

Environmental Character Area Profile for the Minerals Local Plan: 26. Birlingham

1. Introduction

- 1.1. Minerals development usually takes place on previously undeveloped land and can therefore result in permanent change to the natural environment and green spaces in Worcestershire. The impacts of both the working and the restoration of mineral sites need to be considered in detail in the development of the Worcestershire Minerals Local Plan (the MLP).
- 1.2. The Council will take a 'green infrastructure' (GI) approach to considering these impacts. The GI approach is a different way of thinking about the green spaces in Worcestershire. It moves beyond solely considering the environmental benefits of green spaces and integrates the consideration of economic, health and social benefits in the planning and management of green spaces. Rather than considering each green space in isolation it looks at the ways in which individual sites and corridors of green space collectively form the distinctive character of Worcestershire that attracts both visitors and business to the County.
- 1.3. The components of GI include biodiversity, landscape, historic environment, access and recreation and water (also known as blue infrastructure). The GI approach requires thinking about the environment as an integrated system of stepping stones or nodes in a wider network¹.

Green infrastructure and mineral workings and restoration

- 1.4. There is significant potential for mineral workings to destroy existing networks of green infrastructure if the nature and character of these networks is not taken into account. However there is also significant potential to contribute positively to green infrastructure through the restoration of mineral workings.
- 1.5. The GI approach extends beyond thinking about designated sites of biodiversity or historic interest. This means that the impact of a mineral working on the wider environment and the integrated system of stepping stones or nodes in a wider network² will need to be considered.

Environmental Character Areas³ and the Minerals Local Plan

- 1.6. The Worcestershire Green Infrastructure Partnership has undertaken an analysis of the landscape character, biodiversity and the historic environment of Worcestershire to identify 30 distinct GI Environmental Character Areas (ECAs). Details about how these were developed is set out in *Planning for a Multifunctional Green Infrastructure Framework in*

¹ Green Infrastructure Guidance – Natural England.

² Green Infrastructure Guidance – Natural England.

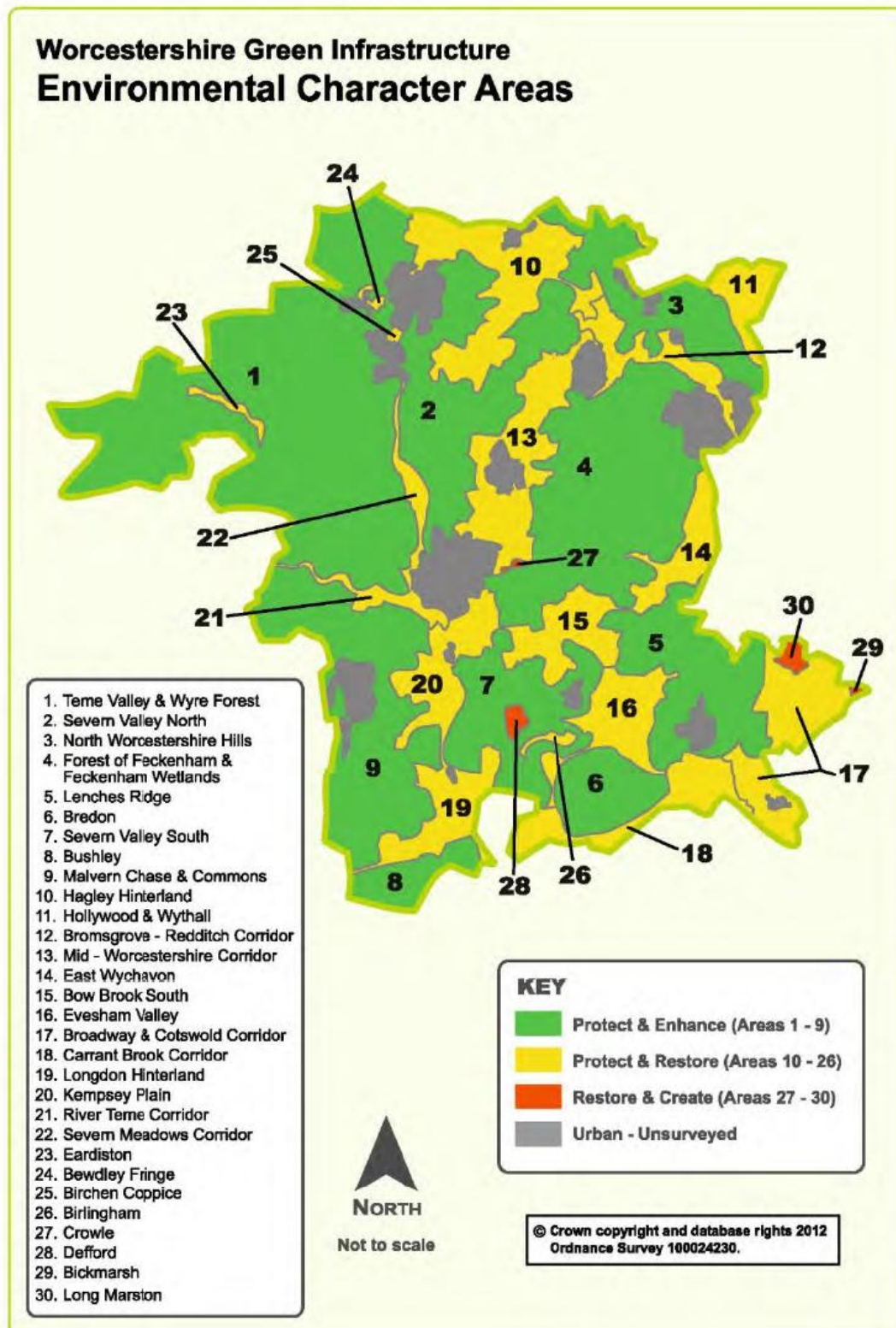
³ Worcestershire County Council (July 2012) *Planning for a Multifunctional Green Infrastructure Framework in Worcestershire: Green Infrastructure Framework 2*

