

## Appendix C Baseline Information for Herefordshire

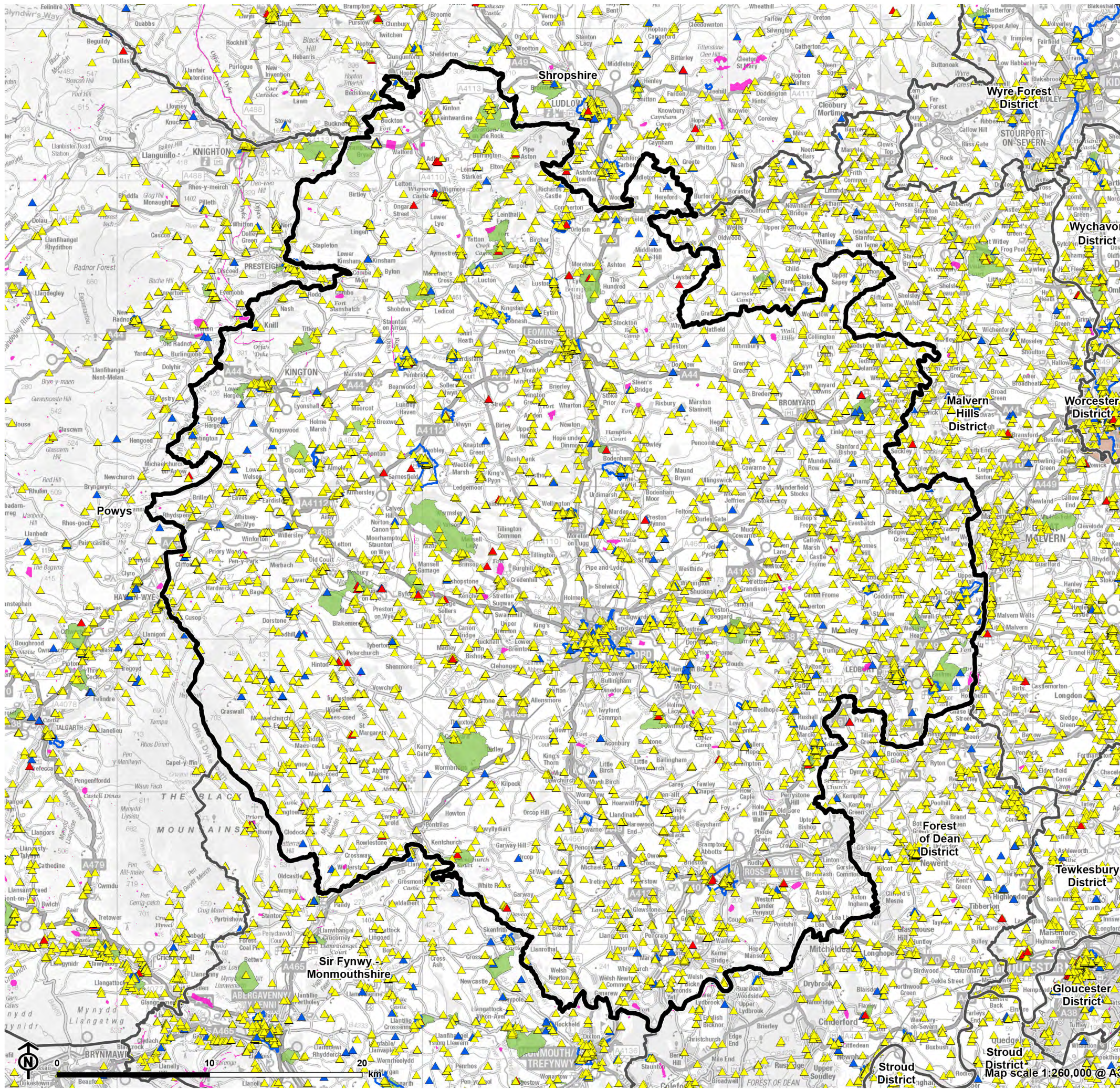
these, two are listed on the Heritage at Risk Register - Kington and Ross-on-Wye/Bridstow. Both conservation areas are assessed as being in very bad condition which is deteriorating. Of the total 64 Conservation Areas in the county, 31 have either draft brief, brief or full appraisals completed [See reference 169].

**C.89** Figure C.6 shows designated heritage assets across Herefordshire.

**C.90** In addition, there are also over 27,500 archaeological and historic sites in Herefordshire, identified within the Herefordshire Historic Environment Record (HER). Not all of these are listed, but they contribute to the character of the area. The HER also holds data on the historic landscape characterisation map of Herefordshire, which maps the age of the present-day cultural landscape, primarily using field shapes. The HER is maintained by Herefordshire Council.



Figure C6: Designated Heritage Assets



- County of Herefordshire
- Neighbouring authority boundary
- Historic England Designations**
- Listed Building (by grade)**
- I
- II\*
- II
- Scheduled Monument
- Registered Battlefield
- Registered Parks and Gardens
- Conservation Area
- Cadw Historic Designations**
- Listed Building (by grade)**
- I
- II\*
- II
- Scheduled Ancient Monument
- Registered Historic Parks and Gardens
- Conservation Area



**C.91** The Hereford Area of Archaeological Importance (AAI) encompasses the whole zone within the medieval walls of the city, together with some of the early suburbs and former monastic precincts. It was designated an AAI in 1983, under the 1979 Ancient Monuments and Archaeological Areas Act, due to the national significance of the historic core of Hereford [\[See reference 170\]](#). Hereford is only one of five national AAIs.

**C.92** Historic England has a Heritage at Risk Register [\[See reference 171\]](#) that identifies vulnerable listed buildings and Conservation Areas that are at risk of being lost through neglect, deterioration or decay. The register aims to highlight those places and buildings in greatest need of repair. The condition of buildings or structures on the register range from 'very bad' to 'poor', 'fair' and occasionally 'good'. Buildings judged to be in a 'good' condition may be considered at risk if they empty or under-used [\[See reference 172\]](#).

**C.93** There are 56 heritage assets in Herefordshire that are on the Heritage at Risk Register. This includes 24 Scheduled Monuments, 16 Grade II\* buildings, three Grade II buildings, 11 Grade I buildings, and two conservation areas [\[See reference 173\]](#).

