

# Environmental Character Area Profile for the Minerals Local Plan: 18 Carrant Brook Corridor

## 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 network<sup>1</sup>.

### 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 network<sup>2</sup> will need to be considered.

### Environmental Character Areas<sup>3</sup> 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*

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<sup>1</sup> Green Infrastructure Guidance – Natural England.

<sup>2</sup> Green Infrastructure Guidance – Natural England.

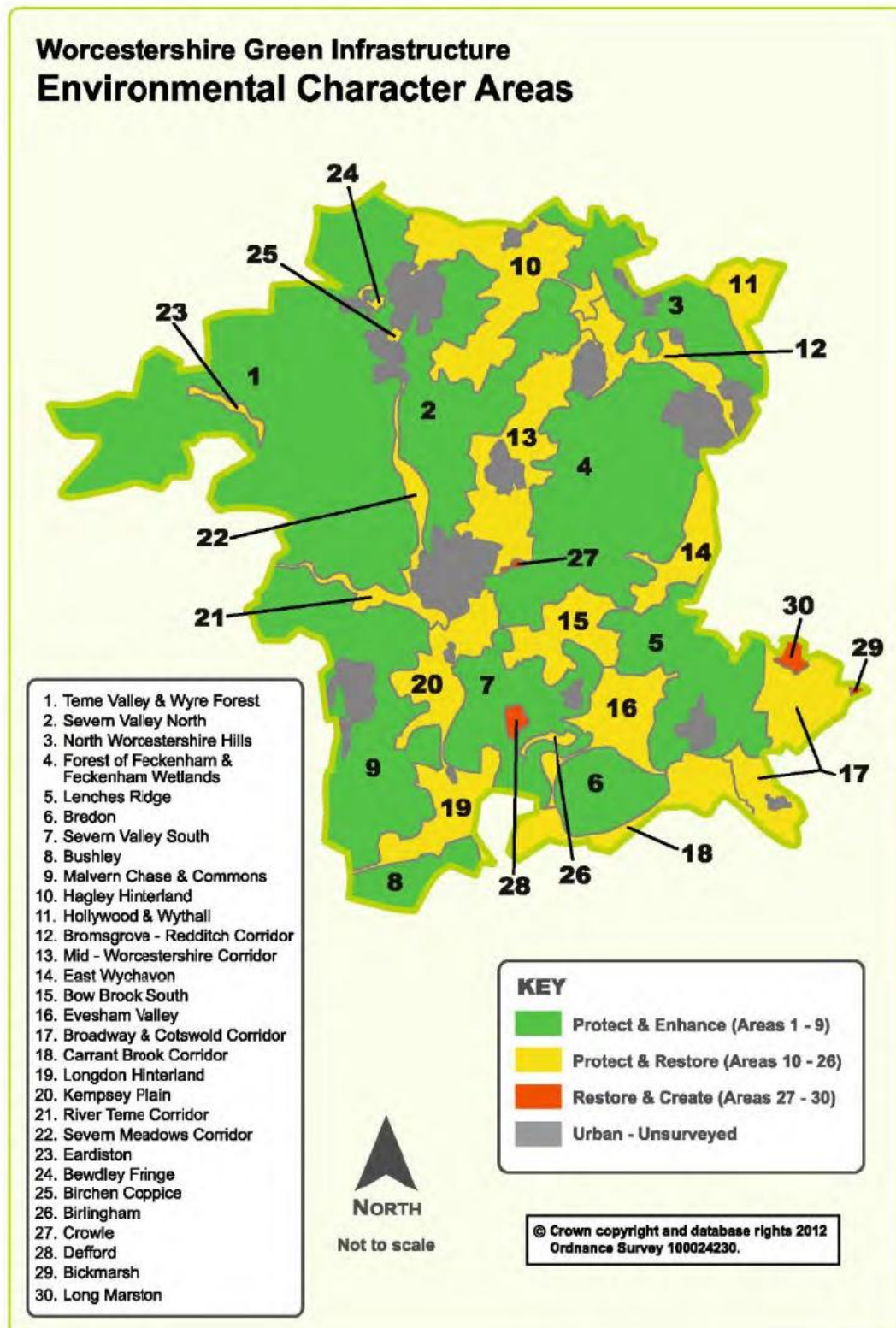
<sup>3</sup> Worcestershire County Council (July 2012) *Planning for a Multifunctional Green Infrastructure Framework in Worcestershire: Green Infrastructure Framework 2*