Worcestershire: Green Infrastructure Framework 2 (2012) available at www.worcestershire.gov.uk/GI

- 1.7. These underlie the distinctive character of Worcestershire and it is the Council's intention that the unique characteristics of each area will drive the restoration strategy for the Minerals Local Plan.
- 1.8. This is one of 30 profile documents which set out the characteristics and priorities for the each ECA. It sets out the mineral resources in the ECA and the GI priorities identified by the Worcestershire GI Partnership. These priorities are structured around biodiversity, historic environment, landscape character, water environment (also known as blue infrastructure) access and recreation and transport. The document is also supplemented by other locally relevant information as appropriate.
- 1.9. This information will be used to develop the spatial strategy and restoration priorities for each ECA.
- 1.10. Profiles for each of the following ECAs are available on our website www.worcestershire.gov.uk/mineralsbackground:
- 1.11. The Environmental Character Areas are:
 1. Teme Valley & Wyre Forest
 2. Severn Valley North
 3. North Worcestershire Hills
 4. Forest of Feckenham & Feckenham Wetlands
 5. Lenches Ridge
 6. Bredon
 7. Severn Valley South
 8. Bushley
 9. Malvern Chase and Commons
 10. Hagley Hinterland
 11. Hollywood & Wythall
 12. Bromsgrove – Redditch Corridor
 13. Mid-Worcestershire Corridor
 14. East Wychavon
 15. Bow Brook South
 16. Evesham Valley
 17. Broadway & Cotswold Corridor
 18. Carrant Brook Corridor
 19. Longdon Hinterland
 20. Kempsey Plain
 21. River Teme Corridor
 22. Severn Meadows Corridor
 23. Eardiston
 24. Bewdley Fringe
 25. Birchen Coppice
 26. Birlingham
 27. Crowle
 28. Defford
 29. Bickmarsh
 30. Long Marston

