



Worcestershire  
Minerals Local Plan

# Fourth Stage Consultation



# Contents

<b>How you can get involved</b> .....	<b>7</b>
Respond to this document.....	8
<b>1. Introduction</b> .....	<b>11</b>
The scope of the Minerals Local Plan.....	12
Relationship with other regulatory regimes .....	13
The process.....	13
<b>2. Portrait of Worcestershire</b> .....	<b>15</b>
Context .....	15
Worcestershire’s mineral resources.....	17
Worcestershire’s transport network.....	33
Worcestershire’s economy .....	36
Worcestershire’s environment .....	36
Health and well-being .....	47
Access and recreation .....	47
<b>3. Vision and objectives</b> .....	<b>49</b>
Introduction.....	49
Key issues for the Worcestershire Minerals Local Plan .....	49
A vision for the winning, working and lasting legacy of minerals development in Worcestershire to 2035 and beyond .....	52
Objectives of the Worcestershire Minerals Local Plan .....	52
<b>4. Spatial strategy (strategic policies)</b> .....	<b>53</b>
Introduction.....	53
Strategic location of development.....	54
Borrow pits.....	59
Green infrastructure.....	61
Strategic corridor priorities .....	65

<b>5. Supply of mineral resources (strategic policies)</b> .....	<b>103</b>
Introduction .....	103
Contribution of substitute, secondary and recycled materials and mineral wastes to overall minerals supply .....	104
Aggregate supply .....	104
Industrial minerals supply .....	108
Energy minerals supply .....	113
<b>6. Development management (non-strategic policies)</b> .....	<b>115</b>
Introduction .....	115
Prudent use of resources .....	117
Green Belt .....	120
Amenity .....	122
Access and recreation .....	128
Biodiversity .....	131
Historic Environment .....	134
Landscape .....	137
Soils .....	140
Best and most versatile agricultural land .....	142
Geodiversity .....	144
Water quality and quantity .....	146
Flooding .....	148
Transport .....	150
Planning obligations .....	152
<b>7. Safeguarding mineral resources and supporting infrastructure (strategic policies)</b> .....	<b>154</b>
Introduction .....	154
Safeguarding locally and nationally important mineral resources .....	156
Safeguarding mineral sites and supporting infrastructure .....	164
<b>8. Implementation and monitoring framework</b> .....	<b>169</b>
Responsibilities for implementation .....	169
Delivering the objectives: risk assessment .....	170
Monitoring framework .....	176

<b>Appendix 1: Superseded policies .....</b>	<b>193</b>
<b>Appendix 2: Identifying and defining the strategic corridors .....</b>	<b>194</b>
Justification for identifying strategic corridors .....	194
Identifying the strategic corridors: distribution of mineral resources .....	195
Identifying the strategic corridors: green infrastructure components .....	196
Precise corridor boundaries .....	198
<b>Appendix 3: Glossary .....</b>	<b>200</b>
<b>Appendix 4: Glossary .....</b>	<b>211</b>





Minerals Local Plan consultation open day

## How you can get involved

This document is the Fourth Stage Consultation on the Minerals Local Plan for Worcestershire. It has been prepared as part of the development of the Minerals Local Plan for Worcestershire which will replace current mineral planning policy in the county.

Worcestershire County Council, the Mineral Planning Authority for Worcestershire, has undertaken three previous consultations on the development of the Minerals Local Plan and, alongside these, has consulted on the evidence base that has informed the plan. The comments received in response to these consultations have been taken into account to inform this Fourth Stage Consultation on the Minerals Local Plan. They have given a strong guide to the plan's strategic direction alongside other plans, strategies and local considerations that need to be taken into account.

## Respond to this document

This Fourth Stage Consultation document is a full draft of the plan. It sets out proposed wording for the Minerals Local Plan to enable comments to be made on the principles of the plan, the locations for mineral development and the specific issues that the policies seek to address.

Consultation on this document will run until **Friday 8th February 2019**.

You do not have to answer all of the questions. If you only wish to comment on specific issues please feel free to do so.

It should be noted that **all responses to this consultation will be made public** on the council's website. Respondent's addresses will not be published.

Responses to the Fourth Stage Consultation will be taken into account in the preparation of the Proposed Submission Version of the Minerals Local Plan. Once this is prepared there will be a six week consultation which asks whether the plan complies with national requirements and legislation. The Council will then submit the plan to the Secretary of State who will appoint an independent inspector to examine the document.

This consultation seeks to answer the following questions (these are broken down further in the consultation questionnaire):

**1. Does the plan set the appropriate priorities to address the key issues for mineral planning in Worcestershire?**

This relates to the strategic direction of the plan, particularly whether the vision, objectives and spatial strategy are appropriate to achieve the aims of national policy and are responsive to local considerations.

**2. Are any wording changes required to improve the clarity of the policies or reasoned justification?**

Decision making depends on the detailed wording of the plan. This consultation document provides a full draft of the proposed wording of the plan to enable you to comment on specific issues.

This means that, although it is phrased as if it has been adopted by Worcestershire County Council, it remains a consultation document.

**3. Are there any other issues which the plan needs to consider?**

This is the last opportunity to comment on any aspect of the plan. Although there will be further consultation, the next stage is limited to asking whether the plan complies with national requirements and legislation.

The consultation questionnaire is available at: [www.worcestershire.gov.uk/minerals](http://www.worcestershire.gov.uk/minerals)

You can request a paper questionnaire by contacting [minerals@worcestershire.gov.uk](mailto:minerals@worcestershire.gov.uk) or (01905) 766374, and copies are available at libraries in Worcestershire.

All responses must be made in writing. Please return any questionnaires to us by email or by post by **Friday 8th February 2019**.

Email: [minerals@worcestershire.gov.uk](mailto:minerals@worcestershire.gov.uk)

Post: FREEPOST RTHC-XXCK-AJGY  
Mineral Planning Policy  
Worcestershire County Council  
County Hall  
Spetchley Road  
Worcester  
WR5 2NP

**Come to our open day**

If you have any questions, come and talk to us at our open day. We will be at **The Hive, Worcester**, from 2pm - 8pm on Monday 21st January 2019.

This session is designed for residents, Parish Councils and other interested parties to drop-in and ask us any questions about the consultation.

**Give us a call**

Talk to a member of the Minerals Planning Policy Team on (01905) 766374.



**At previous stages:**

**Autumn - Winter 2012: First Stage Consultation**

You helped us to identify the issues which are important in Worcestershire and we used your comments to develop subsequent consultation documents and the evidence base.

**Autumn 2013 - Spring 2014: Second Stage Consultation**

You helped us to:

- Establish the Vision and Objectives
- Develop an overarching “Spatial Strategy” to direct future minerals development
- Identify how much mineral we need to make provision for and when it will be required
- Identify the issues that should be addressed through policies on:
  - How minerals should be worked
  - Where minerals should be worked
  - How mineral sites should be restored
  - How minerals should be safeguarded for the future.

**Summer 2014 and Summer 2015: Call for Sites**

You gave us information about mineral resources and sites that you thought might be viable to work during the life of the plan.

**Autumn 2016 - Spring 2017: Third Stage Consultation and 3rd Call for Sites**

You commented on the draft vision, objectives and spatial strategy, the issues considered, the drafting of the policies and proposed locations for mineral development (including potential mineral sites and green infrastructure priorities for each strategic corridor).

**Autumn 2016 - Early 2018: 4th Call for Sites**

We undertook another call for sites because of the issues you raised in response to the Third Stage Consultation. You gave us information about additional sites that you thought might be viable to work during the life of the plan.

**At this stage:**

**Winter 2018/19: Fourth Stage Consultation**

Winter 2018-19: Fourth Stage Consultation

We have amended the plan based on the comments you made on the Third Stage Consultation and changes in national policy.

You can help us by commenting on whether the plan sets the appropriate priorities to address the key issues for mineral planning in Worcestershire, whether any wording changes are needed to improve the clarity of the policies,

or whether there are any other issues which the plan needs to consider.

A Mineral Site Allocations Development Plan Document will be prepared separately to the Minerals Local Plan, and you can help us by commenting on the proposed method for identifying specific sites and preferred areas.

**At later stages:**

**Pre-submission Consultation**

You will have six weeks to tell us if you think that the Minerals Local Plan complies with national requirements and legislation.

**Examination in Public**

We will submit the Minerals Local Plan to the Secretary of State who will appoint an independent Inspector to look at whether they think the Minerals Local Plan complies with national requirements and legislation.

**Adoption**

If the Inspector approves the Minerals Local Plan the Council will decide whether to adopt it and make it official planning policy for the county. This is a decision made by the elected members of the Council.

After this decision has been made there is a six-week period where the decision can be legally challenged.





Aggregate use in road construction (Newtown Road, Worcester)

## 1. Introduction

- 1.1 Minerals are an essential raw material in our daily lives contributing £235bn annually to the national economy from mineral extraction, products manufacture and first use markets<sup>1</sup>. Minerals enable us to build our houses, schools, hospitals, roads and railway lines. Different types of minerals are used for different things:
- **Aggregate minerals** (sand, gravel and crushed rock) are used without much treatment for building, such as roads and houses. A typical new house uses approximately 60 tonnes of aggregate from the foundations through to the roof tiles<sup>2</sup>.
  - **Industrial minerals** are used to manufacture products. These include special types of sand for making glass, clay for making bricks and ores for metals.
  - **Energy minerals** such as coal, oil and gas are used for fuel.
- 1.2 Mineral deposits occur naturally due to variations in geology. They are finite resources which are not evenly distributed. In Worcestershire, there are deposits of sand and gravel, some types of rock, brick clay, silica sand, and salt.
- 1.3 Worcestershire County Council is a Mineral Planning Authority, meaning that it is responsible for making decisions on planning applications for mineral development in Worcestershire<sup>3</sup>. The Minerals Local Plan sets out the long-term planning strategy for mineral development in Worcestershire to 2035 and beyond<sup>4</sup>. It seeks to enable sustainable development by balancing economic and social need for minerals against any potential social and environmental harm, and seeks to maximise the potential for social, economic and environmental benefits to be realised. Planning applications must be determined in accordance with the Development Plan unless material considerations indicate otherwise<sup>5</sup>.

1 Annual total GVA of mineral extraction, products manufacture and first use markets. Source: *UK Minerals Strategy* (July 2018). The *UK Minerals Strategy* was prepared by the UK minerals and mineral products industry, facilitated by members of the CBI Minerals Group and the Mineral Products Association.

2 *British Geological Survey* (2008) *The need for indigenous aggregates production in England*, <https://www.bgs.ac.uk/downloads/start.cfm?id=1373>. This does not include any requirements for infrastructure supporting housing development or the significant amount used in maintaining or refurbishing existing housing stock. Estimates of the amount of mineral resource required per house when supporting infrastructure, such as access roads, is taken into account (averaged per house on the development) ranges between 200 tonnes (Mineral Products Association (2016) *The Minerals Products Industry at a Glance*, [http://www.mineralproducts.org/documents/Mineral\\_Products\\_Industry\\_At\\_A\\_Glance\\_2016.pdf](http://www.mineralproducts.org/documents/Mineral_Products_Industry_At_A_Glance_2016.pdf)) and 400 tonnes (*British Geological Survey* (2008) *The need for indigenous aggregates production in England*, <https://www.bgs.ac.uk/downloads/start.cfm?id=1373>).

3 *Town and Country Planning Act 1990*.

4 This will cover a 15 year period from anticipated adoption, in line with national policy.

5 *Planning and Compulsory Purchase Act 2004*.

## The scope of the Minerals Local Plan

- 1.4 The Minerals Local Plan is part of the statutory Development Plan for Worcestershire and applies to the whole of the county. The Development Plan is also made up of Development Plan Documents that have been prepared by the County Council and the City, Borough and District Councils in Worcestershire, plus adopted Neighbourhood Plans in the county. The National Planning Policy Framework and Planning Practice Guidance are material considerations in planning decisions and must be taken into account in the preparation of local and neighbourhood plans, including the Minerals Local Plan. The Minerals Local Plan should be read as a whole and should be considered alongside Local Plans as prepared by the City, Borough and District Councils within Worcestershire, the Waste Core Strategy and adopted Neighbourhood Plans as relevant to the site, as well as any other relevant international, national, and local policies.
- 1.5 The Minerals Local Plan will be used by the Mineral Planning Authority to determine applications for mineral development, including proposals for new sites or extensions to existing sites for mineral extraction, processing hubs, storage, stockpiling or transportation of minerals, and proposals to amend planning conditions at existing sites. The City, Borough and District Councils in Worcestershire will also use it to make decisions on planning applications for other types of development to ensure that it will not sterilise mineral resources or supporting infrastructure.
- 1.6 The Mineral Planning Authority will take a positive approach to sustainable mineral development. Applicants are encouraged to engage in pre-application discussions before submitting their proposals. Pre-application discussion can help to facilitate applications through the planning process by highlighting issues which need to be considered at an early stage.
- 1.7 This Minerals Local Plan supersedes the previous mineral planning policies for Worcestershire which were set out in the 1997 County of Hereford and Worcester Minerals Local Plan (see Appendix 1).
- 1.8 The Minerals Local Plan provides an overview of relevant issues in the county to help plan effectively for the future. It sets out a long-term vision for mineral development in Worcestershire to 2035 which integrates economic, social and environmental aims and responds to local issues. Detailed objectives have been developed to help guide the realisation of the vision. These objectives direct the policies and form the basis of the monitoring framework.
- 1.9 The plan provides the framework to assess any form of mineral development, but focuses on the mineral resources which are most prevalent in the county and have the highest likelihood of being suitable and commercially attractive for extraction during the lifetime of the plan. It contains strategic policies for where minerals development should take place and the expected level of provision required for a steady and adequate supply of aggregate minerals and an appropriate supply of industrial minerals from Worcestershire. It also includes development management policies to deliver sustainable mineral development, addressing the whole life of a mineral development from inception to after-use. The Minerals Local Plan also contains policies to ensure that mineral resources of local and national importance and supporting infrastructure are not sterilised by non-minerals development where this should be avoided.
- 1.10 Additional policies relating to the recovery, treatment, storage, processing, sorting, transfer or deposit of mineral wastes and secondary and recycled materials are set out elsewhere in the development plan. At the time of adoption this is the Waste Core Strategy for Worcestershire Adopted Waste Local Plan 2012 – 2027<sup>6</sup>.
- 1.11 Implementation of the Minerals Local Plan will be monitored throughout its lifetime through the Authority Monitoring Report<sup>7</sup>. It will be reviewed at least once every five years to ensure that policies remain relevant and effectively address the needs of the local community<sup>8</sup>.

<sup>6</sup> Available on Worcestershire County Council's Waste Core Strategy webpage [www.worcestershire.gov.uk/wcs](http://www.worcestershire.gov.uk/wcs).

<sup>7</sup> Worcestershire's Minerals and Waste Development Framework *Authority Monitoring Reports* can be viewed at [www.worcestershire.gov.uk/amr](http://www.worcestershire.gov.uk/amr).

<sup>8</sup> Regulation 10A of The Town and Country Planning (Local Planning) (England) Regulations 2012 (as amended).

## Relationship with other regulatory regimes

- 1.12 The planning and other regulatory regimes are separate but complementary. The planning system controls the development and use of land in the public interest and is responsible for ensuring that new development is appropriate for its location, taking account of the effects (including cumulative effects) of pollution on health, the natural environment or general amenity, and the potential sensitivity of the area or proposed development to adverse effects from pollution.
- 1.13 In doing so the focus of the planning system should be on whether the development itself is an acceptable use of the land, and the impacts of those uses, rather than any control processes, health and safety issues or emissions themselves where these are subject to approval under other regimes. Mineral planning authorities should assume that these non-planning regimes will operate effectively.

## The process

- 1.14 The Minerals Local Plan has been shaped in consultation with communities, businesses and other organisations. It has been informed by a robust evidence base and consideration of local circumstances set out in the background and information documents prepared by the Worcestershire County Council:
- Analysis of mineral resources in Worcestershire
  - Biodiversity and mineral sites in Worcestershire: Guidance for the sustainable management of biodiversity action plan habitats at Worcestershire mineral sites
  - Building stone in Worcestershire
  - Catchment Based Management in Worcestershire Technical Background Document
  - Clay in Worcestershire
  - Coal mining in Worcestershire

- Conventional and unconventional hydrocarbons (oil and gas; excluding coal)
- Crushed rock in Worcestershire
- Crushed Rock Supply in Worcestershire – Summary of action undertaken under the duty to cooperate
- Local Aggregates Assessment
- Location of development: screening and site selection methodology
- Minerals and climate change
- Minerals and waste development framework annual monitoring reports
- Profile documents for environmental character areas
- Rail freight
- Salt and brine in Worcestershire
- Sand and gravel in Worcestershire
- Silica sand in Worcestershire
- The Malvern Hills Acts
- Water transport

These documents are available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

- 1.15 The plan has also been informed by the county's Local Transport Plan and Green Infrastructure Strategy, as well as the adopted and emerging Local Plans and Neighbourhood Plans in the county.
- 1.16 The Worcestershire Minerals Local Plan takes a locally distinctive approach and is guided by policies prepared internationally, nationally and locally. Partnership working and cooperation have been key to this approach, with continued engagement from members of the Local Nature Partnership building on the strong foundations developed in the preparation of other parts of the development plan.



Restored sand and gravel quarry, Retreat Farm near Grimley

1.17 The Minerals Local Plan has been subjected to a series of assessments during its development, and their findings have influenced subsequent stages of development:

- **Sustainability Appraisal**

- Sustainability Appraisal Scoping Report (alongside the First Stage Consultation on the Minerals Local Plan)
- Initial Sustainability Appraisal (alongside the Second Stage Consultation on the Minerals Local Plan)
- Sustainability Appraisal Environmental Report (alongside the Third Stage Consultation on the Minerals Local Plan)
- Sustainability Appraisal Fourth Stage Environmental Report (alongside the Fourth Stage Consultation on the Minerals Local Plan)

- **Habitats Regulations Assessment**

- Habitats Regulations Assessment Scoping Report (alongside the Second Stage Consultation on the Minerals Local Plan)
- Habitats Regulations Assessment report prepared alongside the Third Stage Consultation on the Minerals Local Plan
- Habitats Regulations Assessment report prepared alongside the Fourth Stage Consultation on the Minerals Local Plan

- **Strategic Flood Risk Assessment**

- Surface and Ground Water Protection Issues, including Flood Risk Assessment of Submitted Sites (alongside the Third Stage Consultation on the Minerals Local Plan)
- Surface and Ground Water Protection Issues, including Flood Risk Assessment of Fourth Stage Consultation (alongside the Fourth Stage Consultation on the Minerals Local Plan)

- **Equality Impact Assessment**

- Equality Impact Assessment Desktop Screening (alongside the First Stage Consultation on the Minerals Local Plan)
- Equality Impact Assessment Updated Desktop Screening (alongside the Third Stage Consultation on the Minerals Local Plan plans and policies)
- Equality Impact Assessment Updated Desktop Screening (alongside the Fourth Stage Consultation on the Minerals Local Plan plans and policies)

- **Health Impact Assessment**

- Health Impact Assessment (assessing the Third Stage Consultation on the Minerals Local Plan)



## 2. Portrait of Worcestershire

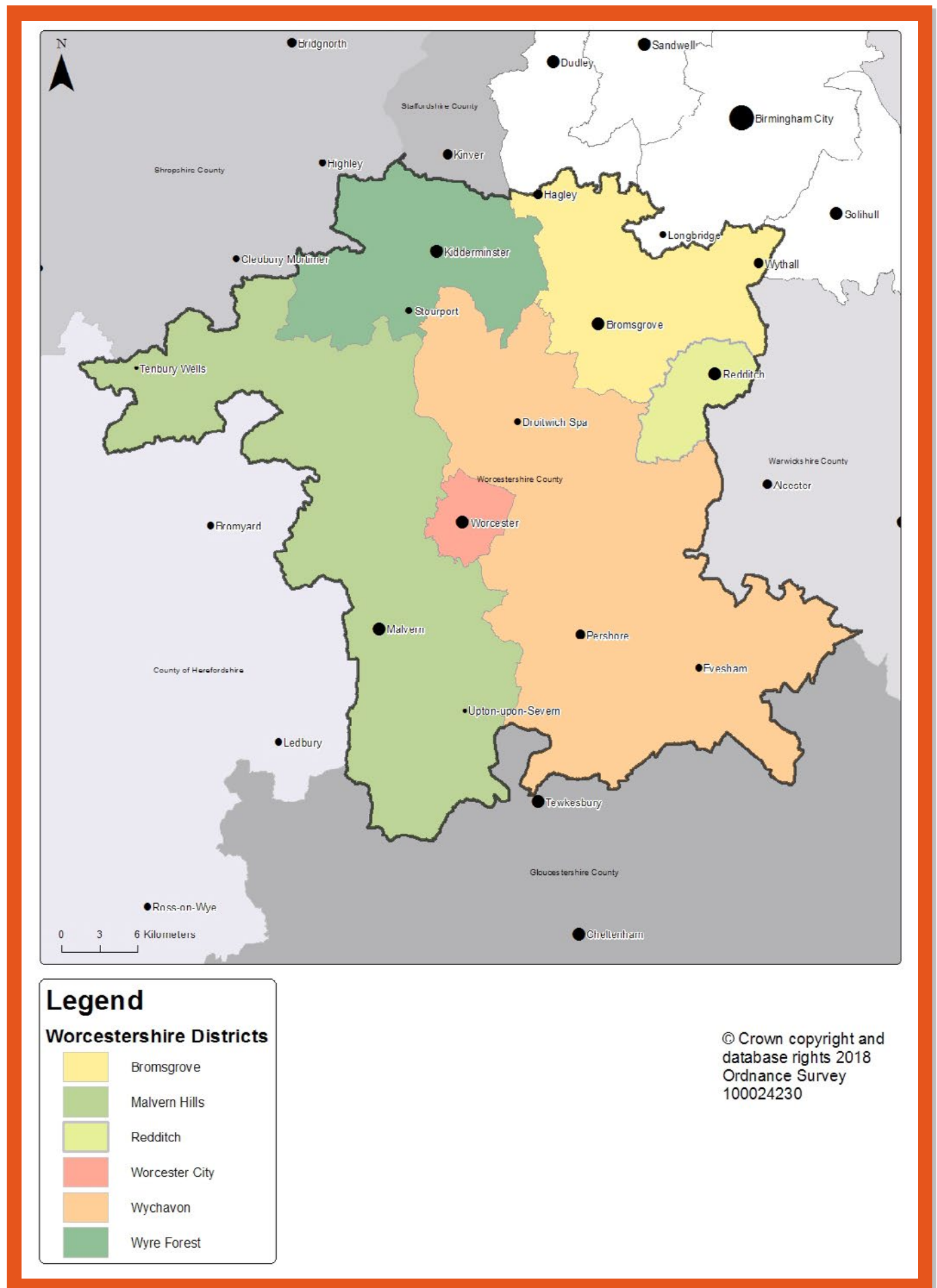
- 2.1 Effective planning requires a good understanding of the current situation and anticipated future changes and demands. It is important that the Minerals Local Plan takes account of Worcestershire's distinctive characteristics, needs and opportunities. Taking account of the aspirations of other relevant plans and strategies will help to ensure that the policies in the plan take the right approach to protecting and enhancing local economic and social well-being and the quality of the environment.
- 2.2 The county of Worcestershire has a population of 588,370<sup>9</sup> and covers an area of more than 173,500ha. It consists of the city of Worcester, borough of Redditch and the districts of Bromsgrove, Malvern Hills, Wychavon and Wyre Forest.
- 2.3 Worcestershire is adjacent to the West Midlands conurbation and the largely rural counties of Shropshire and Staffordshire to the north, Gloucestershire to the south, Herefordshire to the west and Warwickshire to the east.
- 2.4 Agricultural land and open countryside dominate the landscape, but 70% of the population lives in the urban centres of Worcester, Redditch, Kidderminster, Bromsgrove, Malvern, Droitwich Spa, Evesham and Stourport-on-Severn.
- 2.5 Worcestershire's natural and historic environment helps to define the county, providing a strong sense of place and playing an important role in attracting and retaining people and businesses<sup>10</sup>. The county is rich in high-quality environmental assets which form part of a wider network of green infrastructure.

### Context

<sup>9</sup> Mid-2017 estimate. Office for National Statistics, Estimates of the population for the UK, England and Wales, Scotland and Northern Ireland <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/datasets/populationestimatesforukenglandandwalesscotlandandnorthernireland>

<sup>10</sup> Worcestershire County Council (2017) *Shaping Worcestershire's Future 2017 - 2022*

**Figure 2.1. Worcestershire and surrounding areas**





2.6 Significant development is planned in Worcestershire, with anticipated population growth of approximately 7.5% over the plan period<sup>11</sup>, and total provision of housing and employment land in current Local Plans of around 46,000 and 400ha, respectively<sup>12</sup>. Worcestershire County Council's "Open for Business" agenda<sup>13</sup> aims to attract new investment and businesses and to support expansion of local industries, and the Worcestershire Local Enterprise Partnership aims to create more than 25,000 new jobs and bring an extra £2.9 billion into the local economy by 2025<sup>14</sup>. Minerals, particularly aggregates and brick clay, will be required to support this growth and deliver the county's new homes, businesses and infrastructure.

2.7 Mineral production is fundamental to economic well-being, providing the materials needed for construction and a range of industrial processes, and 16% of the total UK economy is directly attributable to minerals.<sup>15</sup> In Worcestershire the minerals sector saw a 100% increase in economic output<sup>16</sup> between 2010 and 2015 and contributes an estimated £6 million to the local economy.<sup>17</sup>

## Worcestershire's mineral resources

2.8 The primary purpose of the Minerals Local Plan is to enable a steady and adequate supply of minerals from Worcestershire. In the UK, recycled and secondary materials provide around 30% of aggregates supply, reducing some requirements for primary materials to be extracted, but this source is virtually maximised and primary minerals are likely to form the majority of future supply.<sup>18</sup>

2.9 The primary minerals currently worked in Worcestershire are sand and gravel (primarily for aggregate use) and brick clay. Silica sand for industrial use is also worked on a small scale in the county.

2.10 Worcestershire does not currently supply any other types of mineral, although crushed rock was worked in the county until 2010. Brine was also pumped on a commercial scale until the 1970s and local building stone has contributed to Worcestershire's built heritage.

2.11 Small areas of coal deposits exist in the county but these are no longer classed as a commercial coal resource by the Coal Authority.<sup>19</sup> There are no known oil, gas or hydrocarbon resources in Worcestershire.<sup>20</sup>

2.12 This means that the most important issues for the Worcestershire Minerals Local Plan are:

- the steady and adequate supply of aggregates (sand and gravel and crushed rock), to meet identified needs to 2035 and beyond;
- the steady and adequate supply of locally and nationally important industrial minerals such as brick clay and silica sand;
- the adequate and diverse supply of building stone to maintain Worcestershire's built heritage; and
- the need to safeguard locally and nationally important mineral resources, permitted mineral sites and supporting infrastructure from sterilisation by other development.

11 Office for National Statistics. Population figures over a 25-year period, by five-year age groups and sex for local authorities in England: <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/datasets/localauthoritiesinenglandtable2>

12 Total housing and employment land provision set out in the adopted Local Plans at time of writing (*Bromsgrove District Plan 2011-2030, Borough of Redditch Local Plan No.4 2011-2030, South Worcestershire Development Plan 2006-2030*, and the *Wyre Forest Core Strategy 2006-26*).

13 Worcestershire County Council (2017) *Shaping Worcestershire's Future 2017 - 2022*

14 Worcestershire Local Enterprise Partnership (2014) *World Class Worcestershire: Our ten year plan for jobs, growth and the economy*. (These targets were not changed in the Worcestershire Local Enterprise Partnership (October 2017) *Strategic Economic Plan Review*.)

15 *UK Minerals Strategy* (July 2018). The *UK Minerals Strategy* was prepared by the UK minerals and mineral products industry, facilitated by members of the CBI Minerals Group and the Mineral Products Association.

16 Gross Value Added (GVA), see *Worcestershire Mineral and Waste Local Development Framework Authority Monitoring Report April 2015 – December 2015*, [www.worcestershire.gov.uk/amr](http://www.worcestershire.gov.uk/amr).

17 Gross Value Added (GVA) from the Minerals sector 2015, see *Worcestershire Mineral and Waste Local Development Framework Authority Monitoring Report April 2015 – December 2015*, [www.worcestershire.gov.uk/amr](http://www.worcestershire.gov.uk/amr).

18 *UK Minerals Strategy* (July 2018). The *UK Minerals Strategy* was prepared by the UK minerals and mineral products industry, facilitated by members of the CBI Minerals Group and the Mineral Products Association.

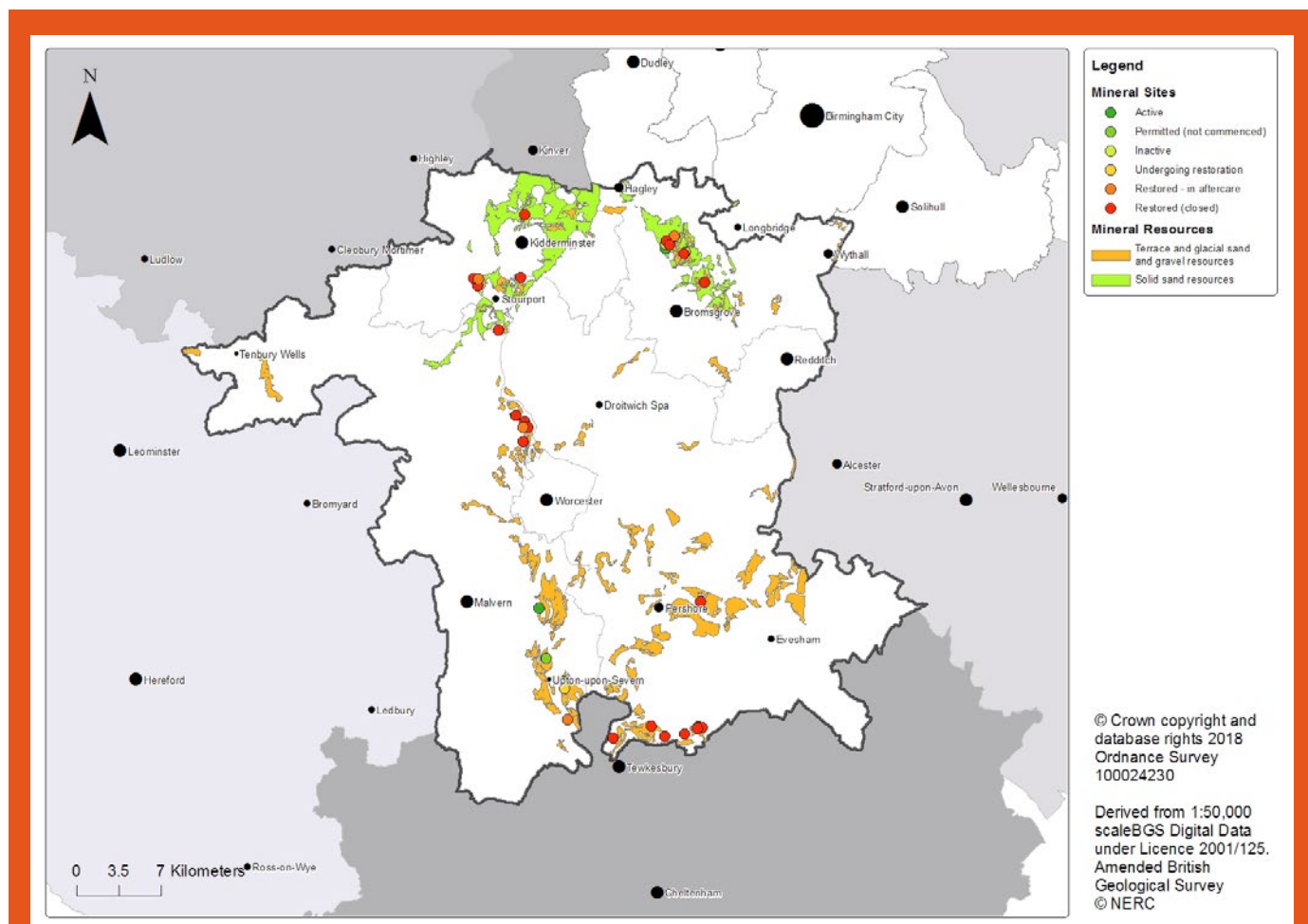
19 The Coal Authority and CoalPro consider the deposits in Worcestershire to be thin to the point of fragmentary and of no commercial value. See the *Coal mining in Worcestershire* background document for more information, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

20 See the *Oil and Gas in Worcestershire* background document for more information, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

## Aggregates

### Sand and gravel

Figure 2.2. Sand and gravel resources<sup>21</sup>



Note: An interactive minerals mapping tool is available at [www.worcestershire.gov.uk/minerals](http://www.worcestershire.gov.uk/minerals) to assist in the use and implementation of the Minerals Local Plan

2.13 In Worcestershire there are two types of sand and gravel: solid sands (which form part of the bedrock geology) and terrace and glacial sand and gravel (materials transported and deposited by water or ice).<sup>22</sup> These are identified separately in Figure 2.2 as the difference in their geology means they are worked in different ways. The qualities and properties of sand and glacial deposits vary. Although there is some cross-over and each type of deposit is capable of supplying the markets for various types of sands (sands for asphalt, building or mortar sands, and concrete or sharp sands), building and mortar sands are the primary market for the solid sands, and concreting sands and

gravels are supplied mainly from the terrace and glacial deposits.<sup>23</sup> These two types of deposit are considered together as “sand and gravel” for the purposes of the Minerals Local Plan due to the overlap in the markets they serve and to facilitate mineral operators to supply to all available markets for the resource.

2.14 The extensive sand and gravel deposits are associated with the terraces of the River Severn, the River Avon and the Carrant Brook are a mixture of unconsolidated sand and gravel and rarely exceed 10m in thickness: 3m to 6m is typical for the river terraces of the Severn and Avon, with deposits typically being thinner

<sup>21</sup> Figure 2.2 identifies the sand and gravel deposits that have been assessed as “key” or “significant” resources in Worcestershire County Council (August 2018) *Analysis of Mineral Resources*. The *Analysis of Mineral Resources* was refreshed following the Third Stage Consultation on the Minerals Local Plan to take account of environmental and amenity screening criteria. For further information see Worcestershire County Council’s background document *Location of development: screening and site selection methodology* (August 2018), available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground)

<sup>22</sup> British Geological Survey and Department of the Environment, Transport and the Regions (1999) *Mineral Resource Information for Development Plans. Herefordshire and Worcestershire: Resources and Constraints*.

<sup>23</sup> Based on information supplied by mineral operators in response to West Midlands Aggregate Working Party’s Aggregates Surveys.

elsewhere.<sup>24</sup> Terrace and glacial sand and gravel deposits are often overlain by “overburden” of sediments and soils but this is typically just a few metres deep.

2.15 Terrace sand and gravel has been worked extensively along the Severn valley, where working is currently ongoing at two sites<sup>25</sup>, and along the Carrant Brook, although it has not been worked in this area since the 1990s. In comparison, very little working has taken place in the Avon Valley, where deposits are believed to be thinner and more dispersed.<sup>26</sup> Terrace deposits are washed and separated into different sizes of sands and gravels to supply different markets, although the majority of material sold is concreting sand (sharp sand) and concrete aggregate (gravel, and gravel/sand mixes).

2.16 Glacial sand and gravel deposits are more scattered than terrace deposits. They are largely found in the north-eastern part of the county. In general, glacial deposits in Worcestershire are likely to be less than 10m thick, but may exceed 20m thickness where they infilled hollows or channels in underlying deposits.<sup>27</sup> These deposits have not been worked extensively in Worcestershire and in recent times have only been worked alongside underlying solid sands.<sup>28</sup>

2.17 Solid sand resources are found in the weakly-cemented bedrocks of the Wildmoor Sandstone Formation and Kidderminster Formation, which lie between Bromsgrove and the Clent Hills in the north-east of the county and stretch from Stourport-on-Severn towards Staffordshire and Dudley over the northern county boundary (see Figure 2.2). The Wildmoor Sandstone Formation overlies the Kidderminster Formation across much of this area, with the Kidderminster Formation being more extensive.

2.18 The Wildmoor Sandstone Formation can be up to 284m thick<sup>29</sup> and is easily crushed to produce sand. It is currently worked at three sites in Worcestershire,<sup>30</sup> although not to the full depth of the formation. This material is predominantly sold for aggregate use as building or mortar sand, with some of the finer-grained material worked to produce sand for industrial use (see Silica Sand below).<sup>31</sup>

2.19 The Kidderminster Formation can be up to 200m thick<sup>32</sup> and contains coarse-to fine-grade sand, as well as some pebbles and cobbles in the lower layers. Within Worcestershire, this formation has not been worked as extensively as the Wildmoor Sandstone Formation, but has been worked at some sites near Bromsgrove.<sup>33</sup>

### Sales and production of sand and gravel

2.20 Planning for the steady and adequate supply of sand and gravel requires consideration of the past, current and future demand for and supply of materials (including imports and exports); the contribution of substitute, secondary and recycled materials and mineral waste to overall supply (discussed further below); and the current landbank of permitted sand and gravel reserves.

2.21 Market data suggests that, nationally, permitted reserves of sand and gravel are declining steadily and not being replenished at an equivalent rate through new planning permissions.<sup>34</sup> In the longer term this could result in shortages in material supply and increased cost to the economy.<sup>35</sup>

2.22 Between 2007 and 2016, an average of 607,000 tonnes of sand and gravel were produced for aggregate purposes each year in Worcestershire (Figure 2.3).<sup>36</sup>

24 British Geological Survey and Department of the Environment, Transport and the Regions (1999) *Mineral Resource Information for Development Plans. Herefordshire and Worcestershire: Resources and Constraints*.

25 Clifton Quarry and Ryall's Court Farm Quarry (with processing at Ryall House Farm). See Worcestershire County Council (July 2018) *Worcestershire Local Aggregates Assessment* (using data covering the period up to 31/12/2016), available at [www.worcestershire.gov.uk/amr](http://www.worcestershire.gov.uk/amr).

26 Garrett (1970) *The Sand and Gravel Resources of the Terrace Deposits of the River Avon from Tewkesbury to Harvington*

27 British Geological Survey and Department of the Environment, Transport and the Regions (1999) *Mineral Resource Information for Development Plans. Herefordshire and Worcestershire: Resources and Constraints*.

28 Since at least the 1960s.

29 British Geological Survey, Lexicon of Named Rock Units - Result Details: Wildmoor Sandstone Formation.

30 Sandy Lane Quarry, Wildmoor Quarry, Pinches 3 Quarry. See Worcestershire County Council (July 2018) *Worcestershire Local Aggregates Assessment* (using data covering the period up to 31/12/2016), available at [www.worcestershire.gov.uk/amr](http://www.worcestershire.gov.uk/amr).

31 British Geological Survey and Department of the Environment, Transport and the Regions (1999) *Mineral Resource Information for Development Plans. Herefordshire and Worcestershire: Resources and Constraints*.

32 British Geological Survey website: The BGS Lexicon of Named Rock Units - Result Details: Kidderminster Formation

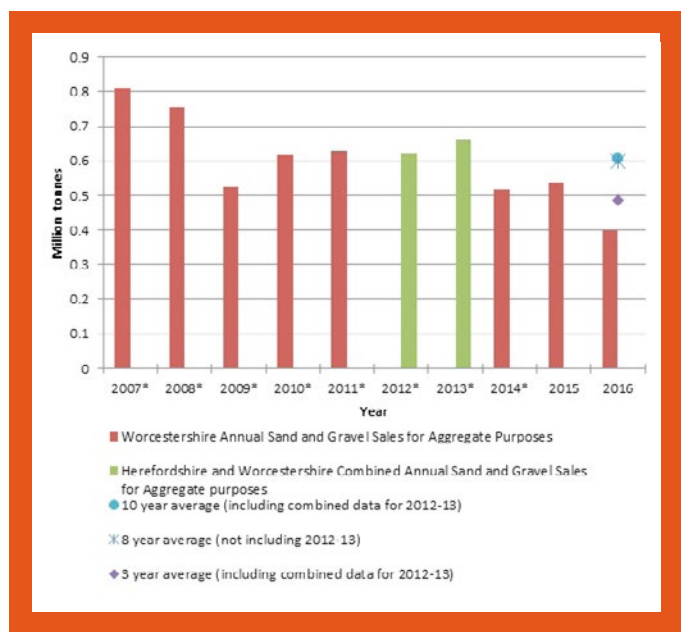
33 Shepley Quarry and Pinches Quarry.

34 UK Minerals Strategy (July 2018). The UK Minerals Strategy was prepared by the UK minerals and mineral products industry, facilitated by members of the CBI Minerals Group and the Mineral Products Association.

35 CBI (2016) *The UK Mineral Extraction Industry*, <http://www.cbi.org.uk/news/minerals-critical-to-the-uk-economy/cbi-report-the-uk-mineral-extraction-industry/>

36 Worcestershire County Council (July 2018) *Worcestershire Local Aggregates Assessment* (using data covering the period up to 31/12/2016), available at [www.worcestershire.gov.uk/amr](http://www.worcestershire.gov.uk/amr).

**Figure 2.3. Sand and gravel annual and average sales 2007-2016<sup>37</sup>**



2.23 In 2016 there were three “active”<sup>38</sup> and two “inactive”<sup>39</sup> sand and gravel workings and processing facilities in the county, with sales of 399,000 tonnes of sand and gravel. Four of these sites had permitted reserves of sand and gravel for aggregate purposes and one of the sites classed its permitted reserves as “non-aggregate uses”.<sup>40 41</sup> In addition, planning permissions were granted during 2016 which had not commenced working by 31st December 2016.<sup>42</sup> Together, these gave a landbank for sand and gravel in Worcestershire of 6.99-7.07 years at 31st December 2016.<sup>43</sup> The National Planning Policy Framework sets a landbank requirement for sand and gravel of at least 7 years.<sup>44</sup>

*Exports and imports of sand and gravel*

2.24 National data indicates that Worcestershire was a net exporter of sand and gravel in both 2009 and 2014,<sup>45</sup> although the proportion of imports was greater in 2014 (Table 2.1).

**Table 2.1. Balance of sand and gravel exports and imports in Worcestershire<sup>46</sup>**

Year	Exports	Imports	Balance
2009	104,000 tonnes	58,000 tonnes	Net exporter (46,000 tonnes)
2014	180,000 tonnes	148,000 tonnes	Net exporter (32,000 tonnes)

2.25 As aggregates are bulky, costly to transport and generally fairly low value, they are typically only transported about 30 miles from their source.<sup>47</sup> Local data shows that, of the sand and gravel produced in Worcestershire in 2016, approximately 50% was sold within Worcestershire, 36.5% was exported to the wider West Midlands, 13.5% to the South West, and less than 1% to South Wales.<sup>48</sup> There is no equivalent information available to indicate the level of imports into Worcestershire in 2016.

*Future sand and gravel supply*

2.26 51.1% of Worcestershire’s sand and gravel deposits<sup>49</sup> are not affected by significant viability, environmental or amenity constraints (60.2% of Worcestershire’s solid sand deposits<sup>50</sup> and 45.9% of Worcestershire’s terrace and glacial sand and gravel deposits<sup>51</sup>).

37 Figure 1 from Worcestershire County Council (July 2018) *Worcestershire Local Aggregates Assessment* (using data covering the period up to 31/12/2016), available at [www.worcestershire.gov.uk/amr](http://www.worcestershire.gov.uk/amr).  
 38 “Active” sites are permitted minerals sites in production for some time during the year.  
 39 “Inactive” sites are permitted minerals sites worked in the past and containing permitted reserves.  
 40 In the 2016 West Midlands Aggregate Working Party’s annual Aggregates Survey returns, one of the sites classed its permitted reserves as “non-aggregate” and therefore are not been included in the permitted reserves and landbank figures, but it is possible that the material could be reclassified and sold as aggregate in future.  
 41 A Review of Mineral Permission submission was required for one of these sites, Sandy Lane Quarry, by 20th March 2017 but was not submitted. Planning permission for the reserves at this site has therefore expired and the site is undergoing restoration.  
 42 Worcestershire County Council (July 2018) *Worcestershire Local Aggregates Assessment* (using data covering the period up to 31/12/2016), available at [www.worcestershire.gov.uk/amr](http://www.worcestershire.gov.uk/amr).  
 43 Landbank at 31st December 2016 based on permitted sand and gravel reserves of 4.244-4.294 million tonnes and an annual production guideline of 0.607 million tonnes. Worcestershire County Council (July 2018) *Worcestershire Local Aggregates Assessment* (using data covering the period up to 31/12/2016), available at [www.worcestershire.gov.uk/amr](http://www.worcestershire.gov.uk/amr).  
 44 Ministry of Housing, Communities and Local Government (July 2018) *National Planning Policy Framework*, paragraph 207(f).  
 45 Communities and Local Government, *British Geological Survey* and Welsh Assembly Government (2009 and 2014) *Aggregate minerals survey for England and Wales*, <https://www.gov.uk/government/collections/minerals>. Discussion with the authors of these documents has revealed that the information does not represent a complete dataset from all mineral operators (Email correspondence with Mr T Bide at the *British Geological Survey* (7th August 2017) revealed that for 2009 responses were only received for two quarries in Worcestershire, and in 2014 for only 1 quarry). Significant caution must therefore be applied in relying on this data.  
 46 Communities and Local Government, *British Geological Survey* and Welsh Assembly Government (2009 and 2014) *Aggregate minerals survey for England and Wales*, <https://www.gov.uk/government/collections/minerals>.  
 47 Mineral Products Association (2015) *Make the link: The mineral products industry’s contribution to the UK*  
 48 Based on information supplied by mineral operators in response to West Midlands Aggregate Working Party’s Aggregates Surveys.  
 49 By area (14,326 hectares of 28,015 hectares). Worcestershire County Council (August 2018) *Analysis of Mineral Resources* was refreshed following the Third Stage Consultation on the Minerals Local Plan to take account of environmental and amenity screening criteria. For further information see Worcestershire County Council’s background document *Location of development: screening and site selection methodology* (August 2018), available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).  
 50 By area (6,170 hectares of 10,245 hectares). Worcestershire County Council (August 2018) *Analysis of Mineral Resources* was refreshed following the Third Stage Consultation on the Minerals Local Plan to take account of environmental and amenity screening criteria. For further information see Worcestershire County Council’s background document *Location of development: screening and site selection methodology* (August 2018), available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).  
 51 By area (8,156 hectares of 17,770 hectares). Worcestershire County Council (August 2018) *Analysis of Mineral Resources* was refreshed following the Third Stage Consultation on the Minerals Local Plan to take account of environmental and amenity screening criteria. For further information see Worcestershire County Council’s background document *Location of development: screening and site selection methodology* (August 2018), available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

2.27 The Local Aggregate Assessment considers the average level of sales of sand and gravel from Worcestershire alongside other relevant local information to set a “production guideline”. The baseline Local Aggregate Assessment<sup>52</sup> identifies an annual production guideline of 0.607 million tonnes.

2.28 It is estimated that a further 11.53 million tonnes of sand and gravel will need to be permitted in Worcestershire over the plan period to meet this annual production guideline and to maintain at least a 7 year landbank of permitted reserves.<sup>53</sup> Due to the quantities of sand and gravel required, the scale and distribution of the resources, and the tendency for mineral workings in Worcestershire to be small scale in comparison to other parts of the country, multiple sand and gravel workings are likely to be required over the life of the plan in order to achieve this.

2.29 These estimates assume that the balance of sand and gravel supply will continue to include substitute, secondary and recycled materials and minerals wastes (as discussed below) at the current proportion.<sup>54</sup> If this contribution were to reduce, additional primary resources would be needed to fill the gap. However, significant variation is considered unlikely in Worcestershire due to the established practice of recycling building materials for use as aggregates on site.

### Crushed Rock<sup>55</sup>

2.30 Bedrock deposits occur in Worcestershire which are suitable for being used as crushed rock for aggregates. These are identified in Figure 2.4. The qualities and properties of these deposits vary, although each type of deposit may be capable of supplying various markets (such as roadstone, railway ballast, concrete aggregate, or other construction aggregates). These deposits are considered together as “crushed rock” for the purposes of the Minerals Local Plan due to the overlap in the markets they could serve and

to facilitate mineral operators to supply to all available markets for the resource.

2.31 Limestone deposits of the Jurassic Inferior Oolite Group are found in the south of the county in the Cotswold outlier Bredon Hill and on the edge of the Cotswold plateau near Broadway. Inferior Oolite limestone is relatively soft and porous, with a maximum thickness of 20m. It is used for low-quality aggregate purposes such as constructional fill, as well as for building stone.<sup>56 57</sup> Oolitic limestone was produced from Broadway Quarry at Fish Hill in the Cotswolds where extraction ceased in 2010. Smaller deposits of relatively thin and shaly Aymestry Limestone and Woolhope Limestone form the Suckley, Abberley and Woodbury Hills in the west of the county. Aymestry Limestone is between 15m and 40m thick and is generally lower in purity than some other limestones, grading to calcareous mudstone.<sup>58</sup> Aymestry limestone was produced from a succession of quarries in the Abberley and Suckley Hills, notably at Penny Hill, Abberley Hill and Woodbury Hill, the last of which closed in the 1990s. Woolhope Limestone is generally around 15m thick. It is often only suitable for production of constructional fill, although there may be areas where the formation comprises relatively clean, good quality limestones suitable for aggregate use.<sup>59</sup>

2.32 The Ordovician Lickey Quartzite sandstone occurs in a small inlier near Bromsgrove. This sandstone may be suitable for uses which require high resistance to abrasion.<sup>60</sup>

2.33 The Malverns Complex and Warren House Formation occur in the Malvern Hills on the county’s western boundary with Herefordshire, and include rocks which have previously been worked as source of aggregate suitable for use in road construction and maintenance, as well as for building stone.<sup>61</sup> The working of crushed rock in the Malvern Hills ceased in 1977.

52 Worcestershire County Council (July 2018) *Worcestershire Local Aggregates Assessment* (using data covering the period up to 31/12/2016), available at [www.worcestershire.gov.uk/amr](http://www.worcestershire.gov.uk/amr).

53 Figure based on the production guideline of 0.607 million tonnes each year from 2017 to 2035, but the plan includes sufficient flexibility to adapt to any changes in the production guideline.

54 The *UK Minerals Strategy* (July 2018) states that in the UK, recycled and secondary materials provide around 30% of aggregates supply but that this source is virtually maximised. The *UK Minerals Strategy* was prepared by the UK minerals and mineral products industry, facilitated by members of the CBI Minerals Group and the Mineral Products Association.

55 Sometimes referred to as “hard rock”.

56 *British Geological Survey* and Office of the Deputy Prime Minister (2006) *Mineral Resource Information in Support of National, Regional and Local Planning: Gloucestershire* (comprising Gloucestershire and South Gloucestershire).

57 *British Geological Survey* and Department of the Environment, Transport and the Regions (1999) *Mineral Resource Information for Development Plans. Herefordshire and Worcestershire: Resources and Constraints*.

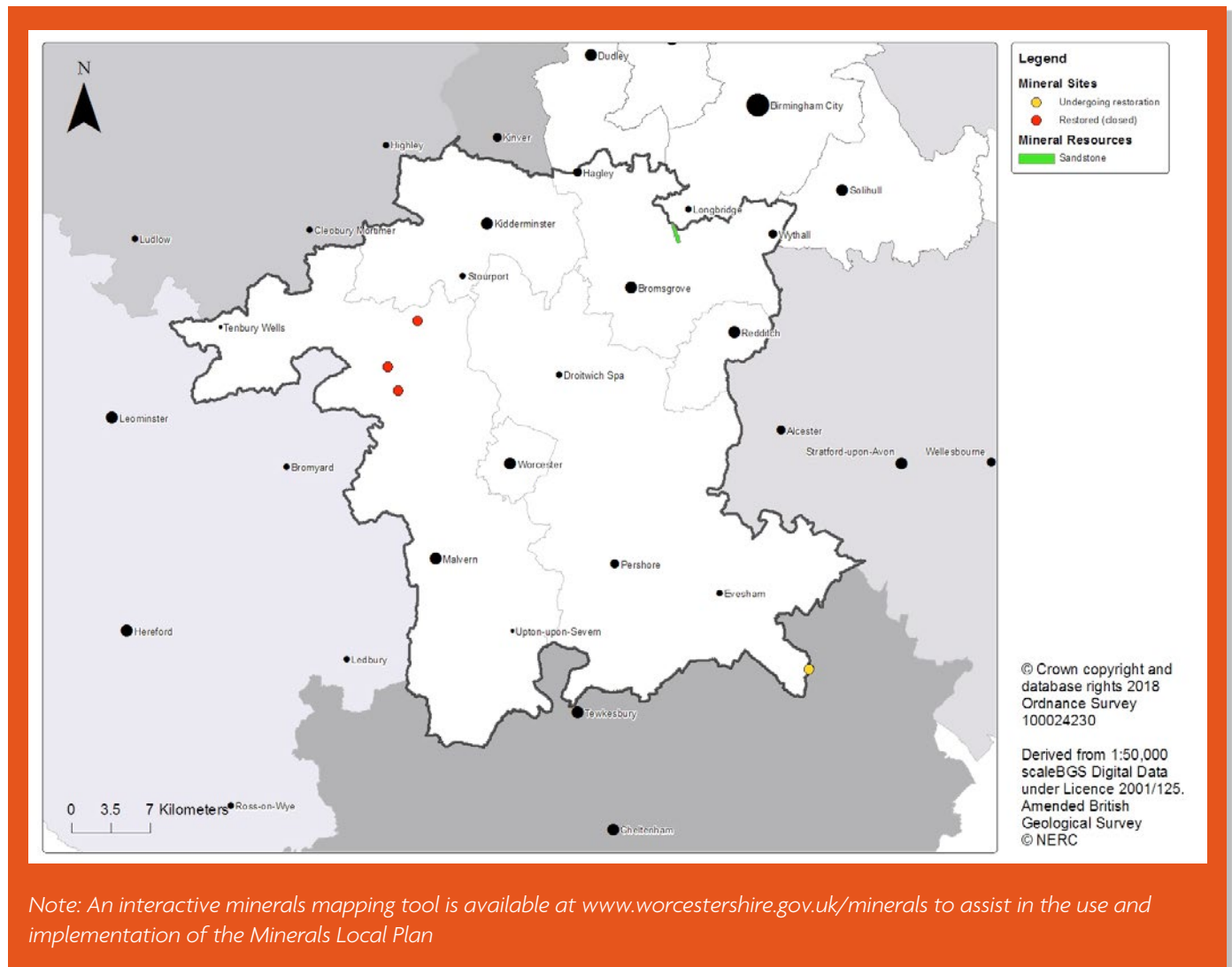
58 *British Geological Survey* and Department of the Environment, Transport and the Regions (1999) *Mineral Resource Information for Development Plans. Herefordshire and Worcestershire: Resources and Constraints*.

59 *British Geological Survey* and Department of the Environment, Transport and the Regions (1999) *Mineral Resource Information for Development Plans. Herefordshire and Worcestershire: Resources and Constraints*.

60 *British Geological Survey* and Department of the Environment, Transport and the Regions (1999) *Mineral Resource Information for Development Plans. Herefordshire and Worcestershire: Resources and Constraints*.

61 *British Geological Survey* and Department of the Environment, Transport and the Regions, 1999, *Mineral Resource Information for Development Plans. Herefordshire and Worcestershire: Resources and Constraints*.

**Figure 2.4 Crushed rock resources<sup>62</sup>**



Note: An interactive minerals mapping tool is available at [www.worcestershire.gov.uk/minerals](http://www.worcestershire.gov.uk/minerals) to assist in the use and implementation of the Minerals Local Plan

### Sales and production of crushed rock

2.34 Planning for the steady and adequate supply of crushed rock requires consideration of past, current and future demand for and supply of materials (including imports and exports); the contribution of substitute, secondary and recycled materials and mineral waste to overall supply (discussed further below); and the current landbank of permitted crushed rock reserves.

2.35 Between 2007 and 2016 it is estimated that an average of 26,000 tonnes of crushed rock were produced for aggregate purposes each year in

Worcestershire<sup>63</sup>, although no extraction has taken place since 2010 (Figure 2.5).

2.36 During this time there was only one active crushed rock working in the county.<sup>64</sup> Working at this site ceased in 2010. In 2016, there were no permitted crushed rock sites and no remaining permitted crushed rock reserves in Worcestershire, meaning that the landbank for crushed rock in Worcestershire was 0 years.<sup>65</sup> The National Planning Policy Framework sets a landbank requirement for crushed rock of at least 10 years.<sup>66</sup>

62 Figure 2.4 identifies the crushed rock deposits that have been assessed as “key” or “significant” resources in Worcestershire County Council (August 2018) *Analysis of Mineral Resources*. The *Analysis of Mineral Resources* was refreshed following the Third Stage Consultation on the Minerals Local Plan to take account of environmental and amenity screening criteria. For further information see Worcestershire County Council’s background document *Location of development: screening and site selection methodology* (August 2018), available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

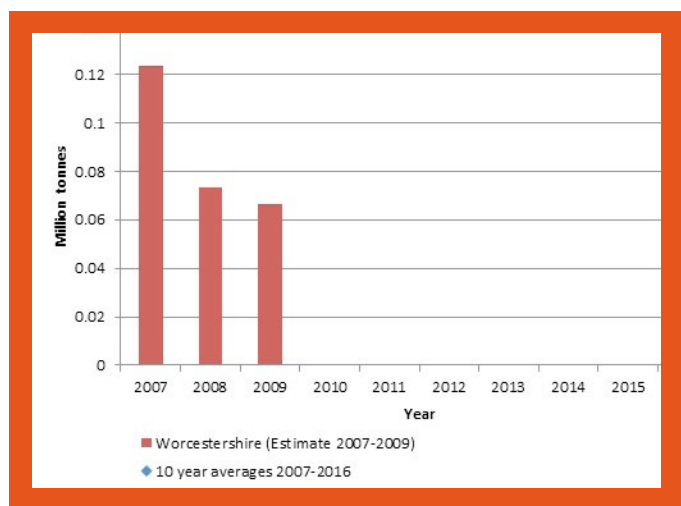
63 Estimated sales based on the assumption that a third of the combined crushed rock sales from Herefordshire and Worcestershire were attributable to Worcestershire as data was combined due to issues of commercial confidentiality. See Worcestershire County Council (July 2018) *Worcestershire Local Aggregates Assessment* (using data covering the period up to 31/12/2016), available at [www.worcestershire.gov.uk/amr](http://www.worcestershire.gov.uk/amr).

64 Broadway Quarry at Fish Hill, working Oolitic Limestone.

65 Worcestershire County Council (July 2018) *Worcestershire Local Aggregates Assessment* (using data covering the period up to 31/12/2016), available at [www.worcestershire.gov.uk/amr](http://www.worcestershire.gov.uk/amr).

66 Ministry of Housing, Communities and Local Government (July 2018) *National Planning Policy Framework*, paragraph 207(f).

**Figure 2.5 Crushed rock annual and average sales 2007-2016<sup>67</sup>**



**Imports and exports of crushed rock**

2.37 National data indicates that Worcestershire imported approximately 540,000 tonnes of crushed rock in 2014, with more than twice as much crushed rock being imported and consumed in the county in 2014 compared to 2009 (Table 2.2).<sup>68</sup> There is no information available to indicate the level of imports into Worcestershire in 2016, however all of the demand for crushed rock in Worcestershire since 2011 has been met by imports.

**Table 2.2. Balance of crushed rock exports and imports in Worcestershire<sup>69</sup>**

Year	Exports	Imports	Balance
2009	0 tonnes	192,000 tonnes	Net exporter (192,000 tonnes)
2014	0 tonnes	540,000 tonnes	Net exporter (540,000 tonnes)

*Future crushed rock supply*

2.38 Only 3.0% of Worcestershire’s crushed rock deposits are not affected by significant viability, environmental or amenity constraints,<sup>70</sup> as outlined below:

- Of the land containing Malverns Complex and Warren House Formation deposits in Worcestershire:
  - 99.4%<sup>71</sup> is within the Malvern Hills Area of Outstanding Natural Beauty;<sup>72</sup> and
  - 82.7%<sup>73</sup> is controlled by the Malvern Hills Conservators<sup>74</sup> who own the mineral rights and have a unique responsibility “to save the beauty of the Hills and protect them from the threat of quarrying”.<sup>75</sup>

67 Figure 4 from Worcestershire County Council (July 2018) *Worcestershire Local Aggregates Assessment* (using data covering the period up to 31/12/2016), available at [www.worcestershire.gov.uk/amr](http://www.worcestershire.gov.uk/amr).

68 Communities and Local Government, *British Geological Survey* and Welsh Assembly Government (2009 and 2014) *Aggregate minerals survey for England and Wales*, <https://www.gov.uk/government/collections/minerals>. Discussion with the authors of these documents has revealed that the information does not represent a complete dataset from all mineral operators (Email correspondence with Mr T Bide at the *British Geological Survey* (7th August 2017) revealed that for 2009 responses were only received for two quarries in Worcestershire, and in 2014 for only 1 quarry). Significant caution must therefore be applied in relying on this data.

69 Communities and Local Government, *British Geological Survey* and Welsh Assembly Government (2009 and 2014) *Aggregate minerals survey for England and Wales*, <https://www.gov.uk/government/collections/minerals>.

70 By area (53 hectares of 1706 hectares). Worcestershire County Council (August 2018) *Analysis of Mineral Resources* was refreshed following the Third Stage Consultation on the Minerals Local Plan to take account of environmental and amenity screening criteria. For further information see Worcestershire County Council’s background document *Location of development: screening and site selection methodology* (August 2018), available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

71 By area (541 hectares of 544 hectares). Worcestershire County Council (August 2018) *Analysis of Mineral Resources* was refreshed following the Third Stage Consultation on the Minerals Local Plan to take account of environmental and amenity screening criteria. For further information see Worcestershire County Council’s background document *Location of development: screening and site selection methodology* (August 2018), available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

72 Ministry of Housing, Communities and Local Government (July 2018) *National Planning Policy Framework* (paragraph 205(a)) states that mineral planning authorities should, as far as practical, provide for the maintenance of non-energy minerals from outside National Parks, the Broads, Areas of Outstanding Natural Beauty and World Heritage Sites, scheduled monuments and conservation areas.

73 By area (450 hectares of 544 hectares). Worcestershire County Council (August 2018) *Analysis of Mineral Resources* was refreshed following the Third Stage Consultation on the Minerals Local Plan to take account of environmental and amenity screening criteria. For further information see Worcestershire County Council’s background document *Location of development: screening and site selection methodology* (August 2018), available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

74 The Malvern Hills Conservators have used the working name of the Malvern Hills Trust since 2017. For the purposes of the Minerals Local Plan, they are referred to as the Malvern Hills Conservators to reflect their official name.

75 Malvern Hills Act 1924. Further details regarding the unique legislative context of quarrying in the Malvern Hills is set out in background document *The Malvern Hills Acts* available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

- Of the land containing limestone deposits in Worcestershire:
  - 68.8%<sup>76</sup> is within 2.5km of the Bredon Hill Special Area of Conservation (SAC);<sup>77</sup> and
  - 94.2%<sup>78</sup> is within the Malvern Hills Area of Outstanding Natural Beauty or the Cotswolds Area of Outstanding Natural Beauty.<sup>79</sup>
- 100% of the land containing Lickey Quartzite sandstone deposits in Worcestershire is not affected by significant viability, environmental or amenity constraints.<sup>80</sup>

2.39 The constraints outlined above are not in themselves an absolute bar on development. However the combination of the significant level of environmental protection imposed through legislation and policy tests and the unique responsibility of the Malvern Hills Conservators<sup>81</sup> together mean that crushed rock has not been worked in Worcestershire since 2010 and is unlikely to be commercially attractive for the foreseeable future. The Local Aggregate Assessment therefore considers this local information alongside the average level of sales of crushed rock from Worcestershire to set a “production guideline”. The baseline Local Aggregate Assessment<sup>82</sup> identifies an annual production guideline of 0 tonnes per annum (zero).<sup>83</sup>

2.40 It is not possible to calculate the level of demand for crushed rock which will arise in Worcestershire over the life of the Minerals Local Plan. However, it is likely that the majority of Worcestershire’s demand for crushed rock has been met by imports of crushed rock other mineral planning authority areas since 2011, and this is reflected in sales data for those areas. Surrounding Mineral Planning Authorities and the West Midlands, East Midlands, South West and South Wales

Aggregate Working Parties have indicated that supplying Worcestershire’s demand for crushed rock can continue to be accommodated, but that Worcestershire’s Minerals Local Plan should enable crushed rock development if these constraints can be overcome.<sup>84</sup>

## The role of substitute, secondary and recycled materials and minerals waste in aggregate supply

2.41 It may be possible to reduce the need for primary aggregates through the use of substitute materials in construction. However the use of substitutes will vary depending on individual development proposals. There is no data available to indicate the level of contribution made by substitute materials in Worcestershire, but any reduction in demand will be reflected in the level of sales recorded in the Local Aggregates Assessment.

2.42 Recycled and secondary aggregates play an important role in minimising the need for the extraction of primary materials. They are cheaper than primary materials but often have a lower specification. In 2013 recycled and secondary aggregates accounted for 29% of total UK aggregates sales, the highest levels in Europe,<sup>85</sup> but there is little scope to increase this further as this source is virtually maximised.<sup>86</sup>

2.43 Recycled aggregates arise from several sources, notably from the demolition of buildings or from civil engineering works such as road resurfacing and railway track maintenance. Significant amounts of recycled aggregates are produced in Worcestershire from the management of construction and demolition waste (C&D waste). It is estimated that this could provide up to

76 By area (763 hectares of 1,109 hectares). Worcestershire County Council (August 2018) *Analysis of Mineral Resources* was refreshed following the Third Stage Consultation on the Minerals Local Plan to take account of environmental and amenity screening criteria. For further information see Worcestershire County Council’s background document *Location of development: screening and site selection methodology* (August 2018), available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

77 Bredon Hill SAC is a European site designated for nature conservation value. The presumption in favour of sustainable development in national policy does not apply where development requiring appropriate assessment is being planned or determined (Ministry of Housing, Communities and Local Government (July 2018) *National Planning Policy Framework*, paragraph 177. Based on the Habitats Regulation Assessment screening for the Worcestershire Minerals Local Plan it is considered unlikely that most forms of crushed rock development would be acceptable in planning terms.

78 By area (1,045 hectares of 1,109 hectares). Worcestershire County Council (August 2018) *Analysis of Mineral Resources* was refreshed following the Third Stage Consultation on the Minerals Local Plan to take account of environmental and amenity screening criteria. For further information see Worcestershire County Council’s background document *Location of development: screening and site selection methodology* (August 2018), available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

79 Ministry of Housing, Communities and Local Government (July 2018) *National Planning Policy Framework* (paragraph 205(a)) states that mineral planning authorities should, as far as practical, provide for the maintenance of non-energy minerals from outside National Parks, the Broads, Areas of Outstanding Natural Beauty and World Heritage Sites, scheduled monuments and conservation areas.

80 By area (53 hectares of 53 hectares). Worcestershire County Council (August 2018) *Analysis of Mineral Resources* was refreshed following the Third Stage Consultation on the Minerals Local Plan to take account of environmental and amenity screening criteria. For further information see Worcestershire County Council’s background document *Location of development: screening and site selection methodology* (August 2018), available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

81 The Malvern Hills Conservators have used the working name of the Malvern Hills Trust since 2017. For the purposes of the Minerals Local Plan, they are referred to as the Malvern Hills Conservators to reflect their official name.

82 Worcestershire County Council (July 2018) *Worcestershire Local Aggregates Assessment* (using data covering the period up to 31/12/2016), available at [www.worcestershire.gov.uk/amr](http://www.worcestershire.gov.uk/amr).

83 This has been agreed by members of the West Midlands, South West, South Wales and East Midlands Aggregate Working Parties. See Worcestershire County Council, *Strategic cross boundary issue: Crushed rock supply in Worcestershire. Summary of action undertaken under the duty to cooperate*.

84 Worcestershire County Council, *Strategic cross boundary issue: Crushed rock supply in Worcestershire. Summary of action undertaken under the duty to cooperate*.

85 European average 10%. CBI (2016) *The UK Mineral Extraction Industry* <http://news.cbi.org.uk/news/minerals-critical-to-the-uk-economy/cbi-report-the-uk-mineral-extraction-industry/>

86 The UK Minerals Strategy (July 2018) states that in the UK, recycled and secondary materials provide around 30% of aggregates supply but that this source is virtually maximised. The UK Minerals Strategy was prepared by the UK minerals and mineral products industry, facilitated by members of the CBI Minerals Group and the Mineral Products Association.



420,000 tonnes of recycled aggregates per year.<sup>87</sup> The supply of recycled materials will depend on the county's capacity to process these materials. The Worcestershire Waste Core Strategy sets targets for capacity at static plant, but due to data limitations it is not possible to monitor the role of mobile plant.

- 2.44 Secondary aggregates is a term often used to describe minerals produced as a by-product of other mining or quarrying activities or as a by-product of an industrial process, such as blast furnace/steel slag, power station ash, incinerator ash or spent foundry sand. There is an Energy from Waste Plant in Worcestershire that produces 40,000 tonnes per annum of incinerator bottom ash, and an Incinerator Bottom Ash Processing and Recovery Facility at Hill and Moor Landfill Site was granted planning permission in January 2017. The processed incinerator bottom ash may be capable of being used as secondary aggregate. There are no other industrial processes in Worcestershire which are known to produce secondary aggregates.

## Industrial Minerals

### Silica sand

- 2.45 Silica sands are essential raw materials for some industrial uses. Different types of silica sands have different combinations of chemical and physical properties which make them suitable for specific uses and different industries. Different types of silica sand are used in glass-making compared to those used in the foundry industry, and silica sands can also have a wide range of applications in other sectors including horticulture.

- 2.46 In Worcestershire, a type of silica sand known as “naturally bonded moulding sand”, or “foundry sand”, occurs as a finer-grained horizon within the solid sand deposits of the Wildmoor Sandstone Formation in the north of the county around Kidderminster and Bromsgrove.<sup>88</sup> This was historically important in the foundry industry as it contains sufficient clay to give the mould strength without the addition of a bonding agent.<sup>89</sup> Silica sand from Worcestershire is not used in glass manufacture or other industrial uses as different grades of silica sand are not usually interchangeable.

### Sales and production of silica sand

- 2.47 In 2016, silica sand was worked at one “active” site<sup>90</sup>, with further permitted reserves in one “inactive” site<sup>91</sup>. Both of these sites are near Bromsgrove. There is no information regarding where silica sand occurs within the Wildmoor Sandstone Formation beyond the boundary of existing sites.
- 2.48 In 2013, just 2,000 tonnes of sand for foundry uses was sold from Worcestershire.<sup>92-93</sup> This is 88% lower than sales in 1999,<sup>94</sup> largely due to the increased industry use of high-silica, clay-free (washed) and synthetic sands as foundry sands which can more easily be controlled to meet precise specifications.<sup>95</sup> However, this small amount of material supplies multiple small foundries around the UK.<sup>96</sup>

87 See “Waste Core Strategy for Worcestershire” for further details at [www.worcestershire.gov.uk/wcs](http://www.worcestershire.gov.uk/wcs).

88 The majority of the Wildmoor Sandstone Formation consists of coarser sands which are used for aggregate purposes (*British Geological Survey (1999) Mineral resource Information for Development Plans: Herefordshire and Worcestershire: Resources and Constraints*).

89 *British Geological Survey and Department of the Environment, Transport and the Regions (1999) Mineral Resource Information for Development Plans. Herefordshire and Worcestershire: Resources and Constraints*.

90 Wildmoor Quarry (formerly John Williams Cinetic Sand). “Active” sites are permitted minerals sites in production for some time during the year.

91 Sandy Lane Quarry (formerly Stanley N. Evans Ltd). “Inactive” sites are permitted minerals sites worked in the past and containing permitted reserves. A Review of Mineral Permission submission was required for this site by 20th March 2017 but was not submitted. Planning permission for the reserves at this site has therefore expired and the site is undergoing restoration.

92 Department for Communities and Local Government (February 2015) *Mineral extraction in Great Britain 2013: Business Monitor PA1007* (Table 1 – Industrial sand). This is the most recent data available for Worcestershire, as the data for Worcestershire in the 2014 report was withheld to avoid disclosure of information relating to an individual undertaking without the consent of the person carrying on that undertaking.

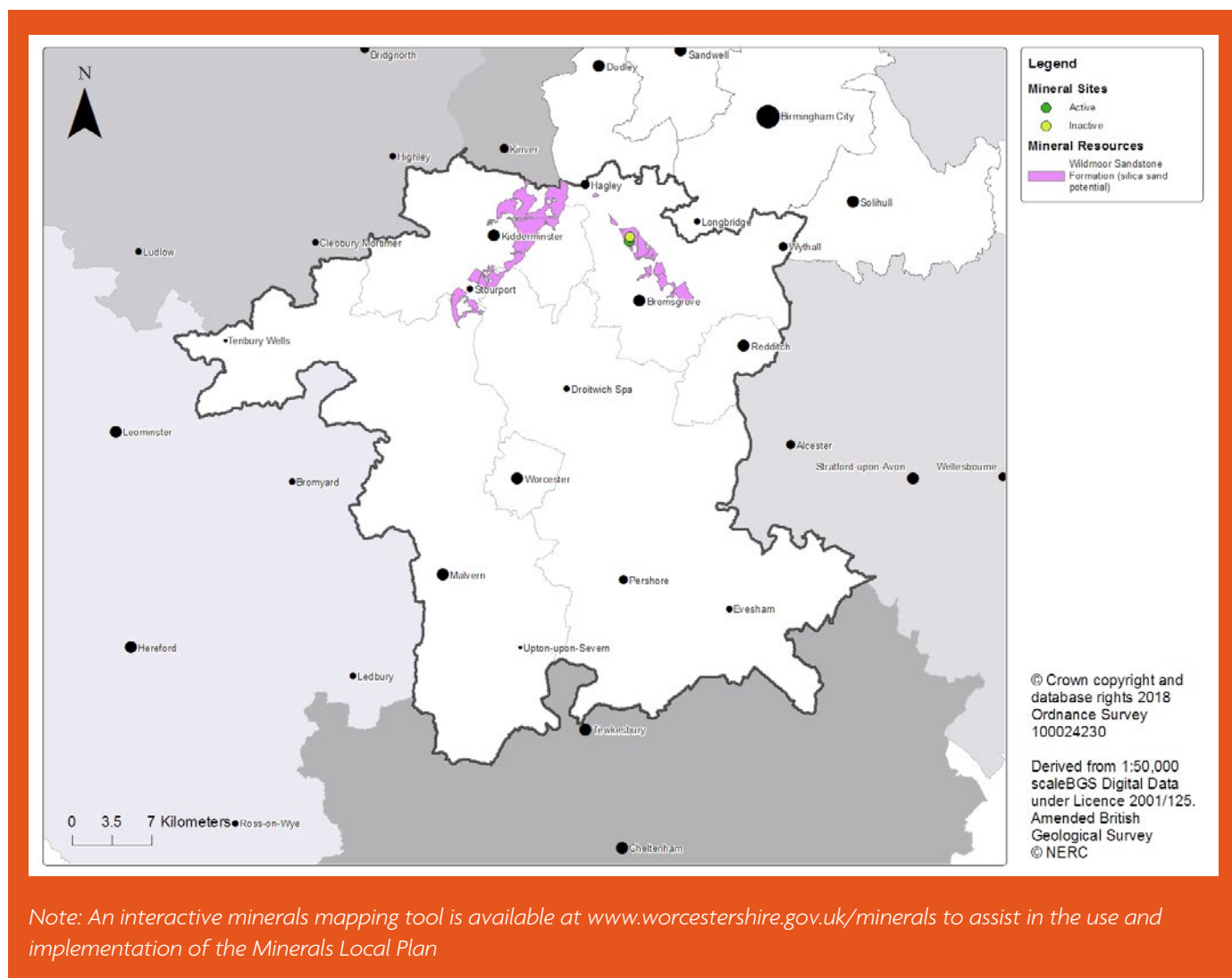
93 Some silica sand from Worcestershire was also sold for agricultural, horticultural, and leisure uses, but the exact quantities are unknown as the data was withheld to avoid disclosure of information relating to an individual undertaking without the consent of the person carrying on that undertaking. Department for Communities and Local Government (February 2015) *Mineral extraction in Great Britain 2013: Business Monitor PA1007* (Table 1 – Industrial sand).

94 2000 tonnes in 2013, compared to 17,000 tonnes in 1999. Department for Communities and Local Government (February 2015) *Mineral extraction in Great Britain 2013: Business Monitor PA1007* (Table 1 – Industrial sand), and Office for National Statistics (2000) *Mineral extraction in Great Britain 1999: Business Monitor PA1007*.

95 *British Geological Survey and Department of the Environment, Transport and the Regions (1999) Mineral Resource Information for Development Plans. Herefordshire and Worcestershire: Resources and Constraints*.

96 Worcestershire County Council (September 2018) *Silica Sand in Worcestershire*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

**Figure 2.6. Potential for silica sand resources<sup>97</sup>**



Note: An interactive minerals mapping tool is available at [www.worcestershire.gov.uk/minerals](http://www.worcestershire.gov.uk/minerals) to assist in the use and implementation of the Minerals Local Plan

### Imports and exports of industrial sand

2.49 Although Worcestershire is one of only eight areas nationally that produce sand for foundry use it contributes less than 1% of national supply.<sup>98</sup> No information is available on whether any silica sand is imported into Worcestershire.

### Future silica sand supply

2.50 52.0% of Worcestershire’s silica sand (Wildmoor Sandstone Formation) deposits are not affected by significant viability, environmental or amenity constraints.<sup>99</sup>

2.51 The low levels of demand for naturally bonded moulding sand make it unlikely that quarries primarily for silica sand will be required during

the lifetime of the Minerals Local Plan. It is more likely to continue to be worked on a small scale where it occurs alongside solid sands worked for aggregate purposes.

