house (approx 1km away from Barrowfield Business Park development site)

APPENDIX B:
Target notes

Target Note 1

Arrhenatherum elatius	False oat grass
Cerastium fontanum	Common mouse ear
Cirsium palustre	Marsh thistle
Dactylis glomerata	Cocksfoot
Holcus lanatus	Yorkshire fog
Lolium perenne	Perennial ryegrass
Ranunculus repens	Creeping buttercup
Rumex acetosa	Common sorrel
Senecio jacobaea	Common ragwort
Taraxacum officinale agg.	Common dandelion

Target Note 2

Holcus lanatus	Yorkshire fog	D
Agrostis stolonifera	Creeping bentgrass	A
Juncus effusus	Soft rush	F
Ranunculus repens	Creeping buttercup	F
Cirsium palustre	Marsh thistle	O
Rumex sanguineus	Wood dock	O
Arrhenatherum elatius	False oat grass	R
Bellis perennis	Daisy	R
Dactylis glomerata	Cocksfoot	R
Deschampsia cespitosa	Tufted hair-grass	R
Taraxacum officinale agg.	Common dandelion	R

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare (within the target note area).

Target Note 3

Alnus glutinosa	Alder
Corylus avellana	Hazel
Fraxinus excelsior	Ash
Prunus avium	Wild cherry
Quercus sp.	Oak
Salix species	A willow species

Target Note 4

Juncus effusus	Soft rush	A
Ranunculus repens	Creeping buttercup	F
Dactylis glomerata	Cocksfoot	O
Galium palustre	Common marsh-bedstraw	O
Alopecurus pratensis	Meadow foxtail	O
Ranunculus ficaria	Lesser celandine	O
Rumex acetosa	Common sorrel	O

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare (within the target note area).

Target Note 5

Alnus glutinosa	Alder
Corylus avellana	Hazel
Equisetum arvense	Horsetail
Fraxinus excelsior	Ash
Prunus sp.	A cherry species
Quercus sp.	Oak
Salix species	A willow species

Target Note 6

Cirsium palustre	Marsh thistle
Dactylis glomerata	Cocksfoot
Juncus effusus	Soft rush
Ranunculus ficaria	Lesser celandine
Ranunculus repens	Creeping buttercup
Rumex acetosa	Common sorrel
Rumex sanguineus	Wood dock

Target Note 7

Agrostis stolonifera	Creeping bentgrass
Callitriche sp.	Water-starwort species
Dactylis glomerata	Cocksfoot
Juncus effusus	Soft rush
Juncus inflexus	Hard rush
Ranunculus ficaria	Lesser celandine
Ranunculus repens	Creeping buttercup

Target Note 8

Filipendula ulmaria	Meadowsweet
Juncus effusus	Soft rush
Lysimachia nemorum	Yellow pimpernel
Ranunculus ficaria	Lesser celandine

Target Note 9

Alnus glutinosa	Alder
Corylus avellana	Hazel
Fraxinus excelsior	Ash
Ilex aquifolium	Holly
Prunus sp.	A cherry species
Quercus sp.	Oak
Salix species	A willow species

Target Note 10

Alnus glutinosa	Alder
Betula pendula	Silver birch
Ilex aquifolium	Holly
Prunus sp.	A cherry species
Quercus sp.	Oak
Rosa sp.	A rose species
Salix species	A willow species
Viburnum sp.	Geulder-rose

APPENDIX C
Examples of potential enhancement measure

SCHWEGLER BAT BOXES (LONG LIFE WOODCRETE BOXES)

Suppliers (prices correct as of Oct 2004):

Alana Ecology
The Old Primary School
Church Street
Bishop's Castle
Shropshire
SY9 5AE

Tel: +44 (0)1588 630173
Fax: +44 (0)1588 630176
Email: sales@alanaecology.com

BRICK BOXES - TO INCORPORATE INTO BUILDINGS

These bat boxes are designed to be built into buildings, or underneath bridges, arches or tunnels, where conditions are relatively humid. There are particularly useful for incorporating into new buildings or bridges to attract bats or to provide new roost sites where existing buildings with bats are being renovated.