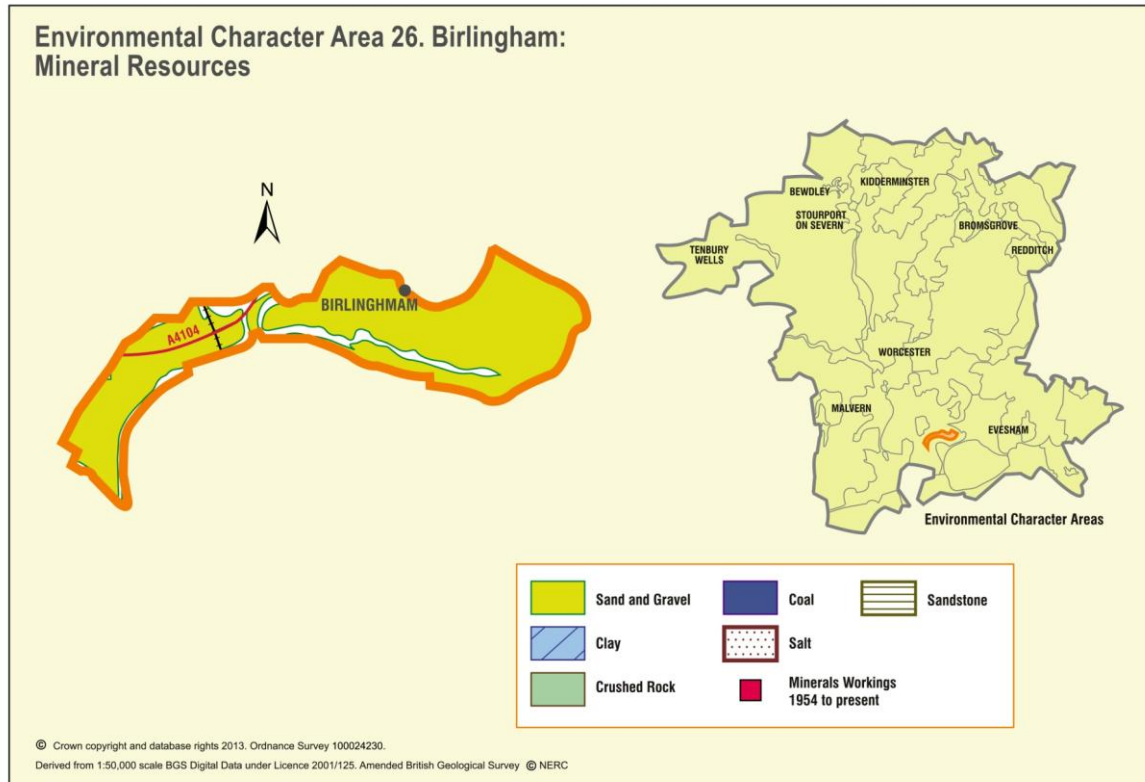
These are illustrated on Figure 1. Environmental Character Areas.

Figure 1. Environmental Character Areas



2. Characteristics and priorities of the Birlingham ECA 26

Figure 2. Environmental Character Area 26 Birlingham: Mineral Resources



Mineral Resources

Aggregates

2.1. Details about the aggregate resources in this ECA are given in the background report "Analysis of Mineral Resources in Worcestershire" available on www.worcestershire.gov.uk/mineralsbackground. The following is therefore only a simple summary.

Sand and gravel

2.2. ECA 26 includes substantial potential sand and gravel resources in 2nd river terrace deposits which cover almost all of the area. The borehole evidence is poor but 2 resource areas have been identified, collectively 315 Ha in extent, containing an estimated 5.8m M³ of sand and gravel. Both resource areas are considered "Key".

Hard rock

2.3. There is no evidence that suitable strata exist.

Industrial minerals

Clay

2.4. There is no evidence that suitable strata exist.

Silica sand

2.5. There is no evidence that suitable strata exist.

Brine

2.6. There is no evidence of brine working in this area or that Halite deposits might exist at depth.

Future Growth

2.7. The key driver for mineral extraction is to provide the raw materials required for the economy to function properly and for homes and infrastructure to be built. Minerals are unevenly distributed. Some of the minerals that we need are not found in Worcestershire and will need to be imported from outside the County. Many minerals are expensive to transport, particularly aggregates as they are a relatively low value and bulky material, and they are likely to be used close to their source, meaning that some local mineral extraction will be needed to support local growth in housing and the associated infrastructure that is required, or to provide raw materials for local industry. On average, about 80 per cent of mineral products are used within 30 miles of the quarry.

