

**CUADRILLA RESOURCES
LIMITED**



**APPENDIX - E
ECOLOGY STUDY**

**Cuadrilla Resources Limited
July 2010**

Beconsall Hydrocarbon Exploration Site
Planning Application [July 2010].
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Ecological Assessment

**Site at Becconsall,
Marsh Road,
Banks,
Lancashire PR9 8DY**

Provided for:

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Summary

This report has been produced on behalf of Cuadrilla Resources Ltd as part of the information required for a proposed development for a site at Becconsall in Banks, Lancashire.

Surveys, an ecological assessment and a data search were carried out in April 2010 and May 2010 (after an initial visit in December 2009), to assess the value or likely value of the survey area.

The proposed development site lies within a non-statutory site known as Marsh Farm Fields Biological Heritage Site (BHS). The site does not form part of or lie adjacent to a statutorily designated site, but it lies within 1km of the following statutory sites; Ribble Estuary Site of Special Scientific Interest and Ribble and Alt Estuaries Special Protection Area. The site does not form part of or include any ancient woodland.

The site includes two biodiversity broad habitats; Neutral Grassland and Standing Open Water and Canals.

No protected species or signs of protected species were found on the site during the surveys or have been recorded from the site (according to the data search).

The site's current ecological value is derived mainly from interest associated with the BHS and the presence of two BAP Broad Habitats.

As general good practice, in order to retain or enhance the ecological value of the proposed development, it is recommended that:

- Working areas should be kept to a minimum to minimise habitat loss/disturbance and disturbance to wintering birds.
- Site lighting during and post development is designed to limit negative impacts on birds.
- The site is closely monitored for the appearance of undesirable species during and post site clearance and development works.
- Any landscaping, including planting, as part of the proposed development, should utilise native species of local provenance.

As the site lies in proximity to an SPA, an Appropriate Assessment may be required.

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1 Introduction

This report has been produced on behalf of Cuadrilla Resources Ltd as part of the information required for a proposed development for a site at Becconsall in Banks, Lancashire.

Ecology Services UK Limited was commissioned in April 2010 to carry out an ecological assessment and to produce an assessment report.

The information contained within this report comprises:

- The methodology used for the assessment
- A brief description of the survey site
- The results from the assessment
- An evaluation of the ecological aspects of the site
- Limitations to the assessment
- Conclusions drawn from the survey results
- Recommendations for the survey site

Personnel

Patrick Waring is a Chartered Environmentalist and a full member of the Institute of Ecology and Environmental Management, with a Bachelor of Science degree in Biology. He has been working as an ecological consultant for over twelve years, most recently as Director of Ecology Services UK Ltd. On behalf of statutory bodies, non-governmental organisations, commercial bodies and individuals, he advises on ecological matters relating to habitats and protected species, particularly in relation to development proposals. He has extensive experience of ecological survey, monitoring, condition assessment and impact assessment techniques; these include ecological surveys and assessments.

2 Objectives and methodology

2.1 General background

The brief for this work was to carry out an ecological assessment of a site at Becconsall in Lancashire. Information gathering involved a desk-based study, a data search and site surveys.

The methodology was designed to address the following objectives.

- i. To establish the ecological value of the site
- ii. To enable clear advice to be provided regarding the implications of ecological value, such as the need for further surveys

The assessment focussed on a number of aspects which, if present, would help to determine the ecological value of the site and therefore help to identify any potential constraints to future land use change/development. These aspects were as follows:

- Presence of sites and features designated for ecological reasons
- Presence of designated wildlife corridors and landscape links
- Presence or likely presence of protected species
- Nesting and other significant use by birds
- Presence of important habitats and species (including Biodiversity Action Plan (BAP) broad habitats, as well as Species and Habitats of Principal Importance)
- Presence of hedges
- Presence of undesirable species

2.2 Desk-based study

2.2.1 Presence of designated sites

Information about statutorily designated sites and ancient woodlands was accessed from the Natural England website, in the form of site boundary vector data.

Information about Local Nature Reserves was accessed from the Natural England website, in the form of site boundary vector data and from the MAGIC website (<http://www.magic.gov.uk/website/magic/>). Information about the location of non-statutory wildlife sites was gained from the Local Development Plan.

2.2.2 Presence of designated wildlife corridors

The current Local Development Plan map was checked for locations of wildlife corridors.

2.2.3 Presence or likely presence of protected species

A data search was requested from Lancashire County Council Environment Directorate.

2.3 Field-based surveys

After an initial visit on 15th December 2009, surveys were carried out on 24th April 2010 and 20th May 2010.

2.3.1 Presence or likely presence of protected species

The site and immediate surroundings were assessed for their potential to support a range of protected species known to occur in Lancashire;

- Great crested newts *Triturus cristatus*
- Reptiles
- Water voles *Arvicola terrestris*
- Red squirrel *Sciurus vulgaris*
- Badgers *Meles meles*
- Bats

After the initial site visit, it was recognised that the proposed development site was unsuitable for the following protected species likely to occur in the area, due to a lack of suitable opportunities:

- Great crested newt
- Reptiles
- Red squirrel
- Badgers
- Bats (roosting)

Water vole

Following the methodology outlined in The Water Vole Conservation Handbook (Strachan and Moorhouse 2006), the ditches along the boundaries of the proposed development site were examined for evidence of use by water voles.