N27

This box should be cemented into a wall. It contains a single internal wooden panel which simulates a crevice. The removable front panel allows for easy cleaning. *No painting is required, but if it is necessary, a natural breathable paint should be used*
Woodcrete (75% wood sawdust, concrete and clay mixture)
Width 18cm
Height 29cm
Depth 23.5cm

A02006 N27

No 750/6

This long box can be installed within brick masonry, beneath plasterwork or wood panelling, or incorporated into concrete structures such as factory buildings or bridges. Inside it contains a woodcrete surface, a roughened wood board, and a metal mesh, providing a choice of roosting areas depending on the weather conditions and the bats' habits. This box is maintenance-free as the entrance slit is at the bottom, allowing for self cleaning. *No painting required, but if painting is necessary a natural breathable paint should be used*

Woodcrete (75% wood sawdust, concrete and clay mixture)
Width 20cm
Height 47.5cm
Depth 12.5cm
Entrance width 15cm
Entrance depth 2cm

A02057 No 750/6

tel: 01244 684 900
fax: 01244 684 911
Park House, Sandpiper Court,
Chester Business Park, Chester CH4 9QU
web: www.coopers.co.uk
email: admin@coopers.co.uk

GENERAL BOXES

2F Bat Box
A popular general purpose box attractive to the smaller British bats. A simple design with a narrow entrance slit on the front.

Woodcrete (75% wood sawdust, concrete and clay mixture)
Diameter 16cm
Height 33cm

A02002 2F Bat Box

2F-DFP Bat Box
A general purpose box attractive to the smaller British bats, with a roughened wooden panel inside the box which simulates a crevice.
This box is favoured by Daubenton's bat and Nathusius' pipistrelle.

Woodcrete (75% wood sawdust, concrete and clay mixture)
Diameter 16cm
Height 33cm

A02003 2F-DFP Bat Box

2FN Bat Box
A larger box with both a wide access slit at the base and an access hole on the underside. Suitable for the larger British bat species. Particularly successful in attracting noctule and Bechstein's bats.

Woodcrete (75% wood sawdust, concrete and clay mixture)
Diameter 16cm
Height 36cm

A02004 2FN Bat Box

1FF Bat Box
The rectangular shape makes the 1FF suitable for attaching to the sides of buildings or in sites such as bridges, though it may also be used on trees. It has a narrow crevice-like internal space to attract pipistrelle and noctule bats.

Woodcrete (75% wood sawdust, concrete and clay mixture)
Width 27cm
Height 43cm

A02000 1FF Bat Box

1FD Bat Box
A large general purpose bat box, with two roughened wood panels inside the box which simulate crevices.

Woodcrete (75% wood sawdust, concrete and clay mixture)
Diameter 16cm
Height 36cm

A02058 1FD Bat Box

1FS Bat Box
A larger capacity general purpose bat box.

Woodcrete (75% wood sawdust, concrete and clay mixture)
Diameter 28cm
Height 44cm
Weight 10kg

A02005 1FS Bat Box

1FW Hibernation Box
This monster box is designed to provide a protected environment, particularly through the cold winter months when bats hibernate. It has three internal wooden panels imitating crevices. *Supplied with special fixing brackets. It is important to fit this heavy box very securely if mounting above the ground, and to site it well away from public areas.*

Woodcrete (75% wood sawdust, concrete and clay mixture)
Diameter 38cm
Height 50cm
Weight 30kg

A02001 1FW Hibernation Box

Schwegler 1FQ Bat Box
The latest model from Schwegler is an attractive box designed specifically to be fitted on the external wall of a house, barn or other building. Equally appealing to bats as a roost or a nursery, it features a special porous coating to help maintain the ideal temperature inside as well as a roughened front panel to enable the bats to land securely. Access into the box is via a step-like recess.
Inside the box, rough pieces of wood are incorporated into the back of the box which are good insulators and are used by the bats as perches. The internal layout offers three different areas with varying degrees of brightness and temperature.
This durable box is easy to attach to most walls, requires no maintenance or cleaning and will last for decades. *Please note that this box is designed to be fitted to a wall. Due to the weight it is unsuitable for fences or sheds.*