### Brick clay

2.52 Clay is used mainly in the manufacture of structural clay products, such as facing and engineering bricks, pavers, clay tiles and vitrified clay pipes. Across the UK, brick manufacture is the largest tonnage use. The suitability of a clay for manufacturing structural clay products depends principally on its behaviour during shaping, drying and firing.<sup>100</sup>

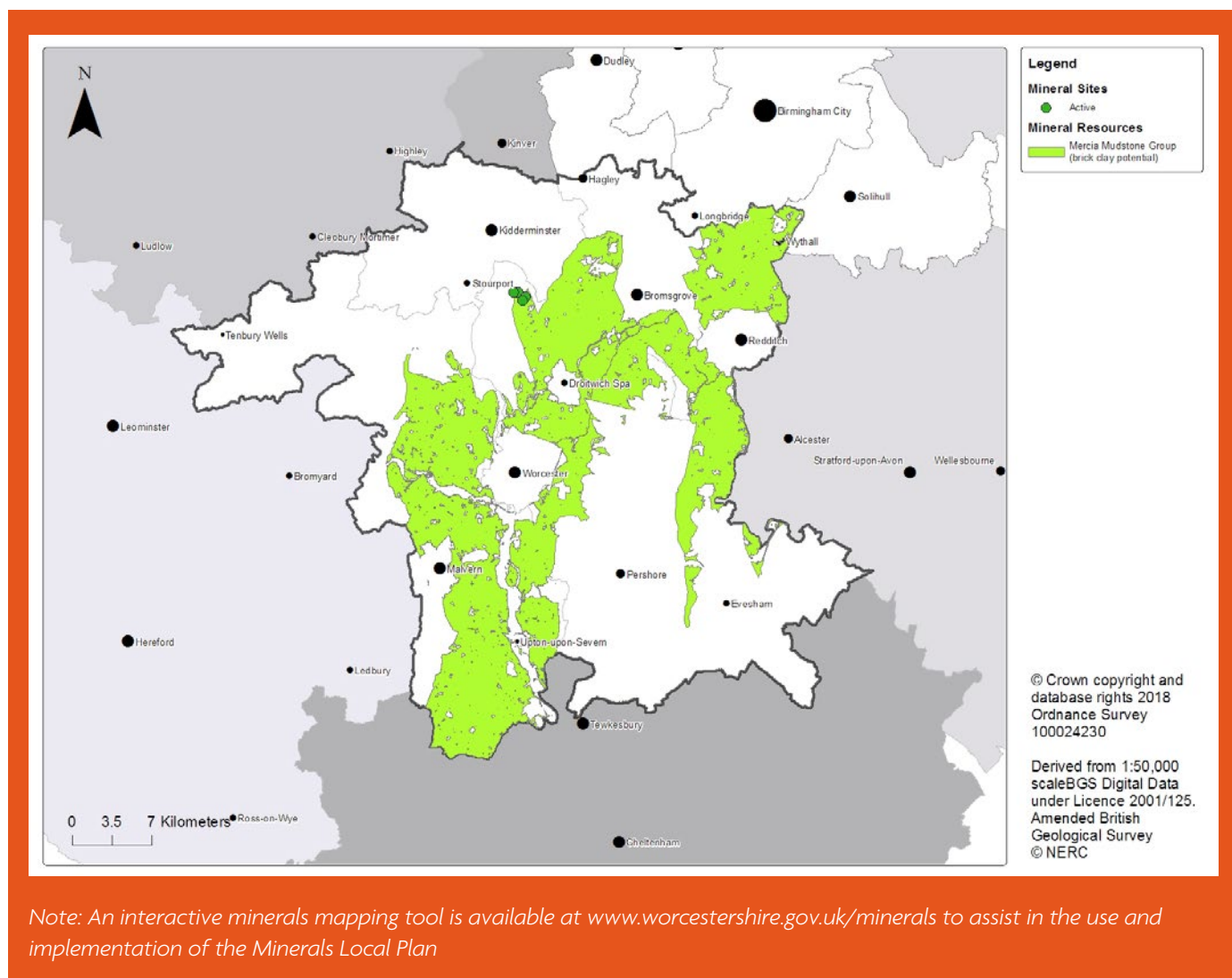
<sup>97</sup> Naturally bonded moulding sand, a type of silica sand, occurs within the Wildmoor Sandstone Formation but there is no information available to determine how widespread silica sand might be within the Formation. Figure 2.6 identifies the Wildmoor Sandstone Formation deposits after environmental and amenity screening criteria have been taken into account. For further information see Worcestershire County Council’s background document *Location of development: screening and site selection methodology* (August 2018), available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

<sup>98</sup> Department for Communities and Local Government (February 2013) *Mineral extraction in Great Britain 2011, Business Monitor PA1007* (Table 1 – Industrial sand)

<sup>99</sup> By area (3,284 hectares of 6,317 hectares). For further information see Worcestershire County Council’s background document *Location of development: screening and site selection methodology* (August 2018), available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

<sup>100</sup> British Geological Survey and Department of the Environment, Transport and the Regions (1999) *Mineral Resource Information for Development Plans. Herefordshire and Worcestershire: Resources and Constraints*.

**Figure 2.7. Potential for brick clay resources<sup>101</sup>**



2.53 There are nine different geological groups in Worcestershire that possess some clay properties,<sup>102</sup> and the distribution of clay pits, brick works and kilns recorded in the Historic Environment Record and historic Ordnance Survey maps suggests that all of the different clay groups found in the county have been used to some extent in the past.<sup>103</sup> However, modern planning applications for clay extraction in Worcestershire have all been limited to a localised area near to Kidderminster, working the formations of the Mercia Mudstone Group.

2.54 Clay from the Mercia Mudstone Group in this area has consistent forming and firing properties and a relatively low firing temperature making it suitable for use in the commercial manufacture of bricks and related products.<sup>104</sup> Whilst the Mercia Mudstone Group is found extensively across the south-west, central and north-eastern parts of the county, the composition of the formation and therefore the suitability for use in brickmaking in areas away from the current workings is largely unknown.<sup>105</sup>

<sup>101</sup> Figure 2.7 identifies the Mercia Mudstone Group deposits after environmental and amenity screening criteria have been taken into account. For further information see Worcestershire County Council's background document *Location of development: screening and site selection methodology* (August 2018), available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

<sup>102</sup> Bridgnorth Sandstone Group, Mercia Mudstone Group, Lias Group, Sherwood Sandstone Group, Warwickshire Group, Penarth Group, Lower Old Red Sandstone Group, Downton Group, Wenlock Group.

<sup>103</sup> Worcestershire County Council (September 2018) *Clay in Worcestershire*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

<sup>104</sup> British Geological Survey and Department of the Environment, Transport and the Regions (1999) *Mineral Resource Information for Development Plans. Herefordshire and Worcestershire: Resources and Constraints*.

<sup>105</sup> British Geological Survey and Department of the Environment, Transport and the Regions (1999) *Mineral Resource Information for Development Plans. Herefordshire and Worcestershire: Resources and Constraints*.

### Sales and production of brick clay in Worcestershire

2.55 Mercia Mudstone is currently worked at two sites in Worcestershire, near Hartlebury, both of which have associated brick works.<sup>106</sup> Together the sites and brick works are capable of producing over 2 million bricks per week and a range of pipes and tiles. They have been operational since the 1980s.

2.56 Sales of brick clay from Worcestershire are approximately 126,000 tonnes per annum,<sup>107</sup> contributing approximately 3% to national supplies of clay for brick, pipes and tiles.<sup>108</sup>

### Imports and exports

2.57 National import volumes of clay bricks increased six-fold between 2011 and 2014.<sup>109</sup> In 2015 the UK imported between 50,000 and 90,000 tonnes of bricks per month.<sup>110</sup> Bricks can be costly to transport long distances and the scope to use substitutes is limited, so there is a need to secure a long-term domestic supply to prevent an over-reliance on imports.

2.58 Worcestershire plays a significant role in the supply of brick clay and brick products both locally and nationally. This role has been maintained, to a greater or lesser extent, since at least the 1980s. No official data is available on the imports and exports of bricks or brick clay in the county, but discussions with industry indicate that although fewer than 10% of the bricks produced in Worcestershire are sold within the county, the amount produced would theoretically be sufficient to supply demand from within Worcestershire as well as contribute to national supply.<sup>111</sup> The balance of imports and exports is likely to be due to requirements for bricks with different structural and aesthetic attributes.

2.59 It is likely that some clay is imported from other Mineral Planning Authority areas.<sup>112</sup> Blending different clays to improve durability and provide a range of colours and aesthetic qualities is an increasingly common feature of the brick industry.<sup>113</sup>

### Future brick clay supply

2.60 Nationally there has been an overall decline in sales of brick clay, bricks and brick products, due in part to alternative materials being used in construction and a trend towards building smaller houses and flats (which require fewer bricks per unit).<sup>114</sup> However the national impetus for additional homes may result in increased demand.

2.61 75.3% of Worcestershire's brick clay (Mercia Mudstone Group) deposits are not affected by significant viability, environmental or amenity constraints.<sup>115</sup>

2.62 Each of the clay workings in Worcestershire has a stock of permitted reserves sufficient for the life of the plan.<sup>116</sup> However, as the two sites for brick clay in the county are run by a single operator, Worcestershire's supply of brick clay, bricks and brick products could be particularly vulnerable to market decisions. This means that flexibility is needed to allow other proposals to come forward, as well as to enable provision of brick clay from a number of different sources to enable appropriate blends to be made.

<sup>106</sup> Waresley Quarry (Waresley Brickworks) and New House Farm Quarry (Hartlebury Brickworks).

<sup>107</sup> 10 year average based on Mineral extraction in Great Britain, Business Monitor PA1007 reports for 2005 to 2014. Data for Worcestershire was only published for 2012, 2011, 2010, 2006. The data for other years was withheld to avoid disclosure of information relating to an individual undertaking without the consent of the person carrying on that undertaking.

<sup>108</sup> Based on sales of 111,000 tonnes from Worcestershire compared to the Great Britain total of 3,569,000 tonnes in 2012. Department for Communities and Local Government (February 2014) *Mineral extraction in Great Britain 2012: Business Monitor PA1007* (Table 8 – Clay & Shale).

<sup>109</sup> CBI (2016) *The UK Mineral Extraction Industry*, <http://www.cbi.org.uk/news/minerals-critical-to-the-uk-economy/cbi-report-the-uk-mineral-extraction-industry/>

<sup>110</sup> January – July figures given in presentation by the Mineral Products Association on the emerging UK Minerals Strategy to the Royal Town Planning Institute and Mineral Products Association Conference: *Securing a sustainable supply of minerals* on 20th May 2015.

<sup>111</sup> This is based on information from one operator only but is indicative of the market situation [confidential correspondence December 2012].

<sup>112</sup> Discussions with surrounding Mineral Planning Authorities indicate that this is likely to be the case, although data is limited.

<sup>113</sup> *British Geological Survey* and Department of the Environment, Transport and the Regions (1999) *Mineral Resource Information for Development Plans. Herefordshire and Worcestershire: Resources and Constraints*.

<sup>114</sup> UK Minerals Forum (2014) *Trends in UK Production of Minerals* [online] Available from: [http://www.bgs.ac.uk/ukmf/downloads/Trends%2520in%2520UK%2520Production%2520of%2520Minerals\\_08012014.pdf](http://www.bgs.ac.uk/ukmf/downloads/Trends%2520in%2520UK%2520Production%2520of%2520Minerals_08012014.pdf), page 17.

<sup>115</sup> By area (55,364 hectares of 73,543 hectares). For further information see Worcestershire County Council's background document *Location of development: screening and site selection methodology* (August 2018), available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

<sup>116</sup> Based on the figure for the remaining stock of permitted reserves in December 2016 (as provided in confidential discussions with the operator of the clay sites in Worcestershire, Weinerberger, April 2017), the permitted reserves would last approximately 63 years based on the 10 year average of known annual sales, but based on the sites' maximum potential output this could be less than 25 years.

### *The role of substitute, secondary and recycled materials and minerals waste in the supply of clay, bricks and brick products*

- 2.63 There is limited scope to substitute clay in brick manufacture itself, although colliery waste, Pulverised Fuel Ash (PFA), Incinerator Bottom Ash (IBA), granular blast furnace slag, ground recycled glass, and even some waste materials including sawdust, straw, foamed polystyrene and water treatment and sewage sludge have been used to some extent in brick manufacture.<sup>117</sup> Concrete blocks, pipes and tiles are the main alternatives to clay products.<sup>118</sup> However, there is little evidence available to estimate the contribution that these types of materials may make to the overall supply of brick clay or whether this is likely to change in the future.
- 2.64 The re-use of bricks to match styles is common in building conservation. However this is generally limited to buildings over 60 years old, as the lower-strength lime mortars used at that time make the bricks relatively easy to separate and clean.<sup>119</sup> Bricks from newer buildings are more often crushed and re-used as low-quality aggregate. Reusing bricks is often more costly than purchasing new bricks because the reclamation process is labour intensive.

### **Salt and brine**

- 2.65 Salt can be extracted in two forms: as a solid rock salt (or halite), or as liquid brine. Brine is created where ground water percolates through and dissolves the rock salt. In Worcestershire, rock salt occurs within the Droitwich Halite Member (part of the Mercia Mudstone Group) which underlies an area around Droitwich and Stoke Prior to the north-east of Worcester.<sup>120</sup> The Droitwich Halite Member is around 160m thick, with its top at a depth of 250m. Rock salt is found within the mudstone in beds of up to 11m thick, but mostly less than 4m.<sup>121</sup>

- 2.66 Whilst there is some geological information available regarding the geographic extent of solid rock salt (halite) in Worcestershire, there is very little information regarding the extent of brine due to the complex hydrology of the area. Historic information suggests that brine is not limited to the areas of the county which are in proximity to the mapped rock salt deposits.<sup>122</sup>

- 2.67 Historically, rock salt was mined at Stoke Prior near Droitwich until the workings flooded. Brine was extracted on an industrial scale in and around Droitwich by pumping until the 1970s when operations were closed due to subsidence problems affecting Droitwich and the surrounding area.<sup>123</sup>

### *Sales and production of salt and brine*

- 2.68 Brine is extracted on a small scale from one site in Droitwich.<sup>124</sup> This site supplied a brine bath facility which closed in 2008<sup>125</sup> and small-scale commercial production of edible salt uses from brine from this site.<sup>126</sup>

### *Imports and exports*

- 2.69 With only small-scale production of salt or brine which is used within the county, Worcestershire is an importer of these products. In 2014 most national supply was met from extraction in Cleveland and Cheshire.<sup>127</sup>

### *Future salt supply*

- 2.70 As rock salt in Worcestershire occurs in relatively thin beds at a significant depth, it is unlikely that these deposits will be of commercial interest during the life of the plan.<sup>128</sup>

117 British Geological Survey (2007) *Mineral Planning Fact sheet: Brick Clay*, available from <http://www.bgs.ac.uk/mineralsuk/planning/mineralPlanningFactsheets.html>, page 11.

118 British Geological Survey (2007) *Mineral Planning Fact sheet: Brick Clay*, available from <http://www.bgs.ac.uk/mineralsuk/planning/mineralPlanningFactsheets.html>, page 11.

119 British Geological Survey (2007) *Mineral Planning Fact sheet: Brick Clay*, available from <http://www.bgs.ac.uk/mineralsuk/planning/mineralPlanningFactsheets.html>, page 11.

120 British Geological Survey and Department of the Environment, Transport and the Regions (1999) *Mineral Resource Information for Development Plans. Herefordshire and Worcestershire: Resources and Constraints*.

121 British Geological Survey and Department of the Environment, Transport and the Regions (1999) *Mineral Resource Information for Development Plans. Herefordshire and Worcestershire: Resources and Constraints*.

122 Brine was pumped in Tenbury Wells in the past.

123 British Geological Survey and Department of the Environment, Transport and the Regions (1999) *Mineral Resource Information for Development Plans. Herefordshire and Worcestershire: Resources and Constraints*.

124 Tower Hill Pump in Droitwich.

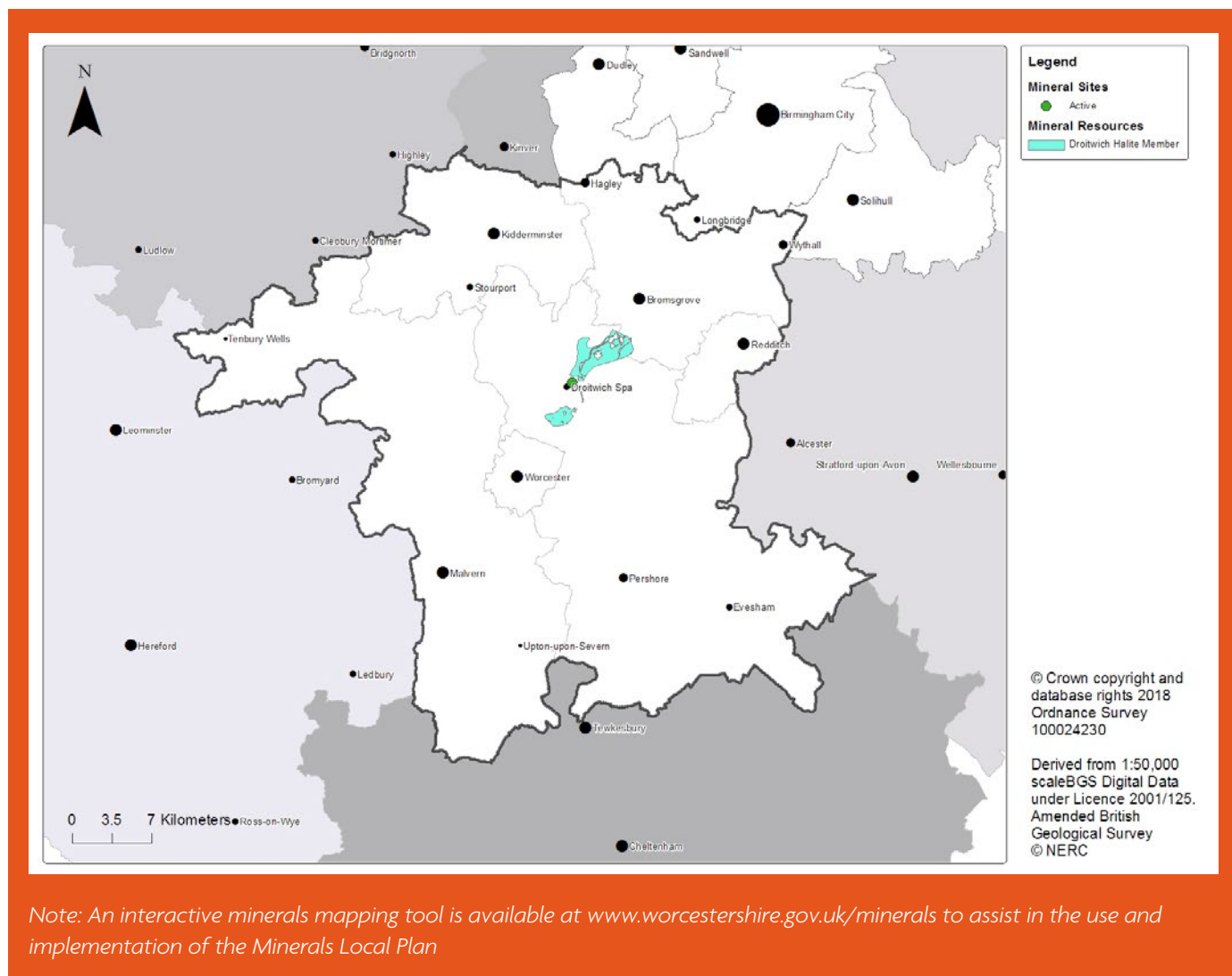
125 There is outline planning approval for a development including a brine bath adjacent to Droitwich Spa lido (Wychavon District Council planning application reference 17/02092/OUT)

126 Droitwich Salt has been harvested from brine at Churchfields Saltworks since 2017, <https://www.droitwichsalt.com>.

127 Department for Communities and Local Government (February 2015) *Mineral extraction in Great Britain 2014: Business Monitor PA1007* (Table 12 – Other minerals).

128 British Geological Survey and Department of the Environment, Transport and the Regions (1999) *Mineral Resource Information for Development Plans. Herefordshire and Worcestershire: Resources and Constraints*.

**Figure 2.8. Potential for salt and brine resources<sup>129</sup>**



2.71 Although some brine is being extracted to supply small-scale commercial production of edible salt and is likely to supply a brine bath adjacent to Droitwich Spa lido,<sup>130</sup> the extraction of brine has to be managed carefully because of the risk of subsidence. Significant increases in brine production are therefore unlikely. 70.2% of the Droitwich Halite Member is not affected by significant viability, environmental or amenity constraints.<sup>131</sup>

**Building stone<sup>132</sup>**

2.72 Local building stone contributes significantly to the character of some areas of Worcestershire. There are numerous examples of stone-built structures in Worcestershire: over 1,500 buildings in Worcestershire are recorded on the Thousand Years of Building with Stone project’s database.<sup>133</sup> In some cases local building stone has been used in walls, paving stones and a variety of buildings, whilst in other areas its use is limited to features such as bridges, churches and monuments.

<sup>129</sup> Figure 2.8 identifies the Droitwich Halite deposits after environmental and amenity screening criteria have been taken into account. For further information see Worcestershire County Council’s background document *Location of development: screening and site selection methodology* (August 2018), available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

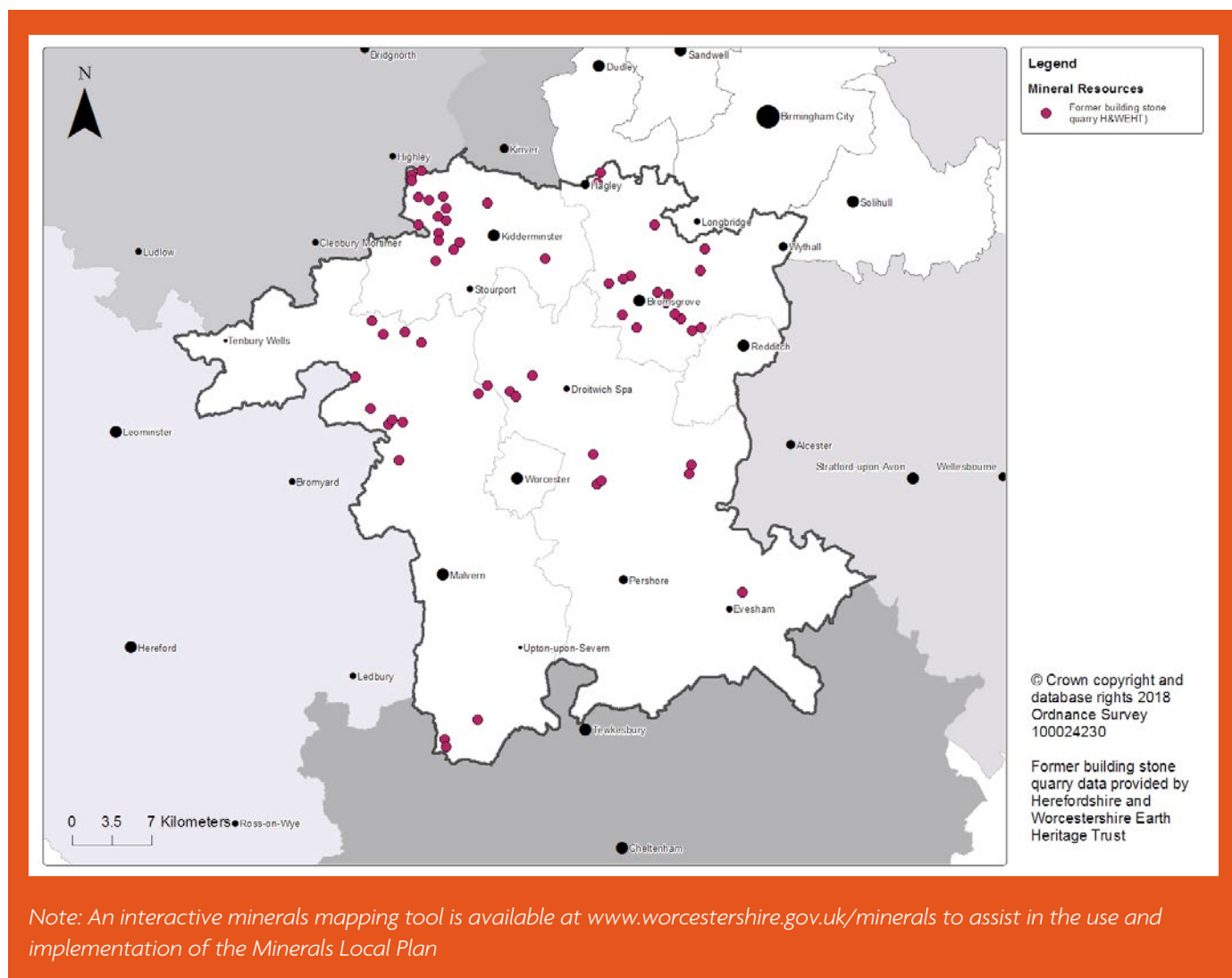
<sup>130</sup> There is outline planning approval for a development including a brine bath adjacent to Droitwich Spa lido (Wychavon District Council planning application reference 17/02092/OUT).

<sup>131</sup> By area (1,285 hectares of 1,830 hectares). For further information see Worcestershire County Council’s background document *Location of development: screening and site selection methodology* (August 2018), available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

<sup>132</sup> For the purpose of this document, the term “building stone” incorporates building, walling, roofing and dimension stones.

<sup>133</sup> Herefordshire and Worcestershire Earth Heritage Trust, *A Thousand Years of Building with Stone* <http://www.buildingstones.org.uk/>. This data set includes stone structure listed in Pevsner’s *The Buildings of England – Worcestershire* and structures from seven cluster study areas within Worcestershire so is not comprehensive.

**Figure 2.9. Potential for building stone resources<sup>134</sup>**



*Note: An interactive minerals mapping tool is available at [www.worcestershire.gov.uk/minerals](http://www.worcestershire.gov.uk/minerals) to assist in the use and implementation of the Minerals Local Plan*

2.73 Granite, limestone, sandstone, tufa, breccias and quartz and quartzite pebbles have been worked historically for use as building stone,<sup>135</sup> and 233 former building stone quarries have been identified in Worcestershire.<sup>136</sup> Whilst Worcestershire building stone sources were not widely exported for building construction in the way that stone sources such as Portland Limestone from Dorset or Grinshill Sandstone from Shropshire continue to be, good quality locally sourced stone was used for high status buildings such as churches, large houses and Worcester Cathedral from the middle ages and into the twentieth century. Locally sourced stone was widely used for construction of vernacular buildings.

**Sales and production of building stone**

2.74 Although a significant number of disused building stone quarries have been identified in the county,<sup>137</sup> there are currently no building stone workings or permitted reserves in Worcestershire.

**Imports and exports**

2.75 There is no specific information available about the demand for local building stone within Worcestershire or the amount of stone which is imported annually. However, restoration and repair works on important stone buildings and structures throughout the county have been carried out using stones imported from other parts of the UK and beyond, where this stone is considered to be an acceptable match for the original stone.

<sup>134</sup> Figure 2.9 identifies the former building stone quarries (identified by the Thousand Years of Building with Stone project) after environmental and amenity screening criteria have been taken into account. For further information see Worcestershire County Council's background document *Location of development: screening and site selection methodology* (August 2018), available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

<sup>135</sup> English Heritage (2012) *Strategic Stone Study: A Building Stone Atlas of Worcestershire*.

<sup>136</sup> Herefordshire and Worcestershire Earth Heritage Trust, *A Thousand Years of Building with Stone* <http://www.buildingstones.org.uk/>.

<sup>137</sup> Herefordshire and Worcestershire Earth Heritage Trust, *A Thousand Years of Building with Stone* <http://www.buildingstones.org.uk/>.

### Future building stone supply

- 2.76 Demand for natural building stone products is variable and difficult to quantify, as the industry supplies a large range of end products to several market sectors.<sup>138</sup>
- 2.77 Nationally and locally, there are concerns amongst geologists and conservationists about ensuring the continued supply of natural local building stone for the restoration and repair of historic buildings. Specific conservation projects may call for particular types of stone and this may encourage building stone extraction in the county. If works to meet such a need were to become operational, the intermittent nature of demand for specific building stones may lead to workings lying dormant for some time.
- 2.78 26.6% of Worcestershire’s former building stone quarries (identified by the Thousand Years of Building with Stone project)<sup>139</sup> are not affected by significant viability, environmental or amenity constraints.<sup>140</sup>

### The role of substitute, secondary and recycled materials and minerals waste in the supply of building stone

- 2.79 There can be significant variations in the appearance and characteristics of building stone, even within the same broad stone type. The best stone to use for conservation and repair is almost always the original stone from the same quarry as this ensures the best possible match.<sup>141</sup> The appropriate use of reclaimed building stone, such as from demolition or site excavations during building works or highway construction, can play an important role in reducing the need for primary materials.

- 2.80 The Malvern Hills Area of Outstanding Natural Beauty Partnership supports the re-use of local stone in the repair of historic buildings and to add character to new development in and around Malvern. It is helping to facilitate the recovery and storage of stone for this purpose where buildings or walls are demolished and where stone is excavated as part of building works.

### Energy minerals

- 2.81 In Worcestershire there are two small areas where geological information suggests that coal may be present: a small area to the north of Bromsgrove lies at the southern end of the South Staffordshire Coalfield and another area to the north and west of Kidderminster lies at the southern end of the Wyre Forest Coalfield.<sup>142</sup> These coalfields extend to the north of the county. Former workings have left a legacy of mining features and hazards in parts of the Wyre Forest and Malvern Hills districts which are locally significant and may cause issues of land instability.
- 2.82 Coal has not been worked in Worcestershire since the 1970s and the latest data issued by the Coal Authority indicates that none of the coal deposits remaining in the county constitute a “surface coal resource”<sup>143</sup> that is likely to attract further interest.<sup>144</sup>
- 2.83 There is no evidence that conventional hydrocarbons (oil, natural gas or coalbed methane) or unconventional hydrocarbons (shale oil or gas, which may be accessed by hydraulic fracturing, or “fracking”) exist in Worcestershire. The county is not considered “prospective” for coalbed methane,<sup>145</sup> and although coal-bearing and shale strata exist in the county, there is no evidence to suggest that these contain unconventional hydrocarbons such as shale gas. No blocks were licensed in or near to Worcestershire under the 14th Onshore Oil and Gas Licensing Round.<sup>146</sup>

138 Thompson, A. et al. (2004) *Planning for the Supply of Natural Building and Roofing Stone in England and Wales* (The Symonds Report) Office of the Deputy Prime Minister, London.

139 Herefordshire and Worcestershire Earth Heritage Trust, *A Thousand Years of Building with Stone* <http://www.buildingstones.org.uk/>.

140 By number (62 of 233 former quarries). For further information see Worcestershire County Council’s background document *Location of development: screening and site selection methodology* (August 2018), available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

141 Jefferson, D., Hanna, S. and Martin, B. (2006) *Identifying and Sourcing Stone for Historic Building Repair: An approach to determining and obtaining compatible replacement stone* English Heritage.

142 *British Geological Survey* and Department of the Environment, Transport and the Regions (1999) *Mineral Resource Information for Development Plans. Herefordshire and Worcestershire: Resources and Constraints*.

143 Surface coal resource areas are where extraction of the coal can be carried out by surface mining methods. (Coal Authority (October 2014) *Safeguarding surface coal resources*).

144 Worcestershire County Council (September 2018) *Coal mining in Worcestershire*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

145 *British Geological Survey* and Department of the Environment, Transport and the Regions (1999) *Mineral Resource Information for Development Plans. Herefordshire and Worcestershire: Resources and Constraints*.

146 Information about the Onshore Oil and Gas Licensing Rounds is available at <https://www.ogauthority.co.uk/licensing-consents>.





### Imports and exports

2.84 There is no specific information available about the demand for energy minerals within Worcestershire or the amount of these which are imported annually. However, there are no commercial power stations which generate electricity for the grid in the county fuelled by coal or hydrocarbons which require the importation of energy minerals.

### The role of substitute, secondary and recycled materials and minerals waste in the supply of energy

2.85 There are numerous installations in Worcestershire generating energy from household, agricultural, and horticultural waste. These include landfill gas engines and anaerobic digestion plants which produce biogas from organic material and an energy from waste thermal treatment facility. However, the county's landlocked position and relatively limited renewable energy resources mean that it is unlikely to become a leading producer of renewable energy in the national context.<sup>147</sup>

## Worcestershire's transport network

2.86 Some minerals are only found in specific areas of the UK and are therefore transported long distances for use. Most of the minerals found in Worcestershire, particularly sand and gravel, are bulky, relatively low-value materials that are expensive to transport. The transport of materials can have impacts on amenity and climate change.

2.87 It is therefore important that aggregate workings are well located to serve planned housing and infrastructure development. Current workings for industrial minerals in Worcestershire are located either close to processing and manufacturing facilities or close to the motorway network.

2.88 An understanding of current transport networks and constraints in Worcestershire is necessary to ensure that the Minerals Local Plan takes an appropriate approach to encouraging sustainable transport modes and focusing transport movements on the strategic transport network.

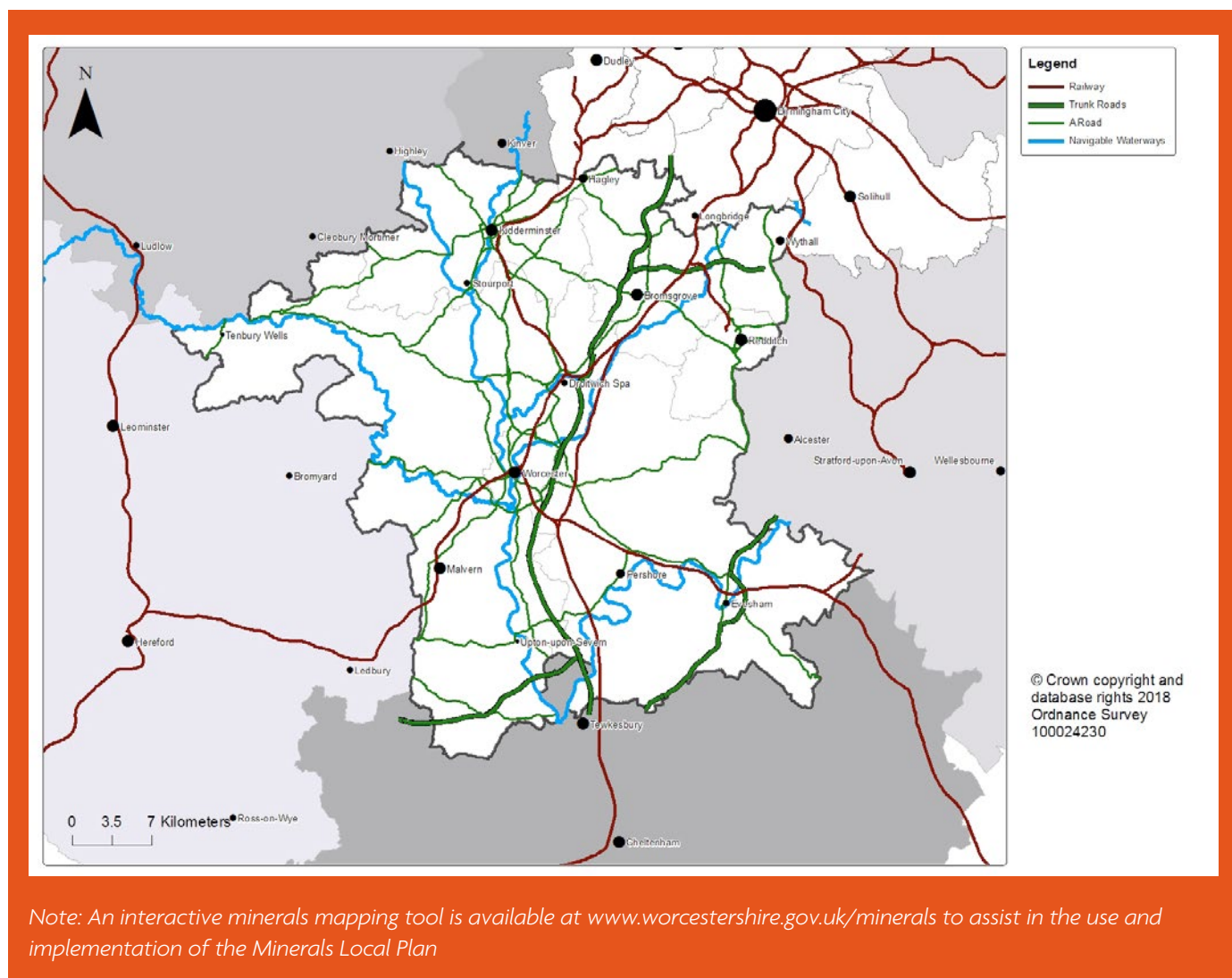
2.89 The county's strategic transport network, which includes waterways, rail and road, is shown on Figure 2.10.

2.90 Securing a steady and adequate supply of minerals requires supporting infrastructure including storage, handling and transport facilities to facilitate both local distribution of materials and any imports and exports. There are currently no handling or processing facilities for the bulk transport of minerals by rail or inland waterway in Worcestershire. Any imports and exports are therefore solely reliant on the road network.

2.91 The scale and type of Worcestershire's resources and location within the strategic transport network mean it is unlikely that permanent facilities dedicated to the bulking of minerals will be developed, although there may be opportunities for smaller-scale water or rail transportation associated with specific workings.

<sup>147</sup> Worcestershire County Council (November 2015) *Renewable Energy Research Paper*.

**Figure 2.10. Strategic transport network**



## Water transport<sup>148</sup>

2.92 There is a network of navigable rivers and canals throughout Worcestershire (Figure 2.10). Transporting minerals by water produces considerably lower carbon emissions than road transport and can help to relieve road congestion. The use of inland waterways to transport minerals is, however, limited by the proximity of mineral resources to navigable waterways and by the capacity of specific waterways to accommodate different sizes of vessel. The number of locks on a waterway may also affect the viability of water transport due to the increased time and manpower required in their navigation. Wharfage facilities are also required for loading and unloading minerals.

2.93 The River Severn is classed as a ‘commercial waterway’ from Stourport to Gloucester. This

section of the River Severn is under-utilised for freight but is popular with leisure and tourist boaters. The River Severn connects to the Staffordshire and Worcestershire Canal at Stourport, the Droitwich Barge Canal at Hawford, the Worcestershire and Birmingham Canal at Worcester and to the River Avon at Tewkesbury. Sand and gravel was carried commercially on the River Severn between extraction at Ripple Quarry and the processing plant at Ryall House Farm Quarry in Worcestershire<sup>149</sup> and has in the past been transported onwards into Gloucestershire. Planning permission has been granted for the continued use of the wharf and processing plant at Ryall House Farm Quarry to receive material transported on the River Severn from Ryall Court Farm Quarry near Upton-upon-Severn.<sup>150</sup> These are the only commercial wharfage facilities in Worcestershire.

<sup>148</sup> Worcestershire County Council (September 2018) *Worcestershire Minerals Local Plan Background Document: Water Transport*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

<sup>149</sup> See case study in Worcestershire County Council (September 2018) *Minerals Local Plan Background Document: Water Transport*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

<sup>150</sup> Planning application reference 15/000012/CM.

**2.94** The River Avon joins the River Severn at Tewkesbury and connects to the Stratford-upon-Avon Canal at Stratford-upon-Avon. It is well used by recreational and tourist craft but the last commercial barge to operate regularly on the river ceased in 1972.<sup>151</sup> In 2010, clay was transported from Birlingham to Pershore to build Environment Agency flood defences, showing the potential for minerals to be carried on the River Avon, although there are 17 locks on the Avon between Tewkesbury and Stratford-upon-Avon, and the size of the lock gates at Tewkesbury means that smaller vessels are required than those used on the River Severn.

**2.95** The Worcester & Birmingham Canal runs from the River Severn in Worcester to Birmingham and is used for leisure craft.<sup>152</sup> The Staffordshire & Worcestershire Canal links the River Severn at Stourport-on-Severn with towns to the north, and was historically used to carry coal from Cannock to Stourport power station, but this traffic ceased in 1949.

**2.96** The Droitwich Barge Canal and Droitwich Junction Canal were built to carry salt. Abandoned in 1939, they were restored and reopened in 2010 and 2011 respectively and are now used for leisure craft.<sup>153</sup>

## Rail transport<sup>154</sup>

**2.97** Rail freight has traditionally carried heavy, bulky goods and construction materials, including aggregates and minerals. Each tonne of freight (including aggregates) transported by rail reduces carbon emissions by 76% compared to road transport, and each freight train removes 43 to 76 lorries from the roads.<sup>155</sup>

**2.98** Strategic rail networks within Worcestershire provide links to the north and south of the country, and Worcestershire is well-served by passenger rail with most of the main towns connected to the rail network. However, of the 94 miles of railway in the county, 29.5 miles are single track, which restricts capacity, complicates timetabling, and affects reliability. Network Rail is

considering addressing the capacity restrictions caused by single line sections and outdated signalling systems in the county, but with no committed timescales.<sup>156</sup>

**2.99** There are no major rail freight facilities and no mineral sites with rail connections in Worcestershire, and opportunities for rail freight transport are limited at present. The development of new railheads would require a sizeable, long-term mineral working to warrant the investment in new infrastructure, which is unlikely in Worcestershire.

## Road transport<sup>157</sup>

**2.100** The county is well connected to the strategic road network (Figure 2.10). It is served by three motorways (M5, M42 and M50) and one designated Trunk Road (A46). Sections of the M5 and M42 experience very high traffic flows. Flows on the M50 are significantly lower than for the other motorways in Worcestershire. Worcestershire is also served by a number of A-roads that connect the main urban centres in the county and provide access to the motorway network, towns and cities in surrounding counties, and residential and industrial areas.

**2.101** The Worcestershire Advisory Lorry Route Map<sup>158</sup> indicates the best available routes for heavy goods vehicles in Worcestershire, encouraging use of routes which avoid environmentally sensitive areas and bridges with restricted safe clearance, and minimise conflict with local residents and impacts on Air Quality Management Areas (AQMAs). An increasing number of HGVs is recognised as a particular problem in the Vale of Evesham.<sup>159</sup>

**2.102** The majority of mineral movements in Worcestershire are by road, and even where minerals themselves could be transported by waterway or rail, good access to the strategic road network is likely to be required for staff and visitors and transporting any plant to and from sites.

<sup>151</sup> Email from Clive Matthews, General Manager, Avon Navigation Trust, 06/01/2014.

<sup>152</sup> The Canal and River Trust website states that "The last commercial traffics [on the canal] were coal from Cannock to Worcester and chocolate crumb from Worcester to Bournville, ceasing in 1960 and 1961 respectively" (<https://canalrivertrust.org.uk/enjoy-the-waterways/canal-and-river-network/worcester-and-birmingham-canal>).

<sup>153</sup> For further information see <https://canalrivertrust.org.uk/enjoy-the-waterways/canal-and-river-network/droitwich-canal>.

<sup>154</sup> Worcestershire County Council, (September 2018), *Worcestershire Minerals Local Plan Background Document: Rail Freight*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

<sup>155</sup> Department for Transport (September 2016) *Rail Freight Strategy*

<sup>156</sup> Worcestershire County Council (Autumn 2017) *Worcestershire Rail Investment Strategy: Supporting Development of Worcestershire's Local Transport Plan 4*.

<sup>157</sup> Worcestershire County Council, *Worcestershire's Local Transport Plan (LTP) 2018-2030*, <http://www.worcestershire.gov.uk/ltp4>.

<sup>158</sup> Worcestershire Advisory Lorry Route Map, [http://www.worcestershire.gov.uk/info/20007/travel\\_and\\_roads/1003/freight/2](http://www.worcestershire.gov.uk/info/20007/travel_and_roads/1003/freight/2)

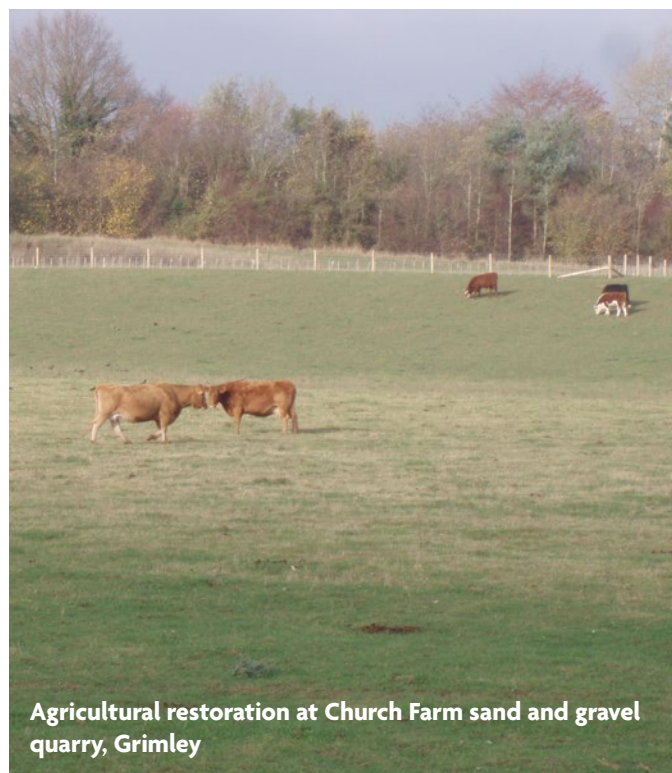
<sup>159</sup> South Worcestershire Councils (2016) *South Worcestershire Development Plan*. The reasoned justification supporting policy SWDP11 states that the "increased level of HGV traffic [in the Vale] has affected the quality of life of residents through the generation of increased noise, vibration, pollution and other adverse impacts".

## Worcestershire's economy

- 2.103 Mineral development is essential to supporting economic growth and development of housing and infrastructure. It has the potential to both positively and negatively affect different economic sectors. It is therefore important to understand the character and performance of the local economy and, in particular, those sectors most likely to impact on and be impacted by minerals development.
- 2.104 Worcestershire has a highly diversified economy, and is home to a wide range of businesses. Existing industry strengths in advanced engineering and manufacturing, cyber security and defence, agri-tech and associated energy technologies<sup>160</sup> are identified as growth sectors alongside the visitor and destination economy.<sup>161</sup>
- 2.105 Effective planning and management of minerals development is needed to ensure that impacts on transport networks and the character of the area do not lead to indirect economic impacts. Maintaining and enhancing the county's high-quality environment can help to attract and retain people visiting, working and investing in the county.<sup>162</sup>
- 2.106 Agri-tech, horticulture and food production are strong economic sectors in Worcestershire due to high-quality soils<sup>163</sup> and the county's central location, and there has been a high level of investment in commercial glasshouses in recent years. Water abstraction and water resource management are important issues for this sector.<sup>164</sup> There is a significant cross-over between the location of mineral resources and high-quality agricultural land,<sup>165</sup> particularly the sand and gravel deposits along the county's river valleys and Mercia Mudstone which occurs extensively across Worcestershire. Change of land use for minerals development and subsequent restoration could result in some areas of land being temporarily or permanently taken out of agricultural use, although agriculture may benefit in the longer term if restoration schemes improve management of water resources or enhance ecosystem services.

## Worcestershire's environment

- 2.107 The county is rich in high-quality environmental assets. As a largely rural county there are significant areas of green space. These do not exist in isolation, but are part of an integrated system of environmental stepping stones in a wider network of green infrastructure.
- 2.108 In Worcestershire, there is a strong relationship between the location of mineral resources and the environmental character of the areas where they are found. Land formations, topography, hydrology, and soil types are all closely linked to the type of bedrock, geological formations and mineral deposits found in the area. In turn these factors influence the fertility of the land, the habitats that thrive, issues such as surface water, ground water and the flow of watercourses and the way in which land is and has been used.
- 2.109 It is important to understand each of these components in their own right and how they contribute towards multifunctional networks of green infrastructure.



<sup>160</sup> Worcestershire Local Enterprise Partnership (2014) *Worcestershire Strategic Economic Plan*.

<sup>161</sup> Worcestershire Local Enterprise Partnership, *Growth Sectors*, <https://www.wlep.co.uk/about-wlep/growth-sectors/>.

<sup>162</sup> Worcestershire Local Enterprise Partnership, *Environmental Sustainability*, <https://www.wlep.co.uk/about-wlep/environmental-sustainability>.

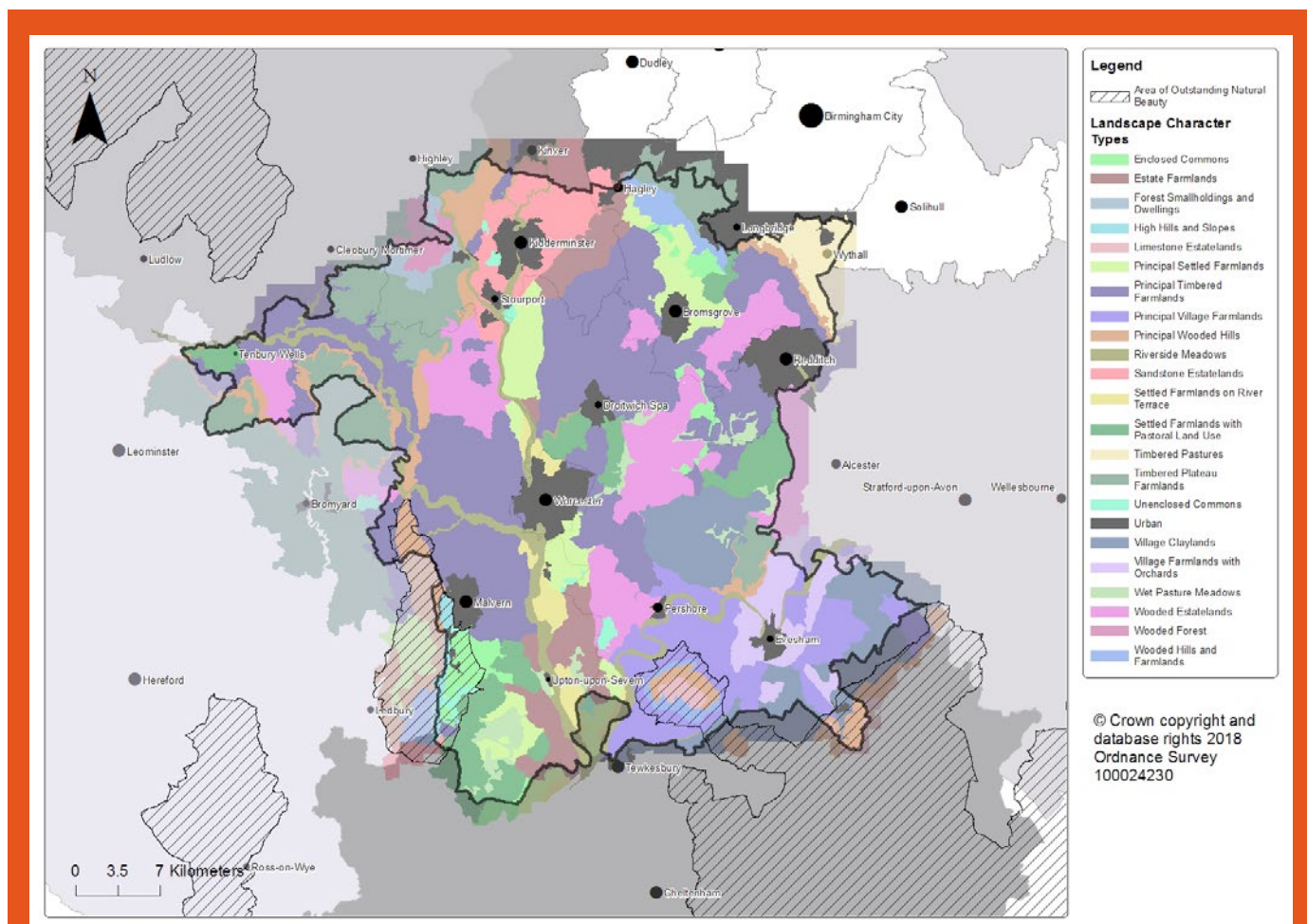
<sup>163</sup> Worcestershire County Council (December 2011) *Technical Research Paper: Planning for Soils in Worcestershire*.

<sup>164</sup> The Worcestershire Partnership (2012) *Worcestershire Climate Change Strategy 2012 – 2020: A Framework for securing a low carbon & climate resilient County*.

<sup>165</sup> Ministry of Housing, Communities and Local Government (July 2018) *National Planning Policy Framework* defines best and most versatile agricultural land as grades 1, 2 and 3a of the Agricultural Land Classification.

## Landscape character and local distinctiveness

Figure 2.11. Landscape character and Areas of Outstanding Natural Beauty



Note: An interactive minerals mapping tool is available at [www.worcestershire.gov.uk/minerals](http://www.worcestershire.gov.uk/minerals) to assist in the use and implementation of the Minerals Local Plan

2.110 Landscape is the physical and visual manifestation of the interrelationship between man’s activities and the natural environment. These are dynamic forces, forever changing the character of the landscape.<sup>166</sup> Worcestershire’s landscape is one of the most diverse in Britain, with six National Character Areas<sup>167</sup> and 22 significantly different Landscape Types.<sup>168</sup> The county’s landscape can be broadly divided into two distinctive topographical types: a rolling landscape with areas of semi-upland character cut by often deeply incised stream valleys dominating the northern, north-western and extreme western parts of the county; and generally lower-lying areas in the central, southern and eastern parts of

the county, dominated by distinctive river valleys. These landscapes closely reflect the underlying geology.

2.111 Parts of two Areas of Outstanding Natural Beauty (AONB) are within Worcestershire: the Malvern Hills AONB<sup>169</sup> which extends into Herefordshire and a small part of Gloucestershire; and the western extremity of the extensive Cotswolds AONB,<sup>170</sup> stretching across Bredon Hill and the Cotswold scarp beyond Broadway. Together these AONB designations cover 9% of the county and national protection is afforded to their landscape and scenic beauty. The AONBs are closely associated with the granite and limestone rocks in the county.

166 Worcestershire County Council (2012) *Landscape Character Assessment Supplementary Guidance*. [www.worcestershire.gov.uk/lca](http://www.worcestershire.gov.uk/lca).

167 National Character Areas are areas that share similar landscape characteristics, and which follow natural lines in the landscape rather than administrative boundaries. The six National Character Areas covering Worcestershire are the Severn & Avon Vales, Teme Valley, Mid Severn Sandstone Plateau, Malvern Hills, Arden, and Cotswolds. National Character Area profiles are available at <https://www.gov.uk/government/publications/national-character-area-profiles-data-for-local-decision-making/national-character-area-profiles>.

168 Worcestershire County Council (2012) *Landscape Character Assessment Supplementary Guidance*. [www.worcestershire.gov.uk/lca](http://www.worcestershire.gov.uk/lca).

169 <http://www.malvernhillsaonb.org.uk/>

170 <https://www.cotswoldsaonb.org.uk/>

2.112 Half of Worcestershire’s entire land area has undergone some kind of landscape character change since 1945 as a result of changes in land use, land management practices and built development.<sup>171</sup> In the past, mineral development has resulted in changes to landscape character, both temporary whilst a site is working and permanent changes such as changes to field boundaries and the introduction of lakes and ponds into a previously agricultural landscape.

2.113 Piecemeal change to the landscape as a result of mineral development could weaken local distinctiveness and undermine the character of the landscape. Planning the location, working and restoration of mineral sites at a landscape-scale can bring opportunities to strengthen key landscape characteristics, connectivity and legibility, such as by re-instating or strengthening hedgerow and field patterns or typical land-uses, or strengthening associations between views and key receptors. Managing any changes resulting from mineral working within this context can ensure that mineral working and restoration is sensitive to the local landscape and that schemes across different sites in an area will be cohesive rather than fragmented.

## Biodiversity

2.114 The county is exceptionally biologically rich as it encompasses the southern limit of many northern plant and animal species, and the northern limit of many southern species. There are two Special Areas of Conservation, four National Nature Reserves, 103 biological Sites of Special Scientific Interest (SSSI),<sup>172</sup> and over 567 Local Wildlife Sites in the county, which collectively cover approximately 5% of the county.<sup>173</sup> Worcestershire’s Biodiversity Action Plan (BAP)<sup>174</sup> includes 17 different habitats and 24 species action plans including traditional

orchards, woodlands and grassland. Worcestershire has over 20% of the UK’s remaining unimproved neutral grassland habitat.<sup>175</sup>

2.115 There are localised areas where SSSIs are in poor condition and, whilst some of the BAP habitats are well connected, others are fragmented. Worcestershire Biodiversity Partnership and Local Nature Partnership have identified five Biodiversity Delivery Areas<sup>176</sup> across the county where targets within the Biodiversity Action Plan can be best delivered in the short term.

2.116 Mineral workings and their restoration can create significant opportunities for new habitats, sites and features of nature conservation value<sup>177</sup> although it also has the potential to destroy or degrade some habitats. It is estimated<sup>178</sup> that mineral sites nationally have the potential to deliver all the existing UK BAP habitat creation targets for nine<sup>179</sup> priority habitats. They can create habitats that are more resilient to climate change and can aid species dispersal by helping to buffer, extend or create links between existing habitats.<sup>180</sup>

2.117 The balance of biodiversity benefits from mineral development will depend on the quality of the existing habitats and any that could be created. By viewing and designing mineral sites as part of a landscape-scale corridor, opportunities for net gains for biodiversity can be optimised by protecting, enhancing and creating coherent ecological networks that are more resilient to current and future pressures and provide a range of services for wildlife.<sup>181</sup>

<sup>171</sup> Worcestershire County Council (2012) *Worcestershire Historic Landscape Characterisation*.

<sup>172</sup> Of the 113 SSSIs in Worcestershire, 99 are biological SSSIs, 10 are geological, and four are both biological and geological. They cover a combined area of over 5,300ha.

<sup>173</sup> 8,600ha.

<sup>174</sup> Worcestershire Biodiversity Partnership (2008) *Biodiversity Action Plan for Worcestershire*.

<sup>175</sup> Estimated to be just 7282ha by Rodwell et al in 2007 (in Worcestershire Biodiversity Partnership (2008) *Biodiversity Action Plan for Worcestershire*).

<sup>176</sup> The Biodiversity Delivery Areas can be found on the Worcestershire Biodiversity Action Plan pages at [http://www.worcestershire.gov.uk/info/20252/environmental\\_policy/1155/biodiversity\\_action\\_plan](http://www.worcestershire.gov.uk/info/20252/environmental_policy/1155/biodiversity_action_plan).

<sup>177</sup> Worcestershire County Council (2013) *Biodiversity and mineral sites in Worcestershire: Guidance for the sustainable management of biodiversity action plan habitats at Worcestershire mineral sites*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

<sup>178</sup> RSPB (2006) *Nature After Minerals: How mineral site restoration can benefit people and wildlife*.

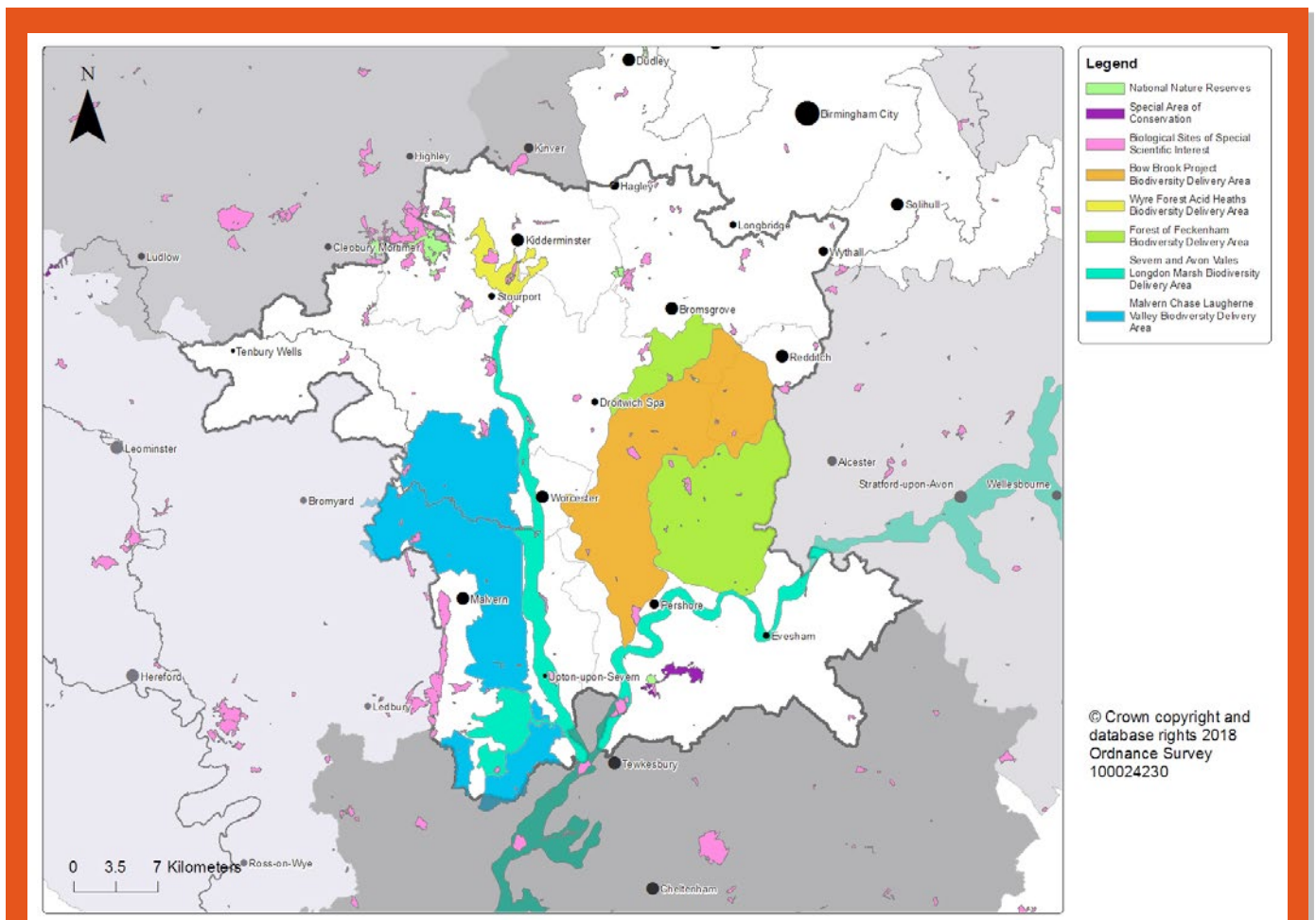
<sup>179</sup> Lowland acid grassland, Native Woodland, Wood pasture and parkland, Lowland calcareous grassland, lowland heathland, Purple moor grass and rush pasture, Wet reedbeds, Lowland meadows, Upland hay meadows.

<sup>180</sup> *Making Space for Nature: A review of England’s Wildlife Sites and Ecological Network*, chaired by Professor Sir John Lawton CBE FRS

<sup>181</sup> An ecological network is a network of habitats and features which provide ecological functionality for particular, or a range of, flora and fauna. Ecological functionality means the network has both structural and functional connectivity which provides a range of services for wildlife, including opportunities to rest, shelter, forage, breed, over-winter, disperse and exchange genetic information between populations.



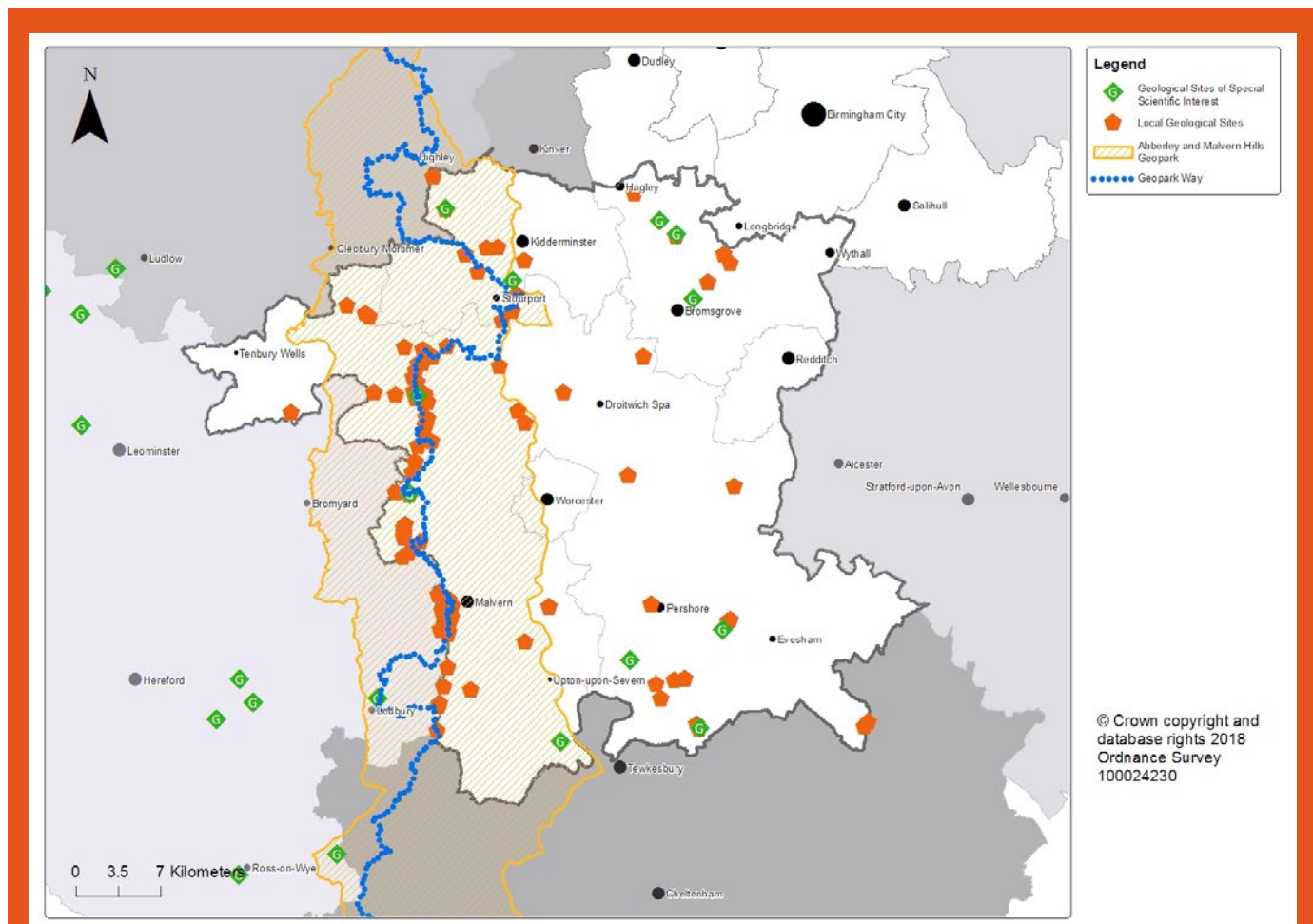
Figure 2.12. Biodiversity in Worcestershire



Note: An interactive minerals mapping tool is available at [www.worcestershire.gov.uk/minerals](http://www.worcestershire.gov.uk/minerals) to assist in the use and implementation of the Minerals Local Plan

## Geodiversity

Figure 2.13. Geodiversity assets



Note: An interactive minerals mapping tool is available at [www.worcestershire.gov.uk/minerals](http://www.worcestershire.gov.uk/minerals) to assist in the use and implementation of the Minerals Local Plan

2.118 There are 14 geological SSSIs<sup>182</sup> and more than 90 Local Geological Sites in Worcestershire. The Abberley and Malvern Hills Geopark, which covers over 480 square miles, is partly in Worcestershire and extends into Gloucestershire, Herefordshire and Shropshire. Part of the 109-mile Geopark Way walking trail also runs through the county. The Cotswold Hills Geopark crosses into the south-east corner of Worcestershire.

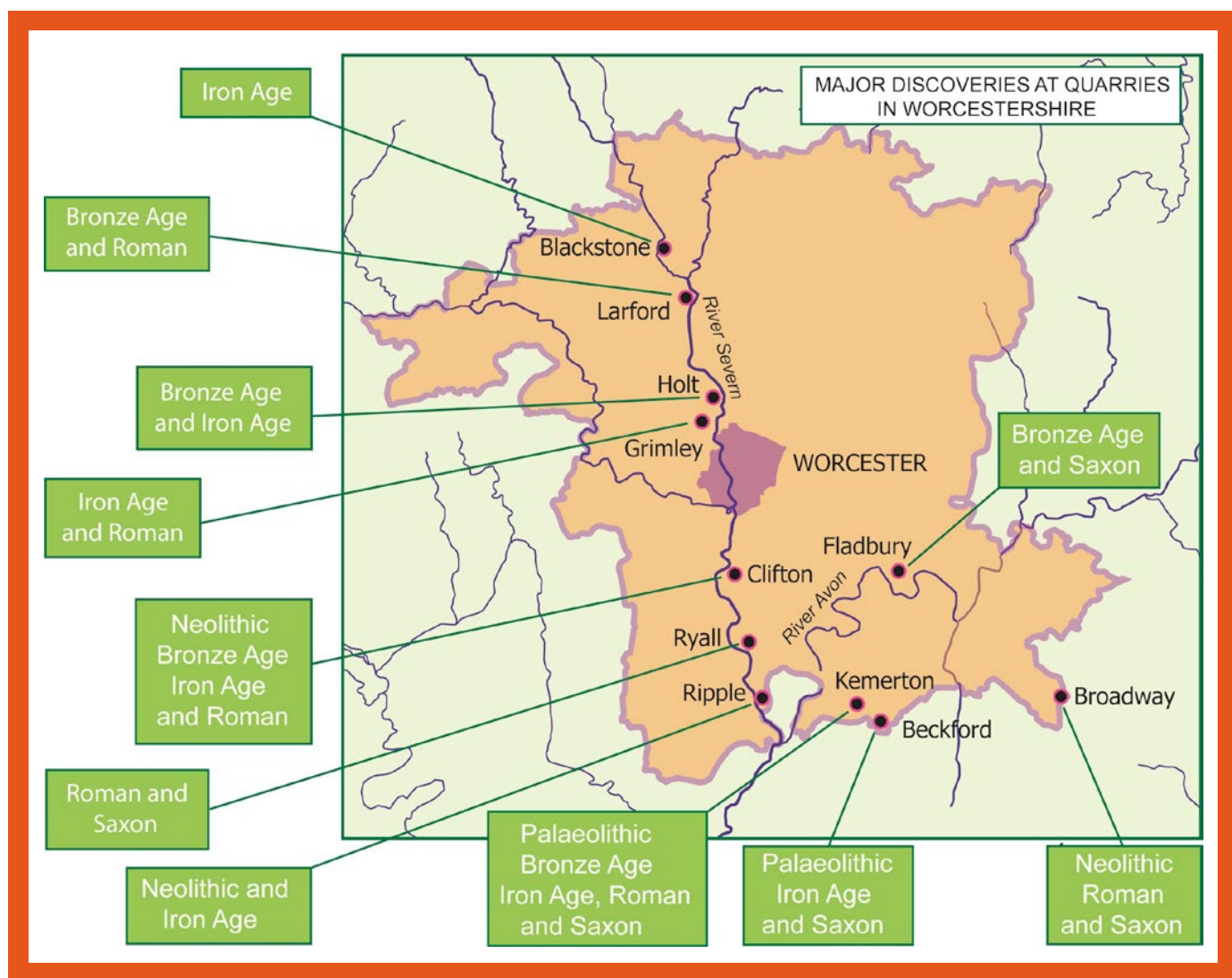
2.119 It is often difficult to predict where important geological features might occur and in the past sand and gravel sites were exploited without their significance for geodiversity being documented. Mineral working can destroy geological or geomorphological features, but also offers opportunities to create exposures and enhance understanding by revealing, recording or retaining them. Individual features of geodiversity interest are often important in their own right, but viewing them in a wider context can contribute to the understanding and legibility of the geology of the landscape.

<sup>182</sup> Of the 113 SSSIs in Worcestershire, 99 are biological SSSIs, 10 are geological, and four are both biological and geological.



## Historic environment

Figure 2.14. Major discoveries at mineral workings in Worcestershire<sup>183</sup>



2.120 The county has a diverse and rich historic environment. There are 135 Conservation Areas, over 7,000 Listed Buildings and 176 Scheduled Monuments in the county and over 70,000 heritage assets<sup>184</sup> are recorded on the county's Historic Environment Record.<sup>185</sup> These records represent all aspects of Worcestershire's archaeology and historic environment, including archaeological sites, historic buildings, monuments and landscape features.

2.121 The county's river valleys have provided a focus for settlement for over 6,000 years, and Prehistoric and Romano-British settlement and ceremonial remains are widely distributed and often extensive throughout the Severn, Avon and Teme valleys. All river and major stream

valleys are also associated with important palaeo-environmental deposits. These areas are also where much of the county's terrace and glacial sand and gravel resources occur.

2.122 Worcestershire remains a largely rural county which is reflected in its diverse rural historic environment. There are prehistoric hill forts on many of the county's hills and areas of high ground, with notable examples on Malvern and Bredon Hills. Wyre Forest, the largest contiguous area of ancient woodland in England, has a substantial assemblage of prehistoric,<sup>186</sup> medieval and industrial assets. In addition there are several designed landscapes including parks, both private (e.g. Croome Park) and public (e.g. Priory Park in Malvern). As well as landscape interest, these

<sup>183</sup> Source: Worcestershire County Council (2009) *Unlocking the past: The story of Worcestershire's archaeology revealed through quarrying*, <http://www.worcestershire.gov.uk/archaeology>.

<sup>184</sup> Consisting of nearly 45,000 monument records which includes designated and non-designated heritage assets, as well as approximately 24,000 source records and around 8,000 event records.

<sup>185</sup> At the point of preparing the Minerals Local Plan, 2018.

<sup>186</sup> Wyre Forest Landscape partnership, *Wyre Forest Management Strategy: Consultation draft 2014-2025*, [http://www.wflp.org.uk/assets/uploads/downloads/a6ed9-WYRE\\_DRAFT\\_STRATEGY\\_v11.pdf](http://www.wflp.org.uk/assets/uploads/downloads/a6ed9-WYRE_DRAFT_STRATEGY_v11.pdf).

heritage assets have significant architectural and archaeological interest and often contain other monuments and memorials.

2.123 The historic environment is particularly sensitive to impact and change from development, land management, climate change and mineral workings. The effects of climate change are becoming more apparent through soil erosion and flood damage to historic buildings.<sup>187</sup>

2.124 Mineral working has the potential to impact heritage assets and their settings, and in particular could destroy archaeological features. Mineral workings can both positively and negatively impact on the setting of heritage assets, including views to, from or between them. As mineral working can affect large areas, it can offer significant opportunities for archaeological investigation, and the enhancement of our understanding of heritage assets and their settings. Significant discoveries have been made at Worcestershire’s mineral workings (Figure 2.14), and care needs to be taken to protect, conserve and enhance important features.

2.125 Viewing heritage assets and their settings in the context of the wider historic landscape offers the greatest opportunity to enhance the setting of heritage assets, mitigate climate change impacts and improve public understanding and access.

## Water environment

2.126 The term ‘water environment’ encompasses a range of issues relating to the surface and ground water environment including flooding, water quality and water supply.

## Flooding

2.127 Flooding is varied in nature and extent throughout Worcestershire, and can come from a range of sources, including:

- surface water flooding following high-intensity or prolonged rainfall;
- ordinary watercourse flooding when the network of small watercourses, streams, brooks and small rivers cannot accommodate the volume of water flowing into it or an obstruction impedes flow;

- main river flooding when main rivers are overwhelmed and flow outside their banks;
- groundwater flooding when local water levels rise above the surface of the ground, particularly after periods of sustained rainfall; and
- sewer flooding when the sewer network cannot cope with the volume of water entering it, particularly at times of heavy rainfall.

2.128 The majority of flood events in recent years have been caused by intense rainfall leading to surface water run-off and ordinary watercourse flooding.<sup>188</sup>

2.129 Climate change can affect local flood risk in several ways. Impacts will depend on local conditions and vulnerability. Wetter winters and more rain falling in wet spells may increase river flooding along the River Severn and its tributaries. More intense rainfall causes more surface run-off, increasing localised flooding and erosion. In turn, this may increase pressure on drains and sewers and could be detrimental to water quality. Rainfall intensity in summer could increase even in drier summers through an increase in storm events.<sup>189</sup>

2.130 Water catchments represent a whole system of interlinked watercourses and flow pathways. Interventions, such as new development proposals, in a part of a catchment can therefore have direct impacts in other parts of the catchment.<sup>190</sup> Mineral working and site restoration provide opportunities to reinstate natural flooding processes, and provide space for flood attenuation, although care also needs to be taken to ensure that sites are designed to prevent any increase in flood risk elsewhere. By viewing individual sites within their wider catchment, opportunities for flood risk betterment can be optimised throughout the life of a mineral development.

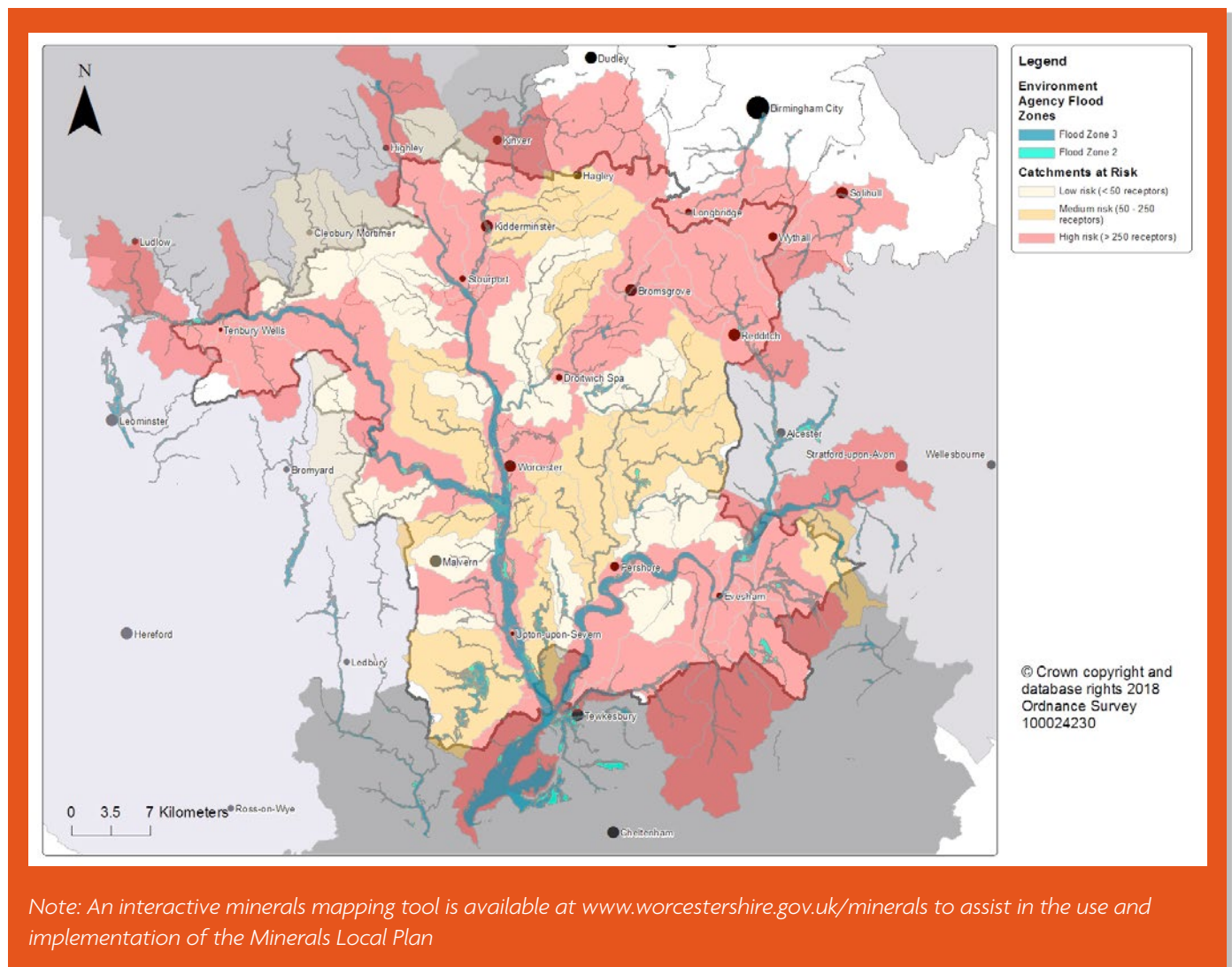
<sup>187</sup> Historic England (April 2015) *Facing the Future: Foresight and the Historic Environment* (Paragraph 3.4.6)

<sup>188</sup> Worcestershire County Council (March 2016) *Worcestershire Local Flood Risk Management Strategy 2015-2021*.

<sup>189</sup> Worcestershire County Council (March 2016) *Worcestershire Local Flood Risk Management Strategy 2015-2021*.

<sup>190</sup> Environment Agency, Worcestershire County Council (June 2018) *Catchment Based Management in Worcestershire Technical Background Document*.

**Figure 2.15. Flood risk in Worcestershire<sup>191</sup>**



## Water quality

2.131 Worcestershire suffers from significant water quality issues (Figure 2.16). The majority of waterbodies in Worcestershire are polluted by a number of point and diffuse sources, including pollution caused by overland flow of phosphates and nitrates from agricultural land.

2.132 The EU Water Framework Directive (WFD) requires all surface and ground waters to reach “good ecological” status (or potential, in the case of Artificial or Heavily Modified Waterbodies) by 2027.<sup>192</sup> Most of Worcestershire’s waterbodies are not currently meeting this requirement.