2.8. This ECA is a largely rural area within Wychavon District. The district anticipates the development of 5,807 homes, 18.5 ha of employment land and a new neighbourhood centre in the next 14-18 years⁴. No significant development is proposed in the ECA but some of this development is planned for Pershore to the west and Evesham to the east and Tewkesbury and Ashchurch to the south are identified for the development of 500 and 1,200 houses respectively in the Gloucester, Cheltenham and Tewkesbury Joint Core Strategy Preferred Options consultation. These and other areas beyond the ECA could create further demand for minerals in this Environmental Character Area.

Green Infrastructure priorities⁵

2.9. All Environmental Character Areas (ECA's) have been placed into one of three categories based on their overall score for Green Infrastructure. These are:

1. Protect and enhance
2. Protect and restore
3. Restore and create

⁴ Information gathered by Worcestershire County Council in early 2013. This gives a good indication of the likely levels of development which can be expected, but for the latest figures please refer to the relevant City, District or Borough Council.

⁵ Worcestershire County Council (July 2012) *Planning for a Multifunctional Green Infrastructure Framework in Worcestershire: Green Infrastructure Framework 2*

- 2.10. The category is based on an assessment of the ECAs landscape character, biodiversity and the historic environment characteristics. These characteristics were each attributed a score, with biodiversity being given a greater weighting than landscape and the historic environment, each of which were given equal but lower weightings.
- 2.11. The strategic GI approach for the Birlingham ECA is to *protect and restore*. The overarching principle identified by the GI partnership is to protect and restore the River Avon corridor and functional floodplain habitats.

Biodiversity and landscape

- 2.12. The Birlingham Environmental Character Area is an area of intensively cultivated and generally calcareous, fertile and free-draining land, centred on the village of Birlingham. Predominantly described as Principal Village Farmlands within the Worcestershire Landscape Character Assessment. The area has very restricted semi-natural habitats which are fragmented by the medium-to-large scale arable/cropped lowland fields. This is an open, large scale landscape, denuded of native trees since the dominant elms were lost to Dutch Elm Disease. Woodland is not characteristic, trees generally being confined to groups in and around the nucleated village of Birlingham. The south-western boundary of the ECA runs along the northern bank of the River Avon with its accompanying 'Severn and Avon Vales Biodiversity Delivery Area'.
- 2.13. Biodiversity opportunities/priority habitats

GI Priorities:

- 2.14. The biodiversity priorities identified for the Birlingham ECA are⁶:
- Enhance and protect the hedgerow field boundaries with a planned enclosure pattern of medium-to-large scale fields. Encourage planting of oaks or disease resistant elms to replace hedgerow elms lost to disease.
 - Seek opportunities to address density, diversity and age structure of tree groups associated with Birlingham village.
 - Newly created green infrastructure should augment the existing resource, and link priority habitats including neutral grassland, field boundaries and traditional orchards.
 - Maintain the River Avon corridor as a key green infrastructure link and augmentation: the floodplain will be critical for a number of GI aspirations.

Geodiversity

- 2.15. There are no geological SSSIs or local geological sites in this ECA.

⁶ Worcestershire County Council (July 2012) *Planning for a Multifunctional Green Infrastructure Framework in Worcestershire: Green Infrastructure Framework 2*

Historic Environment⁷

- 2.16. The area of sand and gravel has a high potential for archaeological remains. A number of prehistoric and Romano British settlement sites are known. Anglo Saxon remains are also recorded in the area.
- 2.17. The second Avon Terrace is important for the identification and recovery of Palaeolithic artefacts and associated environmental remains, and is seen as a key research objective for the region.
- 2.18. Historic landscape character is principally derived from post medieval enclosure of former medieval open-fields and riverside meadows.

GI Priorities:

- 2.19. The historic environment priorities identified for the Birlingham ECA are⁸:
 - Protect areas of Romano-British and early medieval settlement surviving as below ground remains.
 - Protect medieval ridge and furrow earthworks.
 - Protect and restore locally distinctive historic hedgerows and field boundary patterns associated with piecemeal enclosure of former open-field landscapes.