## Landscape

**C.94** Herefordshire is characterised by being a largely rural area, consisting mainly of farmland with scattered woodland and settlements. The area has varied topography, with a number of hills and ridges. Herefordshire's varied landscape is reflected by the fact that it lies within five National Character Areas (NCAs):

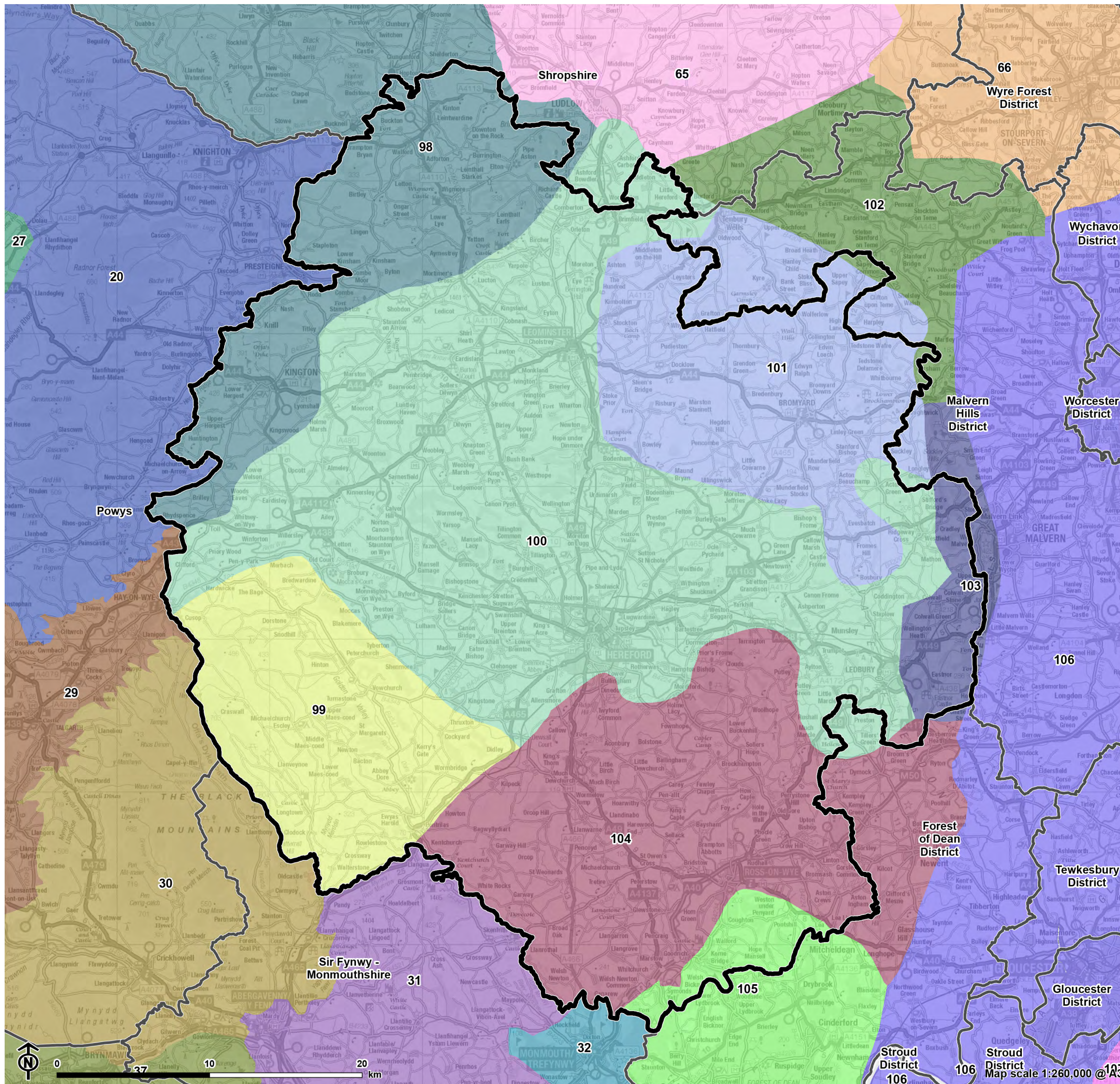
- 98: Clun and Northwest Herefordshire Hills
- 99: Black Mountains and Golden Valley
- 100: Herefordshire Lowlands
- 101: Herefordshire Plateau
- 104: South Herefordshire and Over Severn [\[See reference 174\]](#)

**C.95** The Herefordshire Landscape Character Assessment Supplementary Planning Document (SPD) [See reference 175] identifies a hierarchy of landscape character units below NCA level. There are 12 Sub-Regional Character Areas, the largest and most central of which being Central Herefordshire, which includes the city of Hereford. There are 22 Landscape Types (excluding urban areas) as well as several Landscape Description Units and Land Cover Parcels, which are at a fine-grain scale. Figure C.7 shows the National Character Areas in relation to Herefordshire. There a variety of factors that contribute to landscape character, including those of a natural, cultural and social nature, together with those of a perceptual and aesthetic nature. Many of the characteristics have a historic dimension to them.

**C.96** The Wye Valley and Malvern Hills National Landscapes lie partially within Herefordshire. The Wye Valley National Landscape broadly follows the River Wye, ending just southeast of Hereford and the Malvern Hills National Landscape incorporates an area east and northeast of Ledbury. The Shropshire Hills National Landscape lies almost adjacent to the north-western part of Herefordshire, near Leintwardine. Bannau Brycheiniog National Park lies adjacent to the county's western boundary.



Figure C7: National Character Areas



- County of Herefordshire
- Neighbouring authority boundary
- National Character Area (England)**
  - 65: Shropshire Hills
  - 66: Mid Severn Sandstone Plateau
  - 98: Clun and North West Herefordshire Hills
  - 99: Black Mountains and Golden Valley
  - 100: Herefordshire Lowlands
  - 101: Herefordshire Plateau
  - 102: Teme Valley
  - 103: Malvern Hills
  - 104: South Herefordshire and Over Severn
  - 105: Forest of Dean and Lower Wye
  - 106: Severn and Avon Vales
  - 107: Cotswolds
- Landscape Character Area (Wales)**
  - 20: Radnorshire Hills
  - 27: The Spas and Wells of Central Wales
  - 29: Wye and Usk Vales
  - 30: Brecon Beacons and the Black Mountains
  - 31: Central Monmouthshire
  - 32: Wye Valley and Wentwood
  - 37: South Wales Valleys



**C.97** The Urban Fringe Sensitivity Analysis [**See reference 176**] characterises the areas surrounding Hereford and each of the five market towns. It identifies areas of low, medium-low, medium, high-medium and high sensitivity, depending on how vulnerable key landscape characteristics are to change. The following section provides details on the landscape sensitivity analysis of Hereford.

# Landscape sensitivity analysis of Hereford

## Land with low sensitivity

- None of the land around the periphery of Hereford was assessed as falling into the lowest category of sensitivity.

## Land with medium-low sensitivity

- Holmer – Shelwick
- Grafton – Lower Bullingham
- Stretton Sugwas - Huntington

## Land with medium sensitivity

- Holmer – Shelwick
- King's Acre
- Stretton Sigwas – Huntington
- Burghill – Pipe & Lyde

## Land with high-medium sensitivity

- Homer – Shelwick



- Aylestone Hill – Hampton Bishop
- Grafton – Lower Bullingham
- Breinton
- King’s Acre
- Burghill – Pipe & Lyde

### Land with high sensitivity

- Holmer – Shelwick
- Aylestone Hill – Hampton Bishop
- River Wye Corridor
- Dinedor/Grafton – Lower Bullingham
- Grafton – Lower Bullingham
- Ruckhall – Merryhill
- Belmont
- Breinton
- Stretton Sugwas - Huntingdon

## Climate change, Energy Consumption and Energy Efficiency

**C.98** Climate change has the potential not only to affect the environment but also the social and economic aspects of life in Herefordshire. Although the precise nature of environmental changes is not fully understood, changes to precipitation patterns (and river flow) and flooding have implications for the location, longevity and viability of mineral and waste developments.