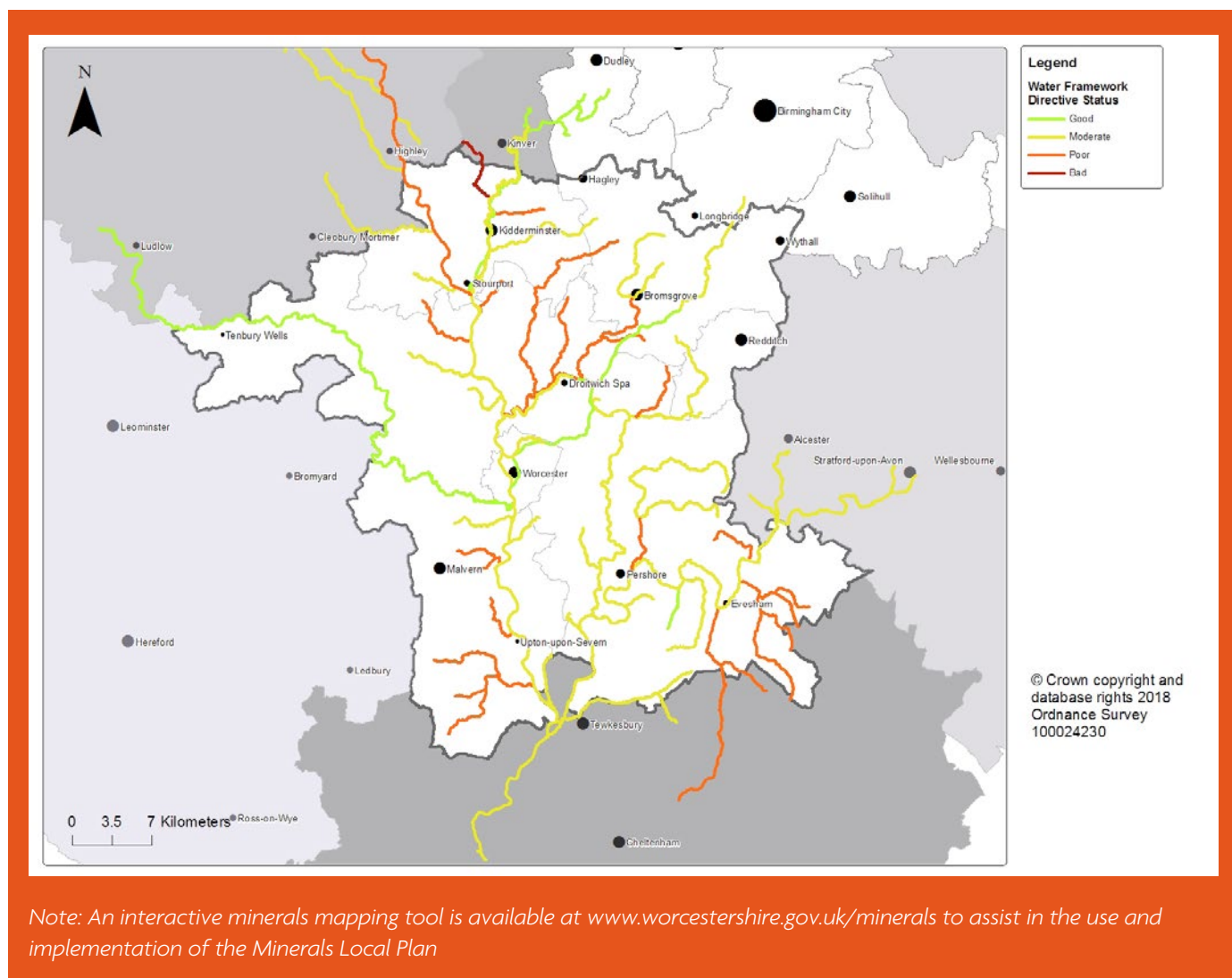
2.133 Large areas of Bromsgrove and Wyre Forest districts, small parts of Malvern Hills and Wychavon districts and a very small part of Redditch borough also have poor groundwater quality.<sup>193</sup>

<sup>191</sup> Catchments at risk based on the number of receptors (residential properties, non-residential properties and key infrastructure) to identify where there are particular clusters of known flood incidents or future modelled risk from all sources of flooding. Environment Agency, Worcestershire County Council (June 2018) *Catchment Based Management in Worcestershire Technical Background Document*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

<sup>192</sup> In some cases the action required to meet good status or potential for some surface and ground waters is not technically feasible or is of disproportionate cost. These will have an alternative objective set through the River Basin Management Planning process.

<sup>193</sup> Worcestershire County Council (2016) *Worcestershire Minerals Local Plan Surface and Ground Water Protection Issues, including Flood Risk Assessment of Submitted Sites*.

**Figure 2.16. Water quality in Worcestershire<sup>194</sup>**



*Note: An interactive minerals mapping tool is available at [www.worcestershire.gov.uk/minerals](http://www.worcestershire.gov.uk/minerals) to assist in the use and implementation of the Minerals Local Plan*

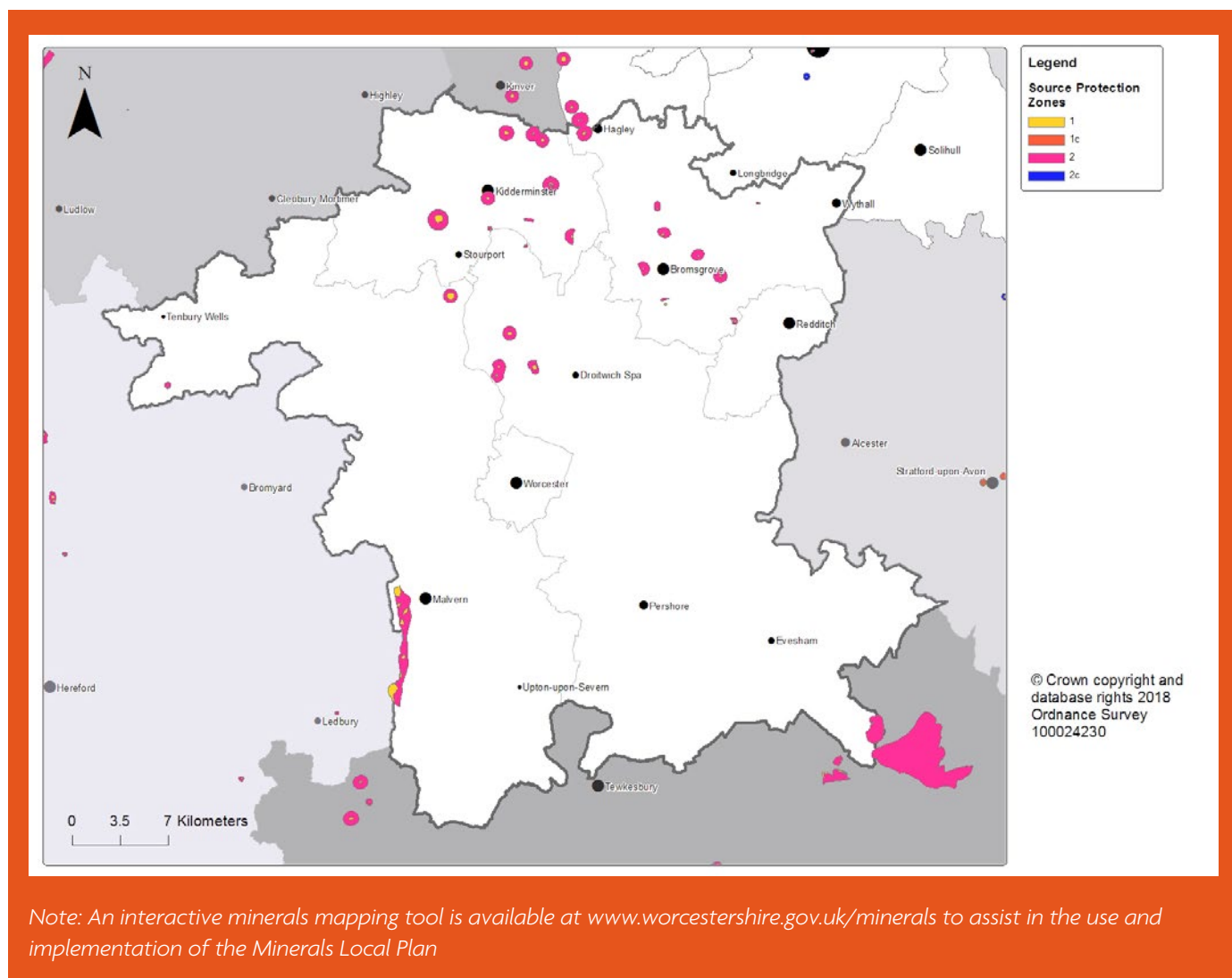
2.134 Mineral extraction can impact the water quality and hydrology of a site and its surroundings by physically removing aquifers and the usable groundwater resources within them. This may lead to impacts on the water environment, especially if watercourses derive baseflows from this same source of groundwater or wetlands rely on this water for their existence. Water quality can be adversely impacted by pollution and increased sedimentation if sites are not well managed and regulated. However, mineral working and site restoration also provide opportunities to incorporate water management processes which make a positive contribution to reducing pollution and increasing water quality. By viewing individual sites within their wider

catchment and as part of a landscape-scale corridor, opportunities water quality improvements can be optimised throughout the life of mineral development.

**Water supply**

2.135 A significant shortfall of water supply is predicted for the period between 2014 and 2035 as aquifers are under pressure in many areas of the county, including in Kidderminster and in Bromsgrove district. This is due to greater demand for water as a result of increased development and population growth, agricultural use, and/or intensification of activities.<sup>195</sup>

<sup>194</sup> Water Framework Directive Status data provided by the Environment Agency, summer 2018. The latest Environment Agency data should be referred to, see <https://environment.data.gov.uk/catchment-planning/>.  
<sup>195</sup> Worcestershire County Council (2011) *Planning for Water in Worcestershire: Technical Research Paper*.

**Figure 2.17. Source Protection Zones**

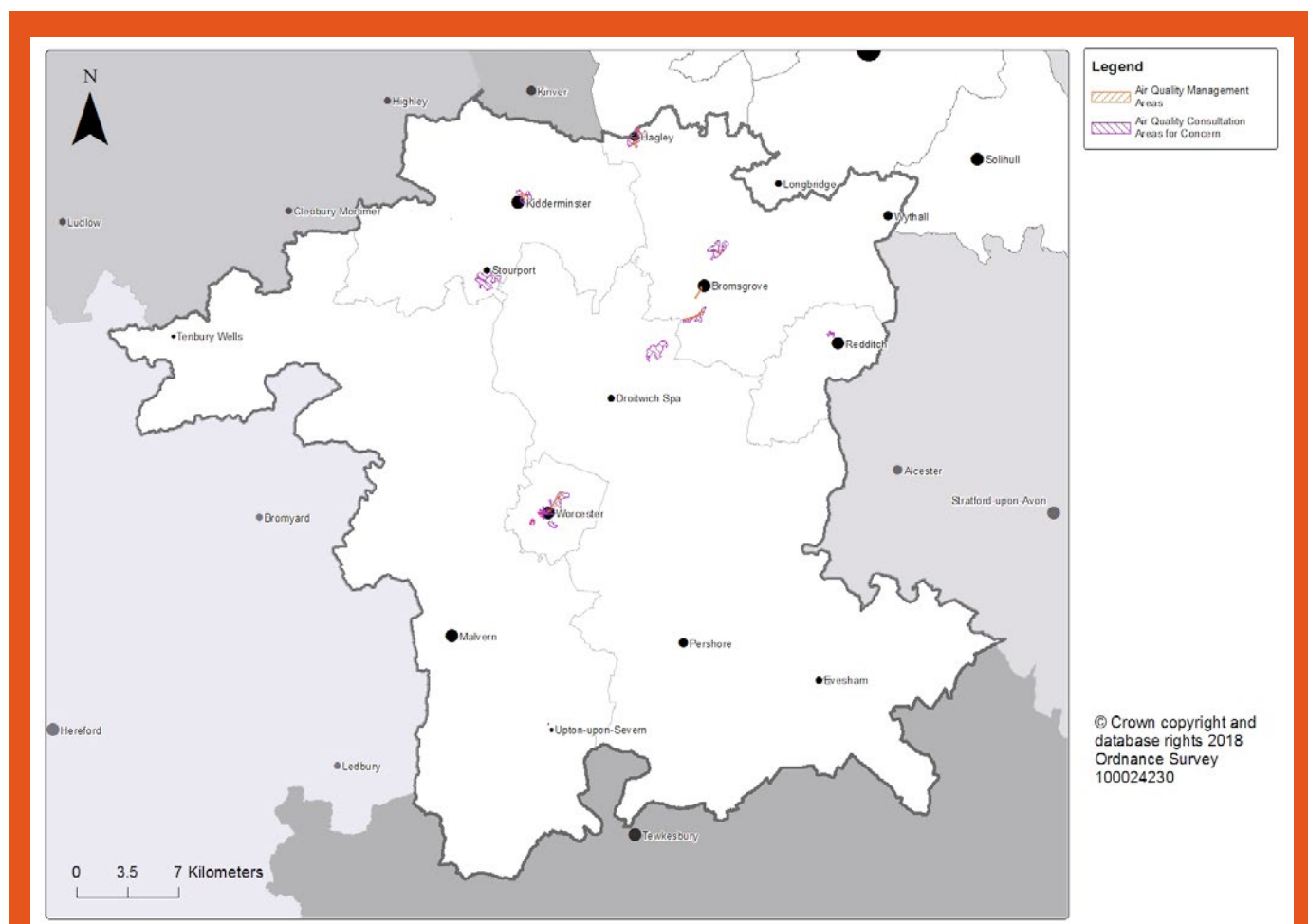
2.136 Worcestershire has several important principal aquifers<sup>196</sup> which are used for strategic public drinking water supplies and these are often the same rocks which are sought for mineral extraction. In river valleys, secondary aquifers occur within sand and gravel deposits and these provide important base flows to watercourses from same deposits which are valued as aggregate minerals. Groundwater provides a significant proportion of drinking water in England and also maintains the flow in many rivers. Source Protection Zones are defined by the Environment Agency for groundwater sources such as wells, boreholes and springs used for public drinking water supply to show the risk of contamination from any activities that might cause pollution in the area (Figure 2.17). The closer the activity, the greater the risk.

2.137 Mineral extraction can impact the hydrology of a site and its surroundings by physically removing aquifers and the usable groundwater resources within them. This may lead to impacts on the water environment, especially if watercourses derive baseflows from this same source of groundwater or wetlands rely on this water for their existence, and care needs to be taken to ensure that sites are designed and worked in ways which protect these resources. However, mineral working and site restoration can also provide opportunities to incorporate water storage and increase infiltration to help replenish groundwater resources. By viewing individual sites within their wider catchment and as part of a landscape-scale corridor, opportunities for flood betterment and water quality and quantity improvements can be optimised throughout the life of mineral development.

<sup>196</sup> Aquifer designations can be viewed at <https://magic.defra.gov.uk/MagicMap.aspx>.

## Air quality

**Figure 2.18. Air Quality Management Areas in Worcestershire**



Note: An interactive minerals mapping tool is available at [www.worcestershire.gov.uk/minerals](http://www.worcestershire.gov.uk/minerals) to assist in the use and implementation of the Minerals Local Plan

2.138 It is estimated that air pollution can reduce life expectancy in the UK by an average of six months, with resulting health costs estimated to be up to £20 billion a year.<sup>197</sup> Elevations in air pollution can cause lung irritation and exacerbate lung and heart conditions.<sup>198</sup> Nitrogen dioxide (NO<sub>2</sub>) and ground level ozone (O<sub>3</sub>) from vehicles and chimneys can also have similar impacts.

2.139 Mineral development can impact on air quality very locally through dust emissions, but also more widely through transporting materials from source to their end use. Significant numbers of vehicle movements can negatively impact on local air quality, particularly where the road network is within or in close proximity to Air Quality Management Areas (AQMAs).<sup>199</sup>

<sup>197</sup> Worcestershire Regulatory Services (September 2013) *Air Quality Action Plan for Worcestershire*, <http://www.worcsregservices.gov.uk/pollution/air-quality/air-quality-action-plan.aspx>.

<sup>198</sup> Worcestershire Regulatory Services (September 2013) *Air Quality Action Plan for Worcestershire*, <http://www.worcsregservices.gov.uk/pollution/air-quality/air-quality-action-plan.aspx>.

<sup>199</sup> Air Quality Management Areas in Worcestershire can be found at <http://www.worcsregservices.gov.uk/pollution/air-quality/air-quality-management-areas.aspx>.

## Health and well-being

- 2.140** Overall health in Worcestershire is better than the England average.<sup>200</sup> However there is evidence of mental ill-health in the county, and recorded diabetes is significantly higher in Worcestershire than the England average.<sup>201</sup> Life expectancy and the occurrence of health-related deprivation, mental ill-health and respiratory diseases varies significantly; poorer performance is predominantly in the urban areas, but there are also some pockets of poorer health in the more rural parts of the county.<sup>202</sup> Both locally and nationally there is also a high health burden from conditions which are linked to patterns of behaviour, including sedentary lifestyles.<sup>203</sup>
- 2.141** Mineral development can result in impacts on health and well-being through changes to the environment and amenity impacts. Both mental and physical health can be affected, and vulnerable groups are more likely to be at risk. It is therefore important for mineral development to take account of health issues in the county and consider the opportunities for mineral development to deliver benefits as well as minimising and mitigating potentially negative effects. Community liaison committees can be an effective means of keeping local communities informed about operations on site and can help to address any issues arising in a timely, positive and constructive manner.

## Access and recreation

- 2.142** Access to high quality green space can contribute to physical and mental health, providing opportunities for outdoor physical activity and places to relax. Evidence suggests access to green space can also improve community cohesion, reduce levels of anti-social behaviour, improve social interaction, help to build self-esteem, and contribute to social mobility.<sup>204</sup> Measures which help to increase everyday physical activity as part

of daily routines can be a low or no cost options for improving health and well-being which result in long-lasting behaviour change.<sup>205</sup>

- 2.143** In Worcestershire, there are over 4,600km of public rights of way<sup>206</sup> and over 11,750 hectares of free-to-access natural green spaces.<sup>207</sup> These consist of country parks, short way-marked trails, circular walks and other public rights of way. There are also five long-distance recreation routes in the county (the Severn Way, the Wychavon Way, the North Worcestershire Path, the Cotswold Way, and the Worcestershire Way), as well as the Geopark Way. Local-scale provision of informal public access sites is generally good and there are a range of county-scale recreation sites<sup>208</sup> in the Wyre Forest, and in the Lickey, Clent and Malvern Hills.
- 2.144** Many rights of way are important in their own right, providing access to the countryside, opportunities for active recreation and cultural links; however they can also contribute to the wider environment, providing corridors for biodiversity and contributing to landscape character, local distinctiveness and the experience and character of the historic environment.
- 2.145** The condition of footpaths in the county is generally good, but the network of bridleways and cycle routes tends to be more fragmented.<sup>209</sup> The proportion of households in the county with good access to county-scale and sub-regional-scale<sup>210</sup> informal recreation sites falls short of Natural England's Access to Natural Green Space Target. This is a particular issue in the urban areas of Worcester and Bromsgrove but is also an issue in the rural district of Wychavon, in spite of large areas of green space.

200 Worcestershire Health and Well-being Board, *Joint Health & Well-being Strategy 2016-21*, [http://www.worcestershire.gov.uk/info/20565/health\\_and\\_well-being\\_board](http://www.worcestershire.gov.uk/info/20565/health_and_well-being_board).

201 Worcestershire County Council (2015) *Planning for Health in Worcestershire Technical Research Paper*.

202 Worcestershire County Council (September 2014) *Green Infrastructure Framework 4: Socioeconomic Benefits of Green Infrastructure*, [www.worcestershire.gov.uk/GI](http://www.worcestershire.gov.uk/GI).

203 Worcestershire County Council (2015) *Planning for Health in Worcestershire Technical Research Paper*.

204 Worcestershire County Council (September 2014) *Green Infrastructure Framework 4: Socioeconomic Benefits of Green Infrastructure*, [www.worcestershire.gov.uk/GI](http://www.worcestershire.gov.uk/GI).

205 Worcestershire Health and Well-being Board, *Joint Health & Well-being Strategy 2016-21*, [http://www.worcestershire.gov.uk/info/20565/health\\_and\\_well-being\\_board](http://www.worcestershire.gov.uk/info/20565/health_and_well-being_board).

206 Including cycle paths, permissive routes, canal towpaths and other similar infrastructure. Worcestershire County Council (2007) *Rights of Way Improvement Plan*.

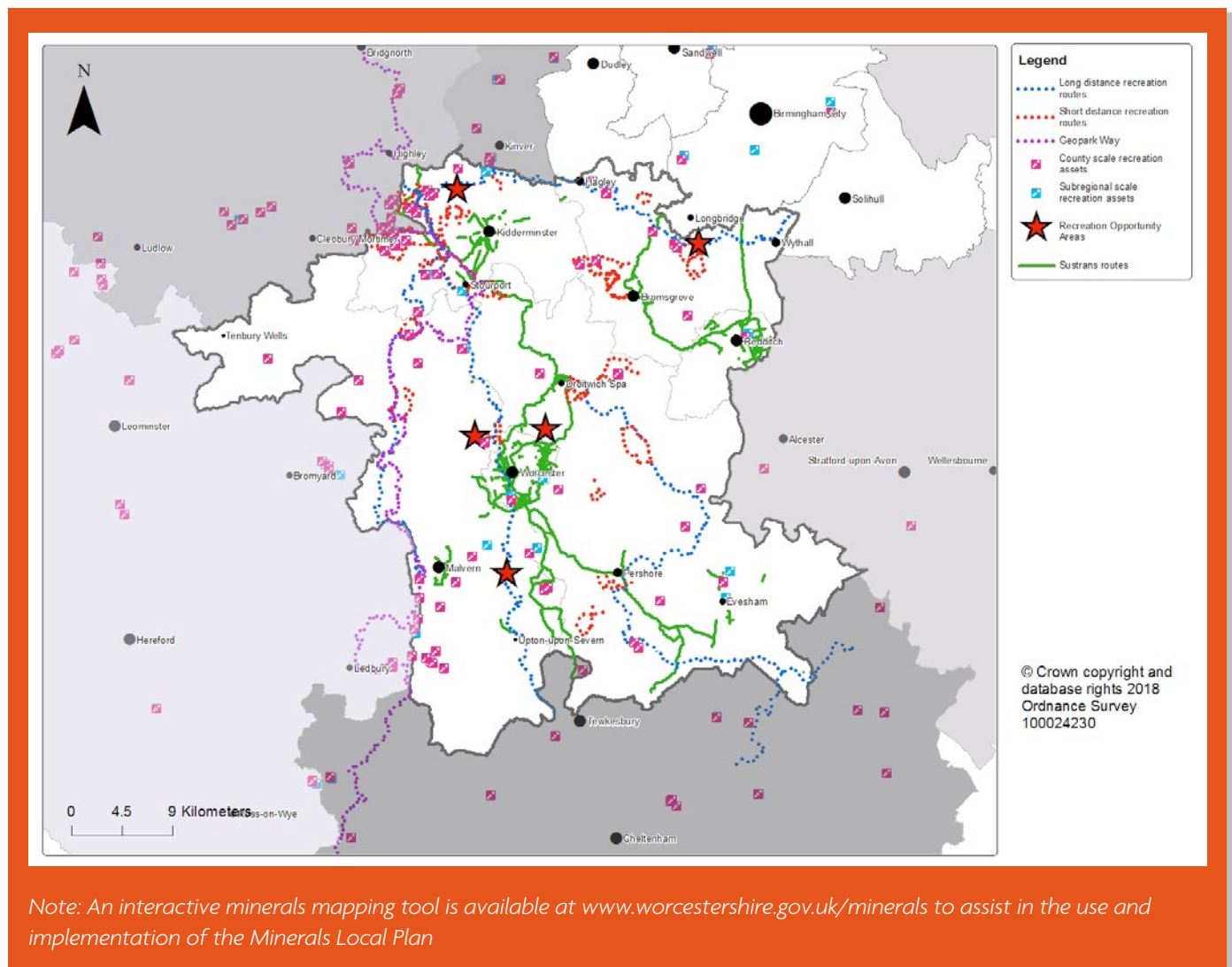
207 Worcestershire County Council (September 2014) *Green Infrastructure Framework 3: Access and Recreation*, [www.worcestershire.gov.uk/GI](http://www.worcestershire.gov.uk/GI).

208 Sites that are 100ha or larger, as defined by the Accessible Natural Greenspace Standard developed by Natural England.

209 Including cycle paths, permissive routes, canal towpaths and other similar infrastructure. Worcestershire County Council (2007) *Rights of Way Improvement Plan*.

210 Sites that are 500ha or larger, as defined by the Accessible Natural Greenspace Standard developed by Natural England.

**Figure 2.19. Informal access and recreation**



2.146 Population growth in the county also means there is an increasing demand for informal recreation opportunities; over 40% of sub-regional recreational sites in or around Worcestershire are thought to be near, at or over visitor capacity and opportunities to expand existing sites are limited.<sup>211</sup> In response to this, five areas of search for the consideration of new or extended informal recreation sites in Worcestershire have been identified: Wyre Forest; Lickey Hills (including enhancement of the canal to Worcester); Clifton Water Park south of Kempsey; Worcester – Droitwich Park; and Hallow Riverside Park.<sup>212</sup>

2.147 Minerals development may temporarily prevent or alter access to green spaces, public rights of way or other access routes, but there is also significant potential for mineral workings to contribute to the provision of accessible green space and to improved public rights of way networks. By planning and designing individual sites within the context of the wider network of public access routes and green spaces, opportunities to connect, extend or enhance access and recreation assets can be optimised.

211 Worcestershire County Council (September 2014) *Green Infrastructure Framework 3: Access and Recreation*, [www.worcestershire.gov.uk/GI](http://www.worcestershire.gov.uk/GI).

212 Worcestershire County Council (September 2014) *Green Infrastructure Framework 3: Access and Recreation*, [www.worcestershire.gov.uk/GI](http://www.worcestershire.gov.uk/GI).





Example of a lasting legacy from mineral working in Worcestershire - Beckford community nature reserve

## 3. Vision and objectives

### Introduction

3.1 The Minerals Local Plan includes a vision for mineral development in Worcestershire setting out what the Plan is aiming to achieve by 2035. It also includes objectives which outline the high-level priorities for realising the vision. They have guided the development of the policy framework (Figure 3.1) and are based on the key issues for the Minerals Local Plan which are summarised in this chapter. The plan's implementation and monitoring framework in Chapter 8 sets out indicators which will measure whether the objectives are being met over the life of the plan.

### Key issues for the Worcestershire Minerals Local Plan

3.2 In line with 'the presumption in favour of sustainable development' of the National Planning Policy Framework, the Minerals Local Plan must positively seek opportunities to meet

the development needs of the county and be sufficiently flexible to adapt to rapid change, providing for objectively assessed needs to be met<sup>213</sup> unless protected areas or assets of particular importance provide a strong reason for restricting the overall scale, type or distribution of development in the plan area, or any adverse impacts of doing so would significantly and demonstrably outweigh the benefits when assessed against the policies in the National Planning Policy Framework taken as a whole.<sup>214</sup>

3.3 In identifying the issues that need to be addressed in the Minerals Local Plan, the Mineral Planning Authority has had regard to the issues outlined in Chapter 2 (Portrait of Worcestershire), national and local policies, the Duty to Cooperate, the Plan's evidence base and background documents,<sup>215</sup> the findings of statutory and non-statutory assessments,<sup>216</sup> and the outcomes of stakeholder engagement and public consultation.

<sup>213</sup> The *National Planning Policy Framework* also requires strategic plans (Local Plans that contain policies to address the strategic priorities of an area) to any needs that cannot be met within neighbouring areas, as established through Statements of Common Ground. Through the constructive, active and ongoing discussions under the Duty to Cooperate through the preparation of the Minerals Local Plan, none of the Mineral Planning Authorities around Worcestershire have identified any needs that cannot be met which the Worcestershire Minerals Local Plan needs to address.

<sup>214</sup> Ministry of Housing, Communities and Local Government (July 2018) *National Planning Policy Framework*, paragraph 11.

<sup>215</sup> Background documents are available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

<sup>216</sup> All iterations of the Sustainability Appraisal process, Habitats Regulations Assessment process, Strategic Flood Risk Assessment process, Equalities Impact Assessment relevance screening process, and Health Impact Assessment are available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

**Figure 3.1. The relationship between the vision, objectives and the policy framework**



- 3.4 Strategic policies in the plan should provide an overall strategy for the pattern and scale of development, the infrastructure for the provision of minerals, and climate change mitigation and adaptation, conservation and enhancement of the natural and built and historic environment, including landscape and green infrastructure.
- 3.5 It is important that the Minerals Local Plan takes account of the distinctive characteristics, needs and opportunities of Worcestershire and the aspirations of other relevant plans and strategies to ensure that any policies and proposals for where and how mineral development should occur will be relevant to the local context and will not only avoid harm but will contribute to wider sustainable development goals.



3.6 The purpose of the Worcestershire Minerals Local Plan is to address:

- a) the steady and adequate supply of aggregates to meet objectively assessed needs<sup>217</sup> to 2035 and beyond, considering:
  - the contribution of substitute, secondary and recycled materials and mineral waste to overall supply;<sup>218</sup>
  - the current landbank of permitted reserves of sand and gravel; and
  - the constraints on delivering crushed rock supply over the life of the plan.<sup>219</sup>
- b) the steady and adequate supply of locally and nationally important industrial minerals such as brick clay and silica sand;
- c) the adequate and diverse supply of building stone to maintain Worcestershire's built heritage and landscapes;
- d) the need to safeguard locally and nationally important mineral resources, permitted mineral sites and supporting infrastructure from needless sterilisation by other development.

3.7 Due to the quantities of mineral resources required and the tendency for mineral workings in Worcestershire to be small scale in comparison to other parts of the country, multiple sites are likely to be required over the life of the plan to address these issues. The policy framework will need to manage how minerals development takes place to ensure adverse impacts on people, businesses and the environment are minimised.

3.8 In Worcestershire, there is a strong relationship between the location of mineral resources and the character of the landscapes in which they are found. Land formations, topography, hydrology, and soil types are all closely linked to the type of bedrock, geological formations and mineral deposits. In turn these factors influence the fertility of the land, the habitats that thrive,

issues such as surface water, ground water and the flow of watercourses and the way in which land has been used in the past and is used now. Collectively these components contribute to the character of an area.

3.9 The scale and distribution of mineral resources inevitably influences where they can be worked, but where there are clusters of mineral resources in Worcestershire there is often a strong coherence to the character and distinctiveness of the area, and significant differences can be seen in character between different clusters. This relationship gives scope for minerals development to help to address some of Worcestershire's important economic, environmental and social issues by working and restoring mineral sites in a locally appropriate way.

3.10 High-quality green infrastructure networks<sup>220</sup> offer wideranging and multifunctional social, economic and environmental benefits, both at a site scale and a landscape scale. Incorporating green infrastructure as part of sustainable development offers an important opportunity to address climate change mitigation and adaptation, enable and support healthy lifestyles, improve air quality, and conserve and enhance the natural, built and historic environment.<sup>221</sup> As green infrastructure is multifunctional, it offers a cost-effective way to maximise gains across the components<sup>222</sup> of green infrastructure which are appropriate to the landscape character, ecology, geology and hydrology of an area.

3.11 Green infrastructure components have therefore been considered alongside the known mineral resources in the county<sup>223</sup> to develop an overall strategy for the pattern and scale of mineral development and the provision of climate change mitigation and adaptation, and conservation and enhancement of the natural, built and historic environment.

<sup>217</sup> Worcestershire's annual *Local Aggregate Assessments* are available at [www.worcestershire.gov.uk/amr](http://www.worcestershire.gov.uk/amr).

<sup>218</sup> In conjunction with the Worcestershire County Council (2012) *Worcestershire Waste Core Strategy Local Plan 2012-2027*, [www.worcestershire.gov.uk/wcs](http://www.worcestershire.gov.uk/wcs)

<sup>219</sup> See Chapter 2 (Portrait of Worcestershire) and Worcestershire County Council (2018) *Minerals Local Plan Background Document - Strategic cross boundary issue: Crushed rock supply in Worcestershire. Summary of action undertaken under the duty to cooperate*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground)

<sup>220</sup> Green infrastructure is a network of multifunctional green spaces and natural elements (including rivers, streams, canals, woodlands, street trees, parks, rock exposures and semi-natural greenspaces) that acts as a multifunctional resource capable of delivering a wide range of environmental and quality of life benefits (ecosystem services) for local communities.

<sup>221</sup> Ministry of Housing, Communities and Local Government (July 2018) *National Planning Policy Framework*

<sup>222</sup> Green infrastructure components include biodiversity, the landscape, the historic environment, the water environment and publicly accessible green spaces and informal recreation sites.

<sup>223</sup> See Appendix 2 (Identifying and defining the strategic corridors).

## A vision for the winning, working and lasting legacy of minerals development in Worcestershire to 2035 and beyond

The winning, working and lasting legacy of minerals development in Worcestershire will be part of a holistic approach to delivering sustainable economic growth, supporting health and quality of life, and enhancing the built, historic, natural and water environment, that together contribute to the diverse character of the county and surrounding area. Mineral development, including transportation and processing, will be water and energy efficient and will mitigate and adapt to the impacts of climate change.

Worcestershire's permitted mineral sites and supporting infrastructure will provide a steady, adequate and sustainable supply of locally and nationally important minerals. They will contribute to the vitality of the local economy through the delivery of minerals to local and national markets, whilst making the best use of substitute, secondary and recycled minerals and mineral wastes to minimise the need for primary materials. Worcestershire's locally and nationally important mineral resources, permitted mineral sites and supporting infrastructure will remain available for future use, having been safeguarded against sterilisation by non-minerals development.

Mineral supply will be delivered from working and processing at multiple sites over the life of the plan, focused in five strategic corridors: Avon and Carrant Brook Strategic Corridor, Lower Severn Strategic Corridor, North East Worcestershire Strategic Corridor, North West Worcestershire Strategic Corridor, and Salwarpe Tributaries Strategic Corridor. The coordinated design, working and restoration of mineral sites will strengthen the distinctive character of each strategic corridor, as well as respecting the site-specific context and addressing issues identified through effective community engagement. These mineral sites will be designed to deliver and enhance multifunctional green infrastructure and become integrated into Worcestershire's green infrastructure network. The planned contribution each site will make towards delivering a lasting legacy will be a prerequisite to development, ensuring all sites have a clear vision for delivering benefits throughout winning and working phases, and through delivering high-quality restoration at the earliest opportunity to enable an appropriate after-use.

Mineral sites will make prudent use of mineral resources, balancing the need to extract as much material as possible with the need to achieve final landforms and restoration that delivers multifunctional benefits and is appropriate in the landscape.

## Objectives of the Worcestershire Minerals Local Plan

- MO 1. Enable the supply of minerals
- MO 2. Protect and enhance the environmental and socio-economic function of Worcestershire's network of green spaces and natural elements (green infrastructure)
- MO 3. Protect and enhance the quality, character and distinctiveness of the built, historic, natural and water environment
- MO 4. Protect and enhance the health, well-being, safety and amenity of people and communities
- MO 5. Protect and enhance the vitality of the local economy
- MO 6. Ensure the prudent use of natural resources



Riverside Meadows landscape type (Ham Bridge, Worcestershire)

## 4. Spatial strategy (strategic policies)

### Introduction

- 4.1 Mineral development in Worcestershire should be located in the five strategic corridors identified in Figure 4.1 (Key Diagram).<sup>224</sup> The strategic corridors are the areas in the county where there is the greatest concentration of locally and nationally important mineral resources. They are well located to serve planned housing and infrastructure development<sup>225</sup> and within each of the strategic corridors there are common characteristics and issues which will benefit from a coordinated approach to the working and restoration of multiple mineral sites.
- 4.2 Throughout the Minerals Local Plan, mineral sites are viewed as part of the wider green infrastructure network, before, during and after they are worked for their minerals. The priorities for the strategic corridors (policies MLP 4 to MLP 8) are fundamental to this approach, setting out the long-term priorities which mineral development can and should help to address in each of the strategic corridors. The priorities identified differ
- between each of the strategic corridors because of the types and properties of the mineral resources they contain, and the environmental and economic diversity in the county.
- 4.3 Policies MLP 4 to MLP 8 take account of the likely characteristics of mineral working in each of the corridors; consider how green infrastructure components<sup>226</sup> interact at a landscape-scale to contribute to the economic and social well-being and environmental quality of the corridor; and set out focused priorities that identify how mineral development can best enhance the green infrastructure networks in each corridor to deliver social, economic and environmental benefits. The identified priorities seek to deliver multifunctional benefits across green infrastructure components and take a long-term view. This will enable the coordination of benefits from multiple mineral developments in the same strategic corridor, even where they are not worked concurrently or by the same mineral operator.

<sup>224</sup> See Appendix 2 for information about identifying and defining the strategic corridors.

<sup>225</sup> The Second Stage Consultation on the Minerals Local Plan showed that all parts of the county are within a distance of planned development in and around Worcestershire which is likely to result in demand for mineral resources. Each of the corridors has access to the strategic transport network.

<sup>226</sup> Biodiversity, the landscape, the historic environment, the water environment and publicly accessible green spaces and informal recreation sites.

4.4 The strategic corridor priorities complement other aspirations for development expressed in the Local Plans and Neighbourhood Plans in the county, the Worcestershire Strategic Economic Plan,<sup>227</sup> and other relevant policies and strategies, as well as characteristic land management practices within the corridors.

4.5 In limited circumstances, the supply of mineral from outside of the strategic corridors might be a sustainable option. These exceptions are detailed in policy MLP 1 (Strategic Location of Development) and include borrow pits (see also policy MLP 2, Borrow Pits) and mineral extraction to prevent unnecessary sterilisation of resources by other development (MLP 1 and Chapter 7).

## Strategic location of development

### Policy MLP 1: Strategic Location of Development

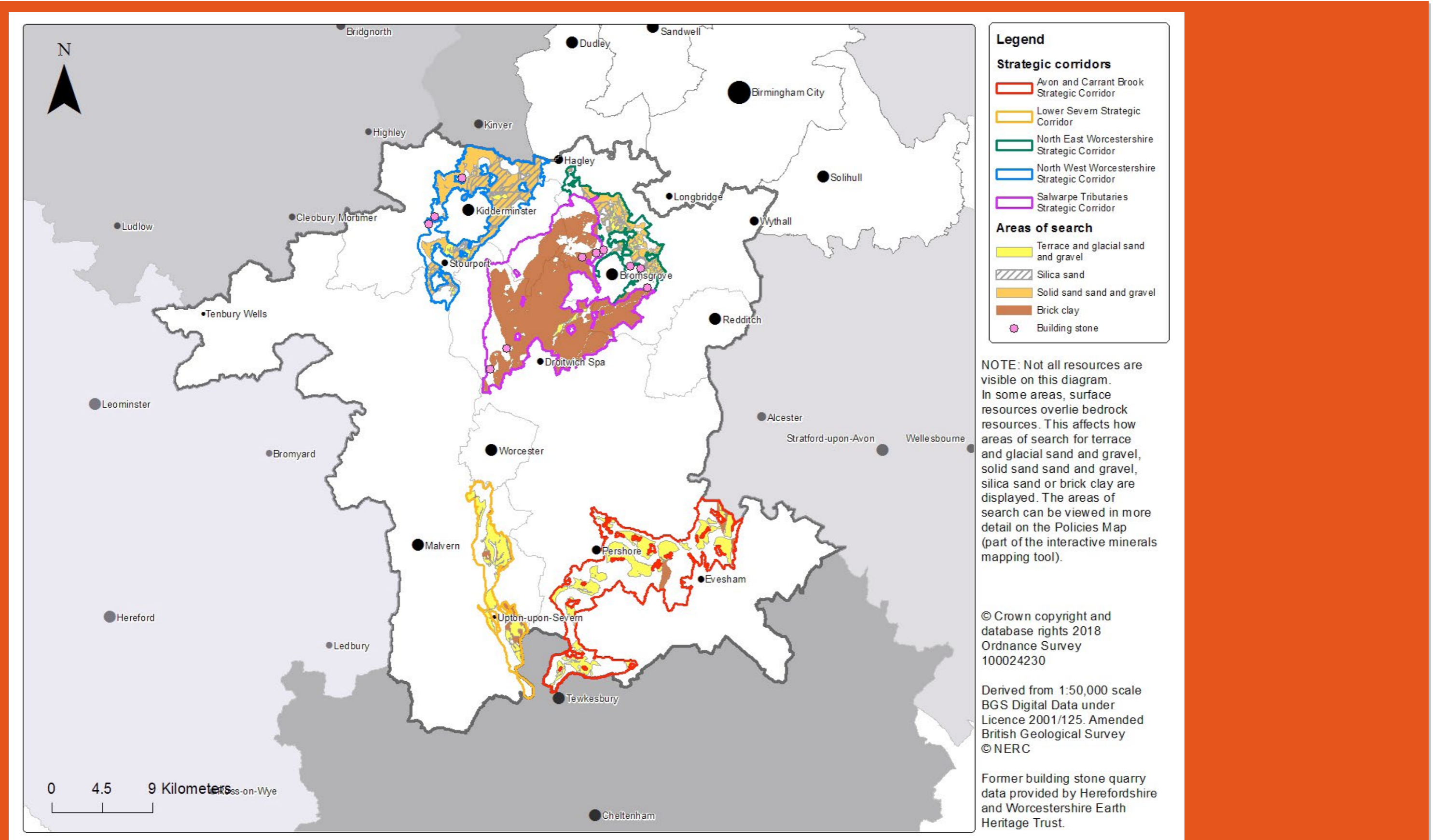
#### Contributing to:

Objectives MO1, MO2, MO3, MO4, MO5

- a) Planning permission will be granted for mineral development where it is located within a strategic corridor and:
  - i. is within an allocated site (which includes areas of search\* defined on the Policies Map and specific sites and preferred areas allocated in the Mineral Site Allocations Development Plan Document); or
  - ii. it is demonstrated that the mineral resource has qualities which mean a sustainable supply of the mineral cannot be delivered from extant or allocated sites.
- b) Planning permission will be granted for mineral development within or outside a strategic corridor where:
  - i. it is within the boundary of a site with extant planning permission for mineral development; or
  - ii. the proposed development is a borrow pit which meets the requirements of policy MLP 2; or
  - iii. it would prevent some or all of a mineral resource within a Mineral Safeguarding Area from being sterilised by non-minerals development in accordance with policy MLP 31.
- c) Planning permission will be granted for mineral development outside a strategic corridor where it is demonstrated that the mineral resource has qualities which mean sustainable supply of the mineral cannot be delivered from within the strategic corridors. For sand and gravel, silica sand and brick clay resources, this will be wholly exceptional.

\* Some flexibility will be applied when considering whether a proposal for building stone is within an area of search for building stone as these are based on point data.

Figure 4.1. Key diagram



Note: An interactive minerals mapping tool is available at [www.worcestershire.gov.uk/minerals](http://www.worcestershire.gov.uk/minerals). It incorporates the Policies Map which defines the Minerals Local Plan's land-use designations and allocations, and also includes additional supporting data<sup>228</sup> to assist in the use and implementation of the Minerals Local Plan

228 Other supporting data is included on the interactive minerals mapping tool to assist in the use and implementation of the Minerals Local Plan, but may not be the latest available information. Data will be updated as far as possible alongside publication of the Minerals and Waste Local Development Framework Authority Monitoring Report. Data sources include the British Geological Survey, Coal Authority, data.gov.uk, Environment Agency, Herefordshire and Worcestershire Earth Heritage Trust, Worcestershire Biological Records Centre, and Worcestershire County Council.





## Reasoned justification

### Proposals within the strategic corridors

#### Allocated sites

- 4.6 The Minerals Local Plan allocates areas of search<sup>229</sup> for sand and gravel, silica sand, brick clay and building stone (see Figure 4.1).<sup>230</sup> A Mineral Site Allocations Development Plan Document (DPD) will also be prepared to allocate specific sites and preferred areas.
- 4.7 No areas of search have been identified for crushed rock resources due to the viability, environmental and amenity constraints affecting the majority of the land in Worcestershire which contains crushed rock deposits.<sup>231</sup> No areas of search have been identified for other types of mineral.

#### Mineral resources that cannot be delivered from extant or allocated sites

- 4.8 There is policy preference in policy MLP 1 for mineral development within extant or allocated sites. However, where a sustainable supply of minerals cannot be delivered from these sites, mineral development elsewhere in a strategic corridor may be appropriate. These circumstances are expected to be limited and to primarily be for mineral types for which there are no site allocations, or for which there were no extant planning permissions in Worcestershire when the plan was adopted; particularly crushed rock, some types of building stone, brine, or types of clay other than Mercia Mudstone.
- 4.9 Demonstration of the reasons for working minerals outside of extant or allocated sites would need to be proportionate to the proposal, but may require technical information to be provided by an appropriate and competent expert. Where there are no sites with extant planning permissions and no allocated sites for a particular mineral in the county this is likely to provide adequate justification. For building stone<sup>232</sup> it might be appropriate to include reference to the specific appearance and characteristics of building stone required where variations in the appearance or characteristics of stone prevent those within allocated sites being suitable for use in a particular project.

- 4.10 Any proposal for sand and gravel, silica sand or brick clay development within a strategic corridor but outside extant or allocated sites would need to demonstrate why sustainable supply cannot be delivered from those extant or allocated sites. This will be expected to include detailed geological information about the specific properties or qualities of the resource, data demonstrating the local or national need for the mineral, and the evidence justifying why that this material cannot be worked at existing or allocated sites.

### Proposals within or outside a strategic corridor

#### Sites with extant planning permission

- 4.11 Over the life of the plan, proposals to alter the development already permitted at sites with extant planning permission (including those which are permitted during the life of the plan) may arise, such as through periodic reviews of mineral planning permissions (ROMPs) or applications for the variation of planning conditions.
- 4.12 Any proposals to extend a site beyond the boundary of the existing permitted site will not be considered to be part of a site with extant planning permission for the purposes of this policy. The red line boundaries on extant planning permissions will be considered definitive when addressing this issue.

#### Borrow pits

- 4.13 Borrow pits directly serve a specific project nearby and proposals for borrow pits will therefore not necessarily reflect the location of site allocations or the strategic corridors. To be classified as a borrow pit, proposals must meet all of the requirements of policy MLP 2 (Borrow Pits). Proposals that do not demonstrate these associations will be considered as standalone mineral workings.

<sup>229</sup> An interactive minerals mapping tool is available at [www.worcestershire.gov.uk/minerals](http://www.worcestershire.gov.uk/minerals). It incorporates the Policies Map which defines the Minerals Local Plan's land-use designations and allocations, and also includes additional supporting data to assist in the use and implementation of the Minerals Local Plan.

<sup>230</sup> For information on how the areas of search have been identified, see Worcestershire County Council (August 2018) Minerals Local Plan background document, *Location of development: screening and site selection methodology* available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

<sup>231</sup> See Chapter 2: Portrait of Worcestershire and Chapter 5: Supply of mineral resources.

<sup>232</sup> Some flexibility will be applied when considering whether a proposal for building stone is within an area of search for building stone as these are based on point data.



**Restored sand and gravel working, Retreat Farm, Grimley**

#### *Winning and working of resources to prevent sterilisation*

- 4.14 If not properly planned, non-mineral development such as housing or commercial development can result in the sterilisation of mineral resources. This can be avoided by extraction of some or all of the mineral resource in advance of the non-mineral development taking place (or in phases alongside it), or by undertaking incidental recover to utilise a portion of the mineral resource as part of site groundworks (see Chapter 7).
- 4.15 The location of such proposals will depend largely on other policies in the Development Plan that relate to the non-mineral development and will not necessarily reflect or be limited to the location of the strategic corridors. Planning applications will be expected to demonstrate how the proposed development will prevent resources from being sterilised. Where this cannot be satisfactorily demonstrated, the proposal will be considered as a standalone mineral working.
- 4.16 Planning conditions and planning obligations may be required to manage the relationship between the minerals extraction and the subsequent non-

mineral development (see Chapter 7). Both the Mineral Planning Authority and relevant Local Planning Authority will need to be involved in discussions from the outset.

#### **Proposals outside a strategic corridor**

- 4.17 There is policy preference in policy MLP 1 for mineral development within the strategic corridors. With the exception of changes to extant sites, borrow pits and the winning and working of resources to prevent sterilisation, mineral development will only be granted for mineral development outside the strategic corridors where it is demonstrated that a sustainable supply of the specific mineral cannot be delivered from within the strategic corridors.
- 4.18 As the identification of the strategic corridors was informed by the distribution of mineral resources,<sup>233</sup> working outside the strategic corridors is expected to be wholly exceptional for sand and gravel, silica sand and brick clay. Justification would need to demonstrate why sustainable supply cannot be delivered from either extant or allocated sites within the strategic corridors.

<sup>233</sup> See Appendix 2 for information about identifying and defining the strategic corridors.

- 4.19 The distribution of crushed rock, building stone<sup>234</sup> and other mineral deposits has not been instrumental in defining the strategic corridors due to the viability, environmental and amenity constraints on the deposits or the lack of geological or market information to indicate that the working of other minerals would be viable in the county (see Appendix 2). However part c of policy MLP 1 would enable the working of these types of mineral outside of the strategic corridors.
- 4.20 Demonstration of reasons for working these minerals outside of existing or allocated sites would need to be proportionate to the proposal,

but may require technical information to be provided by an appropriate and competent expert. The absence of the specific mineral within the strategic corridors may provide adequate justification. For crushed rock proposals it might also be appropriate to include reference the need for crushed rock identified in the most recent Local Aggregate Assessment, and for building stone it might include reference to the specific appearance and characteristics of building stone required where variations in the appearance or characteristics of stone prevent those resources within the strategic corridors being suitable for use in a particular project.

## Borrow pits

### Policy MLP 2: Borrow pits

**Contributing to:**  
Objectives MO1, MO2, MO5, MO6

Proposals for borrow pits must be operationally related to a specific project and demonstrate that all of the following points apply:

- a) the mineral extracted will only be used in connection with the specified project;
- b) the borrow pit is located on or in close proximity to the specified project, and material will be conveyed to its point of use with minimal use of public highways and without undue interference with the rights of way network;
- c) mineral extraction will be limited to the life of the specified project;
- d) the working and restoration of the borrow pit will deliver locally appropriate enhancements to existing green infrastructure networks; and
- e) the borrow pit will be restored to an appropriate final landform at the earliest opportunity, without the use of imported material, other than that generated by the specified project.

#### Reasoned justification

- 4.21 Borrow pits can contribute towards the sustainable supply of minerals by enabling the working of mineral resources that might not otherwise be practicable or financially attractive to extract. They can also enable other forms of development by providing a local source of material. Borrow pits directly serve a specific project nearby, and they tend to be small-scale,

short-term operations. Borrow pits can be a positive way of working resources which might not be appropriate as standalone workings or were discounted from consideration as allocated sites due to the estimated volume of mineral at the site. Reduced transport distances can also reduce impacts on amenity and climate change in comparison to obtaining material from established quarries further from the project.

234 Thirteen of the former building stone quarries identified through the Herefordshire and Worcestershire Earth Heritage Trust's project *A Thousand Years of Building with Stone* are included as Areas of Search within the strategic corridors.



- 4.22 Proposals that do not meet all the criteria in policy MLP 2 will be considered to be standalone mineral workings not borrow pits.

#### **Association with the specified project**

- 4.23 It is important to ensure that borrow pits are closely linked to the project with which they are associated. The proposal for the borrow pit development should include sufficient details of the associated project to enable this to be considered in the decision-making process. The coordinated submission of proposals may be appropriate in some cases, even where the proposals are submitted to different planning authorities. Planning conditions and/or planning obligations may be required to manage the relationship between the mineral extraction and the specified non-mineral development. The Mineral Planning Authority and relevant Local Planning Authority will both need to be involved in discussions from the outset.

#### **Working and restoration**

- 4.24 The wider impacts of borrow pits need to be fully considered and working and restoration of borrow pits should be undertaken to the same standards as longer-term mineral workings in accordance with the Development Management policies set out in Chapter 6 (policies MLP 17 to MLP 30). Where the proposed borrow pit is within a strategic corridor, the priorities set out in the relevant policy (policies MLP 4 to MLP 8) will apply. In all locations, green infrastructure networks and the site's local context should inform working and restoration proposals, in accordance with policy MLP 3.
- 4.25 Borrow pits should be restored without the use of imported material, other than that generated by the specified project. This will enable the transport benefits to be fully realised. Proposals should demonstrate how an appropriate landform will be achieved and outline the balance between the mineral extracted and any fill material generated by the project.



Avon Meadows boardwalk and weir

## Green infrastructure

4.26 Green infrastructure is a network of multifunctional green spaces and natural elements.<sup>235</sup> It is capable of delivering a wide range of economic, environmental and quality of life benefits for local communities.<sup>236 237</sup> The underlying principle of green infrastructure is that the same area of land can frequently offer multiple benefits.

4.27 High-quality green infrastructure can drive economic growth and regeneration, helping to create high-quality environments which are attractive to businesses and investors, it can help deliver quality of life and health benefits by providing opportunities for recreation, social interaction and play, and it can reinforce and enhance landscape character, historic landscape character and local distinctiveness, contributing to a sense of place.<sup>238</sup> It can enhance the setting of heritage assets, and can make a significant contribution to halting the decline in biodiversity.<sup>239</sup> It can help to reduce air pollution, noise and the impacts of extreme heat

and extreme rainfall events. It can help mitigate risks associated with climate change and adapt to its impacts by storing carbon, improving drainage, managing flooding and water resources, improving water quality, and can help species adapt to climate change by providing opportunities for movement.

4.28 Green infrastructure components considered in the planning, designing and management of green infrastructure include biodiversity, the landscape, the historic environment, the water environment and publicly accessible green spaces and informal recreation sites. As well-being an important part of delivering ecosystem services and ecological networks, the green infrastructure approach therefore integrates consideration of environmental, economic, health and social benefits to ensure delivery against both socio-economic and environmental objectives.

4.29 Considering networks of green spaces and natural elements in an integrated way ensures that measures are appropriate to the local context and are able to achieve benefits that are far greater than when individual components are considered in isolation. To ensure that these benefits are delivered, green infrastructure must be well planned, designed, managed and maintained.

<sup>235</sup> Natural elements include rivers, streams, canals, woodlands, street trees, parks, rock exposures and semi-natural greenspaces.

<sup>236</sup> Ministry of Housing, Communities and Local Government (July 2018) *National Planning Policy Framework*

<sup>237</sup> Worcestershire Green Infrastructure Partnership, *Worcestershire Green Infrastructure Strategy 2013-2018*. Both the Worcestershire Local Enterprise Partnership and Worcestershire Local Nature Partnership are signatories to the Worcestershire Green Infrastructure Strategy.

<sup>238</sup> Ministry of Housing, Communities and Local Government, *Planning Practice Guidance, Natural Environment*, paragraph: 030 Reference ID: 8-030-20160211 Revision date: 11 02 2016

<sup>239</sup> Ministry of Housing, Communities and Local Government, *Planning Practice Guidance, Natural Environment*, paragraph: 030 Reference ID: 8-030-20160211 Revision date: 11 02 2016

## Policy MLP 3: Green Infrastructure

### Contributing to:

Objectives MO2, MO3, MO4, MO5

Planning permission will be granted where it is demonstrated that the proposed mineral development will protect and enhance networks of green infrastructure throughout the life of the development.

A level of technical assessment appropriate to the proposed development will be required to demonstrate how, throughout its lifetime, it will enable the site to deliver multiple benefits, taking account of:

- a) the green infrastructure priorities of the relevant strategic corridor;
- b) the local economic, social and environmental context of the site;
- c) the potential impacts of climate change;
- d) site-specific opportunities to:
  - i. protect and enhance inherent landscape character;
  - ii. conserve, restore and enhance ecological networks and deliver net gains for biodiversity;
  - iii. protect and enhance the condition, legibility and understanding of heritage assets and their setting;
  - iv. reduce the causes and impacts of flooding;
  - v. protect and enhance the surface water and groundwater resources at the local and catchment scale;
  - vi. improve the condition, legibility and understanding of geodiversity; and
  - vii. enhance the rights of way network and provision of publicly accessible green space.
- e) how green infrastructure benefits will be secured for the long-term.

Where significant deviation from the priorities of the relevant strategic corridor is proposed, this will only be considered appropriate where robust justification is provided to demonstrate that the proposal will deliver specific local economic, social and environmental benefits either through or alongside appropriate multifunctional green infrastructure measures.

### Reasoned justification

- 4.30 Mineral development can contribute towards maintaining and strengthening networks of green infrastructure through considered design and working methods. Economic, social and environmental benefits can be realised by incorporating multifunctional green infrastructure measures at any time during the life of the site, including preparation and working phases as well as restoration and after-use.
- 4.31 Holistic consideration of the local context and site-specific considerations will influence how green infrastructure can be delivered on individual sites whilst contributing towards the relevant strategic corridor priorities set out in policies MLP 4 to MLP 8.
- 4.32 The technical assessment required by policy MLP 3 should clearly set out how the consideration of the strategic corridor priorities, the local economic, social and environmental context, climate change, and each of the green infrastructure components in part d of policy MLP 3 have influenced the proposed balance of priorities which should be delivered on the site, as well as the types of green infrastructure measures by which they will be addressed or delivered at each stage of a site's life.
- 4.33 This should clearly set out the benefits which the chosen suite of green infrastructure measures will deliver for the economy, communities and the environment.

### Green infrastructure priorities of the relevant strategic corridor

4.34 The technical assessment required by Policy MLP 3 should identify the location of the proposed development within the relevant strategic corridor. It should consider the interaction of the site with the local and surrounding network of green spaces and natural elements, and the potential for the site to contribute towards the priorities for the relevant corridor (as set out in policies MLP 4 to MLP 8).

### Local economic, social and environmental context

4.35 The technical assessment required by policy MLP 3 should set out what local economic, social and environmental opportunities and limitations exist or are likely to arise in and around the site.

4.36 In developing proposals, consideration should be given to the local economic, social and environmental context of the site in terms of the impacts and opportunities which are likely to occur at all stages of the site's life. This should include, but is not limited to, consideration of any objectives and aspirations set out in relevant Local or Neighbourhood Plans, information arising from pre-application public consultation, any limitations or opportunities afforded by the topography or geology of the site and its surroundings, the need to safeguard the long-term potential of best and most versatile agricultural land, any opportunities to contribute to maintaining and improving health and well-being<sup>240</sup>, and any cumulative impacts or cumulative opportunities with existing or approved development.

### Potential impacts of climate change

4.37 In developing proposals, consideration should be given to potential risks from climate change, as well as any opportunities for the site to contribute towards mitigating and adapting to climate change. The technical assessment required by policy MLP 3 should set out how any likely climate change impacts have been taken into account in site design, working and restoration proposals. This should include, but is not limited to, consideration of the impact of water shortages, flood risk, and land stability (subsidence and heave) on working, processing, mitigation, restoration and after-use.

4.38 The technical assessment should identify any necessary mitigation and adaptation measures. This should include consideration of how climate change mitigation and adaptation can be addressed through delivering multifunctional green infrastructure which contributes to wider climate change resilience, such as creating or enhancing habitat networks to allow species migration, or restoration schemes that provide opportunities for flood betterment or improved natural water storage. Technical assessments should also consider whether opportunities exist to minimise vulnerability and improve resilience of communities and infrastructure to climate change. This should take into account the long-term implications for flood risk, water supply, biodiversity and landscapes, and the risk of overheating from rising temperatures, as well as any opportunities to provide space for physical protection measures, or for the possible future relocation of vulnerable development and infrastructure.

### Site-specific green infrastructure opportunities

4.39 The components of green infrastructure have been considered holistically at a strategic scale to identify multifunctional priorities for each strategic corridor in policies MLP 4 to MLP 8. However, when developing site-specific proposals, consideration of each of the components in part d of policy MLP 3 may reveal opportunities which could not be identified at the strategic scale.

4.40 The technical assessment required by policy MLP 3 should consider each of the green infrastructure components in part d of policy MLP 3 and set out any site-specific opportunities for protection or enhancement of those components, or any site-specific opportunities to deliver multifunctional benefits which are identified. This should also include detailed consideration of how any site-specific opportunities could be integrated alongside the priorities of the relevant strategic corridor.

4.41 In some cases site-specific considerations may indicate that protecting and enhancing networks of green infrastructure can be maximised by focusing on specific components. This should also be evidenced through the technical assessment.

<sup>240</sup> Depending on the scale and nature of the proposed development, health and well-being issues may be addressed as part of an Environmental Impact Assessment. A standalone Health Impact Assessment (HIA) may not always be required, but can be a useful tool to identify and enhance the positive aspects of a proposal through assessment, while avoiding or minimising any negative impacts, with particular emphasis on disadvantaged sections of communities that might be affected.



**Biodiversity-rich rock face (courtesy of Herefordshire and Worcestershire Earth Heritage Trust)**

4.42 Where a site is not within a strategic corridor but meets the exception criteria in policy MLP 1, the green infrastructure components set out in part d of policy MLP 3 will need to be considered at a local and strategic scale. Technical assessments should set out how holistic consideration of the site in the context of the wider network of green infrastructure has led to the proposed suite of multifunctional green infrastructure measures designed to deliver multiple benefits across the site.

### **Securing green infrastructure benefits for the long term**

4.43 Green infrastructure requires sustainable management and maintenance arrangements if it is to provide benefits and services in the long term. The technical assessment required by policy MLP 3 should consider the whole life

of a site, considering the design of the site and its restoration scheme alongside the available options for managing green infrastructure, including funding its management over the long term, and should set out why the proposed option is considered appropriate for the site and how such arrangements will be secured. They should also identify how long-term management and maintenance considerations have influenced the site's overall design and proposed working, restoration and aftercare proposals.<sup>241</sup> A green infrastructure strategy or concept plan for the site may be a useful tool to bring this information together.<sup>242</sup>

4.44 Long-term management beyond the statutory five year aftercare period may be required where appropriate, such as where this is necessary for new habitats to become established or to deliver community benefits.

<sup>241</sup> Ministry of Housing, Communities and Local Government, *Planning Practice Guidance, Natural Environment*, paragraph: 031 Reference ID: 8-031-20160211 Revision date: 11 02 2016

<sup>242</sup> There is an established procedure for developing green infrastructure concept plans for major developments in Worcestershire through the Worcestershire Green Infrastructure Partnership. Examples can be viewed at [www.worcestershire.gov.uk/GI](http://www.worcestershire.gov.uk/GI).





Water meadows near Evesham

## Strategic corridor priorities

- 4.45 Mineral working presents significant opportunities to deliver green infrastructure gains at a landscape scale. Through the holistic consideration of the components of green infrastructure at a strategic scale, priorities have been identified for each strategic corridor (Policies MLP 4 to MLP 8). These priorities have been established<sup>243</sup> to guide developers on the appropriate balance between green infrastructure components, and highlight mechanisms to deliver multifunctional benefits which are most likely to be appropriate to the locality.
- 4.46 The strategic corridors each have an inherent coherence. The various components of green infrastructure combine to influence the key characteristics of the landscape types within the corridors. The priorities which are set out for each corridor identify how mineral development

should incorporate multifunctional measures which will contribute to addressing strategic issues across the various green infrastructure components at a landscape scale,<sup>244</sup> in ways appropriate to the key characteristics of the landscape types within each corridor.<sup>245</sup>

- 4.47 The priorities for each corridor will be delivered through the working and restoration of multiple sites, both at new sites and through changes to planning permissions at existing sites as opportunities arise.<sup>246</sup> Each development proposal will need to be assessed on a site-by-site basis, but the priorities set out in policies MLP 4 to MLP 8 will guide how sites are designed, worked and restored so that mineral development across a corridor over the life of the plan is coordinated to deliver the priorities. The local context will influence how the green infrastructure priorities can best be integrated to deliver multiple benefits at each stage of a site's life.

<sup>243</sup> The priorities have been developed in consultation with multiple stakeholders through a Minerals Green Infrastructure Steering Group which has been active throughout the development of the Minerals Local Plan to assist with embedding the Green Infrastructure approach. The group consists of Historic England (the Historic Buildings and Monuments Commission for England which was known as English Heritage until 1 April 2015); Environment Agency; Forestry Commission; Herefordshire & Worcestershire Earth Heritage Trust; Natural England; *Nature After Minerals*/RSPB; Worcestershire Wildlife Trust, as well as officers from the following teams within Worcestershire County Council: Strategic Planning & Environmental Policy; Worcestershire Archive and Archaeology Service; Development Management; Water/flooding (Lead Local Flood Authority); Countryside Access & Recreation.

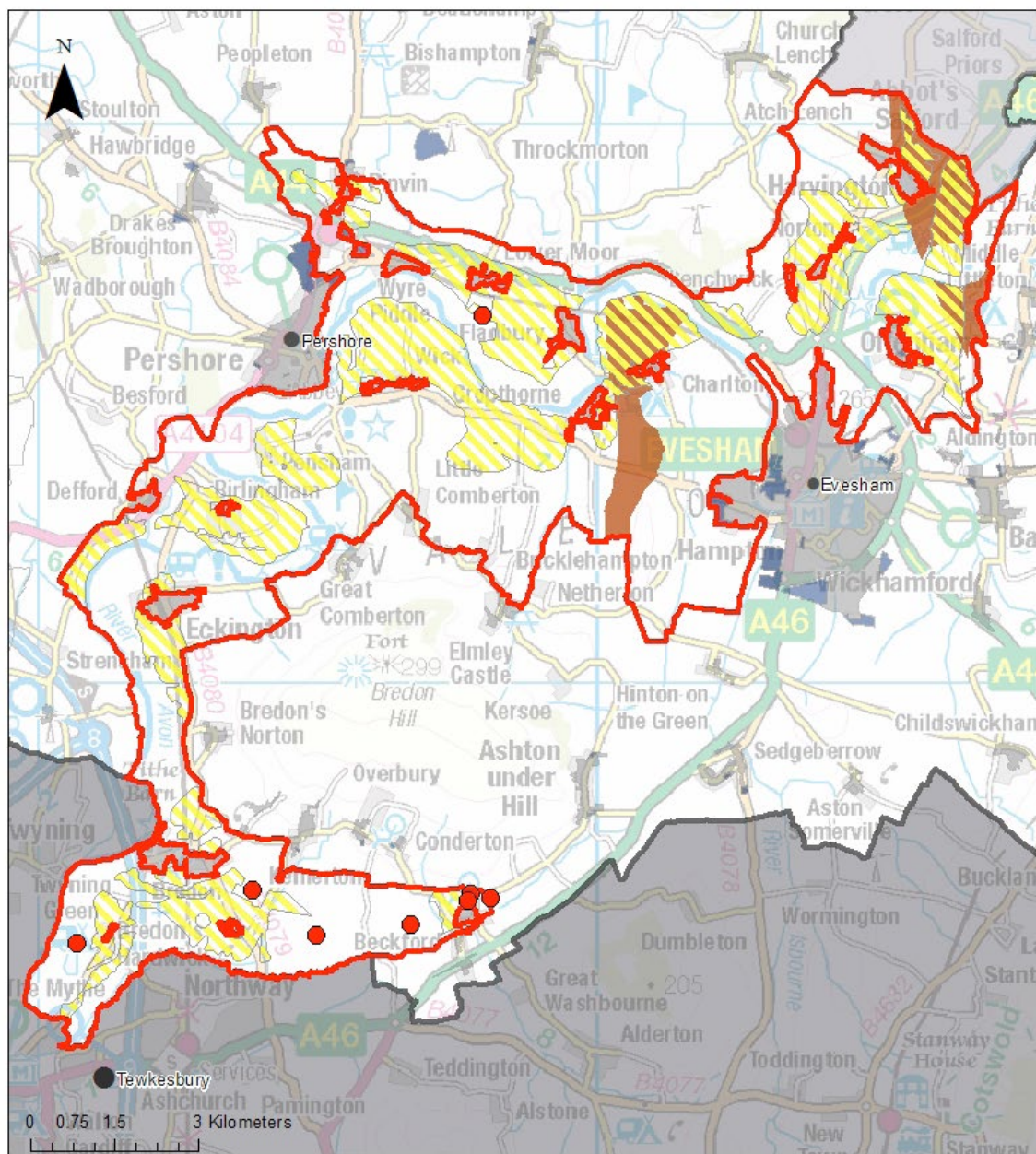
<sup>244</sup> Data can be viewed on the interactive minerals mapping tool at [www.worcestershire.gov.uk/minerals](http://www.worcestershire.gov.uk/minerals)

<sup>245</sup> See Worcestershire County Council (2012) *Landscape Character Assessment Supplementary Guidance* available at [www.worcestershire.gov.uk/lca](http://www.worcestershire.gov.uk/lca) and Worcestershire County Council and Forestry Commission (2010) *Trees and Woodland in Worcestershire: Biodiversity and Landscape Guidelines for their planting and management* available at [http://www.worcestershire.gov.uk/downloads/file/4790/woodland\\_guidelines](http://www.worcestershire.gov.uk/downloads/file/4790/woodland_guidelines).

<sup>246</sup> Through ROMPs and planning applications to alter the conditions imposed as part of existing planning permissions.

## Avon and Carrant Brook Strategic Corridor

Figure 4.2. Avon and Carrant Brook Strategic Corridor



Legend	
<b>Strategic corridors</b>	
	Avon and Carrant Brook Strategic Corridor
<b>Areas of search</b>	
	Terrace and glacial sand and gravel
	Brick clay
	Settlements
	City, Borough and District site allocations
<b>Mineral Sites</b>	
<b>Status</b>	
	Restored (closed)

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Ordnance Survey  
100024230

Derived from 1:50,000 scale  
BGS Digital Data under  
Licence 2001/125. Amended  
British Geological Survey  
© NERC

Former building stone quarry  
data provided by Herefordshire  
and Worcestershire Earth  
Heritage Trust.

NOTE: The strategic corridors and areas of search can be viewed in more detail on the Policies Map (part of the interactive minerals mapping tool).

Note: An interactive minerals mapping tool is available at [www.worcestershire.gov.uk/minerals](http://www.worcestershire.gov.uk/minerals). It incorporates the Policies Map which defines the Minerals Local Plan's land-use designations and allocations, and also includes additional supporting data<sup>247</sup> to assist in the use and implementation of the Minerals Local Plan.

<sup>247</sup> Other supporting data is included on the interactive minerals mapping tool to assist in the use and implementation of the Minerals Local Plan, but may not be the latest available information. Data will be updated as far as possible alongside publication of the Minerals and Waste Local Development Framework Authority Monitoring Report. Data sources include the British Geological Survey, Coal Authority, data.gov.uk, Environment Agency, Herefordshire and Worcestershire Earth Heritage Trust, Worcestershire Biological Records Centre, and Worcestershire County Council.



4.48 The Avon and Carrant Brook Strategic Corridor is identified in the Key Diagram (Figure 4.1) and shown in detail in Figure 4.2. It covers 9,500 hectares of land, and broadly follows the course of the River Avon from north-east of Evesham to Worcestershire’s boundary with Gloucestershire near Tewkesbury, and the course of the Carrant Brook from Beckford to the county boundary near Tewkesbury. The corridor skirts Bredon Hill, which is part of the Cotswolds AONB, and is approximately 540m at the closest point from the Bredon Hill SAC.

4.49 The landscape character of the Avon and Carrant Brook Strategic Corridor is made up of the secluded pastoral landscapes of the Riverside Meadows landscape type (characterised by meandering, tree-lined rivers, flanked by alluvial meadows which are defined by hedge and ditch boundaries), the open, rolling landscapes of the Principal Village Farmlands (characterised by a nucleated pattern of expanded rural villages, surrounded by large arable fields, often subdivided into a series of smaller plots), and the planned lowland agricultural landscapes of the Village Farmlands with Orchards (an intensively

cultivated landscape characterised by large cultivated fields and dominant orchard land use).<sup>248</sup>

4.50 Agricultural land uses dominate much of this corridor, with 48.4% of the corridor being best and most versatile agricultural land,<sup>249</sup> and land use in the Principle Village Farmlands being very strongly based on cropping and horticulture. Arable land uses and locally significant orchards also help to define the landscape character within the corridor. However, water shortages<sup>250</sup> can present a challenge for businesses and key infrastructure in this corridor. There is also a high level of flood risk, with the corridor being affected by fluvial flooding from the River Avon as well as surface water and ground water flooding. As the corridor consists of flat valleys with wide floodplains away from the source of run-off generation, flood betterment opportunities are most likely to be measures associated with flood storage and floodplain connectivity.<sup>251</sup> The majority of the watercourses in the corridor are not currently meeting Water Framework Directive targets for “good ecological status”.<sup>252</sup>

248 See Worcestershire’s *Landscape Character Assessment* maps and guidance at [www.worcestershire.gov.uk/lca](http://www.worcestershire.gov.uk/lca).

249 Based on Grade 1 and Grade 2 Agricultural Land, as the Provisional Agricultural Land Classification (1988) mapping does not distinguish between grade 3a and 3b land, and subsequent Post 1988 mapping is not comprehensive.

250 Environment Agency (February 2013) *Warwickshire Avon abstraction licensing strategy* states that consumptive abstraction is only available 50% of the time.

251 Environment Agency, Worcestershire County Council (June 2018) *Catchment Based Management in Worcestershire Technical Background Document*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

252 Environment Agency, Worcestershire County Council (June 2018) *Catchment Based Management in Worcestershire Technical Background Document*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

- 4.51 The Avon and Carrant Brook Strategic Corridor has significant potential to deliver biodiversity action plan targets for both species and habitats, with the Severn and Avon Vales Biodiversity Delivery Area<sup>253</sup> following the course of the River Avon through the corridor, and the majority of the corridor consisting of the “alluvial fenlands” or “river terraces” ecological zones where mineral working has the potential to rejuvenate the diversity of habitats and reintroduce wetlands to a largely drained and dry landscape.<sup>254</sup>
- 4.52 There are large numbers of designated heritage assets within the corridor, as well as large areas with very high archaeological potential including extensive Areas of Palaeolithic Potential. Lowland areas are associated with complex, multi-period settlement sites with settlement enclosures surviving as earthworks on hilltop locations. Later prehistoric and Romano-British settlements are common on the freer draining soils of the gravel terraces. The extant settlement pattern is medieval and post-medieval in origin and characterised by nucleated villages with some wayside settlement and estate farmsteads. Historic Landscape Character is reflected in the field patterns and hedgerow networks associated with enclosure during the 17th to 19th centuries of medieval open-fields and riverside pasture. There is a distinctive character of market gardening allotments and traditional orchard enclosures in the Vale of Evesham.
- 4.53 The network of public rights of way in the Avon and Carrant Brook Strategic Corridor is less dense than in other parts of the county, but the Wychavon Way long-distance path crosses the corridor. There are very few sites designated for their geological interest within the Avon and Carrant Brook Strategic Corridor.
- 4.54 Mineral development in the Avon and Carrant Brook Strategic Corridor would be well located to serve planned growth in the Worcester area, Evesham and Pershore,<sup>255</sup> and proposed growth in Tewkesbury<sup>256</sup>. There are good links to the strategic highway network in the north of the corridor, although road transport may be more of a challenge in the south. The River Avon is navigable throughout the corridor. Two rail lines cross the corridor, although opportunities to connect to them may be limited.
- 4.55 The Avon and Carrant Brook Strategic Corridor contains 34.2%<sup>257</sup> of the county’s terrace and glacial sand and gravel resources and 1.1%<sup>258</sup> of the county’s Mercia Mudstone clay resource. The corridor is also widely underlain by clays of the Lias Group which are not considered to be a locally or nationally important mineral resource. Sand and gravel is known to have been worked at eight sites<sup>259</sup> in the Avon and Carrant Brook Strategic Corridor in the past, but there are currently no extant workings<sup>260</sup> within the Avon and Carrant Brook Strategic Corridor.
- 4.56 Working in this corridor is most likely to be for relatively shallow sand and gravel workings, with river terrace sand and gravel deposits in the corridor averaging 3.4 metres in depth. In some cases it may be possible to restore land to previous levels through the importation of materials, however this likely to be limited by both the availability of suitable materials in the area, the current regulatory regime, the need to ensure that worked land is reclaimed at the earliest opportunity and the need to provide high-quality restoration.<sup>261</sup> It is therefore likely that parts of a site might be restored to previous levels, but some areas of lower land may be necessary.
- 4.57 The nature of the mineral deposits and the relatively limited opportunities to access to the strategic transport network may mean that centralised processing plant sites which enable access to “satellite” sites to work smaller mineral deposits may be more viable in this corridor than traditional large sites with their own processing plant.

253 Information about the Worcestershire Biodiversity Action Plans and Biodiversity Delivery Areas is available at <http://www.worcestershire.gov.uk/biodiversity>.

254 Worcestershire County Council, *Biodiversity and mineral sites in Worcestershire: Guidance for the sustainable management of biodiversity action plan habitats at Worcestershire mineral sites*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

255 As proposed in the *South Worcestershire Development Plan* (adopted 2016).

256 As proposed in the *Gloucester, Cheltenham and Tewkesbury Joint Core Strategy 2011 – 2031* (adopted 2017).

257 By area, based on the key and significant resources identified in Worcestershire County Council (August 2018) *Analysis of Mineral Resources*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground). The *Analysis of Minerals Resources* was refreshed following the Third Stage Consultation on the Minerals Local Plan to take account of environmental and amenity screening criteria. For further information see Worcestershire County Council’s background document *Location of development: screening and site selection methodology* (August 2018).

258 By area, based on the Mercia Mudstone resource after environmental and amenity screening criteria were applied. For further information see Worcestershire County Council (August 2018) *Location of development: screening and site selection methodology*.

259 Lower Moor Quarry, Court Farm, Beckford Quarry, Costwold Plant Hire workings, Carrant Brook Pit, Aston Mill, Kemerton Quarry and Bredon’s Hardwicke Quarry. These can be viewed on the interactive minerals mapping tool available at [www.worcestershire.gov.uk/minerals](http://www.worcestershire.gov.uk/minerals).

260 At 31st December 2016.

261 See policy MLP 17 (Prudent Use of Resources).

## Policy MLP 4: Avon and Carrant Brook Strategic Corridor

### Contributing to:

Objectives MO2, MO3, MO4, MO5

Planning permission will be granted for mineral development within the Avon and Carrant Brook Strategic Corridor that contributes towards the quality, character and distinctiveness of the corridor through the delivery and enhancement of green infrastructure networks.

A level of technical assessment appropriate to the proposed development will be required to demonstrate how, throughout its lifetime, the development will optimise opportunities to deliver the following green infrastructure priorities for the Avon and Carrant Brook Strategic Corridor:

- a) create wetland features such as wet pasture, water meadows, reedbed, fen, marsh, and ditches both during working phases and alongside restoration to characteristic agricultural land uses including arable, cropping, horticulture and orchards;
- b) conserve, enhance and restore characteristic hedgerow patterns, and linear tree belts along hedge and ditch lines and along the banks of watercourses;
- c) link, extend and enhance the network of public rights of way and other public access routes, incorporating information or routes which increase the legibility and understanding of the geodiversity, heritage and character of the area;
- d) in the Principal Village Farmlands and Village Farmlands with Orchards landscape types, conserve, enhance and restore lines of hedgerow fruit trees to define medium- to large-scale fields.

Where significant deviation from these priorities is proposed, this will only be considered appropriate where robust justification is provided to demonstrate that the proposal will deliver specific local economic, social and environmental benefits which demonstrably outweigh the benefits of delivering the corridor priorities.

### Reasoned justification

4.58 Policy MLP 4 sets the priorities for the delivery of multifunctional green infrastructure in the Avon and Carrant Brook Strategic Corridor. Each of the priorities for the corridor will contribute to multiple green infrastructure components, as well as climate change adaptation and mitigation.