Blue Infrastructure

- 2.20. The main watercourse in ECA 26 is the River Avon but a small watercourse, the Oxton ditch also passes through it to the south of Fladbury. The principal flood risk is from the River Avon but there is a general risk in Wychavon District from surface water flooding from sewers and overland flow.
- 2.21. The geology can have an effect on the runoff, and the flooding, within a catchment as a result of the permeability of the strata. The geology within South Worcestershire is variable. Impermeable clays and mudstones dominate the Warwickshire Avon sub-catchment and Groundwater flooding is not considered to be a major issue in the South Worcestershire Joint Core Strategy area.
- 2.22. The River Severn Catchment Flood Management Plan makes this a Policy 3 area, where it will "Continue with existing or alternative actions to manage risk at the current level."

Water quality:

- 2.23. The whole of this ECA is categorised as having water company point and agricultural/rural diffuse pollution pressure. The River Avon has a moderate ecological potential but contains unacceptable levels of phosphorus to be able to achieve a good status.

⁷ Historic Environment and Archaeology Service, Worcestershire County Council and Cotswold Archaeology (R Jackson and H Dalwood et al) (November 2007) "Archaeology and aggregates in Worcestershire: A resource assessment and research agenda" Supported by English Heritage through the Aggregates Levy Sustainability Fund.

⁸ Worcestershire County Council (July 2012) *Planning for a Multifunctional Green Infrastructure Framework in Worcestershire: Green Infrastructure Framework 2*

- 2.24. The River Avon to the west of Evesham fails the Chemical Assessment under the WFD due to unacceptable levels of Benzo(ghi) perylene and indeno (123-cd) pyrene.
- 2.25. Groundwater status is good in this ECA.
- 2.26. **Water Supply:** No water available.

GI Priorities:

- 2.27. The blue infrastructure priorities identified for the Birlingham ECA are⁹:
- Manage areas of low, moderate or high flood risk and take action where necessary to keep pace with climate change.
 - Explore opportunities to restore sustainable natural storage of floodwater on undeveloped floodplains. Make more space for rivers through urban areas via 'blue corridors' (i.e. Restoring access for floodwater onto key strips of floodplain by limiting redevelopment to flood-compatible land-uses e.g. parkland).
 - Seek ecological improvements.

Access, informal recreation and tourism

- 2.28. This ECA is in Wychavon District. Only 3.6% of the Wychavon District is accessible natural greenspace, this is the lowest proportion across all districts in Worcestershire. As a whole accessibility to greenspace is poor with only 20% of households in Wychavon are within 5km of 100ha+sites and 2% of households within 10km of 500ha+sites.
- 2.29. There are no sub-regional recreation assets or tourist attractions in this ECA. There are deficiencies in opportunities for access and recreation across the Vale of Evesham, with the Rights of Way network being less dense than in any other area of the County. There is also a lack of sites such as Country Parks, picnic places and Registered Commons. Few nature reserves exist although there are a number of smaller community sites such as Village Greens and Millennium Greens.
- 2.30. Provision is required at both a strategic and neighbourhood level. At a neighbourhood or local scale there is scope for towns and villages to address natural greenspace needs within the rural communities. This should be a requirement of development and other options should be explored for existing communities such as stewardship agreements.

GI Priorities:

- 2.31. The access and recreation priorities identified for the Birlingham ECA are¹⁰:
- Consider the proximity to and ability to integrate with the rights of way network, recreational way-marked routes and the cycle network;

⁹ Worcestershire County Council (July 2012) *Planning for a Multifunctional Green Infrastructure Framework in Worcestershire: Green Infrastructure Framework 2*

¹⁰ Worcestershire County Council (July 2012) *Planning for a Multifunctional Green Infrastructure Framework in Worcestershire: Green Infrastructure Framework 2*

- Accommodate associated facilities necessary for the use and enjoyment of the site in a manner that is appropriate and able to integrate with the landscape character, wildlife and cultural interests.
- Act as a greenway from town into the countryside and utilise existing canal, former railway lines, river corridors and wherever possible link with public transport routes.
- Adopt minimum quality standards, (commensurate with its location and scale) that sites and routes should be expected to achieve will be those from the Green Flag Award Programme, and the Country Parks Accreditation Scheme, as appropriate.