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

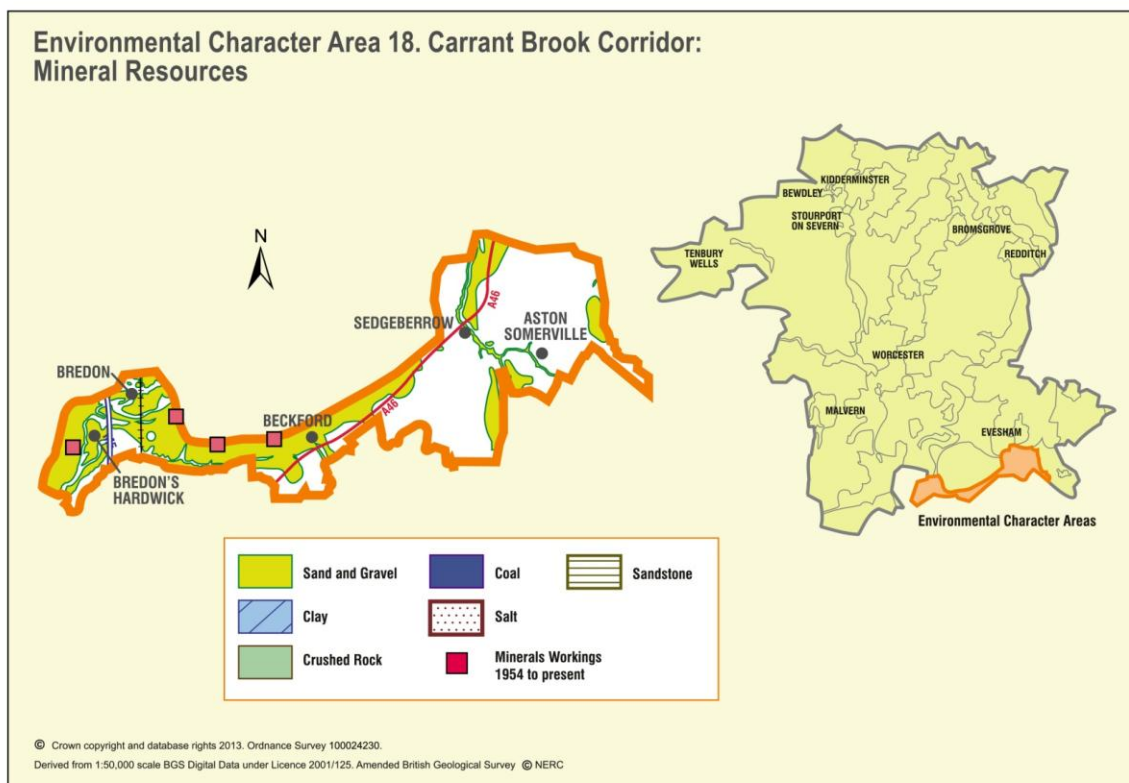
These are illustrated on Figure 1. Environmental Character Areas.

Figure 1. Environmental Character Areas



## 2. Characteristics and priorities of the Carrant Brook Corridor ECA 18

Figure 2. Environmental Character Area 18 Carrant Brook Corridor: 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](http://www.worcestershire.gov.uk/mineralsbackground). The following is therefore only a simple summary.

#### Sand and gravel

2.2. ECA 18 includes substantial sand and gravel deposits. 12 resource areas have been identified. One of which has been designated "key" and seven "significant". Other fan gravels may exist. There were sand and gravel pits within the ECA, at Beckford, Bredon's Hardwick, Kemerton and Aston Mill, until recently.