## Appendix C Baseline Information for Herefordshire

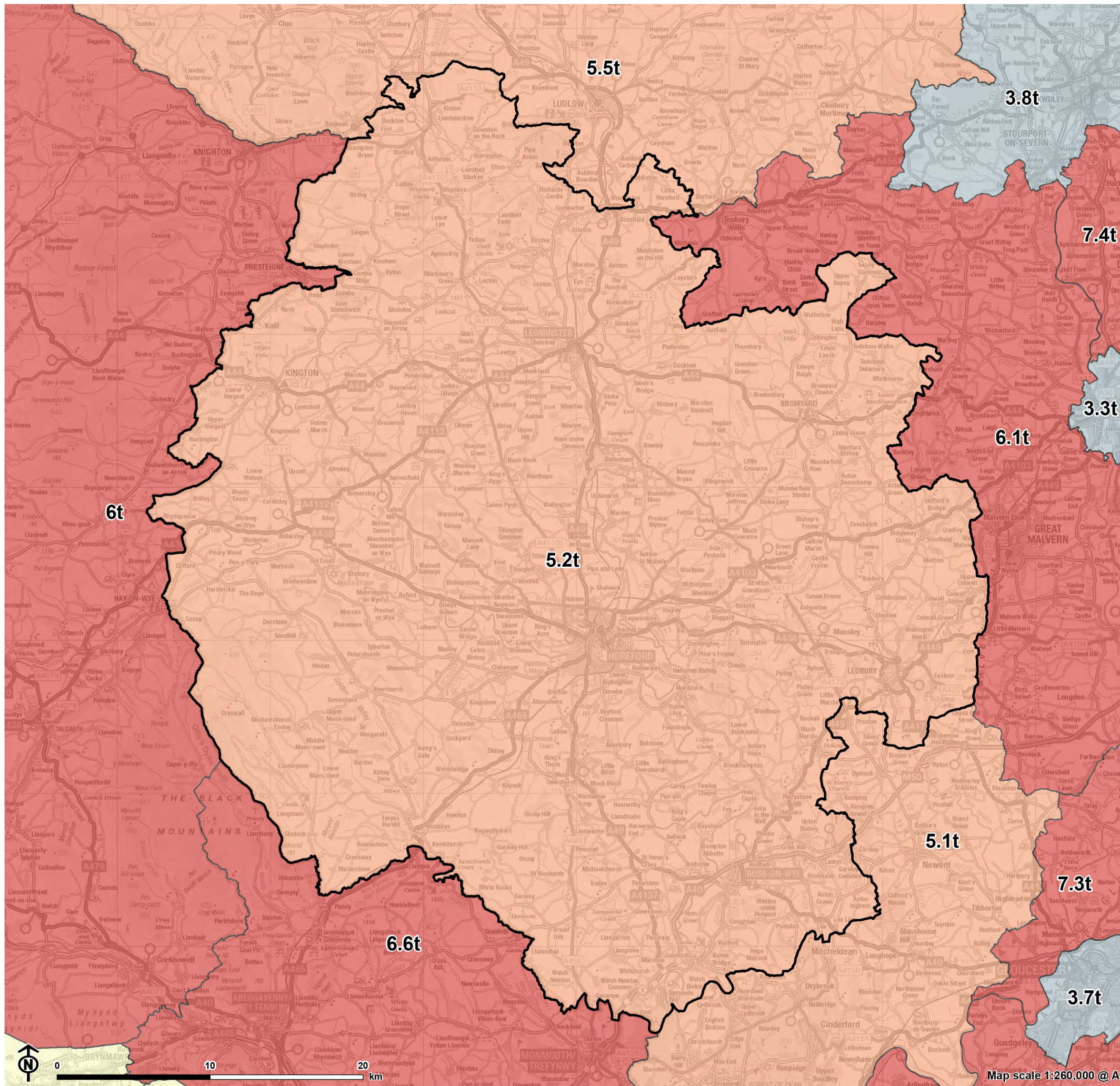
**C.99** Conversely, predicted dry, hot summers will cause problems of low flows for some of the rivers in the area which will increase demand for water potentially affecting availability for minerals operations. Extreme weather events may also increase disruption to supply chains, infrastructure and transport of minerals and waste.

**C.100** The UK Climate Projections (UKCP18) show that West Midlands temperatures are projected to increase, particularly over the summer months when the mean temperature could increase by 5.8°C (2070s high emissions scenario). Another key change is the intensification of a seasonal variation in rainfall patterns. The winter months are projected to become wetter with 33% more rainfall (2070s high emissions scenario), while summers are projected to become 57% drier under the same scenario and probability level. In addition to this seasonal variation, the intensity of rainfall events is also anticipated to increase, with the amount of precipitation falling on the wettest days in both winter and summer increasing (2070s high emissions scenario, central estimate). The projections also suggest small changes in relative humidity in summer and winter, a reduction in summer cloud cover and an increase in winter cloud cover.

**C.101** Figure C.7 shows the per capita CO<sub>2</sub> emissions for Herefordshire, as compared to neighbouring authorities.



Figure C9: Per Capita CO2 Emissions Compared to Neighbouring Authorities



County of Herefordshire

Per Capita CO2 Emissions (t), 2019

< 3.2

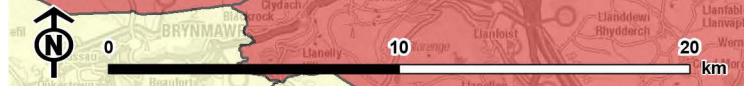
3.21 - 3.9

3.91 - 4.6

4.61 - 5.6

> 5.6

Annotations on the map refer to per capita CO2 emissions in tons (t).



Map scale 1:260,000 @ A3



**C.102** The future changes in climate may have significant impacts across a range of sectors in the West Midlands, including health, infrastructure, economy and biodiversity [See reference 177]. According to the UK Climate Change Risk Assessment 2017 there are a number of risks and opportunities arising from climate change for the UK which are outlined below.