Transport

Road

- 2.32. The A4104 then crosses the western end of the ECA to connect Pershore in the north east with Upton upon Severn and Little Malvern to the west. Other roads in this Environmental Character Area are more minor.
- 2.33. The Worcestershire Advisory Lorry Route Map does not show any low bridges which would restrict the movement of vehicles over 16'3" (4.95m) on the lorry route network. Local roads may have further restrictions and will need further assessment if they are to be used for accessing mineral resources.

Rail

- 2.34. The Birmingham-Bristol line crosses the western end of the ECA on its journey between Worcester to the north and Alvechurch to the south.

Water

- 2.35. The ECA lies largely within one of the meanders of the River Avon, and it forms part of the boundary of the ECA. It is an operational river navigation, capable of carrying commercial traffic and is navigable for 45 miles from Tewkesbury to Stratford on Avon.

GI Priorities:

- 2.36. The GI transport priorities identified for the Birlingham ECA are¹¹:
- Opportunities should be sought to protect, enhance and create green infrastructure that promotes sustainable movement by walking and cycling, reducing the need to travel by car by providing pleasant environments that promote sustainable transport as a means to minimise the impact of transport on the natural environment and mitigate the impacts of climate change.

LTP Priorities:

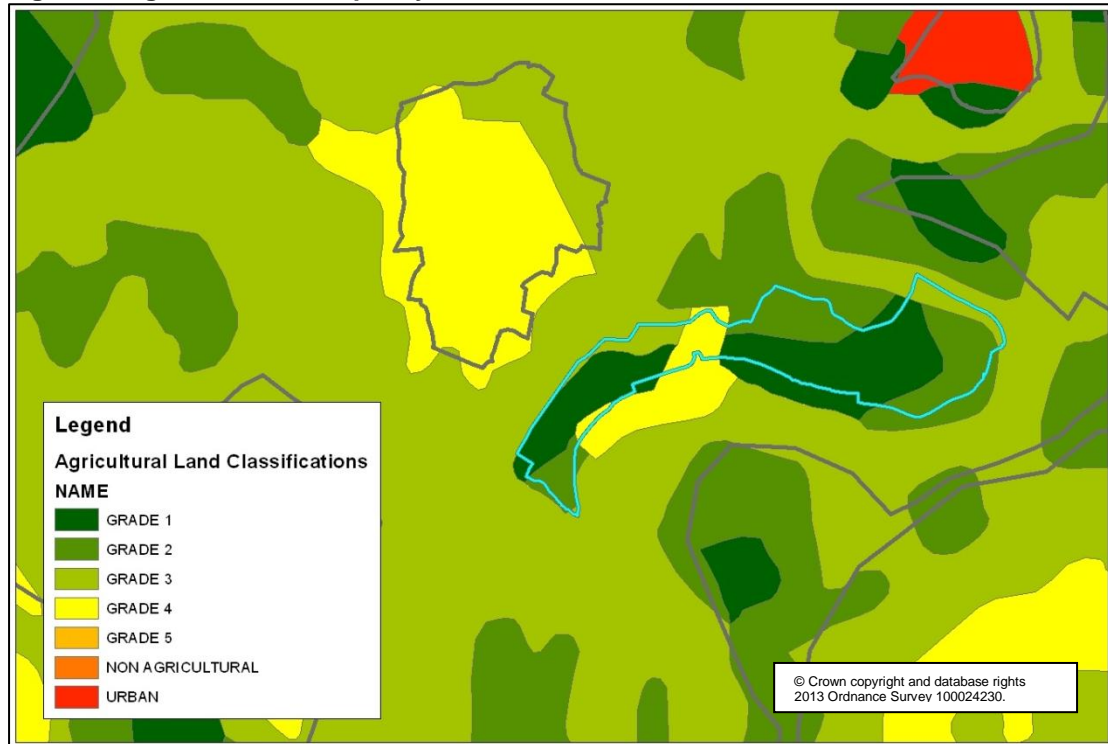
- 2.37. There are no LTP 3 transport priorities identified for the Birlingham ECA.

¹¹ Worcestershire County Council (July 2012) *Planning for a Multifunctional Green Infrastructure Framework in Worcestershire: Green Infrastructure Framework 2*

Agriculture/Forestry

2.38. The agricultural land use in this ECA is dominated by cash crops along the River Avon with some mixed farming towards the western end of the ECA. Agricultural land quality varies across the area, but is dominated by high grade 1-3 land with two small areas of lower quality grade 4 land in the centre and western end of the ECA, as shown in Figure 3.