2.3.2 Nesting and other significant use by birds

Surveys for birds, including bird nests, likely nesting sites and bird activity were carried out throughout the site visits. Observations were made from vantage points around the site during each visit in the early morning; there were 3 visits in total.

Normally in the case of potential impacts of development on wintering birds (this being a feature of the SPA and a reason for designation of the BHS), it would be necessary to undertake surveys of birds throughout the winter period to inform an impact assessment of the development. It is understood that in this case, this approach is not required.

2.3.3 *Presence of important habitats and species (including Biodiversity Action Plan (BAP) broad habitats, as well as Species and Habitats of Principal Importance)*

An extended Phase 1 Habitat Survey was carried out, whereby the vegetation and habitats of the whole site were surveyed on foot.

Habitats were described in terms of plant species composition and categorised in terms of Phase 1 Habitats (using descriptions in the Phase 1 Habitat Survey Handbook).

Habitats were also classified in relation to biodiversity broad habitats (using descriptions in the UK Biodiversity Action Plan) and Priority Habitats (using descriptions in UK Biodiversity Action Plan; Priority Habitat Descriptions. BRIG (ed. Ant Maddock) 2008 <http://www.ukbap.org.uk/library/UKBAPPriorityHabitatDescriptionsfinalAllhabitats20081022.pdf>).

Scientific names follow Stace (3rd Edition 2010).

2.3.4 *Presence of hedges*

Surveys for hedgerows were carried out as part of the habitat survey as described above.

2.3.5 *Presence of undesirable species*

Surveys for undesirable species and species included in Section 9 of the Wildlife and Countryside Act (Variation of Schedule 9 Order 2010) were carried out as part of the habitat survey as described above.

2.4 **Evaluation**

The Institute of Ecology and Environmental Management guidelines (IEEM 2006) were used as the basis for evaluation of the site aspects listed in section 2.1. The guidelines provide a framework for valuing ecological receptors, such as sites, habitats and populations, on the following scale:

- International
- National
- Regional
- County/Metropolitan
- District/Borough
- Parish/Neighbourhood
- Negligible

Where the level of value of an aspect was unclear, a judgement was made; where this approach was adopted, a rationale is presented with the judgement of value.

Additional criteria employed were from the following:

- Schedules and Annexes of UK and European wildlife legislation (e.g. Wildlife and Countryside Act (WCA) (1981) (as amended) and The Conservation (Natural Habitats, &c.) Regulations 1994
- International conventions on wildlife (e.g. Bern Convention, Bonn convention)
- UK Biodiversity Action Plan
- Lancashire Biodiversity Action Plan
- Taxa-specific conservation lists (e.g. RSPB List of Species of Conservation Concern)

Hedges

There are various methods of evaluating the importance of hedgerows. The two standard methods are those outlined in “The Hedgerow Survey Handbook: a standard procedure for local surveys in the UK” (UKBAP Steering Group for Ancient and/or Species-rich Hedgerows); and the criteria outlined in The Hedgerow Regulations (1997) which identifies “Important” hedgerows that are protected under this legislation.

A summary of the biological criteria for “Important” hedges under the Hedgerow Regulations (1997) is as follows:

- At least 7 woody species, on average, in a 30m length
- At least 6 woody species, on average, in a 30m length and has at least 3 associated features
- At least 6 woody species, on average, in a 30 m length including a black poplar tree, large leaved lime, or small leaved lime or wild service tree
- At least 5 woody species, on average, in a 30m length, and has at least 4 associated features

The number of woody species is reduced by one in northern counties (this applies to the north west of England).

The hedge runs alongside a bridleway, footpath, road used as a path, or a byway open to all traffic and includes at least 4 woody species, on average, in a 30m length and has at least 2 of the associated features listed at (i) to (v) below.

- (i) a bank or wall supporting the hedgerow
- (ii) less than 10% gaps
- (iii) on average, at least one tree per 50 metres
- (iv) at least 3 species from a list of 57 woodland plants
- (v) a ditch

- (vi) a number of connections with other hedgerows, ponds or woodland, and
- (vii) a parallel hedge within 15 metres

There are slight differences in the criteria in that the UKBAP method includes climbing species such as bramble and honeysuckle as well as non-native species such as sycamore, whereas the Hedgerow Regulations only take account of native woody shrubs. In addition, several of the criteria under the Hedgerow Regulations are related to archaeological or historic features; these have not been considered under this assessment.

Under the UKBAP methodology 4 woody species qualify a hedge as species-rich in the north-west of England.