# Risks and opportunities arising from climate change in the UK

## Risks

- The number of incidents of food poisoning, heat stress and heat related deaths may increase in summer.
- Domestic energy use may increase during summer months as refrigeration and air conditioning demand increases.
- Wetter winters and more intense rainfall events throughout the year may result in a higher risk of flooding from rivers.
- More intense rainstorms may in some locations result in the amount of surface water runoff exceeding the capacity of drainage systems, consequently leading to more frequent and severe localised flash flooding.
- More frequent storms and floods may cause increased damage to property and infrastructure, resulting in significant economic costs.
- Periods of drought in summer could lead to soil shrinking and subsidence, causing damage to buildings and transport networks. Drought may also impact negatively on agriculture, industry and biodiversity.
- Warmer and drier summers are likely to affect the quantity and quality of water supply, which will need careful management.
- The changing climate will impact on the behaviour and distribution of species, and may encourage the spread of invasive species.



## Opportunities

- Milder winters should reduce the costs of heating homes and other buildings, helping to alleviate fuel poverty and reducing the number of winter deaths from cold.
- Domestic energy use may decrease in winter due to higher temperatures.
- Warmer and drier summers may benefit the recreation and tourism economy.
- UK agriculture and forestry may be able to increase production with warmer weather and longer growing seasons.
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**C.103** The latest DECC figures [\[See reference 178\]](#) are set out in **Table C.7** and show generally decreasing trends for CO<sub>2</sub> emissions (kilo tonnes) in Herefordshire from 2005 to 2017. The decreasing trend in emissions reflects the decrease in overall emissions for the UK during this period driven mainly by reductions in emissions from power stations, industrial combustion and passenger cars. The reduction from power stations is driven by change in the fuel mix used for electricity generation with a reduction in the amount of coal, which is a carbon intensive fuel. Emissions for many Local Authorities are heavily influenced by activities at industrial sites, and changes at a single site can have a big impact on emissions trends [\[See reference 179\]](#) . Minerals and waste management developments have the scope to contribute to greenhouse gas emissions and climate change, for example, through the transportation of minerals and waste by road.

**C.104** Consumption (in thousand tonnes of oil equivalent (ktoe)) per consuming sector and household in Herefordshire are set out in **Table C.8**. There has been a general decreasing trend in energy consumption as well as CO2 emissions. This also reflects a steady year on year decrease in total energy consumption in Great Britain with the only anomaly occurring between 2009 and 2010, and 2011 and 2012 when there was a small increase due to the particularly cold winter those years, resulting in a higher consumption of fuels used for heating purposes. The decreasing trend has been attributed to the impacts of the recession, as well as energy efficiency improvements and declining use particularly in the industrial and commercial sector of petroleum products and gas [\[See reference 180\]](#).

**C.105** In March 2019, Herefordshire Council declared a Climate Emergency and outlined plans to set a target for zero carbon by 2030. In September 2019, the Council agreed to:

- Accelerate a reduction of emissions and aspire to become carbon neutral by 2030/31.
- Deliver an updated carbon management plan and associated action plan for Council emissions by April 2020.
- Work with strategic partners, residents and local organisations to develop a revised countywide carbon dioxide reduction strategy aspiring for carbon neutrality by 2030.
- Use 100% renewably sourced energy where this provides the best carbon reduction return on investment.

**C.106** Corresponding with this declaration, Herefordshire has been tackling challenges posed by climate change for many years with significant success. Herefordshire was the first county in the UK to have 100% LED street lighting. Since 2011/12 there has been a 65% reduction in the electricity used for street lighting, from around 4.7 million kWh to an estimated level of 1.7 million kWh in 2018/19, saving an estimated £1.5 million between 2016/17 and 2020/21. The council has also installed LED lighting into offices and car parks to reduce emissions and costs [\[See reference 181\]](#).



## Appendix C Baseline Information for Herefordshire

**C.107** In 2013/14 the Council was awarded government grant money for the installation of electric vehicle charge points in 11 locations across the county including Hereford city and all the market towns. Before these installations there were no publicly available electric vehicle charge points in the county. The Council is currently working with Highways England to install rapid chargers along the A49 corridor [\[See reference 182\]](#).

**C.108** In October 2018, the Council purchased six new electric and five new petrol hybrid pool cars for staff to use for business travel. Their use will reduce the CO2 emissions and help reduce levels Nitrous Oxide (NOx) which will contribute to improved local air quality [\[See reference 183\]](#).

**C.109** The Council has committed to invest £2.1 million in solar photovoltaic (PV) panels across council buildings by 2021. To date, Herefordshire Council have installed 928kWp across its operational estate [\[See reference 184\]](#).

**Table C.4: Per Capita CO2 Emissions compared to neighbouring authorities**

Year	Industry and Commercial (kt CO2)	Domestic (kt CO2)	Transport (kt CO2)	Total (kt CO2)
2005	763.4	479.0	443.8	1,662.3
2006	754.3	483.5	436.9	1,642.6
2007	729.9	467.6	444.4	1,605.7
2008	706.2	467.5	422.0	1,555.2
2009	643.7	430.8	409.7	1,443.2
2010	697.3	464.2	408.0	1,523.9
2011	650.9	398.0	397.5	1,397.1
2012	650.6	422.3	391.1	1,411.0
2013	644.7	407.9	387.6	1,380.7

## Appendix C Baseline Information for Herefordshire

Year	Industry and Commercial (kt CO2)	Domestic (kt CO2)	Transport (kt CO2)	Total (kt CO2)
2014	616.3	349.7	397.0	1,302.5
2015	576.2	333.2	404.6	1,248.5
2016	529.1	315.6	413.6	1,194.5
2017	506.6	297.5	420.7	1,156.0
2018	495.4	294.7	412.5	1131.1

**Table C.5: Energy consumption in Herefordshire per Sector (2005-2018)**

Year	Industry and Commercial (ktoe)	Domestic (ktoe)	Transport (ktoe)	Total (ktoe)
2005	203.8	141.6	128.8	477.1
2006	192.0	139.4	129.5	464.1
2007	187.4	134.2	132.8	457.6
2008	175.5	133.0	129.8	444.3
2009	167.8	127.3	127.2	428.6
2010	179.0	131.7	125.6	443.9
2011	171.5	118.4	123.1	419.6
2012	164.1	118.3	121.0	412.1
2013	167.2	117.9	120.3	416.1
2014	175.5	113.2	123.5	420.0
2015	174.0	113.0	123.9	419.3
2016	171.5	121.7	125.5	419.5
2017	173.6	123.1	127.6	424.3



Year	Industry and Commercial (ktoe)	Domestic (ktoe)	Transport (ktoe)	Total (ktoe)
2018	173.2	124.2	125.8	423.2

## Pollution

### Air Quality

**C.110** The Environment Act 1995 introduced the National Air Quality Strategy and the requirement for local authorities to determine if statutory air quality objectives (AQOs) are likely to be exceeded. All local authorities now report to DEFRA on an annual basis, and have the obligation to declare Air Quality Management Areas (AQMAs) and develop action plans for improvement of air quality if objectives are likely to be exceeded. Delivering improved air quality is a matter of relevance for both urban and rural environments.

**C.111** There are two declared AQMAs in Herefordshire. Hereford AQMA consists of part of the A49 corridor from Holmer Road in the north, to Belmont Road in the south and extending along New Market/Blueschool Street and along Eign Street [\[See reference 185\]](#). The annual mean objective for nitrogen dioxide is being exceeded at this AQMA.