4.59 The corridor priorities can be integrated and delivered alongside each other, and in most cases it will be appropriate to incorporate some elements of each priority. However, in some cases it may not be possible or desirable to deliver all priorities on a single site when the size of the site or other local factors are taken into account.

4.60 The technical assessment required by policy MLP 4 will be expected set out the considerations which have led to the proposed design of the site and the working, restoration and aftercare schemes, taking account of issues and opportunities identified through the consideration of policy MLP 3 (Green Infrastructure) and policies MLP 17 to MLP 30 (Development Management). The assessment should clearly specify how the proposed development will contribute to the green infrastructure priorities at each stage of the site's life, and why the proposed balance of priorities is considered to optimise the opportunities for delivering the priorities in that location. Where focusing on fewer priorities would deliver greater overall benefits than trying to deliver against all of the priorities for the corridor this will be supported.

**Priority a: Create wetland features such as fen and marsh, wet grassland, reedbed and lowland meadows both during working phases and alongside restoration to characteristic agricultural land uses including arable, cropping, horticulture and orchards**

4.61 Wetland creation will aid natural flood management, flood storage and floodplain connectivity, as well as improving water quality. Incorporating floodplain and riverside vegetation can help to slow overland flows, increase infiltration and interception of rain and slow the velocity of water entering rivers. It can deliver biodiversity gains and Biodiversity Action Plan priorities, and will contribute to climate change resilience. It can also enhance the local landscape character and in some cases reflect historic land uses and land management techniques. The creation of wetland habitats on individual sites will largely be dependent on the local hydrology and any seasonal changes.

4.62 Wetland features in the Avon and Carrant Brook Strategic Corridors should predominantly be wet pasture, meadows, reedbed, fen, marsh, and ditches, rather than open water. However, if open waterbodies are proposed, they should be designed to have serpentine and sinuous edges with significant shallow areas, as broad drawdown zones will encourage marginal habitats including fen, marsh and reedbed to establish. The design of wetland habitats should consider the landscape character, retaining the medium-to large-scale field patterns, and opportunities to enhance the landscape and biodiversity benefits of the ditches and watercourses.

4.63 Wet pastures would contribute positively to the character of the Riverside Meadows landscape type and would help to deliver the aims of the Severn and Avon Vales Biodiversity Delivery Area. The quality of agricultural land in the Riverside Meadows landscape type is generally low. Opportunities to incorporate appropriate grazing practices and haymaking into the management of sites could contribute to the long-term economic viability of the land and deliver outcomes that ensure net biodiversity gain in the long term. However, after-use in these areas need not be restricted to agriculture and other proposals for

the long-term management of wetland habitats will be welcomed.

4.64 In the Principal Village Farmlands and Village Farmlands with Orchards landscape types, where agricultural land quality is often high, arable land-uses (including cropping<sup>262</sup> and horticulture<sup>263</sup>) can contribute positively to the character and local distinctiveness of the landscape. Conserving and restoring traditional orchards is particularly important in the Village Farmlands with Orchards landscape type and around villages where it forms part of their local distinctiveness, and there should be an emphasis on the fruit type and varieties associated with the specific locality of the proposal. Restoration to these types of agricultural land uses can contribute to the economic vitality of the area, and can contribute to net biodiversity gain and benefits to the water environment by integrating wetland habitats and ditch networks. Wetland habitats should be incorporated as wet field margins, ponds, pools and scrapes which would provide valuable habitats and natural water storage. In areas where agricultural land quality is lower, the creation of more extensive wetland habitats might be appropriate.

4.65 Wetland features should be delivered during working phases as well as during the restoration of sites. The site design, levels and phasing of workings should optimise opportunities for these features and habitats. Simple measures such as securely installing woody debris can assist the transfer of water from the river to the floodplain to increase floodplain storage volumes, or slow down flows within the channel.<sup>264</sup> Biodiversity and minerals sites in Worcestershire: Guidance for the sustainable management of biodiversity action plan habitats at Worcestershire mineral sites<sup>265</sup> provides useful information about the types of wetland habitats that might be appropriate and how these can be created and managed. The Worcestershire Habitat Inventory<sup>266</sup> should be referred to when considering the opportunities to link and extend existing habitats.

262 Cropping is the dominance of arable farming characterised by field vegetables and/or market gardening.

263 Horticulture is the dominance of arable farming characterised by growing fruits, vegetables, flowers, or ornamental plants.

264 Environment Agency, Worcestershire County Council (June 2018) *Catchment Based Management in Worcestershire Technical Background Document*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

265 Worcestershire County Council (2013) *Biodiversity and minerals sites in Worcestershire: Guidance for the sustainable management of biodiversity action plan habitats at Worcestershire mineral sites* available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

266 See *Worcestershire Habitat Inventory* information at [http://www.worcestershire.gov.uk/info/20014/planning/1029/worcestershire\\_habitat\\_inventory](http://www.worcestershire.gov.uk/info/20014/planning/1029/worcestershire_habitat_inventory)

4.66 In some cases, a stand-off zone may be required between the mineral working and any watercourses, but in areas where it is demonstrated to be safe and appropriate to do so, there may be opportunities for banks to be worked. This could provide opportunities to maximise resource efficiency, create a more natural river profile, link to wetland habitats, restore links to natural floodplains and create braided channels and in-channel features.

**Priority b: Conserve, enhance and restore characteristic hedgerow patterns, and linear tree belts along hedge and ditch lines and along the banks of watercourses**

4.67 Linear tree belts along ditches, watercourses and in hedgerows, and the restoration of hedgerows<sup>267</sup> will contribute to the structure and character of the landscape, the local distinctiveness of the area and the legibility of historic enclosure patterns in the landscape. Incorporating hedgerows and trees along watercourses can also help to slow overland flows, increase infiltration and interception of rain and slow the velocity of water entering rivers. Tree belts and hedgerows can link and enhance habitats to provide an ecological network of connected habitats contributing to species resilience.

4.68 The conservation and enhancement of primary hedgerow patterns may also help to protect long-distance views from the Cotswolds Area of Outstanding Natural Beauty, and the special characteristics of the Area of Outstanding Natural Beauty and its setting should be considered.

4.69 Tree belts and hedgerows should be conserved, enhanced and restored across all phases of the site's life, and consideration of these features is expected to be integral to the design and layout of the site and any restoration proposals.

**Priority c: Link, extend and enhance the network of public rights of way and other public access routes, incorporating information or routes which increase the legibility and understanding of the geodiversity, heritage and character of the area**

4.70 Linking, extending and enhancing the network of public access routes will increase opportunities for informal access and recreation, contributing

to the health and well-being of local communities, and can preserve or restore historic or cultural links. It also offers opportunities to help people to interpret features and characteristics in the landscape and understand how they interact. This can help to strengthen sense of place through increased understanding of the geodiversity, heritage and character of the area. In some cases, routes adjacent to or with views of particular features may be sufficient to increase legibility and understanding of the feature. In other cases, signage or information boards may be appropriate.

4.71 Opportunities to link, extend and enhance routes should be considered across all phases of the site's life. Measures such as providing viewing or stopping points, increasing accessibility by replacing stiles with gates, or improving the surfacing, drainage or management of the route are likely to be appropriate, as well as linking or extending existing public rights of way and other public access routes, including long-distance recreation routes or planned and proposed Sustrans routes. Consideration of appropriate routes and opportunities to increase the legibility and understanding of the area should be integral to the design and layout of the site and any restoration proposals.

**Priority d: In the Principal Village Farmlands and Village Farmlands with Orchards landscape types, conserve, enhance and restore lines of hedgerow fruit trees to define medium- to large-scale fields**

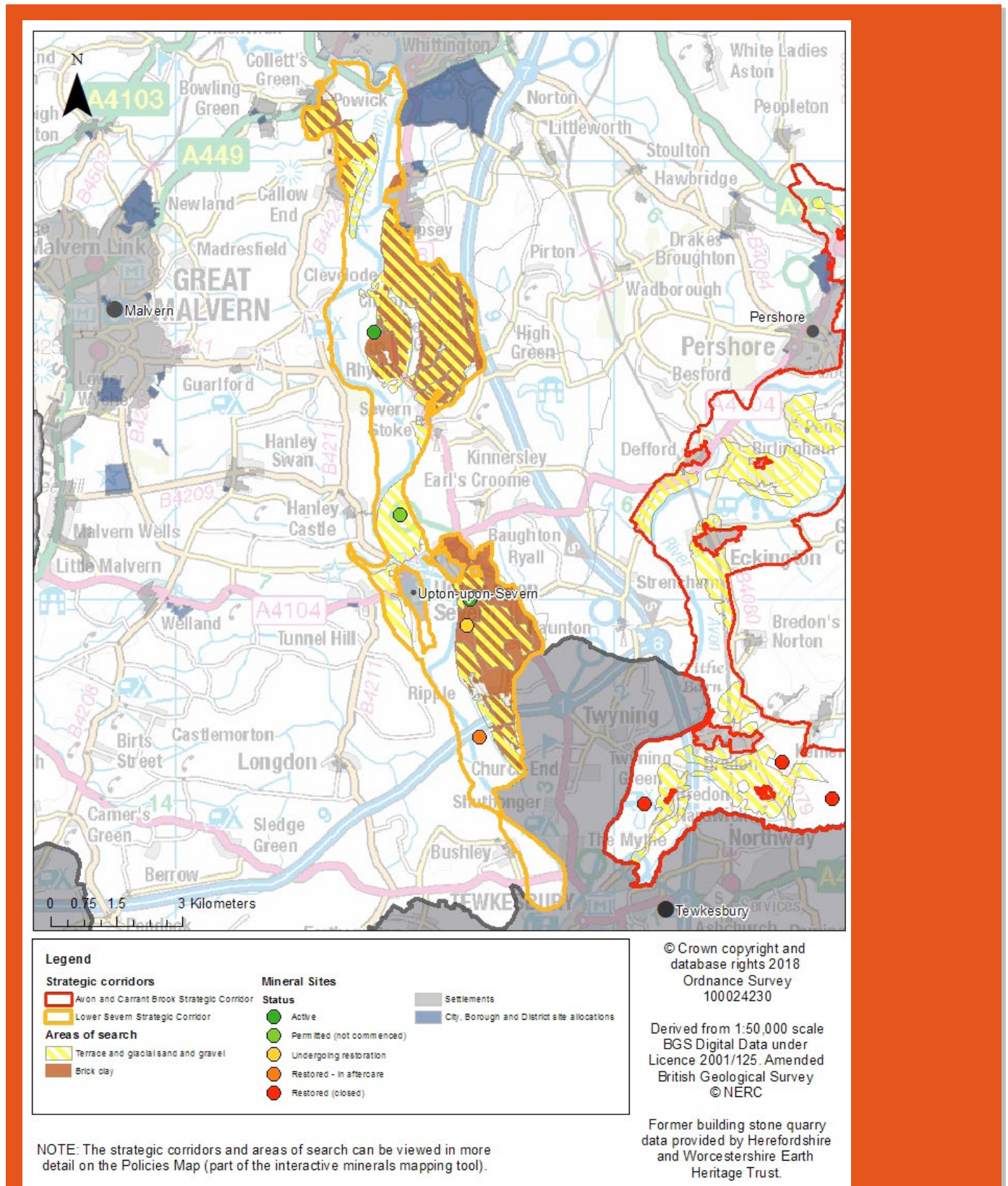
4.72 Lines of hedgerow fruit trees to define the large fields of the village farmlands will contribute to conserving and enhancing landscape character, as well as providing locally appropriate habitats. Lines of hedgerow fruit trees, particularly damson, are a distinctive local feature, with some scattered tree cover along watercourses.

4.73 For sites in the Principal Village Farmlands and Village Farmlands with Orchards landscape types, consideration should be given to the conservation, enhancement and restoration of hedgerow fruit trees across all phases of the site's life. This should be integral to the design and layout of the site and any restoration proposals.

<sup>267</sup> The primary hedgerow network consists of the hedgerows along roads, farm and parish boundaries, and the secondary hedgerow network is provided by the internal field boundaries.

## Lower Severn Strategic Corridor

Figure 4.3. Lower Severn Strategic Corridor



Note: An interactive minerals mapping tool is available at [www.worcestershire.gov.uk/minerals](http://www.worcestershire.gov.uk/minerals). It incorporates the Policies Map which defines the Minerals Local Plan's land-use designations and allocations, and also includes additional supporting data<sup>268</sup> to assist in the use and implementation of the Minerals Local Plan.

<sup>268</sup> Other supporting data is included on the interactive minerals mapping tool to assist in the use and implementation of the Minerals Local Plan, but may not be the latest available information. Data will be updated as far as possible alongside publication of the Minerals and Waste Local Development Framework Authority Monitoring Report. Data sources include the British Geological Survey, Coal Authority, data.gov.uk, Environment Agency, Herefordshire and Worcestershire Earth Heritage Trust, Worcestershire Biological Records Centre, and Worcestershire County Council.



- 4.74 The Lower Severn Strategic Corridor is identified in the Key Diagram (Figure 4.1) and shown in detail in Figure 4.3. It covers 3,280 hectares of land, and broadly follows the course of the River Severn from south of Worcester to the county boundary with Gloucestershire near Tewkesbury.
- 4.75 The landscape character of the Lower Severn Strategic Corridor is made up of the secluded pastoral landscapes of the Riverside Meadows landscape type (characterised by meandering, tree-lined rivers, flanked by alluvial meadows which are defined by hedge and ditch boundaries), the medium scale, settled agricultural landscapes of the Settled Farmlands on River Terraces landscape type (where horticulture and cropping is the dominant land use, and fields are bounded by hedgerows, with tree cover largely concentrated in groups associated with dwellings), as well as a smaller area of the flat, low-lying, secluded pastoral landscape of the Wet Pasture Meadows landscape type (characterised by a regular pattern of hedged fields and ditches fringed by lines of willow and alder).<sup>269</sup>
- 4.76 Agricultural land uses dominate much of this corridor, with 33.7% of the corridor being best and most versatile agricultural land.<sup>270</sup> The free-draining, highly fertile sandy brown soils in the Settled Farmlands on River Terraces support an arable land use dominated by cash crops and market gardening, and the presence of extensive areas of waterside meadows have been used for seasonal grazing in the Riverside Meadows.
- 4.77 There is a high level of flood risk, with the corridor being affected by fluvial flooding from the River Severn as well as surface water and ground water flooding. The corridor covers lower parts of the catchment, located amongst flat valleys with wide floodplains away from the source of run-off generation, meaning that flood betterment opportunities are most likely to be measures associated with flood storage and floodplain connectivity.<sup>271</sup> The majority of the watercourses in the corridor are not currently meeting Water Framework Directive targets for “good ecological status”.<sup>272</sup>
- 4.78 The Lower Severn Strategic Corridor has significant potential to deliver biodiversity action plan targets for both species and habitats, with the Severn and Avon Vales Biodiversity Delivery Area<sup>273</sup> covering the majority of the corridor as it follows the course of the River Severn. The whole of the corridor consists of the “alluvial fenlands” or “river terraces” ecological zones where mineral working has the potential to rejuvenate the diversity of habitats and reintroduce wetlands to a largely drained and dry landscape.<sup>274</sup>
- 4.79 The Lower Severn Strategic Corridor forms part of the principal area of known prehistoric and Romano-British settlement sites and landscapes in Worcestershire. The gravel terraces of the River Severn from Worcester southwards have revealed extensive remains of settlement, land use and funerary sites. The broader meanders of the river have preserved palaeochannels and peat deposits rich in palaeo-environmental remains, and have been shown by excavation to be a focus of riverside activity from the Neolithic period onwards. This is also an area of extensive Palaeolithic Potential. Historic Landscape Character is strongly influenced by nucleated medieval and post-medieval settlements with associated wayside and estate farmsteads set within 17th to 19th century field systems along the river terraces.
- 4.80 Although there are not many designated sites for geodiversity interest in the corridor, the southern part of the Lower Severn Strategic Corridor is within the Abberley and Malvern Hills Geopark<sup>275</sup> and there is a cluster of geological Sites of Special Scientific Interest and Local Geological Sites close to the village of Clifton.

<sup>269</sup> See Worcestershire's *Landscape Character Assessment* maps and guidance at [www.worcestershire.gov.uk/lca](http://www.worcestershire.gov.uk/lca).

<sup>270</sup> Based on Grade 1 and Grade 2 Agricultural Land, as the Provisional Agricultural Land Classification (1988) mapping does not distinguish between grade 3a and 3b land, and subsequent Post 1988 mapping is not comprehensive.

<sup>271</sup> Environment Agency, Worcestershire County Council (June 2018) *Catchment Based Management in Worcestershire Technical Background Document*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

<sup>272</sup> Environment Agency, Worcestershire County Council (June 2018) *Catchment Based Management in Worcestershire Technical Background Document*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

<sup>273</sup> Information about the Worcestershire Biodiversity Action Plans and Biodiversity Delivery Areas is available at <http://www.worcestershire.gov.uk/biodiversity>.

<sup>274</sup> Worcestershire County Council, *Biodiversity and mineral sites in Worcestershire: Guidance for the sustainable management of biodiversity action plan habitats at Worcestershire mineral sites*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

<sup>275</sup> More information about the Abberley and Malvern Hills Geopark is available at <http://geopark.org.uk/>

4.81 There is a good network of public rights of way in the corridor, and the Severn Way long-distance path runs throughout its length. However, there is also an identified need for a strategic recreation asset in the Lower Severn Strategic Corridor<sup>276</sup> to provide an alternative destination for visitors to the Malvern Hills and to serve the new developments that are planned to the south and west of Worcester.

4.82 Mineral development in the Lower Severn Strategic Corridor would be well located to serve planned growth in the wider Worcester area, Malvern and Pershore,<sup>277</sup> and proposed growth in Tewkesbury<sup>278</sup>. There are good links to the strategic highway network throughout the majority of the corridor, although road transport may be more of a challenge to the west of the River Severn. The River Severn is navigable throughout the corridor, but there are no railway lines in the corridor. The River Severn is already used to transport minerals, enabling sites with centralised processing plant with good connections to the strategic highway network to access material from smaller or more remote “satellite” sites. This is likely to continue to be a viable option for accessing smaller mineral deposits in the Lower Severn Strategic Corridor, alongside traditional large sites with their own processing plant.

4.83 The Lower Severn Strategic Corridor contains 19.5%<sup>279</sup> of the county’s terrace and glacial sand and gravel resources and 2.4%<sup>280</sup> of the county’s Mercia Mudstone clay resource. Sand and gravel has been worked extensively<sup>281</sup> in the Lower Severn Strategic Corridor. Clay was also worked in a borrow pit in the north of the corridor to provide material for Powick flood risk management scheme.

4.84 Working in this corridor is therefore most likely to be for relatively shallow sand and gravel workings, with river terrace sand and gravel deposits in the corridor averaging 3.4 metres in depth. In some cases it may be possible to restore land to previous levels through the importation of materials, however this is likely to be limited by both the availability of suitable materials in the area, the current regulatory regime, the need to ensure that worked land is reclaimed at the earliest opportunity and the need to provide high-quality restoration.<sup>282</sup> It is therefore likely that parts of a site might be restored to previous levels, but some areas of lower land may be necessary.



Settled Farmlands on River Terrace Landscape Type

276 The need for a strategic recreation asset is identified in the adopted *South Worcestershire Development Plan 2016* (<http://www.swdevelopmentplan.org/>) and the Worcestershire Green Infrastructure Framework (Document 3, [www.worcestershire.gov.uk/GI](http://www.worcestershire.gov.uk/GI)). This is based on the access to, and capacity of, existing recreation assets and the impacts of planned housing growth. The *South Worcestershire Development Plan* identifies an area of search for a strategic recreation asset, known as “Clifton Water Park”, at the old gravel pits around Sandford, south of Kempsey. However the provision of strategic recreation assets is not necessarily limited to the Clifton Water Park site.

277 As proposed in the *South Worcestershire Development Plan* (adopted 2016).

278 As proposed in the *Gloucester, Cheltenham and Tewkesbury Joint Core Strategy 2011 – 2031* (adopted 2017).

279 By area, based on the key and significant resources identified in Worcestershire County Council (August 2018) *Analysis of Mineral Resources*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground). The *Analysis of Minerals Resources* was refreshed following the Third Stage Consultation on the Minerals Local Plan to take account of environmental and amenity screening criteria. For further information see Worcestershire County Council’s background document *Location of development: screening and site selection methodology* (August 2018).

280 By area, based on the Mercia Mudstone resource after environmental and amenity screening criteria were applied. For further information see Worcestershire County Council (August 2018) *Location of development: screening and site selection methodology*.

281 Sand and gravel has previously been worked at Ryall House Farm Quarry, and its processing plant has subsequently been used to process material from the adjacent area known as Saxons Lode, as well as material transported by barge from Ripple Quarry and Ryall’s Court Farm Quarry. Sand and gravel is also being worked at Clifton Quarry. These can be viewed on the interactive minerals mapping tool available at [www.worcestershire.gov.uk/minerals](http://www.worcestershire.gov.uk/minerals).

282 See policy MLP 17 (Prudent Use of Resources).

## Policy MLP 5: Lower Severn Strategic Corridor

### Contributing to:

Objectives MO2, MO3, MO4, MO5

Planning permission will be granted for mineral development within the Lower Severn Strategic Corridor that contributes towards the quality, character and distinctiveness of the corridor through the delivery and enhancement of green infrastructure networks.

A level of technical assessment appropriate to the proposed development will be required to demonstrate how, throughout its lifetime, the development will optimise opportunities to deliver the following green infrastructure priorities for the Lower Severn Strategic Corridor:

- a) create wetland features such as fen and marsh, wet grassland, reedbed and lowland meadows both during working phases and alongside restoration to characteristic agricultural land uses:
  - cropping and horticulture in the Settled Farmlands on River Terraces landscape type;
  - pastoral land use in the Riverside Meadows and Wet Pasture Meadows landscape types;
- b) conserve, enhance and restore characteristic hedgerow patterns and tree cover along watercourses and streamlines;
- c) create accessible semi-natural green space incorporating information or routes which increase the legibility and understanding of the geodiversity, heritage and character of the area.

Where significant deviation from these priorities is proposed, this will only be considered appropriate where robust justification is provided to demonstrate that the proposal will deliver specific local economic, social and environmental benefits which demonstrably outweigh the benefits of delivering the corridor priorities.

### Reasoned justification

**4.85** Policy MLP 5 sets the priorities for the delivery of multifunctional green infrastructure in the Lower Severn Strategic Corridor. Each of the priorities for the corridor will contribute to multiple green infrastructure components, as well as climate change adaptation and mitigation.

**4.86** The corridor priorities can be integrated and delivered alongside each other, and in most cases it will be appropriate to incorporate some elements of each priority. However, in some cases it may not be possible or desirable to deliver all priorities on a single site when the size of the site or other local factors are taken into account.

**4.87** The technical assessment required by policy MLP 5 will be expected set out the considerations which have led to the proposed design of the site and the working, restoration and aftercare schemes, taking account of issues and opportunities identified through the consideration of policy MLP 3 (Green Infrastructure) and policies MLP 17 to MLP 30 (Development Management). The assessment should clearly specify how the proposed development will contribute to the green infrastructure priorities at each stage of the site's life, and why the proposed balance of priorities is considered to optimise the opportunities for delivering the priorities in that location. Where focusing on fewer priorities would deliver greater overall benefits than trying to deliver against all of the priorities for the corridor this will be supported.

**Priority a: Create wetland features such as fen and marsh, wet grassland, reedbed and lowland meadows both during working phases and alongside restoration to characteristic agricultural land uses**

4.88 Wetland creation will aid natural flood management, flood storage and floodplain connectivity, as well as improving water quality. Incorporating floodplain and riverside vegetation can help to slow overland flows, increase infiltration and interception of rain and slow the velocity of water entering rivers, with the potential to reduce flood risk by increasing storage volumes and encouraging overland flows in less vulnerable floodplain areas. It can deliver biodiversity gains and Biodiversity Action Plan priorities, and will contribute to climate change resilience. It can also enhance the local landscape character and in some cases reflect historic land uses and land management techniques. The creation of wetland habitats on individual sites will largely be dependent on the local hydrology and any seasonal changes.

4.89 Wetland features in the Lower Severn Strategic Corridors should predominantly be wet pasture, meadows, reedbed, fen, marsh, and ditches, rather than open water. However, if open waterbodies are proposed, they should be designed to have serpentine and sinuous edges with significant shallow areas, as broad drawdown zones will encourage marginal habitats including fen, marsh and reedbed to establish. The design of wetland habitats should consider the landscape character, retaining the local scale and pattern of enclosure, and opportunities to enhance the landscape and biodiversity benefits of the ditches and watercourses.

4.90 Wet pastures would contribute positively to the character of the Riverside Meadows and Wet Pasture Meadows landscape types and would help to deliver the aims of the Severn and Avon Vales Biodiversity Delivery Area. The quality of agricultural land in the Riverside Meadows

landscape type is generally low, and permanent pasture is an important characteristic in these landscape types which is under pressure from increasing arable land uses. Conserving and restoring areas of permanent pasture will not only contribute to maintaining and enhancing landscape character and sense of place, but will also protect these habitats to provide an ecological network of connected habitats contributing to species resilience, and could also protect and enhance the setting of heritage assets. Returning land to pasture rather than arable uses in these landscape types could also help to minimise fragmentation of hedgerow structure by restoring their functionality. Opportunities to incorporate appropriate grazing practices and haymaking into the management of sites could contribute to the long-term economic viability of the land and deliver outcomes that ensure net biodiversity gain in the long term. However, after-use in these areas need not be restricted to agriculture and other proposals for the long-term management of wetland habitats will be welcomed.

4.91 In the Settled Farmlands on River Terraces landscape type, where agricultural land quality is often high, arable land-uses (including cropping<sup>283</sup> and horticulture<sup>284</sup>) can contribute positively to the character and local distinctiveness of the landscape. Restoration to these types of agricultural land uses can contribute to the economic vitality of the area, and can contribute to net biodiversity gain and benefits to the water environment by integrating wetland habitats and ditch networks. Wetland habitats should be incorporated as wet field margins, ponds, pools and scrapes which would provide valuable habitats and natural water storage. In areas where agricultural land quality is lower, the creation of more extensive wetland habitats might be appropriate.

283 Cropping is the dominance of arable farming characterised by field vegetables and/or market gardening.

284 Horticulture is the dominance of arable farming characterised by growing fruits, vegetables, flowers, or ornamental plants.

- 4.92 Wetland features should be delivered during working phases as well as during the restoration of sites. The site design, levels and phasing of workings should optimise opportunities for these features and habitats. Simple measures such as securely installing woody debris can assist the transfer of water from the river to the floodplain to increase floodplain storage volumes, or slow down flows within the channel.<sup>285</sup> Biodiversity and minerals sites in Worcestershire: Guidance for the sustainable management of biodiversity action plan habitats at Worcestershire mineral sites<sup>286</sup> provides useful information about the types of wetland habitats that might be appropriate and how these can be created and managed. The Worcestershire Habitat Inventory<sup>287</sup> should be referred to when considering the opportunities to link and extend existing habitats.
- 4.93 In some cases, a stand-off zone may be required between the mineral working and any watercourses, but in areas where it is demonstrated to be safe and appropriate to do so, there may be opportunities for banks to be worked. This could provide opportunities to maximise resource efficiency, create a more natural river profile, link to wetland habitats, restore links to natural floodplains and create braided channels and in-channel features.
- 4.95 Linear tree belts along ditches, watercourses and in hedgerows are key characteristics of the Riverside Meadows, Wet Pasture Meadows and Settled Farmlands on River Terrace landscape types, all of which are comprised of large- to medium-sized fields with ditch and hedge boundaries.
- 4.96 In the Riverside Meadows landscape type, the conservation and enhancement of hedgelines should contribute to the secluded pastoral landscape and continuous tree cover along watercourses. Wet Pasture Meadows are also characterised by tree patterns along linear features and a regular pattern of hedged fields and ditches. Typical species in these landscape types are alder and willow. In the Settled Farmlands on River Terrace landscape type, sub-regular fields are bounded by hedgerows, with tree cover largely concentrated in the vicinity of settlement and in association with watercourses.
- 4.97 The conservation and enhancement of primary hedgerow patterns may also help to protect long-distance views from the Cotswolds AONB and the Malvern Hills AONB, and the special characteristics of these AONB and their settings should be considered.
- 4.98 Tree cover and hedgerows should be conserved, enhanced and restored across all phases of the site's life, and consideration of these features is expected to be integral to the design and layout of the site and any restoration proposals.

**Priority b: Conserve, enhance and restore characteristic hedgerow patterns and tree cover along watercourses and streamlines**

- 4.94 Tree cover along watercourses and streams, and the restoration of characteristic hedgerow patterns<sup>288</sup> will contribute to the structure and character of the landscape, the local distinctiveness of the area and the legibility of historic enclosure patterns in the landscape, and could enhance the setting of heritage assets. Incorporating trees along watercourses can also help to slow overland flows, increase infiltration and interception of rain and slow the velocity of water entering rivers. Trees and hedgerows can link and enhance habitats to provide an ecological network of connected habitats contributing to species resilience.

**Priority c: Create accessible semi-natural green space incorporating information or routes which increase the legibility and understanding of the geodiversity, heritage and character of the area**

- 4.99 Creating accessible semi-natural green space will increase opportunities for informal access and recreation, contributing to the health and well-being of local communities. It also offers opportunities to help people to interpret features and characteristics in the landscape and understand how they interact. This can help to strengthen sense of place through increased understanding of the geodiversity, heritage and character of the area.

<sup>285</sup> Environment Agency, Worcestershire County Council (June 2018) *Catchment Based Management in Worcestershire Technical Background Document*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

<sup>286</sup> Worcestershire County Council (2013) *Biodiversity and minerals sites in Worcestershire: Guidance for the sustainable management of biodiversity action plan habitats at Worcestershire mineral sites* available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

<sup>287</sup> See *Worcestershire Habitat Inventory* information at [http://www.worcestershire.gov.uk/info/20014/planning/1029/worcestershire\\_habitat\\_inventory](http://www.worcestershire.gov.uk/info/20014/planning/1029/worcestershire_habitat_inventory)

<sup>288</sup> The primary hedgerow network consists of the hedgerows along roads, farm and parish boundaries, and the secondary hedgerow network is provided by the internal field boundaries.



4.100 In some cases, spaces or routes adjacent to or with views of particular features may be sufficient to increase legibility and understanding of the feature. In other cases, signage or information boards may be appropriate. The southern part of the Lower Severn Strategic Corridor is within the Abberley and Malvern Hills Geopark,<sup>289</sup> and the retention and exposure of geological features could enhance the locally distinctive character of these areas, scientific and public understanding of the geology of the landscape and enhance the visitor appeal of the both the accessible semi-natural green space created and the wider Geopark.

4.101 To be in keeping with the landscape character of the Lower Severn Strategic Corridor, accessible semi-natural green spaces or informal recreation sites should integrate wetland features and characteristic hedgerow, tree cover and field patterns. The topography and landform of the site should be considered in order to create an enjoyable and distinctive visitor experience, taking account of the long-term management requirements of the site.

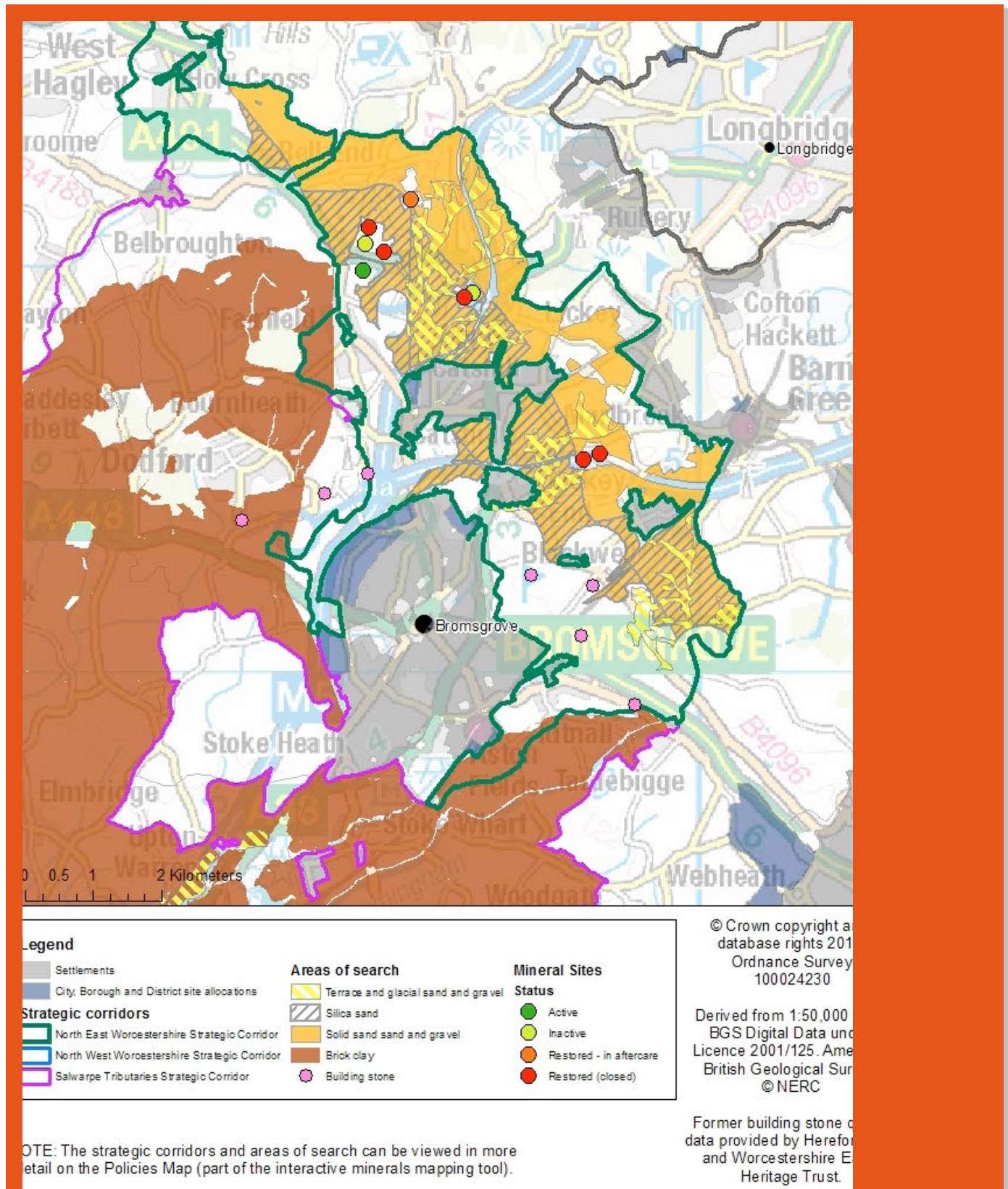
4.102 There is an identified need for a strategic recreation asset in the vicinity of the Lower Severn Strategic Corridor, and the provision of a strategic recreation asset would require a site of over 100ha. The inclusion of accessible semi-natural green space at a number of mineral developments could help to facilitate the provision of a sub-regional scale asset or there may be opportunities for it to be provided by a single large site.

4.103 Consideration should be given to the phasing of working and restoration in order to allow semi-natural accessible green space to be developed safely as early as possible in the site's life, and proposals should give full consideration to whether the site could contribute to the creation of a sub-regional scale recreation asset. Any associated built development, such as to provide visitor facilities, is likely to require separate planning permission from the relevant Local Planning Authority.

289 More information about the Abberley and Malvern Hills Geopark is available at <http://geopark.org.uk/>

## North East Worcestershire Strategic Corridor

Figure 4.4. North East Worcestershire Strategic Corridor



Note: An interactive minerals mapping tool is available at [www.worcestershire.gov.uk/minerals](http://www.worcestershire.gov.uk/minerals). It incorporates the Policies Map which defines the Minerals Local Plan's land-use designations and allocations, and also includes additional supporting data<sup>290</sup> to assist in the use and implementation of the Minerals Local Plan.

<sup>290</sup> Other supporting data is included on the interactive minerals mapping tool to assist in the use and implementation of the Minerals Local Plan, but may not be the latest available information. Data will be updated as far as possible alongside publication of the Minerals and Waste Local Development Framework Authority Monitoring Report. Data sources include the British Geological Survey, Coal Authority, data.gov.uk, Environment Agency, Herefordshire and Worcestershire Earth Heritage Trust, Worcestershire Biological Records Centre, and Worcestershire County Council.

- 4.104 The North East Worcestershire Strategic Corridor is identified in the Key Diagram (Figure 4.1) and shown in detail in Figure 4.4. It covers 3,345 hectares of land, extending around the east and north of Bromsgrove up to Clent.
- 4.105 The landscape character of the North East Worcestershire Strategic Corridor is made up of the secluded small- to medium-scale, settled agricultural landscapes of the Principal Settled Farmlands landscape type (characterised by scattered farms, relic commons and hedged fields with thinly scattered hedgerow trees and groups of trees around dwellings), the small-scale rolling lowland, settled agricultural landscapes of the Settled Farmlands with Pastoral Land Use landscape type (characterised by hedged fields and streamside trees) and the open, formal landscapes of the Enclosed Commons landscape type (characterised by large fields of regular outline, straight field boundaries, and estate plantations).<sup>291</sup>
- 4.106 Although only 18.6% of the corridor is classed as best and most versatile agricultural land,<sup>292</sup> agricultural land uses are prevalent in much of this corridor; predominantly pastoral land use in the Settled Farmlands with Pastoral Land Use and a mixed agricultural land use being inherent to both the Principal Settled Farmlands and Enclosed Commons landscape types. Recent increases in arable dominance are evident, leading to the demise of the hedgerow structure which is critical to the character of these landscapes.
- 4.107 There is a high level of flood risk, with the corridor being affected by fluvial flooding from the River Salwarpe, the Blakedown Brook, the River Arrow and the Spadesbourne Brook as well as surface water and ground water flooding. As the corridor predominantly covers the upper parts of the catchment, with steep valleys which lead to generation of run-off, flood betterment opportunities are most likely to be measures for the control and attenuation of run-off.<sup>293</sup> The majority of the watercourses in the corridor are not currently meeting Water Framework Directive targets for “good ecological status”.<sup>294</sup>
- 4.108 Almost all of the North East Worcestershire Strategic Corridor consists of the “forest sandstones” ecological zone where mineral working has the potential for the creation of scarce habitats of high conservation value including lowland heathland, acid grassland and scrub, or rare mire and bog communities in damper areas.<sup>295</sup>
- 4.109 The North East Worcestershire Strategic Corridor is associated with Areas of Palaeolithic Potential along watercourses. Evidence of later prehistoric and Romano-British settlement is sparse and the potential is unknown although there is evidence of lowland settlement with hilltop settlements in the wider setting. Extant settlements are of medieval and post-medieval origin with predominantly dispersed, wayside villages, hamlets and farmsteads. This area is also characterised as a landscape of medieval moats, some of which have farmsteads located within their bounds. Historic Landscape Character is broadly a mix of post-medieval piecemeal enclosure and later field patterns of land enclosed from former heathland and woodland. Areas of ridge and furrow earthworks point to the once large-scale occurrence of medieval open fields.



**Principal Settled Farmlands landscape type in Worcestershire**

291 See Worcestershire's *Landscape Character Assessment* maps and guidance at [www.worcestershire.gov.uk/lca](http://www.worcestershire.gov.uk/lca).

292 Based on Grade 1 and Grade 2 Agricultural Land, as the Provisional Agricultural Land Classification (1988) mapping does not distinguish between grade 3a and 3b land, and subsequent Post 1988 mapping is not comprehensive.

293 Environment Agency, Worcestershire County Council (June 2018) *Catchment Based Management in Worcestershire Technical Background Document*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

294 Environment Agency, Worcestershire County Council (June 2018) *Catchment Based Management in Worcestershire Technical Background Document*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

295 Worcestershire County Council, *Biodiversity and mineral sites in Worcestershire: Guidance for the sustainable management of biodiversity action plan habitats at Worcestershire mineral sites*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).



- 4.110 The network of public rights of way is more sparse in the east of the corridor than in the west. There is an identified need for a strategic recreation asset in or near to the North East Worcestershire Strategic Corridor to provide an alternative destination for visitors to the Lickey Hills and Clent Hills.<sup>296</sup>
- 4.111 Mineral development in the North East Worcestershire Strategic Corridor would be well located to serve planned growth in Bromsgrove,<sup>297</sup> Redditch,<sup>298</sup> Droitwich Spa<sup>299</sup> and Birmingham.<sup>300</sup> There are good links to the strategic highway network throughout the majority of the corridor. The Worcester and Birmingham Canal skirts the south-eastern edge of the corridor and one railway line runs through it, although opportunities to connect to them may be limited.
- 4.112 The majority of the North East Worcestershire Strategic Corridor is within the Green Belt. Mineral development is not inappropriate within the Green Belt, provided it takes place in a way which preserves its openness and does not conflict with the purposes of including land within the Green Belt.<sup>301</sup> Minerals development also has the potential to enhance the beneficial use of the Green Belt<sup>302</sup> through providing enhanced public access and recreation opportunities, enhancing landscapes, visual amenity and biodiversity, and improving damaged and derelict land.
- 4.113 The North East Worcestershire Strategic Corridor contains 5.3%<sup>303</sup> of the county's terrace and glacial sand and gravel resources, 17.4%<sup>304</sup> of the county's solid sand resources (including 13%<sup>305</sup> of the Wildmoor Sandstone Formation which contains silica sand resources), 0.2%<sup>306</sup> of the county's Mercia Mudstone clay resource, and four<sup>307</sup> historic building stone sites. Sand and gravel (primarily solid sand) has been worked extensively<sup>308</sup> and some silica sand has been worked<sup>309</sup> in the North East Worcestershire Strategic Corridor.
- 4.114 Working in this corridor is therefore most likely to be for the relatively deep solid sands, with the deposits in the corridor averaging 112.6 metres in depth. Although in some cases it may be possible work these resources to a significant depth and to restore land to previous levels through the importation of materials, this is likely to be limited by a combination of the availability of suitable materials in the area, the regulatory regime relating to landfilling, the need to ensure that worked land is reclaimed at the earliest opportunity and the need to provide high-quality restoration.<sup>310</sup> It is therefore likely that sites in this corridor may not be worked as deeply as they have been previously, or that sites will need to be sensitively designed so that they are worked and restored to include some areas of lower land rather than restoring the whole site to previous levels.

296 The need for a strategic recreation asset is identified in the Worcestershire Green Infrastructure Framework (Document 3, [www.worcestershire.gov.uk/GI](http://www.worcestershire.gov.uk/GI)). This is based on the access to, and capacity of, existing recreation assets and the impacts of planned housing growth. The Worcestershire Green Infrastructure Strategy identifies a need to relieve visitor pressure on the Lickey Hills and Clent Hills. The Worcestershire Green Infrastructure Strategy Framework 3 document suggests that this could be done through extending the green corridor and publicly-accessible open space east of the Lickey Hills to encompass Upper and Lower Bittell Reservoirs and the Worcester and Birmingham canal, however there are currently no proposals to develop this scheme further.

297 As proposed in the *Bromsgrove District Plan 2011-2030*.

298 As proposed in the *Borough of Redditch Local Plan No.4 2011-2030*.

299 As proposed in the *South Worcestershire Development Plan 2006-2030*.

300 As proposed in the *Birmingham Development Plan 2031*.

301 See policy MLP 18 (Green Belt) and Ministry of Housing, Communities and Local Government (July 2018) *National Planning Policy Framework*, section 13.

302 Ministry of Housing, Communities and Local Government (July 2018) *National Planning Policy Framework*, paragraph 141 states that "Once Green Belts have been defined, local planning authorities should plan positively to enhance the beneficial use of the Green Belt, such as looking for opportunities to provide access; to provide opportunities for outdoor sport and recreation; to retain and enhance landscapes, visual amenity and biodiversity; or to improve damaged and derelict land".

303 By area, based on the key and significant resources identified in Worcestershire County Council (August 2018) *Analysis of Mineral Resources*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground). The *Analysis of Minerals Resources* was refreshed following the Third Stage Consultation on the Minerals Local Plan to take account of environmental and amenity screening criteria. For further information see Worcestershire County Council's background document *Location of development: screening and site selection methodology* (August 2018).

304 By area, based on the key and significant resources identified in Worcestershire County Council (August 2018) *Analysis of Mineral Resources*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground). The *Analysis of Minerals Resources* was refreshed following the Third Stage Consultation on the Minerals Local Plan to take account of environmental and amenity screening criteria. For further information see Worcestershire County Council's background document *Location of development: screening and site selection methodology* (August 2018).

305 By area based on the Wildmoor Sandstone Formation resource after environmental and amenity screening criteria were applied. For further information see Worcestershire County Council (August 2018) *Location of development: screening and site selection methodology*.

306 By area, based on the Mercia Mudstone resource after environmental and amenity screening criteria were applied. For further information see Worcestershire County Council (August 2018) *Location of development: screening and site selection methodology*.

307 Based on the remaining historic building stone sites identified by Herefordshire and Worcestershire Earth Heritage Trust's project "A Thousand Years of Building with Stone" (<http://www.buildingstones.org.uk/>) after environmental and amenity screening criteria were applied. For further information see Worcestershire County Council (August 2018) *Location of development: screening and site selection methodology*.

308 Sand and gravel has previously been worked at Chadwick Lane Quarry, Pinches Quarry 1, Pinches 2, and Shepley Quarry. At the plan's baseline date of 31st December 2016, Pinches 3 and Sandy Lane Quarry had permitted reserves but were inactive during 2016, and Wildmoor Quarry was active. These can be viewed on the interactive minerals mapping tool available at [www.worcestershire.gov.uk/minerals](http://www.worcestershire.gov.uk/minerals).

309 Silica sand has been worked at Sandy Lane Quarry and Wildmoor Quarry. These can be viewed on the interactive minerals mapping tool available at [www.worcestershire.gov.uk/minerals](http://www.worcestershire.gov.uk/minerals).

310 See policy MLP 17 (Prudent Use of Resources).

## Policy MLP 6: North East Worcestershire Strategic Corridor

### Contributing to:

Objectives MO2, MO3, MO4, MO5

Planning permission will be granted for mineral development within the North East Worcestershire Strategic Corridor that contributes towards the quality, character and distinctiveness of the corridor through the delivery and enhancement of green infrastructure networks.

A level of technical assessment appropriate to the proposed development will be required to demonstrate how, throughout its lifetime, the development will optimise opportunities to deliver the following green infrastructure priorities for the North East Worcestershire Strategic Corridor:

- a) conserve and restore permanent pasture, incorporating lowland heathland, acid grassland and scrub habitats;
- b) conserve, enhance and restore characteristic hedgerow patterns and tree cover along watercourses and streamlines;
- c) slow the flow of water in upper reaches of the catchment;
- d) create accessible semi-natural green space incorporating information or routes which increase the legibility and understanding of the geodiversity, heritage and character of the area.

Where significant deviation from these priorities is proposed, this will only be considered appropriate where robust justification is provided to demonstrate that the proposal will deliver specific local economic, social and environmental benefits which demonstrably outweigh the benefits of delivering the corridor priorities.

### Reasoned justification

**4.115** Policy MLP 6 sets the priorities for the delivery of multifunctional green infrastructure in the North East Worcestershire Strategic Corridor. Each of the priorities for the corridor will contribute to multiple green infrastructure components, as well as climate change adaptation and mitigation.

**4.116** The corridor priorities can be integrated and delivered alongside each other, and in most cases it will be appropriate to incorporate some elements of each priority. However, in some cases it may not be possible or desirable to deliver all priorities on a single site when the size of the site or other local factors are taken into account.

**4.117** The technical assessment required by policy MLP 6 will be expected set out the considerations which have led to the proposed design of the site and the working, restoration and aftercare schemes, taking account of issues and opportunities identified through the consideration of policy MLP 3 (Green Infrastructure) and policies MLP 17 to MLP 30 (Development Management). The assessment should clearly specify how the proposed development will contribute to the green infrastructure priorities at each stage of the site's life, and why the proposed balance of priorities is considered to optimise the opportunities for delivering the priorities in that location. Where focusing on fewer priorities would deliver greater overall benefits than trying to deliver against all of the priorities for the corridor this will be supported.

**Priority a: Conserve and restore permanent pasture, incorporating lowland heathland, acid grassland and scrub habitats**

4.118 Permanent pasture is an important characteristic of the Principal Settled Farmlands and Settled Farmlands with Pastoral Land Use landscape types, which is under pressure from increasing arable land uses. Conserving and restoring areas of permanent pasture will not only contribute to maintaining and enhancing landscape character and sense of place, but will also contribute to a resilient and functional ecological network of connected habitats, and could also protect and enhance the setting of heritage assets. Returning land to pasture rather than arable uses could also help to minimise any further fragmentation of hedgerow structure by restoring their functionality.

4.119 Permanent pasture offers opportunities to deliver acid grassland habitats where there are areas of appropriate soils and geology. Where acid grassland is not appropriate neutral grassland is encouraged to deliver biodiversity benefits, and these habitats are best delivered on poor quality soils. Lowland acid grassland habitats are scarce in Worcestershire and are sparsely distributed in the North East Worcestershire Strategic Corridor despite being well suited to the underlying sandstone geology. The design and phasing of workings and soil management should ensure the retention of low-nutrient sandy soils for the creation of these habitats.

4.120 Exposed sandy soils at mineral sites provide ideal conditions for heathland and scrub as well as acid grassland habitats, or rare mire and bog communities in damper areas. Heathland and scrub can develop naturally on bunds and mounds and other areas of exposed sandy soils during working phases, giving opportunities to deliver biodiversity benefits throughout the life of the site. These should also be incorporated into field margins as sites are restored, particularly where there are opportunities to buffer and connect existing habitats. Biodiversity and minerals sites in Worcestershire: Guidance for the sustainable

management of biodiversity action plan habitats at Worcestershire mineral sites<sup>311</sup> provides useful information about the types of habitats that might be appropriate and how these can be created and managed. The Worcestershire Habitat Inventory<sup>312</sup> should be referred to when considering the opportunities to link and extend existing habitats.

4.121 Opportunities to incorporate appropriate grazing practices and haymaking into the management of sites could contribute to the long-term economic viability of the land and deliver outcomes that ensure net biodiversity gain in the long term. However after-use in these areas need not be restricted to agriculture and other proposals for the long-term management of habitats will be welcomed.

4.122 The conservation and restoration of permanent pasture, and the incorporation of lowland heathland, acid grassland and scrub habitats, should take place across all phases of the site's life, and consideration of these features is expected to be integral to the design and layout of the site and any restoration proposals.

**Priority b: Conserve, enhance and restore characteristic hedgerow patterns and tree cover along watercourses and streamlines**

4.123 Tree cover along watercourses and streams, and the restoration of characteristic hedgerow patterns<sup>313</sup> will contribute to the structure and character of the landscape, the local distinctiveness of the area and the legibility of historic enclosure patterns in the landscape, and could enhance the setting of heritage assets. Incorporating trees along watercourses can also help to slow overland flows, increase infiltration and interception of rain and slow the velocity of water entering rivers. Trees and hedgerows can link and enhance habitats to provide an a resilient and functional ecological network of connected habitats contributing to species resilience.

311 Worcestershire County Council (2013) *Biodiversity and minerals sites in Worcestershire: Guidance for the sustainable management of biodiversity action plan habitats at Worcestershire mineral sites* available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

312 See *Worcestershire Habitat Inventory* information at [http://www.worcestershire.gov.uk/info/20014/planning/1029/worcestershire\\_habitat\\_inventory](http://www.worcestershire.gov.uk/info/20014/planning/1029/worcestershire_habitat_inventory)

313 The primary hedgerow network consists of the hedgerows along roads, farm and parish boundaries, and the secondary hedgerow network is provided by the internal field boundaries.

4.124 Each of the component landscape types in the North East Worcestershire Strategic Corridor has its own characteristic hedgerow and tree cover patterns, and development proposals will be expected to respect these:

- In the Principal Settled Farmlands landscape type, there is an irregular enclosure pattern with hedges defining the small- and medium-sized fields. Tree cover is most notable along stream sides, with only scattered tree cover along hedgerows. Groups of trees and orchards are often associated with settlements. Opportunities for new tree planting are best concentrated along watercourses, strengthening the linear pattern of these features. Additional tree cover in the vicinity of farmsteads and other settlements is encouraged in order to emphasise the pattern of tree cover in domestic settings in this landscape type. Woodland is not characteristic of this landscape type.
- In the Settled Farmlands with Pastoral Land Use landscape type, there is a sub-regular enclosure pattern with hedges defining the small- and medium-sized fields. Hedgerow trees are particularly important, together with linear tree cover associated with watercourses. These existing patterns of hedgerows and tree cover should be conserved, and opportunities for new tree planting should be focused on strengthening and restoring hedgerow tree populations and the tree cover associated with watercourses. Woodland is not characteristic of this landscape type.
- In the Enclosed Commons landscape type, there is a regular, geometric pattern of enclosure with straight hedged boundaries. Tree cover along watercourses can contribute significantly to the landscape structure but hedgerow tree cover is generally far less significant than in the other landscape types of the North East Worcestershire Strategic Corridor. Hedgerow tree planting is not encouraged in the Enclosed Commons landscape. Instead, priority should be given to restoring the distinctive hedgerow pattern and trees along watercourses. Discrete blocks of estate woodland plantations are present in this landscape type.

4.125 English elm, hawthorn, blackthorn and damson are the principal component hedgerow tree species in the North East Worcestershire Strategic Corridor. In the southern part of the corridor which overlaps the Forest of Feckenham Biodiversity Delivery Area, holly may be found locally and local varieties of fruit trees could be appropriate.

4.126 Tree cover and hedgerows should be conserved, enhanced and restored across all phases of the site's life, and consideration of these features is expected to be integral to the design and layout of the site and any restoration proposals.

### **Priority c: Slow the flow of water in upper reaches of the catchment**

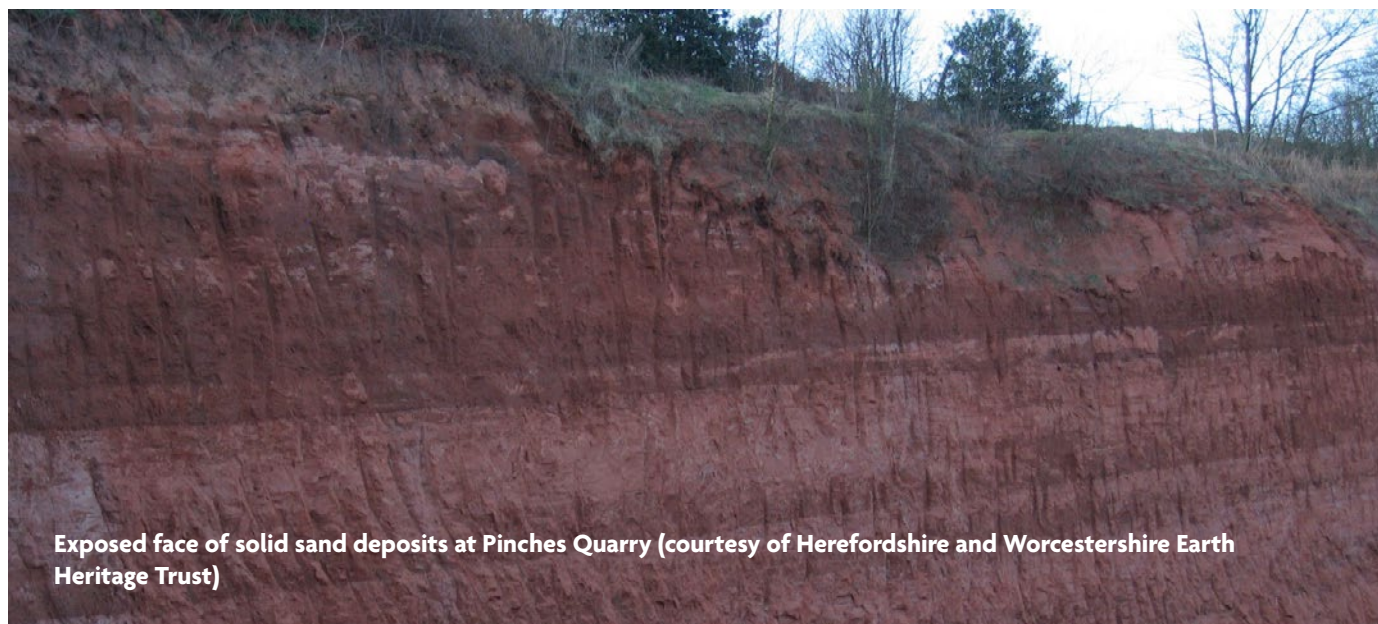
4.127 The control and attenuation of run-off in the upper parts of the catchments covered by the North East Worcestershire Strategic Corridor will have the potential to reduce downstream flood risk and increase drought resilience.<sup>314</sup> It could also improve water quality and riverine habitats, and could help to reduce the social and economic impacts of flooding.

4.128 Measures to help slow the flow of water which are likely to be appropriate to the topography and hydrology of the North East Worcestershire Strategic Corridor include:<sup>315</sup>

- creating “leaky” barriers (soil, wood or stone) across a flow path to intercept overland flow and create water storage which will drain slowly;
- incorporating scrapes, swales, wetlands and other sustainable drainage features into the topography of the site to manage local flow pathways by catching and storing run-off and sediments and slowing the water before it reaches the main river;
- managing soil and vegetation to reduce compaction and lower the water table through increased vegetation and root penetration or measures to reduce erosion, compaction and hydrophobicity, so that the water storage capacity of the soil is increased and surface run-off is reduced;
- damming gullies or field drains to form pools;

<sup>314</sup> Environment Agency, Worcestershire County Council (June 2018) *Catchment Based Management in Worcestershire Technical Background Document*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

<sup>315</sup> Environment Agency, Worcestershire County Council (June 2018) *Catchment Based Management in Worcestershire Technical Background Document*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).



Exposed face of solid sand deposits at Pinches Quarry (courtesy of Herefordshire and Worcestershire Earth Heritage Trust)

- securely installing woody debris to hold water back in the upper reaches of the catchment, attenuating flood risk downstream;
- removing culverts and naturalising channels and watercourses to make more space for water; or
- incorporating two-stage channels on smaller watercourses where water levels can vary drastically between low flows and peak flows to increase velocity and depth during low flows whilst increasing in-channel capacity and reducing velocity during peak flows.

4.129 Consideration should be given to slowing the flow of water throughout all phases of the site's life, and this is expected to be integral to the design and layout of the site and any restoration proposals.

**Priority d: Create accessible semi-natural green space incorporating information or routes which increase the legibility and understanding of the geodiversity, heritage and character of the area**

4.130 Creating accessible semi-natural green space will increase opportunities for informal access and recreation, contributing to the health and well-being of local communities. It also offers opportunities to help people to interpret features and characteristics in the landscape and understand how they interact. This can help to strengthen sense of place through increased understanding of the geodiversity, heritage and character of the area, and could help to enhance the beneficial use of the Green Belt.

4.131 In some cases, spaces or routes adjacent to or with views of particular features may be

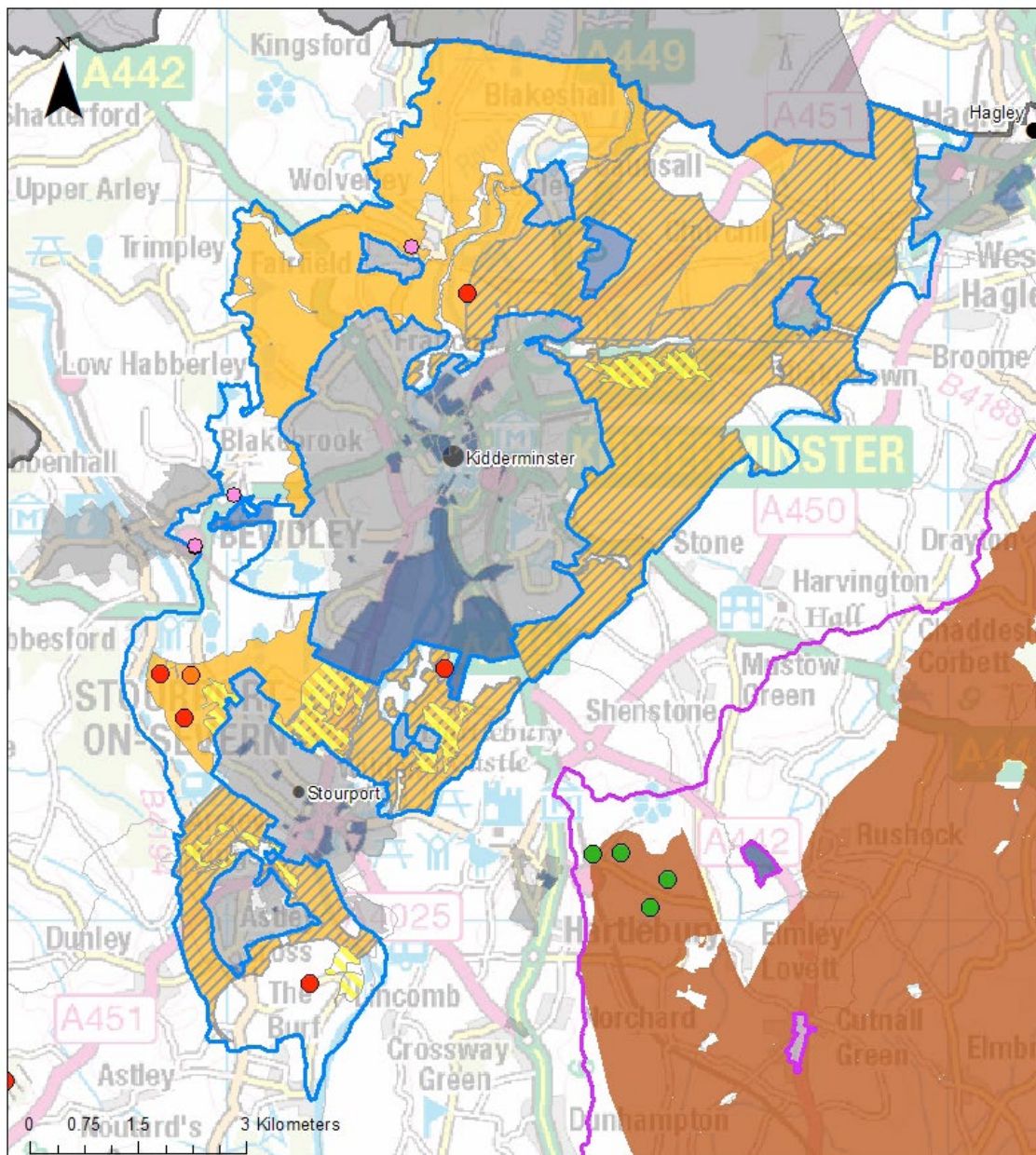
sufficient to increase legibility and understanding of the feature. In other cases, signage or information boards may be appropriate. To be in keeping with the landscape character of the North East Worcestershire Strategic Corridor, accessible semi-natural green spaces or informal recreation sites should integrate characteristic hedgerow, tree cover and field patterns. The topography and landform of the site should be considered in order to create an enjoyable and distinctive visitor experience, taking account of the long-term management requirements of the site.

4.132 There is an identified need for a strategic recreation asset in the vicinity of the North East Worcestershire Strategic Corridor, and the provision of a strategic recreation asset would require a site of over 100ha. The inclusion of accessible semi-natural green space at a number of mineral developments could help to facilitate the provision of a sub-regional scale asset or there may be opportunities for it to be provided by a single large site.

4.133 Consideration should be given to the phasing of working and restoration in order to allow semi-natural accessible green space to be developed safely as early as possible in the site's life, and proposals should give full consideration to whether the site could contribute to the creation of a sub-regional scale recreation asset. Any associated built development, such as to provide visitor facilities, is likely to require separate planning permission from the relevant Local Planning Authority.

## North West Worcestershire Strategic Corridor

Figure 4.5. North West Worcestershire Strategic Corridor



**Legend**

Settlements	Terraces and glacial sand and gravel	Mineral Sites Status: Active
City, Borough and District site allocations	Silica sand	Restored - in aftercare
<b>Strategic corridors</b>	Solid sand and gravel	Restored (closed)
North West Worcestershire Strategic Corridor	Brick clay	
Salwarpe Tributaries Strategic Corridor	Building stone	

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100024230

Derived from 1:50,000 scale  
BGS Digital Data under  
Licence 2001/125. Amended  
British Geological Survey  
© NERC

Former building stone quarry  
data provided by Herefordshire  
and Worcestershire Earth  
Heritage Trust.

NOTE: The strategic corridors and areas of search can be viewed in more detail on the Policies Map (part of the interactive minerals mapping tool).

Note: An interactive minerals mapping tool is available at [www.worcestershire.gov.uk/minerals](http://www.worcestershire.gov.uk/minerals). It incorporates the Policies Map which defines the Minerals Local Plan's land-use designations and allocations, and also includes additional supporting data<sup>316</sup> to assist in the use and implementation of the Minerals Local Plan.

<sup>316</sup> Other supporting data is included on the interactive minerals mapping tool to assist in the use and implementation of the Minerals Local Plan, but may not be the latest available information. Data will be updated as far as possible alongside publication of the Minerals and Waste Local Development Framework Authority Monitoring Report. Data sources include the British Geological Survey, Coal Authority, data.gov.uk, Environment Agency, Herefordshire and Worcestershire Earth Heritage Trust, Worcestershire Biological Records Centre, and Worcestershire County Council.



**Sandstone Estateland landscape type (Lower Habberley, Worcestershire)**

- 4.134 The North West Worcestershire Strategic Corridor is identified in the Key Diagram (Figure 4.1) and shown in detail in Figure 4.5. It covers 5,390 hectares of land, and broadly covers the area around Stourport-on-Severn and Kidderminster up to the county boundary near Kinver and Stourbridge.
- 4.135 The landscape character of the North West Worcestershire Strategic Corridor is made up of the open, rolling landscapes of the Sandstone Estatelands landscape type (characterised by an ordered pattern of large, arable fields, straight roads and estate plantations), and the secluded pastoral landscapes of the Riverside Meadows landscape type (characterised by meandering, tree-lined rivers, flanked by alluvial meadows which are defined by hedge and ditch boundaries).<sup>317</sup>
- 4.136 Although agricultural land quality in this corridor is relatively low, with only 11.4% of the corridor being best and most versatile agricultural land,<sup>318</sup>
- arable land uses dominate the Sandstone Estatelands, with some woodland plantations, and grazing dominates the waterside meadows of the Riverside Meadows.
- 4.137 There is a high level of flood risk, with the corridor being affected by fluvial flooding from the River Severn and River Stour, as well as surface water and ground water flooding. The corridor predominantly covers lower parts of the river catchments it intersects with, particularly along the River Severn and the Hoo Brook, but also covers upper parts of the Stour and Blakedown Brook catchments, meaning that flood betterment opportunities will include control and attenuation of run-off in the upper parts of a catchment and flood storage and floodplain connectivity in the lower parts of a catchment. The majority of the watercourses in the corridor are not currently meeting Water Framework Directive targets for “good ecological status”.<sup>319</sup>

<sup>317</sup> See Worcestershire's *Landscape Character Assessment* maps and guidance at [www.worcestershire.gov.uk/lca](http://www.worcestershire.gov.uk/lca).

<sup>318</sup> Based on Grade 1 and Grade 2 Agricultural Land, as the Provisional Agricultural Land Classification (1988) mapping does not distinguish between grade 3a and 3b land, and subsequent Post 1988 mapping is not comprehensive.

<sup>319</sup> Environment Agency, Worcestershire County Council (June 2018) *Catchment Based Management in Worcestershire Technical Background Document*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).



4.138 The North West Worcestershire Strategic Corridor has significant potential to deliver biodiversity action plan targets for both species and habitats, with the Wyre Forest Acid Heaths Biodiversity Delivery Area<sup>320</sup> covering the centre of the corridor. Much of the corridor consists of the “forest sandstones” ecological zone where mineral working has the potential for the creation of scarce habitats of high conservation value including heathland, acid grassland and scrub, or rare mire and bog communities in damper areas. Some areas to the north and south of Kidderminster consist of the “river terraces” ecological zone where mineral working has the potential to rejuvenate the diversity of habitats and reintroduce wetlands to a largely drained and dry landscape. Where the “alluvial fenlands” ecological zone follows the watercourses through the corridor, mineral working could provide the conditions to enable natural succession to a diversity of rich wetland habitats including fen, wet grassland and wet woodland.<sup>321</sup>

4.139 The North West Worcestershire Strategic Corridor has Areas of Palaeolithic Potential throughout, with concentrations along the River Stour, and evidence for Mesolithic settlement and activity in the vicinity of the River Severn. There is evidence for later prehistoric settlement on hilltops and promontories and on lower gravel terraces of the Severn Valley. The historic settlement pattern is dominated by dispersed, wayside hamlets and farmsteads of medieval and post-medieval origin. Historic Landscape Character is broadly contrasting between landscapes of small, irregular field patterns derived from medieval and post-medieval piecemeal enclosure, and landscapes with larger, more regular-shaped field patterns that are 18th and 19th century in origin, and represent reorganised land use and enclosure from large areas of former heathland.

<sup>320</sup> Information about the Worcestershire Biodiversity Action Plans and Biodiversity Delivery Areas is available at <http://www.worcestershire.gov.uk/biodiversity>.

<sup>321</sup> Worcestershire County Council, *Biodiversity and mineral sites in Worcestershire: Guidance for the sustainable management of biodiversity action plan habitats at Worcestershire mineral sites*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).



- 4.140 There are several designated sites for geodiversity interest in the corridor. The southern and western parts of the corridor are within the Abberley and Malvern Hills Geopark,<sup>322</sup> and the Geopark Way crosses the corridor between Kidderminster and Stourport-on-Severn. The Severn Way and the North Worcestershire Path long-distance routes also cross the corridor. There are also a number of shorter recreation routes in the corridor, but the network of public rights of way is relatively sparse in the north-east of the corridor. There is an identified need for a strategic recreation asset in the vicinity of the North West Worcestershire Strategic Corridor to relieve pressure on the six existing sub-regional scale accessible semi-natural green spaces in Wyre Forest District.<sup>323</sup>
- 4.141 Mineral development in the North West Worcestershire Strategic Corridor would be well located to serve planned growth in Stourport-on-Severn and Kidderminster,<sup>324</sup> as well as Hagley<sup>325</sup> and Kinver.<sup>326</sup> There are good links to the strategic highway network throughout the corridor. The River Severn is navigable up to Stourport-on-Severn, and the Staffordshire and Worcestershire Canal runs through the corridor. One railway line runs through the corridor, although opportunities to connect to it may be limited.
- 4.142 The majority of the North West Worcestershire Strategic Corridor is within Green Belt. Mineral development is not inappropriate within the Green Belt, provided it takes place in a way which preserves its openness and does not conflict with the purposes of including land within the Green Belt.<sup>327</sup> Minerals development also has the potential to enhance the beneficial use of the Green Belt<sup>328</sup> through providing enhanced public access and recreation opportunities, enhancing landscapes, visual amenity and biodiversity, and improving damaged and derelict land.
- 4.143 The North West Worcestershire Strategic Corridor contains 3.5%<sup>329</sup> of the county's terrace and glacial sand and gravel resources, 63.1%<sup>330</sup> of the county's solid sand resources (including 38.8%<sup>331</sup> of the Wildmoor Sandstone Formation which may contain silica sand resources) and four<sup>332</sup> historic building stone sites. Sand and gravel has been worked<sup>333</sup> in the North West Worcestershire Strategic Corridor in the past, largely for the terrace and glacial resources. However, due to the extensive nature of the deposits, working in this corridor is most likely to be for the relatively deep solid sands, with the deposits in the corridor averaging 111.8 metres in depth. Although in some cases it may be possible work these resources to a significant depth and to restore land to previous levels through the importation of materials, this is likely to be limited by a combination of the availability of suitable materials in the area, the regulatory regime relating to landfilling, the need to ensure that worked land is reclaimed at the earliest opportunity and the need to provide high-quality restoration.<sup>334</sup> It is therefore likely that sites in this corridor may not be worked to a significant depth, or that sites will need to be sensitively designed so that they are worked and restored to include some areas of lower land rather than restoring the whole site to previous levels.

322 More information about the Abberley and Malvern Hills Geopark is available at <http://geopark.org.uk/>

323 Additional development planned for Wyre Forest District and Birmingham and the Black Country will put increased pressure on the existing sub-regional scale semi-natural green space. This is concerning for those assets that are already at capacity, such as the Wyre Forest and Kingsford Park. Whilst there is potential for some of the existing assets to absorb some of the additional visitor pressure ensuring alternative provision of sub-regional scale accessible natural greenspace for the populations of Birmingham and the Black Country will be key to safeguarding the district's sub-regional assets. As such an opportunity area for an extension to the Wyre Forest has been identified in the Worcestershire Green Infrastructure Strategy. This is a broad area lying just beyond the north western boundary of the corridor.

324 As proposed in the *Wyre Forest Core Strategy 2006-26*.

325 As proposed in the *Bromsgrove District Plan 2011-2030*.

326 As proposed in the *South Staffordshire Council Core Strategy (Local Plan) Development Plan Document* (adopted December 2012).

327 See policy MLP 18 (Green Belt) and Ministry of Housing, Communities and Local Government (July 2018) *National Planning Policy Framework*, section 13.

328 Ministry of Housing, Communities and Local Government (July 2018) *National Planning Policy Framework*, paragraph 141 states that "Once Green Belts have been defined, local planning authorities should plan positively to enhance the beneficial use of the Green Belt, such as looking for opportunities to provide access; to provide opportunities for outdoor sport and recreation; to retain and enhance landscapes, visual amenity and biodiversity; or to improve damaged and derelict land".

329 By area, based on the key and significant resources identified in Worcestershire County Council (August 2018) *Analysis of Mineral Resources*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground). The *Analysis of Mineral Resources* was refreshed following the Third Stage Consultation on the Minerals Local Plan to take account of environmental and amenity screening criteria. For further information see Worcestershire County Council's background document *Location of development: screening and site selection methodology* (August 2018).

330 By area, based on the key and significant resources identified in Worcestershire County Council (August 2018) *Analysis of Mineral Resources*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground). The *Analysis of Mineral Resources* was refreshed following the Third Stage Consultation on the Minerals Local Plan to take account of environmental and amenity screening criteria. For further information see Worcestershire County Council's background document *Location of development: screening and site selection methodology* (August 2018).

331 By area based on the Wildmoor Sandstone Formation resource after environmental and amenity screening criteria were applied. For further information see Worcestershire County Council (August 2018) *Location of development: screening and site selection methodology*.

332 Based on the remaining historic building stone sites identified by Herefordshire and Worcestershire Earth Heritage Trust's project "A Thousand Years of Building with Stone" (<http://www.buildingstones.org.uk/>) after environmental and amenity screening criteria were applied. For further information see Worcestershire County Council (August 2018) *Location of development: screening and site selection methodology*.

333 Sand and gravel has previously been worked at Astley Burf Quarry, Lick Hill Quarry, Brant Farm Quarry, Blackstone Quarry and Wolverley Quarry. Moulding sand has also been worked at Stourhill Quarry. These can be viewed on the interactive minerals mapping tool available at [www.worcestershire.gov.uk/minerals](http://www.worcestershire.gov.uk/minerals).

334 See policy MLP 17 (Prudent Use of Resources).

## Policy MLP 7: North West Worcestershire Strategic Corridor

### Contributing to:

Objectives MO2, MO3, MO4, MO5

Planning permission will be granted for mineral development within the North West Worcestershire Strategic Corridor that contributes towards the quality, character and distinctiveness of the corridor through the delivery and enhancement of green infrastructure networks.

A level of technical assessment appropriate to the proposed development will be required to demonstrate how, throughout its lifetime, the development will optimise opportunities to deliver the following green infrastructure priorities for the North West Worcestershire Strategic Corridor:

- a) conserve, enhance and restore characteristic hedgerow patterns and tree cover along watercourses and streamlines;
- b) slow the flow of water in upper reaches and increase flood storage and floodplain connectivity in lower parts of the catchment;
- c) create accessible semi-natural green space incorporating information or routes which increase the legibility and understanding of the geodiversity, heritage and character of the area;
- d) in the Riverside Meadows, conserve and restore permanent pasture, incorporating wetland habitats such as fen and marsh, wet grassland, reedbed and lowland meadows alongside pastoral land use;
- e) in the Sandstone Estatelands, conserve, enhance and create lowland heathland, acid grassland and scrub.

Where significant deviation from these priorities is proposed, this will only be considered appropriate where robust justification is provided to demonstrate that the proposal will deliver specific local economic, social and environmental benefits which demonstrably outweigh the benefits of delivering the corridor priorities.

### Reasoned justification

4.144 Policy MLP 7 sets the priorities for the delivery of multifunctional green infrastructure in the North West Worcestershire Strategic Corridor. Each of the priorities for the corridor will contribute to multiple green infrastructure components, as well as climate change adaptation and mitigation.

4.145 The corridor priorities can be integrated and delivered alongside each other, and in most cases it will be appropriate to incorporate some elements of each priority. However, in some cases it may not be possible or desirable to deliver all priorities on a single site when the size of the site or other local factors are taken into account.

4.146 The technical assessment required by policy MLP 7 will be expected set out the considerations which have led to the proposed design of the site and the working, restoration and aftercare schemes, taking account of issues and opportunities identified through the consideration of policy MLP 3 (Green Infrastructure) and policies MLP 17 to MLP 30 (Development Management). The assessment should clearly specify how the proposed development will contribute to the green infrastructure priorities at each stage of the site's life, and why the proposed balance of priorities is considered to optimise the opportunities for delivering the priorities in that location. Where focusing on fewer priorities would deliver greater overall benefits than trying to deliver against all of the priorities for the corridor this will be supported.

**Priority a: Conserve, enhance and restore characteristic hedgerow patterns and tree cover along watercourses and streamlines**

4.147 Tree cover along watercourses and streams, and the restoration of characteristic hedgerow patterns<sup>335</sup> will contribute to the structure and character of the landscape, the local distinctiveness of the area and the legibility of historic enclosure patterns in the landscape, and could enhance the setting of heritage assets. Incorporating trees along watercourses can also help to slow overland flows, increase infiltration and interception of rain and slow the velocity of water entering rivers. Trees and hedgerows can link and enhance habitats to provide an ecological network of connected habitats contributing to species resilience.

4.148 Each of the component landscape types in the North West Worcestershire Strategic Corridor has its own characteristic hedgerow and tree cover patterns, and development proposals will be expected to respect these:

- In the Sandstone Estatelands landscape type, there is an ordered pattern of large, arable fields, straight roads and estate plantations. Fields are typically defined by straight thorn hedges. There is a planned woodland character, with discrete blocks of estate plantations and groups of trees, as well as trees along watercourses. Tree cover in this landscape type provides a framework to views rather than producing a sense of enclosure and blocking them. Parkland features and associated ornamental planting can also contribute to the diversity of these landscapes. The conservation, enhancement and restoration of primary hedgerows and the development of a cohesive woodland structure, with woodland shape reflecting the pronounced regular landscape pattern, would considerably help to retain a sense of unity and scale to this landscape type. The principal component species in this landscape are English elm, hawthorn, blackthorn and damson, with holly also found locally.

- In the Riverside Meadows landscape type, the large- to medium-sized fields are defined by ditch and hedge boundaries, and linear tree belts along ditches, watercourses and in hedgerows are key characteristics of the Riverside Meadows, rather than woodland. The conservation and enhancement of hedgelines and tree cover along watercourses should contribute to the secluded pastoral landscape. Returning land to pasture rather than arable uses could help to minimise fragmentation of hedgerow structure by restoring their functionality. Typical species in this landscape type are alder and willow.

4.149 Tree cover and hedgerows should be conserved, enhanced and restored across all phases of the site's life, and consideration of these features is expected to be integral to the design and layout of the site and any restoration proposals.