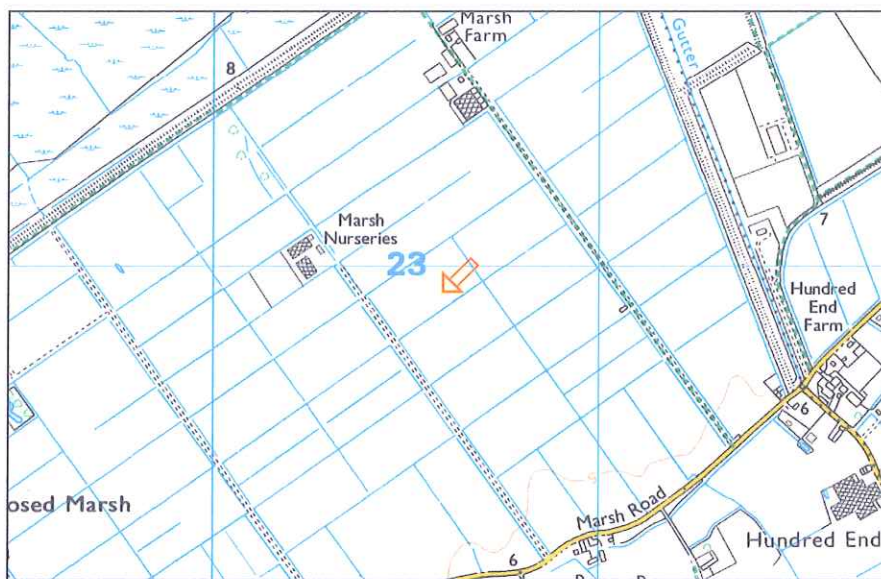
3 Description of the survey site

A detailed site plan is included in the appendices. The central site location is SD 4071 2283.

The survey site supports a very limited range of habitats, which are described below in Section 4.5.

The site comprises a single unit of land comprising approximately 1.0 hectares.

The site lies within a landscape dominated by large open agricultural fields with boundary ditches. The immediate surroundings of the survey area comprise open agricultural fields and a trackway.



1:25 000 map of site and context - location shown by red arrow in map above



Aerial view of proposed development site (marked with white arrow), showing context



*General view of landscape in vicinity of proposed development site –
December 2009.*



View across proposed development from trackway to west – December 2009.



View across proposed development to north east, showing dry ditch at east boundary in middle distance – May 2010.

4 The results of the surveys

4.1 Presence of sites and features designated for ecological reasons

There are no Sites of Special Scientific Interest, Special Protection Areas or Special Areas of Conservation on or adjacent to the survey site. The closest statutory sites to the survey area are Ribble Estuary Site of Special Scientific Interest and Ribble and Alt Estuaries Special Protection Area, which together lie within the wider data search area approximately 660 metres to the east and 800 metres to the north of the proposed development site. Interest features of the SPA include aggregations of non-breeding wintering birds (e.g. internationally important populations of Bewick's swan and whooper swan) as well as aggregations of non-breeding migratory species (e.g. internationally important populations of shelduck, and nationally important populations of curlew and lapwing).

There are no Local Nature Reserves on or adjacent to the survey site or within the wider data search area.

The proposed development site lies within a non-statutory site known as Marsh Farm Fields Biological Heritage Site (BHS). The BHS has been selected for its bird interest. No further details were available at the time of writing this report.

There are no ancient woodlands on or adjacent to the survey site. No ancient woodland sites lie within the wider data search area.

4.2 Presence of wildlife corridors

There are no designated wildlife corridors on the survey site as shown on the current Development Plan map.

4.3 Presence or likely presence of protected species

The data search clearly shows that a number of protected species occur in the wider area; these include:

Daubenton's bat *Myotis daubentonii*
Great crested newt *Triturus vulgaris*
Red squirrel *Sciurus vulgaris*

Bats

No records of bats and bat roosts on or adjacent to the site were provided for the search area of 2km around the proposed development site.

The proposed development site area offers negligible potential for use by bats e.g. in relation to sheltering and foraging opportunities.

Great crested newt

The data search returned no records of great crested newts within the search area of 2km around the proposed development site.

No amphibians were found during surveys.

The proposed development site area offers negligible potential for use by great crested newts.

Reptiles

No reptiles were found during the survey.

As a result of current use of the site and the condition of habitats present, the proposed development area is regarded as having negligible potential for use by reptiles.

Badgers

The data search returned no records of great crested newts within the search area of 2km around the proposed development site.

No badgers or signs of badger activity were found associated with the site or the adjacent area during the data search or the field surveys.

The proposed development site area offers negligible potential for use by badgers.

Water vole

The data search provided a number of records of water voles from the wider search area, including records within the 2km search area around the proposed development site.

No water voles or signs of water vole activity were found associated with the ditches around the boundaries of the proposed development site during the data search or the field surveys.

The ditches are regarded as having moderate potential for use by water voles.

Red squirrel

The proposed development site area offers negligible potential for use by red squirrels e.g. in relation to sheltering and foraging opportunities.

4.4 Nesting and other significant use by birds

No bird nests were found on or adjacent to the proposed development site.

Birds were seen on site on only one occasion – the survey in May 2010. Two adult shelduck *Tadorna tadorna* were seen resting on the site.

The data search lists a number of bird species which have been recorded on land close to the proposed development site and which could possibly occur on the proposed development site during winter and/or spring months; these include Bewick's swan, whooper swan, lapwing, snipe, curlew and grey partridge.

4.5 Presence of important habitats and species (including Biodiversity Action Plan (BAP) broad habitats, as well as Species and Habitats of Principal Importance)

4.5.1 Species

No Species of Principal Importance were observed on or immediately adjacent to the site during the surveys.