#### Hard rock

2.3. There is no evidence that suitable strata exist.

## Industrial minerals

### *Clay*

- 2.4. There are extensive deposits of Lower Lias Clay in this ECA but there is little evidence of former workings.

### *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 years<sup>4</sup>. The ECA is adjacent to the "main town"<sup>5</sup> of Evesham and incorporates the Category 1 village of Bredon and Category 2 village of Sedgeberrow<sup>6</sup>.
- 2.9. These and other areas beyond the boundary of the ECA could create demand for minerals in this Environmental Character Area. Particularly Tewkesbury and Ashchurch approximately 3km to the south of the ECA

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<sup>4</sup> 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.

<sup>5</sup> Main towns are second in the five tier settlement hierarchy set out in the South Worcestershire Development Plan proposed submission document. They provide a comprehensive range of local services and employment opportunities. The towns will continue to be the focus of balanced growth in Malvern Hills and Wychavon, with urban extensions and smaller infill allocations along with necessary associated infrastructure.

<sup>6</sup> Category 1, 2 and 3 villages are fourth in the five tier settlement hierarchy set out in the South Worcestershire Development Plan proposed submission document. Their role is predominately aimed at meeting locally identified housing and employment needs. They are therefore suited to accommodate market and affordable housing needs alongside limited employment for local needs. The scale of allocated development is significantly less than that for the urban areas and is aimed at helping to address housing needs and support local services.

which are proposed as strategic or housing allocations in the Gloucester, Cheltenham and Tewkesbury Joint Core Strategy "Developing the Preferred Option" consultation document.

## Green Infrastructure priorities<sup>7</sup>

- 2.10. 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
- 2.11. 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.
- 2.12. The strategic GI approach for the Carrant Brook corridor ECA is to *protect and restore*. The overarching principle identified by the GI partnership is to protect and enhance the Carrant Brook, its water quality and stream side habitats.

## Biodiversity and landscape

- 2.13. The Carrant Brook Corridor Environmental Character Area straddles the boundary between Worcestershire and Gloucestershire just north of Tewkesbury. It falls wholly or partially within the Severn and Avon Vales Biodiversity Delivery Area and the Bow Brook Biodiversity Delivery Area, two of the priority opportunity areas determined by the Worcestershire Biodiversity Partnership for the delivery of county Biodiversity Action Plan targets. Information about the Biodiversity Delivery Areas is available from [www.worcestershire.gov.uk/biodiversity](http://www.worcestershire.gov.uk/biodiversity).
- 2.14. The ECA lies within the south-eastern quadrant of Worcestershire where the predominant Landscape Types are typical of the planned landscapes making up the central part of England. These are organised landscapes, quite different in character to the more organic, ancient landscapes of the west. The county Landscape Character Assessment identifies three Landscape Types within this ECA – Village Claylands, Principal Village Farmlands and Village Farmlands with Orchards.
- 2.15. None of these Landscape Types support woodland, tree cover being confined to sparsely scattered hedgerow and streamside trees. This area was once heavily treed with hedgerow elms and their loss has transformed the character of the landscape. Medium-to-large scale fields are characteristic, separated by hedgerows with scattered hedgerow and streamside trees. The settlement pattern is nucleated with farms being

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<sup>7</sup> Worcestershire County Council (July 2012) *Planning for a Multifunctional Green Infrastructure Framework in Worcestershire: Green Infrastructure Framework 2*

sited within or on the edge of villages and not in the open countryside as is the case in most of the more ancient, western parts of the county.

- 2.16. The Village Claylands are landscapes with heavy, poorly drained soils where the continuing pastoral land use has preserved large areas of ridge and furrow created by medieval cultivation.
- 2.17. The Village Farmlands with Orchards are characterised by apple and plum orchards on their south facing slopes.
- 2.18. The Principal Village Farmlands are more intensively farmed with many cereal and market gardening crops.
- 2.19. There is limited opportunity in these Landscape Types for biodiversity interest, although the Carrant Brook offers potentially important riparian habitat and ground nesting and arable associated birds may be important.
- 2.20. The priority habitats within this ECA are firstly the riparian habitat of the river, followed by lowland meadow (neutral grassland) in the Village Claylands, hedgerows, hedgerow trees and traditional orchards. In intensively farmed areas, connectivity across the landscape with linear corridors consisting of arable field margins, well-managed hedgerows and buffering along streams and ditches is important to allow the movement of species within the farmed landscape.