Woodcrete (75% wood sawdust, concrete and clay mixture)
Height 565mm; Width 350mm Depth 85mm Weight 13kg

A02092 Schwegler 1FQ Bat Box

BIRD BOX SPECIFICATIONS

Supplier:

Alana Ecology
The Old Primary School
Church Street
Bishop's Castle
Shropshire
SY9 5AE

Tel: +44 (0)1588 630173
Fax: +44 (0)1588 630176
Email: sales@alanaecology.com

Schwegler boxes have the highest occupation rates of all box types. They are carefully designed to mimic natural nest sites and provide a stable environment for chick rearing and winter roosting. They can be expected to last 25 years or more without maintenance

BOXES TO FIT ON/IN BUILDINGS

Sparrow Terrace, Stone Colour House sparrows are gregarious and prefer to nest close to each other, so this woodcrete box provides room for three families under one roof. Made from long-lasting, breathable woodcrete. Stone colour. No maintenance required. Dimensions 245 x 430 x 200 mm. Weight 13kg. Designed for fixing to walls (not suitable for fences or sheds due to the weight of the box). A02085 Sparrow Terrace, Stone Colour (also available in brown)	 .
Schwegler 9A House Martin Double Nest These woodcrete nests are durable and ready for immediate use when birds return each summer. Easily fixed under the eaves on the outside walls of buildings, at least 2 metres from the ground. The backing board may be painted to match the building. Model 9A is a double unit with two nests mounted side by side on a backing board, as shown. Model 9B is similar to the 9A above but with one single nest A02018 Schwegler 9A House Martin Double Nest A02019 Schwegler 9B Single House Martin Nest	
Schwegler No 10 Swallow Box This box should be located inside buildings such as barns, stables, sheds or outhouses, ensuring there is always access for the birds through a window or opening. A02020 Schwegler No 10 Swallow Box	
Droppings Board To avoid problems with bird droppings from house martin or swallow nests, this board can be installed where necessary, for example over a window or door. A02021 Droppings Board	

Schwegler No 16 IMF Swift Box, Double Chamber The design of this box mimics bell tower louvres. It has two removable panels for easy inspection of the two nest chambers. Designed for fixing on or within walls (not suitable for fences or sheds). Dimensions 460mm h x 430mm w x 225mm d A02088 Schwegler No 16 IMF Swift Box, Double Chamber **Schwegler No 16 Swift Box, Single Chamber** Similar to the box above but with a single chamber and single front panel. Dimensions 240mm h x 430mm w x 225mm d. A02087 Schwegler No 16 Swift Box, Single Chamber	
Nest Mould for No 16 Swift Boxes This nest mould fits inside the nest chamber of the No16 or No16 IMF boxes above, to encourage nesting. Research shows that the birds are more likely to nest if a nest mould is used. A02089 Nest Mould for No 16 Swift Boxes	
Schwegler No 17 Swift Box This box is constructed from plant-fibre based material. It should be sited 6-7m above the ground, near the roof of a building or on a steep rock face. Interior dimensions 14 x 14 cm. Outer length 34cm A02041 Schwegler No 17 Swift Box	
Schwegler No 18 Swift Box This nest box is suitable for fixing high under the eaves or under the guttering of a building. Woodcrete on board backing. Interior dimensions 14 x 34 x 15 cm. Exterior dimensions 19 x 50 x 22 cm A02041A Schwegler No 18 Swift Box	
Schwegler N24 Nest Brick Designed for installation into the fabric of a building, this box is suitable for tits and redstart etc. Woodcrete. Weight 7.3kg Entrance hole 32mm Dimensions 180w x 180d x 240h mm A02043 Schwegler N24 Nest Brick	
Schweger N25 Nest Brick Designed for installation into the fabric of a building, this box is suitable for swifts. Woodcrete Weight 8.8kg Entrance hole 55x33mm. Dimensions 260w x 220d x 180h mm A02044 Schwegler N25 Nest Brick	
Schwegler N26 Nest Brick Designed for installation into the fabric of a building, this box is suitable for pied wagtail, spotted flycatcher and black redstart etc. Woodcrete. Weight 5.4kg Entrance hole 110mm Dimensions 180w x 180d x 200h mm A02045 Schwegler N26 Nest Brick	