The data search shows that a number of locally important species occur in the wider area search area of 2km around the proposed development site; these include:

Water vole *Arvicola terrestris*
Red squirrel *Sciurus vulgaris*
Brown hare *Lepus europaeus*

Bewick's swan *Cygnus columbianus*
Whooper swan *Cygnus cygnus*
House martin *Delichon urbica*
Skylark *Alauda arvensis*
Linnet *Carduelis cannabina*
Lapwing *Vanellus vanellus*
Snipe *Gallinago gallinago*
Teal *Anas crecca*
Gadwall *Anas strepera*
Curlew *Numenius arquata*
Grey partridge *Perdix perdix*
Swallow *Hirundo rustica*

Hard grass *Parapholis strigosa*
Knotted hedge parsley *Torilis nodosa*
Horned pondweed *Zannichellia palustris*

4.5.2 Habitats

Neutral grassland

The ditch sides to the south, east and west boundaries of the site have been colonised by a community which is best described as neutral grassland. Generally, broad leaved grass species are dominant including couch grass *Elytrigia repens*, timothy *Phleum pratense* and cocksfoot *Dactylis glomerata*. Forbs are present throughout the sward and are typically those associated with arable field margins and disturbed ground, including cow parsley *Anthriscus sylvestris*, curled dock *Rumex crispus*, nettle *Urtica dioica*, goosegrass *Galium aparine*, field horsetail *Equisetum arvense*, ivy leaved speedwell *Veronica hederifolia*, dandelion *Taraxacum officinale* agg., hogweed *Heracleum sphondylium*, creeping thistle *Cirsium arvense* and broad leaved dock *Rumex obtusifolius*.

A few other species occur as a result of the influence of damper conditions; these include meadowsweet *Filipendula ulmaria*, hairy willowherb *Epilobium hirsutum* and angelica *Angelica sylvestris*.

Biodiversity broad habitat – *Neutral grassland*

Habitat of Principal Importance – *None*

Phase 1 Habitats: *Neutral grassland*

Arable

The main area of the proposed development site is used for arable production. In December 2009 the field was under a brassica crop. In April and May the field was ploughed and without vegetation cover.

Biodiversity broad habitat – *Arable and Horticulture*

Habitat of Principal Importance – *None*

Phase 1 Habitats: *Arable*

Ditches

There are ditches along the south, east and west site boundaries.

The ditches showed no signs of recent management such as reprofiling at the time of the surveys. Water was absent from the eastern and western ditches. The water depth in the southern ditch was less than 0.5 metres and there was one aquatic plant species present; common duckweed *Lemna minor*.

Emergent plants in the southern ditch included occasional examples of reed canary grass *Phalaris arundinacea* and amphibious bistort *Persicaria amphibia*.

Biodiversity broad habitats: *Standing Open Water and Canals*.

Habitat of principal importance – *None*

Phase 1 Habitats: *Eutrophic Running Water and Dry Ditch*

Habitat categories

Broad habitat	UK BAP Broad Habitats	Lancashire BAP	Habitat of Principal Importance (Section 41 NERC Act 2006)
Neutral grassland	✓	x	x
Arable	✓	x	x
Ditch	✓	x	x

4.6 Presence of hedges

There were no hedges on the proposed development site.

4.7 Presence of undesirable species

Creeping thistle *Cirsium arvense*, broadleaved dock *Rumex obtusifolius* and curled dock *Rumex crispus* all occur at the proposed development site. All species are listed as injurious weeds under the Weeds Act 1959.

No species included in Section 9 of the Wildlife and Countryside Act (Variation of Schedule 9 Order 2010) were found on the proposed development site.

5 Evaluation

5.1 Presence of sites and features designated for ecological reasons

Value
No value for statutory designated sites.
The site has some value as it forms part of a single non-statutory site: Marsh Farm Field Ponds BHS.
No value for ancient woodland
Rationale
No statutory sites occur within or adjacent to the proposed development site.
The site forms part of Marsh Farm Field Ponds BHS. However, the BHS description form for the site contains only a very limited justification for the designation. As it is not possible to confirm whether the survey site makes any sort of contribution to the BHS, the judgement of value made above is precautionary.
No ancient woodland occurs within or adjacent to the proposed development site.

5.2 Presence of wildlife corridors

Value
No value
Rationale
The proposed development site does not form part of, or lie adjacent to, a designated wildlife corridor.

5.3 Protected species

Value
No demonstrable value for the following species: <ul style="list-style-type: none"> • Great crested newt • Reptiles • Water vole • Red squirrel • Badger • Bats
Rationale
At least one the following applies to each species <ul style="list-style-type: none"> • The existing habitats and habitat features are unsuitable for the species to use as a nesting/sheltering resource • There is no evidence of the presence of the species

Value
The proposed development site has negligible value for roosting bats.
Rationale
The proposed development site supports no features which are suitable for roosting bats.

5.4 Nesting and other significant use by birds

Value
The proposed development site has low value for nesting birds.
The proposed development site has high potential value for use by a range of bird species during winter and spring months.
Rationale
The site supports very little potential sheltering vegetation and is subject to regular disturbance and annual removal of almost all vegetation cover.
Birds including Bewick's swan, whooper swan and lapwing are known to occur on adjacent land including the SPA.

5.5 Important species and habitats

Refer to 5.3 and 5.4 for information about species.

Value
Low value at a parish scale for the BAP broad habitats.
High secondary value at a County scale (wintering birds).
Rationale
Grassland – limited species diversity and extent of habitat. The vegetation is unremarkable in terms of species rarity and species diversity.
Arable – site is part of in a BHS for birds and forms part of an extensive network of open land close to an SPA designated partly for wintering birds.
Ditch - limited species diversity and only one of the ditches supported water at the timer of the surveys. The vegetation is unremarkable in terms of species rarity and species diversity.