**Priority b: Slow the flow of water in upper reaches and increase flood storage and floodplain connectivity in lower parts of the catchment**

4.150 The control and attenuation of run-off in the upper parts of the catchment, and flood storage and floodplain connectivity in the lower parts of the catchment will have the potential to reduce flood risk by increasing storage volumes and encouraging overland flows in areas located away from the source, as well as slowing flows, reducing peak levels, and increasing the time lag between rainfall and peak flows in areas closest to the source.<sup>336</sup> This will also have the potential to improve water quality and riverine habitats, provide the conditions to enable natural succession to a diversity of rich wetland habitats including fen, wet grassland, wet woodland or rare mire and bog communities, and could help to reduce the economic and social impacts of flooding.

<sup>335</sup> The primary hedgerow network consists of the hedgerows along roads, farm and parish boundaries, and the secondary hedgerow network is provided by the internal field boundaries.

<sup>336</sup> Environment Agency, Worcestershire County Council (June 2018) *Catchment Based Management in Worcestershire Technical Background Document*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

- 4.151 Measures to help slow the flow of water or increase flood storage and floodplain connectivity which are likely to be appropriate to the topography and hydrology of the North West Worcestershire Strategic Corridor include:<sup>337</sup>
- using appropriate planting such as hedgerows, trees along watercourses, or woodland to slow overland flows, increase infiltration and interception of rain, and slow the velocity of water entering rivers;
  - securely installing woody debris to assist the transfer of water from the river to the floodplain to increase floodplain storage volumes, slow down flows within the channel, or hold water back in the upper reaches of the catchment, attenuating flood risk downstream;
  - diverting water from the river network to create temporary storage in ponds, washlands or reconnected floodplain, with a controlled outflow to attenuate flood risk downstream;
  - incorporating two-stage channels on smaller watercourses where water levels can vary drastically between low flows and peak flows to increase velocity and depth during low flows whilst increasing in-channel capacity and reducing velocity during peak flows;
  - incorporating features to manage local flow pathways by catching and storing run-off and sediments.
- 4.152 In some cases, a stand-off zone may be required between the mineral working and any watercourses, but in areas where it is demonstrated to be safe and appropriate to do so, there may be opportunities for banks to be worked. This could provide opportunities to maximise resource efficiency, create a more natural river profile, link to wetland habitats, restore links to natural floodplains and create braided channels and in-channel features.
- 4.153 Consideration should be given to slowing the flow of water or increasing flood storage and floodplain connectivity, depending on the location of the site within the catchment, throughout all phases of the site's life. Consideration of these issues is expected to be integral to the design and layout of the site and any restoration proposals.

**Priority c: Create accessible semi-natural green space incorporating information or routes which increase the legibility and understanding of the geodiversity, heritage and character of the area**

- 4.154 Creating accessible semi-natural green space will increase opportunities for informal access and recreation, contributing to the health and well-being of local communities. It also offers opportunities to help people to interpret features and characteristics in the landscape and understand how they interact. This can help to strengthen sense of place through increased understanding of the geodiversity, heritage and character of the area, and could help to enhance the beneficial use of the Green Belt.
- 4.155 In some cases, spaces or routes adjacent to or with views of particular features may be sufficient to increase legibility and understanding of the feature. In other cases, signage or information boards may be appropriate. The southern and western parts of the North West Worcestershire Strategic Corridor are within the Abberley and Malvern Hills Geopark,<sup>338</sup> and the retention and exposure of geological features could enhance the locally distinctive character of these areas, scientific and public understanding of the geology of the landscape and enhance the visitor appeal of the both the accessible semi-natural green space created and the wider Geopark.
- 4.156 To be in keeping with the landscape character of the North West Worcestershire Strategic Corridor, accessible semi-natural green spaces or informal recreation sites should integrate characteristic hedgerow, tree cover and field patterns, and should incorporate heathland and/or wetland features. The topography and landform of the site should be considered in order to create an enjoyable and distinctive visitor experience, taking account of the long-term management requirements of the site.

<sup>337</sup> Environment Agency, Worcestershire County Council (June 2018) *Catchment Based Management in Worcestershire Technical Background Document*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).  
<sup>338</sup> More information about the Abberley and Malvern Hills Geopark is available at <http://geopark.org.uk/>

- 4.157 There is an identified need for a strategic recreation asset in the vicinity of the North West Worcestershire Strategic Corridor, and the provision of a strategic recreation asset would require a site of over 100ha. The inclusion of accessible semi-natural green space at a number of mineral developments could help to facilitate the provision of a sub-regional scale asset or there may be opportunities for it to be provided by a single large site.
- 4.158 Consideration should be given to the phasing of working and restoration in order to allow semi-natural accessible green space to be developed safely as early as possible in the site's life, and proposals should give full consideration to whether the site could contribute to the creation of a sub-regional scale recreation asset. Any associated built development, such as to provide visitor facilities, is likely to require separate planning permission from the relevant Local Planning Authority.

**Priority d: In the Riverside Meadows, conserve and restore permanent pasture, incorporating wetland features such as fen and marsh, wet grassland, reedbed and lowland meadows alongside pastoral land use**

- 4.159 Permanent pasture is an important characteristic of the Riverside Meadows landscape type which is under pressure from increasing arable land uses. Conserving and restoring areas of permanent pasture in this landscape type will not only contribute to maintaining and enhancing landscape character and sense of place, but will also protect these habitats to provide an ecological network of connected habitats contributing to species resilience, and could also protect and enhance the setting of heritage assets. Returning land to pasture rather than arable uses could help to minimise any further fragmentation of hedgerow structure by restoring their functionality.
- 4.160 Incorporating wetland features will aid natural flood management, flood storage and floodplain connectivity, as well as improving water quality. Floodplain and riverside vegetation can help to slow overland flows, increase infiltration and interception of rain and slow the velocity

of water entering rivers, with the potential to reduce flood risk by increasing storage volumes and encouraging overland flows in less vulnerable floodplain areas. It can deliver biodiversity gains and Biodiversity Action Plan priorities, and will contribute to climate change resilience. It can also enhance the local landscape character and in some cases reflect historic land uses and land management techniques. The creation of wetland habitats on individual sites will largely be dependent on the local hydrology and any seasonal changes.

- 4.161 Wet pastures and meadows would contribute positively to the character of the Riverside Meadows landscape type and proposals should incorporate wide, wet field margins with reedbed, fen, marsh, ponds, pools and scrapes which would provide valuable habitats and natural water storage, rather than open water. However, if open waterbodies are proposed, they should be designed to have serpentine and sinuous edges with significant shallow areas as broad drawdown zones will encourage marginal habitats including fen, marsh and reedbed to establish. The design of wetland habitats should consider the landscape character, retaining the local scale and pattern of enclosure, and opportunities to enhance the landscape and biodiversity benefits of the ditches and watercourses. Permanent pasture in the North West Worcestershire Strategic corridor may also offer opportunities to deliver acid grassland habitats where there are areas of appropriate soils and geology.
- 4.162 Wetland features should be delivered during working phases as well as on the restored site. The site design, levels and phasing of workings should optimise opportunities for these features and habitats. Biodiversity and minerals sites in Worcestershire: Guidance for the sustainable management of biodiversity action plan habitats at Worcestershire mineral sites<sup>339</sup> provides useful information about the types of habitats that might be appropriate and how these can be created and managed. The Worcestershire Habitat Inventory<sup>340</sup> should be referred to when considering the opportunities to link and extend existing habitats.

339 Worcestershire County Council (2013) *Biodiversity and minerals sites in Worcestershire: Guidance for the sustainable management of biodiversity action plan habitats at Worcestershire mineral sites* available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

340 See *Worcestershire Habitat Inventory* information at [http://www.worcestershire.gov.uk/info/20014/planning/1029/worcestershire\\_habitat\\_inventory](http://www.worcestershire.gov.uk/info/20014/planning/1029/worcestershire_habitat_inventory)

- 4.163 Opportunities to incorporate appropriate grazing practices and haymaking into the management of sites could contribute to the long-term economic viability of the land and deliver outcomes that ensure net biodiversity gain in the long term. However, after-use in these areas need not be restricted to agriculture and other proposals for the long-term management of pasture and wetland habitats will be welcomed.
- 4.164 The conservation and restoration of permanent pasture, and the incorporation of wetland features, should take place across all phases of the site's life, and consideration of these features is expected to be integral to the design and layout of the site and any restoration proposals.

**Priority e: In the Sandstone Estatelands, conserve, enhance and create lowland heathland, acid grassland and scrub**

- 4.165 Heathland and acid grassland habitats are scarce in Worcestershire. These habitats are well suited to the underlying sandstone geology of the North West Worcestershire Strategic Corridor and their concentration in this area is significant on a county scale. However these habitats are fragmented. Conserving, enhancing and restoring lowland heathland, acid grassland and scrub will not only contribute to protecting and expanding these habitats to provide an ecological network of connected habitats contributing to species resilience, but will also help to maintain and enhance landscape character and sense of place, and could protect and enhance the setting of heritage assets.
- 4.166 Conserving, enhancing and creating these high value Biodiversity Action Plan priority habitats is particularly important where it would contribute to the wider network by extending existing heathland and acid grassland habitats or providing habitat corridors or stepping stones. Exposed sandy soils at mineral sites provide ideal conditions for lowland heathland, scrub and acid grassland habitats, or rare mire and bog communities in damper areas. Heathland and scrub can develop naturally on bunds and mounds and other areas of exposed sandy soils during working phases, giving opportunities to deliver biodiversity benefits throughout

the life of the site. Larger areas of heathland, scrub and acid grassland should respect locally characteristic field patterns, and where the restoration of the site is to arable land uses, low-nutrient soils should be retained to create heathland and acid grassland habitats in marginal areas such as along field boundaries, conservation headlands or set aside areas.



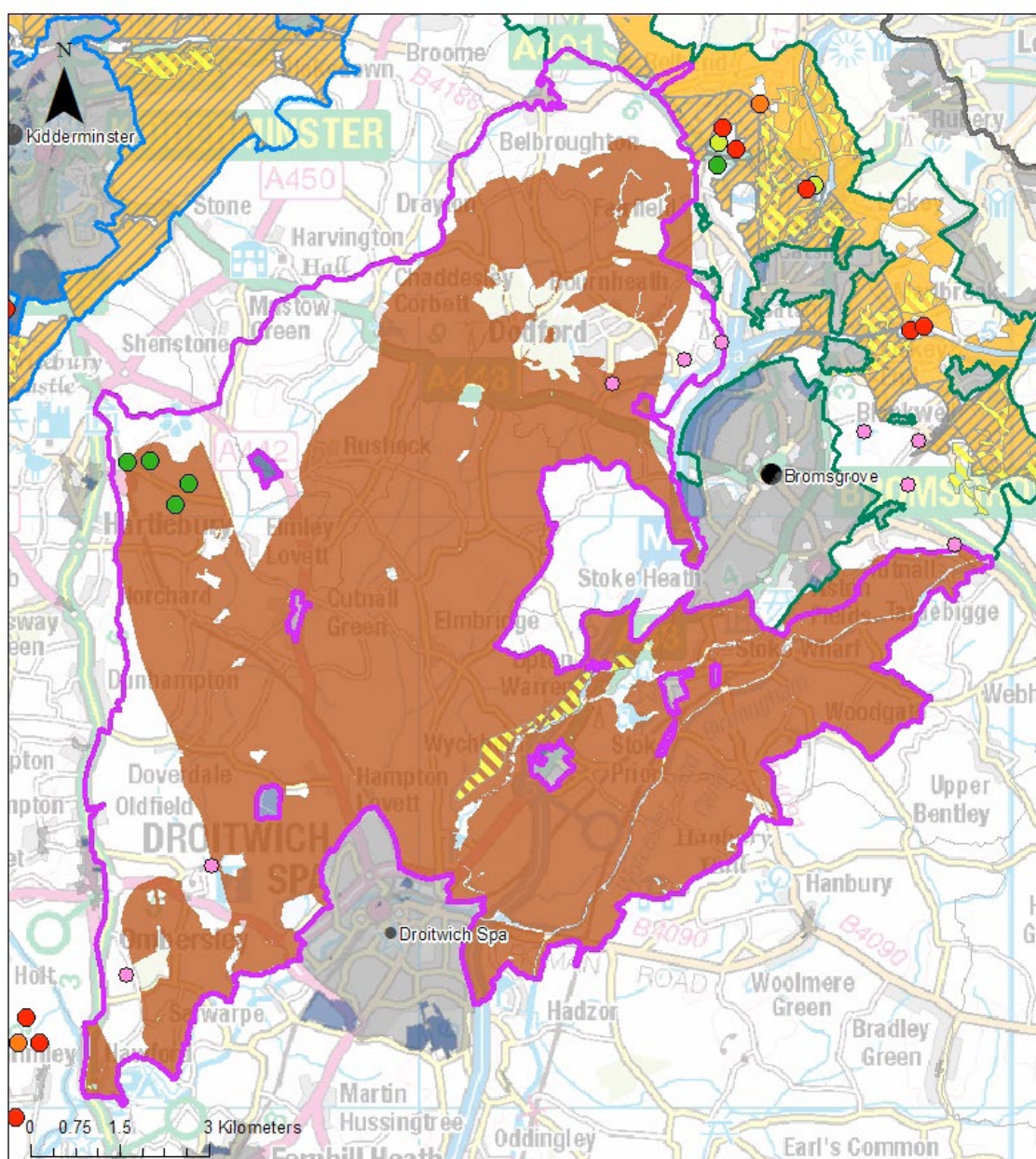
- 4.167 Biodiversity and minerals sites in Worcestershire: Guidance for the sustainable management of biodiversity action plan habitats at Worcestershire mineral sites<sup>341</sup> provides useful information about the types of habitats that might be appropriate and how these can be created and managed. The Worcestershire Habitat Inventory<sup>342</sup> should be referred to when considering the opportunities to link and extend existing habitats.
- 4.168 The conservation, enhancement and creation of lowland heathland, scrub and acid grassland habitats should take place across all phases of the site's life, and consideration of these features is expected to be integral to the design and layout of the site and any restoration proposals.

<sup>341</sup> Worcestershire County Council (2013) *Biodiversity and minerals sites in Worcestershire: Guidance for the sustainable management of biodiversity action plan habitats at Worcestershire mineral sites* available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

<sup>342</sup> See *Worcestershire Habitat Inventory* information at [http://www.worcestershire.gov.uk/info/20014/planning/1029/worcestershire\\_habitat\\_inventory](http://www.worcestershire.gov.uk/info/20014/planning/1029/worcestershire_habitat_inventory)

## Salwarpe Tributaries Strategic Corridor

Figure 4.6. Salwarpe Tributaries Strategic Corridor



**Legend**

Settlements	Terrae and glacial sand and gravel	<b>Mineral Sites</b>
City, Borough and District site allocations	Silica sand	<b>Status</b>
North East Worcestershire Strategic Corridor	Solid sand sand and gravel	Active
North West Worcestershire Strategic Corridor	Brick clay	Inactive
Salwarpe Tributaries Strategic Corridor	Building stone	Restored - in aftercare
		Restored (closed)

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 Ordnance Survey  
 100024230

Derived from 1:50,000 scale  
 BGS Digital Data under  
 Licence 2001/125. Amended  
 British Geological Survey  
 © NERC

Former building stone quarry  
 data provided by Herefordshire  
 and Worcestershire Earth  
 Heritage Trust.

NOTE: The strategic corridors and areas of search can be viewed in more detail on the Policies Map (part of the interactive minerals mapping tool).

Note: An interactive minerals mapping tool is available at [www.worcestershire.gov.uk/minerals](http://www.worcestershire.gov.uk/minerals). It incorporates the Policies Map which defines the Minerals Local Plan's land-use designations and allocations, and also includes additional supporting data<sup>343</sup> to assist in the use and implementation of the Minerals Local Plan.

343 Other supporting data is included on the interactive minerals mapping tool to assist in the use and implementation of the Minerals Local Plan, but may not be the latest available information. Data will be updated as far as possible alongside publication of the Minerals and Waste Local Development Framework Authority Monitoring Report. Data sources include the British Geological Survey, Coal Authority, data.gov.uk, Environment Agency, Herefordshire and Worcestershire Earth Heritage Trust, Worcestershire Biological Records Centre, and Worcestershire County Council.



Principal Timbered Farmlands landscape type (Bredicot)

- 4.169 The Salwarpe Tributaries Strategic Corridor is identified in the Key Diagram (Figure 4.1) and shown in detail in Figure 4.6. It covers 12,310 hectares of land, and broadly covers the area between Bromsgrove, Hanbury, Droitwich Spa, Hartlebury and Belbroughton.
- 4.170 The landscape character of the Salwarpe Tributaries Strategic Corridor is made up of the rolling lowland Principal Timbered Farmlands landscape type, which has occasional steep sided hills and low escarpments and a small-scale, wooded, agricultural appearance. It is characterised by filtered views through densely scattered hedgerow trees and has a mosaic of irregularly shaped woodlands, agricultural land cleared directly from woodland on a piecemeal basis, together with land enclosed from former localised areas of open fields.<sup>344</sup>
- 4.171 Traditionally a landscape of mixed farming, with 18.6% of the corridor classified as best and most versatile agricultural land, a gradual increase in arable land uses is evident locally, but this is leading to the demise of the hedgerow structure which is critical to the character of the landscape.
- 4.172 There is a relatively even spread of flood risk across the corridor, with 39% of its total area inside catchments with a low risk of flooding, 33% inside high risk and 28% inside medium risk catchments.<sup>345</sup> The corridor is mainly affected by fluvial flooding from the river Salwarpe and Spadesbourne Brook. Surface water flooding has historically affected multiple locations within the corridor, including Bournheath, Bromsgrove, Catshill and Stoke Prior, and some ground water flooding has affected Stourport-on-Severn, Bromsgrove and Stoke Prior. The corridor covers both upper and lower parts of the catchments, with a varied terrain which exhibits different hydrological characteristics, meaning that flood betterment opportunities will include control and attenuation of run-off in the upper parts of a catchment and flood storage and floodplain connectivity in the lower parts of a catchment. The majority of the watercourses in the corridor are not currently meeting Water Framework Directive targets for “good ecological status”.<sup>346</sup>

<sup>344</sup> See Worcestershire's *Landscape Character Assessment* maps and guidance at [www.worcestershire.gov.uk/lca](http://www.worcestershire.gov.uk/lca).

<sup>345</sup> Environment Agency, Worcestershire County Council (June 2018) *Catchment Based Management in Worcestershire Technical Background Document*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

<sup>346</sup> Environment Agency, Worcestershire County Council (June 2018) *Catchment Based Management in Worcestershire Technical Background Document*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).





Alluvial fenlands

4.173 The Salwarpe Tributaries Strategic Corridor has some potential to deliver biodiversity action plan targets for both species and habitats, with the Forest of Feckenham Biodiversity Delivery Area<sup>347</sup> covering the south-eastern side of the corridor. Small parts of the corridor consist of the “alluvial fenlands” ecological zone along the River Salwarpe, Elmbridge Brook and Hadley Brook in the south of the corridor where mineral working could provide the conditions to enable natural succession to a diversity of rich wetland habitats including fen, wet grassland and wet woodland. There is also potential for the creation of scarce habitats of high conservation value including heathland, acid grassland and scrub, or rare mire and bog communities in damper areas, where the “forest sandstones” ecological zone occurs around the western fringes of the corridor.<sup>348</sup>

4.174 Along the River Salwarpe, archaeological potential is typified by intensive occupation and land use from the prehistoric periods through to the post-medieval period. Areas of Palaeolithic Potential are associated with parts of the Elmley Brook and Salwarpe corridors. Historic Landscape Character reflects a dispersed early medieval settlement pattern, possibly founded on earlier Roman estates. The field pattern has been affected by reorganisation and amalgamation, but is, nonetheless, diverse and multi-period in origin, derived from mixed historic land use: medieval and later mixed farming and the piecemeal enclosure of former woodland and unenclosed lowland heath. To the south-east of the corridor, the Historic Landscape Character is a diverse mix of post-medieval piecemeal fields and regular planned enclosure of former medieval openfield cultivation.

<sup>347</sup> Information about the Worcestershire Biodiversity Action Plans and Biodiversity Delivery Areas is available at <http://www.worcestershire.gov.uk/biodiversity>.

<sup>348</sup> Worcestershire County Council, *Biodiversity and mineral sites in Worcestershire: Guidance for the sustainable management of biodiversity action plan habitats at Worcestershire mineral sites*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

- 4.175 There is a relatively dense network of Public Rights of Way within the Salwarpe Tributaries Strategic Corridor, although there are no long-distance recreation routes. There is an identified need for a strategic recreation asset in the vicinity of the Salwarpe Tributaries Strategic Corridor to relieve pressure on the Malvern Hills and other sub-regional assets and to serve planned housing growth around Worcester and Droitwich Spa.<sup>349</sup>
- 4.176 There are very few sites designated for their geological interest within the Salwarpe Tributaries Strategic Corridor.
- 4.177 Mineral development in the Salwarpe Tributaries Strategic Corridor would be well located to serve planned growth in the Worcester area and Droitwich Spa,<sup>350</sup> Bromsgrove,<sup>351</sup> Redditch,<sup>352</sup> Kidderminster and Stourport-on-Severn.<sup>353</sup> There are good links to the strategic highway network throughout the corridor. The Worcester and Birmingham Canal runs through the eastern edge of the corridor, and the Droitwich Canal runs across the south of the corridor, connect to the River Severn just to the south of the corridor and to the Worcester and Birmingham Canal at Hanbury. Two rail lines cross the corridor, although opportunities to connect to them may be limited.
- 4.178 The majority of the Salwarpe Tributaries Strategic Corridor is within Green Belt. Mineral development is not inappropriate within the Green Belt, provided it takes place in a way which preserves its openness and does not conflict with the purposes of including land within the Green Belt.<sup>354</sup> Minerals development also has the potential to enhance the beneficial use of the Green Belt<sup>355</sup> through providing enhanced public access and recreation opportunities, enhancing landscapes, visual amenity and biodiversity, and improving damaged and derelict land.
- 4.179 The Salwarpe Tributaries Strategic Corridor contains 15.8%<sup>356</sup> of the county's Mercia Mudstone clay resource and 0.9%<sup>357</sup> of the county's terrace and glacial sand and gravel resources. Brick clay is currently worked at two sites<sup>358</sup> in the Salwarpe Tributaries Strategic Corridor. Five<sup>359</sup> historic building stone sites are located within the corridor, and the corridor contains 79.1%<sup>360</sup> of the Droitwich Halite Member rock salt deposits in the county.
- 4.180 Working in this corridor is therefore most likely to be for brick clay from Mercia Mudstone. In some cases it may be possible to restore land to previous levels through the importation of materials, however this is likely to be limited by both the availability of suitable materials in the area, the current regulatory regime, the need to ensure that worked land is reclaimed at the earliest opportunity and the need to provide high-quality restoration.<sup>361</sup> It is therefore likely that parts of a site might be restored to previous levels, but some areas of lower land may be necessary.
- 4.181 The nature of the mineral deposits and the good level of access to the strategic transport network may mean that relatively large sites with their own processing plant are viable in this corridor, although centralised processing plant sites which enable access to "satellite" sites to work smaller mineral deposits may also be viable.

349 The need for a strategic recreation asset is identified in the adopted *South Worcestershire Development Plan 2006-30* (<http://www.swdevelopmentplan.org/>) and the Worcestershire Green Infrastructure Framework (Document 3, [www.worcestershire.gov.uk/GI](http://www.worcestershire.gov.uk/GI)). This is based on the access to, and capacity of, existing recreation assets and the impacts of planned housing growth. The *South Worcestershire Development Plan* identifies an area of search for a strategic recreation asset, known as "Worcester/ Droitwich Park" (based on the canal ring). However the provision of strategic recreation assets is not necessarily limited to the canals.

350 As proposed in the *South Worcestershire Development Plan 2006-2030*.

351 As proposed in the *Bromsgrove District Plan 2011-2030*.

352 As proposed in the *Borough of Redditch Local Plan No.4 2011-2030*.

353 As proposed in the *Wyre Forest Core Strategy 2006-26*.

354 See policy MLP 18 (Green Belt) and Ministry of Housing, Communities and Local Government (July 2018) *National Planning Policy Framework*, section 13.

355 Ministry of Housing, Communities and Local Government (July 2018) *National Planning Policy Framework*, paragraph 141 states that "Once Green Belts have been defined, local planning authorities should plan positively to enhance the beneficial use of the Green Belt, such as looking for opportunities to provide access; to provide opportunities for outdoor sport and recreation; to retain and enhance landscapes, visual amenity and biodiversity; or to improve damaged and derelict land".

356 By area, based on the Mercia Mudstone resource after environmental and amenity screening criteria were applied. For further information see Worcestershire County Council (August 2018) *Location of development: screening and site selection methodology*.

357 By area, based on the key and significant resources identified in Worcestershire County Council (August 2018) *Analysis of Mineral Resources*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground). The *Analysis of Minerals Resources* was refreshed following the Third Stage Consultation on the Minerals Local Plan to take account of environmental and amenity screening criteria. For further information see Worcestershire County Council's background document *Location of development: screening and site selection methodology* (August 2018).

358 New House Farm Quarry and Waresley Quarry. These can be viewed on the interactive minerals mapping tool available at [www.worcestershire.gov.uk/minerals](http://www.worcestershire.gov.uk/minerals).

359 Based on the remaining historic building stone sites identified by Herefordshire and Worcestershire Earth Heritage Trust's project "A Thousand Years of Building with Stone" (<http://www.buildingstones.org.uk/>) after environmental and amenity screening criteria were applied. For further information see Worcestershire County Council (August 2018) *Location of development: screening and site selection methodology*.

360 Based on the remaining Droitwich Halite Member deposits after environmental and amenity screening criteria were applied. For further information see Worcestershire County Council (August 2018) *Location of development: screening and site selection methodology*.

361 See policy MLP 17 (Prudent Use of Resources).

## Policy MLP 8: Salwarpe Tributaries Strategic Corridor

### Contributing to:

Objectives MO2, MO3, MO4, MO5

Planning permission will be granted for mineral development within the Salwarpe Tributaries Strategic Corridor that contributes towards the quality, character and distinctiveness of the corridor through the delivery and enhancement of green infrastructure networks.

A level of technical assessment appropriate to the proposed development will be required to demonstrate how, throughout its lifetime, the development will optimise opportunities to deliver the following green infrastructure priorities for the Salwarpe Tributaries Strategic Corridor:

- a) conserve, enhance and restore characteristic hedgerow patterns and structure;
- b) protect, restore and link relic ancient woodlands and conserve and restore tree cover along watercourses and streamlines;
- c) slow the flow of water in upper reaches and increase flood storage and floodplain connectivity in lower parts of the catchment;
- d) create accessible semi-natural green space incorporating information or routes which increase the legibility and understanding of the geodiversity, heritage and character of the area.

Where significant deviation from these priorities is proposed, this will only be considered appropriate where robust justification is provided to demonstrate that the proposal will deliver specific local economic, social and environmental benefits which demonstrably outweigh the benefits of delivering the corridor priorities.

### Reasoned justification

**4.182** Policy MLP 8 outlines the strategic framework for the delivery of multifunctional green infrastructure in the Salwarpe Tributaries Strategic Corridor. Each of the priorities for the corridor will contribute to multiple green infrastructure components, as well as climate change adaptation and mitigation.

**4.183** The corridor priorities can be integrated and delivered alongside each other, and in most cases it will be appropriate to incorporate some elements of each priority. However, in some cases it may not be possible or desirable to deliver all priorities on a single site when the size of the site or other local factors are taken into account.

**4.184** The technical assessment required by policy MLP 8 will be expected set out the considerations which have led to the proposed design of the site and the working, restoration and aftercare schemes, taking account of issues and opportunities identified through the consideration of policy MLP 3 (Green Infrastructure) and policies MLP 17 to MLP 30 (Development Management). The assessment should clearly specify how the proposed development will contribute to the green infrastructure priorities at each stage of the site's life, and why the proposed balance of priorities is considered to optimise the opportunities for delivering the priorities in that location. Where focusing on fewer priorities would deliver greater overall benefits than trying to deliver against all of the priorities for the corridor this will be supported.

**Priority a: Conserve, enhance and restore characteristic hedgerow patterns and structure**

- 4.185 The pattern and structure of hedgerows is a key characteristic of the Principal Timbered Farmlands landscape type, providing the basic fabric for the hedgerow tree populations and emphasising scale and enclosure. Conserving, enhancing and restoring hedgerows to preserve the organic pattern of enclosure and rebalance the age distribution of hedgerow oaks will not only contribute to maintaining and enhancing landscape character and sense of place, but will also increase the legibility of historic enclosure patterns in the landscape, enhance the setting of heritage assets, and link and enhance habitats to provide an ecological network of connected habitats contributing to species resilience.
- 4.186 The hedgerow composition is complex and rich in places where the links to woodland origins are strongest, and the characteristic tree cover creates the filtered views that are distinctive in this landscape. Lines of mature oak are a particular feature of the hedgerows in the Principal Timbered Farmlands. However, the age distribution of hedgerow oak is unbalanced, with the majority classed as mature or veteran. Protecting, maintaining or planting younger hedgerow oaks could help address this imbalance, providing a succession of younger trees to help ensure this landscape feature is retained over time. Hedgerow fruit trees might also be appropriate in the Forest of Feckenham Biodiversity Delivery Area, with an emphasis on the fruit type and varieties associated with the specific locality of the proposal.
- 4.187 It is vital for the retention of the character of the Principal Timbered Farmlands landscape type that the organic pattern of enclosure is preserved and that a geometric pattern is not superimposed by sub-dividing or enlarging fields or employing straight fence or hedgelines. Returning land to pasture rather than arable uses could help to minimise any further fragmentation of hedgerow structure by restoring their functionality, as well as potentially having greater benefits for water quality, flood betterment and biodiversity than arable land uses.

- 4.188 Hedgerows and their characteristic patterns and structure should be conserved, enhanced and restored across all phases of the site's life, and consideration of these features is expected to be integral to the design and layout of the site and any restoration proposals.

**Priority b: Protect, restore and link relic ancient woodlands and conserve and restore tree cover along watercourses and streamlines**

- 4.189 The presence of tree cover in the form of woodlands and linear, streamside tree cover, as well as hedgerow trees, is a unifying feature of the Principal Timbered Farmlands. The combined presence of these tree cover components creates the underlying sense of scale and enclosure, together with the filtered views that are distinctive in this landscape. The resulting woodland character is essentially that of mixed native broadleaves, with oak the dominant species.
- 4.190 Protecting, restoring and linking relic ancient woodland in appropriate ways<sup>362</sup> will not only contribute to maintaining and enhancing landscape character and sense of place, but will also increase the legibility of historic enclosure patterns in the landscape and link and enhance habitats to provide an ecological network of connected habitats contributing to species resilience. Incorporating woodland and trees along watercourses can also help to slow overland flows, increase infiltration and interception of rain and slow the velocity of water entering rivers.
- 4.191 The distribution of woodlands in the Salwarpe Tributaries Strategic Corridor is characteristically uneven, but the streamside tree cover is fragmented in places. Woodlands vary in size from small field corner copses to those of a size exceeding that of the surrounding fields, and wet woodland is often associated with linear strips along smaller streams. The shape of new woodlands should reflect the overall irregular, organic structure of the Principal Timbered Farmlands. However, large-scale planting or linking up existing fragmented woodlands to form large blocks would not be appropriate.

<sup>362</sup> Further guidance about the types of woodland habitats that might be appropriate and how these can be created and managed is available in Worcestershire County Council (2013) *Biodiversity and minerals sites in Worcestershire: Guidance for the sustainable management of biodiversity action plan habitats at Worcestershire mineral sites*, (available at [www.worcestershire.gov.uk/minerals](http://www.worcestershire.gov.uk/minerals)) and Worcestershire County Council and Forestry Commission (2010) *Trees and Woodland in Worcestershire: Biodiversity and Landscape Guidelines for their planting and management*, [http://www.worcestershire.gov.uk/downloads/file/4790/woodland\\_guidelines](http://www.worcestershire.gov.uk/downloads/file/4790/woodland_guidelines).

4.192 Consideration should be given to protecting, restoring and linking woodland habitats and conserving and restoring tree cover along watercourses and streamlines throughout all phases of the site's life. Consideration of these features is expected to be integral to the design and layout of the site and any restoration proposals.

**Priority c: Slow the flow of water in upper reaches and increase flood storage and floodplain connectivity in lower parts of the catchment**

4.193 The control and attenuation of run-off in the upper parts of the catchment, and flood storage and floodplain connectivity in the lower parts of the catchment will have the potential to reduce flood risk by increasing storage volumes and encouraging overland flows in areas located away from the source, as well as slowing flows, reducing peak levels, and increasing the time lag between rainfall and peak flows in areas closest to the source.<sup>363</sup> This will also have the potential to improve water quality and riverine habitats, provide the conditions to enable natural succession to a diversity of rich wetland habitats including fen, wet grassland, wet woodland or rare mire and bog communities, and could help to reduce the economic and social impacts of flooding.

4.194 Measures to help slow the flow of water or increase flood storage and floodplain connectivity which are likely to be appropriate to the topography and hydrology of the Salwarpe Tributaries Strategic Corridor include:<sup>364</sup>

- creating “leaky” barriers (soil, wood or stone) across a flow path to intercept overland flow and create water storage which will drain slowly;
- incorporating scrapes, swales, wetlands and other sustainable drainage features into the topography of the site to manage local flow pathways by catching and storing run-off and sediments and slowing the water before it reaches the main river;
- damming gullies or field drains to form pools; or

- securely installing woody debris to assist the transfer of water from the river to the floodplain to increase floodplain storage volumes, slow down flows within the channel, or hold water back in the upper reaches of the catchment, attenuating flood risk downstream.

4.195 Consideration should be given to slowing the flow of water or increasing flood storage and floodplain connectivity, depending on the location of the site within the catchment, throughout all phases of the site's life. Consideration of these issues is expected to be integral to the design and layout of the site and any restoration proposals.

**Priority d: Create accessible semi-natural green space incorporating information or routes which increase the legibility and understanding of the geodiversity, heritage and character of the area**

4.196 Creating accessible semi-natural green space will increase opportunities for informal access and recreation, contributing to the health and well-being of local communities. It also offers opportunities to help people to interpret features and characteristics in the landscape and understand how they interact. This can help to strengthen sense of place through increased understanding of the geodiversity, heritage and character of the area, and could help to enhance the beneficial use of the Green Belt.

4.197 In some cases, spaces or routes adjacent to or with views of particular features may be sufficient to increase legibility and understanding of the feature. In other cases, signage or information boards may be appropriate. To be in keeping with the landscape character of the Salwarpe Tributaries Strategic Corridor, accessible semi-natural green spaces or informal recreation sites should integrate woodland and characteristic hedgerow, tree cover and field patterns. The topography and landform of the site should be considered in order to create an enjoyable and distinctive visitor experience, taking account of the long-term management requirements of the site.

363 Environment Agency, Worcestershire County Council (June 2018) *Catchment Based Management in Worcestershire Technical Background Document*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).  
 364 Environment Agency, Worcestershire County Council (June 2018) *Catchment Based Management in Worcestershire Technical Background Document*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).



**Principal Timbered Farmlands landscape type**

4.198 There is an identified need for a strategic recreation asset in the vicinity of the Salwarpe Tributaries Strategic Corridor, and the provision of a strategic recreation asset would require a site of over 100ha. The inclusion of accessible semi-natural green space at a number of mineral developments could help to facilitate the provision of a sub-regional scale asset or there may be opportunities for it to be provided by a single large site.

4.199 Consideration should be given to the phasing of working and restoration in order to allow semi-natural accessible green space to be developed safely as early as possible in the site's life, and proposals should give full consideration to whether the site could contribute to the creation of a sub-regional scale recreation asset. Any associated built development, such as to provide visitor facilities, is likely to require separate planning permission from the relevant Local Planning Authority.



Extracting sand and gravel at Ball Mill Quarry

## 5. Supply of mineral resources (strategic policies)

### Introduction

5.1 Minerals provide the raw materials to support sustainable economic growth and quality of life. It is essential that there is a sufficient supply of minerals to provide the infrastructure, buildings, energy and goods that the country needs.<sup>365</sup> To ensure that minerals are readily available to meet market demand and to minimise uncertainty and volatility in supply, it is important for the Minerals Local Plan to ensure that:

- there is a sufficient and sustainable stock of reserves at sites with planning permission (for aggregate minerals this is referred to as a “landbank”);
- there are enough sites with the capacity to produce, process and sell what is required (“productive capacity”). This can be affected by commercial decisions, changes to plant and machinery and working practices, or natural events;
- there is enough flexibility to ensure that demand can be met even if natural events or commercial decisions limit production at one or more site(s); and
- large landbanks at very few sites do not stifle competition.

5.2 Maintaining a steady and adequate supply of minerals also requires mineral sites, and

facilities and infrastructure which support the extraction, processing and sale of minerals, to be able to operate without being prejudiced by the introduction of sensitive land uses in close proximity. This is considered in Chapter 7.

5.3 The level of supply which is considered to be “adequate” varies for different types of minerals. The National Planning Policy Framework gives a clear direction on the minimum levels of aggregate supply considered to be “adequate”, requiring the maintenance of landbanks of at least 7 years for sand and gravel and at least 10 years for crushed rock,<sup>366</sup> and recognises that long-term investment needs influence the requirements for stocks of permitted reserves of industrial minerals.<sup>367</sup> The supply of aggregates and industrial minerals is driven by a wide range of development demands which are reliant on a steady supply of materials to maintain certainty in the economy, whilst the demand for building stone is more likely to be related to a particular project and does not necessarily require a steady amount to be produced annually.

5.4 The baseline Local Aggregate Assessment<sup>368</sup> (using data up to 31st December 2016) sets out the data underpinning the Minerals Local Plan with regard to aggregates, with additional information about aggregates, industrial and energy minerals provided in a suite of background documents<sup>369</sup>.

<sup>365</sup> Ministry of Housing, Communities and Local Government (July 2018) *National Planning Policy Framework*, paragraph 203.

<sup>366</sup> Ministry of Housing, Communities and Local Government (July 2018) *National Planning Policy Framework*, paragraph 207.

<sup>367</sup> Ministry of Housing, Communities and Local Government (July 2018) *National Planning Policy Framework*, paragraph 208.

<sup>368</sup> Worcestershire County Council (July 2018) *Worcestershire Local Aggregate Assessment (using data covering the period up to 31/12/2016)*, available at [www.worcestershire.gov.uk/amr](http://www.worcestershire.gov.uk/amr).

<sup>369</sup> See background documents on *Crushed Rock in Worcestershire*, *Crushed Rock Supply in Worcestershire – Summary of action undertaken under the duty to cooperate*, *Sand and Gravel in Worcestershire*, *Building Stone in Worcestershire*, *Clay in Worcestershire*, *Salt and Brine in Worcestershire*, *Silica Sand in Worcestershire*, *Coal in Worcestershire*, and *Conventional and Unconventional hydrocarbons (Oil and Gas; excluding coal)*, at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground), and the Worcestershire Minerals and Waste Development Framework Authority Monitoring Reports are available at [www.worcestershire.gov.uk/amr](http://www.worcestershire.gov.uk/amr).

## Contribution of substitute, secondary and recycled materials and mineral wastes to overall minerals supply

### Policy MLP 9: Contribution of Substitute, Secondary and Recycled Materials and Mineral Waste to Overall Minerals Supply

#### Contributing to:

Objectives MO1, MO5, MO6

Planning permission will be granted for proposals that enable the supply of minerals from substitute, secondary or recycled materials or mineral waste where they accord with the policies of the Waste Core Strategy.

Where the proposed development involves the management, processing and/or stockpiling of substitute, secondary or recycled materials or mineral waste on an existing or proposed site for working and/or processing primary minerals, it must be clearly demonstrated that this would not have an adverse impact on working the site or on the ability to deliver high-quality restoration at the earliest opportunity.

#### Reasoned justification

- 5.5 Mineral resources are finite and it is important to make the best use of them. The use of substitute, secondary and recycled materials and minerals waste helps to reduce the need for primary minerals and can increase resource efficiency by using materials that might otherwise be discarded as waste. It can also contribute to the local vernacular, particularly where locally distinctive building stone or specific brick types are available from recycled sources. The Waste Core Strategy for Worcestershire promotes the re-use and recycling of materials and contains policies regarding the development of recycling facilities. Policy MLP 9 should be read in conjunction with the Waste Core Strategy.
- 5.6 The use of substitute, secondary and recycled materials and mineral waste is becoming embedded as part of a sustainable minerals market, with more mineral operators seeking to offer a range of sustainable products for sale. Policy MLP 9 encourages and enables this, supporting development which would contribute to the overall sustainable supply of materials and thereby reducing the overall need for the extraction of primary minerals.
- 5.7 Where the proposed development is located on an existing or proposed site for working and/or processing primary minerals, proposals will be

expected to demonstrate how the proposal will ensure that the working and restoration of the site will not be negatively impacted. This should include consideration of practical requirements for working the site and the temporary nature of mineral workings, and ensuring that the ability to deliver high-quality restoration at the earliest opportunity will not be compromised. For sites with existing planning permission, this is likely to require such activities to be aligned to the timescales and restoration scheme of the existing permission.

#### Aggregate supply

- 5.8 Aggregates are crucial to most forms of built development. They are strategically important and there are significant geographical imbalances across the country between where suitable natural aggregate resources exist and where they are most needed. This is recognised in national policy by the “Managed Aggregate Supply System”,<sup>370</sup> which requires Mineral Planning Authorities to make provision for the maintenance of landbanks for aggregate minerals of at least 7 years for sand and gravel and at least 10 years for crushed rock, to participate in the operation of an Aggregate Working Party, and to prepare an annual Local Aggregate Assessment<sup>371</sup>.

<sup>370</sup> Ministry of Housing, Communities and Local Government, *Planning Practice Guidance, Minerals*, paragraph: 060 Reference ID: 27-060-20140306 Revision date: 06 03 2014.

<sup>371</sup> Worcestershire's *Local Aggregate Assessments* are available at [www.worcestershire.gov.uk/amr](http://www.worcestershire.gov.uk/amr).



## Sand and gravel supply

### Policy MLP 10: Steady and Adequate Supply of Sand and Gravel

#### Contributing to:

Objectives MO1, MO5

Planning permission will be granted for minerals development that will contribute to maintaining a steady and adequate supply of sand and gravel.

A level of technical assessment appropriate to the proposed development will be required to demonstrate the contribution the proposed development will make towards:

- a) maintaining a landbank of permitted sand and gravel reserves in Worcestershire of at least 7 years; and/or
- b) enabling Worcestershire's productive capacity for sand and gravel supply to be maintained or enhanced.

#### Reasoned justification

5.9 At the end of 2016, there were six sand and gravel sites<sup>372</sup> in Worcestershire:

- three sites were “active” (in production for some time during the year);
- two were “inactive” (worked in the past and contain permitted reserves)<sup>373</sup>; and
- one new site was “permitted – not commenced” (planning permission granted but development not yet commenced).

#### Maintaining permitted reserves of sand and gravel

5.10 Worcestershire's Local Aggregate Assessment considers the average level of sales of sand and gravel from Worcestershire<sup>374</sup> alongside other relevant local information to set a “production guideline”. The baseline Local Aggregate Assessment<sup>375</sup> identifies an annual production guideline of 0.607 million tonnes.<sup>376</sup> As the Local Aggregate Assessment is produced annually, the annual production guideline will vary through the life of the plan and the plan has been developed to be sufficiently flexible to adapt to such changes.

5.11 The landbank for sand and gravel in Worcestershire at the end of 2016 stood at approximately 7 years,<sup>377</sup> meeting the requirement for a minimum of 7 years set out in national policy.<sup>378</sup> The Minerals Local Plan enables the provision of at least a further 11.53 million tonnes<sup>379</sup> of sand and gravel over the life of the plan to maintain a landbank of at least 7 years to 2035 and beyond.

5.12 In order to enable the steady and adequate supply of sand and gravel, Policy MLP 10 supports minerals development which will contribute to maintaining a landbank for sand and gravel of at least 7 years, whilst being flexible enough to accommodate changes to the balance of demand and supply identified in the Local Aggregate Assessment annually. This is supported by the identification of areas of search in Chapter 4, and specific sites and preferred areas will be allocated in a separate Mineral Site Allocations Development Plan Document.

372 A Review of Mineral Permission submission was required for one of these sites, Sandy Lane Quarry, by 20th March 2017 but was not submitted. Planning permission for the reserves at this site has therefore expired and the site is undergoing restoration.

373 One of the sites classed its permitted reserves as being for “non-aggregate uses”.

374 The average level of sales of sand and gravel from Worcestershire over the 10 year period from 2007-2016 was 0.607 million tonnes per year. Data from 2012-2013 includes sales for both Herefordshire and Worcestershire as the data for those years was combined due to confidentiality requirements. See Worcestershire County Council (July 2018) *Worcestershire Local Aggregate Assessment (using data covering the period up to 31/12/2016)*, available at [www.worcestershire.gov.uk/amr](http://www.worcestershire.gov.uk/amr).

375 Worcestershire County Council (July 2018) *Worcestershire Local Aggregate Assessment (using data covering the period up to 31/12/2016)*, available at [www.worcestershire.gov.uk/amr](http://www.worcestershire.gov.uk/amr).

376 Worcestershire County Council (July 2018) *Worcestershire Local Aggregate Assessment (using data covering the period up to 31/12/2016)*. There was not enough evidence to suggest that the production guideline for sand and gravel should vary from the 10 year average.

377 The landbank stood at 6.99-7.07 years due to one site submitting their remaining reserve figure as a range.

378 At 31st December 2016, Worcestershire had 4.244-4.294 million tonnes of permitted sand and gravel reserves. The permitted reserves are divided by the annual production guideline to give the landbank in years. See Worcestershire County Council (July 2018) *Worcestershire Local Aggregate Assessment (using data covering the period up to 31/12/2016)*.

379 Figure based on the production guideline of 0.607 million tonnes each year from 2017 to 2035, but the plan includes sufficient flexibility to adapt to changes in the production guideline.



Excavating sand and gravel at Ryall's Court Farm Quarry

- 5.13 Policy MLP 10 requires an appropriate level of technical assessment to be submitted with each application. Such assessments should be undertaken by an appropriate and competent expert and should include sufficiently detailed site investigations and analysis to demonstrate the quantity and quality of the resource at the site, such as through details of boreholes and trial pits, highlighting the depth, type and distribution of the resource, and differentiating between different phases of the development, in order to clearly demonstrate the contribution the proposed development would make towards Worcestershire's landbank of permitted sand and gravel reserves.

**Enabling productive capacity to be maintained or enhanced**

- 5.14 In addition to maintaining a landbank of permitted reserves, the Mineral Planning Authority needs to ensure sufficient productive capacity is maintained in the county. Worcestershire's overall productive capacity results from the combined capacity of individual sites to extract, process and sell minerals.
- 5.15 A site might have large permitted reserves but the contribution it can make to the annual supply of materials will not be able to exceed

its productive capacity. Productive capacity can be directly limited by the maximum possible throughput of a site's processing plant, or indirectly through measures which seek to minimise or mitigate environmental or amenity impacts, such as limiting opening hours or the number of vehicle movements. With relatively few active sites and limited permitted reserves, the overall security of Worcestershire's productive capacity could be put at risk by commercial decisions or natural events at any individual site.

- 5.16 Worcestershire's productive capacity for sand and gravel is therefore likely to be maintained or enhanced through a combination of additional sites and more efficient plant, machinery and working practices at existing sites.
- 5.17 The technical assessment required by policy MLP 10 will be expected to demonstrate the contribution which the proposed development would make to maintaining or enhancing productive capacity both at the site level and in the wider context. This may include the anticipated throughput and lifespan of a new site or extended working, or the anticipated impact of new plant or amending planning conditions at existing sites.

## Crushed rock supply

### Policy MLP 11: Steady and Adequate Supply of Crushed Rock

#### Contributing to:

Objectives MO1, MO5

Planning permission will be granted for minerals development that will contribute to achieving a steady and adequate supply of crushed rock.

A level of technical assessment appropriate to the proposed development will be required to demonstrate the contribution the proposed development will make towards:

- a) maintaining a landbank of permitted crushed rock reserves in Worcestershire of at least 10 years;
- and/or
- b) enabling Worcestershire's productive capacity for crushed rock supply to be maintained or enhanced.

#### Reasoned justification

5.18 There has been no crushed rock working in Worcestershire since 2010 and, at the end of 2016, there were no active crushed rock sites and no landbank of permitted reserves for crushed rock in Worcestershire.<sup>380</sup>

5.19 Worcestershire's Local Aggregate Assessment considers the average level of sales of crushed rock from Worcestershire<sup>381</sup> alongside other relevant local information to set a "production guideline". In the case of crushed rock, the baseline Local Aggregate Assessment<sup>382</sup> identifies local information that indicates that this "production guideline" should be 0 tonnes per annum.<sup>383</sup> The Local Aggregate Assessment is produced annually and therefore the annual production guideline could vary throughout the life of the plan, but the constraints surrounding Worcestershire's crushed rock resources<sup>384</sup> mean that crushed rock working at a significant scale is unlikely during the life of the plan and the production guideline is likely to remain as 0 tonnes per annum. However, the plan has been developed to be sufficiently flexible to adapt to any changes in the production guideline.

5.20 Policy MLP 11 requires any planning applications which do come forward to contain an appropriate level of technical assessment undertaken by an appropriate and competent expert. This should include sufficiently detailed site investigations and analysis to demonstrate the quantity and quality of the resource at the site, such as through details of boreholes and trial pits, highlighting the depth, type and distribution of the resource, differentiating between different phases of the development, in order to clearly demonstrate the contribution the proposed development would make towards Worcestershire's landbank of permitted crushed rock reserves and the contribution which the proposed development would make to maintaining or enhancing productive capacity both at the site level and in the wider context. This may include the anticipated throughput and lifespan of a new site or extended working, or the anticipated impact of new plant or amending planning conditions at existing sites.

380 No sites for crushed rock working have been put forward in response to four calls for sites between 2014 and 2018 during the development of the Minerals Local Plan.

381 The average level of sales of crushed rock from Worcestershire over the 10 year period from 2007-2016 was 0.026 million tonnes per year. Worcestershire's data was combined with Herefordshire up to 2009 due to issues of commercial confidentiality, and in order to calculate the 10 year average of sales, an assumption was made that a third of the sales was attributable to Worcestershire. See Worcestershire County Council (July 2018) *Worcestershire Local Aggregate Assessment (using data covering the period up to 31/12/2016)*, available at [www.worcestershire.gov.uk/amr](http://www.worcestershire.gov.uk/amr).

382 Worcestershire County Council (July 2018) *Worcestershire Local Aggregate Assessment (using data covering the period up to 31/12/2016)*, available at [www.worcestershire.gov.uk/amr](http://www.worcestershire.gov.uk/amr).

383 Worcestershire County Council (July 2018) *Worcestershire Local Aggregate Assessment (using data covering the period up to 31/12/2016)*. There are significant constraints on delivering crushed rock production in Worcestershire (these are outlined in Chapter 2) and there has been very limited market interest in working crushed rock in Worcestershire for many years. In the baseline Local Aggregate Assessment these were considered to be strong indicators that the 10 year average (0.026 million tonnes) was not a suitable production guideline. Discussions with the West Midlands, East Midlands, South West and South Wales Aggregate Working Parties concluded that Worcestershire's production guideline for crushed rock should be reduced to 0 tonnes. See Worcestershire County Council, 2016, *Minerals Local Plan Background Document - Strategic cross boundary issue: Crushed rock supply in Worcestershire. Summary of action undertaken under the duty to cooperate*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

384 See Chapter 2: Portrait of Worcestershire.

## Industrial minerals supply

- 5.21 Industrial mineral working tends to have associated plant and infrastructure which requires significant capital investment and long investment timescales, such as kilns for manufacturing cement, glass or bricks. National policy recognises that long-term investment needs influence landbank requirements for these minerals.

### Supply of brick clay and clay products

#### Policy MLP 12: Steady and Adequate Supply of Brick Clay and Clay Products

##### Contributing to:

Objectives MO1, MO5

Planning permission will be granted for minerals development proposals that will contribute to maintaining a steady and adequate supply of brick clay and clay products.

A level of technical assessment appropriate to the proposed development will be required to demonstrate the contribution the proposed development will make towards:

- a) supporting investment in developing, maintaining or improving new or existing plant and equipment;
- b) providing clay which will enable appropriate blends to be made; and/or
- c) enabling Worcestershire's productive capacity for brick clay or clay products to be maintained or enhanced.

#### Reasoned justification

- 5.22 Worcestershire plays a significant role in the supply of brick clay and clay products both locally and nationally. Sales of brick clay from Worcestershire are approximately 126,000 tonnes per annum.<sup>385</sup> At the end of 2016 there were two clay sites in Worcestershire, each with associated brickworks. Each of these clay workings has a stock of permitted reserves sufficient for the life of the plan.<sup>386</sup> However, further reserves may be required to support investment in developing,

maintaining or improving new or existing plant and equipment to ensure that Worcestershire continues to contribute to local and national supplies of brick clay and clay products, to enable appropriate blends of clays with different properties, or to maintain or enhance Worcestershire's productive capacity for brick clay or clay products. Policy MLP 12 therefore enables further brick clay development to come forward, but no supply targets or delivery milestones have been set.

<sup>385</sup> 10 year average based on *Mineral extraction in Great Britain, Business Monitor PA1007* reports for 2005 to 2014. Data for Worcestershire was only published for 2012, 2011, 2010, 2006. The data for other years was withheld to avoid disclosure of information relating to an individual undertaking without the consent of the person carrying on that undertaking.

<sup>386</sup> Based on the figure for the remaining stock of permitted reserves in December 2016 (as provided in confidential discussions with the operator of the clay sites in Worcestershire, Weinerberger, April 2017), the permitted reserves would last approximately 63 years based on the 10 year average of known annual sales, but based on the sites' maximum potential output this could be less than 25 years.

5.23 There are hundreds of different types of brick and clay products on the market with different colours, finishes and technical specifications. Producing these can require the blending of clays from a number of sources to obtain the durability or colours and textures demanded. Both of the sites in Worcestershire work clay from the Mercia Mudstone Group. Whilst there are a number of different geological formations within the Mercia Mudstone Group, the proximity of the two existing sites in Worcestershire means they are likely to provide very similar clay resources. Proposals may be put forward to provide different types of clay to support existing or new sites within or beyond the county.

5.24 In addition to maintaining stocks of permitted reserves, it is important to maintain sufficient productive capacity in the county. Worcestershire's overall productive capacity results from the combined capacity of individual sites to produce, process and sell minerals. A site might have large permitted reserves but the contribution it can make to the annual supply of materials will not be able to exceed its productive capacity. Productive capacity can be directly limited by the maximum throughput of the site's processing plant, or indirectly through measures which seek to minimise or mitigate environmental or amenity impacts, such as limiting opening hours or the number of vehicle movements.

5.25 Clay sites are often extracted periodically rather than continuously throughout the year (known as campaign working) which allows operators to excavate during periods of good weather and stockpile the mineral for use as required, providing greater control over the brickwork's production schedule and plant efficiency. Both of the existing sites and brickworks in Worcestershire are run by the same operator and are in close proximity. The overall security of Worcestershire's productive capacity could therefore be particularly vulnerable to commercial decisions or natural events at any individual site. Worcestershire's productive capacity for brick clay or clay products is therefore likely to be maintained or enhanced through a combination of additional sites and more efficient plant, machinery and working practices at existing sites.



**New House Farm Quarry (brick clay), near Hartlebury**

5.26 Policy MLP 12 requires an appropriate level of technical assessment to be submitted with each application. Such assessments should be undertaken by an appropriate and competent expert and should include sufficiently detailed site investigations and analysis to demonstrate the quantity and quality of the resource at the site, such as through details of boreholes and trial pits, highlighting the depth, type and distribution of the resource, differentiating between different phases of the development. This should demonstrate:

- how the proposed development would support actual or proposed investment in developing, maintaining or improving new or existing plant and equipment;
- how the proposed development would enable appropriate blends at works within or beyond Worcestershire; and/or
- the scale of the contribution the proposed development would make towards Worcestershire's productive capacity for brick clay or clay products. This may include the anticipated throughput and lifespan of a new site, extended working, or new plant, or the anticipated impact of amending planning conditions at existing sites.

## Supply of silica sand

### Policy MLP 13: Steady and Adequate Supply of Silica Sand

#### Contributing to:

Objectives MO1, MO5

Planning permission will be granted for minerals development proposals that will contribute to achieving a steady and adequate supply of silica sand for industrial uses.

A level of technical assessment appropriate to the proposed development will be required to demonstrate the contribution the proposed development will make towards:

- a) Supporting investment in developing, maintaining or improving new or existing plant and equipment; and/or
- b) Enabling Worcestershire's productive capacity for silica sand for industrial uses to be maintained or enhanced.

#### Reasoned justification

5.27 Worcestershire does not play a significant role in the supply of silica sand for industrial uses due to low levels of demand for the type of silica sand found in the county (naturally bonded moulding sand). Sales of silica sand from the county account for less than 1% of national supply of foundry sand<sup>387</sup> and are not used in glass manufacture or other industrial uses as different grades of silica sand are not usually interchangeable.

5.28 In 2016, silica sand was worked at one "active" site<sup>388</sup>, with further permitted reserves in one "inactive" site<sup>389</sup> as an ancillary activity to the working of aggregate sand. The sites do not have industrial plant directly associated with them and instead supply small individual foundries and other users and there is no indication that the operators of the current sites wish to invest in industrial plant to use silica sand.<sup>390</sup>

5.29 With few active sites, the overall security of Worcestershire's productive capacity could be put at risk by commercial decisions or natural events at any individual site. Worcestershire's productive capacity for silica sand for industrial uses is likely to be maintained or enhanced through a combination of additional sites, more efficient plant, machinery and working practices at existing sites, and stockpiling of silica sand as it is encountered when worked alongside aggregate

sand and gravel to enable the mineral to be available for sale for industrial purposes.

5.30 As such, Policy MLP 13 enables silica sand development to come forward but does not set supply targets or delivery milestones.

5.31 Policy MLP 13 requires an appropriate level of technical assessment to be submitted with each application. Such assessments should be undertaken by an appropriate and competent expert and should include sufficiently detailed site investigations and analysis to demonstrate the quantity and quality of the resource at the site, such as through details of boreholes and trial pits, highlighting the depth, type and distribution of the resource, differentiating between different phases of the development. This should demonstrate:

- how the proposed development would support actual or proposed investment in developing, maintaining or improving new or existing plant and equipment; and/or
- the scale of the contribution the proposed development would make towards Worcestershire's productive capacity for silica sand. This may include details of proposed stockpiles, the anticipated throughput and lifespan of a new site, extended working, or new plant, or the anticipated impact of amending planning conditions at existing sites.

387 Department for Communities and Local Government (February 2013) *Mineral extraction in Great Britain 2011, Business Monitor PA1007* (Table 1 – Industrial sand)

388 Wildmoor Quarry (formerly John Williams Cinetic Sand). "Active" sites are permitted minerals sites in production for some time during the year.

389 Sandy Lane Quarry (formerly Stanley N. Evans Ltd). "Inactive" sites are permitted minerals sites worked in the past and containing permitted reserves. A Review of Mineral Permission submission was required for this site by 20th March 2017 but was not submitted. Planning permission for the reserves at this site has therefore expired and the site is undergoing restoration.

390 Worcestershire County Council (September 2018) *Silica Sand in Worcestershire*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

## Supply of building stone<sup>391</sup>

### Policy MLP 14: Adequate and Diverse Supply of Building Stone

#### Contributing to:

Objectives MO1, MO3, MO5

Planning permission will be granted for minerals development that will contribute to achieving an adequate and diverse supply of building stone.

A level of technical assessment appropriate to the proposed development will be required to demonstrate the contribution the proposed development will make towards:

- a) Increasing or maintaining Worcestershire's stock of permitted reserves of building stone; and/or
- b) Enabling Worcestershire's productive capacity for different types of building stone to be maintained or enhanced.

#### Reasoned justification

5.32 Worcestershire does not play a significant role in the supply of building stone but it is anticipated that demand may arise for building stone resources during the life of the plan for the repair and maintenance of historic buildings and structures, maintaining vernacular styles in new construction and for contemporary design requirements for new buildings.<sup>392</sup>

5.33 There are no active building stone sites in Worcestershire. Although demand may arise for building stone resources during the life of the plan, it is not possible to quantify this potential demand. As such, Policy MLP 14 does not set supply targets or delivery milestones but enables development which would increase or maintain the diversity and quantity of Worcestershire's stock of permitted reserves for different types of building stones. This might include proposals to produce building stone alongside other types of mineral such as crushed rock aggregate, or proposals to supply a specific type of building stone to meet an identified local or national need for a specific material.

5.34 There can be significant variations in the appearance and characteristics of building stone, even within the same broad stone type. Having a diverse stock of permitted reserves would enable industry to be responsive to the intermittent nature of demand for specific building stones. A relatively small stock of permitted reserves may be all that is required for the adequate supply of each type of material. It should be noted that this intermittent demand may lead to stocks of permitted reserves remaining dormant for some time. This will need to be managed in accordance with the policies in Chapter 6 (Development Management).

5.35 For building stone, the productive capacity for each type of stone is likely to be a more important factor than the overall productive capacity for building stone as a whole due to the significant variations in the type and use of materials from individual sites. Worcestershire's productive capacity for building stone is likely to be maintained or enhanced through a combination of new sites, stockpiling of building stone as it arises from ground works or the demolition of existing structures, and more efficient plant, machinery and working practices over the life of any sites which are developed.

<sup>391</sup> For the purpose of this document, the term 'building stone' incorporates building, walling, roofing and dimension stones.

<sup>392</sup> Worcestershire County Council (September 2018) *Building Stone in Worcestershire*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

5.36 Policy MLP 14 requires an appropriate level of technical assessment to be submitted with each application. Such assessments should be undertaken by an appropriate and competent expert and should include sufficiently detailed site investigations and analysis to demonstrate the quantity and quality of the resource at the site, such as through details of boreholes and trial pits, highlighting the depth, type and distribution of the resource, differentiating between different phases of the development, in order to clearly demonstrate the contribution

the proposed development would make towards Worcestershire's stock of permitted reserves of the particular type of building stone and the contribution which the proposed development would make to maintaining or enhancing productive capacity both at the site level and in the wider context. This may include the anticipated throughput and lifespan of a new site or extended working, or the anticipated impact of new plant or amending planning conditions at existing sites.

## Supply of other locally and nationally important industrial minerals

### Policy MLP 15: Supply of Other Locally and Nationally Important Industrial Minerals

#### Contributing to:

Objectives MO1, MO5

Planning permission will be granted for minerals development that will contribute to the sustainable supply of other locally and nationally important industrial mineral resources.

A level of technical assessment appropriate to the proposed development will be required to demonstrate that the development would meet a local or national need.

#### Reasoned justification

5.37 Other mineral deposits exist within Worcestershire, such as Halite (salt) and clays which are not currently used for brickmaking in the county. The Minerals Local Plan does not set supply targets or delivery milestones for them, but Policy MLP 15 enables the sustainable supply of these or other types of industrial mineral to take place.

5.38 Policy MLP 15 requires an appropriate level of technical assessment to be submitted with each application. Such assessments will be expected to contain a level of detail proportionate to the proposal submitted, with sufficiently detailed market information to demonstrate that the need for the mineral resource is sufficient for it to be considered of local or national importance, and sufficiently detailed site investigations and analysis to demonstrate the quantity and quality of the resource at the site, such as through details of boreholes and trial pits, highlighting the depth, type and distribution of the resource, differentiating between different phases of the development, in order to demonstrate that the resource would be capable of meeting the identified need.



Preserved historic brine pumping station, Droitwich



## Energy minerals supply

### Policy MLP 16: Supply of Energy Minerals

#### Contributing to:

Objectives MO1, MO5

- a) Planning permission will not be granted for the extraction of coal or related development unless it is demonstrated that the proposed development will contribute to the sustainable supply of energy minerals. A level of technical assessment appropriate to the proposed development will be required to demonstrate that:
  - i. the proposed development will contribute to the sustainable supply of energy minerals; and
  - ii. the proposed development is either:
    - environmentally acceptable\*; or
    - will provide national, local or community benefits which clearly outweigh the likely impacts.
- b) Planning permission will be granted for on-shore oil and gas development using either conventional or unconventional methods within areas licensed for oil and gas exploration or production where it will contribute to the sustainable supply of energy minerals. A level of technical assessment appropriate to the proposed development will be required to:
  - i. demonstrate that the proposed development will contribute to the sustainable supply of energy minerals; and
  - ii. clearly distinguish between exploration, appraisal and production phases.

\* Including any planning conditions or obligations which make the proposed development environmentally acceptable.

#### Reasoned justification

5.39 There are no known locally or nationally important energy mineral resources within Worcestershire. As such, the Minerals Local Plan does not set supply targets or delivery milestones for them.

5.40 Coal deposits exist in Worcestershire, but these are not considered by the Coal Authority to be a commercially viable resource.<sup>393</sup> National policy is also clear that planning permission should not be given for the extraction of coal unless the

proposal is environmentally acceptable, or can be made so by planning conditions or obligations; or if not, it provides national, local or community benefits which clearly outweigh the likely impacts to justify the grant of planning permission.<sup>394</sup>

5.41 There are no known oil or gas deposits in Worcestershire and no blocks were licensed in or near to Worcestershire under the government's 14th Onshore Oil and Gas Licensing Round.<sup>395</sup>

<sup>393</sup> Worcestershire County Council (September 2018) *Coal mining in Worcestershire*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

<sup>394</sup> Ministry of Housing, Communities and Local Government (July 2018) *National Planning Policy Framework*, paragraph 211.

<sup>395</sup> Information about the Onshore Oil and Gas Licensing Rounds is available at <https://www.ogauthority.co.uk/licensing-consents>.



**Carbonaceous material at Berrow Hill (courtesy of Herefordshire and Worcestershire Earth Heritage Trust)**

- 5.42 Policy MLP 16 does not seek to enable coal extraction and would only enable onshore oil and gas development should resources be discovered in the county and licenced under future Onshore Oil and Gas Licensing Rounds. However, should any planning applications be put forward, Policy MLP 16 requires a technical assessment to be submitted with the application. Such assessments should be undertaken by an appropriate and competent expert and will be expected to contain a level of detail proportionate to the proposal submitted, with sufficiently detailed information to justify how the proposed development would contribute to the sustainable supply of energy minerals when considered against the tests of national policy and the Development Plan as a whole.
- 5.43 For proposals for coal, the technical assessment should clearly set out the reasons the proposed development is considered to be environmentally acceptable, or provide details of the national, local or community benefits which are considered to outweigh the impacts of the development and how these benefits will be secured as part of the development.
- 5.44 For proposals for oil and gas, the technical assessment should distinguish between exploration, appraisal and production phases when setting out the processes proposed and their likely effects.



Planning committee site visit to Clifton Quarry

## 6. Development management (non-strategic policies)

### Introduction

- 6.1 The policies in this development management chapter seek to protect people, places and the environment from potential negative impacts from mineral development and to ensure that positive gains are maximised. Good design is a key aspect of sustainable development, creating better places in which to live and work, and helping to make development acceptable to communities. The issues addressed in policies MLP 17 to MLP 30 will influence the design, layout, and restoration proposals for the site.
- 6.2 The potential for different impacts and benefits, and the management and mitigation measures that are appropriate, will vary according to the nature, size, location and duration of a development, and will change over the life of a mineral site. With appropriate site design, working methods and mitigation measures in place it is usually possible to adequately manage impacts and to deliver enhancement. In some cases, judgement will be required about the balance between the importance of the mineral to be worked and the likely impacts of the proposal.

- 6.3 The Minerals Local Plan policies cover the administrative area of Worcestershire, but it is recognised that a development's impacts may be felt further afield, even if applications do not cross the county boundary. Applications should make clear the physical extent of any impacts (both positive and negative) as well as their significance. The Minerals Local Plan should be read as a whole, and development proposals must also consider the City, Borough and District Local Plans within Worcestershire, the Waste Core Strategy, and any relevant Neighbourhood Plans. Net gain both within and extending beyond the county boundary is welcomed and will be considered favourably.

### Pre-application engagement

- 6.4 It is expected that all planning applications will take account of their local context and be prepared using robust, up-to-date evidence. Applicants are advised and encouraged to seek pre-application advice from the Mineral Planning Authority and to engage in pre-application consultation with statutory consultees, local communities and interest groups at an early stage to inform the development of their proposals.

- 6.5 The Mineral Planning Authority strongly believes that early engagement with communities can be constructive for both the developer and communities. It can help to avoid misinformation and to address fears, and it allows local knowledge and concerns to be taken into account and incorporated in the final submitted application.
- 6.6 Engaging with the Mineral Planning Authority and key consultees can also improve schemes by:
- helping issues to be resolved through the provision of advice in a timely manner;
  - avoiding unnecessary delays and costs by making sure that all necessary information is provided, particularly where there is a need for formal assessments, such as Environmental Impact Assessment, Habitats Regulations Assessment, Health Impact Assessment or Hydrogeological Impact Assessment;
  - providing the Mineral Planning Authority with the opportunity to highlight other consents that may be required and to identify statutory consultees that developers should liaise with at an early stage; and
  - offering guidance on a locally appropriate approach to delivering the protection and enhancements required in the plan. Taking local circumstances into account at an early stage will enable proposals for mineral workings to respond to the different opportunities for achieving sustainable development.

## Planning conditions

- 6.7 Planning conditions are an integral part of a planning permission and are tailored to the specific circumstances of each proposal. They are used to enable development to take place by controlling, managing, mitigating or reducing adverse impacts to an acceptable level. Conditions may relate to the working or phasing of mineral sites to ensure that restoration is carried out to high environmental standards. Planning obligations will be required when conditions are not capable of achieving an acceptable outcome, but a solution is available by legal agreement (see policy MLP 30).

## Ongoing community engagement

- 6.8 The Mineral Planning Authority strongly encourages ongoing community engagement through liaison committees during the lifetime of a minerals site, including its operation, restoration and aftercare. Liaison committees can complement formal monitoring activities undertaken by the Mineral Planning Authority. They are an effective means of keeping local communities informed about operations on site and can help to address any issues arising in a timely, positive and constructive manner.

## Review of mineral permissions

- 6.9 The legislative requirements of the Planning and Compensation Act 1991 and the Environment Act 1995 enable the review of mineral permissions, commonly referred to as ROMP. The ROMP provides an opportunity for the Mineral Planning Authority to ensure mineral sites continue to work under modern conditions that reflect sustainability aspirations and offer appropriate environmental protection. Subject to certain legal provisions, the ROMP determination process is conducted in a similar way to the processing of a planning application. The Minerals Local Plan and other material considerations will apply in determining ROMP. However, ROMP applications cannot be refused, and compensation liabilities can arise if working rights are unreasonably affected.



## Prudent use of resources

### Policy MLP 17: Prudent Use of Resources

#### Contributing to:

Objectives MO1, MO3, MO5, MO6

Mineral development will be permitted where it is demonstrated that the proposed development will make prudent use of natural resources.

A level of technical assessment appropriate to the proposed development will be required to demonstrate that, throughout its lifetime, the proposed development will:

- a) minimise use of water and energy in buildings, plant and transport;
- b) optimise on-site energy generation from renewable and low-carbon sources; and
- c) balance the benefits of maximising extraction with any benefits of allowing sterilisation of some of the resource, taking account of:
  - i. the need for the mineral resource;
  - ii. the ability to deliver the relevant strategic corridor priorities;
  - iii. the ability to provide an appropriate landform for beneficial after-use;
  - iv. the ability to deliver high-quality restoration at the earliest opportunity;
  - v. the appropriateness of importing fill materials on to site, and the likely availability of suitable fill materials;
  - vi. the need to protect and enhance inherent landscape character; and
  - vii. the need to manage or mitigate impacts on the built, historic, natural and water environment and amenity.

#### Reasoned justification

6.10 Minerals are essential to support sustainable economic growth and our quality of life. They are a finite natural resource and it is important to make best use of them to ensure resources remain available for future use. However, mineral development needs to be designed, worked and restored in a way that ensures minerals are extracted efficiently whilst ensuring that high-quality restoration and after-use is achieved.

#### Water and energy efficiency

6.11 The winning and working of minerals can require significant amounts of water and energy. The Mineral Planning Authority will expect energy and

water efficiency measures to be considered and incorporated in plant, buildings, operations and transport. For the operator, resource efficiency can provide cost savings as well as reduced carbon emissions.

6.12 Washing and processing minerals can be water intensive. Measures such as water recirculation and capturing any run-off from buildings or hardstanding for use on site can help to reduce the overall demand for water within operations. Good site design can help with the management of stockpiles<sup>396</sup> and reducing transport movements around the site.

<sup>396</sup> Keeping stockpiles drier or allowing natural drying of wet minerals can significantly reduce energy demands for processing and transport.

6.13 Buildings and plant should be designed to minimise energy use by utilising landform, layout, building orientation, massing and landscaping. Opportunities should be sought to maximise energy efficiency and minimise carbon emissions from processing, heating and drying of materials and from running machinery, motors and drives.<sup>397</sup> The use of low emission vehicles<sup>398</sup> where appropriate and ensuring plant, vehicles and conveyors are well maintained and operated in an efficient manner can help to reduce energy demands.

6.14 Policy MLP 17 requires an appropriate level of technical assessment to be submitted with each application. Such assessments should be undertaken by an appropriate and competent expert and should take account of requirements for plant, buildings and transport throughout the life of the site. Assessments should:

- identify the site processes which require water and energy;
- estimate the total amounts of water and energy that will be required per annum; and
- include details of the technology, design, working methods and any other mitigation measures considered and set out how the chosen combination will minimise water and energy use.

## Energy generation

6.15 Opportunities to use locally generated renewable or low-carbon energy for extraction, processing and transport operations as well as for lighting, heating and cooling buildings, should be explored as this can make a valuable contribution to cutting greenhouse gas emissions. Renewable or low-carbon energy options might include conventional building-mounted sources, but might also make use of opportunities over the wider site, such as open-loop ground source or surface water source heating and cooling systems.

6.16 Policy MLP 17 requires an appropriate level of technical assessment to be submitted with each application. Such assessments should be undertaken by an appropriate and competent expert and should take account of the whole life of the site. Assessments should:

- Identify the potential opportunities for on-site renewable and low-carbon energy production. This should consider the life-cycle of any potential plant in relation to the life of the proposed development, as any plant installed may need to be removed as part of the restoration of the site.
- Give details of the renewable energy generation measures proposed and why these are considered to be the optimal solutions for the site. This might include reference to limitations imposed by working and restoration phases or other Development Plan policies.
- Set out the total amount of energy that would be produced from the proposed renewable and low-carbon sources and the proportion of the site's energy requirements that this would supply.
- In any cases where on-site renewable energy generation is not considered to be appropriate or practicable, justify why this is the case.

## Optimising the mineral won and worked from the site

6.17 The primary purpose of the Minerals Local Plan and minerals development is to enable the supply of mineral resources, but there is a balance to be struck between enabling supply and delivering the wider objectives of the plan. Whilst there is a need to avoid undue sterilisation of mineral resources, in some cases it may be necessary to limit the amount of mineral resource extracted in order to avoid other unacceptable harm or to ensure delivery of high-quality restoration and after-use.

6.18 Physical and policy constraints on importing fill materials for restoration purposes, and a potential lack of suitable materials are likely to be significant factors in how sites are designed and worked in Worcestershire. The availability of fill materials may also differ across the county, depending on the scale and type of development taking place nearby. This is likely to mean that many sites will need to be worked in a different way than in the past to minimise the need to bring in materials for backfilling, particularly in relation to solid sand and brick clay, which have historically been worked as deep, steep-sided pits and restored by landfilling.

<sup>397</sup> Carbon Trust, *Mining and quarrying: Carbon saving and energy efficiency advice for the mining and quarrying sector*, <https://www.carbontrust.com/resources/guides/sector-based-advice/mining-and-quarrying>.

<sup>398</sup> Including non-fossil fuels and electric vehicles.

6.19 Policy MLP 17 requires an appropriate level of technical assessment to be submitted with each application. Such assessments should be undertaken by an appropriate and competent expert and should:

- Outline the need for the mineral, drawing on the latest available supply and demand data for that type of mineral at the county level, considering the latest Local Aggregate Assessment,<sup>399</sup> Authority Monitoring Report<sup>400</sup> and other relevant evidence, as well as any cross-boundary and wider demands.
- Set out details of the proposed after-use of the site and the landform required to enable that after-use. This should consider how the proposed landform will respond to the inherent landscape character and deliver the relevant strategic corridor priorities.
- Set out the available options for phased or progressive restoration, taking into account:
  - the requirements of other policies in the Minerals Local Plan and the Development Plan as a whole;
  - how progress towards delivering the final landform can be ensured from the outset through site design and working methods; and
  - the practicalities of working and processing in relation to the type of operation and nature of the site.

Any proposals that do not include phased or progressive restoration will require robust justification.

- Set out any environmental or amenity constraints and how these will influence site working and/or restoration. This might include measures such as stand-off zones between working areas and sensitive receptors or environmental assets, or limiting the depth of working or wet working of mineral resources at sites that are vulnerable to changes in the water table.
- Consider the likely availability of suitable materials for backfilling, prioritising the use of materials from within the site (such as

overburden and subsoils) before considering imported materials. When considering imported materials such as inert waste, take account of the location of the site in relation to sources of suitable material and whether the volumes of material required at each phase are likely to be available.

- Set out any potential physical and/or policy constraints on importing backfill materials. This should consider issues such as transport, water quality, local amenity, and the legislation, policy, and/or permitting issues concerning landfill.
- Clearly conclude why, taking into account the balance of considerations in the above points and the priorities of the relevant strategic corridor, the proposed strategy is considered to be the optimal solution for the site.
- Where the proposal is for changes to an existing permitted site, the assessment should demonstrate that any previously agreed restoration and aftercare requirements will not be compromised. Proposals that seek to vary previously permitted restoration and aftercare schemes should demonstrate why the proposed changes are necessary and how the revised scheme will achieve the same or increased environmental, social and economic betterment as the permitted scheme.

6.20 Designing an achievable site restoration scheme is a crucial aspect of sustainable mineral development and, without such a scheme, planning permission will not be granted for mineral working.<sup>401</sup> High-quality restoration should take place at the earliest opportunity, and appropriate aftercare should be put in place<sup>402</sup>. In most cases, this will mean phased working and restoration across the site, thereby minimising the area of land occupied by mineral working at any one time. This can help to give communities confidence that high-quality restoration is taking place, can help to minimise any cumulative impacts with other existing or proposed development, and can enable green infrastructure benefits to be realised or commercial use of the land to be resumed during the life of the wider site.

399 Worcestershire's *Local Aggregate Assessments* are published alongside the Authority Monitoring Report at [www.worcestershire.gov.uk/amr](http://www.worcestershire.gov.uk/amr).

400 Worcestershire's *Authority Monitoring Reports* are available at [www.worcestershire.gov.uk/amr](http://www.worcestershire.gov.uk/amr).

401 Ministry of Housing, Communities and Local Government, *Planning Practice Guidance, Minerals*, paragraph: 039 Reference ID: 27-039-20140306 Revision date: 06 03 2014.

402 Ministry of Housing, Communities and Local Government (July 2018) *National Planning Policy Framework*, paragraph 204(h).

- 6.21 Designing and delivering a landform that will enable the beneficial after-use of a site, which is appropriate within the local context, and which enables delivery of the relevant strategic corridor priorities is fundamental to the overall design of mineral sites. The Mineral Planning Authority welcomes innovative design that enhances the area and responds positively to local priorities, whilst maximising the extraction of mineral resources and ensuring the proposed working and restoration schemes will be deliverable.
- 6.22 The potential sterilisation of mineral resources will not be considered adequate justification for schemes which would result in unacceptable impacts or unacceptable final landforms.