#### *GI Priorities:*

- 2.21. The landscape and biodiversity priorities identified for the Carrant Brook Corridor ECA are<sup>8</sup>:
  - Protect, enhance and link the key features of interest with measures designed to improve the biodiversity and quality of the brook, and new features in the landscape to create biodiversity stepping stones between Bredon Hill and the Cotswolds.
  - Enhance and protect the hedgerow field boundaries in a planned (or semi-regular in the Claylands) enclosure pattern of medium-to-large fields.
  - Seek opportunities to address density and age structure in linear tree belts along hedgerows, ditches and watercourses in the Meadows or more scattered hedgerow and streamline trees in the Claylands. In the Village Farmlands, hedgerow elms are particularly characteristic. Where elms have been lost, the preferred substitute is oak.
  - Cropping land use here is characteristic with (often domestic) orchards and lines of fruit trees (mostly damson) forming notable features which should be retained and enhanced. New planting should consider traditional local varieties.
  - Elsewhere, opportunities should be sought to retain pastoral land use that offers protection to the characteristic Ridge and Furrow in the Village Claylands and that supports natural river and flood plain function in the Riverside Meadows.

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

## Geodiversity

- 2.22. There is one geological SSSI in this ECA, Beckford Gravel Pit. This site is part of a large complex of gravel workings near Beckford. These workings are in fan gravels associated with run-off from Bredon Hill into the valley of the Carrant Brook, grading into the 'Beckford Terrace' of that river. These gravels have yielded mammalian remains and Palaeolithic artifacts, which reinforce the correlation of the Beckford Terrace with Avon Terrace 2 and the 'Main Terrace' of the Severn. All these are generally assigned to the mid-Devensian (last glacial period), as radiocarbon dates from Beckford confirm. These dates were obtained from plant remains in silt beds within the gravel sequence, beds which also yielded beetle and mollusc remains.
- 2.23. The Beckford site is therefore of considerable importance to the Upper Pleistocene stratigraphy and chronology of the English Midlands. The site is also important in demonstrating inter-relationships of slope, terrace and floodplain deposits which are significant for interpreting environmental change and palaeohydrology in the Severn basin during the Late Devensian. The deposits include solifluction and slope wash sediments with reactive surfaces indicating episodic activity, and these interdigitate down valley with fluvial lithofacies. The site illustrates particularly well the contribution of slope processes to valley sedimentation and the complex interaction of slope and fluvial processes.

## Historic Environment<sup>9</sup>

- 2.24. This area has a very high archaeological potential with extensive and complex archaeological sites and deposits dating from the Palaeolithic, Mesolithic and later prehistoric, through to the Romano British and early medieval periods. The Carrant Brook appears to have been a focus for settlement and activity, and sites extend almost continuously along its northern banks. Geological variation means that while there is little recorded from the southern banks, the potential should be regarded as equally high. There are two scheduled ancient monuments of settlement sites, however the area has been the focus for sand and gravel extraction for a long time, and many areas have been affected without archaeological recording.
- 2.25. The historic landscape character has mostly been influenced by planned enclosure of the lower slopes of Bredon Hill although earlier prehistoric land division does provide an underlying trend. Field patterns and the landscape in general have been modified as a result of post-extraction land restoration.
- 2.26. In 1954 and 1958/9 two Anglo-Saxon cemeteries were excavated at Carrant Brook Quarry, Overbury and Conderton (Evison and Hill 1996),

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<sup>9</sup> 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.



but the full archaeological potential of these terraces was not properly recognised until the mid 1960's when as a result of aerial reconnaissance (Webster and Hopley 1964) numerous cropmark complexes were recorded representing later prehistoric and Romano-British enclosures, field systems and a range of other sites, including potential Neolithic and Early Bronze Age monuments.