5.6 Hedges

Value
No value.
Rationale
There are no hedges on the proposed development site.

5.7 Presence of undesirable species

Value
The presence of creeping thistle, broad leaved dock and curled dock have a localised negative impact on the value of the survey site.
Rationale
Creeping thistle, broad leaved dock and curled dock are competitive species which are able to grow rapidly on disturbed ground, and also disperse rapidly to exploit new growth opportunities.

5.8 Overall conclusions in relation to ecological value

The value of the proposed development site is in relation to:

1. The contribution made by the proposed development site to the Biological Heritage Site
2. The presence of three BAP Broad Habitats
3. The potential relationship of the proposed development site to the Ribble Estuary Site of Special Scientific Interest and Ribble and Alt Estuaries Special Protection Area

6 Limitations of the survey

- 6.1** Observations were limited to an initial visit in December, followed by surveys in April and May. Limiting the survey period to visits in these months does not take account of animal species activity on the site through the year. For example, development of vegetation around the proposed development site will inevitably change the value and potential value of the site for a range of animal species.
- 6.2** Limiting the survey period to visit in winter and spring does not take account of plant growth through the year. It is likely that a limited number of flowering vascular plant species would not have been evident during the survey.

7 Advice and recommendations

Further general surveys of the site are not warranted at this time.

7.1 Presence of sites designated for ecological reasons

There are no sites designated for ecological reasons, therefore there are no recommendations.

7.2 Presence of wildlife corridors

There are no wildlife corridors, therefore there are no recommendations.

7.3 Protected species

7.3.1 Water voles

It is advised that the ditches on the site have potential to be used by water voles, and that the assessment of potential is partly influenced by the presence of water voles in the wider landscape. Water voles are subject to strict legal protection at all times; this protection includes killing, injuring or taking water voles and intentionally or recklessly damaging, destroying or obstructing access to any structure or place which water voles use for shelter or protection.

It is recommended that, as a precaution, any works which might affect water voles or any structure or place which water voles use for shelter or protection should be assessed by and, where necessary, carried out under the guidance of an appropriately experienced Ecologist. Prior to any works taking place, an approach should be adopted which will ensure that activities can be undertaken lawfully and with full regard for the welfare of water voles and their sites of shelter or protection.

It is advised that if water voles or signs of water vole presence are found at any time during site management or development, works should cease and guidance should be sought from an appropriately experienced Ecologist.

Rationale for advice and recommendations

- Field-based surveys have demonstrated that there is potential for water voles to occur on this site.
- The desk-based survey provided evidence of water vole presence in the area around the survey site in recent years.
- Water voles and their places of shelter and protection are protected under UK legislation.
- If water voles are discovered prior to or during site management or development, plans will need to show how water voles and their places of shelter and protection will be accommodated within the proposed development.

- If the development will affect water voles or their places of shelter and protection, suitable mitigation will be required.

7.4 Nesting and other significant use by birds

It is advised that actions which could kill or injure any wild bird or damage or destroy its nest, whilst the nest is in use or being built, or destroy its eggs should be avoided.

Artificial light spillage onto potential roosting, loafing and nesting features should be avoided wherever possible. Specifications should be developed for the proposed lighting scheme to address this issue; in particular, attention should be paid to lighting types employed, extent of light spillage and timing of lighting operation.

It is advised that disturbance to wintering birds should be avoided where possible. This will include:

- Limiting working hours to avoid disturbance during construction at dawn and at dusk
- Avoiding artificial light spillage onto areas outside the development zone

It will be necessary to agree an appropriate working approach with Natural England and Lancashire County Council Environment Directorate prior to works commencing.

Rationale for the recommendations

- It is generally an offence intentionally to kill, injure or take any wild bird or take, damage or destroy its nest whilst in use or being built or take or destroy its eggs. Some species, e.g. those classed as pests, are exempt in certain circumstances.
- If nesting birds are present, plans will need to show how offences will be avoided during the proposed development. Work will have to be programmed around the nesting season to minimise disturbance.
- Proposed development activities have potential to cause disturbance to wintering bird species.

7.5 Important species and habitats

7.5.1 Species

Please refer to Sections 7.3 and 7.4 above.

7.5.2 Habitats

It is recommended that as general good practice, working areas, including access points, be kept to a minimum to minimise habitat loss/disturbance.

Ideally, storage of materials, plant and equipment should be on hardstanding only.

It is recommended that habitats supporting features of potential importance for birds are retained where possible.

If key features cannot be retained, replacement features should ideally be provided within the final scheme design. Features retained and/or recreated should be subject to a management regime during and after development which will ensure their functionality.

It is recommended that the following habitats are created in the final design scheme to enhance the site in terms of ecology:

- **Hedgerow and Shrub Planting**

Plant and manage hedgerows along the site boundaries and/or shrub planting using a selection of locally native species. Recommended native species include:

- Hawthorn *Crataegus monogyna*
- Elder *Sambucus nigra*
- Holly *Ilex aquifolium*
- Dog rose *Rosa canina*
- Blackthorn *Prunus spinosa*
- Hazel *Corylus avellana*

It is recommended that invasive species such as cherry laurel *Prunus laurocerasus* and Japanese rose *Rosa rugosa* are not used in the hedgerow or shrub planting.