**C.112** Bargates Leominster AQMA encompasses the junction between the A44 Bargates and B4361 Dishley Street/Cursneh Road in Leominster. The annual mean objective for nitrogen dioxide is being exceeded at this AQMA [\[See reference 186\]](#).

**C.113** Figure C.9 shows the position of the county's Air Quality Management Areas.



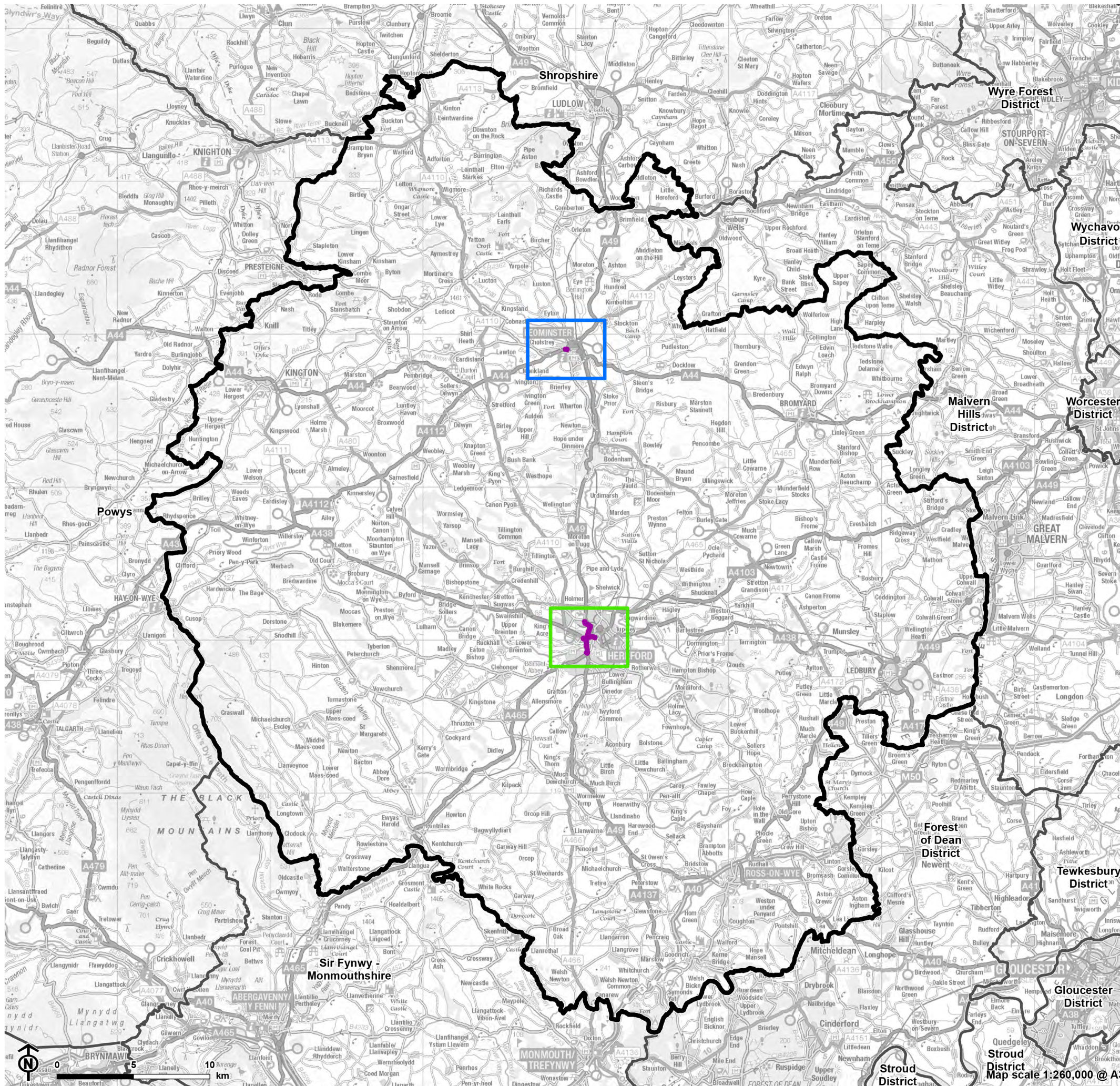
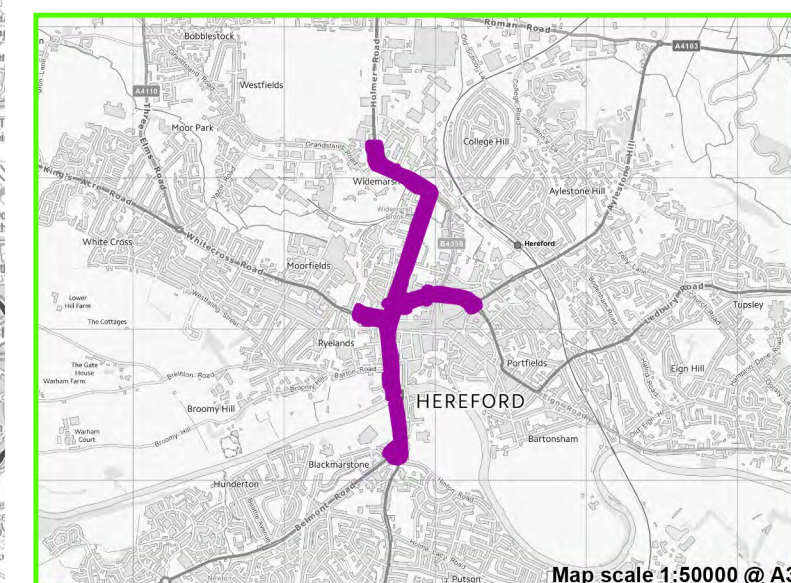
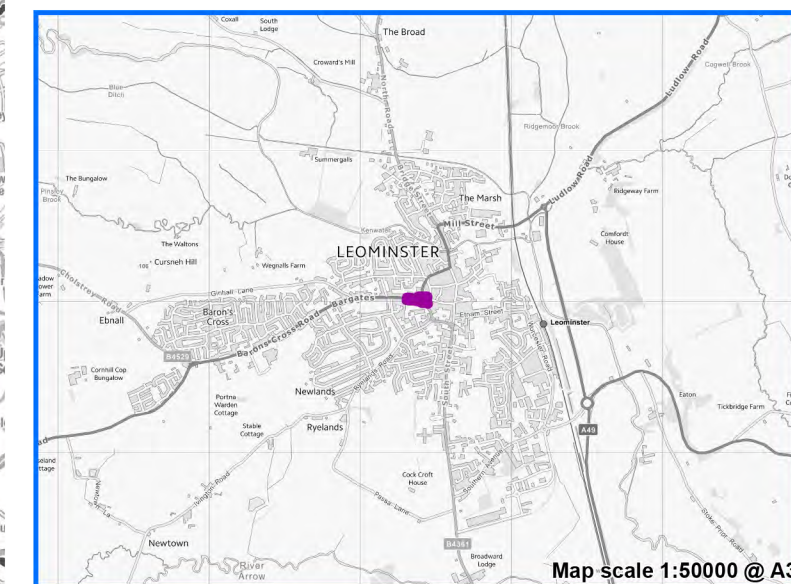


Figure C10: Air Quality Management Areas in Herefordshire

- County of Herefordshire
- Neighbouring authority boundary
- Air Quality Management Area





## Noise Pollution

**C.114** Noise is a common problem arising from transport. Noise has been proven to have a major negative direct and indirect effects on health and well-being, on quality of life and on wildlife.