- 2.27. Rescue excavations followed along the Carrant Valley as a result of the threat of quarrying to several of these cropmark sites. During the late 1960's and through the 1970's major Iron Age settlement remains and small Romano-British cemetery site were extensively recorded at Beckford (Oswald 1974; Britnell 1975; Wills forthcoming). To the west, in the 1980's targeted rescue excavations covered a small part of a large quarried area at Aston Mill Quarry, Kemerton revealing early prehistoric artefacts, pits and ring-ditches along with Iron Age, Romano-British and Anglo Saxon period settlement remains (Dinn and Evans 1990). More recently a staged evaluation of a site at Huntsman's Quarry, Kemerton during the mid 1990's resulted in an extensive programme of salvage recording of a Late Bronze Age settlement as well as Neolithic and Beaker period features (Napthan et al 1997a; Jackson 2005).

#### *GI Priorities:*

- 2.28. The historic environment priorities identified for the Carrant Brook corridor ECA are<sup>10</sup>:
- Explore opportunities to protect and reduce the erosion risk to below ground archaeology associated with extensive prehistoric and Romano-British settlement on the lower slopes of Bredon Hill and the gravel terraces of the Carrant Brook.
  - Protect below ground deposits of high palaeoenvironmental potential associated with alluvial soils adjacent to the Carrant Brook.

#### Blue Infrastructure

- 2.29. The main watercourses in ECA 16 are the river Avon but the Merry Brook, Piddle Brook and River Isbourne and other, un-named watercourses, also pass through it. The principal flood risks are from the River Avon in Evesham (outside the ECA itself) and the River Avon and its tributary Piddle Brook to the land east of, and including, Pershore (outside the ECA itself). The Water Cycle for the SWDP specifically notes that Wychavon LPA considers that Little Comberton is not defended to a satisfactory standard. There is also a general risk from surface water flooding from sewers and overland flow.
- 2.30. 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

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

flooding is not considered to be a major issue in the South Worcestershire Joint Core Strategy area.

- 2.31. 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**

- 2.32. Apart from a small area near Sedgeberrow, this ECA is categorised as having water company point source and agricultural/rural diffuse pollution pressure.
- 2.33. The River Avon and Merry Brook have a moderate ecological potential. The River Isbourne, poor. All contain unacceptable levels of phosphorus to be able to achieve a good status. The River Isbourne is also classified as having poor levels of fish contributing to its poor classification.
- 2.34. The River Avon that flows through the west of Evesham and Merry Brook have failed the Chemical Assessment under the WFD due to unacceptable levels of Benzo(ghi) perelyne and indeno (123-cd) pyrene.
- 2.35. Groundwater status is good in this ECA.
- 2.36. **Water supply:** there is no water available.

### *GI Priorities:*

- 2.37. The blue infrastructure priorities identified for the Carrant Brook corridor ECA are<sup>11</sup>:
- Reduce dependence on raised flood defences, as this is unsustainable in the long term, by taking 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. This requires redevelopment to be limited to flood-compatible land-uses e.g. parkland).
  - Some designated 'aquatic conservation' sites are in unfavourable condition. Activities that affect these sites must be changed to improve their condition.
  - Ensure that the run-off from all proposed development is minimised. For example, SUDS must be encouraged and targeted within planning approvals.
  - Encourage the retro-fitting of SUDS where surface water flooding is already a problem.
  - Support ecological improvements. Examples of this include Severn & Avon Wetlands Project; Natural England's three fluvial SSSIs; Cotswold AONB.

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

### Access, informal recreation and tourism

- 2.38. 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.
- 2.39. There are no sub-regional recreation assets in this ECA, however a section of the Wychavon Way, a 40 mile recreation route, passes through the east of this ECA.
- 2.40. 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.
- 2.41. 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.
- 2.42. Tourist attractions in the ECA include Bredon Barn National Trust property and Beckford Silk.