BOXES TO FIT FENCES, WALLS AND TREES

Schwegler 1B Bird Box, natural brown The most popular box for garden birds, the 1B appeals to a wide range of species, and is the official nest box of National Nest Box Week. The box can be nailed to the trunk of a tree, or hung from a branch. Schwegler boxes have the highest occupation rates of all box types. They are carefully designed to mimic natural nest sites and provide a stable environment for chick rearing and winter roosting. They can be expected to last 25 years or more without maintenance. Woodcrete, 23cm high x 16cm diameter. With standard 32mm diameter entrance hole	
Schwegler 2H Open Fronted Nest Box **This box is attractive to this box is attractive to robins, pied wagtails, spotted flycatcher, wrens and black redstarts. Best sited on the walls of buildings with the entrance on one side.** Schwegler boxes have the highest occupation rates of all box types. They are carefully designed to mimic natural nest sites and provide a stable environment for chick rearing and winter roosting. They can be expected to last 25 years or more without maintenance. A02015 Schwegler 2H Open Fronted Nest Box	
The Bird House A decorative yet practical nest box designed for fixing to a tree trunk, wall or fence using the bracket on the back. It will attract similar species to the standard 1B box. Robust and durable Schwegler woodcrete construction A02084 The Bird House	
Gable Nest Box A substantial wooden bird box with a gable roof and 28mm entrance hole. Made of 15mm thick softwood, external dimensions 14.5cm x 14.5cm x 26cm high (to top of gable). Suitable for the smaller garden birds. A03008 Gable Nest Box	
Wooden Bird Box A simple wooden bird box with sloping roof, suitable for the smaller garden birds. Made from substantial 2cm thick softwood. 14cm w x 18cm d x 26cm h (backplate 33.5cm h). The standard model has a 32mm diameter entrance hole attractive to a wide range of smaller garden birds. A03004 Wooden Bird Box	

Roosting Pockets. These attractive roosting/nest pockets can be used by wild birds in autumn, winter and spring. The birds can save energy during the colder months by roosting in a sheltered place. These pockets also provide a warm nesting place in the spring for smaller birds such as wrens. Made from natural materials. The pockets have a wire at the back to fix onto a branch, or they can be stapled or nailed to a fence or trellis with plant cover. Pack of 3 assorted roost pockets (styles may vary). A02090 Roosting Pockets	

DRAWINGS

KEY

- Survey boundary
- SI — Semi-improved neutral grassland
- Amenity grassland
- Scattered broad-leaved woodland
- Broad-leaved woodland plantation
- Scattered coniferous woodland
- Marshy grassland
- Dense scrub
- Scattered scrub
- Tall ruderal herbs
- Species poor hedge
- Ditch
- Dry ditch
- Pond
- Fence
- Bare ground
- Hardstanding
- TN1 — Target notes

Species list

Ag	Alnus glutinosa	Fs	Fagus sylvatica
Ap	Acer pseudoplatanus	Ia	Ilex aquifolium
Ca	Corylus avellana	Je	Juncus effusus
Cir	Cirsium sp.	JK	Japanese Knotweed
Cm	Crataegus monogyna	Qr	Quercus robur
Ep	Epilobium sp.	Rf	Rubus fruiticosus
Fe	Fraxinus excelsior	Salix sp.	Willow species

Rev	Description	Drawn	Approved	Date

TEP
Genesis Centre
Birchwood Science Park Warrington
WA3 7BH
Tel 01925 844004
Fax 01925 844002
e-mail tep@tep.uk.com