**C.115** While noise pollution would not appear to be a major problem in a rural county such as Herefordshire, a survey carried out for CPRE looking at rural tranquillity has found that the countryside is becoming more and more affected by urban type noise (although the information it is based on can be open to a measure of interpretation). Noise within Herefordshire is mostly associated with the main transport corridors, in particular road networks.

## Light Pollution

**C.116** Light pollution is essentially unwanted artificial light and comes in the following forms:

- Light trespass: the intrusion of light into homes.
- Glare: unshielded bright lighting may be hazardous in a relatively small area.
- Sky Glow: the broad orange glow that prevents appreciation of the night sky.

**C.117** As well as destroying a view of the night sky, light pollution wastes energy and harms people's quality of life at night through interference with sleep. Light pollution also has an ecological impact.

**C.118** In 2022, The Wye Valley Society successfully received a Nature and Climate Change Grant from Herefordshire Council to deliver a Dark Skies Project in part of the Wye Valley National Landscape. The project will raise understanding through an awareness campaign, public events and an education programme to combat light pollution in Walford first and then move



on to Goodrich, Welsh Bicknor, Whitchurch, The Dowards and Ganarew [\[See reference 187\]](#).

**C.119** In 2016 Herefordshire Council also completed a project to replace the majority of the 12,000 council-owned lights with LEDs to reduce light pollution.

## Waste

**C.120** Waste is generated from a wide range of domestic, commercial and industrial activities. The main waste types considered in this section are:

- Local Authority Collected Waste (LACW) - household waste and other wastes collected by local authorities.
- Commercial and Industrial (C&I) waste - waste from businesses and manufacturing companies.
- Construction, Demolition and Excavation (CD&E) waste - produced through a wide range of building projects, from home renovations to major redevelopments.
- Hazardous waste - generally considered hazardous if it is harmful to humans or the environment, particularly through being toxic, corrosive or irritant - examples of hazardous waste include asbestos, chemicals such as brake fluid or print toner.
- Agricultural waste - includes both natural, such as animal manure, animal bedding and crop waste and non-natural, such as plastic wrapping or bottles.
- Low level (non-nuclear industry) radioactive waste - such as is used in research laboratories.
- Wastewater – used water from any combination of domestic, industrial, commercial or agricultural activities such as surface runoff or stormwater, and any sewer inflow or sewer infiltration.

## Appendix C Baseline Information for Herefordshire

**C.121** The amount and type of waste produced, and the ways in which it is managed, partly reflects the environmental, social and economic characteristics of the area. Concentrated populations and commercial/industrial activities, as are found in Hereford, together with the five market towns, are the largest producers of waste, and this is generally reflected in the pattern of waste management facilities within Herefordshire.

**C.122** Anaerobic digestion and biological treatment facilities are dispersed around the county, reflecting its agricultural sector.

**C.123** According to the Waste Needs Assessment of 2019 [\[See reference 188\]](#), consented facilities located in Herefordshire managed 460,000 tonnes of waste in 2018, compared to just over 300,000 tonnes in 2013. The single largest tonnage is municipal waste (principally wastes from households); representing 42% to 48% of the wastes managed at consented facilities in Herefordshire between 2015 and 2018. The second largest tonnage is formed by construction and demolition wastes (29%) followed by agriculture and processing wastes (20% in 2018). All the other wastes added together still only comprise about 6% to 11% of all wastes managed at the consented facilities in Herefordshire.

**C.124** The majority (90%) of waste received at consented facilities in Herefordshire originated in Herefordshire in 2019; an increase on the 86% reported in 2016. This suggests either that Herefordshire is managing more wastes within the county than last year, or that more waste is being deposited at consented facilities. It also suggests that Herefordshire is reasonably self-sufficient, at least in waste transfer capacity.

**C.125** There are 34 waste management facilities operating in Herefordshire comprising of four physical treatment facilities, two non-hazardous waste transfer facilities, two non-hazardous waste transfer and civic amenity sites, three civic amenity sites, one hazardous waste transfer facility, three car breaker facilities, one material recycling and two metal recycling facilities, four biological treatment facilities, one Civil Amenity site and 11 anaerobic digestion treatment facilities.

## Appendix C Baseline Information for Herefordshire

**C.126** While there is a range of waste management collection, re-use and recycling capacity permitted in Herefordshire addressing a variety of wastes, there are no residual waste management facilities such as energy from waste plants or landfill sites. This means that there is a reliance on such facilities outside the county, including a significant proportion of strategic capacity that has been jointly procured with Worcestershire County Council to manage 'local authority collected waste' (LACW).

**C.127** Over the last four years there has been a notable increase in the capacity and waste inputs to consented facilities. This is predominantly driven by an increase in biological treatment and anaerobic digestion facilities, with permitted capacity increasing by approximately 800kt and waste inputs by 115kt [See reference 189], and the permitting and increased operation of a physical treatment facility at Lugg Bridge Quarry with a capacity of 250kt and an input of 100kt.

**C.128** Herefordshire Council operates a kerbside recycling scheme. Households have a black wheeled bin for general rubbish and a green wheeled bin for mixed recycling. There are seven recycling centres in Herefordshire [See reference 190]:

- Hereford
- Bromyard
- Kington
- Ledbury
- Leominster
- Ross-on-Wye
- Tenbury Wells



## Natural Resources

### Geology and Minerals

**C.129** The following baseline information in relation to mineral resources in Herefordshire is derived from the Minerals Needs Assessment 2019 ('MNA 2019') [See reference 191] which was prepared to support the Herefordshire Minerals and Waste Local Plan. The MNA 2019 has forecast demand for each of the minerals present in Herefordshire.

**C.130** Mineral resources in Herefordshire are relatively limited in range, primarily consisting of aggregates for use in construction but also a small amount of building stone. The commercially exploitable minerals available for extraction from within Herefordshire include sand, gravel, crushed rock, and sandstone.