### *GI Priorities:*

- 2.43. The access and recreation priorities identified for the Carrant Brook corridor ECA are<sup>12</sup>:
- Consider the proximity to and ability to integrate with the rights of way network, recreational way-marked routes and the cycle network;
  - 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.

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<sup>12</sup> Worcestershire County Council (July 2012) *Planning for a Multifunctional Green Infrastructure Framework in Worcestershire: Green Infrastructure Framework 2*

## Transport

### *Road*

- 2.44. The M5 motorway crosses the western end of the ECA with Junction 8 for the M50 outside the ECA to the north and Junction 9 for Tewkesbury and Ashchurch to the South.
- 2.45. The A46 crosses the ECA, connecting Evesham to the north east with Junction 9 and Tewkesbury to the south west. Other roads in this Environmental Character Area are more minor.
- 2.46. 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*

- 2.47. The Birmingham-Bristol Line runs across the western end of this ECA, connecting Worcester and Cheltenham, with Ashchurch Station just outside the ECA to the south. The Ashchurch defence storage and distribution centre is to the south of the ECA in Gloucestershire and is served by railway sidings.

### *Water*

- 2.48. There are no navigable waterways in the ECA.

### *GI Priorities:*

- 2.49. The GI transport priorities identified for the Carrant Brook corridor ECA are<sup>13</sup>:
- 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:*

- 2.50. There are no LTP 3 transport priorities identified for the Carrant Brook ECA.

## Agriculture/Forestry

- 2.51. The majority of the land use in this ECA is cash cropping with some mixed farming. Cash cropping covers market gardening as well as arable farming and is strongly associated with the Vale of Evesham, where, on soils ranging from heavy Lias clay to freely draining river terrace gravels, and

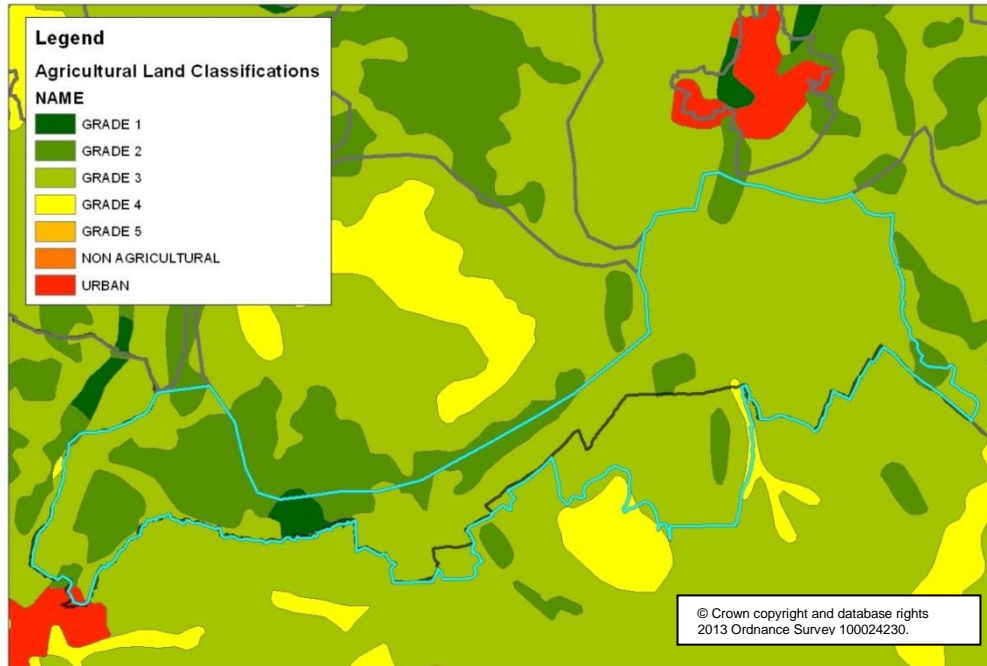
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<sup>13</sup> Worcestershire County Council (July 2012) *Planning for a Multifunctional Green Infrastructure Framework in Worcestershire: Green Infrastructure Framework 2*

on holdings ranging in size from a few acres to over a thousand, almost every variety of market garden crop is grown.