Figure 3. Agricultural land quality



2.39. The forestry commission's woodland opportunity maps show that this ECA is listed as priority 2 for woodland creation which could benefit landscape character, biodiversity, cultural heritage and/or public access (Figure 4). They also show that the north western edge of the ECA is an ancient woodland landscape but this is not prioritised for woodland restoration (Figure 5).

Figure 4. Woodland creation for landscape, biodiversity, heritage and public access

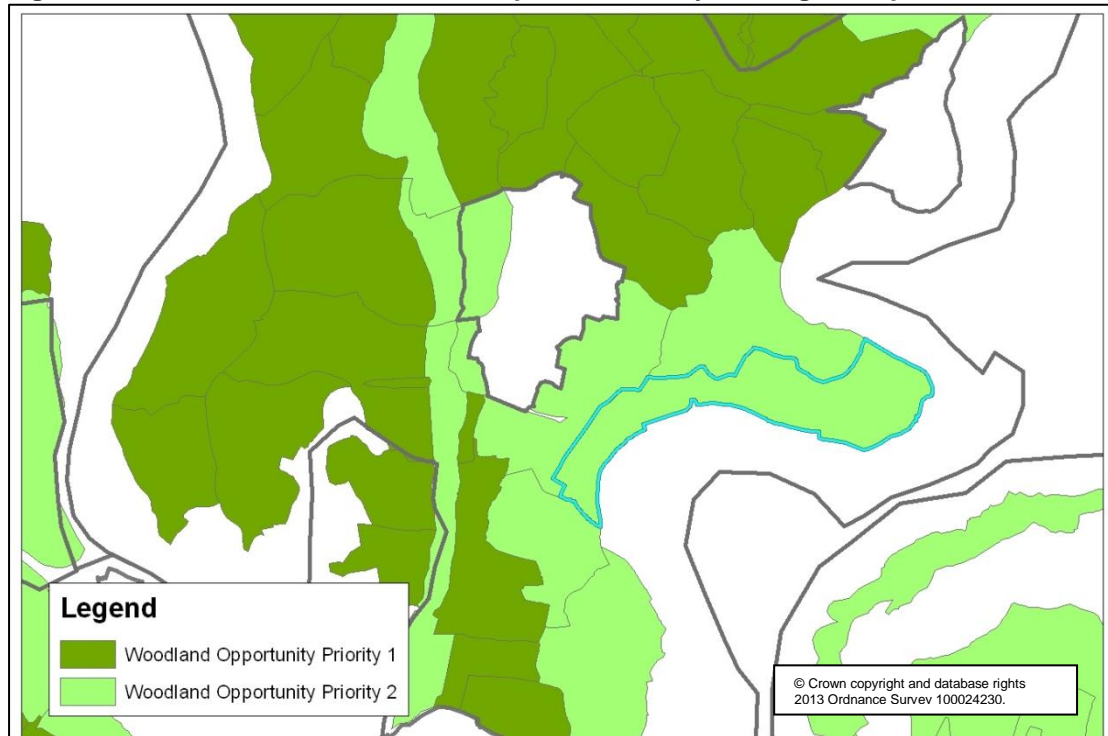
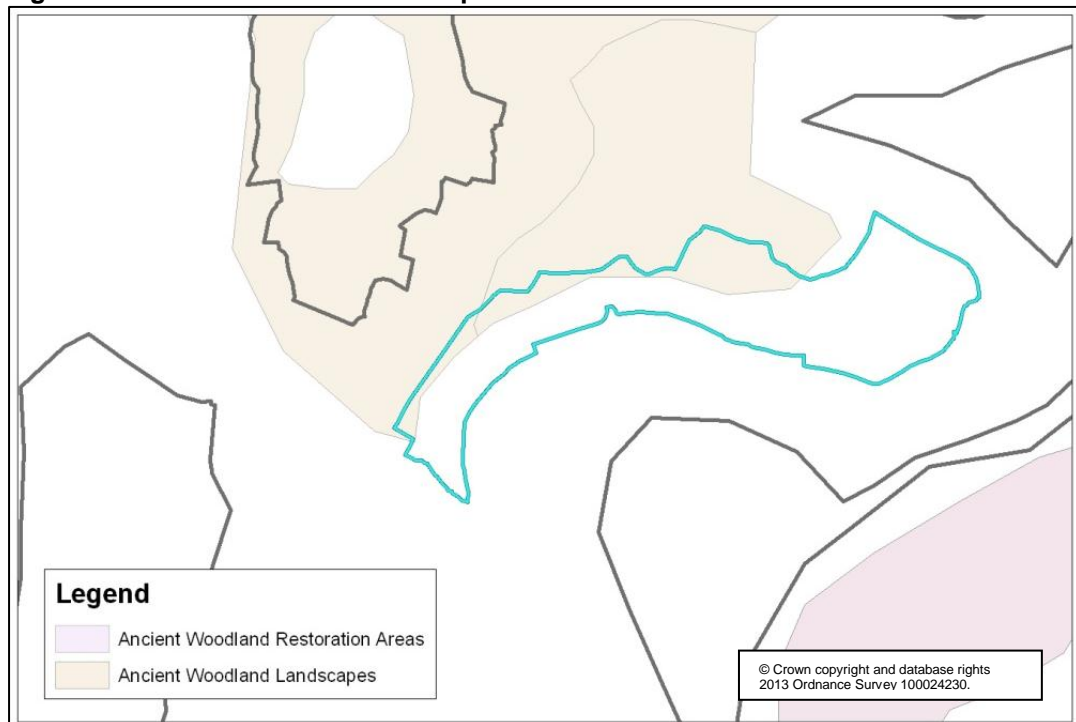