- Sand and gravel:
  - river terrace deposits are mainly found in the river valleys of the Wye, Lugg and Arrow; and
  - glacial deposits are present in the north and west of Herefordshire.
- Crushed rock:
  - Silurian limestone is found on the western side of the Malvern Hills and Ledbury, the Woolhope dome and in the north-west of the county in the Presteigne/Aymestrey areas.
  - carboniferous limestone is present to the south-west of Ross-on-Wye in the northern flanks of the Forest of Dean; and
  - igneous and metamorphic rock occurs in the Malvern Hills.
- Sandstone:
  - sandstone occurs extensively throughout much of Herefordshire and several operational quarries exist in the north, west and south of the

## Appendix C Baseline Information for Herefordshire

county. The output is of particular importance for heritage restoration and in creating authentic character for new-build properties.

**C.131** Coal is no longer extracted in Herefordshire, but was formerly worked in two locations:

- the southern tip of the Wyre Forest Coalfield, which extended into the north of the county, near the boundary with Worcestershire and Shropshire; and
- a small outlier site of the Forest of Dean Coalfield which extends into southern Herefordshire.

**C.132** In 1999, the British Geological Survey reported that the hydrocarbon prospectivity of the county was low. Wells drilled to test the oil and gas potential of sandstones in the Worcestershire Basin and rocks in the Woolhope Inlier failed to discover hydrocarbons.

**C.133** In December 2015, a small block of land in the south of the county was offered for onshore hydrocarbon exploration, appraisal and extraction in relation to coalbed methane. This offer was declined by the energy company to which it was offered and has not been made available again.

**C.134** It is considered highly unlikely that there will be any activities relating to the exploration or extraction of hydrocarbons within Herefordshire in the short term. In the medium to long term, it is possible that this situation may change but, recognising current policy on minimising carbon emissions this is considered to be unlikely.

**C.135** There are currently 11 consented mineral workings in Herefordshire:

- Sand and gravel:
  - Shobdon Quarry
  - Upper Lyde Quarry
  - Wellington Quarry

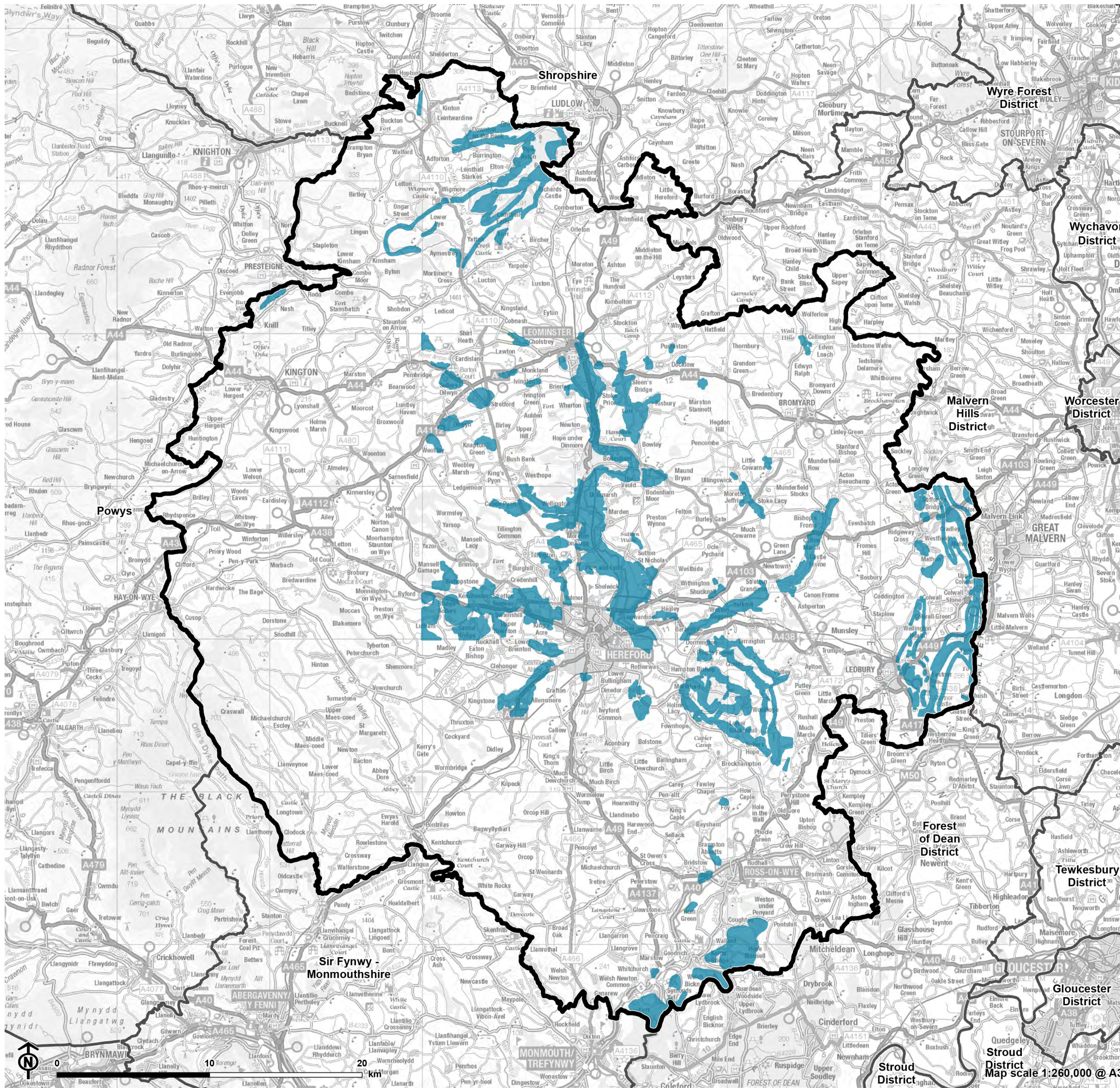
## Appendix C Baseline Information for Herefordshire

- Limestone/Crushed rock:
  - Leinthall Quarry
  - Perton Quarry
- Sandstone:
  - Llandraw Delve
  - Callow Delve
  - Black Hill Delve
  - Pennsylvani Delves
  - Sunnybank Delve
  - Westonhill Wood Delve.

**C.136** Figure C.10 identifies mineral safeguarding areas in Herefordshire.



Figure C11: Minerals Safeguarding Areas in Herefordshire



- County of Herefordshire
- Neighbouring authority boundary
- Minerals Safeguarding Area



## Appendix C Baseline Information for Herefordshire

**C.137** There are a number of quarries that are known to be inactive, closed or mothballed, and some for which the activity status is unknown. **Tables C.9, C.10, C.11, and C12** provide a summary of provision in Herefordshire.