Ideally, all native species used in planting schemes should be of local provenance.

It is recommended that where existing habitats can be retained within any future development scheme, these are managed to ensure their survival and functionality and to at least maintain where possible increase their ecological value. This is particularly important where national and local biodiversity priority habitats exist which could contribute to the achievement of biodiversity targets.

It is recommended that all habitats included in the final scheme design are subject to a management regime during and after development which will retain their value. This will include:

- Removal of undesirable species which may appear on site (e.g. aggressive non-native plant species such as Japanese knotweed)
- Removal of litter items which are likely to affect ecological functions

Post development ecological enhancements can be achieved by:

- Incorporating landscaping that would benefit biodiversity. E.g.: additional tree and shrub planting to provide shelter, feeding and nesting opportunities for birds. Species used should be locally native species, ideally of local provenance and/or species that provide food or shelter for native wildlife.
- Conservation management of retained habitats to benefit biodiversity in line with published Biodiversity Action Plan targets.

Rationale for the recommendations

- The approach described is designed to at least maintain and where possible to improve the condition of habitats retained as part of this development, and to provide desirable conditions for a range of species including nesting birds.
- By incorporating the habitat recommendations into the final site planting scheme, the biodiversity value of the site will be increased.
- By incorporating habitat recommendations in the final scheme, the developer will demonstrate a clear commitment to biodiversity conservation.

7.6 Hedges

There are no hedges therefore there are no recommendations.

7.7 Undesirable species

Key recommendations

Efforts should be made to avoid the spread of injurious weeds into the area around the proposed development site.

Rationale for the recommendations

- Species such as broadleaved and curled docks are competitive species which are able to grow rapidly on disturbed ground, and also disperse rapidly to exploit new growth opportunities.
- The works to be carried out as part of the development are expected to involve an amount of soil disturbance around the site which could provide conditions suitable for the colonisation of undesirable species.

8 References

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habitats20081022.pdf)).

Ecological Assessment

Site at Beconsall, Banks, Lancashire

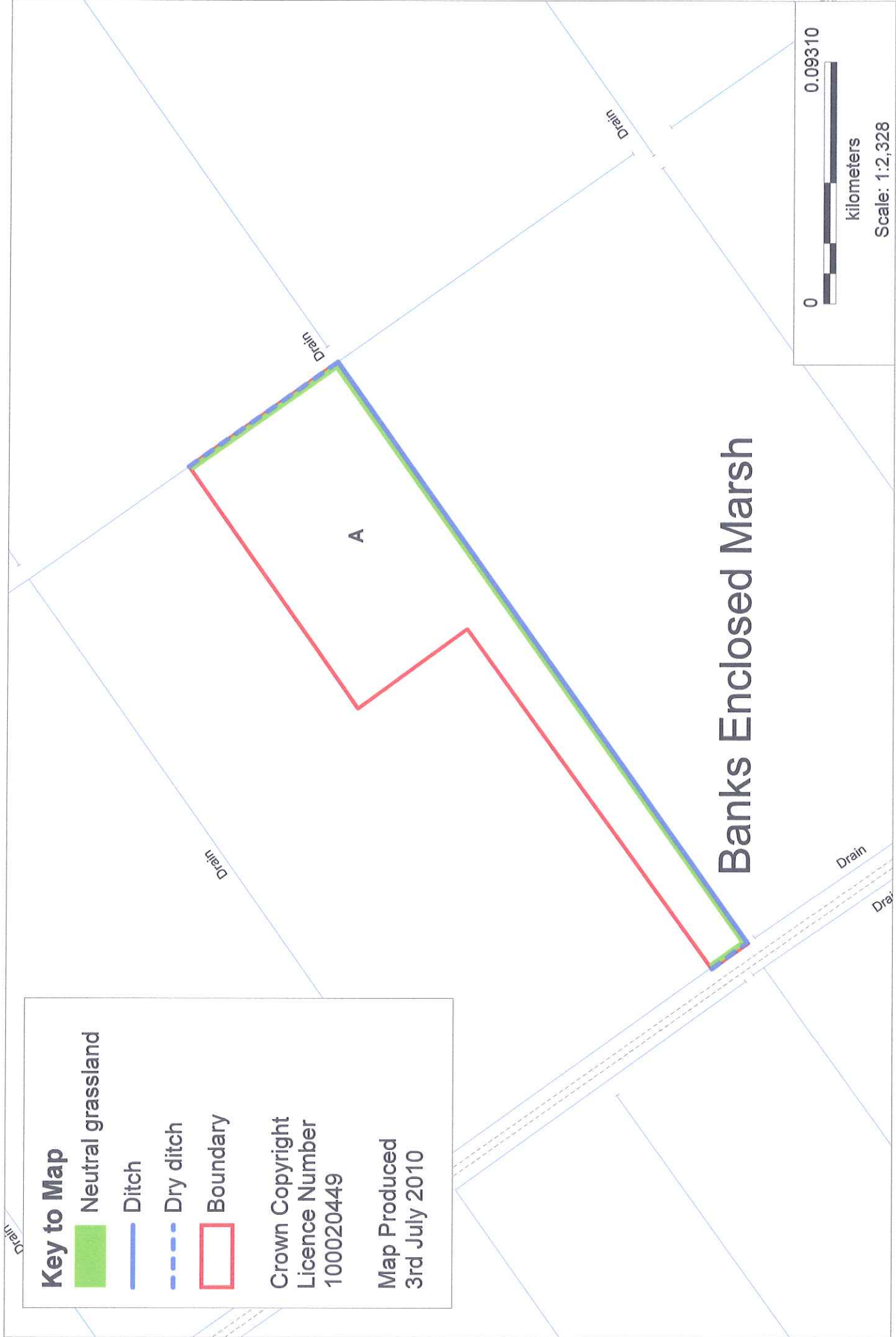
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Appendices