Figure 5. Ancient woodland landscape and restoration



Climate Change

2.40. Some effects of climate change will be similar across the whole county and many of the issues which can be addressed are likely to be common to all ECAs, such as:

- Improving air quality
- Providing flood risk management solutions
- Preventing water and soils pollution as a result of climate change related extreme weather conditions
- Promoting energy efficient and low carbon solutions
- Contributing to renewable energy production

Opportunities and issues

- 2.41. Green Infrastructure features such as buffering of watercourses provide a way of minimising fluvial flooding. Planned landscaping incorporating flood defences could provide both short term benefits and sustainable drainage schemes (SUDS) are a mechanism for managing both fluvial and pluvial flood risk.
- 2.42. Agricultural and horticultural businesses could face damaging water shortages in the coming decades as a result of climate change. In many parts of Worcestershire, water resources are under severe pressure. The majority of catchments in which horticultural production is concentrated have been defined by the Environment Agency as being either over-licensed and/or over-abstracted. Well executed water storage facilities could not only provide water supply for the business in the dry periods but a wide range of green infrastructure benefits such as biodiversity or landscape and opportunities for increased physical activity and exposure to nature.

Socio-economic considerations

- 3.43. The analysis of the socio-economic situation in Worcestershire in this strategy considers the economy and health & well-being at a high level. It is not intended to draw a full picture of the economy or health and well-being in the county, instead it focuses only on the indicators which are of most relevance to green infrastructure:
- **Economy:** unemployment, household income and deprivation levels.
 - **Health and well-being:** health deprivation, heart diseases, obesity, mental health problems and respiratory conditions.
 - **Access to sites for informal recreation:** considers links between informal recreation opportunities and mental and physical well-being.
- 2.44. There is thought to be a link between green infrastructure and some aspects of health. The issues of obesity, respiratory conditions, mental health, heart disease and health deprivation have been considered in this context.
- 2.45. 26% (120,000) of the Worcestershire's adult population is obese and another 40% is overweight. The adult obesity levels in Worcestershire are higher than the national average. The level of childhood obesity is around the national average, at 10% of five year olds and 18% of eleven year olds. In terms of land cover, most of the Worcestershire area has some problems with obesity.

2.46. Obesity and respiratory problems in this county generally follow the same geographical pattern. Mental health problems, by contrast, tend to be found in the and around major settlements. Although mortality rates from cardiovascular diseases are significantly lower than the national rate, patterns of heart diseases are more dispersed than the other health indicators assessed and poor performance is found across the county. Contrary to other health indicators, heart diseases are least prevalent in some of the urban areas.