Landscaping as part of site restoration at Ball Mill Quarry, Grimley

## Green Belt

### Policy MLP 18: Green Belt

#### Contributing to:

Objectives MO3

Where the proposed development is within the Green Belt, a level of technical assessment appropriate to the proposed development will be required to demonstrate that, throughout its lifetime, the proposed development will:

- a) preserve the openness of the Green Belt; and
- b) not conflict with the purposes of including land within the Green Belt.

Where the proposed development will not preserve openness or will conflict with the purposes of including land within the Green Belt, planning permission will not be granted unless very special circumstances are demonstrated to clearly outweigh harm by inappropriateness and any other harm.

#### Reasoned justification

- 6.23 The Green Belt extends across north-east Worcestershire, covering almost a quarter of the county. The fundamental aim of Green Belt policy is to prevent urban sprawl by keeping land permanently open. The essential characteristics of the Green Belt are its openness and permanence.<sup>403</sup>
- 6.24 A range of mineral resources exist within the Green Belt, and there is overlap between areas of Green Belt and three of the strategic

corridors.<sup>404</sup> It is therefore likely that minerals development proposals within the Green Belt will come forward during the life of the Minerals Local Plan. Mineral extraction is one form of development that is not inappropriate in the Green Belt, provided that it preserves the Green Belt's openness and does not conflict with the purposes<sup>405</sup> of including land within the Green Belt.

403 Ministry of Housing, Communities and Local Government (July 2018) *National Planning Policy Framework*, paragraph 133.

404 Salwarpe Tributaries Strategic Corridor, North East Worcestershire Strategic Corridor and North West Worcestershire Strategic Corridor. This can be viewed on the interactive minerals mapping tool available at [www.worcestershire.gov.uk/minerals](http://www.worcestershire.gov.uk/minerals).

405 Ministry of Housing, Communities and Local Government (July 2018) *National Planning Policy Framework*, paragraph 134.





Processing solid sand at Wildmoor Quarry, near Bromsgrove

6.25 Policy MLP 18 requires an appropriate level of technical assessment to be submitted with each application within the Green Belt. Such assessments should be undertaken by an appropriate and competent expert, should be proportionate to the nature, location and size of the proposed development and the potential harm it could have on the on the Green Belt, and should:

- identify how the proposed development (including enabling and ancillary works such as access routes in addition to the main working area) would affect the characteristics and purposes of the Green Belt at all stages of the site's life;
- identify which parts of the proposed development, if any, constitute inappropriate development in the Green Belt; and
- if the proposed development or any part of it would be inappropriate development, set out the very special circumstances that exist to justify the development. Very special circumstances will not exist unless the potential harm to the Green Belt by reason of inappropriateness, and any other harm, is clearly outweighed by other considerations.

6.26 Although mineral extraction itself may not be inappropriate in the Green Belt, some aspects of minerals development may have an impact on the openness of the Green Belt or may conflict with its purposes, and could therefore be inappropriate. As such, very special circumstances may need to be demonstrated for mineral developments, or elements of them, if they are to be considered acceptable. Very special circumstances will need to be considered on a case-by-case basis and will depend on the circumstances of any proposed development. The presence of minerals - which can only be developed where they exist - and the contribution they can make to maintaining a steady and adequate supply, may be capable of being relevant considerations, depending on the circumstances at the time of any application.

6.27 National policy<sup>406</sup> requires local planning authorities to “plan positively to enhance the beneficial use of the Green Belt”. Minerals development and, especially, the restoration of workings, may be capable of enhancing one or more of these beneficial uses and should be guided by the green infrastructure priorities of the relevant strategic corridor. These opportunities will not negate the need to comply with protective Green Belt policy.

406 Ministry of Housing, Communities and Local Government (July 2018) *National Planning Policy Framework*, paragraph 141 states that “Once Green Belts have been defined, local planning authorities should plan positively to enhance the beneficial use of the Green Belt, such as looking for opportunities to provide access; to provide opportunities for outdoor sport and recreation; to retain and enhance landscapes, visual amenity and biodiversity; or to improve damaged and derelict land”.

## Amenity

### Policy MLP 19: Amenity

#### Contributing to:

Objectives MO4, MO5

Planning permission will be granted where it is demonstrated that the proposed mineral development, including associated transport, will not give rise to unacceptable adverse effects on amenity, health and well-being, the environment, or areas of tranquillity.

A level of technical assessment appropriate to the proposed development will be required to demonstrate that, throughout its life, the development will not cause unacceptable harm to sensitive receptors from:

- a) air quality;
- b) dust;
- c) odour;
- d) noise and vibration;
- e) light;
- f) visual amenity and visual intrusion;
- g) land instability; and/or
- h) contamination.

#### Reasoned justification

- 6.28 Mineral sites can cause concern to local communities because of possible disturbance or harmful effects on people's amenity, health and well-being, and living and working environments. Securing a high standard of amenity is fundamental to creating well-designed development<sup>407</sup> and policy MLP 19 seeks to ensure that minerals developments are planned, managed and restored in a way that protects people and other sensitive receptors from unacceptable effects on health and well-being, amenity, and tranquillity. The method, phasing and lifespan of mineral workings, their distance to sensitive receptors and land uses, and their relationship to their locality will influence the nature and likelihood of such impacts.
- 6.29 Policy MLP 19 addresses a broad range of issues which should be considered to ensure there are no unacceptable adverse effects on the amenity or health of communities or the wider

environment. The policy requires an appropriate level of technical assessment to be submitted with each application. Such assessments should be undertaken by an appropriate and competent expert and should be proportionate to the nature, location and size of the proposed development and the significance of its effects. The assessments will need to take account of enabling and ancillary works such as access routes in addition to the main working area, and will need to consider the impacts which might occur at all stages of the site's life. For each of the issues identified in policy MLP 19, the assessment(s) should:

- identify the sensitive receptor(s) which may be affected by the proposed development, including any existing residents (with particular attention being paid to disadvantaged sections of communities), businesses, land users and sensitive environmental assets, as well as any potential future occupants of sites allocated in Local Plans or Neighbourhood Plans;

<sup>407</sup> Ministry of Housing, Communities and Local Government (July 2018) *National Planning Policy Framework*, paragraph 127(f).

- quantify the extent of potential impacts at each stage of the proposed development in relation to the baseline conditions, taking account of how the local context (such as topography, water courses and water features, and man-made structures and infrastructure including roads, railways and waterways) will influence any potential impacts or pathways for effects;
- consider the potential for cumulative impacts with other existing or approved development;
- demonstrate the measures which would be implemented to ensure adverse impacts would be avoided at source or, where this is not possible, outline the proposed management and mitigation measures to reduce effects to an acceptable level; and
- identify the significance of any residual effects.

6.30 The form which such technical assessments should take will depend on the scale and nature of the proposed development, and in some cases issues may be addressed through an Environmental Impact Assessment. A standalone Health Impact Assessment (HIA)<sup>408</sup> may not always be required, but can be a useful tool to enhance the positive aspects of a proposal through assessment, while avoiding or minimising any negative impacts, with particular emphasis on disadvantaged sections of communities that might be affected.

6.31 Developers are expected to proactively monitor impacts and emissions throughout the life of the site to enable issues to be addressed swiftly. Close liaison with communities can help to identify issues and enable feedback and dialogue on the need for and effectiveness of any mitigation measures.

6.32 A wide range of amenity impacts can be mitigated through appropriate site design and layout and the use of the surrounding topography. Complementing the existing features of the natural environment can also deliver wider multifunctional benefits. A common approach to mitigating amenity impacts is to include tree planting or

natural screening; this can deliver landscape, biodiversity, and water environment benefits where proposals are influenced by the local context and respond to the relevant strategic corridor priorities (see MLP 3 to MLP 8). Other mitigation measures could be realised through considerate site design and working practices including, but not limited to, locating working areas, plant, machinery or haulage routes away from sensitive receptors; fitting plant with silencers; sheeting of lorries and cleaning of wheels before vehicles exit the site; or limiting working hours.

## Air quality

6.33 Increases in air pollutants can have harmful effects on human health and the natural and historic environment.<sup>409</sup> Air quality impacts from mineral development are most likely to arise as a result of emissions from plant and processing equipment or from the impact of associated transport movements. There may also be temporary impacts from some phases of development, such as site preparation or restoration and plant construction.

6.34 Assessments of air quality impacts should take account of the baseline local air quality and the likely changes to air quality throughout the life of the development. Where impacts are likely to result from transport movements this should consider traffic impacts in the immediate vicinity of the proposed development site and further afield. Any assessment should be proportionate to the nature and scale of the development proposed and the likely impacts.<sup>410</sup> Particular consideration will need to be given to air quality impacts in or impacting upon areas where air quality is known to be poor, such as designated Air Quality Management Areas (AQMAs) or areas that are at risk of designation, or where impacts on sensitive or protected species or habitats<sup>411</sup> could arise. Where relevant, reference should be made to the Worcestershire Air Quality Action Plan<sup>412</sup> and corresponding action plans of surrounding areas.

408 Health Impact Assessment (HIA) is a process to predict the health implications on a population of implementing a plan, policy, programme or project, aiding the decision-making process.

409 Defra (2018) *Clean Air Strategy 2018*.

410 Ministry of Housing, Communities and Local Government, *Planning Practice Guidance, Air Quality*, paragraph: 007 Reference ID: 32-007-20140306 Revision date: 06 03 2014.

411 Particularly sites which would be included within the definition at regulation 8 of the Conservation of Habitats and Species Regulations 2017.

412 [www.worcsregservices.gov.uk/pollution/air-quality.aspx](http://www.worcsregservices.gov.uk/pollution/air-quality.aspx)



Wheel washing facility at Clifton Quarry

6.35 Where impacts are likely, the assessment should identify the mitigation measures to be put in place. Mitigation might include routing agreements, controlling emissions from plant or vehicles, alternative site design, layout, working methods or phasing of operations to increase the distances between sources of pollution and potential receptors, or planting and screening to absorb pollutants.

### Dust

6.36 Dust can arise from extraction activities, the operation of processing plant, haulage vehicles and conveyors, and the storage of mineral and soils, where dust can be windblown from stockpiles. There may be temporary impacts from some phases of development, such as site preparation works, soil stripping, or restoration works. If not properly controlled at source, dust can cause nuisance to people and businesses, and harm through deposition on property, farmland, and natural and historic features.

6.37 A dust assessment will be required where dust emissions are likely to arise from a development. The assessment should take account of the location of the source of dust and the surrounding land uses as well as local factors that might affect the dispersal of dust, including topography, the nature of the landscape, and local wind patterns. Atmospheric dispersion modelling may be required to determine whether there is a risk of health effects due to dust emissions. Where necessary, mitigation proposals should be outlined. These might include the design, layout and phasing of operations to increase the distances between sources of pollution and potential receptors, locating dusty operations downwind of receptors, or using planting and screening to absorb pollutants. Working practices such as wheel washing, damping haul roads and sheeting of lorries can also be effective.

## Odour

6.38 Mineral sites are unlikely to be a source of odour. However, there is some potential for odours to arise from on-site water bodies, such as settlement and silt lagoons, or areas of water that are poorly designed or managed. Applications should identify any potential odour sources and demonstrate how they will be managed effectively to prevent unacceptable effects occurring.

## Noise and vibration

6.39 The introduction of sources of noise or vibration can impact on the use, enjoyment and tranquillity of a locality, and can cause an intrusion that can adversely impact on quality of life, health and well-being.<sup>413</sup> As well as causing annoyance to other land users, noise can also impact on wildlife, particularly where introduced to previously quiet areas.

6.40 Potential sources of noise within typical mineral operations include extraction activities and the operation of processing plant, haulage vehicles and conveyors. Activities such as soil-stripping, the construction and removal of baffle mounds, soil storage mounds and spoil heaps, the construction of new permanent landforms, and aspects of site road construction and maintenance may also be noisy in the short term. Each source of noise might have a different characteristic and intensity, and could be capable of causing significant impacts if not properly controlled. After-uses also have the potential to introduce or alter the source, type or level of noise arising from the site.

6.41 Vibration associated with mineral operations is principally caused by vehicle movements, particularly over uneven surfaces. Blasting can be used at some crushed rock workings and can cause both ground vibration and air overpressure.

6.42 An assessment will be required where there are likely to be impacts from noise or vibration. This should identify potential sources of noise and vibration, their general character and the location of noise- or vibration-sensitive properties and environmental assets. Reference should be made to the types and levels of noise or vibration, the time of day noise or vibration will occur, whether they will be continuous or intermittent and the pattern and duration of their occurrence, as well as the prevailing acoustic environment and local factors such as topology and topography.<sup>414</sup>

6.43 Where noise or vibration impacts are identified, mitigation measures should be incorporated to ensure that effects are managed to an acceptable level. This might include appropriate design, layout and phasing of operations to increase the distances between the source of noise and potential receptors or to minimise noise transmission through the use of screening by natural barriers, planting or purpose-built features. Setting noise limits at sensitive properties or controlling working hours and/or monitoring of noise conditions at mineral workings could also safeguard against disturbance from the site.<sup>415</sup>

6.44 Where noise impacts cannot be avoided it may be appropriate to allow temporary increases in daytime noise to facilitate essential site preparation or restoration works; however, clear long-term benefits would need to be demonstrated.<sup>416</sup>

## Light

6.45 Insensitive use of lighting that causes glare, unnecessary light spillage beyond site boundaries and sky glow can annoy people, harm wildlife, undermine enjoyment of the countryside, and detract from appreciation of the night sky.<sup>417</sup>

6.46 Certain areas of a mineral site, such as the processing plant and/or stockpiling areas, are likely to require lighting, particularly during winter months and in poorer light conditions. Lighting may also be required during restoration or as an element of after-use.

413 Defra (2010) *Noise Policy Statement for England*.

414 Ministry of Housing, Communities and Local Government, *Planning Practice Guidance, Noise* (Revision date: 06 03 2014) and Ministry of Housing, Communities and Local Government, *Planning Practice Guidance, Minerals* (Revision date: 17 10 2014).

415 Ministry of Housing, Communities and Local Government, *Planning Practice Guidance, Minerals* (Revision date: 17 10 2014).

416 Ministry of Housing, Communities and Local Government, *Planning Practice Guidance, Minerals*, (paragraph: 022 Reference ID: 27-022-20140306 Revision date: 06 03 2014) advises that this would be for periods of up to 8 weeks in a year.

417 Ministry of Housing, Communities and Local Government, *Planning Practice Guidance, Light Pollution* (Revision date: 06 03 2014).

- 6.47 A lighting assessment will need to identify whether proposals for lighting materially alter light levels outside the development. This should consider the type, brightness, position, height, alignment, intensity and periods of use of luminaires. Consideration should be given to impacts on the use and enjoyment of other land uses, impacts on environmental assets and protected species and impacts on intrinsically dark landscapes. Proposals should demonstrate how light pollution will be avoided or managed to an acceptable level. Mitigation measures might include directional lighting, limiting working hours, or screening areas of the site with appropriate planting.

### Visual amenity and visual intrusion

- 6.48 In planning law, no individual has the right to a particular view. However, in some cases, a change in outlook has the potential to materially harm visual amenity and impact on tranquillity. The impact of mineral development on visual amenity and visual intrusion will depend on the nature of the working, the location of the site, its context within the topography and form of the landscape and the visual exposure of working faces, plant and haul routes or conveyors.
- 6.49 Where visual impacts are likely an assessment will be required to assess the significance and effects of changes to views and visual amenity as a result of the proposed development. This assessment may form part of a holistic Landscape and Visual Impact Assessment. It should identify sensitive landscape receptors, and sensitive visual receptors, such as residential properties or public rights of way, and consider how they might be affected by visual impacts from the development throughout its phases. Changes in specific views and people's experience of general visual amenity should be considered.<sup>418</sup>
- 6.50 It may be possible to minimise or mitigate effects through considerate design and phasing of the development and using planting to screen or filter views. Care should be taken to ensure that screening measures are appropriate and are not, in themselves, a source of visual intrusion. It is likely that, as part of site restoration, there will be a requirement to remove incongruous features such as bunds or security fencing.

### Land instability

- 6.51 Proposals should demonstrate the measures to be used to ensure that quarry sides and slopes remain stable and will not result in landslip, either within the site or on adjoining land, both during and after the lifetime of the development. Quarry slopes and tip slopes should be constructed and accessed to minimise any risk of danger through instability. Where there is any likelihood of instability, a stability report should be provided setting out appropriate measures to ensure the continued stability and integrity of any slopes within the site. Planting slopes with suitable vegetation can assist with stability and can provide environmental benefits. Where risks of instability cannot be adequately mitigated, there may be a need to leave some parts of the site unworked, or to allow for margins within or around the site.
- 6.52 The backfilling of quarries should not create unacceptable instability risks. Backfilling with overburden, mineral waste materials and any other material or waste used in restoration should be planned and delivered to minimise the risk of unacceptable differential settlement.
- 6.53 Subsidence occurs through the loss of support beneath the surface of the ground, and the level of risk is likely to depend on the nature of the underlying geology. Fine particles in sand and gravel are susceptible to being washed away by water, and loosely packed sand under the water table acts in a similar way, moving into any voids surrounding it. Limestone can be dissolved over time by running water, creating voids that can collapse and cause swallow holes. Clays can expand and contract with wetting and drying, causing heave and subsidence, and rock can become compressed and collapse in on itself. Coal mining legacy features and hazards have been identified in Worcestershire by the Coal Authority, focused in the north-west of the county, and may present a constraint on development or provide an opportunity for prior extraction of any remnant surface coal as part of remedial measures to address unstable land. Subsidence was experienced in and around Droitwich Spa associated with historic brine extraction.

<sup>418</sup> Landscape Institute (2013) *Guidelines for Landscape and Visual Impact Assessment* (Third edition).



Safety warning at a working sand and gravel site

6.54 Where minerals that are prone to such movement are proposed to be extracted, an investigative assessment should be carried out to ensure the proposed methods for working the site would not result in risk of subsidence within the site or on adjoining land, both during and after the lifetime of the development.

### Contamination

6.55 There is potential for minerals development to involve the storage and use of fuels, explosives and other hazardous substances<sup>419</sup>. This could result in hazards to or contamination of land and water if storage and plant areas are not appropriately designed and managed. On minerals sites, fuels and chemicals are most commonly stored in plant areas and used in the operation and maintenance of sorting and processing plant, haulage vehicles, and conveyors. Explosives may be used for blasting at some crushed rock sites.

6.56 Applications should identify any proposals for the use or storage of hazardous substances and any other potential sources of pollution, the pathways through which contamination could travel, and receptors that could be affected, including people and environmental assets. This should inform any mitigation proposals. Mitigation measures commonly include areas of hardstanding or containment bunds around storage areas. The potential impact of flooding or severe weather events should be taken into account.

6.57 Hazardous substances consent may also be required. The hazardous substances consent process ensures that necessary measures are taken to prevent major accidents and limit their consequences to people and the environment where there is considered to be a major off-site risk. This is separate to the planning regime.<sup>420</sup>

419 As defined by *The Planning (Hazardous Substances) Regulations 2015*.

420 Ministry of Housing, Communities and Local Government, *Planning Practice Guidance, Hazardous substances* (Revision date: 28 07 2017).

## Access and recreation

### Policy MLP 20: Access and Recreation

#### Contributing to:

Objectives MO2, MO3, MO4, MO5

Planning permission will be granted where it is demonstrated that the proposed mineral development will protect and enhance rights of way and public access provision.

An appropriate level of technical assessment will be required to demonstrate that, throughout its lifetime, the proposed development will:

- a) optimise opportunities to enhance the rights of way network and provision of publicly accessible green space, integrating other green infrastructure components where appropriate;
- b) not have an unacceptable adverse effect on the integrity and quality of publicly accessible green space;
- c) not have an unacceptable adverse effect on the integrity and quality of the existing rights of way network; and
- d) retain rights of way in situ unless it is demonstrated that this is not practicable:
  - i. where it is demonstrated that retaining rights of way in situ is not practicable, temporary or permanent diversions will be expected to achieve an enhanced route and level of access provision over that which was previously available and must be for as short a distance and duration as practicable; and
  - ii. closure of any rights of way must only occur where it is demonstrated that it is not practicable to retain rights of way in situ and no suitable temporary or permanent diversion is possible. Compensatory provision must be made.

#### Reasoned justification

- 6.58** Access and recreation plays a key role in the continued social, environmental and economic well-being of the county.<sup>421</sup> Rights of way and open spaces provide opportunities for public access to green space and form an important component of sustainable transport links, both of which contribute towards health and well-being. They are also an important part of Worcestershire's high-quality environment and green infrastructure network, providing green corridors and contributing significantly to the county's heritage and local character.
- 6.59** Mineral development can impact on existing recreation assets, particularly rights of way, but also offers significant potential to provide publicly accessible green spaces and to extend and enhance public access networks. The National Planning Policy Framework is clear that

planning policies should protect and enhance public rights of way and access.<sup>422</sup>

#### Enhancement of the rights of way network and provision of publicly accessible green space

- 6.60** The scale and location of mineral development and the proposed after-use will influence the potential contribution that a mineral site can make to the enhancement of access and recreation provision. There is likely to be greatest potential at sites that are already accessible to the public, are close to existing access networks, or which connect areas where there is currently poor provision, whilst there may be less potential at sites which include habitats that are sensitive to disturbance or where landforms or other features mean that public access needs to be restricted for safety reasons.

<sup>421</sup> In the 2009 Worcestershire Viewpoint survey, 93% of residents classed parks and open spaces as either "important" or "very important".

<sup>422</sup> Ministry of Housing, Communities and Local Government (July 2018) *National Planning Policy Framework*, paragraph 98.



6.61 To demonstrate how opportunities to enhance the rights of way network and provision of publicly accessible greenspace will be optimised, policy MLP 20 requires an appropriate level of technical assessment to be submitted with each application. Such assessments should be undertaken by an appropriate and competent expert and should:

- Identify whether access and recreation is a priority for the relevant strategic corridor (see policies MLP 4 to MLP 8) and consider what opportunities exist for the site to contribute towards delivering this at each stage of the site's life.
- Consider the opportunities which exist to enhance the rights of way network and the provision of publicly accessible green space on or around the site. This might include the enhancement of rights of way which will be retained on site, providing linkages between other routes or assets in the network particularly where they contribute to long-distance recreation routes and national networks, or enabling informal access to open spaces for play, sports or walking. This should give particular consideration to how enhancements could contribute to improving health and well-being or enhancing tourism opportunities.
- Set out how these opportunities have informed development proposals and how enhancement will be delivered. This should take account of the site context, layout and topography and the impact of proposed new routes or accessible green spaces on the natural and historic environment, amenity and landscape character, and should include consideration of how routes and spaces will be managed and maintained.
- Where enhancing rights of way or provision of accessible green space is not considered appropriate, robust justification should be provided to demonstrate why public access is not appropriate, or needs to be restricted. This might relate to safety hazards, or the need to protect sensitive habitats, heritage assets or landscape features.

6.62 Opportunities to integrate public access and recreation enhancement with other green infrastructure components might include the use of locally appropriate planting to define routes or areas for access, or the provision of viewing points, interpretation boards or information about the area and its significance in relation to issues such as biodiversity, geodiversity or the historic environment.

### Publicly accessible green space

6.63 Policy MLP 20 requires an appropriate level of technical assessment to be submitted with each application. Such assessments should be undertaken by an appropriate and competent expert and will need to take account of enabling and ancillary works such as access routes in addition to the main working area, and will need to consider the impacts which might occur at all stages of the site's life. They should:

- Identify any publicly accessible green spaces on or in proximity to the application site, and outline their role in local, county, and regional scale provision. The Worcestershire Green Infrastructure Framework documents<sup>423</sup> may provide a useful starting point.
- Identify the impact of the proposal on these green spaces and the integrity of the wider network, considering current levels of use and the capacity of other relevant assets within the network. This should take account of the whole life of the minerals development and should identify any mitigation measures required to ensure that impacts will be adequately managed.

6.64 Where a development proposal would result in negative effects on the integrity and quality of publicly accessible green space after mitigation measures have been considered, compensatory provision may be appropriate in some cases. Clear justification should be included to demonstrate why the benefits of the proposed development outweigh the impacts.

<sup>423</sup> <http://www.worcestershire.gov.uk/gi>

## Existing rights of way

- 6.65 Policy MLP 20 requires an appropriate level of technical assessment to be submitted with each application. Such assessments should be undertaken by an appropriate and competent expert and will need to take account of enabling and ancillary works such as access routes in addition to the main working area, and will need to consider the impacts which might occur at all stages of the site's life. They should:
- Identify all current access routes on the application site and any other routes in proximity to the site that might be impacted by the proposal, including footpaths, bridleways, restricted byways, and byways open to all traffic, with reference to the Rights of Way Definitive Map and Statement for Worcestershire.<sup>424</sup> Reference should also be made to other access routes such as cycleways, permissive access, access land, canal towpaths and footways.
  - Identify the impact of the proposal on these access routes and on the integrity and enjoyment of the wider network. This should include consideration of the impact of the proposal on public access routes and the integrity of the wider network, considering current levels of use and the capacity of other relevant routes within the network, and should include assessment of the impacts on local character and cultural heritage and the wider access network. This should take account of the whole life of the minerals development and should identify any mitigation measures required to ensure that impacts will be adequately managed.
- 6.66 Details should be provided of how the design of the site has taken into account the need to retain rights of way in situ. Where retaining rights of way in situ is not considered practicable, robust justification will be required to demonstrate this, and consideration should be given to the impacts of any proposed temporary or permanent diversions or permanent closures.

- 6.67 Where temporary or permanent diversions are required, details should be provided of why the existing route cannot be retained in situ, how the rights of way will be restored in a timely manner and how an enhanced route and enhanced levels of access provision will be provided, including details of the proposed route and length of the diversion, the materials to be used and the access implications for users. In some cases temporary diversions may be for several weeks, in other cases they may be for the duration of a particular phase or the working life of the mineral development. Enhancement of the route could be achieved through improving views, stopping points and surfacing, or diversions which provide or retain locally or culturally important linkages. Enhanced levels of access provision might include disabled access or enabling multi-use routes such as bridleways or cycleways where appropriate.
- 6.68 Where permanent closure is proposed, strong justification should be included to demonstrate why it is not possible to retain rights of way in situ and why no suitable diversion is possible. The Mineral Planning Authority will expect compensatory provision to be made proportionate to the scale of the closure. This would be expected to include additional rights of way to enhance the network or, where this is unachievable, a distinct and obvious improvement to the existing local network.
- 6.69 Diverting or closing a right of way, whether on a temporary or permanent basis, follows a separate application process.



424 <http://www.worcestershire.gov.uk/countryside>.

## Biodiversity

### Policy MLP 21: Biodiversity

#### Contributing to:

Objectives MO2, MO3

Planning permission will be granted where it is demonstrated that the proposed mineral development will protect, conserve and enhance biodiversity.

A level of technical study appropriate to the proposed development and its potential impacts on biodiversity will be required to demonstrate that, throughout its lifetime, the proposed development will:

- a) conserve, restore and enhance ecological networks and deliver net gains for biodiversity, integrating other green infrastructure components where appropriate;
- b) minimise adverse effects on and avoid significant harm to biodiversity;
- c) not adversely affect the integrity of a European site, or clearly demonstrate that there are no alternative solutions and there are imperative reasons of overriding public interest which justify the likely effects (where adverse effects are justified, appropriate compensatory measures will be required to ensure that the overall coherence of Natura 2000 is protected);
- d) not be likely to have an adverse effect on a Site of Special Scientific Interest and its notified features, unless the benefits of the development clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interests;
- e) not result in the loss or deterioration of irreplaceable habitats, including ancient woodland and ancient or veteran trees, unless there are wholly exceptional reasons and a suitable compensation strategy exists;
- f) not result in the loss of individual aged or veteran trees found outside ancient woodland, unless the need for, and benefits of, development in that location would clearly outweigh the loss; and
- g) not result in significant harm to a Local Wildlife Site or locally important ecological networks identified in the Local Biodiversity Action Plan.

#### Reasoned justification

6.70 Minerals operations usually take place on greenfield land and result in physical change to the site's biodiversity.<sup>425</sup> The quality and value of existing habitats can vary significantly and are influenced by land uses and land management practices. Development could affect valued habitats and species even where they are some distance away, including through airborne and hydrological pathways. As such, the impacts of

mineral workings on biodiversity often extend beyond the site boundary.

6.71 Mineral development can also provide an opportunity to create valuable habitats and enhance existing networks, primarily through site restoration but also during site preparation and working.<sup>426</sup>

<sup>425</sup> Biodiversity (or "biological diversity") means the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems. This is the definition provided by the UN Convention on Biological Diversity, which subsequently appeared in the UK Biodiversity Action Plan. In simple terms, this means the diversity of plants and animals and the interactions between them.

<sup>426</sup> *Nature After Minerals*, available at <http://afterminerals.com>. Nature After Minerals (NAM) is a partnership programme, led by the RSPB and supported by Natural England, the Mineral Products Association and the British Aggregates Association. The programme came about as a result of a report produced by the RSPB in 2006, which highlighted the great opportunity for biodiversity gain through minerals restoration (Davies, A, *Nature After Minerals: How mineral site restoration can benefit people and wildlife*). The *Nature After Minerals* programme promotes the strategic opportunities for delivering biodiversity through high quality habitat creation on mineral sites and works with mineral planners, industry, statutory bodies, conservation organisations and local communities, to make substantial contributions to priority habitat creation and boost priority species populations, while providing richer places for people to enjoy.

6.72 The nature and scale of impacts on biodiversity are determined in part by the methods, phasing and lifespan of mineral workings, the location of the proposal in relation to biodiversity features and ecological networks, the type of restoration proposed, and the relationship of the site to its surroundings.

### Conserving, restoring and enhancing ecological networks and delivering net gains for biodiversity

6.73 Mineral working and restoration will be expected to contribute measurable net gains for habitats and ecological networks within and beyond the site and at a wider landscape scale, taking account of the attributes of the site and of the relevant strategic corridor. Policy MLP 21 requires an appropriate level of technical assessment to be submitted with each application. Such assessments should be undertaken by an appropriate and competent expert and will be expected to set out how the proposed development will support coherent and resilient networks of habitats that link the site to the wider landscape and/or provide stepping stones between existing sites to help reduce habitat fragmentation.

6.74 Mineral development proposals should include a clear strategy for enhancing biodiversity as an integrated part of multifunctional green infrastructure, in line with the relevant strategic corridor priorities. Biodiversity enhancement should be provided throughout the life of the site. By proactively designing and delivering integrated green infrastructure, mineral working and restoration has substantial potential to enhance biodiversity alongside other priorities. Multifunctional green infrastructure measures that might be incorporated in site working and/or restoration should be guided by the priorities of the relevant strategic corridor (see policies MLP 4 to MLP 8).

6.75 In seeking to achieve net gain for biodiversity, restoration and after-use strategies should consider Biodiversity 2020<sup>427</sup> and best practice guidance<sup>428</sup>, taking into account any principal protected species<sup>429</sup>, local Biodiversity Action Plan targets, the *Worcestershire Habitat Inventory*<sup>430</sup>, and *Biodiversity and minerals sites in Worcestershire: Guidance for the sustainable management of biodiversity action plan habitats at Worcestershire mineral sites*<sup>431</sup>. Other relevant local information should also be taken into account. Worcestershire County Council's interactive minerals mapping tool<sup>432</sup> can provide a starting point for this.

### Protecting biodiversity

6.76 Policy MLP 21 requires an appropriate level of technical assessment to be submitted with each application. Such assessments should be undertaken by an appropriate and competent expert and will need to take account of enabling and ancillary works such as access routes in addition to the main working area. They will also need to consider the impacts which might occur at all stages of the site's life. They should:

- Identify and describe the existing biodiversity value, including species, habitats and ecological networks, within and surrounding the site and how they could be affected at every stage of the proposed development. As a minimum a Preliminary Ecological Assessment should be undertaken, identifying any Worcestershire Biodiversity Action Plan species and habitats, any species and habitats records held by the Worcestershire Biological Records Centre, and any international, national and local designations and protected species which could be affected by the proposed development.

427 Defra (August 2011) *Biodiversity 2020: A strategy for England's wildlife and ecosystem services*

428 Best practice guidance principles of net gain for biodiversity may include <https://www.cieem.net/biodiversity-net-gain-principles-and-guidance-for-uk-construction-and-developments> and <https://www.gov.uk/guidance/natural-environment>.

429 As specified in lists prepared under Section 41 of the *Natural Environment and Rural Communities Act 2006*.

430 Available at [http://www.worcestershire.gov.uk/info/20302/worcestershire\\_habitat\\_inventory](http://www.worcestershire.gov.uk/info/20302/worcestershire_habitat_inventory).

431 Worcestershire County Council (2013) *Biodiversity and minerals sites in Worcestershire: Guidance for the sustainable management of biodiversity action plan habitats at Worcestershire mineral sites* available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

432 An interactive minerals mapping tool is available at [www.worcestershire.gov.uk/minerals](http://www.worcestershire.gov.uk/minerals). It incorporates the Policies Map which defines the Minerals Local Plan's land-use designations and allocations, and also includes additional supporting data to assist in the use and implementation of the Minerals Local Plan.

- Assess whether the proposal, either individually or cumulatively with other existing or proposed development, would be likely to cause harm to any existing species, habitats or designated sites, taking into account their status and the contribution they make to wider ecological networks. This should include details of measures taken to avoid or otherwise reduce harm through considering alternative sites where impacts would be less harmful, employing appropriate mitigation (which could include changes to the location and/or methods of on-site working) or, as a last resort, compensation proposals. The assessment should clearly establish the significance of any residual effects.
- Where the proposed development will lead to harm to biodiversity or any site designated for its biodiversity importance, clear justification should be provided.

6.77 The technical assessment accompanying the planning application should set out the options considered and clearly explain why the submitted proposal was chosen. Assessments should be proportionate to the nature and scale of development proposed and the likely impact on biodiversity.

6.78 In the case of a European designation<sup>433</sup>, if it cannot be concluded that the development will not be likely to have a significant effect on the interest features of the site, either alone or in combination with other plans or projects, then an 'Appropriate Assessment' under the Habitat Regulations will be required. The applicant should provide sufficient information to enable the competent authority to undertake an Appropriate Assessment which will determine whether the development will have an adverse effect on the integrity of the site or the Natura 2000 network. The presumption in favour of sustainable development does not apply where development requiring Appropriate Assessment is being planned or determined.<sup>434</sup> If an Appropriate Assessment

concludes that the proposal would have a significant effect on a European site, then the proposal could only be agreed to where it is demonstrated that there are no alternative solutions and there are imperative reasons of overriding public interest. Where such development is agreed to, all compensatory measures necessary must be taken to ensure that the overall coherence of Natura 2000<sup>435</sup> is protected. Applicants will be expected to provide sufficient detail of the necessary compensation measures and how they will be delivered.

6.79 Policy MLP 21 seeks to retain biodiversity on-site. Where mitigation or compensation measures are required, they should be completed on site if practicable. Biodiversity offsetting should be considered only once the mitigation hierarchy of avoiding, mitigating or compensating for any harm has been fully explored, and will only be considered an acceptable solution in exceptional circumstances. Any offsetting scheme would need to apply best practice guidance.<sup>436</sup>

6.80 In some cases, a stand-off zone between mineral working and particular habitats may be necessary to protect vulnerable features, with the size or shape of the stand-off defined on a case-by-case basis dependent on the attributes of the site and its surroundings. However, where it brings greater benefit overall, particularly through restoration which improves connectivity between habitats, it may be appropriate to work close to such features.



Swans at Ball Mill Quarry, Grimley

433 Sites which would be included within the definition at regulation 8 of the Conservation of Habitats and Species Regulations 2017.

434 Ministry of Housing, Communities and Local Government (July 2018) *National Planning Policy Framework*, paragraph 177.

435 The network of European-designated sites protected under the EU Habitats and Birds Directives, respectively.

436 Guidance on biodiversity offsetting can be found at <https://www.gov.uk/government/collections/biodiversity-offsetting>

## Historic Environment

### Policy MLP 22: Historic Environment

#### Contributing to:

Objectives MO2, MO3

Planning permission will be granted where it is demonstrated that the proposed mineral development will protect, conserve and enhance the historic environment.

A level of technical study appropriate to the proposed development and its potential impact on the historic environment will be required to demonstrate that, throughout its lifetime, the proposed development will:

- a) optimise opportunities to enhance the historic environment, integrating other green infrastructure components where appropriate;
- b) not cause any harm to, or loss of significance of, any designated heritage assets or their setting, or where the proposed development would lead to:
  - i. substantial harm to, or total loss of significance of, any designated heritage assets or their setting, the development will not be permitted unless it is demonstrated that it is necessary to achieve substantial public benefits that outweigh that harm or loss;
  - ii. less than substantial harm to the significance of any designated heritage asset or their setting, the development will only be permitted where it is demonstrated that the harm would be outweighed by the public benefits of the development;
- c) not cause unacceptable harm to, or loss of significance of any non-designated heritage assets or their setting. The benefits of the proposal will be balanced against the scale of harm to, or loss of significance of, the non-designated heritage assets or their significance; and
- d) record and advance understanding of the significance of any heritage asset(s) to be lost (wholly or in part), including assets of archaeological interest, in a manner proportionate to their importance and the impact of the loss, and make this evidence and any archive generated publicly accessible.\*

\* The ability to record evidence of our past will not be a factor in deciding whether such loss should be permitted under part b or c of this policy.

#### Reasoned justification

6.81 The historic environment is about more than just individual buildings, monuments or sites; it includes places, areas or landscapes that have historic significance and the connections between them. Heritage assets and their settings contribute to sense of place, are valued by communities, contribute to the quality of life of existing and future generations, and can contribute to the economic vitality of an area. They are an irreplaceable resource which is vulnerable to damage

or loss from development,<sup>437</sup> and great weight should be given to their conservation.<sup>438</sup>

6.82 Mineral development can impact upon heritage assets or their setting either directly, such as by physically disturbing or removing an asset, or indirectly, such as by altering the setting of a heritage asset. However, mineral working and restoration can also make a positive contribution to the setting of the historic environment and offers a unique opportunity to contribute to understanding the significance of heritage assets at a landscape scale.

<sup>437</sup> In some cases, Listed Building Consent and/or Scheduled Monument Consent may be required in addition to planning permission. Advice should be sought from the Mineral Planning Authority prior to submitting a planning application.

<sup>438</sup> Ministry of Housing, Communities and Local Government (July 2018) *National Planning Policy Framework*, paragraph 193.

## Enhancing the historic environment

- 6.83 The scale and location of a mineral development and the proposed after-use will influence the potential contribution that a mineral site can make to the enhancement of the historic environment, but there are likely to be significant opportunities to enhance the setting of heritage assets and the quality and legibility of historic landscape character. By proactively designing and delivering integrated green infrastructure, mineral working and restoration has substantial potential to enhance the historic environment alongside delivering other priorities.
- 6.84 Policy MLP 22 requires proposals to protect, conserve and enhance the historic environment and to demonstrate how opportunities to enhance the historic environment will be optimised. A technical assessment is required by policy MLP 22 to be submitted with each application. This should be undertaken by an appropriate and competent expert, and will be expected to identify opportunities to contribute towards the relevant strategic corridor priorities (see Policies MLP 4 to MLP 8) and to outline how these and any site-specific opportunities have influenced working and restoration proposals to optimise enhancement of the historic environment. The scale of minerals development and the opportunities to take a landscape-scale approach to the working and restoration of sites means that there may be potential to enhance the historic environment through strengthening the any visual, historic or aesthetic connections between individual heritage assets, their surroundings and the wider historic environment.
- 6.85 Considering the connectivity between the historic environment and the local context provides significant opportunities to also contribute towards wider green infrastructure enhancements. This might include protecting or reinstating historic landscape features, planting using locally present species, reverting to historic land management practices or enhancing historically significant rights of way.

## Protecting designated and undesignated heritage assets

- 6.86 The method, phasing and lifespan of mineral workings, the location of the proposal in relation to historic assets and features, and the relationship of the site to its locality will influence the type and scale of impacts on the historic environment. Mineral development has the potential to result in direct physical changes to heritage assets, particularly those below ground which are vulnerable to changes in hydrology or chemistry as well as through physical disturbance. Impacts on the setting of heritage assets or historic landscapes are also likely, particularly where there are significant changes to landforms, or alien features are introduced.
- 6.87 Policy MLP 22 requires an appropriate level of technical assessment to be submitted with each application.<sup>439</sup> Such assessments should be undertaken by an appropriate and competent expert and will need to take account of enabling and ancillary works, such as access routes, in addition to the main working area. They will also need to consider the impacts which might occur at all stages of the site's life. They should:
- Identify the presence and describe the significance of any designated and non-designated heritage assets likely to be affected at any stage of the proposed development. This should give equal consideration to any contribution made by their setting.<sup>440</sup> As a minimum, the Worcestershire Historic Environment Record<sup>441</sup> and Worcestershire Historic Landscape Characterisation<sup>442</sup> should be referred to. Consideration should be given to any visual, historic or aesthetic connections that amplify the experience of the significance of the heritage asset.<sup>443</sup>
  - Where the site has potential to include heritage assets with archaeological interest, the assessment should include an appropriate desk-based assessment and, where necessary, a field evaluation to determine the presence

439 For additional guidance see Worcestershire Archive and Archaeology Service (2014) *Information for Agents and Applicants regarding the Historic Environment and Planning* [http://www.worcestershire.gov.uk/info/20230/archive\\_and\\_archaeology\\_projects/1064/archaeology\\_planning\\_advice](http://www.worcestershire.gov.uk/info/20230/archive_and_archaeology_projects/1064/archaeology_planning_advice), English Heritage (2012) *Mineral Extraction and Archaeology: A Practice Guide* <https://historicengland.org.uk/images-books/publications/mineral-extraction-and-archaeology/> and the Chartered Institute for Archaeologists' standards and guidance documents at <https://www.archaeologists.net/codes/cifa>.

440 Ministry of Housing, Communities and Local Government (July 2018) *National Planning Policy Framework*.

441 The Historic Environment Record is available through the Worcestershire Archive and Archaeology Service, <http://www.worcestershire.gov.uk/waas>.

442 Worcestershire County Council (2012) *Worcestershire Historic Landscape Characterisation* [http://www.worcestershire.gov.uk/info/20230/archive\\_and\\_archaeology\\_projects/1062/historic\\_landscape\\_characterisation\\_hlc](http://www.worcestershire.gov.uk/info/20230/archive_and_archaeology_projects/1062/historic_landscape_characterisation_hlc)

443 Ministry of Housing, Communities and Local Government, *Planning Practice Guidance, Conserving and enhancing the historic environment*, paragraph: 013 Reference ID: 18a-013-20140306 Revision date: 06 03 2014.

or absence of any heritage assets of archaeological interest and their degree of significance.<sup>444</sup>

- Set out how the design of the site's working and restoration proposals takes account of the presence and significance of heritage assets and their setting, and set out the measures that will be taken to avoid harm or, where this is not possible, otherwise reduce harm through appropriate mitigation, changes to on-site working, or any enhancement proposals. This should include consideration of changes to the environment which might affect the condition of the assets, such as changes to hydrology or chemistry, as well as any direct changes to the assets or their setting.
- Identify whether the proposal, either individually or cumulatively with other existing or proposed development, would cause harm or loss to any heritage asset including appropriate consideration of their setting, clearly distinguishing between designated and non-designated assets and the scale of harm or loss which would be caused. This should also distinguish between temporary and permanent effects from each phase of the proposed development. In considering the impact of the proposed development, great weight will be given to the conservation of designated heritage assets, irrespective of the level of any potential harm or loss.

**6.88** Where the proposed development would lead to harm to or loss of significance of a designated heritage asset or its setting, assessments will be expected to include clear and convincing justification to demonstrate the public benefits which the development would realise and the reasons that the harm is necessary, or the reasons that the benefits are considered to outweigh the harm to or loss of significance of the heritage asset. Substantial harm to or loss of assets of the highest significance should be wholly exceptional.

**6.89** Given the scale and nature of mineral development on greenfield sites, there is significant potential for it to impact on heritage assets with known and unknown archaeological

interest, particularly in key areas for early settlement such as the river valleys and terraces typified by the Severn, Avon, Carrant Brook and Salwarpe.<sup>445</sup> Non-designated heritage assets of archaeological interest that are demonstrably of equivalent significance to scheduled monuments will be considered subject to the policies for designated heritage assets.<sup>446</sup>

## Recording of lost heritage assets

**6.90** Where whole or partial loss of heritage assets is justified against part b or c of policy MLP 22,<sup>447</sup> the technical assessment accompanying the application will be expected to set out how the heritage assets will be recorded, how understanding of the significance of the heritage asset will be advanced, and how the evidence and any archive generated will be made publicly accessible. Proposals for how and when this will take place should be agreed in consultation with Worcestershire Archive and Archaeology service.

**6.91** Copies of evidence will be expected to be deposited with the Worcestershire Historic Environment Record, and any archives with a local museum or other public depository, and opportunities for on-site education and interpretation as part of wider public access and green infrastructure enhancement should be considered.



<sup>444</sup> See English Heritage (2012) *Mineral Extraction and Archaeology: A Practice Guide* <https://historicengland.org.uk/images-books/publications/mineral-extraction-and-archaeology/> and the Chartered Institute for Archaeologists' standards and guidance documents at <https://www.archaeologists.net/codes/cifa>.

<sup>445</sup> Worcestershire Archive and Archaeology Service (2007) *Archaeology and aggregates in Worcestershire* <http://public.worcestershire.gov.uk/sites/archaeology/Reports/wr10986.pdf>

<sup>446</sup> Ministry of Housing, Communities and Local Government (July 2018) *National Planning Policy Framework*, footnote 63.

<sup>447</sup> In accordance with the Ministry of Housing, Communities and Local Government (July 2018) *National Planning Policy Framework*, paragraph 199, the ability to record evidence of our past will not be a factor in deciding whether such loss should be permitted.



## Landscape

### Policy MLP 23: Landscape

#### Contributing to:

Objectives MO2, MO3

Planning permission will be granted where it is demonstrated that the proposed mineral development will protect, conserve and enhance the character and distinctiveness of the landscape.

A level of technical assessment appropriate to the proposed development and its potential impact on the landscape will be required to demonstrate that, throughout its lifetime, the proposed development will:

- a) optimise opportunities to enhance inherent landscape character, integrating other green infrastructure components where appropriate;
- b) not have an unacceptable adverse effect on the inherent landscape character. The benefits of the proposal will be balanced against the significance of any impacts where the proposed development is likely to:
  - i. result in significant change to the key characteristics of the landscape identified in the Worcestershire Landscape Character Assessment and Worcestershire Historic Landscape Characterisation; or
  - ii. introduce landscape features that conflict with, or dilute, the inherent landscape character of the area; and
- c) not have an unacceptable adverse effect on an Area of Outstanding Natural Beauty, taking into account the provisions of the relevant Management Plan:
  - i. great weight will be given to conserving the landscape and scenic beauty of Areas of Outstanding Natural Beauty and proposals within them will be refused except in exceptional circumstances and where it is demonstrated that the proposed development is in the public interest; and
  - ii. where the proposed development would affect the setting of an Area of Outstanding Natural Beauty, regard will be given to conserving and enhancing the natural beauty of the Area of Outstanding Natural Beauty.

#### Reasoned justification

6.92 Landscapes evolve over time as a result of natural and cultural processes including changes in patterns of land use, habitat networks and built development. Personal appreciation of the landscape and how individuals and communities relate to or make use of it are also important in defining sense of place and distinctiveness of an area. Landscape character is defined by the variety of features and attributes that are distinctive, recognisable and with consistent patterns that

give localities their sense of place. The key characteristics of landscape types within Worcestershire are set out in the Worcestershire Landscape Character Assessment.<sup>448</sup> This is supplemented by the Worcestershire Historic Landscape Characterisation<sup>449</sup> which identifies inherited historic character, its diversity and legibility in the modern landscape. Together these contribute towards the assessment and understanding of significance and value in the landscape.

<sup>448</sup> The *Worcestershire Landscape Character Assessment Supplementary Guidance* technical handbook and interactive maps are available at [www.worcestershire.gov.uk/lca](http://www.worcestershire.gov.uk/lca).

<sup>449</sup> The *Worcestershire Historic Landscape Characterisation* is available at [http://www.worcestershire.gov.uk/info/20230/archive\\_and\\_archaeology\\_projects/1062/historic\\_landscape\\_characterisation\\_hlc](http://www.worcestershire.gov.uk/info/20230/archive_and_archaeology_projects/1062/historic_landscape_characterisation_hlc).

6.93 The scale and nature of mineral development means it can have both temporary and permanent impacts on existing landscapes depending on how sites are worked and restored. Land uses and features such as hedgerows, field boundaries, water bodies and footpaths might be altered and new landforms are likely to be created. However, carefully designed mineral development provides the opportunity to repair fragmented landscapes and enhance wider views and landscape character.

### Protecting and enhancing inherent landscape character

6.94 The scale of minerals development means that there are likely to be significant opportunities to take a landscape-scale approach to protecting and enhancing inherent landscape character through the working and restoration of sites.

6.95 Policy MLP 23 requires an appropriate level of technical assessment to be submitted with each application. Such assessment should be undertaken by an appropriate and competent expert and will need to take account of enabling and ancillary works such as access routes in addition to the main working area, and will need to consider the impacts which might occur at all stages of the site's life. They should:

- Identify and describe the key characteristics of the local landscape. This should be informed by the Worcestershire Landscape Character Assessment and Worcestershire Historic Landscape Characterisation and should include a field evaluation where necessary. It should make reference to the features that define the character of the area and the relative importance of those features, considering the relevant land cover parcel, landscape description unit, landscape type, historic landscape type and regional character area in identifying relevant features and characteristics.
- Assess the role of the site in contributing to the inherent landscape character, taking account of the site's key features, the condition of the landscape and sensitivity to change, and any cumulative landscape and visual impacts

with other existing or proposed development.

- Consider the site in relation to the setting of any settlement(s) and the inherited character of the settlement's setting and views.
- Set out how the design of the site's working and restoration proposals takes account of the key characteristics of the surrounding landscape type, and the measures proposed to ensure the site will fit comfortably with that landscape in keeping with existing features and habitats. This should draw on the landscape guidelines set out for the relevant landscape type in the Worcestershire Landscape Character Assessment and may include measures such as linking hedges and streams, appropriate tree cover patterns, and retaining characteristic views.
- Set out the proposed working and restoration options and clearly explain why the submitted proposal was chosen. This should identify any changes which the proposal will cause to the inherent landscape character and how the proposal will integrate the site into the existing landscape. Proposals should quantify the extent of any potential positive and negative effects, individually or cumulatively with existing or approved development, and should distinguish between temporary and permanent effects from each phase of the proposed development.

6.96 There is significant scope for site design, layout, landforms, planting and screening to protect, restore, enhance and/or create features that strengthen inherent landscape character through all phases of the proposed development, particularly where the integration of other green infrastructure components is considered holistically, as these components influence landscape character. This might include protecting or reinstating historic landscape features, reverting to historic land management practices and field patterns, ensuring waterbodies<sup>451</sup> are in keeping with the landscape character in terms of their design and scale, and planting using locally appropriate species.

<sup>450</sup> Landscape Description Units are the building blocks of the Worcestershire *Landscape Character Assessment*. Nesting within them are the smallest units of landscape character, Land Cover Parcels, which describe any local variation that is present and visually apparent within the larger Landscape Description Units. The *Landscape Character Assessment* identifies commonalities in landscapes, allowing Landscape Description Units and the Land Cover Parcels within them to be classified into Landscape Types. These landscape units and types sit together in a mapped hierarchy: Regional Character Areas > Landscape Types > Landscape Description Units > Land Cover Parcels. See [www.worcestershire.gov.uk/lca](http://www.worcestershire.gov.uk/lca) for more information.

<sup>451</sup> Waterbodies may be permanent or transitory and could include ponds, lakes, reservoirs, ditches, streams, or wetlands.

6.97 The technical assessment will be expected to identify opportunities to contribute towards the relevant strategic corridor priorities (see Policies MLP 4 to MLP 8) and outline how these and any site-specific opportunities have influenced working and restoration proposals to optimise the delivery of opportunities to enhance inherent landscape character.

6.98 Some level of change may be able to be tolerated or absorbed, and this is likely to differ depending on the characteristics, scale and sensitivity of the landscape affected. A level of change which would fundamentally alter the landscape character so that it would no longer be recognised as containing the indicators, features and characteristics of its original landscape type is unlikely to be acceptable. Where the inherent landscape character would be fundamentally altered, the assessment should robustly justify why the inherent character cannot be conserved, restored or enhanced and why the proposed wholesale landscape change is the most appropriate option. This should include detail of measures taken to avoid or otherwise reduce harm through appropriate mitigation, changes to on-site working, or other enhancement proposals.

6.99 Assessments should be proportionate to the nature and scale of development proposed and the likely impact on the landscape. Analysis of the components that make up landscape should be at a scale commensurate with understanding the landscape as a whole. Where appropriate the assessment might form part of an assessment of visual impacts (see policy MLP 19, Amenity).

### Protecting designated landscapes

6.100 Areas of Outstanding Natural Beauty (AONB) and other designated landscapes are accorded a high status of protection in relation to landscape and scenic beauty, and the conservation of wildlife and cultural heritage are important considerations in these areas.<sup>452</sup> The Malvern Hills AONB Management Plan recognises that the supply of locally distinctive building materials, such as Malvern stone, may be needed to help retain local distinctiveness.<sup>453</sup>

6.101 Policy MLP 23 requires an appropriate level of technical assessment to be submitted with each application. Such assessments should be undertaken by an appropriate and competent expert and will need to take account of enabling and ancillary works such as access routes in addition to the main working area. They will also need to consider the impacts which might occur at all stages of the site's life. They should:

- Identify whether the proposed development is within or is likely to affect the setting of an AONB. This should include consideration of potential impacts on the AONB from proposals outside the AONB boundary, and should consider the impacts of the development both individually or cumulatively with other existing or proposed development to establish the significance of any effects on the AONB.
- Proposals within an AONB should demonstrate the exceptional circumstances that exist, and why the proposal is considered to be in the public interest. As a minimum, reference should be made to relevant national policy and the provisions of the appropriate AONB Management Plan.
- Proposals within the setting of an AONB should describe the impacts on the landscape conservation and scenic beauty of the AONB, including reference to the relevant Management Plans, and any views in to and out of the AONB which would be affected. This should consider when in the life of the mineral site the impacts might happen, as well as their duration.



Views from Bredon Hill, part of the Cotswolds AONB

452 Ministry of Housing, Communities and Local Government (July 2018) *National Planning Policy Framework*, paragraph 172.

453 Malvern Hills Area of Outstanding Natural Beauty, *Malvern Hills Area of Outstanding Natural Beauty Management Plan 2014-2019*, page 55, available at <http://www.malvernhillsaonb.org/>.

## Soils

## Policy MLP 24: Soils

## Contributing to:

Objectives MO2, MO3, MO5

Planning permission will be granted where it is demonstrated that the proposed mineral development will protect and conserve soil resources and their quality.

A level of technical assessment appropriate to the proposed development and its potential impacts on soil resources will be required to demonstrate that, throughout its life, the proposed development will:

- a) retain all soils within the site; and
- b) make appropriate provision for:
  - i. soil stripping;
  - ii. handling;
  - iii. storage; and
  - iv. re use of soils.

## Reasoned justification

6.102 Soils are an essential and finite physical resource.<sup>454</sup> They provide a growing medium for food, timber and other crops, store carbon and water, support biodiversity and act as a buffer against pollution.<sup>455</sup> Worcestershire's soils face increasing pressures from climate change, land management practices and development.<sup>456</sup>

6.103 Soils overlie mineral resources and the extraction of minerals can severely disrupt soil ecosystems through the moving and mixing of soils that have developed over hundreds or thousands of years. Soils (including topsoil, subsoil, overburden and soil-making materials) can be lost or degraded by being stripped, handled and stored to enable access to underlying minerals.

6.104 The handling and storage of soils for re-use in landscaping and restoration of mineral workings can also lead to degradation. Compaction of soil reduces water infiltration, creating higher levels of run-off. This can lead to increased flood risk, and reduced agricultural productivity.<sup>457</sup> Soil compaction, loss of organic matter or soil structure, changes in soil acidity, and gradient can also lead to soil erosion and consequent impacts on water quality. Appropriate soil management can significantly reduce the adverse impact of mineral development on soil functions and quality.

454 Ministry of Housing, Communities and Local Government, *Planning Practice Guidance, Natural Environment*, paragraph: 024 Reference ID: 8-024-20140306 Revision date: 06 03 2014.

455 Ministry of Housing, Communities and Local Government, *Planning Practice Guidance, Natural Environment*, paragraph: 025 Reference ID: 8-025-20140306 Revision date: 06 03 2014.

456 Worcestershire County Council (2011) *Planning for soils technical research paper*.

457 Defra (2009) *Safeguarding our soils: A strategy for England*



**Sand and gravel visible in the soil at Clifton Quarry**

6.105 Policy MLP 24 requires an appropriate level of technical assessment to be submitted with each application. Such assessments should be undertaken by an appropriate and competent expert and will need to take account of enabling and ancillary works, such as access routes, in addition to the main working area. They will also need to consider the impacts which might occur at all stages of the site's life. They should:

- Delineate, quantify and characterise the topsoils and subsoils on site and identify the location and extent of soils contrasting in texture, stoniness, organic matter content, compaction or permeability.
- Set out how the identified topsoils, subsoils, overburden and soil-making materials will be stripped, stored and handled in a manner which

protects soil functions and quality over the life of the site. In accordance with best practice guidance<sup>458</sup>, this should differentiate between activities at each stage of the development and include details of how and where topsoil, subsoil, overburden and soil-making materials will be stored, directly replaced<sup>459</sup> in another part of the site, and used in restoration schemes.

6.106 Where the importation of soils for site restoration is proposed, this should be strongly justified and should demonstrate that importing soils will not have a significant adverse effect on the quality or conservation of the existing soil resource.

<sup>458</sup> Including Defra (2009) *Construction Code of Practice for the Sustainable Use of Soils on Construction Sites* [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/69308/pb13298-code-of-practice-090910.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69308/pb13298-code-of-practice-090910.pdf) and Maff (2000) *Good Practice Guide for Handling Soils* <http://webarchive.nationalarchives.gov.uk/2009031721756/http://www.defra.gov.uk/farm/environment/land-use/soilguid/index.htm>.

<sup>459</sup> Restoration of soils to their final location without a period of storage.

## Best and most versatile agricultural land

### Policy MLP 25: Best and Most Versatile Agricultural Land

#### Contributing to:

Objectives MO2, MO3, MO5

Planning permission will be granted where it is demonstrated that the proposed mineral development will safeguard the long-term potential of best and most versatile agricultural land.

A level of technical assessment appropriate to the proposed development and its potential impacts on best and most versatile agricultural land will be required to demonstrate that, throughout its life, the proposed development will:

- a) prioritise the development of poorer quality land in preference to higher-quality land, avoiding significant development of best and most versatile agricultural land unless it is demonstrated to be necessary;
- b) safeguard the long-term potential of best and most versatile agricultural land by enabling the land to retain its longer-term capability for agricultural use where practicable, though the proposed after-use need not always be for agriculture; and
- c) optimise the restoration of agricultural land quality and integration of green infrastructure components, where the proposed after-use includes agriculture.

#### Reasoned justification

6.107 Worcestershire has a strong agricultural sector, although land quality varies throughout the county. Most mineral development involves development of agricultural land, but the Agricultural Land Classification<sup>460</sup> provides a method for assessing the quality of farmland to enable sustainable choices to be made about its future use within the planning system. The system classifies land into five grades with the 'best and most versatile agricultural land' defined as grades 1, 2 and 3a.<sup>461</sup>

6.108 Mineral development can impact on best and most versatile agricultural land by altering the principal physical factors which influence agricultural production, including climatic factors such as exposure, aspect and frost risk, site factors including gradient, microrelief and flood risk, and soil characteristics such as texture, structure, depth and stoniness.<sup>462</sup>

#### Avoiding significant development of best and most versatile agricultural land

6.109 Policy MLP 25 requires an appropriate level of technical assessment to be submitted with each application. Such assessments should be undertaken by an appropriate and competent expert and will need to take account of enabling and ancillary works, such as access routes, in addition to the main working area. They will also need to consider the impacts which might occur at all stages of the site's life. They should:

- Include an assessment of the quality of agricultural land across the entire application site. The Agricultural Land Classification should be used as a starting point<sup>463</sup> but developers may also need to undertake more detailed assessments, particularly where existing information does not distinguish between grade 3a and grade 3b land.

460 Natural England Technical Information Note TIN049 (2012) *Agricultural Land Classification: protecting the best and most versatile agricultural land*.

461 Ministry of Housing, Communities and Local Government (July 2018) *National Planning Policy Framework*.

462 Natural England Technical Information Note TIN049 (2012) *Agricultural Land Classification: protecting the best and most versatile agricultural land*.

463 See Natural England guidance on agricultural land and assessing proposals for development at <https://www.gov.uk/government/publications/agricultural-land-assess-proposals-for-development>.

- Demonstrate how the proposed site design and working methods will ensure that areas of lower-quality land will be used in preference to areas of higher-quality land, and how significant development of best and most versatile agricultural land will be avoided.
- Where significant development of best and most versatile agricultural land is proposed, set out clear justification of why this is necessary and why the need for the development outweighs the adverse impact upon agricultural land quality. Justification may include environmental, social or economic constraints affecting alternative land of lower agricultural quality which outweigh the adverse impact of significant development of best and most versatile agricultural land.

### Considering agricultural land quality and green infrastructure in restoration and after-use

- 6.110 It is not always necessary for high-quality land to be restored to agricultural use. The technical assessment required by policy MLP 25 should be undertaken by an appropriate and competent expert and should set out how working and restoration schemes have been designed to address the climatic factors, site factors and soil characteristics which could limit the agricultural land quality of the restored site where agriculture is proposed,<sup>464</sup> or the longer-term capability of the land to return to agricultural use in the future where the proposed after-use does not include agriculture.
- 6.111 Where the proposed restoration and after-use includes agriculture, optimising the restoration of agricultural land quality could include preserving high-quality soils in situ, the creation of landforms and final soil placement that reinstates high-quality land to its original value across the site, or concentrating delivery of high-quality agricultural land in part of the site.



Restored sand and gravel working, Blackstone Quarry

- 6.112 Integrating green infrastructure could assist with reinstating high-quality land or retaining its longer-term capability for food production by maximising its role in providing ecosystem services, and consideration should be given to the priorities of the relevant strategic corridor (see policies MLP 4 to MLP 8). Measures such as reinstating characteristic field patterns, field boundaries and margin treatments, and land management that is compatible with Biodiversity Action Plan priority habitats and landscape character (such as commercial livestock grazing of lowland meadows or acid grasslands, or seasonal grazing of water meadows) are likely to benefit both agriculture and green infrastructure. Physical and natural features to aid water storage, reduce run-off or improve water quality can also deliver additional benefits for agriculture by reducing soil erosion, reducing diffuse pollution and increasing water availability.

<sup>464</sup> See Natural England guidance on reclaiming minerals extraction and landfill sites to agriculture at <https://www.gov.uk/government/publications/reclaim-minerals-extraction-and-landfill-sites-to-agriculture>.

## Geodiversity

### Policy MLP 26: Geodiversity

#### Contributing to:

Objectives MO2, MO3

Planning permission will be granted where it is demonstrated that the proposed mineral development will protect, conserve and enhance geodiversity.

A level of technical study appropriate to the proposed development and its potential impacts on geological conservation interests will be required to demonstrate that, throughout its lifetime, the proposed development will:

- a) optimise opportunities to improve the condition, legibility and understanding of geodiversity, integrating other green infrastructure components where appropriate;
- b) not cause unacceptable adverse effects on geological or geomorphological sites or features. Protection will be commensurate with the status of the features and will give appropriate weight to their importance:
  - i. development proposals likely to have an adverse effect on any Sites of Special Scientific Interest (SSSI) or their notified special interest features will not be permitted unless the benefits of the proposed development clearly outweigh both its likely impacts on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;
  - ii. development proposals likely to give rise to the loss or deterioration of Local Geological Sites will only be permitted where it is demonstrated that the benefits of the development outweigh the loss or harm; and
  - iii. where the proposed development is likely to expose features of geological conservation interest, the benefits of exposing such features will be balanced against the scale of any harm to or loss of such features; and
- c) where loss is unavoidable, record and advance understanding of the significance of any geodiversity feature(s) to be lost (wholly or in part) in a manner proportionate to their importance and the impact of the loss, and make evidence and any archive generated publicly accessible.

#### Reasoned justification

6.113 Geodiversity considers the range of rocks, minerals, fossils, geological structures, soils and landforms that shape our natural environment and landscapes and the way we use them. Many geological or geomorphological features are of scientific interest or have a cultural value, contributing to local character and distinctiveness, and therefore these geological conservation interests should be valued and protected. Mineral workings have the potential to both newly expose features of geological interest and destroy existing features.

#### Improving geodiversity

6.114 Mineral sites offer opportunities to enhance scientific and cultural understanding of

geodiversity by revealing, recording or retaining features of geological conservation interest.

6.115 Policy MLP 26 requires an appropriate level of technical assessment to be submitted with each application. Such assessments should be undertaken by an appropriate and competent expert and will be expected to identify opportunities to contribute towards the relevant strategic corridor priorities (see Policies MLP 4 to MLP 8) and to outline how these and any site-specific opportunities have influenced working and restoration proposals to optimise delivery of improvements to the condition, legibility and understanding of geodiversity.



6.116 Improvements for geodiversity could be delivered through improving the condition of features preserved in situ; through the exposure of new features, particularly where they will deliver the objectives of UK Geodiversity Action Plan<sup>465</sup> and Worcestershire Geodiversity Action Plans<sup>466</sup>; or facilitating access to the site to enable further understanding, where this is a safe and appropriate option. Considering the relationship of the geological conditions and features at the site within the wider environmental and cultural context can also provide significant opportunities to contribute towards wider green infrastructure enhancements. For example, opportunities to improve legibility and understanding of geodiversity are likely to be greatest in the Cotswolds AONB, Malvern Hills AONB and the Abberley and Malvern Hills Geopark, where existing features make a significant contribution to the cultural heritage and environmental quality of the area. Opportunities for enhancement are, however, not limited to these areas.

### Protection of important geological or geomorphological features

6.117 Policy MLP 26 requires an appropriate level of technical assessment to be submitted with each application. Such assessments should be undertaken by an appropriate and competent expert, will need to take account of enabling and ancillary works such as access routes in addition to the main working area, and will need to consider the impacts which might occur at all stages of the site's life. They should:

- Identify any features of geological conservation interest, making reference to notified features of any Sites of Special Scientific Interest and the qualifying criteria for which any Local Geological Sites have been designated.
- Assess the likelihood for features to be exposed during each phase of the development that could be of scientific or educational value, historic significance and/or aesthetic interest.
- Assess if the proposal, either individually or cumulatively with other existing or proposed development, is likely to:
  - cause adverse effects on any Site(s) of Special Scientific Interest, including reference to the particular SSSI as well as any

- broader impacts on the national network of Sites of Special Scientific Interest;
- give rise to the loss or deterioration of any Local Geological Site(s); or
- result in loss of a feature of geological conservation interest exposed during the working of the site.

This should include details of measures that will be taken to avoid or otherwise reduce harm through appropriate mitigation, changes to on-site working, or any enhancement proposals. Mitigation measures might include stand-off zones to protect vulnerable features or the replacement of destroyed exposures with features of equal or better quality and interest at another part of the site.

- Where the proposed development is likely to have an adverse effect on a Site of Special Scientific Interest, its notified features, or the national network of Sites of Special Scientific Interest, or where it is likely to result in the loss or deterioration of a Local Geological Site, clear justification should be included to demonstrate why the benefits of the proposed development outweigh the impacts.

6.118 The level of detail should be proportionate to the nature and scale of development proposed and the feature's importance.

### Recording lost geodiversity features

6.119 Where the technical assessment shows that there will be unavoidable loss or deterioration of features of geological conservation interest, the scientific or educational value, historic significance and/or aesthetic qualities of the features should be recorded as appropriate. The technical assessment will be expected to set out how the assets or features will be recorded, and how the evidence and any archive generated will be made publicly accessible. Proposals for how and when this will take place should be agreed in consultation with the Herefordshire and Worcestershire Earth Heritage Trust's Geological Records Centre, or other appropriate body.

6.120 This is likely to require periodic access for extraction faces to be logged and recorded by an appropriate and competent expert. On-site education and interpretation as part of wider public access and green infrastructure enhancement should be considered.

<sup>465</sup> <http://www.ukgap.org.uk/>.

<sup>466</sup> <http://www.earthheritagetrust.org/pub/local-gaps/the-local-geodiversity-action-plans/>.

## Water quality and quantity

### Policy MLP 27: Water Quality and Quantity

#### Contributing to:

Objectives MO2, MO3

Planning permission will be granted where it is demonstrated that the proposed mineral development will protect and enhance the quality, quantity and flow of surface water and groundwater resources.

A level of technical assessment appropriate to the potential impacts of the proposed development on the water environment will be required to demonstrate that, throughout its lifetime, the proposed development:

- a) optimises opportunities to enhance surface water and groundwater resources, integrating other green infrastructure components where appropriate; and
- b) will not have an unacceptable adverse effect on the quality, quantity or flow of ground or surface water.

#### Reasoned justification

6.121 A sustainable water environment is essential to people, the economy and the environment. The water environment encompasses ground and surface water resources, including aquifers, ordinary water courses, and main rivers. As well as providing habitats for aquatic life, clean and plentiful water is crucial to our quality of life, from household consumption to industrial and agricultural uses. The benefits of a healthy and well-functioning water environment can be put at risk from poor water quality and changes to water availability, which could be exacerbated by climate change.

6.122 Minerals development must be carefully designed and managed to minimise harm to water resources and, wherever possible, deliver benefits to the water environment.

6.123 Water quality refers to the chemical, physical and ecological characteristics of water, generally focusing on the health of people and ecosystems. Water quality can be significantly affected by changes to the water environment (such as water levels, flows, and pathways) or external changes (such as the introduction of new point or diffuse pollution sources).

6.124 The quantity and natural flow of water can directly affect its quality, and can have profound effects on people and environments, including biodiversity, and all kinds of users who rely on adequate water supplies. Abstraction and dewatering associated with minerals development can affect groundwater flows, including through the draining or diverting of aquifers, or the interconnection of separate aquifers. Abstraction and dewatering can also affect watercourses whose base flows derive from groundwater, or where water is abstracted from or discharged to watercourses.

#### Enhancing water resources

6.125 The scale and location of mineral development and the proposed after-use will influence the potential contribution that a mineral site can make to the enhancement of the water environment. By proactively designing and delivering integrated green infrastructure, mineral working and restoration has substantial potential to enhance the water environment alongside delivering other priorities. Mineral workings and restored sites may be able to implement natural water retention measures to assist with infiltration and groundwater recharge, managing water levels in surface waterbodies, and preventing soil erosion and consequent impacts on water quality.

**6.126** Policy MLP 27 requires an appropriate level of technical assessment to be submitted with each application. Such assessments should be undertaken by an appropriate and competent expert and will be expected to identify opportunities to contribute towards the relevant strategic corridor priorities (see Policies MLP 4 to MLP 8) and to outline how these and any site-specific opportunities have influenced working and restoration proposals to optimise delivery of enhancements for the quality and quantity of surface and ground water at a local and a catchment scale.

### Protecting water quality and quantity

**6.127** Policy MLP 27 requires an appropriate level of technical assessment to be submitted with each application. Such assessments should be undertaken by an appropriate and competent expert and will need to take account of enabling and ancillary works, such as access routes, in addition to the main working area. They will also need to consider the impacts which might occur at all stages of the site's life. They should:

- identify the type, location, and status<sup>467</sup> of any water features within the development site and its surroundings;
- set out how the proposed development, both individually and cumulatively with other existing or proposed development, will affect the quality, water levels and flows of these water features, including through abstraction, dewatering, and discharge;
- identify any pathways that could lead to pollution of ground and surface water by chemicals and other contaminants, clearly setting out the measures which will be incorporated to ensure that any potential pollutants will be controlled through appropriate storage or remediation;
- identify the measures that would be put in place to avoid or mitigate any other harm to the water environment, and how any enhancement will be secured, this should include consideration of multifunctional green infrastructure solutions; and
- identify the significance of any residual effects that cannot be avoided or mitigated.

**6.128** The significance of any impacts is likely to be influenced by the condition and status of the existing water environment, and technical assessments should outline how the proposed development has taken this into account. For example, parts of the county are designated as Source Protection Zones where there is increased risk of ground water pollution from changes in land use, or Nitrate Vulnerable Zones where there is a significant risk of either surface or ground water pollution from agricultural nitrate use. Such designations may influence how the site can be worked, whether dewatering is appropriate, and the type of restoration which is appropriate. The Water Framework Directive status of any watercourses will also need to be considered, and technical assessments will be expected to show how the proposed development will ensure that it will not lead to any deterioration in Water Framework Directive status.<sup>468</sup> Applicants are encouraged to seek advice from the Environment Agency at an early stage in developing proposals.

**6.129** Where abstraction or dewatering is proposed, a Hydrogeological Impact Assessment is likely to be necessary and should be undertaken in accordance with the Environment Agency's guidance.<sup>469</sup> Drainage during site operations and any discharge to local watercourses must be controlled to comply with Environment Agency standards.



<sup>467</sup> Including Water Framework Directive status if available, Nitrate Vulnerable Zones, Source Protection Zones, or any other measure of condition/risk, including restrictions on abstraction.

<sup>468</sup> Environment Agency, Worcestershire County Council (June 2018) *Catchment Based Management in Worcestershire Technical Background Document*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

<sup>469</sup> Environment Agency (2007) *Hydrogeological impact appraisal for dewatering abstractions*

## Flooding

### Policy MLP 28: Flooding

#### Contributing to:

Objectives MO2, MO3, MO4, MO5

Planning permission will be granted where it is demonstrated that the proposed mineral development will avoid increasing flood risk to people and property on site or elsewhere.

A level of technical assessment appropriate to the potential impacts of the proposed development on flood risk, taking account of climate change, will be required to demonstrate that, throughout its lifetime, the proposed development will:

- a) optimise opportunities to reduce the causes and impacts of flooding, integrating other green infrastructure components where appropriate;
- b) incorporate appropriate sustainable drainage systems;
- c) be resilient to flooding;
- d) be safe for its users; and
- e) not increase flood risk elsewhere.

#### Reasoned justification

**6.130** Flooding can occur from water courses, surface water, ground water or sewers. It is not simply the result of rainfall but is influenced by landform and land management. Impermeable ground has less ability to store and slow water than permeable ground, and vegetation can increase infiltration and interception of rain and slow the velocity of water entering rivers. Worcestershire has been subject to severe flooding events in recent years, with different parts of the county being affected by different types of flooding. Effective flood risk management is central to the economic prosperity of Worcestershire as a place for people to live, work and visit.

**6.131** Sand and gravel working is classed as “water compatible development”, meaning that it can be appropriate in all flood zones. Other mineral working and processing is classed as “less vulnerable”, meaning that it can be appropriate in flood zones 1, 2 and 3a. However, flood risk management needs to be considered to ensure that the development will be safe for its lifetime without increasing flood risk elsewhere, and that

opportunities to reduce the causes and impacts of flooding are fully considered. Minerals development must be appropriately flood resilient and resistant, safe for its users over its lifetime, and not increase flood risk overall. Mineral development also offers an opportunity to contribute to overall flood risk betterment, particularly within the catchment in which it is located.

#### Optimising flood betterment

**6.132** The scale and location of mineral development and the proposed after-use will influence the potential contribution that a mineral site can make to reducing the causes and impacts of flooding. By proactively designing and delivering integrated green infrastructure and incorporating natural flood management techniques, mineral working and restoration has substantial potential to reduce the causes and impacts of flooding alongside delivering other priorities.<sup>470</sup> Mineral workings and restored sites may be able to reinstate natural floodplain processes and provide additional channel conveyance, channel length, or flood storage, all of which could help to reduce flood risks beyond the site boundary.

<sup>470</sup> Environment Agency, Worcestershire County Council (June 2018) *Catchment Based Management in Worcestershire Technical Background Document*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

6.133 Policy MLP 28 requires an appropriate level of technical assessment to be submitted with each application. Such assessments should be undertaken by an appropriate and competent expert and should set out a strategy for reducing the causes and impacts of flooding throughout the life of the site as an integrated part of multifunctional green infrastructure. Assessments will be expected to identify opportunities to contribute towards the relevant strategic corridor priorities (see Policies MLP 4 to MLP 8) and to outline how these and any site-specific opportunities have influenced working and restoration proposals to optimise delivery of measures which will reduce the causes and impacts of flooding.

### Flood resilience

6.134 Policy MLP 28 requires an appropriate level of technical assessment to be submitted with each application. Such assessments should be undertaken by an appropriate and competent expert and will need to take account of enabling and ancillary works, such as access routes, in addition to the main working area. They will also need to consider the impacts which might occur at all stages of the site's life, taking account of climate change.<sup>471</sup> They should:

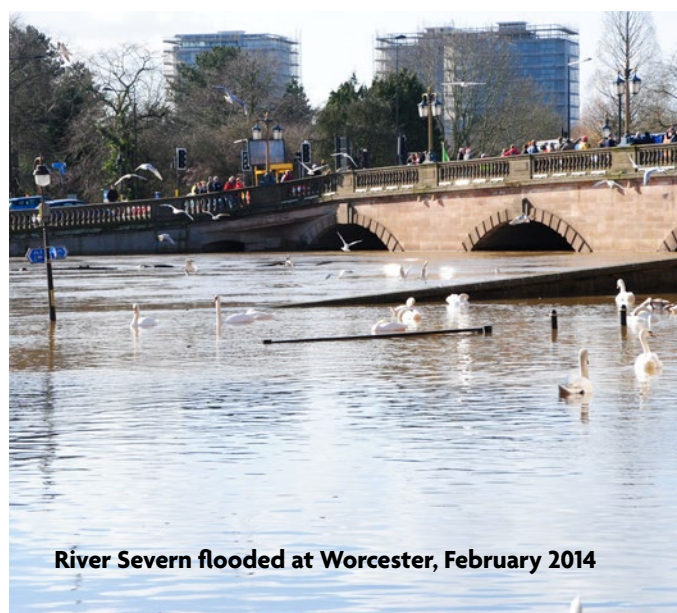
- establish current and future level of flood risk from all sources<sup>472</sup>, both on site and surrounding the site where flooding could affect or be affected by the development;
- identify and quantify how the proposed development, individually or cumulatively with other existing or proposed development, would affect on-site and off-site flood risk;
- provide details of the sustainable drainage systems which will be incorporated and the minimum operational standards and maintenance arrangements for these systems over the lifetime of the site;
- provide details of how the site and its surroundings will be made safe and resilient to flooding without increasing flood risk elsewhere; and
- identify the location, extent, and significance of any residual flood risk.

6.135 A site-specific Flood Risk Assessment will be required where sites are in areas at risk of flooding, or are greater than 1 hectare in area.<sup>473</sup> The technical assessment should satisfy the relevant sequential and exception tests if required.<sup>474</sup>

6.136 Although minerals working and processing is classed as either “water compatible” or “less vulnerable” development, it should still take place in areas with the lowest probability of flooding unless there are no reasonably available sites in lower-risk flood zones. Proposals should be designed to avoid locating more vulnerable parts of a mineral development, such as processing plant and associated buildings, within higher-risk parts of the site.

6.137 Sites should be designed to ensure that materials are stored in a way that prevents them being washed away during flood events, and safe access for vehicles and pedestrians should also be considered.