Map 1 - Habitats at Beconsall

Species list

Data search maps



Key to Map

- Neutral grassland
- Ditch
- Dry ditch
- Boundary

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100020449

Map Produced
3rd July 2010

0 0.09310

kilometers

Scale: 1:2,328

Banks Enclosed Marsh

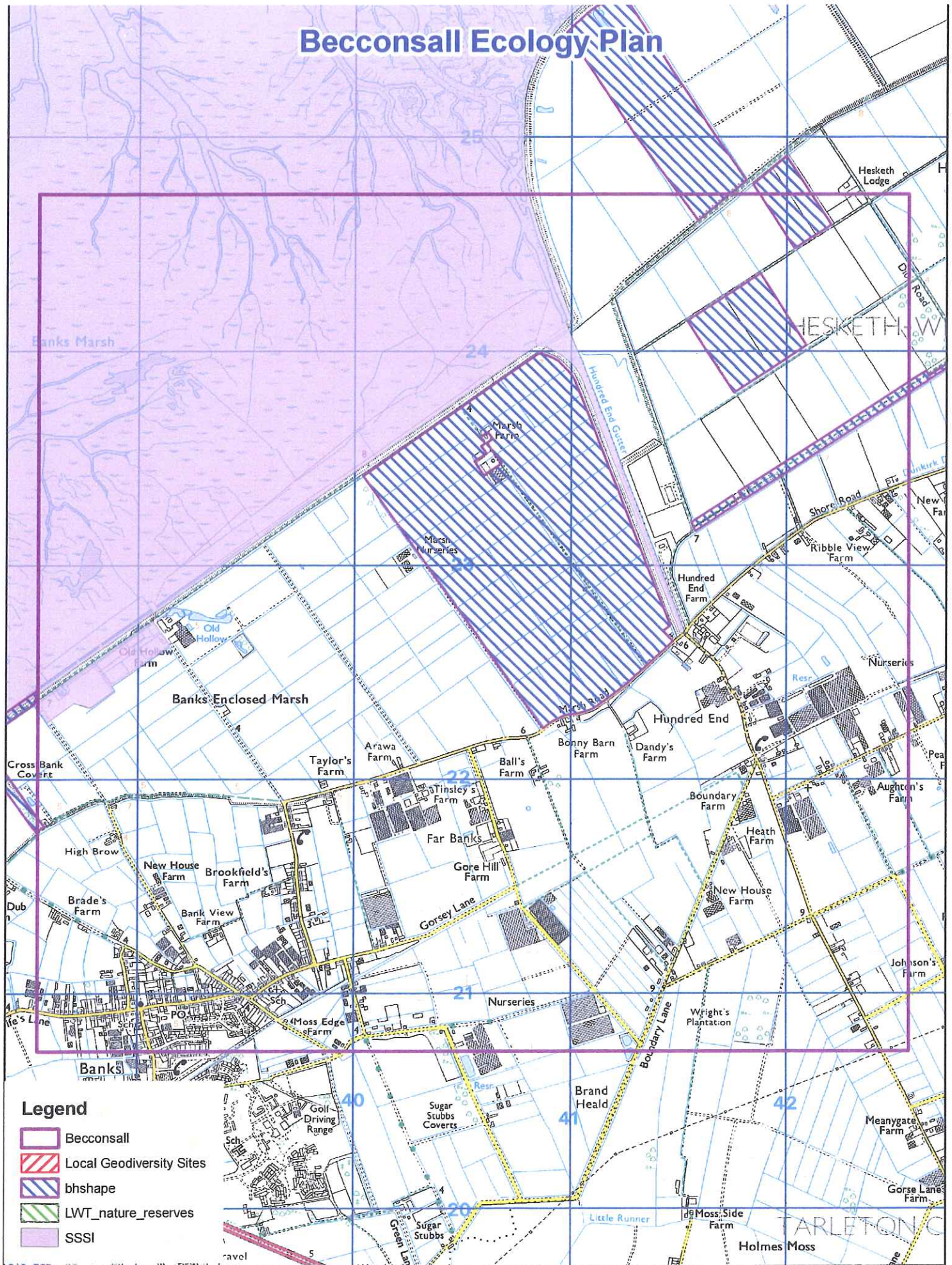
Map 1 - Habitats at Becconsall, Banks, Lancashire

Plant species list for site at Becconsall, Banks, Lancashire





Dominant (D), abundant (A), frequent (F), occasional (O), rare (R). An additional (L) denotes that the abundance rating is local.