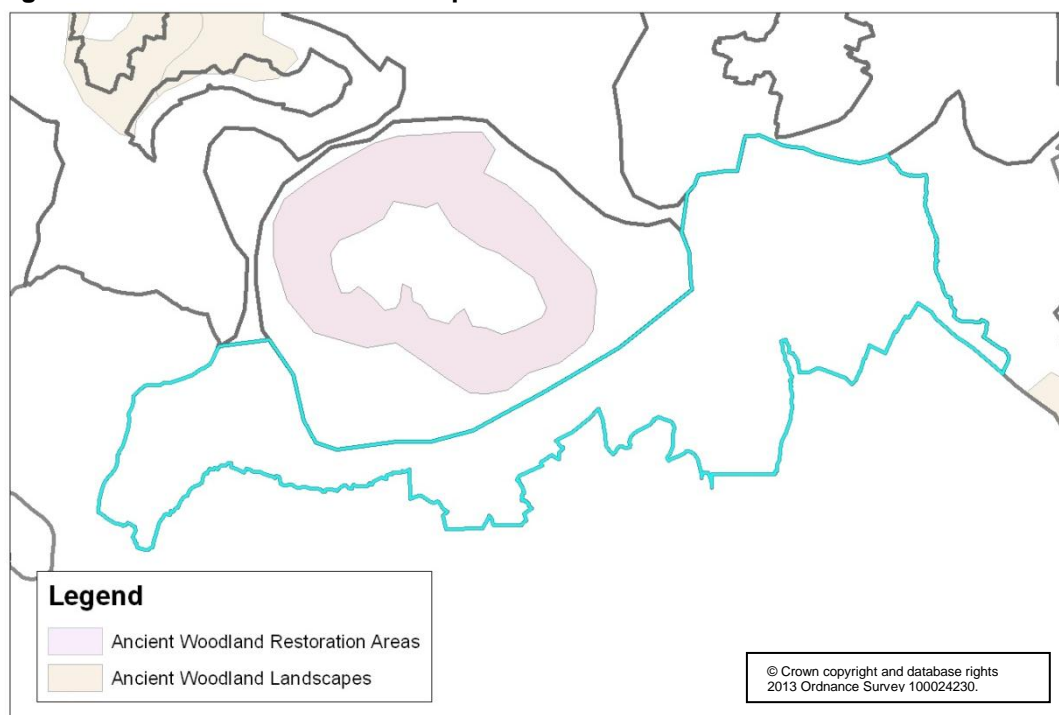
- 2.52. Agricultural land quality varies across the area, but is dominantly medium-quality grade 3 land. There are some areas of higher quality grade 2 land and a small area of grade 1 land present, largely in the western end of the ECA, as shown in Figure 3.

**Figure 3. Agricultural land quality**



- 2.53. The forestry commission's woodland opportunity maps show that this ECA is not listed as a priority area for woodland creation which could benefit landscape character, biodiversity, cultural heritage and/or public access. They also show that the ECA is not identified as an ancient woodland landscape (Figure 4).

**Figure 4. Ancient woodland landscape and restoration**



### Climate Change

2.54. 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**

2.55. 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.

2.56. 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.

- 2.57. The soil types in part of the east and much of the west of this ECA are inherently at risk of subsidence and heave. It is possible that changes in weather patterns as a result of climate change may worsen these tendencies.
- 2.58. Locally significant areas of heathland, bracken and conifer woodland in this ECA are amongst the habitats most at risk from fire as a result of climate change.

### Socio-economic considerations

- 2.59. 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.
- 2.60. 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.
- 2.61. 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. This ECA is however one of the better performing areas in the county in this regard.
- 2.62. 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.
- 2.63. The overarching principles identified by the GI partnership regarding socio-economic matters for this ECA are:

- Opportunities for enhancements to both health and economic wealth.
- Address health issues including heart diseases and respiratory problems.
- low household income and unemployment are the major economic issues.