6.138 Minerals working, restoration and after-use strategies should be informed by local and national evidence and policy.<sup>475</sup> Applicants are encouraged to seek advice from the Environment Agency, the Lead Local Flood Authority (Worcestershire County Council), and the Internal Drainage Board at an early stage in developing proposals.



**River Severn flooded at Worcester, February 2014**

471 The implications of climate change and the allowances that should be made for climate change adaptation should be informed by the most up-to-date Environment Agency advice.  
 472 This should be informed by the Environment Agency's online flood maps, the Worcestershire county and districts' Strategic Flood Risk Assessments, the Worcestershire Surface Water Management Plan (once published), and the Environment Agency, Worcestershire County Council (June 2018) *Catchment Based Management in Worcestershire Technical Background Document*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).  
 473 Ministry of Housing, Communities and Local Government (July 2018) *National Planning Policy Framework*, paragraph 163.  
 474 In accordance with Ministry of Housing, Communities and Local Government (July 2018) *National Planning Policy Framework*, paragraphs 155-165, and *Planning Practice Guidance, Flood risk and coastal change*.  
 475 An interactive minerals mapping tool is available at [www.worcestershire.gov.uk/minerals](http://www.worcestershire.gov.uk/minerals). It incorporates the Policies Map which defines the Minerals Local Plan's land-use designations and allocations, and also includes additional supporting data to assist in the use and implementation of the Minerals Local Plan.

## Transport

### Policy MLP 29: Transport

#### Contributing to:

Objectives MO2, MO3, MO4, MO5

Planning permission will be granted for mineral development that uses the most sustainable transport options and which will not have an unacceptable adverse effect on transport safety or congestion.

A level of technical assessment appropriate to the proposed development will be required to demonstrate that, throughout its lifetime, the development will:

- a) prioritise the use of alternatives to road transport for the movement of minerals and materials (including water, rail, conveyors and pipelines). Road transport of minerals and materials will only be acceptable where it is demonstrated that alternative modes are not practicable or are not environmentally preferable;
- b) provide safe and convenient access for employees and visitors which optimises the use of public transport, walking and cycling;
- c) connect to the strategic transport network without having an unacceptable adverse effect on transport safety or congestion;
- d) not have an unacceptable adverse effect on the environment or amenity along transport routes; and
- e) where new or modified routes are required, optimise opportunities to create and integrate green infrastructure.

#### Reasoned justification

6.139 Policy MLP 29 is applicable to all transport movements to, from, and within all types of mineral sites, whether active or restored quarries, or processing locations. Transport includes employees' and visitors' vehicle movements and movements of minerals or other materials to or from the site. Transport of minerals, materials and people has the potential to affect the environment and public safety and to cause inconvenience, noise, vibration and air pollution. In some cases, use of rail, waterways, conveyors or pipelines may reduce these impacts in comparison to road transport and, as such, it may be preferable to transport minerals a longer distance by rail or water than a shorter distance by road. Incorporating sustainable transport for employees and visitors can also help to reduce these impacts and can help to support healthy lifestyles.

6.140 The strategic transport network comprises navigable waterways, strategic rail routes and the strategic highway network<sup>476</sup> (see Figure 2.10 in Chapter 2). Routes within this network are the most appropriate for the movement of minerals and materials to local and national markets.



Conveyor at Clifton Quarry

<sup>476</sup> The *Advisory Lorry Route Map for Worcestershire* indicates the best available routes for heavy goods vehicles in Worcestershire, encouraging use of routes which avoid environmentally sensitive areas and bridges where the safe clearance is restricted and minimise conflict with local residents and impacts on Air Quality Management Areas (AQMAs). The *Advisory Lorry Route Map for Worcestershire* is available at [http://www.worcestershire.gov.uk/info/20007/travel\\_and\\_roads/1003/freight/3](http://www.worcestershire.gov.uk/info/20007/travel_and_roads/1003/freight/3).

## Addressing transport implications of mineral development

6.141 Policy MLP 29 requires an appropriate level of technical assessment of the site's transport connectivity to be submitted with each application. Such assessments should be undertaken by an appropriate and competent expert and will need to take account of enabling and ancillary works in addition to the main working area. They will also need to consider the impacts which might occur at all stages of the site's life. They should:

- Identify the mode(s) and route(s) to be used to connect the site to the strategic transport network. This should set out the alternatives to road transport which have been considered and any physical, amenity or capacity constraints which have informed the proposal. Where road transport is proposed, this should be fully justified.
- Identify the number and type of vehicle movements to and from the site over the lifetime of the development. This should consider any variations between different phases of the development, including transport of minerals or materials removed from site, transport of any minerals or materials brought to site, and the movement of employees and visitors.
- Identify any measures required to enable a safe and suitable connection to the strategic transport network and, where necessary, to the local transport network. This might include physical alterations to the route or new infrastructure which may need to be secured through legal agreements.
- Identify the likely environmental and amenity impacts<sup>477</sup> of the proposed routes, taking account of any cumulative effects from other existing or proposed development, and set out any mitigation required to avoid or reduce harm. The assessment should determine whether any residual effects are likely to be significant.

- Set out how the proposal optimises access to and from the site by public transport, walking and cycling. A Travel Plan may be required to identify and manage the daily employee and visitor movements to and from the site at different stages of the development.
- Identify how on-site infrastructure will be incorporated to enable sustainable transport, such as appropriately surfaced and lit cycleways, shower/changing facilities, secure cycle storage, and charging facilities for electric vehicles.
- Identify the green infrastructure opportunities that will be created or integrated along any new or modified routes, informed by the relevant strategic corridor priorities.

6.142 All development that will generate significant transport movements should be supported by a Transport Statement or Transport Assessment.<sup>478</sup> This should set out any differing requirements throughout the site's operational life, restoration and aftercare, and after-use. A proportionate approach will be taken to the need for Transport Statements, Transport Assessments, and Travel Plans, depending on the potential impact of the proposal.

6.143 Early engagement with route owners and/or operators can provide important information to applicants on the opportunities and limitations of any proposals, and can ensure that the connections identified in the assessment are realistic.

6.144 Taking an integrated approach to design from the outset could lead to the early identification of features that might be retained in the after-use of the site to promote public access and/or sustainable transport to restored sites. This might include the potential to retain wharves for future use or haul routes to provide cycle links or footpaths. There may also be scope to provide other green infrastructure elements from the outset, such as sustainable drainage and planting schemes around visibility splays where compatible with safety requirements.

<sup>477</sup> This should be considered in conjunction with policy MLP 19 (Amenity).

<sup>478</sup> Ministry of Housing, Communities and Local Government (July 2018) *National Planning Policy Framework*, paragraph 111.

## Planning obligations

### Policy MLP 30: Planning Obligations

#### Contributing to:

Objectives MO1, MO2, MO3, MO4, MO5, MO6

Measures necessary to make the proposed development acceptable will be secured through planning conditions and/or planning obligations.

Planning obligations will only be required where they are:

- a) necessary to make the development acceptable in planning terms;
- b) directly related to the development; and
- c) fairly and reasonably related in scale and kind to the development.

Planning obligations will only be used where it is not possible to address unacceptable effects of the development through planning conditions.

Planning obligations may commit the developer to either delivering the agreed provision directly or to making suitable financial contributions to its delivery.

#### Reasoned justification

- 6.145 Sustainable minerals development requires all potential impacts and opportunities to be understood and addressed, from the start of operations, through the life of the quarry, to restoration and after-use. Measures necessary to make a proposed development acceptable may be identified through the technical assessments required by any of the policies in the Minerals Local Plan, or through consultee comments at planning application stage. It may be necessary to use a combination of planning conditions and planning obligations to secure these measures and ensure a proposed development is acceptable.
- 6.146 To address any unacceptable effects and secure any enhancements, it may be necessary to establish baseline conditions, monitor any changes caused by mineral working, or implement mitigation measures and monitor their success during the life of a mineral working. This may include recording and/or preserving important features in the built, historic and natural environment, and schemes for their future management. If monitoring indicates that action is needed, the developer will be expected to undertake any measures and/or remedial actions reasonably required to avoid unacceptable effects.
- 6.147 Mineral development may also affect the operation of existing infrastructure and/or require the provision of additional/enhanced infrastructure. Developers will be expected to provide for all works necessary to make the development acceptable.
- 6.148 In many cases it will take more than five years for restoration schemes to become fully established and functional. This is particularly the case for new or restored habitats, water features, and landscapes. As such, longer-term aftercare periods beyond the statutory five years may be required, which would be secured with the agreement of the minerals operator.





Restored sand and gravel working at Retreat Farm, near Grimley

- 6.149 The combined total impact of proposed obligations will be carefully considered to ensure it does not threaten the viability of the development. Where developers consider the obligation(s) to threaten viability, they may put forward evidence to demonstrate this. Where an applicant is able to demonstrate to the satisfaction of the Mineral Planning Authority that the planning obligation would cause the development to be unviable, the Mineral Planning Authority will be flexible in seeking planning obligations.
- 6.150 The use of financial guarantees, secured through a planning obligation or voluntary agreement at the time planning permission is granted, may be necessary to ensure the delivery of high-quality restoration and aftercare. Such guarantees would

help to ensure that agreed restoration schemes can still be delivered even in the event of mineral operators becoming insolvent. Financial guarantees will only be sought in exceptional circumstances<sup>479</sup>, which may include large-scale and very long-term projects that do not involve progressive restoration for practical reasons; more innovative restoration schemes; and/or where there is reliable evidence of the likelihood of either financial or technical failure but this is not sufficient to justify refusal of planning permission. Where an operator is able to show membership of and is contributing to an established mutual funding scheme to support mineral restoration, a financial guarantee through a planning obligation or voluntary agreement should not be necessary.

<sup>479</sup> Ministry of Housing, Communities and Local Government (July 2018) *National Planning Policy Framework*, paragraph 205(e).



Croft Farm Water Park, Bredons Hardwick  
(former sand and gravel working)

## 7. Safeguarding mineral resources and supporting infrastructure (strategic policies)

### Introduction

- 7.1 A key aspect of sustainable development is the conservation and safeguarding of non-renewable resources for future generations. Minerals are finite, non-renewable resources and can only be worked where they are found. In order to secure the steady and adequate supply of minerals for the future, it is important to safeguard locally and nationally important mineral resources, permitted mineral sites and supporting infrastructure from sterilisation by other development.<sup>480</sup>
- 7.2 Development can “sterilise” mineral resources (make them inaccessible for potential extraction) or prejudice the operation of minerals sites and supporting infrastructure. This can be either:
- **directly:** for example by building over land that contains mineral resources or redeveloping infrastructure sites for other uses; or
  - **indirectly:** for example through the introduction of sensitive land uses in close proximity to these resources or sites.

7.3 Even development with temporary structures and little groundworks can have a significant impact on mineral safeguarding if there is a change in permitted land use.

7.4 Mineral safeguarding is not about preventing development, but about planning ahead. It allows for the effective consideration of potential impacts and helps to ensure that non-minerals developments are appropriately located and designed. It can also help to reduce the need for new quarries through prudent use of resources. However, safeguarding mineral resources does not create a presumption that the resources defined will be worked during the lifetime of the Minerals Local Plan.

### Development exempt from mineral safeguarding requirements

7.5 Certain types of development are unlikely to cause needless sterilisation. To avoid creating an unnecessary barrier to those developments, the types of development listed in Table 7.1 are exempt from policies MLP 31 and MLP 32 and will not need to consider safeguarding requirements.

<sup>480</sup> Ministry of Housing, Communities and Local Government (July 2018) *National Planning Policy Framework*, paragraph 204(c-e) and Ministry of Housing, Communities and Local Government, *Planning Practice Guidance, Minerals* (Revision date: 17 10 2014).

**Table 7.1. Types of development exempt from mineral safeguarding requirements**

Type of Development	Reason for exemption
a) Sites allocated in adopted Local Plans (where safeguarding requirements have been ruled out during plan preparation, or where a mineral site or supporting infrastructure site is permitted after land is allocated in an adopted Local Plan)	Mineral safeguarding considerations will have been raised through the Duty to Cooperate during the development of the Local Plans and Neighbourhood Plans, and the need for safeguarding mineral resources and/or supporting infrastructure will have been addressed through the site allocation process.
b) Sites allocated in Neighbourhood Development Plans <sup>482</sup> (where safeguarding requirements have been ruled out during plan preparation, or where a mineral site or supporting infrastructure site is permitted after land is allocated in a Neighbourhood Plan)	<p>Some allocated sites may have had safeguarding requirements ruled out during plan preparation; these sites will clearly state this as part of the site allocation and will be exempt from safeguarding.</p> <p>Sites allocations which do not make reference to safeguarding, or where requirements for safeguarding mineral resources and/or supporting infrastructure are outlined, will <b>not</b> be exempt.</p> <p>In cases where a mineral site or supporting infrastructure site is permitted after land is allocated in an adopted Local Plan or Neighbourhood Development Plan, the safeguarding requirement of policy MLP 32 will not apply to planning applications for the allocated land use, as the development of the supporting infrastructure site will be considered to be the 'agent of change' in accordance with national policy<sup>481</sup> and will be expected to provide any suitable mitigation to prevent significant adverse effects on the allocated land use.</p>
c) Minor development within the curtilage of existing buildings Such as: <ul style="list-style-type: none"> <li>• replacement buildings (of similar scale and within the same Use Class)</li> <li>• altered design of buildings</li> <li>• extensions to existing buildings</li> <li>• provision of driveways, garages, car parks, hard standings and non-habitable structures</li> </ul>	<p>These types of development are very unlikely to increase the risk of sterilising a mineral resource or supporting infrastructure.</p>
d) Proposals for work to trees or removal of hedgerows	
e) Applications for advertisement consent	
f) Demolition of buildings	Demolition of a building is very unlikely to increase the risk of sterilising a mineral resource or supporting infrastructure, although any associated redevelopment may need to consider safeguarding requirements.
g) Applications for Listed Building consent	Any development of a Listed Building significant enough to increase the risk of sterilising a mineral resource or supporting infrastructure would be accompanied by a separate planning application which may trigger the need to consider mineral safeguarding requirements.
h) Prior notifications	
i) Certificates of Lawfulness of Existing Use or Development (CLEUD)	These are a matter of legal fact and do not present an opportunity to comment on mineral safeguarding matters.
j) Certificates of Lawfulness of Proposed Use of Development (CLOPUD)	

<sup>481</sup> Ministry of Housing, Communities and Local Government (July 2018) *National Planning Policy Framework*, paragraph 182.

<sup>482</sup> Neighbourhood Development Plans that are in accordance with *National Planning Policy Framework, Planning Practice Guidance* and the *Localism Act*. <http://planningguidance.communities.gov.uk/blog/guidance/neighbourhood-planning/> ID: 41Updated: 19 05 2016

## Safeguarding locally and nationally important mineral resources

### Policy MLP 31: Safeguarding Locally and Nationally Important Mineral Resources

#### Contributing to:

Objectives MO1, MO5, MO6

The locally and nationally important mineral resources identified in Mineral Safeguarding Areas\* will be safeguarded against sterilisation by non-mineral development.

A level of technical assessment appropriate to the proposed development and its potential impact on sterilising mineral resources, both within and beyond the boundary of the proposed development, will be required for all non-exempt development\*\* proposed within or partially within the identified Mineral Consultation Areas\*\*\* in order to demonstrate:

- a) how much of mineral resource the proposed development would sterilise;
- b) the potential economic value of the mineral resource in terms of its type, depth, quality and extent and its potential for use in relation to standard specifications; and
- c) how opportunities for extraction of the mineral resource would be optimised either in advance of development taking place or in phases alongside the development, taking the following sequential approach:
  - i. extracting all of the resource within the proposed development site and in the area which would potentially be sterilised by the development; or
  - ii. where extracting all of the resource is not possible or would prevent a suitable landform for subsequent development, extracting a proportion of the resource which would potentially be sterilised by the development; or
  - iii. as a last resort, if neither i or ii above is possible, undertaking incidental recovery to utilise a portion of the mineral resource as an integral part of the groundworks for the non-mineral development.

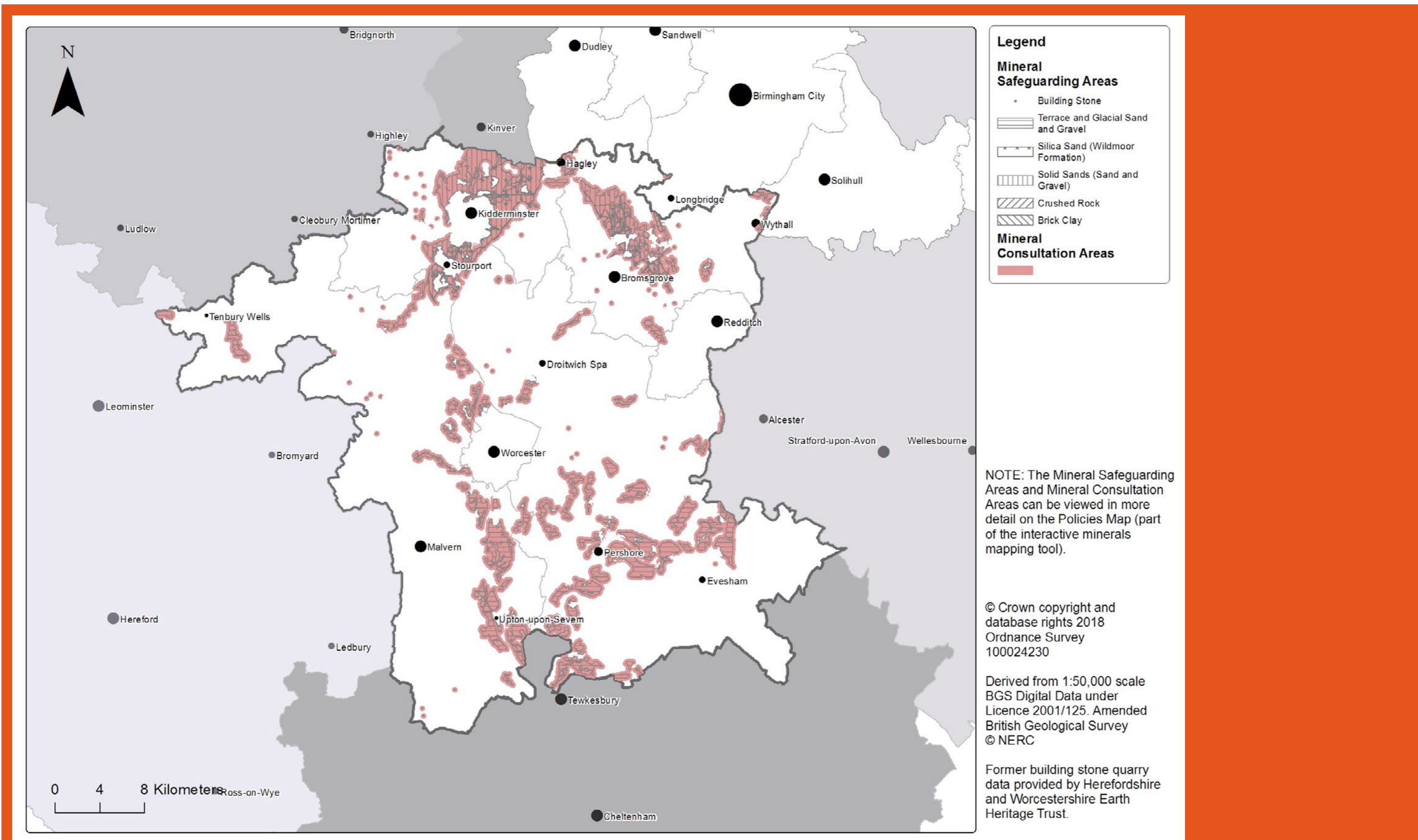
Where the Local Planning Authority, having consulted the Mineral Planning Authority, considers the economic value of the mineral resource to outweigh the merits of the proposed non-mineral development or the extraction of the mineral resource proposed under part c is not considered sufficient, the proposed non-mineral development will be refused.

\* Mineral Safeguarding Areas are defined on the Policies Map.

\*\* All types of development other than those identified as exempt in Table 7.1 are considered to be non-exempt development.

\*\*\* Mineral Consultation Areas are defined on the Policies Map. Notice has been given in writing to the Local Planning Authorities by the County Planning Authority that the Mineral Consultation Areas are areas in which development is likely to affect or be affected by the winning and working of minerals, other than coal, and are subject to the provisions of Schedule 1 para. 7 of the Town and Country Planning Act 1990.

**Figure 7.1. Mineral Safeguarding Areas and Mineral Consultation Areas**



Note: An interactive minerals mapping tool is available at [www.worcestershire.gov.uk/minerals](http://www.worcestershire.gov.uk/minerals). It incorporates the Policies Map which defines the Minerals Local Plan's land-use designations and allocations, and also includes additional supporting data<sup>483</sup> to assist in the use and implementation of the Minerals Local Plan.

483 Other supporting data is included on the interactive minerals mapping tool to assist in the use and implementation of the Minerals Local Plan, but may not be the latest available information. Data will be updated as far as possible alongside publication of the Minerals and Waste Local Development Framework Authority Monitoring Report. Data sources include the British Geological Survey, Coal Authority, data.gov.uk, Environment Agency, Herefordshire and Worcestershire Earth Heritage Trust, Worcestershire Biological Records Centre, and Worcestershire County Council.



## Reasoned justification

### Worcestershire's locally and nationally important mineral resources

7.6 Safeguarding mineral resources requires a balance to be struck between protecting finite resources as a source of supply for the future, and placing a realistic level of burden on both developers and local authorities. Developers should not be expected to spend time and money addressing mineral sterilisation and safeguarding requirements unless there is a reasonable likelihood that the nearby mineral resources are of local or national importance.<sup>484</sup>

7.7 The Minerals Local Plan designates:

- **Mineral Safeguarding Areas** in order to identify the minerals resources of local and national importance which should be safeguarded from sterilisation by non-mineral development.
- **Mineral Consultation Areas** in order to ensure consultation between the relevant Local Planning Authority and the Mineral Planning Authority before non-mineral planning applications are determined to ensure that minerals resources of local and national importance within designated Mineral Safeguarding Areas are not sterilised by non-mineral development where this should be avoided.<sup>485</sup>

7.8 The following mineral resources have therefore been identified as the locally and nationally important mineral resources in Worcestershire which need to be safeguarded:

- terrace and glacial sand and gravel resources,<sup>486</sup>
- solid sand resources,<sup>487</sup>
- crushed rock resources,<sup>488</sup>
- an area of Mercia Mudstone Group brick clay close to the Hartlebury and Waresley brickworks,<sup>489</sup> and
- former building stone quarries.<sup>490</sup>

7.9 These locally and nationally important mineral resources have been designated as Mineral Safeguarding Areas on the Policies Map<sup>491</sup> and are shown in Figure 7.1. This includes resources which fall outside of the strategic corridors, as they could be valuable resources for the future even though they are not the preferred resources to be worked over the life of this Minerals Local Plan.

7.10 It is important that development within Mineral Safeguarding Areas is scrutinised to ensure that the impact on locally and nationally important mineral resources is fully considered, but it is equally important to consider whether development beyond the mineral resource itself but in the vicinity could result in sterilisation of the resource, as shown in Figure 7.2.

484 Ministry of Housing, Communities and Local Government (July 2018) *National Planning Policy Framework* defines mineral resources of local and national importance as: "Minerals which are necessary to meet society's needs, including aggregates, brickclay (especially Etruria Marl and fireclay), silica sand (including high grade silica sands), cement raw materials, gypsum, salt, fluorspar, shallow and deep-mined coal, oil and gas (including conventional and unconventional hydrocarbons), tungsten, kaolin, ball clay, potash, polyhalite and local minerals of importance to heritage assets and local distinctiveness." Not all of these resources occur in Worcestershire.

485 Schedule 1 para. 7 of the *Town and Country Planning Act 1990* requires the local planning authority to consult the county planning authority before it can determine an application for planning permission or permission in principle for a development in an area in relation to which the county planning authority have given notice in writing that development is likely to affect or be affected by the winning and working of minerals, other than coal.

486 As identified as being a key or significant resource in Worcestershire County Council (August 2018) *Analysis of Mineral Resources*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

487 As identified as being a key or significant resource in Worcestershire County Council (August 2018) *Analysis of Mineral Resources*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

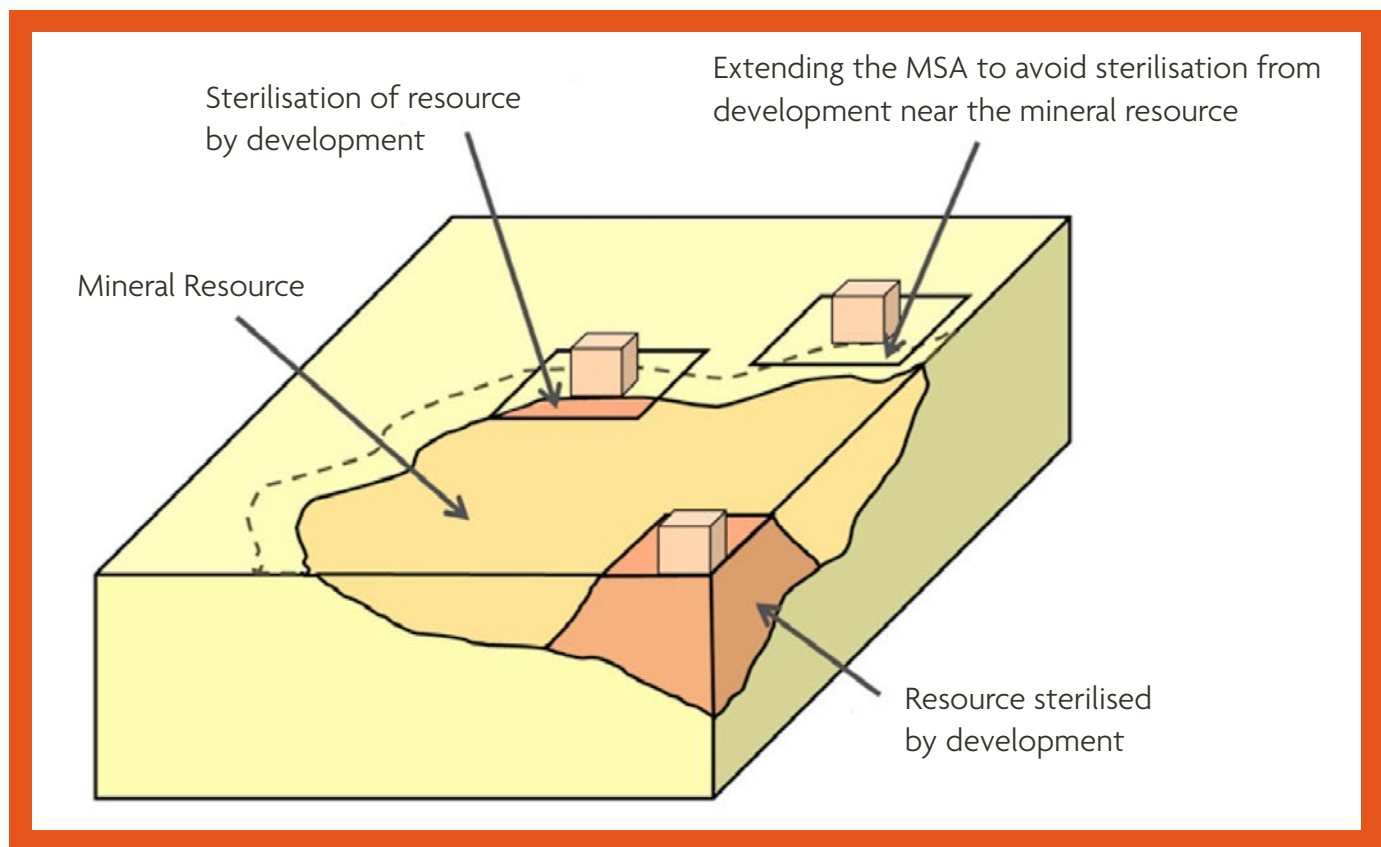
488 As identified as being a key or significant resource in Worcestershire County Council (August 2018) *Analysis of Mineral Resources*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

489 Proposed for safeguarding by Wienerberger Ltd. The Mercia Mudstone Group is extensive in Worcestershire and comments received during the development of the Minerals Local Plan indicated that it would not be appropriate to safeguard the whole of the formation.

490 As identified by Herefordshire and Worcestershire Earth Heritage Trust's project "A Thousand Years of Building with Stone", <http://www.buildingstones.org.uk/>

491 An interactive minerals mapping tool is available at [www.worcestershire.gov.uk/minerals](http://www.worcestershire.gov.uk/minerals). It incorporates the Policies Map which defines the Minerals Local Plan's land-use designations and allocations, and also includes additional supporting data to assist in the use and implementation of the Minerals Local Plan.

**Figure 7.2 . The sterilisation of near surface mineral resource by surface development<sup>492</sup>**



7.11 Mineral Consultation Areas<sup>493</sup> include the area covered by the Mineral Safeguarding Areas<sup>494</sup> and an additional 250m around them to ensure both direct and indirect impacts are considered. However, they have been trimmed to remove any areas within defined settlement boundaries and sites allocated in adopted Local Plans<sup>495</sup> to recognise that the resources in these areas are already compromised to a large extent, and that any new development in those areas would be unlikely to increase the risk of sterilising a mineral resource. The Mineral Consultation Areas are defined on the Policies Map<sup>496</sup> and are shown in Figure 7.1.

7.12 Different types of development are likely to have a different level of impact on the resource, and a distance of 250m reflects the balance between the need to protect mineral resources and the need for a proportionate approach.

492 Adapted from British Geological Survey and The Coal Authority (2011) *Mineral safeguarding in England: good practice advice*, Figure 2.

493 Schedule 1 para. 7 of the *Town and Country Planning Act 1990* requires the local planning authority to consult the county planning authority before it can determine an application for planning permission or permission in principle for a development in an area in relation to which the county planning authority have given notice in writing that development is likely to affect or be affected by the winning and working of minerals, other than coal. Notice has been given in writing that the Mineral Consultation Areas are areas in which development is likely to affect, or be affected by the winning and working of minerals.

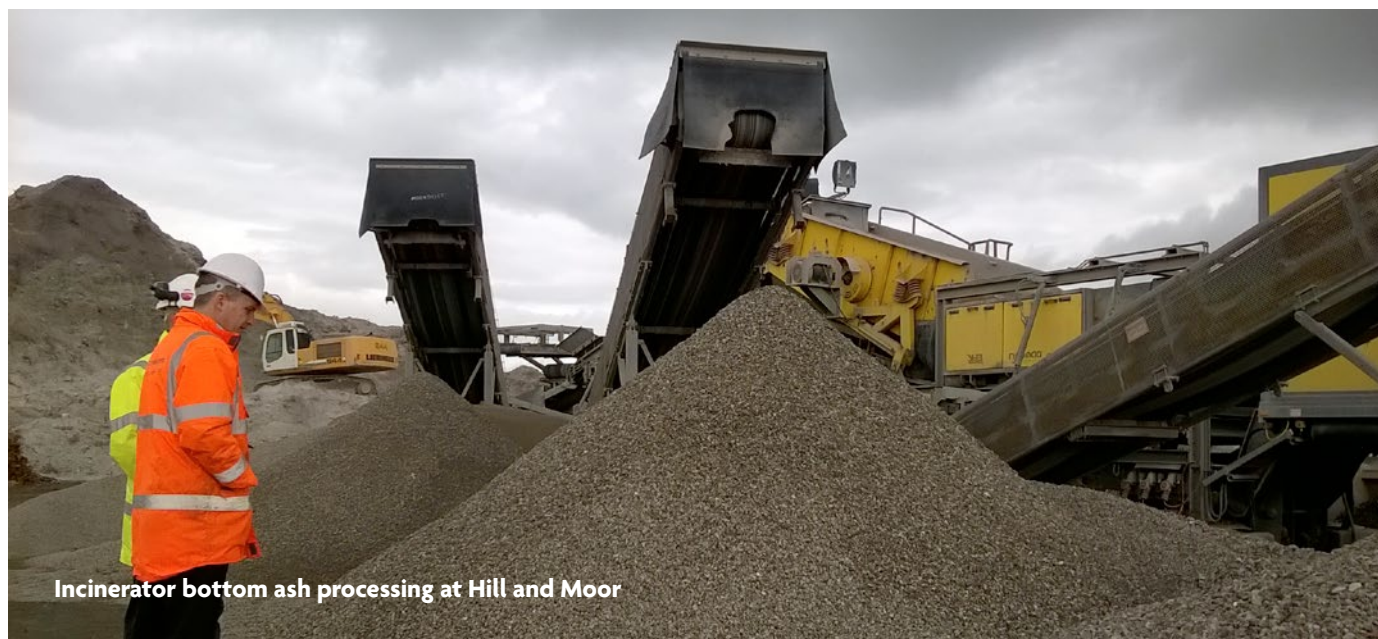
494 Although mineral deposits extend up to and across county boundaries, the Mineral Consultation Areas do not cross the county boundary as this is beyond the remit of the Worcestershire Minerals Local Plan. However, the approach to mineral safeguarding is broadly consistent with that applied or being proposed by neighbouring Mineral Planning Authorities, which will ensure non-minerals development in one administrative area should not needlessly sterilise mineral resources in another.

495 Settlement boundaries and site allocations from:

- *South Worcestershire Development Plan* (2016)
- *Wyre Forest Core Strategy* (2010)
- *Wyre Forest Site Allocations and Policies Development Plan Document* (2013)
- *Bromsgrove District Plan* (2017)
- *Borough of Redditch Local Plan No.4* (2017)

496 An interactive minerals mapping tool is available at [www.worcestershire.gov.uk/minerals](http://www.worcestershire.gov.uk/minerals). It incorporates the Policies Map which defines the Minerals Local Plan's land-use designations and allocations, and also includes additional supporting data to assist in the use and implementation of the Minerals Local Plan.





Incinerator bottom ash processing at Hill and Moor

## Technical assessments

7.13 Policy MLP 31 requires all planning applications for non-exempt development<sup>497</sup> proposed within or partially within the Mineral Consultation Areas to be accompanied by an appropriate level of technical assessment. Such assessments should be undertaken by an appropriate and competent expert and will need to take account of any enabling and ancillary development such as access routes in addition to the main development area. The assessment will be expected to contain a level of detail proportionate to the proposed development and the type of mineral resource. The Local and County Planning Authorities in Worcestershire should include this requirement in their list of validation requirements.

7.14 In order to sufficiently demonstrate the likely extent of any sterilisation and the potential economic value of the resource, consideration will need to be given to the type and sensitivity of the development proposed, and desk-based and site-based assessment of the mineral resource will be required:

### Desk-based assessment:

- for aggregates, Worcestershire County Council's Analysis of Mineral Resources in Worcestershire<sup>498</sup> provides the baseline for this, but may need to be supplemented with further information;

- for other types of mineral, this may comprise data from geological memoirs, technical reports or mining plans on the thickness and quality of geological deposits, and information on local mining and quarrying history.<sup>499</sup>

### Site-based assessment to supplement and verify desk-based findings:

- techniques may include test pits, exploratory drilling, and geophysical survey.
- 7.15 The assessment must be sufficient to establish the depth, quality and extent of the resource and should establish whether the resource is of sufficient quality for the mineral to be used in relation to standard specifications. The assessment should consider the extent of potential sterilisation which the development could cause, as well as whether the sterilisation of the area adjacent to the proposed development would significantly reduce the commercial attractiveness of the wider resource area. To minimise the risk of assessments being considered insufficient, applicants should consult the Mineral Planning Authority on their proposed site investigation plan prior to undertaking any works on-site.

497 All types of development other than those identified as exempt in Table 7.1 above are considered to be non-exempt development.

498 Worcestershire County Council (August 2018) *Analysis of Mineral Resources in Worcestershire*, available at [www.worcestershire.gov.uk/minerals](http://www.worcestershire.gov.uk/minerals).

499 Information from the *British Geological Survey* will provide a starting point, see <http://www.bgs.ac.uk/products/minerals/home.html>.

- 7.16 It is also expected that the applicant will have consulted with the minerals industry, either individual operators or relevant trade associations, as well as the Mineral Planning Authority, to verify the conclusions of the assessment.
- 7.17 The results of the assessment could have a significant impact on the design of and timescales for the proposed development. It is therefore critical that the implications of mineral safeguarding and the likely impact of any minerals extraction on the design parameters for the development are considered at outline application stage.
- 7.18 In the majority of cases, safeguarding a mineral resource is unlikely to mean that the mineral deposit must remain insitu or that the site could not be developed. However, in order that Worcestershire's limited natural resources are used prudently, the technical assessment accompanying the planning application will be expected to evaluate how to optimise opportunities for extraction of the mineral resource. Policy MLP 31 requires a sequential approach to be taken, considering the following possible outcomes:
1. extracting all of the resource within the proposed development site and in the area which would potentially be sterilised by the development (see Figure 7.2), either in advance of development taking place or in phases alongside the development; or
  2. where extracting all of the resource is not possible or would prevent a suitable landform for subsequent development, consider whether a proportion of the resource could be extracted; or
  3. as a last resort if neither 1 or 2 above is possible, consider whether any opportunities exist for "incidental recovery" of the mineral resource.
- 7.19 Measures should be considered to ensure that the full potential of the resource can be realised, which may include stockpiling or storing the extracted resource for future use rather than it being sold immediately for lower grade uses.
- 7.20 Where some or all of the mineral resource is to be extracted, this could potentially provide raw building materials sourced on-site, but is likely to affect the final landform available for development. This needs to be considered at the earliest stages of developing the design and phasing of the development. Consideration from the outset could offer opportunities to deliver high-quality design through appropriate landscaping, the integration of physical features and green infrastructure into site design.
- 7.21 "Incidental recovery" of the mineral resource would involve recovering a portion of the mineral as an integral part of the groundworks for the non-mineral development, such as recovering material removed in landscaping, footings, or creating sustainable drainage schemes. Planning conditions or planning obligations may be required to define and manage any incidental recovery. Any extraction above and beyond this will not be considered to be "incidental recovery" and a separate minerals planning permission will be required.
- 7.22 Where minerals extraction will be controlled by a separate minerals planning permission, planning conditions may be imposed and planning obligations may be required to manage the relationship between the minerals extraction and the subsequent non-mineral development, and extraction will need to be sufficiently advanced before subsequent development can commence. This will need to be assessed on a case-by-case basis. In some cases "sufficiently advanced" will mean that the minerals permission will need to be fully completed, but in other cases it may be possible to phase the two developments so that some development can take place before extraction is fully completed. Campaign working and stockpiling of the mineral resource may help to minimise the timescale for the mineral to be worked. The Mineral Planning Authority and relevant Local Planning Authority will need to be involved in discussions from the outset.



Processing at Clifton sand and gravel working

7.23 In some cases, the scale of the mineral resource and its potential to provide strategic options for the delivery of a steady and adequate supply of minerals in the future could mean the resource is deemed to be of strategic importance, or the particular qualities of the resource may mean that it is strategically or economically significant and cannot easily be found or worked elsewhere. In these cases, the economic value of the mineral resource is likely to be considered to outweigh the need for the proposed development meaning that the resource must either be preserved insitu or be fully extracted. It will be a matter of planning judgement by the decision taker as to whether the long-term economic value of the mineral resource outweighs the merits of the proposed development, and the views of the Mineral Planning Authority should be given considerable weight<sup>500</sup> in making this balanced judgement.

7.24 Should the technical assessment result in the mineral resource not being considered economically valuable either at the present time or for the foreseeable future, the applicant should still submit the findings of these investigations to ensure transparent communication of the justification for not safeguarding the identified mineral resource. A lack of current interest from mineral operators to work the mineral resource will not be considered to be sufficient evidence that the resource is not of economic value for the future.

500 Shadwell Estates Ltd v Breckland District Council v Pigeon (Theftford) Ltd [2013] EWHC 12 (Admin)

## Safeguarding mineral sites and supporting infrastructure

### Policy MLP 32: Safeguarding Mineral Sites and Supporting Infrastructure

#### Contributing to:

Objectives MO1, MO4, MO5

Permitted mineral sites (sites with extant mineral planning permissions), specific sites and preferred areas allocated in the Mineral Site Allocations Development Plan Document, and supporting infrastructure sites (existing, planned and potential sites\* for the storage, handling, processing, manufacture or transport of minerals or mineral products) will be safeguarded against sterilisation by non-minerals development.

A level of technical assessment appropriate to the proposed development and its potential impact on the operation of permitted mineral sites or supporting infrastructure sites will be required for all non-exempt development\*\* proposed within or partially within 250m of the boundary of any permitted mineral site or supporting infrastructure site to demonstrate that the proposed development would not result in an unacceptable impact on:

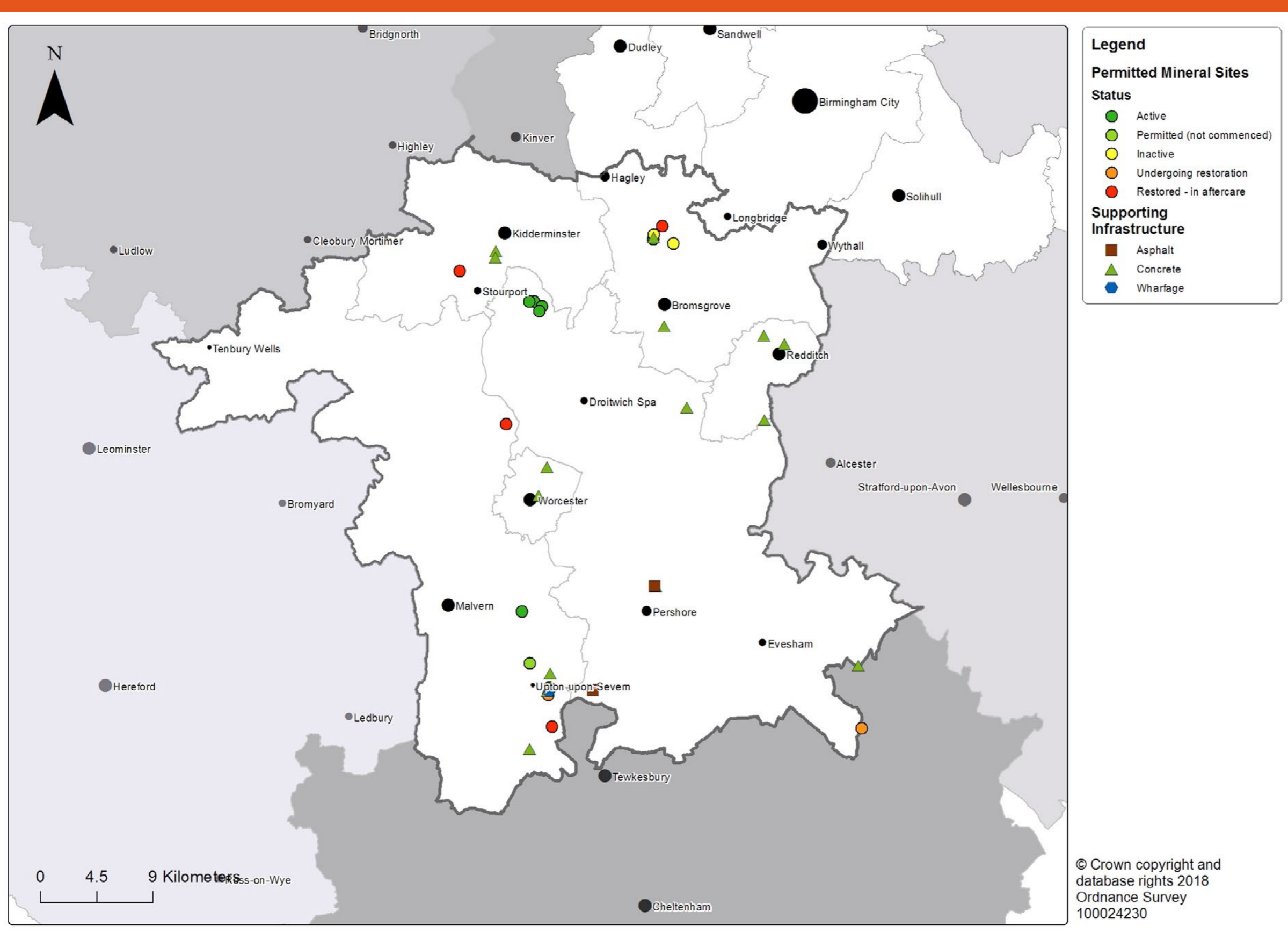
- a) the continued operation of a permitted mineral site;
- b) the successful restoration and aftercare of a permitted mineral site;
- c) the development of a specific site or preferred area allocated in the Mineral Site Allocations Development Plan Document; or
- d) the continued operation of any supporting infrastructure site.

Where the Local Planning Authority, having consulted the Mineral Planning Authority, considers that an unacceptable impact on the operation or restoration of the mineral site or supporting infrastructure could occur, the proposed non-mineral development will be refused unless it is demonstrated how the impacts will be satisfactorily mitigated.

\* “Existing” meaning operational sites with extant planning permissions, “planned” meaning sites with planning permission which has been granted but not yet been implemented, and “potential” meaning sites allocated in adopted Development Plan Documents.

\*\* All types of development other than those identified as exempt in Table 7.1 are considered to be non-exempt development.

**Figure 7.3. Permitted mineral sites and supporting infrastructure sites**



Note: An interactive minerals mapping tool is available at [www.worcestershire.gov.uk/minerals](http://www.worcestershire.gov.uk/minerals). It incorporates the Policies Map which defines the Minerals Local Plan's land-use designations and allocations, and also includes additional supporting data<sup>501</sup> to assist in the use and implementation of the Minerals Local Plan.

<sup>501</sup> Other supporting data is included on the interactive minerals mapping tool to assist in the use and implementation of the Minerals Local Plan, but may not be the latest available information. Data will be updated as far as possible alongside publication of the Minerals and Waste Local Development Framework Authority Monitoring Report. Data sources include the British Geological Survey, Coal Authority, data.gov.uk, Environment Agency, Herefordshire and Worcestershire Earth Heritage Trust, Worcestershire Biological Records Centre, and Worcestershire County Council.



## Reasoned justification

### Permitted mineral sites and supporting infrastructure sites

7.25 Securing a steady and adequate supply of mineral resources requires putting safeguards in place to ensure that permitted and allocated minerals sites and existing, planned and potential storage, handling and transport sites are available should they be needed and are not adversely impacted by sensitive or inappropriate development that would conflict with the use of sites identified for these purposes. Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of non-mineral development permitted after they were established.

7.26 Sites with extant mineral planning permissions and those allocated in the Mineral Site Allocations Development Plan Document are critical to Worcestershire’s ability to supply the demand for minerals. It is equally important that sites undergoing restoration and those in aftercare phases are safeguarded so that they are able to achieve the end state envisioned when planning permission was granted. The following categories have been developed for mineral sites in Worcestershire to indicate their operational status:

- **active:** permitted minerals site in production for some time during the year;
- **inactive:** permitted minerals site worked in the past and contains permitted reserves;
- **permitted – not commenced:** minerals site with planning permission but development not yet commenced;
- **undergoing restoration:** minerals site whose permitted reserves are exhausted and restoration is taking place;
- **restored – in aftercare:** minerals site where permitted reserves are exhausted, restoration is substantially complete and the site is in managed aftercare.

7.27 Storage, handling, processing and transport sites form the infrastructure which supports the production and distribution of minerals and mineral products. It is therefore crucial to not only safeguard mineral resources and primary extraction sites, but also any existing, planned and potential supporting infrastructure sites.<sup>502</sup> This supporting infrastructure includes:

- hub sites for processing mineral extracted from satellite sites;
- rail heads and any associated storage;
- rail links to quarries and any associated storage;
- wharfage and any associated storage;
- handling and processing facilities for the bulk transport by rail or inland waterways of minerals, including recycled, secondary and marinedredged materials;
- sites for concrete batching, the manufacture of coated materials, or other concrete products; and
- sites for the handling, processing and distribution of substitute, recycled and secondary aggregate material.

7.28 Permitted mineral sites, sites allocated in the Mineral Site Allocations Development Plan Document, and existing, planned and potential supporting infrastructure sites will therefore be safeguarded by ensuring that the potential impact of other development on the continued operation of mineral sites and supporting infrastructure sites is fully considered.<sup>503</sup>

7.29 Different types of development may or may not conflict with the use of the mineral site or supporting infrastructure. The potential for conflict is a function of both the sensitivity of the land use or receptors at the proposed non-exempt development and the techniques or processes employed at those sites. Considering development within a distance of 250m reflects the balance between the need to protect mineral sites and supporting infrastructure and the need for a proportionate approach.

<sup>502</sup> “Existing” meaning operational sites with extant planning permissions, “planned” meaning sites with planning permission which has been granted but not yet been implemented, and “potential” meaning sites allocated in adopted Development Plan Documents.

<sup>503</sup> Schedule 1 para. 7 of the *Town and Country Planning Act 1990* requires the local planning authority to consult the county planning authority before it can determine an application for planning permission or permission in principle for development which would materially conflict with or prejudice the implementation of a relevant county policy. The county planning authority considers that any non-exempt development within 250m of a permitted mineral site, an allocated in the Mineral Site Allocations Development Plan Document, or a supporting infrastructure site could materially conflict with or prejudice the implementation of policy MLP 32.

7.30 The number and status of permitted mineral sites and supporting infrastructure will alter over time as planning permissions are granted, permitted reserves are exhausted and sites restored, or planning permissions lapse which have not been implemented. The status of sites and any additional planning permissions granted will be reviewed annually as part of the Authority Monitoring Report.<sup>504</sup> The interactive minerals mapping tool<sup>505</sup> will be updated to show the location and status of mineral sites and supporting infrastructure sites. Figure 7.3 indicates the permitted mineral sites and supporting infrastructure sites to be safeguarded at the point of preparing the Minerals Local Plan.

### Technical assessments

7.31 Policy MLP 32 requires all planning applications for non-exempt development<sup>506</sup> proposed within 250m of a permitted mineral site, specific site or preferred area allocated in the Mineral Site Allocations Development Plan Document, or supporting infrastructure site to be accompanied by an appropriate level of technical assessment. Such assessments should be undertaken by an appropriate and competent expert and will need to take account of any enabling and ancillary development such as access routes in addition to the main development area. The assessment will be expected to contain a level of detail proportionate to the proposed development and the type of mineral site or supporting infrastructure site it could affect. The Local and County Planning Authorities in Worcestershire should include this requirement in their list of validation requirements.

7.32 In order to sufficiently demonstrate the level of likely impact on a mineral site or supporting infrastructure, applicants will need to assess whether the normal operation of the mineral site or supporting infrastructure could have adverse impacts on the proposed land use or any users of the proposed development. This should include consideration of issues addressed in the Development Management policies of the Minerals Local Plan, including but not limited to any noise, vibrations, dust, or fumes that may result from the normal operation of the site, and

could lead to complaints which could jeopardise the continued operation of a permitted mineral site, the development of an allocated minerals site, or the continued operation of a supporting infrastructure site if potential impacts are not considered in advance.

7.33 If the potential impacts are considered in advance as part of the design and development of the proposal, it may be possible to minimise conflict between the existing mineral site or infrastructure operation and the proposed development. Techniques such as considered design, site layout and landscaping or screening of the proposal may in some cases be adequate to mitigate any impacts. Where the operation of a mineral sites or supporting infrastructure could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant for the non-mineral development (the 'agent of change'<sup>507</sup>) will be required to provide any necessary mitigation before the development has been completed.

7.34 It is expected that the applicant will have consulted with the site operator and any relevant trade association, as well as the Mineral Planning Authority, to verify the conclusions of the assessment.

7.35 The results of the technical assessment could have a significant impact on the design of and timescales for the proposed development. It is therefore critical that the implications of safeguarding mineral sites and supporting infrastructure and the likely impact of any necessary mitigation on the design parameters for the development are considered at outline application stage. The results of the assessment should be shared with the Mineral Planning Authority as a matter of urgency.

504 Worcestershire Mineral and Waste Local Development Framework *Authority Monitoring Reports* are available at [www.worcestershire.gov.uk/amr](http://www.worcestershire.gov.uk/amr).

505 An interactive minerals mapping tool is available at [www.worcestershire.gov.uk/minerals](http://www.worcestershire.gov.uk/minerals). It incorporates the Policies Map which defines the Minerals Local Plan's land-use designations and allocations, and also includes additional supporting data to assist in the use and implementation of the Minerals Local Plan.

506 All types of development other than those identified as exempt in Table 7.1 above are considered to be non-exempt development.

507 Ministry of Housing, Communities and Local Government (July 2018) *National Planning Policy Framework*, paragraph 182.





Ripple sand and gravel quarry

## 8. Implementation and monitoring framework

### Responsibilities for implementation

- 8.1 The key mechanisms by which the vision, objectives and policy requirements of the Minerals Local Plan will be implemented are through the submission and determination of planning applications and the provision of pre-application advice, primarily for mineral development but also through considering the implications of other forms of development that may sterilise mineral resources or affect the operation of mineral sites or supporting infrastructure sites.
- 8.2 Worcestershire County Council is the Mineral Planning Authority responsible for determining planning applications for mineral development in Worcestershire, and for monitoring the operation of mineral sites. The City, Borough and District Councils in the county will also have an important role to play in safeguarding mineral resources and supporting infrastructure through the application of Policies MLP 31 and MLP 32.
- 8.3 The steady and adequate supply of minerals is reliant on the submission of planning applications and implementation of permissions by private sector mineral operators. These range in size from large companies operating across national boundaries to smaller-scale operators of single sites.
- 8.4 Worcestershire County Council as Mineral Planning Authority has committed<sup>508</sup> to producing a Mineral Site Allocations Development Plan Document to provide increased certainty to mineral operators to encourage them to bring forward mineral sites, and also to provide greater certainty to communities about where mineral development is likely to take place.
- 8.5 Worcestershire County Council will need to continue to cooperate with neighbouring Mineral Planning Authorities on the cross-boundary implications of mineral development, through engagement with the Aggregates Working Party and other mechanisms.

<sup>508</sup> The timetable for the preparation of the Mineral Site Allocations Development Plan Document is set out in the *Minerals and Waste Local Development Scheme*, available at [www.worcestershire.gov.uk/lds](http://www.worcestershire.gov.uk/lds).

- 8.6 Other key players in the implementation of Worcestershire’s Minerals Local Plan include:
- statutory agencies such as the Environment Agency, Natural England and Historic England in providing advice to both applicants and the Mineral Planning Authority;
  - communities, businesses and the voluntary and charity sector, particularly where they take an active part in liaison committees or have a role to play in the long-term aftercare of restored sites; and
  - bodies responsible for developing Neighbourhood Plans in ensuring any site allocations consider mineral safeguarding requirements.

## Delivering the objectives: risk assessment

- 8.7 In order to be effective, the Mineral Local Plan must be deliverable. The preparation of the Minerals Local Plan has been informed by a robust evidence base, consideration of alternative options, extensive informal and formal consultation with a wide range of interested parties, Sustainability Appraisal, Habitats Regulations Assessment, Strategic Flood Risk Assessment and Equalities Impact Assessment, and is considered to set the most appropriate strategy for mineral development in Worcestershire. However there are inevitable uncertainties associated with mineral demand and supply and the wider economic, social and environmental conditions of the county that may introduce risks to the delivery of the vision and objectives of the plan as intended.
- 8.8 Whilst the Minerals Local Plan is capable of accommodating variations, the risks to the delivery of each of the plan’s objectives are considered below. This takes account of the policy framework which is intended to facilitate their delivery. Where the objective is contributed to by many of the policies, only those that make the most significant contributions are considered in this section.

## Objective MO 1: Enable the supply of minerals

### Substitute, secondary and recycled materials and mineral wastes

- 8.9 The need for almost all types of mineral resources can be met to some degree by substitute, secondary or recycled materials or mineral waste as part of an overall sustainable mineral supply. Policy MLP 9 would enable development proposals for development which would enable the supply of minerals from substitute, secondary or recycled materials or mineral waste to come forward both within the strategic corridors, or outside them where they are justified against the policy criteria and accord with the policies of the Waste Core Strategy.

### Aggregate minerals

- 8.10 Aggregates are crucial to most forms of built development. They are strategically important and there are significant geographical imbalances across the country between the locations where suitable natural aggregate resources exist and where they are most needed. This is recognised in national policy by the “Managed Aggregate Supply System”, which requires Mineral Planning Authorities to make provision for the maintenance of landbanks for aggregate minerals of at least 7 years for sand and gravel, to participate in the operation of an Aggregate Working Party, and to prepare an annual Local Aggregate Assessment.
- 8.11 The baseline Local Aggregate Assessment<sup>509</sup> underpins the Minerals Local Plan, setting the baseline data for sand and gravel using data up to 31st December 2016. The baseline Local Aggregate Assessment was developed in discussion with, and has been endorsed by, the West Midlands Aggregates Working Party.

509 Worcestershire County Council (July 2018) *Worcestershire Local Aggregate Assessment (Using data covering the period up to 31/12/2016)*, available at [www.worcestershire.gov.uk/amr](http://www.worcestershire.gov.uk/amr).

- 8.12 As a Local Aggregate Assessment is produced annually, the figures in the baseline Local Aggregate Assessment should not be considered as static targets, and as such the Minerals Local Plan does not include an annual production target. Instead, Policy MLP 10 seeks to ensure a steady and adequate supply of sand and gravel is maintained by enabling minerals development which contributes to delivering and subsequently maintaining a landbank for sand and gravel of at least 7 years whilst being flexible enough to accommodate changes to the balance of demand and supply identified in the Local Aggregate Assessment annually. Policy MLP 10 also seeks to ensure that sufficient productive capacity is maintained in the county to ensure a steady and adequate supply of minerals.
- 8.13 Based on based on the baseline Local Aggregate Assessment's production guideline of 0.607 million tonnes, the Minerals Local Plan needs to enable planning permission to be obtained for at least 11.53 million tonnes of sand and gravel over the life of the plan in order to maintain a landbank of at least 7 years to 2035 and beyond, but also include sufficient flexibility to adapt to changes in the production guideline. To do this, 63.4%<sup>510</sup> of the county's key and significant terrace and glacial sand and gravel resources and 80.7%<sup>511</sup> of key and significant solid sand resources are allocated as areas of search within the identified strategic corridors, and resources and supporting infrastructure are safeguarded through policies MLP 31 and MLP 32.
- 8.14 Potential sites for sand and gravel have been proposed by mineral operators, landowners and agents in response to calls for sites during the preparation of the Minerals Local Plan, and these will be considered for allocation as specific sites or preferred areas in a separate Mineral Site Allocations Development Plan Document.<sup>512</sup>
- 8.15 There are significant constraints on delivering crushed rock production in Worcestershire. These are outlined in Chapter 2 and informed the baseline Local Aggregate Assessment<sup>513</sup>.

The Mineral Planning Authority undertook extensive discussion with the West Midlands and surrounding Aggregate Working Parties on this matter, reaching agreement that the Worcestershire Minerals Local Plan should not pursue a production guideline which it is unlikely to be able to meet for the foreseeable future, and as such the baseline Local Aggregate Assessment set a production guideline of zero.<sup>514</sup> However, policy MLP 11 enables crushed rock development to come forward and recognises the national policy requirement for a landbank of at least 10 years for crushed rock, but it does not set supply targets or delivery milestones.

- 8.16 No crushed rock resources are within the strategic corridors, but provision is included within policy MLP 1 to enable development outside the strategic corridors where sustainable supply of a mineral cannot be delivered from within them. Crushed rock resources and any sites and supporting infrastructure which might be developed over the life of the plan are safeguarded through policies MLP 31 and MLP 32.
- 8.17 No potential sites for crushed rock have been proposed by mineral operators, landowners or agents in response to calls for sites during the preparation of the Minerals Local Plan.

### Industrial minerals

- 8.18 Worcestershire plays a nationally important role in the provision of brick clay and brick products. Stocks of permitted reserves are considered sufficient for the life of the plan.<sup>515</sup> However, the risk of a loss of productive capacity in the county is increased due to the close proximity of the existing brick clay sites and associated brick works meaning that they could be vulnerable to similar natural events limiting their ability to maintain supply, and their ownership by the same company making the county's productive capacity vulnerable to commercial decisions of one operator.

510 By area, based on Worcestershire County Council (August 2018) *Analysis of Mineral Resources*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

511 By area, based on Worcestershire County Council (August 2018) *Analysis of Mineral Resources*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

512 The timetable for the preparation of the Mineral Site Allocations Development Plan Document is set out in the *Minerals and Waste Local Development Scheme*, available at [www.worcestershire.gov.uk/lds](http://www.worcestershire.gov.uk/lds).

513 Worcestershire County Council (July 2018) *Worcestershire Local Aggregate Assessment (using data covering the period up to 31/12/2016)*, available at [www.worcestershire.gov.uk/amr](http://www.worcestershire.gov.uk/amr).

514 This has been subject to Duty to Cooperate discussions with the Aggregate Working Parties of the West Midlands, South West, South Wales and East Midlands. See Worcestershire County Council (2016) *Minerals Local Plan Background Document – Strategic cross boundary issue: Crushed rock supply in Worcestershire, summary of action undertaken under the duty to cooperate*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

515 Based on the figure for the remaining stock of permitted reserves in December 2016 (as provided in confidential discussions with the operator of the clay sites in Worcestershire, Weinerberger, April 2017), the permitted reserves would last approximately 63 years based on the 10 year average of known annual sales, but based on the sites' maximum potential output this could be less than 25 years.

- 8.19 The Minerals Local Plan therefore makes provision for brick clay through policy MLP 12 which enables development to support investment in brick clay plant and equipment, to provide appropriate clay blends to be made, and to maintain and enhance Worcestershire’s productive capacity for brick clay and clay products.
- 8.20 The strategic corridors encompass 19.5%<sup>516</sup> of the Mercia Mudstone Group clay resources in the county and these are allocated as areas of search. As not all the formations within the Mercia Mudstone Group would be suitable for use as brick clay, the Salwarpe Tributaries Strategic Corridor was identified to include the area where modern commercial brick clay working has taken place and is therefore most likely to offer opportunities for further brick clay working. This is expected to be sufficient to enable the development of further clay workings in appropriate locations. Other formations which may also possess some clay properties are also found within the strategic corridors, but have not been allocated as areas of search. Clay resources, sites and supporting infrastructure are safeguarded through policies MLP 31 and MLP 32.
- 8.21 No potential sites for brick clay have been proposed by mineral operators, landowners or agents in response to calls for sites during the preparation of the Minerals Local Plan.
- 8.22 Worcestershire does not play a significant role in the supply of silica sand for industrial uses, as there are low levels of demand for the type of silica sand which occurs in the county (naturally bonded moulding sands). Silica sand from Worcestershire is not used in glass manufacture or other industrial uses as different grades of silica sand are not usually interchangeable.
- 8.23 The stocks of permitted reserves of silica sand at Worcestershire’s existing sites are likely to be sufficient for the life of the plan.<sup>517</sup> As such, policy MLP 13 seeks to enable silica sand development which would increase or maintain Worcestershire’s stock of permitted reserves of silica sand for industrial uses and seeks to ensure sufficient productive capacity is maintained as this is crucial to ensuring a steady and adequate supply of minerals.
- 8.24 The Minerals Local Plan recognises that, in Worcestershire, silica sand for industrial uses is most likely to be worked alongside aggregate sand and gravel at existing or new sites, and may need to be stockpiled to ensure it remains available for industrial uses rather than being sold for lower grade uses.
- 8.25 The strategic corridors include 52.4%<sup>518</sup> of the Wildmoor Sandstone Formation which contains the silica sand resources in the county, and these are allocated as areas of search. Silica sand resources, sites and supporting infrastructure are safeguarded through policies MLP 31 and MLP 32.
- 8.26 No potential sites specifically for silica sand have been proposed by mineral operators, landowners or agents in response to calls for sites during the preparation of the Minerals Local Plan, although one site which currently produces it has proposed some potential extension areas. These will be considered for allocation as specific sites or preferred areas in a separate Mineral Site Allocations Development Plan Document.<sup>519</sup>
- 8.27 Brine is extracted on a small scale from one site in Droitwich Spa.<sup>520</sup> This site supplied a brine bath facility which closed in 2008<sup>521</sup> and small-scale commercial production of edible salt uses brine from this site.<sup>522</sup>
- 8.28 As rock salt in Worcestershire occurs in relatively thin beds at a significant depth, it is unlikely that these deposits will be of commercial interest during the life of the plan.<sup>523</sup> However policies MLP 15 and MLP 1 would enable development proposals for salt and brine extraction to come forward both within the strategic corridors or outside them where they are justified against the policy criteria.

516 By area, based on the Mercia Mudstone resource after environmental and amenity screening criteria were applied. For further information see Worcestershire County Council (August 2018) *Location of development: screening and site selection methodology*.

517 The available data cannot be published due to long-standing confidentiality agreements agreed between the mineral industry and government to protect operators’ commercial interests. This means that sales data will not be released or published where there are fewer than 3 operational sites in an area unless express permission is given by the operators affected. See Worcestershire County Council (2018) *Silica Sand in Worcestershire*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

518 By area based on the Wildmoor Sandstone Formation resource after environmental and amenity screening criteria were applied. For further information see Worcestershire County Council (August 2018) *Location of development: screening and site selection methodology*.

519 The timetable for the preparation of the Mineral Site Allocations Development Plan Document is set out in the *Minerals and Waste Local Development Scheme*, available at [www.worcestershire.gov.uk/lds](http://www.worcestershire.gov.uk/lds).

520 Tower Hill Pump in Droitwich Spa.

521 There is outline planning approval for a development including a brine bath adjacent to Droitwich Spa lido (Wychavon District Council planning application reference 17/02092/OUT)

522 Droitwich Salt is harvested from brine at Churchfields Saltworks, <https://www.droitwichsalt.com>.

523 *British Geological Survey and Department of the Environment, Transport and the Regions (1999) Mineral Resource Information for Development Plans. Herefordshire and Worcestershire: Resources and Constraints*.

- 8.29 No potential sites for salt or brine have been proposed by mineral operators, landowners or agents in response to calls for sites during the preparation of the Minerals Local Plan.

### Building stone

- 8.30 Worcestershire does not play a significant role in the supply of building stone. There are no active building stone sites in Worcestershire. However policies MLP 14 and MLP 1 would enable development proposals for building stone to come forward both within the strategic corridors or outside them where they are justified against the policy criteria.

- 8.31 Given the significant variations in the appearance and characteristics of building stone, even within the same broad stone type, and the intermittent nature of demand for specific building stones it is difficult to take a more robust approach than this. However, 13 of the historic building stone quarries<sup>524</sup> identified in the Herefordshire and Worcestershire Earth Heritage Trust's project *A Thousand Years of Building with Stone* have been identified as areas of search within the strategic corridors. The historic building stone quarries have also been used as the basis for safeguarding building stone resources through policy MLP 31, and any sites and supporting infrastructure which might be developed over the life of the plan would be safeguarded through policy MLP 32.

- 8.32 No potential sites for building stone have been proposed by mineral operators, landowners or agents in response to calls for sites during the preparation of the Minerals Local Plan.

### Other mineral deposits

- 8.33 Other mineral deposits exist within Worcestershire, but they are not considered to be of local or national importance. However, policies MLP 1, MLP 15 and MLP 16 would enable development proposals for other locally and nationally important mineral resources to come forward both within the strategic corridors, or outside them where they are justified against the policy criteria.

### Objective MO 1 risk assessment conclusion

- 8.34 For the reasons outlined above, it is considered that the policy framework is sufficiently robust but also flexible enough to enable delivery of this objective. The monitoring schedule below sets out indicators which will be used in the Authority Monitoring Report<sup>525</sup> to monitor the success of achieving this objective.

### Objective MO 2: Protect and enhance the environmental and socio-economic function of Worcestershire's network of green spaces and natural elements (green infrastructure)

- 8.35 The delivery of this objective is integrated throughout the plan. It has informed the development of the spatial strategy (Chapter 4) and has been integrated into the policies in Chapter 6 (development management).
- 8.36 The requirements of the policies in these chapters are in line with national policy and are not considered to place undue burden on mineral developers. The green infrastructure priorities identified for the strategic corridors in policies MLP 4 to MLP 8 have been developed in consultation with multiple stakeholders through a Minerals Green Infrastructure Steering Group.<sup>526</sup> While individual sites could deliver on-site green infrastructure benefits in isolation, greater gains can be delivered by pursuing a coordinated approach to maximise the opportunities presented by mineral working throughout the entire life of the site. The priorities have been tailored to each strategic corridor, identifying integrated multifunctional priorities that are outcome focused. They are intended enable the achievement of benefits across multiple sites that are greater than could be achieved by considering each site in isolation. Identifying these priorities will provide certainty to developers and decision makers as to the expectations for mineral working and restoration, whilst the plan as a whole provides the flexibility for site-specific issues to be taken into account. As the identified priorities are multifunctional and are appropriate to the landscape character, ecology, geology and hydrology of the corridor, they should be

<sup>524</sup> Based on the remaining historic building stone sites identified by Herefordshire and Worcestershire Earth Heritage Trust's project "*A Thousand Years of Building with Stone*" (<http://www.buildingstones.org.uk/>) after environmental and amenity screening criteria were applied. For further information see Worcestershire County Council (August 2018) *Location of development: screening and site selection methodology*.

<sup>525</sup> Worcestershire Mineral and Waste Local Development Framework *Authority Monitoring Reports* are available at [www.worcestershire.gov.uk/amr](http://www.worcestershire.gov.uk/amr).

<sup>526</sup> A Minerals Green Infrastructure Steering Group has been active throughout the development of the Minerals Local Plan to assist with embedding the green infrastructure approach. The group consists of Historic England (the Historic Buildings and Monuments Commission for England which was known as English Heritage until 1 April 2015); Environment Agency; Forestry Commission; Herefordshire & Worcestershire Earth Heritage Trust; Natural England; *Nature After Minerals*/RSPB; Worcestershire Wildlife Trust, as well as officers from the following teams within Worcestershire County Council: Strategic Planning & Environmental Policy;; Worcestershire Archive and Archaeology Service;; Development Management; Water/flooding (Lead Local Flood Authority); Countryside Access & Recreation.

cost-effective for developers to implement whilst maximising gains across the components of green infrastructure.

- 8.37 However, the consideration of these individual elements in an integrated way represents a step-change in mineral planning policy in Worcestershire. This presents a risk to delivery, but this risk is mitigated through the encouragement of pre-application discussions at an early stage.
- 8.38 The monitoring schedule below sets out indicators which will be used in the Authority Monitoring Report<sup>527</sup> to monitor the success of achieving this objective.

### **Objective MO 3: Protect and enhance quality, character and distinctiveness of the built, historic, natural and water environment**

- 8.39 The spatial strategy (Chapter 4) seeks to protect and enhance the built, historic, natural and water environment and distinctive local character by requiring the local economic, social and environmental context, climate change and site-specific opportunities for green infrastructure to be taken into account (policy MLP 3), as well as by driving the delivery of green infrastructure priorities in each of the strategic corridors (policies MLP 4 to MLP 8). These priorities have been developed based on baseline environmental conditions in each corridor and the potential for mineral workings and restoration to contribute towards their enhancement.
- 8.40 The development management policies in Chapter 6 seek to control and mitigate the impacts of mineral workings on people and the environment, as well as to optimise the delivery of enhancements. These policies are more comprehensive than those in the Herefordshire and Worcestershire Minerals Local Plan 1997 and are based on European and national legislation, policy and standards and best practice. They are considered proportionate and deliverable.
- 8.41 It is considered that the policy framework is sufficiently robust but also flexible enough to enable delivery of this objective. The monitoring schedule below sets out indicators which will be used in the *Authority Monitoring Report*<sup>528</sup> to monitor the success of achieving this objective.

### **Objective MO 4: Protect and enhance the health, well-being, safety and amenity of people and communities**

- 8.42 The development management policies in Chapter 6 seek to control and mitigate the impacts of mineral workings on people and the environment, as well as to optimise the delivery of enhancements. These policies are more comprehensive than those in the Herefordshire and Worcestershire Minerals Local Plan 1997 and are based on European and national legislation, policy and standards and best practice. They are considered proportionate and deliverable.
- 8.43 The spatial strategy (Chapter 4) also seeks to protect and enhance the health and well-being of communities by identifying priorities for access and recreation provision in the strategic corridors. These enhancements could have a positive effect on health and well-being across the county.
- 8.44 The policies in Chapter 7 will help to protect the health, well-being, safety and amenity of people and communities by ensuring that sensitive or incompatible land uses are not introduced in the vicinity of a mineral operation or supporting infrastructure without the effective consideration of potential impacts and any suitable mitigation to prevent significant adverse effects being provided. The implementation of these policies will require close co-operation between the Mineral Planning Authority and the City, Borough and District Councils in the county. Notice has been given in writing to the Local Planning Authorities by the County Planning Authority that the Mineral Consultation Areas are areas in which development is likely to affect or be affected by the winning and working of minerals, other than coal, and that any non-exempt development within 250m of a permitted mineral site, an allocated in the Mineral Site Allocations Development Plan Document, or a supporting infrastructure site could materially conflict with or prejudice the implementation of policy MLP 32, in accordance with the provisions of Schedule 1 para. 7 of the Town and Country Planning Act 1990.

527 Worcestershire Mineral and Waste Local Development Framework *Authority Monitoring Reports* are available at [www.worcestershire.gov.uk/amr](http://www.worcestershire.gov.uk/amr).

528 Worcestershire Mineral and Waste Local Development Framework *Authority Monitoring Reports* are available at [www.worcestershire.gov.uk/amr](http://www.worcestershire.gov.uk/amr).

8.45 It is considered that the policy framework is sufficiently robust but also flexible enough to enable delivery of this objective. The monitoring schedule below sets out indicators which will be used in the Authority Monitoring Report<sup>529</sup> to monitor the success of achieving this objective.

### Objective MO 5: Protect and enhance the vitality of the local economy

8.46 A steady and adequate supply of minerals is essential to support the vitality of the economy, with mineral resources being required for housing, infrastructure and industrial processes. The policies in Chapter 5 seek to enable the supply of minerals to the economy over the life of the plan and the policies in Chapter 7 protect the long-term supply of minerals by safeguarding mineral resources, sites and supporting infrastructure from being sterilised.

8.47 However mineral working can affect other sectors of the economy, having the potential to impact positively or negatively on agriculture or tourism and to impact on other businesses through amenity impacts and impacts on the strategic transport network. The development management policies in Chapter 6 seek to control and mitigate the impacts of mineral workings on people and the environment, as well as to optimise the delivery of enhancements. These policies are more comprehensive than those in the Herefordshire and Worcestershire Minerals Local Plan 1997 and are based on European and national legislation, policy and standards and best practice. They are considered proportionate and deliverable.

8.48 The spatial strategy (Chapter 4) also seeks to protect and enhance the vitality of the local economy by taking account of opportunities to contribute towards the quality, character and distinctiveness of the county which is important in attracting and retaining businesses, as well as requiring the local economic, social and environmental context to be taken into account. The green infrastructure priorities for the strategic corridors and policies MLP 24 and 25 in Chapter 6 recognise the important contribution that agriculture makes to the local economy.

8.49 It is considered that the policy framework is sufficiently robust but also flexible enough to enable delivery of this objective. The monitoring schedule below sets out indicators which will be used in the Authority Monitoring Report<sup>530</sup> to monitor the success of achieving this objective.

### Objective MO 6: Ensure the prudent use of natural resources

8.50 The winning and working of minerals can be resource intensive. Policy MLP 17 sets a requirement for mineral development to minimise the use of water and energy. It also requires on-site energy generation from renewable and low-carbon sources to be optimised, recognising that this can make a valuable contribution to cutting greenhouse gas emissions but that it may not be possible or appropriate on every site. Policy MLP 17 also highlights that minerals should be extracted efficiently, but that there may be a need to sterilise some resource in order to achieve an overall sustainable development and restoration scheme. Chapter 7 also addresses the prudent use of mineral resources by safeguarding them for future generations.

8.51 Soil resources are an essential and finite resource which can be lost or degraded during mineral development. Policy MLP 24 ensures that they will be protected and conserved.

8.52 It is considered that the policy framework is sufficiently robust but also flexible enough to enable delivery of this objective. The monitoring schedule below sets out indicators which will be used in the Authority Monitoring Report<sup>531</sup> to monitor the success of achieving this objective.

529 Worcestershire Mineral and Waste Local Development Framework Authority Monitoring Reports are available at [www.worcestershire.gov.uk/amr](http://www.worcestershire.gov.uk/amr).

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531 Worcestershire Mineral and Waste Local Development Framework Authority Monitoring Reports are available at [www.worcestershire.gov.uk/amr](http://www.worcestershire.gov.uk/amr).

## Monitoring framework

- 8.53** To enable an assessment of whether the Minerals Local Plan is being implemented effectively and to ensure that the Plan's objectives are being met, monitoring will be undertaken through the Council's Mineral and Waste Local Development Framework *Authority Monitoring Report (AMR)*,<sup>532</sup> The Local Aggregate Assessment<sup>533</sup> will also be updated annually. This will enable the Mineral Planning Authority to establish:
- whether the Minerals Local Plan's policies are being implemented and its objectives met;
  - whether the objectives and policies are still an appropriate response to the evidence base;
  - how the Minerals Local Plan is performing against its targets;
  - whether any individual policies or parts of the Plan require review;
  - whether implementation of policies is having any unintended or unforeseen consequences; and
  - whether the Minerals Local Plan's policies are being reflected in decisions on planning applications and appeals.
- 8.54** This section sets out arrangements for monitoring the effectiveness of the Minerals Local Plan in a set of Monitoring Schedules structured by reference to the Plan's objectives as identified in Chapter 3. For each objective, the policies that are central to its delivery are identified, together with the key delivery agencies and mechanisms. A range of indicators is provided for each objective, together with baseline data, and targets. Some indicators are relevant to more than one objective, and where this is the case the indicator is included under the most relevant objective and referred to under any other relevant objectives. These indicators will be monitored in the AMR, and together the indicators will show whether the plan's objectives are being achieved.
- 8.55** In determining whether targets for some indicators have been met, the Authority Monitoring Report will rely on committee reports, delegated reports and any appeal decisions to determine whether the relevant issue has been adequately considered. Reports on monitoring visits to extant sites will be used to determine whether sites are being developed in conformity with approved plans.
- 8.56** While the Minerals Local Plan looks forward to 2035, an assessment will be undertaken at least once every five years from the date of adoption to determine whether any policies need updating, taking account of any changes to local circumstances and national policy, particularly with regard to those policies which address strategic priorities.<sup>534</sup> The Authority Monitoring Report will be the primary tool to provide the evidence for this assessment.
- 8.57** If monitoring indicates that targets have been missed, the process outlined in Figure 8.1 will be followed. The process sets out to establish if a failure to meet a target is significant, or whether it is the result of short-term or other factors which are not significant. It may be possible to correct some failures through mechanisms such as training decision makers or adopting a Supplementary Planning Document (SPD) rather than formally reviewing the part or all of the Minerals Local Plan.
- 8.58** The monitoring schedules consider how each of the objectives will be implemented and how their achievement will be monitored.