Herbs and grasses		
Common Name	Scientific Name	Relative abundance
Couch grass	<i>Elytrigia repens</i>	D
Timothy	<i>Phleum pratense</i>	LA
Cocksfoot	<i>Dactylis glomerata</i>	LF
Cow parsley	<i>Anthriscus sylvestris</i>	O
Curled dock	<i>Rumex crispus</i>	O
Broad leaved dock	<i>Rumex obtusifolius</i>	O
Nettle	<i>Urtica dioica</i>	LD
Goosegrass	<i>Galium aparine</i>	LD
Ivy leaved speedwell	<i>Veronica hederacea</i>	O
Dandelion	<i>Taraxacum officinale</i>	O
Hogweed	<i>Heracleum sphondylium</i>	O
Creeping thistle	<i>Cirsium arvense</i>	O
Meadowsweet	<i>Filipendula ulmaria</i>	LD
Hairy willowherb	<i>Epilobium hirsutum</i>	LF
Angelica	<i>Angelica sylvestris</i>	R
Bramble	<i>Rubus fruticosus</i>	LD
Duckweed	<i>Lemna minor</i>	O
Reed canary grass	<i>Phalaris arundinacea</i>	O
Amphibious bistort	<i>Persicaria amphibia</i>	O

Becconsall Ecology Plan

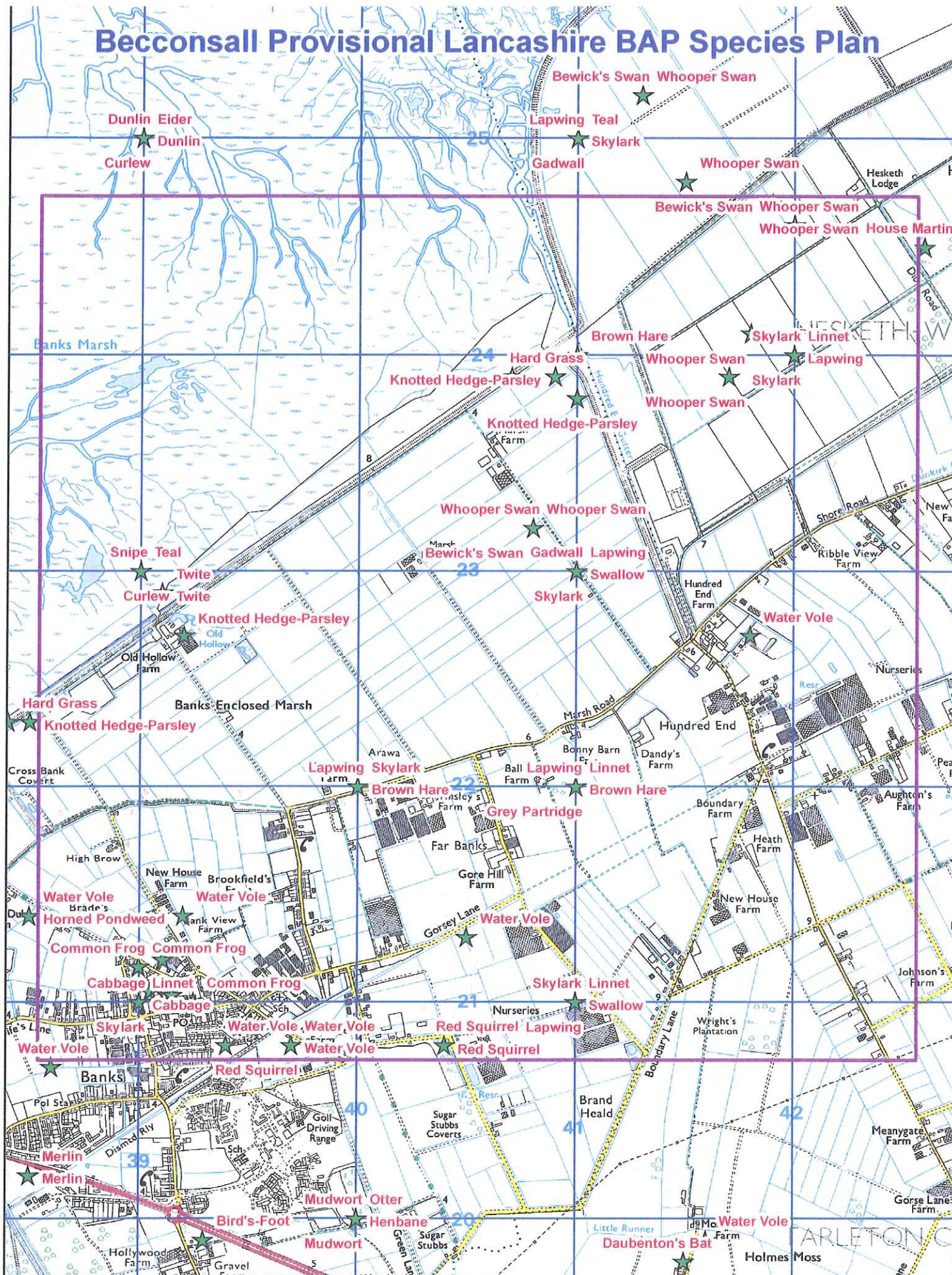


Legend

-  Becconsall
-  Local Geodiversity Sites
-  bhshape
-  LWT_nature_reserves
-  SSSI

1:22,500

Becconsall Provisional Lancashire BAP Species Plan



Legend

- Becconsall
- ★ Lancashire_BAP_Provisional_Long_List

1:22,500

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