Project

Riverside Business Park, Nelson, Pendle

Title

Habitat Map 2010

Drwg No: D2307.001

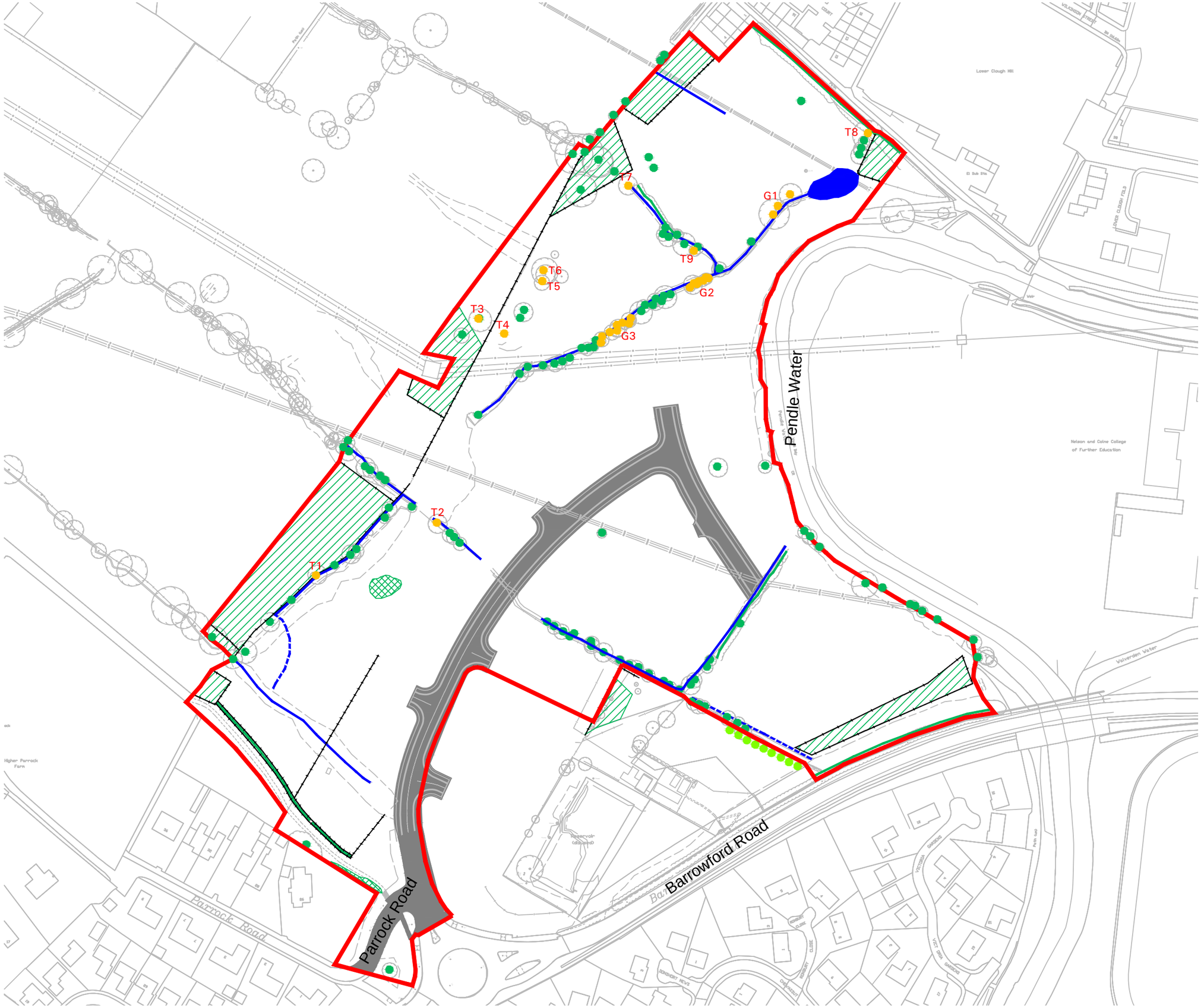
Scale: Not to scale

Date: 10/02/10

Drawn: SMC

Checked: EJS

Approved: EJS



KEY

- Survey boundary
- Trees considered to have low potential to support roosting bats
- T1 — Tree numbers (T1-T9 and G1-G3)
- Scattered broad-leaved woodland
- Broad-leaved woodland plantation
- Scattered coniferous woodland
- Dense scrub
- Ditch
- Dry ditch
- Pond
- Fence
- Hardstanding

Rev	Description	Drawn	Approved	Date

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Project

Riverside Business Park, Nelson, Pendle

Title

Trees with bat roosting potential

Drwg No		
D2307.002		
Scale: Not to scale		Date: 10/02/10
Drawn: SMC	Checked: EJS	Approved: EJS