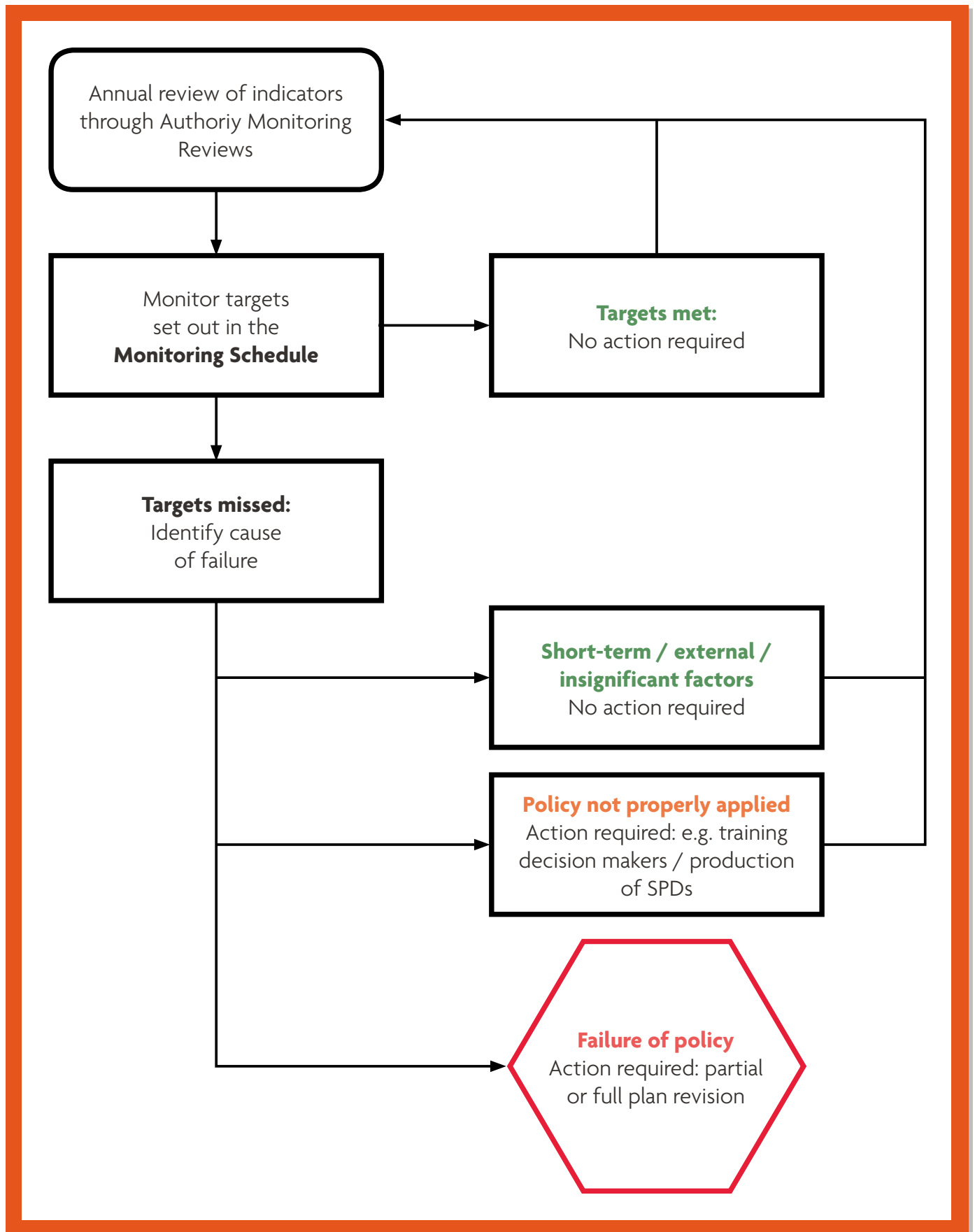
<sup>532</sup> Worcestershire Mineral and Waste Local Development Framework *Authority Monitoring Reports* are available at [www.worcestershire.gov.uk/amr](http://www.worcestershire.gov.uk/amr).

<sup>533</sup> Worcestershire's *Local Aggregate Assessments* are available at [www.worcestershire.gov.uk/amr](http://www.worcestershire.gov.uk/amr).

<sup>534</sup> Ministry of Housing, Communities and Local Government, *Planning Practice Guidance, Plan-making* (Revision date: 13 09 2018).



Figure 8.1. Policy review process



## Monitoring schedule for Objective MO 1: Enable the supply of minerals

### How will this be achieved?

Policy framework	<p>MLP 1: Strategic Location of Development</p> <p>MLP 2: Borrow Pits</p> <p>MLP 9: Contribution of Substitute, Secondary and Recycled Materials and Mineral Waste to Overall Minerals Supply</p> <p>MLP 10: Steady and Adequate Supply of Sand and Gravel</p> <p>MLP 11: Steady and Adequate Supply of Crushed Rock</p> <p>MLP 12: Steady and Adequate Supply of Brick Clay and Clay Products</p> <p>MLP 13: Steady and Adequate Supply of Silica Sand</p> <p>MLP 14: Adequate and Diverse Supply of Building Stone</p> <p>MLP 15: Supply of Other Locally and Nationally Important Industrial Minerals</p> <p>MLP 16: Supply of Energy Minerals</p> <p>MLP 17: Prudent Use of Resources</p> <p>MLP 30: Planning Obligations</p> <p>MLP 31: Safeguarding Locally and Nationally Important Mineral Resources</p> <p>MLP 32: Safeguarding Mineral Sites and Supporting Infrastructure</p>
Responsible bodies	<ul style="list-style-type: none"> <li>• Worcestershire County Council as Mineral Planning Authority</li> <li>• District, City and Borough Councils and Worcestershire County Council as Local Planning Authorities for non-mineral planning applications to address mineral safeguarding</li> <li>• West Midlands Aggregate Working Party in advising on Managed Aggregate Supply System and annual Local Aggregate Assessment</li> <li>• Statutory consultees or other appropriate bodies for technical advice</li> </ul>

### How will we know it is being achieved?

Indicator	Baseline	Target
1. Maintaining a landbank of at least 7 years for sand and gravel	6.99-7.07 years (at 31st December 2016)	Landbank of at least 7 years
2. Maintaining or enhancing the number of sand and gravel sites with permitted reserves in relation to the baseline	5 sites with permitted sand and gravel reserves (at 31st December 2016)	5 or more sites
3. Maintaining or enhancing the number of active sand and gravel sites in relation to the baseline	At 31st December 2016: <ul style="list-style-type: none"> <li>• 3 active sites</li> <li>• 2 inactive sites</li> <li>• 1 permitted site not yet commenced</li> </ul>	3 or more active sites
4. Maintaining a landbank of at least 10 years for crushed rock	0 years (the constraints on delivering crushed rock production in Worcestershire have been recognised through Duty to Cooperate discussions)	The constraints on Worcestershire's crushed rock resources identified in the Minerals Local Plan are still extant and duty to cooperate discussions continue to indicate that surrounding Mineral Planning Authorities are able to accommodate supplying Worcestershire's demand for crushed rock  <b>OR</b> Landbank of at least 10 years

<p>5. Maintaining or enhancing the number of crushed rock sites with permitted reserves in relation to the baseline</p>	<p>0 (at point of plan preparation 2018)</p>	<p>0 (zero) if duty to cooperate discussions continue to indicate that surrounding Mineral Planning Authorities are able to accommodate supplying Worcestershire's demand for crushed rock</p> <p><b>OR</b></p> <p>At least 1 site</p>
<p>6. Maintaining or enhancing the number of active crushed rock sites in relation to the baseline</p>	<p>0 (at point of plan preparation 2018)</p>	<p>0 (zero) if duty to cooperate discussions continue to indicate that surrounding Mineral Planning Authorities are able to accommodate supplying Worcestershire's demand for crushed rock</p> <p><b>OR</b></p> <p>At least 1 active site</p>
<p>7. No concerns raised regarding Worcestershire's contribution to wider aggregates supply</p>	<p>Baseline Local Aggregate Assessment<sup>535</sup> endorsed by West Midlands Aggregate Working Party with no concerns raised regarding Worcestershire's contribution to wider aggregates supply</p>	<p>No concerns raised by West Midlands Aggregate Working Party or by surrounding Mineral Planning Authorities through duty to cooperate discussions</p>
<p>8. Number of applications received for development which would enable the supply of minerals from substitute, secondary or recycled materials or mineral waste</p>	<p>N/A</p>	<p>This indicator has no target, it is being monitored for information and may reveal trends over time</p>
<p>9. Sufficient stock of permitted brick clay reserves for the life of the plan</p>	<p>The stock of permitted reserves in December 2016<sup>536</sup> would last approximately 63 years (to 2079) based on the 10 year average of known annual sales, but based on the sites' maximum potential output this could be less than 25 years (to 2040).</p>	<p>Permitted brick clay reserves in the county sufficient to last until at least 2035</p>
<p>10. Maintaining or enhancing the number of brick clay sites with permitted reserves in relation to the baseline</p>	<p>2 sites with permitted brick clay reserves (at point of plan preparation 2018)</p>	<p>2 or more sites</p>

535 Worcestershire County Council (July 2018) *Worcestershire Local Aggregate Assessment (using data covering the period up to 31/12/2016)*, available at [www.worcestershire.gov.uk/amr](http://www.worcestershire.gov.uk/amr)

536 As provided in confidential discussions with the operator of the clay sites in Worcestershire, Weinerberger, in April 2017

11. Maintaining or enhancing the number of active brick clay sites in relation to the baseline	2 active sites (at point of plan preparation 2018)	2 or more active sites
12. Maintaining or enhancing the number of silica sand sites with permitted reserves in relation to the baseline	1 site with permitted silica sand reserves (at point of plan preparation 2018)	1 or more sites
13. Maintaining or enhancing the number of active silica sand sites in relation to the baseline	1 active site (at point of plan preparation 2018)	1 or more active sites
14. The number of building stone sites with permitted reserves in relation to the baseline	0	This indicator has no target, it is being monitored for information and may reveal trends over time
15. The number of active building stone sites in relation to the baseline	0	This indicator has no target, it is being monitored for information and may reveal trends over time
16. The number of active salt or brine sites	1 active site (at point of plan preparation, 2018)	This indicator has no target, it is being monitored for information and may reveal trends over time
17. The number of applications received for any other industrial minerals	N/A	This indicator has no target, it is being monitored for information and may reveal trends over time
18. No change in status of coal deposits in the county by the Coal Authority	No coal resources of commercial value	No coal resources of commercial value
19. No change in the number of Petroleum Exploration and Development Licence areas within the county	0	0 (zero) Petroleum Exploration and Development Licence areas within the county
20. No non-mineral development permitted which would sterilise locally or nationally important mineral resources, mineral sites or supporting infrastructure sites where this should be avoided	N/A	0 (zero) developments permitted in Mineral Consultation Areas against Mineral Planning Authority advice
21. Optimisation of opportunities for extraction of mineral resource in advance of, or alongside, other development where it is necessary to enable that development to take place	N/A	This indicator has no target, as it will depend on the number and type of applications in Mineral Consultation Areas over the monitoring period. It will be monitored for information and may reveal trends over time
22. Percentage of applications determined within 13 weeks (16 weeks if EIA development) or within an agreed extension of time	N/A	100%

23. Number of pre-application discussions undertaken by the Mineral Planning Authority	N/A	This indicator has no target, it is being monitored for information and may reveal trends over time
24. Adoption of appropriate policies regarding safeguarding mineral resources, sites and infrastructure in City, Borough and District Councils' Development Plan Documents	N/A	100% of adopted City, Borough and District Councils' Development Plan Documents contain appropriate policies regarding safeguarding mineral resources, sites and infrastructure
25. Inclusion of appropriate requirements regarding safeguarding mineral resources, sites and infrastructure in City, Borough, District and County Councils' validation documents	N/A	100% of City, Borough, District and County Councils' validation documents contain appropriate requirements regarding safeguarding mineral resources, sites and infrastructure

Reference will also be made to the following indicators under this objective:

Indicator 37 (MO 2)

Indicator 43 (MO 3)

Indicator 72 (MO 5)

## Monitoring schedule for Objective MO 2: Protect and enhance the environmental and socio-economic function of Worcestershire’s network of green spaces and natural elements (green infrastructure)

How will this be achieved?	
Policy framework	MLP 1: Strategic Location of Development MLP 2: Borrow Pits MLP 3: Green Infrastructure MLP 4: Avon and Carrant Brook Strategic Corridor MLP 5: Lower Severn Strategic Corridor MLP 6: North East Worcestershire Strategic Corridor MLP 7: North West Worcestershire Strategic Corridor MLP 8: Salwarpe Tributaries Strategic Corridor MLP 20: Access and Recreation MLP 21: Biodiversity MLP 22: Historic Environment MLP 23: Landscape MLP 24: Soils MLP 25: Best and Most Versatile Agricultural Land MLP 26: Geodiversity MLP 27: Water Quality and Quantity MLP 28: Flooding MLP 29: Transport MLP 30: Planning Obligations
Responsible bodies	<ul style="list-style-type: none"> <li>• Worcestershire County Council as Mineral Planning Authority</li> <li>• Statutory consultees or other appropriate bodies for technical advice</li> </ul>

How will we know it is being achieved?		
Indicator	Baseline	Target
26. All permitted mineral developments adequately demonstrate that opportunities to deliver the green infrastructure priorities of the relevant strategic corridor will be optimised	N/A	100%
27. All permitted mineral developments adequately demonstrate that opportunities to address local economic, social and environmental impacts and opportunities have influenced the design of the development	N/A	100%

<p>28. All permitted mineral developments adequately demonstrate that risks from climate change and any opportunities for the site to contribute towards mitigating and adapting to climate change have influenced the design of the development</p>	<p>N/A</p>	<p>100%</p>
<p>29. All permitted mineral developments adequately demonstrate that site-specific opportunities to protect and enhance inherent landscape character have influenced the design of the development</p>	<p>N/A</p>	<p>100%</p>
<p>30. All permitted mineral developments adequately demonstrate that site-specific opportunities to conserve, restore and enhance ecological networks and deliver net gains for biodiversity have influenced the design of the development</p>	<p>N/A</p>	<p>100%</p>
<p>31. All permitted mineral developments adequately demonstrate that site-specific opportunities to protect and enhance the condition, legibility and understanding of heritage assets and their setting have influenced the design of the development</p>	<p>N/A</p>	<p>100%</p>
<p>32. All permitted mineral developments adequately demonstrate that site-specific opportunities to reduce the causes and impacts of flooding have influenced the design of the development</p>	<p>N/A</p>	<p>100%</p>
<p>33. All permitted mineral developments adequately demonstrate that site-specific opportunities to protect and enhance surface water and groundwater resources at the local and catchment scale have influenced the design of the development</p>	<p>N/A</p>	<p>100%</p>
<p>34. All permitted mineral developments adequately demonstrate that site-specific opportunities to improve the condition, legibility and understanding of geodiversity have influenced the design of the development</p>	<p>N/A</p>	<p>100%</p>

35. All permitted mineral developments adequately demonstrate that site-specific opportunities to enhance the rights of way network and provision of publicly accessible green space have influenced the design of the development	N/A	100%
36. All permitted mineral developments adequately demonstrate how green infrastructure benefits will be secured for the long term	N/A	100%
37. All extant mineral sites delivering development in accordance with approved working, restoration and aftercare plans	N/A	100%
38. Delivery of the green infrastructure priorities of the Avon and Carrant Brook Strategic Corridor over the life of the plan	N/A	This indicator has no target, it is being monitored for information and may reveal trends over time
39. Delivery of the green infrastructure priorities of the Lower Severn Strategic Corridor over the life of the plan	N/A	This indicator has no target, it is being monitored for information and may reveal trends over time
40. Delivery of the green infrastructure priorities of the North East Worcestershire Strategic Corridor over the life of the plan	N/A	This indicator has no target, it is being monitored for information and may reveal trends over time
41. Delivery of the green infrastructure priorities of the North West Worcestershire Strategic Corridor over the life of the plan	N/A	This indicator has no target, it is being monitored for information and may reveal trends over time
42. Delivery of the green infrastructure priorities of the Salwarpe Tributaries strategic corridor over the life of the plan	N/A	This indicator has no target, it is being monitored for information and may reveal trends over time
Reference will also be made to the following indicators under this objective: Indicators 43, 46, 47, 48, 49, 50, 51 (MO 3) Indicator 60 (MO 4) Indicator 70 (MO 5) Indicator 77 (MO 6)		



## Monitoring schedule for Objective MO 3: Protect and enhance the quality, character and distinctiveness of the built, historic, natural and water environment

### How will this be achieved?

Policy framework	<p>MLP 1: Strategic Location of Development</p> <p>MLP 3: Green Infrastructure</p> <p>MLP 4: Avon and Carrant Brook Strategic Corridor</p> <p>MLP 5: Lower Severn Strategic Corridor</p> <p>MLP 6: North East Worcestershire Strategic Corridor</p> <p>MLP 7: North West Worcestershire Strategic Corridor</p> <p>MLP 8: Salwarpe Tributaries Strategic Corridor</p> <p>MLP 14: Adequate and Diverse Supply of Building Stone</p> <p>MLP 17: Prudent Use of Resources</p> <p>MLP 18: Green Belt</p> <p>MLP 20: Access and Recreation</p> <p>MLP 21: Biodiversity</p> <p>MLP 22: Historic Environment</p> <p>MLP 23: Landscape</p> <p>MLP 24: Soils</p> <p>MLP 25: Best and Most Versatile Agricultural Land</p> <p>MLP 26: Geodiversity</p> <p>MLP 27: Water Quality and Quantity</p> <p>MLP 28: Flooding</p> <p>MLP 29: Transport</p> <p>MLP 30: Planning Obligations</p>
Responsible bodies	<ul style="list-style-type: none"> <li>• Worcestershire County Council as Mineral Planning Authority</li> <li>• Statutory consultees or other appropriate bodies for technical advice</li> </ul>

### How will we know it is being achieved?

Indicator	Baseline	Target
<p>43. All permitted mineral developments either within a strategic corridor or:</p> <ul style="list-style-type: none"> <li>• within the boundary of a site with extant planning permission;</li> <li>• a borrow pit;</li> <li>• would prevent some or all of a mineral resource being sterilised; or</li> <li>• the mineral resource has qualities which mean sustainable supply of the mineral cannot be delivered from within the strategic corridors</li> </ul>	N/A	100%
<p>44. Proportion of permitted mineral developments within an allocated site</p>	N/A	This indicator has no target, it is being monitored for information and may reveal trends over time

45. All permitted mineral developments adequately demonstrate that they will preserve the openness of the Green Belt and will not conflict with the purposes of including land within the Green Belt	N/A	100%
46. All permitted mineral developments adequately demonstrate that they will protect, conserve and enhance biodiversity	N/A	100%
47. All permitted mineral developments adequately demonstrate that they will protect, conserve and enhance the historic environment	N/A	100%
48. All permitted mineral developments adequately demonstrate that they will protect, conserve and enhance the character and distinctiveness of the landscape, including inherent landscape character and Areas of Outstanding Natural Beauty	N/A	100%
49. All permitted mineral developments adequately demonstrate that they will protect, conserve and enhance geodiversity	N/A	100%
50. All permitted mineral developments adequately demonstrate that they will protect and enhance the quality, quantity and flow of surface water and groundwater resources	N/A	100%
51. All permitted mineral developments adequately demonstrate that they will avoid increasing flood risk to people and property on site or elsewhere	N/A	100%

Reference will also be made to the following indicators under this objective:

Indicators 14, 15 (MO 1)

Indicators 26, 27, 29, 37, 38, 39, 40, 41, 42 (MO 2)

Indicator 60 (MO 4)

Indicator 70 (MO 5)

Indicators 76, 77 (MO 6)

## Monitoring schedule for Objective MO 4: Protect and enhance the health, well-being, safety and amenity of people and communities

How will this be achieved?	
Policy framework	MLP 1: Strategic Location of Development MLP 3: Green Infrastructure MLP 4: Avon and Carrant Brook Strategic Corridor MLP 5: Lower Severn Strategic Corridor MLP 6: North East Worcestershire Strategic Corridor MLP 7: North West Worcestershire Strategic Corridor MLP 8: Salwarpe Tributaries Strategic Corridor MLP 19: Amenity MLP 20: Access and Recreation MLP 28: Flooding MLP 29: Transport MLP 30: Planning Obligations MLP 32: Safeguarding Mineral Sites and Supporting Infrastructure
Responsible bodies	<ul style="list-style-type: none"> <li>• Worcestershire County Council as Mineral Planning Authority</li> <li>• District, City and Borough Councils and Worcestershire County Council as Local Planning Authorities for non-mineral planning applications to address mineral safeguarding</li> <li>• Statutory consultees or other appropriate bodies for technical advice</li> </ul>

### How will we know it is being achieved?

Indicator	Baseline	Target
52. All permitted mineral developments adequately demonstrate that they will not give rise to an unacceptable adverse effect on amenity, health and well-being, the environment or areas of tranquility from air quality	N/A	100%
53. All permitted mineral developments adequately demonstrate that they will not give rise to an unacceptable adverse effect on amenity, health and well-being, the environment or areas of tranquility from dust	N/A	100%
54. All permitted mineral developments adequately demonstrate that they will not give rise to an unacceptable adverse effect on amenity, health and well-being, the environment or areas of tranquility from odour	N/A	100%

<p>55. All permitted mineral developments adequately demonstrate that they will not give rise to an unacceptable adverse effect on amenity, health and well-being, the environment or areas of tranquility from noise and vibration</p>	<p>N/A</p>	<p>100%</p>
<p>56. All permitted mineral developments adequately demonstrate that they will not give rise to an unacceptable adverse effect on amenity, health and well-being, the environment or areas of tranquility from light</p>	<p>N/A</p>	<p>100%</p>
<p>57. All permitted mineral developments adequately demonstrate that they will not give rise to an unacceptable adverse effect on amenity, health and well-being, the environment or areas of tranquility from visual amenity and visual intrusion</p>	<p>N/A</p>	<p>100%</p>
<p>58. All permitted mineral developments adequately demonstrate that they will not give rise to an unacceptable adverse effect on amenity, health and well-being, the environment or areas of tranquility from land instability</p>	<p>N/A</p>	<p>100%</p>
<p>59. All permitted mineral developments adequately demonstrate that they will not give rise to an unacceptable adverse effect on amenity, health and well-being, the environment or areas of tranquility from contamination</p>	<p>N/A</p>	<p>100%</p>
<p>60. All permitted mineral developments adequately demonstrate that they will protect and enhance rights of way and public access provision</p>	<p>N/A</p>	<p>100%</p>

61. All permitted mineral developments adequately demonstrate that they will use the most sustainable transport options for the movement of minerals and materials	N/A	100%
62. All permitted mineral developments adequately demonstrate that they will use the most sustainable transport options for employees and visitors	N/A	100%
63. All permitted mineral developments adequately demonstrate that they will not have an unacceptable adverse effect on transport safety and congestion	N/A	100%
64. All permitted mineral developments adequately demonstrate that they will not have an unacceptable adverse effect on the environment or amenity along transport routes	N/A	100%
65. Number of submitted applications which undertook pre-application engagement with statutory consultees, local communities and interest groups	N/A	This indicator has no target, it is being monitored for information and may reveal trends over time
66. Proportion of those submitted applications where pre-application engagement with statutory consultees, local communities and interest groups was undertaken which demonstrate how that public pre-application consultation influenced the submitted proposal	N/A	100%
67. Number of active liaison committees	5 (during 2018)	This indicator has no target, it is being monitored for information and may reveal trends over time

Reference will also be made to the following indicators under this objective:

Indicator 20 (MO 1)

Indicators 26, 27, 28, 37, 38, 39, 40, 41, 42 (MO 2)

Indicators 43, 51 (MO 3)

## Monitoring schedule for Objective MO 5: Protect and enhance the vitality of the local economy

### How will this be achieved?

Policy framework	<p>MLP 1: Strategic Location of Development</p> <p>MLP 2: Borrow Pits</p> <p>MLP 3: Green Infrastructure</p> <p>MLP 4: Avon and Carrant Brook Strategic Corridor</p> <p>MLP 5: Lower Severn Strategic Corridor</p> <p>MLP 6: North East Worcestershire Strategic Corridor</p> <p>MLP 7: North West Worcestershire Strategic Corridor</p> <p>MLP 8: Salwarpe Tributaries Strategic Corridor</p> <p>MLP 9: Contribution of Substitute, Secondary and Recycled Materials and Mineral Waste to Overall Minerals Supply</p> <p>MLP 10: Steady and Adequate Supply of Sand and Gravel</p> <p>MLP 11: Steady and Adequate Supply of Crushed Rock</p> <p>MLP 12: Steady and Adequate Supply of Brick Clay and Clay Products</p> <p>MLP 13: Steady and Adequate Supply of Silica Sand</p> <p>MLP 14: Adequate and Diverse Supply of Building Stone</p> <p>MLP 15: Supply of Other Locally and Nationally Important Industrial Minerals</p> <p>MLP 16: Supply of Energy Minerals</p> <p>MLP 17: Prudent Use of Resources</p> <p>MLP 19: Amenity</p> <p>MLP 20: Access and Recreation</p> <p>MLP 24: Soils</p> <p>MLP 25: Best and Most Versatile Agricultural Land</p> <p>MLP 28: Flooding</p> <p>MLP 29: Transport</p> <p>MLP 30: Planning Obligations</p> <p>MLP 31: Safeguarding Locally and Nationally Important Mineral Resources</p> <p>MLP 32: Safeguarding Mineral Sites and Supporting Infrastructure</p>
Responsible bodies	<ul style="list-style-type: none"> <li>• Worcestershire County Council as Mineral Planning Authority</li> <li>• District, City and borough councils and Local Planning Authorities where non-mineral planning permission would be required</li> <li>• Statutory consultees or other appropriate bodies for technical advice</li> </ul>

### How will we know it is being achieved?

Indicator	Baseline	Target
68. Number of applications for mineral development that propose significant development of best and most versatile agricultural land	N/A	This indicator has no target, it is being monitored for information and may reveal trends over time

69. All permitted mineral developments adequately demonstrate that they will avoid significant development of best and most versatile agricultural land unless they adequately demonstrate it to be necessary	N/A	100%
70. All permitted mineral developments adequately demonstrate that they will safeguard the long-term potential of best and most versatile agricultural land by enabling the land to retain its longer-term capability for agricultural use	N/A	100%
71. Maintain or increase % of Worcestershire's Gross Value Added (GVA) from mineral development in relation to the baseline	0.03% (contribution from minerals development was 0.03% each year from 2010-2014)	% of Worcestershire's GVA from mineral development $\geq$ 0.03%
72. Number of applications for borrow pits	N/A	This indicator has no target, it is being monitored for information only and may reveal trends over time

Reference will also be made to the following indicators under this objective:

Indicators 1, 4, 8, 9, 20 (MO 1)

Indicators 27, 28, 37, 38, 39, 40, 41, 42 (MO 2)

Indicators 43, 51 (MO 3)

Indicators 61, 62 (MO 4)

Indicators 73, 74, 75, 76, 77 (MO 6)

## Monitoring schedule for Objective MO 6: Prudent use of natural resources

### How will this be achieved?

Policy framework	MLP 2: Borrow Pits MLP 9: Contribution of Substitute, Secondary and Recycled Materials and Mineral Waste to Overall Minerals Supply MLP 17: Prudent Use of Resources MLP 30: Planning Obligations MLP 31: Safeguarding Locally and Nationally Important Mineral Resources
Responsible bodies	<ul style="list-style-type: none"> <li>• Worcestershire County Council as Mineral Planning Authority</li> <li>• District, City and borough councils and Local Planning Authorities where non-mineral planning permission would be required</li> <li>• Statutory consultees or other appropriate bodies for technical advice</li> </ul>

### How will we know it is being achieved?

Indicator	Baseline	Target
73. All permitted mineral developments adequately demonstrate that they will minimise the use of water in buildings, plant and transport	N/A	100%
74. All permitted mineral developments adequately demonstrate that they will minimise the use of energy in buildings, plant and transport	N/A	100%
75. All permitted mineral developments adequately demonstrate that they will optimise energy generation from renewable and low-carbon sources	<ul style="list-style-type: none"> <li>• N/A</li> </ul>	100%
76. All permitted mineral developments adequately demonstrate how the benefits of maximising the extraction of mineral resources has been balanced against any benefits of sterilisation of some of the resource	N/A	100%
77. All permitted mineral developments adequately demonstrate how they will protect and conserve soil resources	N/A	100%

Reference will also be made to the following indicators under this objective:

Indicators 8, 20 (MO 1)

Indicator 37 (MO 2)

Indicator 72 (MO 5)





Broadway Quarry, near Fish Hill

## Appendix 1: Superseded policies

The policies in the County of Hereford and Worcester Minerals Local Plan will remain in place until the Minerals Local Plan for Worcestershire is formally adopted by the Worcestershire County Council as the Mineral Planning Authority.

**A.1.1** The following policies in the County of Hereford and Worcester Minerals Local Plan, adopted April 1997, were “saved” by the Secretary of State for Communities and Local Government on 7th September 2007 in exercise of the power confirmed by paragraph 1(3) of Schedule 8 to the Planning and Compulsory Purchase Act 2004 and are hereby superseded by the Worcestershire Minerals Local Plan in so far as they apply to Worcestershire:

- Policy 1 Preferred Areas (S&G)
- Policy 2 Other Sand and Gravel Deposits
- Policy 5 Abberley Hills Quarrying Policy
- Policy 6 Extraction of Minerals Other than Aggregates
- Policy 7 Preferred Hard Rock Extension Areas.

**A.1.2** The effect is that all policies in the County of Hereford and Worcester Minerals Local Plan have now been removed or superseded in so far as it applies to Worcestershire. That document therefore no longer forms part of the Development Plan for Worcestershire.



Processing sand and gravel at Ryall House Farm

## Appendix 2: Identifying and defining the strategic corridors

### Justification for identifying strategic corridors

- A.2.1** In order to direct mineral development to appropriate locations and realise the potential for minerals development to address some of Worcestershire's important economic, environmental and social issues, strategic corridors have been identified (Chapter 4: Spatial strategy and Figure 4.1: Key diagram) and multifunctional green infrastructure priorities have been established for each strategic corridor (policies MLP 4 to MLP 8).
- A.2.2** These priorities will drive how mineral working and restoration takes place in order to maximise the multifunctional green infrastructure gains at a landscape scale to benefit the environment, the economy and communities. The priorities have been developed in consultation with multiple stakeholders through a Minerals Green Infrastructure Steering Group.<sup>537</sup>
- A.2.3** While individual sites could deliver on-site green infrastructure benefits in isolation, greater gains can be delivered by pursuing a coordinated approach to maximise the opportunities presented by mineral working throughout the entire life of the site. The priorities have been tailored to each strategic corridor, identifying integrated multifunctional priorities that are outcome focused. They are intended enable the achievement of benefits across multiple sites that are greater than could be achieved by considering each site in isolation.
- A.2.4** Identifying these priorities will provide certainty to developers and decision makers as to the expectations for mineral working and restoration, whilst the plan as a whole provides the flexibility for site-specific issues to be taken into account. As the identified priorities are multifunctional and are appropriate to the landscape character, ecology, geology and hydrology of the corridor, they should be cost-effective for developers to implement whilst maximising gains across the components of green infrastructure.

<sup>537</sup> A Minerals Green Infrastructure Steering Group has been active throughout the development of the Minerals Local Plan to assist with embedding the Green Infrastructure approach. The group consists of Historic England (the Historic Buildings and Monuments Commission for England which was known as English Heritage until 1st April 2015); Environment Agency; Forestry Commission; Herefordshire & Worcestershire Earth Heritage Trust; Natural England; Nature After Minerals/RSPB; Worcestershire Wildlife Trust, as well as officers from the following teams within Worcestershire County Council: Strategic Planning & Environmental Policy; Worcestershire Archive and Archaeology Service; Development Management; Water/flooding (Lead Local Flood Authority); Countryside Access & Recreation.

- A.2.5 The spatial distribution of mineral resources was considered alongside each of the green infrastructure components to identify whether there was any coherence between clusters of locally and nationally important mineral resources on a landscape scale.
- A.2.6 The strategic corridors do not include all known mineral resources in the county, but seek to reflect a ‘best fit’ of where mineral development and the potential for green infrastructure enhancement overlap and can best work together. Some mineral resources in close proximity to the strategic corridors were excluded because, being in different landscape types, they were not considered to have the same level of potential to contribute towards the delivery of coordinated benefits at a landscape scale.

## Identifying the strategic corridors: distribution of mineral resources

### Aggregates – sand and gravel

- A.2.7 Key and significant terrace, glacial and solid sand resources<sup>538</sup> were considered and clusters of these resources led to the identification of the Avon and Carrant Brook, Lower Severn, North West Worcestershire, and North East Worcestershire Strategic Corridors. The strategic corridors identified contain approximately 63.4% (by area) of Worcestershire’s key and significant terrace and glacial sand and gravel resources and 80.7% (by area) of Worcestershire’s key and significant solid sand resources.<sup>539</sup>

### Aggregates – crushed rock

- A.2.8 Following the Third Consultation on the Minerals Local Plan, the Analysis of Minerals Resources was refreshed following the Third Stage Consultation on the Minerals Local Plan to take account of environmental and amenity screening criteria.<sup>540</sup> No clusters of crushed rock resources which could be identified as strategic corridors remained after the application of these screening criteria.

### Building stone

- A.2.9 Former building stone quarries identified through the Herefordshire and Worcestershire Earth Heritage Trust’s project A Thousand Years of Building with Stone were considered to be the best indication of where building stone resources are likely to be found in Worcestershire. Following screening against environmental and amenity screening criteria,<sup>541</sup> these did not indicate any significant clusters which should drive the identification of strategic corridors. However, the corridors which were identified around clusters of other mineral resources contain 13 of the screened former building stone quarries.

### Brick clay

- A.2.10 Consideration of the Mercia Mudstone Group led to the identification of the Salwarpe Tributaries Strategic Corridor. Whilst the Mercia Mudstone Group is extensive across the county, not all the formations within it would be suitable for use as brick clay. Considering this, the Salwarpe Tributaries corridor was identified to include the area where modern commercial brick clay working has taken place and is therefore most likely to offer opportunities for further brick clay working. The strategic corridors identified contain approximately 19.5% (by area) of the screened Mercia Mudstone Group resources, as well as areas of Sherwood Sandstone and Lias Group deposits which may possess some clay properties.

### Salt and brine

- A.2.11 Whilst there is some information available regarding the geographic extent of solid rock salt (halite) in Worcestershire, there is very little information regarding the extent of brine due to the complex hydrology of the area, and therefore this did not lead to the identification of the strategic corridors. However, the corridors which were identified around clusters of other mineral resources contain 79.1% of the screened Droitwich Halite Member deposits.

<sup>538</sup> Based on Worcestershire County Council (August 2018) *Analysis of Mineral Resources*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground). The *Analysis of Mineral Resources* was refreshed following the Third Stage Consultation on the Minerals Local Plan to take account of environmental and amenity screening criteria. For further information see Worcestershire County Council’s background document *Location of development: screening and site selection methodology* (August 2018).

<sup>539</sup> Based on Worcestershire County Council (August 2018) *Analysis of Mineral Resources*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

<sup>540</sup> Worcestershire County Council (August 2018) *Analysis of Mineral Resources*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground). The *Analysis of Mineral Resources* was refreshed following the Third Stage Consultation on the Minerals Local Plan to take account of environmental and amenity screening criteria. For further information see Worcestershire County Council’s background document *Location of development: screening and site selection methodology* (August 2018) available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

<sup>541</sup> For further information see Worcestershire County Council’s background document *Location of development: screening and site selection methodology* (August 2018) available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

## Silica sand

A.2.12 The consideration of solid sand resources (for aggregates) included the Wildmoor Sandstone Formation which contains silica sand (naturally bonded moulding sands). The North West Worcestershire and North East Worcestershire Strategic Corridors were identified around this formation. The strategic corridors identified contain approximately 52.4% (by area) of the screened Wildmoor Sandstone Formation.

### Identifying the strategic corridors: green infrastructure components

## Landscape

A.2.13 Within Worcestershire, there is a strong relationship between the location of mineral resources and the character of landscapes where they are found.

A.2.14 Landscape is a visual manifestation of the inter-relationship between man's activities and the natural environment and is contributed to by the underlying geology and a variety of green infrastructure components. Landscape character can be objectively assessed and, in Worcestershire, the Landscape Character Assessment<sup>542</sup> has undertaken this assessment for the entire county. The assessment identifies the landscape character types<sup>543</sup> for individual parcels of land, establishing precise boundaries where the landscape character changes.

A.2.15 Landscape character reflects many other aspects of green infrastructure, as well as the predominant patterns of arable use, horticulture, grazing or mixed agriculture at a landscape scale, and was considered to provide a robust basis for defining cohesive clusters of resources and the precise boundaries of the strategic corridors around them. Some of the corridors consist of more than one landscape type where the characteristics of those landscape types are similar or complementary.

A.2.16 This approach does not take account of the condition of the landscape or identify one landscape type as more able or less able to accommodate mineral development than another, but it is a useful indicator of cohesion within corridors. The characteristics of the landscape types provide a basis for identifying locally appropriate priorities for each of the strategic corridors.

## Biodiversity

A.2.17 There is a strong coherence between landscape character and the types of habitats that exist within them. The hedgerows, streams and other features that contribute towards landscape character also contribute towards habitat networks and the movement of species. The consideration of landscape character in defining the boundaries of the strategic corridors was therefore considered an appropriate mechanism for identifying landscape-scale coherence in relation to biodiversity. Existing ecological networks and opportunities for biodiversity enhancement at a landscape scale have been considered through the ecological zones identified in *Biodiversity and mineral sites in Worcestershire: Guidance for the sustainable management of biodiversity action plan habitats at Worcestershire mineral sites*, the Biodiversity Action Plan priority habitats identified in the Worcestershire Habitat Inventory, and the Biodiversity Delivery Areas identified by the Local Nature Partnership. These have informed the locally appropriate priorities for each of the strategic corridors.

A.2.18 This approach does not take account of the condition of existing habitats as this is more meaningful on a site-by-site basis than on a corridor scale.

<sup>542</sup> See Worcestershire's *Landscape Character Assessment* maps and guidance at [www.worcestershire.gov.uk/lca](http://www.worcestershire.gov.uk/lca).

<sup>543</sup> Landscape type profiles can be downloaded from the Worcestershire *Landscape Character Assessment* webpages at [www.worcestershire.gov.uk/lca](http://www.worcestershire.gov.uk/lca).

## Water environment

A.2.19 River catchments are large areas which on their own would not facilitate the integration of other green infrastructure components. However, they have helped to inform the definition of the strategic corridors. The boundaries of the Lower Severn Strategic Corridor and Salwarpe Tributaries Strategic Corridor are partly defined by the catchment areas identified in the River Severn Catchment Flood Management Plan. The characteristics of the catchments have influenced the priorities for each of the strategic corridors with specific consideration of fluvial and surface water flooding and water quality.<sup>544</sup>

## Geodiversity

A.2.20 Although the occurrence of features of geodiversity interest is dependent on the underlying geology, the distribution of designated features did not show a strong geographic pattern of distribution which could be used to identify the boundaries of the strategic corridors. However, it has informed the priorities for the strategic corridors, with particular reference to areas where there is the greatest opportunity for networks of geological and geomorphological features to improve the legibility and understanding of the environment and structure and unity of the landscape.

## Historic environment

A.2.21 The historic environment is formed of many different features and their settings, and is often best understood when considered on a local-scale. The distribution of designated and non-designated heritage assets and Worcester-shire's *Historic Landscape Characterisation* were considered, but no patterns were identified to define the strategic corridors on the basis of the historic environment. However, there is a strong relationship between landscape character and the historic environment, with landscape influencing historic land uses and these land uses and features then influencing the landscape character.

A.2.22 The distribution of designated and non-designated heritage assets was considered, but due to the variation in type, age and importance of assets across wider areas, the difficulty in defining the setting of features at a strategic scale, and the fact that a lack of recorded assets in an area does not necessarily mean that assets are not present, this did not reveal a geographic pattern which was considered appropriate to define the boundaries of the strategic corridors.

A.2.23 Defining the boundaries of the strategic corridors based on landscape character was therefore considered an appropriate mechanism for addressing the historic environment at a landscape scale. Worcester-shire's *Historic Landscape Characterisation* was used to verify the validity of this approach, and has informed the priorities for the strategic corridors.

## Access and recreation

A.2.24 Patterns of access and recreation assets (rights of way, long-distance paths, accessible natural green space) were considered, but no patterns were identified to define the strategic corridors on the basis of access and recreation. However patterns of access and recreation are closely associated with specific landscape types, as patterns of land use and enclosure influence the extent of public access networks. This further supports the use of landscape types as the primary mechanism for identifying the boundaries of the strategic corridors. The needs and opportunities for access and recreation have informed the priorities for the strategic corridors.

<sup>544</sup> Environment Agency, Worcester-shire County Council (June 2018) *Catchment Based Management in Worcester-shire Technical Background Document*

## Precise corridor boundaries

**A.2.25** Once coherent clusters of resources were identified to form strategic corridors, the corridor boundaries were trimmed to remove settlement boundaries and site allocations.<sup>545</sup> This will help to increase certainty over where mineral development is likely to take place and minimise conflict with other parts of the Development Plan for the county.

### Avon and Carrant Brook Strategic Corridor

**A.2.26** The Avon and Carrant Brook Strategic Corridor is focused around the Principal Village Farmlands landscape type, the Village Farmlands with Orchards landscape type, and the Riverside Meadows landscape type which runs through them.<sup>546</sup>

**A.2.27** The northern boundary of the Avon and Carrant Brook Strategic Corridor is defined by the village farmland landscape types (Principal Village Farmlands and Village Farmlands with Orchards), which extend into Warwickshire in the east and Gloucestershire in the south. The boundary of the Cotswolds Area of Outstanding Natural Beauty has been used alongside landscape character to define the south-eastern boundary of the corridor.

**A.2.28** The village farmlands landscape types are extensive in the south-west of the county and extend significantly beyond the identified clusters of mineral resources. The south-western boundary of the corridor is therefore defined by the Land Cover Parcels<sup>547</sup> which contain key and significant terrace and glacial sand and gravel resources.<sup>548</sup>

**A.2.29** The following settlements have been removed from the corridor: Beckford, Birlingham, Bredon, Bredon's Hardwick, Charlton, Cropthorne, Deford, Eckington, Evesham, Fladbury, Harvington Cross, Kinsham, Lenchwick, Lower Moor, Norton, Offenham, Pershore, Pinvin, and Wick. In addition, the following adopted site allocations from the South Worcestershire Development Plan (2016) have also been removed from the corridor: SWDP3/2, SWDP47/2, SWDP59/24, SWDP59/X, SWDP60/13, SWDP60/17, SWDP60/19, and SWDP60/22.

### Lower Severn Strategic Corridor

**A.2.30** The Lower Severn Strategic Corridor is focused around the River Severn riverine landscapes, namely the Riverside Meadows landscape type, Settled Farmlands on River Terrace landscape type and Wet Pasture Meadows landscape type where it is adjacent to the Riverside Meadows landscape type, and these landscape types define the boundaries for the majority of the corridor. These landscape types continue south into Gloucestershire, and the southern extent of the strategic corridor is defined by the county boundary.

**A.2.31** Flooding issues and the prevalence of riverside habitats including wetlands and grassland areas are unifying features in this corridor, and much of the western boundary of the corridor is closely followed by the boundary of the Severn and Avon Vales Biodiversity Delivery Area and the extent of Flood Zone 2. The northern boundary of the corridor is defined by the boundary of the River Severn Catchment Flood Management Plan subarea "Lower Severn Corridor and Leaden Vale" which mirrors the Water Framework Directive "Severn Vale" catchment. This boundary separates the strategic corridor from the settlement of Worcester.

**A.2.32** The following settlements have been removed from the corridor: Callow End, Kempsey, Powick, Ryall, Severn Stoke and The Grove. In addition, the following adopted site allocations from the South Worcestershire Development Plan (2016) have also been removed from the corridor: SWDP45/1, SWDP59/8 and SWDP59/8a.

<sup>545</sup> Settlement boundaries and site allocations from *South Worcestershire Development Plan (2016)*, *Wyre Forest Core Strategy (2010)*, *Wyre Forest Site Allocations and Policies Development Plan Document (2013)*, *Bromsgrove District Plan (2017)* and *Borough of Redditch Local Plan No.4 (2017)*. For further information see Worcestershire County Council's background document *Location of development: screening and site selection methodology* (August 2018) available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

<sup>546</sup> See Worcestershire's *Landscape Character Assessment* maps and guidance at [www.worcestershire.gov.uk/lca](http://www.worcestershire.gov.uk/lca).

<sup>547</sup> Landscape Character Parcels are the smallest units used in the process of landscape characterisation in Worcestershire's *Landscape Character Assessment*.

<sup>548</sup> Based on Worcestershire County Council (August 2018) *Analysis of Mineral Resources*, available at [www.worcestershire.gov.uk/mineralsbackground](http://www.worcestershire.gov.uk/mineralsbackground).

## North East Worcestershire Strategic Corridor

**A.2.33** The North East Worcestershire Strategic Corridor encompasses the Principal Settled Farmlands landscape type, Settled Farmlands with Pastoral Land Use landscape type and Enclosed Commons landscape type. The Settled Farmlands with Pastoral Land Use landscape type shares many characteristics of the Principal Settled Farmlands landscape type and the Enclosed Commons form features within these. These landscape types define the boundaries of the corridor, except where they are trimmed to settlement boundaries and site allocations.<sup>549</sup>

**A.2.34** The following settlements and their associated site allocations, have been removed from the corridor: Barnt Green, Blackwell, Bournheath, Catshill, Clent, Fairfield, Holy Cross, Lickey End and Upper Catshill.

## North West Worcestershire Strategic Corridor

**A.2.35** The North West Worcestershire Strategic Corridor encompasses the Sandstone Estatelands landscape type around Kidderminster and Stourport, and the Riverside Meadows landscape type that runs through these areas. These landscape types define the boundaries of the corridor, except where they are trimmed to settlement boundaries and site allocations. The area between Kidderminster and Stourport is closely followed by the boundary of the Wyre Forest Acid Heathlands Biodiversity Delivery Area.

**A.2.36** The following settlements have been removed from the corridor: Blakedown, Broadwaters, Cookley, Kidderminster, Stourport-on-Severn and Wolverley. In addition, adopted site allocations from the Wyre Forest Site Allocations and Policies Development Plan Document (2013) have also been removed from the corridor.

## Salwarpe Tributaries Strategic Corridor

**A.2.37** The Salwarpe Tributaries Strategic Corridor encompasses the Principal Timbered Farmlands landscape type within the River Severn Catchment Flood Management Plan subarea “Telford, Black Country, Bromsgrove, Kidderminster & Coventry Cluster”.<sup>550</sup> The Principal Timbered Farmlands landscape type defines the boundary for the majority of the corridor, but the River Severn Catchment Flood Management Plan sub-area boundary has been used to define the southern boundary of the strategic corridor to keep it sufficiently focused and meaningful on a landscape scale, but large enough not to unduly fetter opportunities for the working of potential clay resources.

**A.2.38** The following settlements have been removed from the corridor: Belbroughton, Cutnall Green, Oldfield, Stoke Prior, Upton Warren and Wychbold. In addition, adopted site allocation SWDP49/3 from the South Worcestershire Development Plan (2016) and adopted site allocation PDS1 from the Wyre Forest Site Allocations and Policies Development Plan Document have also been removed from the corridor.

<sup>549</sup> Where the landscape type continues beyond a settlement boundary or site allocation but is severed from the main body of the strategic corridor, this has not been included as part of the corridor.

<sup>550</sup> This mirrors the Water Framework Directive “Severn Middle Worcestershire” catchment.



Heathland habitat

## Appendix 3: Glossary

For an explanation of geological formations, see the lexicon of named rock units at <http://www.bgs.ac.uk/lexicon/home.html>

A useful geology dictionary is available at <http://geology.com/geology-dictionary.shtml>.

<b>Abstraction</b>	Taking water from a surface source (such as a river, stream or canal) or from an underground source. Abstraction is likely to need an abstraction license from the Environment Agency.
<b>Active site</b>	For the purpose of the Minerals Local Plan active mineral sites are sites with planning permission for mineral working, where development has commenced and working has taken place during the year. In some cases phased restoration may take place concurrently to mineral working.
<b>Aftercare</b>	The operations necessary to maintain restored land in a condition necessary for an agreed after-use to continue.
<b>After-use</b>	The use that land previously used for mineral working is put to after restoration.
<b>Aged or veteran tree</b>	A tree which, because of its great age, size or condition is of exceptional value for wildlife, in the landscape or culturally.
<b>Aggregates</b>	Granular materials (sand, gravel, crushed rock and other bulk materials) used by the construction industry. Aggregates can be land won, marine, secondary or recycled. There are three main types of primary aggregate minerals: sand, gravel, and crushed rock. Substitute, secondary and recycled materials and minerals waste can also contribute to the sustainable supply of aggregate minerals. Aggregates can be end products in themselves, but are also used as a raw material in the manufacture of construction products such as concrete, asphalt, lime and mortar.



<b>Aggregate Working Party (AWP)</b>	A group comprising representatives of mineral planning authorities, the minerals industry and other relevant organisations within each region. An AWP oversees aggregates data collection and produces an annual report for its area, and advises on the Local Aggregate Assessments produced by its member Mineral Planning Authorities. Worcestershire County Council participates in the West Midlands Aggregate Working Party.
<b>Agricultural Land Classification (ALC)</b>	The Agricultural Land Classification provides a framework for classifying land according to the extent to which its physical or chemical characteristics affect the range of crops which can be grown, the level of yield, the consistency of yield and the cost of obtaining it. It classifies agricultural land in to five categories. The top three grades, Grade 1, 2 and 3a, are referred to as 'Best and Most Versatile' land in the National Planning Policy Framework.
<b>Air overpressure</b>	Blasting operations are used in extracting some types of rock. Air overpressure is energy transmitted from a blast site within the atmosphere in the form of pressure waves. The maximum excess pressure in this wave is known as the peak air overpressure, generally measured in decibels linear (dB).
<b>Allocated site</b>	For this Minerals Local Plan, allocated sites means the areas of search shown in Figure 4.1 (Key diagram) and defined on the Policies Map accompanying the Minerals Local Plan, as well as any specific sites and preferred areas allocated in the Mineral Site Allocations Development Plan Document.
<b>Amenity</b>	A positive element or elements that contribute to the overall character or enjoyment of an area, including visual and aural aspects, open land, trees, historic buildings and the inter-relationship between them, or less tangible factors such as tranquillity.
<b>Ancillary</b>	An activity that provides necessary support to the operation of a development or can only be undertaken alongside the primary purpose of the development.
<b>Area of Outstanding Natural Beauty (AONB)</b>	An area with statutory national landscape designation, the primary purpose of which is to conserve and enhance natural beauty.
<b>Bedrock geology</b>	Bedrock geology (formerly known as 'solid' geology by British Geological Survey) is a term used for the main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.
<b>Best and Most Versatile Agricultural Land</b>	Best and most versatile agricultural land is defined in the National Planning Policy Framework as land in grades 1, 2 and 3a of the Agricultural Land Classification (see also Agricultural Land Classification).
<b>Biodiversity</b>	Biodiversity (or "biological diversity") means the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems. This is the definition provided by the UN Convention on Biological Diversity, which subsequently appeared in the UK Biodiversity Action Plan. In simple terms, this means the diversity of plants and animals and the interactions between them.
<b>Biodiversity offsetting</b>	Biodiversity offsets are conservation activities that are designed to give biodiversity benefits to compensate for losses when damage cannot be avoided or mitigated. See <a href="http://www.gov.uk/government/collections/biodiversity-offsetting">www.gov.uk/government/collections/biodiversity-offsetting</a> .
<b>Borrow pits</b>	A temporary mineral working to supply material for a specific project.

<b>Breccias</b>	Clastic sedimentary rocks that are composed of large angular fragments (over two millimeters in diameter). The spaces between the large angular fragments can be filled with a matrix of smaller particles or a mineral cement that binds the rock together.
<b>British Geological Survey (BGS)</b>	A public sector organisation responsible for advising the UK Government on geological matters and providing geological advice to industry, local government, academia and the public.
<b>Building stone</b>	Building stones are naturally occurring rocks of igneous, sedimentary or metamorphic origin which are sufficiently consolidated to enable them to be cut or shaped into blocks or slabs for use as walling, paving or roofing materials in the construction of buildings and other structures.
<b>Bund</b>	An artificial embankment used to screen mineral development or to contain tipped or stored materials.
<b>Campaign working</b>	Where mineral extraction takes place intermittently but intensively. It often involves stockpiling the extracted materials to enable them to be processed and sold between campaigns.
<b>Cropping</b>	Cropping is the dominance of arable farming characterised by field vegetables and/or market gardening.
<b>Crushed rock</b>	Limestone, sandstone and igneous rocks which can be mechanically broken for use as aggregates by the construction industry.
<b>Development Plan</b>	The set of planning policies covering a particular area included in one or more Local Plans and Neighbourhood Plans. Within two-tier areas, the Development Plan includes policies adopted by the district and county councils.
<b>Dewatering</b>	When water is pumped out of a quarry void to allow dry working below the water table.
<b>Dimension stone</b>	Natural stone or rock that has been selected and finished (trimmed, cut, drilled, ground, or other) to specific sizes or shapes.
<b>Droitwich Halite Member</b>	The Droitwich Halite Member is a form of rock salt. See the British Geological Survey's Lexicon of Named Rock Units for more detailed geological information <a href="http://www.bgs.ac.uk/lexicon/lexicon.cfm?pub=DHT">http://www.bgs.ac.uk/lexicon/lexicon.cfm?pub=DHT</a> .
<b>Ecological network</b>	An ecological network is a network of habitats and features which provide ecological functionality for particular, or a range of, flora and fauna. Ecological functionality means the network has both structural and functional connectivity which provides a range of services for wildlife, including opportunities to rest, shelter, forage, breed, over-winter, disperse and exchange genetic information between populations.
<b>Ecosystem services</b>	The benefits that people obtain from ecosystems, comprising supporting, provisioning, regulating and cultural services.
<b>Energy minerals</b>	Minerals with a carbon content which enables them to be combusted to release their stored chemical energy in the form of heat. Energy minerals include coal, oil and gas, as well as "unconventional" hydrocarbons which may be accessed by hydraulic fracturing, or "fracking".
<b>Environmental Impact Assessment (EIA)</b>	A procedure to be followed for certain types of project to ensure that decisions are made in full knowledge of any likely significant effects on the environment.

<b>Environmental Statement</b>	A formal stage in the process of Environmental Impact Assessment involving the preparation of a comprehensive study and statement of the likely impact of the proposal on all relevant aspects of the environment, the measures taken to mitigate adverse effects and any alternatives considered.
<b>Exception Test</b>	A method to demonstrate and help ensure that flood risk to people and property will be managed satisfactorily, while allowing necessary development to go ahead in situations where suitable sites at lower risk of flooding are not available.
<b>Existing sites</b>	<p>Sites with extant planning permissions. The following categories have been developed for mineral sites in Worcestershire to indicate their operational status:</p> <ul style="list-style-type: none"> <li>• <b>active:</b> permitted minerals site in production for some time during the year;</li> <li>• <b>inactive:</b> permitted minerals site worked in the past and contains permitted reserves;</li> <li>• <b>permitted – not commenced:</b> minerals site with planning permission but development not yet commenced;</li> <li>• <b>undergoing restoration:</b> minerals site whose permitted reserves are exhausted and restoration is taking place;</li> <li>• <b>restored – in aftercare:</b> minerals site where permitted reserves are exhausted, restoration is substantially complete and the site is in managed aftercare.</li> </ul>
<b>Exploration</b>	The process of physical investigation to establish the presence, extent and economic viability of a mineral resource.
<b>Extant sites</b>	<p>Sites with extant planning permissions. The following categories have been developed for mineral sites in Worcestershire to indicate their operational status:</p> <ul style="list-style-type: none"> <li>• <b>active:</b> permitted minerals site in production for some time during the year;</li> <li>• <b>inactive:</b> permitted minerals site worked in the past and contains permitted reserves;</li> <li>• <b>permitted – not commenced:</b> minerals site with planning permission but development not yet commenced;</li> <li>• <b>undergoing restoration:</b> minerals site whose permitted reserves are exhausted and restoration is taking place;</li> <li>• <b>restored – in aftercare:</b> minerals site where permitted reserves are exhausted, restoration is substantially complete and the site is in managed aftercare.</li> </ul>
<b>Flood Risk Assessment</b>	A site-specific assessment carried out by, or on behalf of, a developer to assess the flood risk to and from a development site.
<b>Floodplain connectivity</b>	Floodplain connectivity refers to measures which restore natural channel processes and allow a watercourse to flood its floodplain to its fullest extent, thereby reducing the volume and speed of water carried by the channel downstream. This is particularly important where the channel is disconnected from its floodplain (such as by high, steep, or concrete banks or artificially raised ground) which encourages flow to pass through the system as quickly as possible such that a larger flow or increased flood peak is passed downstream.
<b>Fracking</b>	“Fracking”, short for “hydraulic fracturing”, involves the fracturing of rock using a hydraulically pressurised liquid comprising water, sand and chemicals that is injected into drilled wells to create cracks through which oil or gas in the bedrock can flow.

<b>Geodiversity</b>	The variety of earth materials, forms and processes that constitute and shape the Earth, either the whole or a specific part of it. These include rocks, minerals, soils and landforms.
<b>Geopark</b>	<p>A Geopark is a unified area with geological heritage of international significance.</p> <p>The Abberley and Malvern Hills Geopark covers parts of the four counties of Gloucestershire, Herefordshire, Shropshire and Worcestershire. The Geopark exists to promote excellence in geoconservation and to make a contribution to local economies through sustainable geotourism (<a href="http://geopark.org.uk/pub/">http://geopark.org.uk/pub/</a>).</p> <p>The Cotswold Hills Geopark stretches between Stroud, Cirencester and Stow-on-the-Wold, crossing into the south-east corner of Worcestershire around the village of Broadway. The Cotswold Hills Geopark aims to win recognition for the area as one of outstanding geodiversity which has strongly influenced the history and heritage of the area (<a href="http://www.cotswoldhillsgeopark.net/geopark.html">http://www.cotswoldhillsgeopark.net/geopark.html</a>).</p>
<b>Glacial deposits</b>	Sediment deposited by a glacier.
<b>Green Belt</b>	Green Belt is defined in order to: check the unrestricted sprawl of large built up areas; prevent neighbouring towns merging into one another; assist in safeguarding the countryside from encroachment; preserve the setting and special character of historic towns; and assist in urban regeneration, by encouraging the recycling of derelict and other urban land. The amount of Green Belt land in Worcestershire may change if exceptional circumstances exist to justify land being added to or removed from the Green Belt. Strategic changes to the Green Belt can only be made through Local Plans, with more precise local extents also able to be defined through Local Plans and/or Neighbourhood Plans.
<b>Green infrastructure</b>	<p>Green infrastructure is a network of multifunctional green spaces and natural elements (including rivers, streams, canals, woodlands, street trees, parks, rock exposures and semi-natural greenspaces) that acts as a multifunctional resource capable of delivering a wide range of environmental and quality of life benefits (ecosystem services) for local communities.</p> <p>Green infrastructure components considered in the planning, designing and management of green infrastructure include biodiversity, the landscape, the historic environment, the water environment and publicly accessible green spaces and informal recreation sites.</p>
<b>Groundwater</b>	Water associated with soil or rocks below the ground surface, usually taken to mean water in the saturated zone.
<b>Habitats Regulations Assessment (HRA)</b>	The assessment process undertaken to consider whether a plan or project is likely to have a significant effect on a Natura 2000 site, either individually or in combination with other plans or projects.
<b>Health Impact Assessment</b>	Health Impact Assessment (HIA) is a structured process to predict the health implications on a population of implementing a plan, policy, programme or project, aiding the decision-making process. HIA aims to enhance the positive aspects of a proposal through assessment, while avoiding or minimising any negative impacts, with particular emphasis on disadvantaged sections of communities that might be affected.
<b>Heritage asset</b>	A building, monument, site, place, area or landscape identified as having a degree of significance meriting consideration in planning decisions, because of its heritage interest. Heritage assets include designated assets, assets identified by the local planning authority (including local listing), and non-designated assets.

<b>Historic environment</b>	The historic environment encompasses all designated and non-designated features of historic, architectural, archaeological or artistic interest. This includes World Heritage Sites, listed buildings, conservation areas, historic parks and gardens, and scheduled monuments and assets listed in the Historic Environment Record. It also includes their settings, the wider urban and rural landscape and the potential for unrecorded archaeology. It is important to consider historic landscapes and townscapes as a whole to understand what gives an area its sense of place and identity.
<b>Horticulture</b>	Horticulture is the dominance of arable farming characterised by growing fruits, vegetables, flowers, or ornamental plants. It includes the cultivation of medicinal plants, fruits, vegetables, nuts, seeds, herbs, sprouts, mushrooms, algae, flowers, seaweeds and non-food crops such as grass, ornamental trees and plants.
<b>Hydrocarbon</b>	An organic compound comprising hydrogen and carbon and including gases, oils and other liquids and low melting solids, and primarily used as an energy source.
<b>Inactive sites</b>	For the purpose of the Minerals Local Plan, inactive mineral sites are sites with planning permission for mineral working, where working has taken place in the past and which contain permitted reserves.
<b>Incinerator Bottom Ash (IBA)</b>	A form of ash produced in incineration facilities.
<b>Industrial minerals</b>	Minerals which are necessary to support industrial and manufacturing processes and other non-aggregate uses. These include minerals of recognised national importance including brick clay and silica sand.
<b>Informal access and recreation</b>	Includes walking and cycle routes, country parks and free to use recreation sites.
<b>Kidderminster Formation</b>	The Kidderminster Formation is a 0 - 200m thick sequence of conglomerates and sandstones previously known as either the Bunter Pebble Beds or the Kidderminster Conglomerate Formation.
<b>Landbank</b>	In aggregate planning, the term "landbank" is used to refer to the stock of reserves of minerals with planning permission for extraction within a particular area. It can be used as a tool to assess how long supply can be maintained for based on forecasted level of demand. It is expressed in years, based on the amount of remaining reserve divided by the amount expected to be produced and sold each year.
<b>Landscape-scale</b>	A term commonly used to refer to considerations across a large spatial scale, taking a holistic approach to the consideration of economic, social and environmental considerations.
<b>Legibility</b>	The way in which features and characteristics in the landscape interact to strengthen character and show how they have emerged.
<b>Local Aggregate Assessment (LAA)</b>	An assessment, prepared annually, of the demand for and supply of aggregates in a mineral planning authority's area. A Local Aggregate Assessment should include a forecast of aggregates demand, analysis of all supply options, and an assessment of the balance between demand and supply.
<b>Locally and nationally important minerals</b>	Minerals which are necessary to meet society's needs, including aggregates, brickclay (especially Etruria Marl and fireclay), silica sand (including high grade silica sands), cement raw materials, gypsum, salt, fluorspar, shallow and deep-mined coal, oil and gas (including conventional and unconventional hydrocarbons), tungsten, kaolin, ball clay, potash, polyhalite and local minerals of importance to heritage assets and local distinctiveness. Not all of these types of mineral occur in Worcestershire.

<p><b>Local policies</b></p>	<p>The National Planning Policy Framework (July 2018) differentiates between “strategic policies” and “local policies”. “Local policies” are policies contained in a neighbourhood plan, or those policies in a local plan that are not strategic policies.</p> <p>The local policies in the Minerals Local Plan are the Development Management policies which aid decision-making. Further local policies will be included in the Mineral Site Allocations Development Plan Document.</p>
<p><b>Main river</b></p>	<p>Watercourses defined on a main river map designated by Defra. The Environment Agency has permissive powers to carry out flood defence works, maintenance and operational activities for main rivers. However overall responsibility for maintenance lies with the riparian owner.</p>
<p><b>Malverns Complex</b></p>	<p>The oldest rocks found in the county. The precambrian Malverns Complex outcrops in a continuous north-south linear fashion from End Hill Quarry in the north, to Chase End Hill in the south. Inliers of the Complex occur north of the main outcrop at Cowleigh Roadside and in an infilled pit just south of Martley.</p>
<p><b>Managed Aggregate Supply System</b></p>	<p>The Managed Aggregate Supply System seeks to ensure a steady and adequate supply of aggregate mineral, to handle the significant geographical imbalances in the occurrence of suitable natural aggregate resources, and the areas where they are most needed. It requires mineral planning authorities which have adequate resources of aggregates to make an appropriate contribution to national as well as local supply, while making due allowance for the need to control any environmental damage to an acceptable level. It also ensures that areas with smaller amounts of aggregate make some contribution towards meeting local and national need, where that can be done sustainably. The Managed Aggregate Supply System works through national, sub-national and local partners working together to deliver a steady and adequate supply of aggregates. (Ministry of Housing, Communities and Local Government, Planning Practice Guidance, Minerals, paragraph: 060 Reference ID: 27-060-20140306 Revision date: 06 03 2014)</p>
<p><b>Mineral Consultation Area</b></p>	<p>An area designated by a Mineral Planning Authority in order to ensure consultation between the relevant Local Planning Authority and the Mineral Planning Authority before non-mineral planning applications are determined to ensure that minerals resources of local and national importance within designated Mineral Safeguarding Areas are not sterilised by non-mineral development where this should be avoided. Notice has been given in writing to the District Planning Authorities by the County Planning Authority that the Mineral Consultation Areas are areas in which development is likely to affect or be affected by the winning and working of minerals, other than coal. As such, they are subject to the provisions of Schedule 1 para. 7 of the Town and Country Planning Act 1990.</p>
<p><b>Mineral resources</b></p>	<p>Mineral deposits that are, or have the potential to be, viable to work and produce sufficient revenue to cover operating costs and produce a return on capital. In the Worcestershire Minerals Local Plan this is based on the background document Analysis of Mineral Resources in Worcestershire (August 2018).</p>
<p><b>Mineral development</b></p>	<p>The winning and working of minerals, including site preparation, extraction, tipping of mineral waste, ancillary operations such as the installation and use of processing plant, and the restoration and aftercare of the site. Applications for mineral development are likely to include proposals for new sites or extensions to existing sites for mineral extraction, processing hubs, storage, stockpiling or transportation of minerals, and proposals to amend planning conditions at existing sites.</p>
<p><b>Mineral operator</b></p>	<p>The company or individual undertaking mineral development at one or more mineral sites.</p>

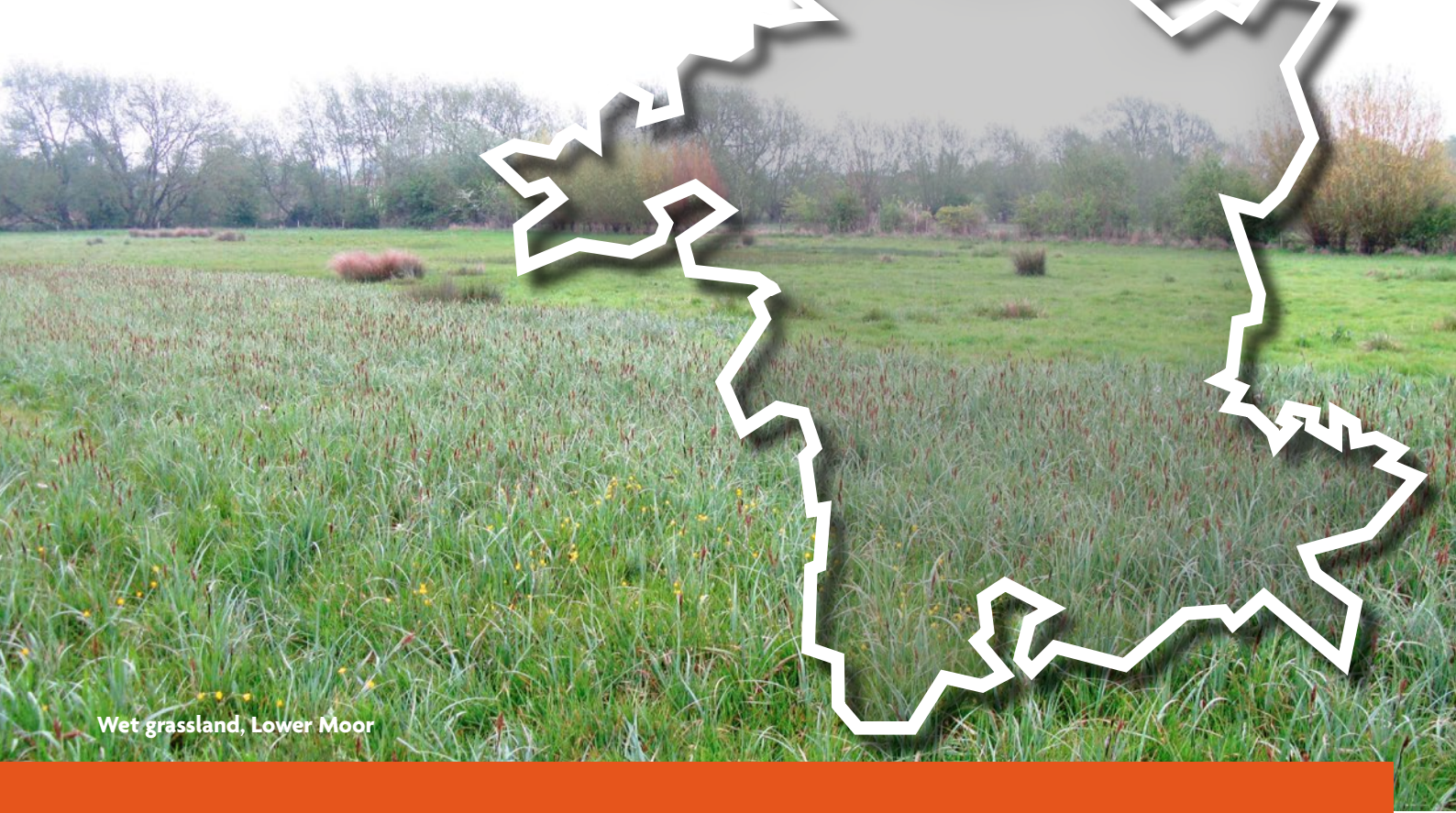
<b>Mineral Planning Authority</b>	The Local Authority which is responsible for preparing and adopting the mineral planning policy framework for an area and determining planning applications for mineral development, in this case Worcestershire County Council.
<b>Mineral reserve</b>	Sites where planning permission has been granted for development but where extraction has still to take place or is not yet completed. It may cover the whole or part of a site.
<b>Mineral Safeguarding Area</b>	An area designated by a Mineral Planning Authority in order to identify the minerals resources of local and national importance which should be safeguarded from sterilisation by non-mineral development.
<b>Mitigation</b>	The reduction in the significance of an impact on sensitive receptors through a range of potential measures required by planning policies and conditions on permissions.
<b>Nationally important minerals</b>	See "Locally and nationally important minerals".
<b>Natura 2000 sites</b>	A network of nature protection areas made up of Special Areas of Conservation (SACs) designated under the EU Habitats Directive and Special Protection Areas (SPAs) designated under the EU Birds Directive, transposed into UK law through the Conservation of Habitats and Species Regulations 2017. The National Planning Policy Framework (July 2018) refers to these as "habitats sites".
<b>Natural Flood Management</b>	Managing flood risk by protecting, restoring and emulating the natural 'regulating' function of catchments, rivers and floodplains.
<b>Neighbourhood Plan</b>	A plan prepared by a Parish Council or Neighbourhood Forum for a particular neighbourhood area and which, if adopted following a local referendum, forms part of the Development Plan.
<b>Nitrate Vulnerable Zones</b>	Areas designated as being at risk from agricultural nitrate pollution.
<b>Odour</b>	The term odour refers to the stimuli from a chemical compound that is volatilised in air. Odour is our perception of that sensation and we interpret what the odour means. Odours may be perceived as pleasant or unpleasant. The main concern with odour is its ability to cause a response in individuals that is considered to be objectionable or offensive.
<b>Offsetting</b>	See "Biodiversity offsetting".
<b>Oolitic Limestone</b>	A carbonate rock made up mostly of ooliths which are sand-sized carbonate particles that have concentric rings of CaCO <sub>3</sub> . These rings are formed around grains of sand or shell fragments that were rolled around on the shallow sea floor, gathering layer after layer of limestone.
<b>Ordinary watercourse</b>	A watercourse that does not form part of a main river. This includes "all rivers and streams and all ditches, drains, cuts, culverts, dikes, sluices (other than public sewers within the meaning of the Water Industry Act 1991) and passages, through which water flows" according to the Land Drainage Act 1991.
<b>Overburden</b>	Soil and other material that overlays a mineral deposit which has to be excavated and either tipped or stockpiled for use in restoration to gain access to the underlying mineral. The distinction between mineral resource and overburden is not always distinct, and some overburden may contain material capable of being processed for mineral use.

<b>Permissive path</b>	A path made available through the goodwill of the landowner. It may be withdrawn at any time or is subject to an access agreement. The public have no permanent rights over it.
<b>Permitted reserves</b>	Mineral reserves that have the benefit of planning permission for extraction.
<b>Productive capacity</b>	The capacity to produce, process and sell minerals. Productive capacity at an individual site can be impacted indirectly through planning conditions which limit the operation of a site, such as limiting opening hours or the number of vehicle movements, or could be limited by the throughput of the site's processing plant. The county's overall productive capacity is a function of the number of active sites and their individual productive capacity. If there are too few sites, the overall security of Worcestershire's productive capacity could be put at risk by commercial decisions or natural events at any individual site.
<b>"Prospective" for coalbed methane</b>	Thought to contain a viable resource of coalbed methane.
<b>Public Right of Way</b>	A path that the public have a legal right to use and which cannot be changed or removed without a Public Path Order (a legal order that creates, extinguishes or diverts public rights of way).
<b>Pulverised Fuel Ash (PFA)</b>	A waste product of pulverised fuel (typically coal) fired power stations.
<b>Quartzite</b>	An extremely compact, hard, granular rock consisting essentially of quartz.
<b>Restoration</b>	The return of land to an acceptable condition, following mineral extraction, either for resumption of the former land use or for a new use.
<b>Recycled aggregates</b>	For the purposes of the Worcestershire Minerals Local Plan this means aggregates produced from the recycling, through crushing and screening, of inorganic construction, demolition and excavation wastes.
<b>Reclamation</b>	Operations associated with the winning and working of minerals designed to return the area to an acceptable environmental condition, whether for the resumption of the former land use or for a new use. As well as restoration and aftercare, it includes events which take place before and during mineral extraction, such as soil handling, and operations after extraction such as filling and contouring or the creation of planned water areas.
<b>Rights of way</b>	Public rights of way and other access network. Other access includes canal towpaths, country parks and urban green space, nature reserves and permissive paths.
<b>Safeguarding</b>	The protection of mineral resources, mineral sites, and the infrastructure for their transportation and processing, from sterilisation by other forms of development.
<b>Screening</b>	Visual or acoustic screening may be used to mitigate amenity impacts from a development. Screening measures can include built or engineered forms and/or soft landscape elements such as vegetation. There may be seasonal variation in the degree of screening and/or filtering of impacts due to variation in vegetation between summer and winter.
<b>Secondary aggregates</b>	Aggregates derived from the extraction and processing of non-aggregate minerals or as a by-product of industrial processes.



<b>Sensitive receptors</b>	Sensitive receptors include people in their homes, schools, places of work and recreation; businesses, including agriculture and tourism; environmental receptors such as wildlife, habitats, geological features and heritage assets; and other users of land, including farm animals.
<b>Site of Special Scientific Interest (SSSI)</b>	A site designated by Natural England under the Wildlife and Countryside Act 1981 as an area of special interest by reason of any of its flora, fauna, geological or physiographical features (plants, animals and natural features relating to the Earth's structure).
<b>Source Protection Zones</b>	Source Protection Zones (SPZs) are defined for groundwater sources such as wells, boreholes and springs used for public drinking water supply. They show the risk of contamination from any activities that might cause pollution in the area. The closer the activity, the greater the risk. There are three main zones identified (inner, outer and total catchment).
<b>Special Area of Conservation (SAC)</b>	An area given special protection under the European Union's Habitats Directive for its habitat and/or species, transposed into UK law through the Conservation of Habitats and Species Regulations 2017.
<b>Specific site</b>	An area where viable resources are known to exist, landowners are supportive of minerals development and the proposal is likely to be acceptable in planning terms. Such sites may also include essential operations associated with mineral extraction.
<b>Sterilisation</b>	A change of use or other development of land that prevents future mineral exploitation or the continued operation of supporting infrastructure.
<b>Strategic Flood Risk Assessment (SFRA)</b>	A study carried out by one or more local planning authorities to assess the risk to an area from flooding from all sources, now and in the future, taking account of the impacts of climate change, and to assess the impact that land use changes and development in the area will have on flood risk.
<b>Strategic policies</b>	<p>The National Planning Policy Framework (July 2018) differentiates between "strategic policies" and "local policies". "Strategic policies" are the policies and strategic site allocations which address strategic priorities in line with the requirements of Section 19 (1B-E) of the Planning and Compulsory Purchase Act 2004. They should, as a minimum, plan for and allocate sufficient sites to deliver the strategic priorities of the area (except insofar as these needs can be met more appropriately through other mechanisms, such as local policies).</p> <p>The strategic policies in the Minerals Local Plan are the policies necessary to provide an overall strategy for the pattern and scale of development, the infrastructure for the provision of minerals, and climate change mitigation and adaptation, conservation and enhancement of the natural and built and historic environment, including landscape and green infrastructure.</p>
<b>Superficial sand and gravel deposits</b>	Superficial deposits refer to geological deposits typically of less than 2.6 million years old. These recent unconsolidated sediments may include stream channel and floodplain deposits.
<b>Supplementary Planning Document (SPD)</b>	A document which adds further detail to the policies in the Local Plan. It can be used to provide further guidance for development on specific sites, or on particular issues, such as design. Supplementary planning documents are capable of being a material consideration in planning decisions but are not part of the Development Plan.
<b>Sustainability Appraisal</b>	The process of appraising the sustainability of a policy document (including the Minerals Local Plan) against a set of sustainability objectives. Sustainability Appraisal should be undertaken throughout the development of a policy document in order that it can be refined in light of appraisal results, and should incorporate the requirements of the EU's Strategic Environmental Assessment Directive.

<b>Sustainable drainage system (SuDS)</b>	A surface water drainage system that attempts to replicate natural systems by allowing surface water to be collected, stored and cleaned before it is released slowly back into water courses or groundwater.
<b>Tufa</b>	A porous rock composed of calcium carbonate and formed by precipitation from water, for example around mineral springs.
<b>Vernacular</b>	Architecture concerned with domestic and functional rather than public or monumental buildings.
<b>Vitrified clay pipes</b>	Pipes made from a blend of clay and shale that has been subjected to high temperature to achieve vitrification, a process which results in a hard, inert ceramic.
<b>Water environment</b>	All aquatic features and the surroundings associated with controlled waters which includes surface water, rivers, canals, lakes, estuaries and coastal waters, and groundwater.
<b>Water table</b>	The level below which the ground is saturated by water, which will fluctuate seasonally.
<b>West Midlands conurbation</b>	The West Midlands Conurbation is made up of seven metropolitan councils (Birmingham, Coventry, Dudley, Sandwell, Solihull, Walsall and Wolverhampton).
<b>Wharfage</b>	Provision at a wharf for the loading, unloading, or storage of goods.
<b>Wildmoor Sandstone Formation</b>	The Wildmoor Sandstone Formation (named from the Worcestershire locality of Wildmoor, north of Bromsgrove) is a 0 - 284m thick sequence of sandstones formerly known as the Upper Mottled Sandstone or Wildmoor Beds. It also includes some mudstones and siltstones.
<b>Winning</b>	Preparation of land to make a mineral available or accessible to be removed.
<b>Working</b>	Removal of a mineral from its position in or under the land.



Wet grassland, Lower Moor

## Appendix 4: Glossary

<b>ALC</b>	Agricultural Land Classification
<b>AONB</b>	Area of Outstanding Natural Beauty
<b>AWP</b>	Aggregate Working Party
<b>BAP</b>	Biodiversity Action Plan
<b>DPD</b>	Development Plan Document
<b>EIA</b>	Environmental Impact Assessment
<b>GVA</b>	Gross Value Added
<b>HRA</b>	Habitats Regulations Assessment
<b>ROMP</b>	Review of Mineral Permissions
<b>SAC</b>	Special Area of Conservation
<b>SSSI</b>	Site of Special Scientific Interest
<b>WFD</b>	Water Framework Directive

Please contact us if you need this document in another format, or if you have any questions.

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