**Table C.6: Sand and Gravel Quarries in Herefordshire**

Quarry name	Status
Hereford Quarry	Closed
Lugg Bridge Quarry	Closed
Upper Lyde Quarry	Operational
Shobdon Quarry	Inactive at the time of preparing the MWLP
Wellington Quarry	Active
St Donat's Quarry	Restored

**Table C.7: Limestone Quarries in Herefordshire**

Quarry name	Status
Leinthall Quarry	Active
Loxter Ashbed Quarry	Restored
Nash Scar Quarry	Mothballed
Perton Quarry	Active
Loxter Ashbed Quarry	Restored

**Table C.8: Sandstone Quarries in Herefordshire**

Quarry name	Status
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Quarry name	Status
Brakes Farm Delve	Abandoned
Callow Delve	Active
Black Hill Delve (formerly Coed Major Quarry)	Active
High House Delve	Unsuccessful, never exploited
Hunters Post Delve	Closed, naturally regenerated
Llandraw Delve	Active
Pennsylvania Delves	Active
Sunnybank Delve	Active
Tybubach Delve	Abandoned, to be restored
Westonhill Wood Delves	Active

**Table C.9: Coal Quarries in Herefordshire**

Coal Quarries	Status
Howle Hill Quarry	Restored

## Soils

**C.138** The Agricultural Land Classification (ALC) system [\[See reference 192\]](#) provides a framework for classifying land according to the extent to which its physical or chemical characteristics impose long-term limitations to agricultural use. The principal factors influencing agricultural production are soil wetness, drought and erosion. These factors together with interactions between them form the basis for classifying land use into one of five grades, where 1 describes land as excellent (land of high agricultural quality and potential) and 5 describes land as very poor (land of low agricultural quality and potential). Land falling outside these scores is deemed to be ‘primarily in non-agricultural use’,

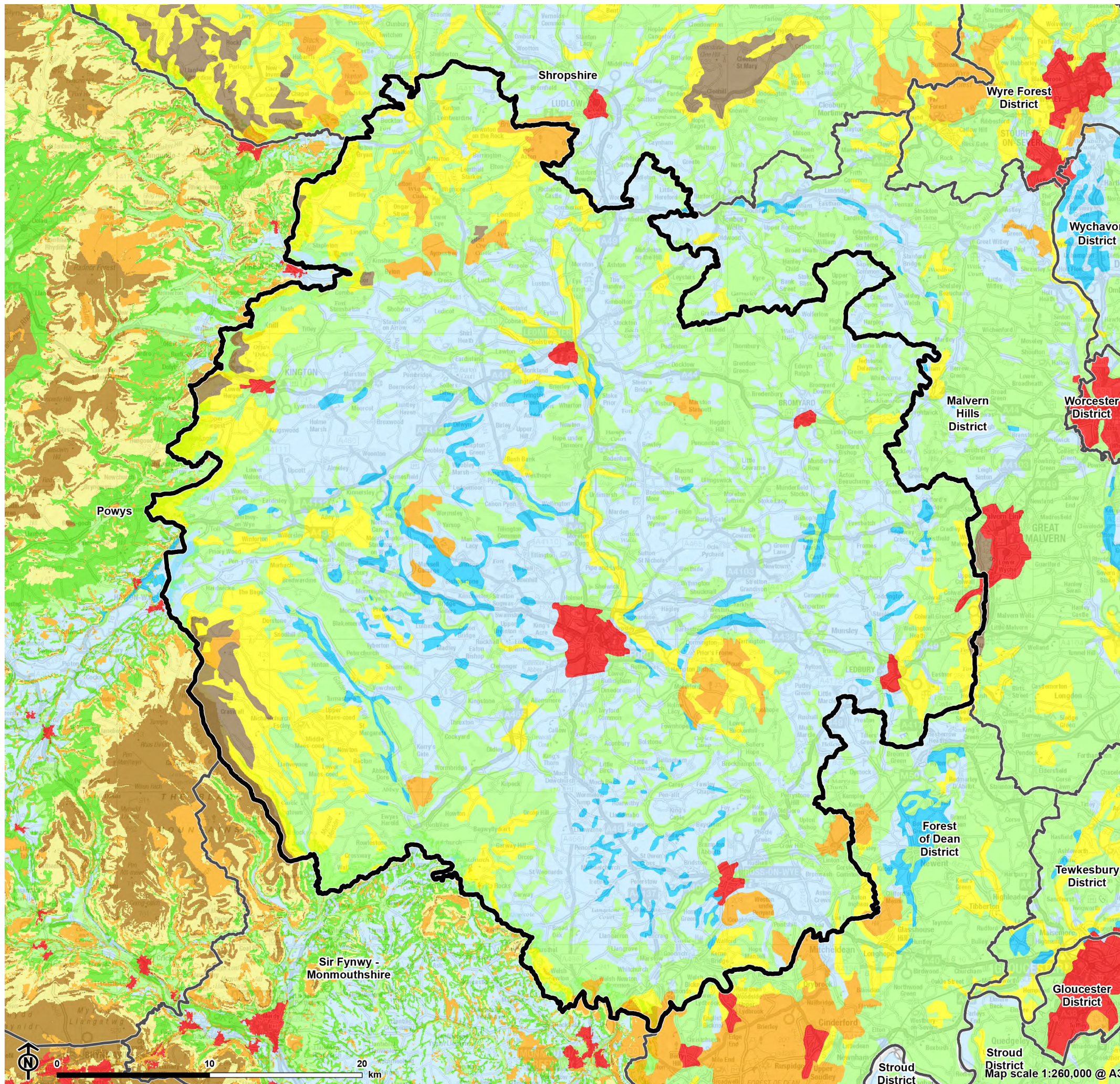
## Appendix C Baseline Information for Herefordshire

or 'predominantly in urban use'. Grade 3 can be further separated into grades 3a and 3b, although this requires further local surveys and therefore such data is only available for small areas. Grades 1, 2 and 3a are considered to be best and most versatile agricultural land.

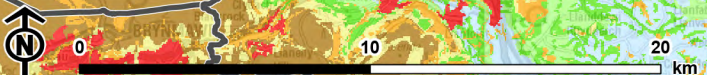
**C.139** The majority of Herefordshire consists of Grade 2 and Grade 3 agricultural land. There are scattered areas of Grade 1 land and some areas of lower quality Grades 4 and 5 land, particularly in the west of the county. Larger settlements, such as Hereford, Leominster, Ross-on-Wye, Ledbury and Bromyard do not have associated ALC grades as they are predominantly in urban use. However, the Pre-1988 Agricultural Land Classification does identify areas comprising Grade 1, 2 and 3a best and most versatile agricultural land in Hereford, Lower Bullingham and Homer and Shelwick. Figure C.11 shows the classification of agricultural land across Herefordshire.



Figure C12 : Agricultural Land Classification in Herefordshire



- County of Herefordshire
- Neighbouring authority boundary
- Provisional Agricultural Land Classification (England)**
  - Grade 1 (best quality)
  - Grade 2
  - Grade 3
  - Grade 4
  - Grade 5 (poorest quality)
  - Non Agricultural
  - Urban
- Predictive Agricultural Land Classification (Wales)**
  - Grade 1 (best quality)
  - Grade 2
  - Grade 3a
  - Grade 3b
  - Grade 4
  - Grade 5 (poorest quality)
  - Non agricultural
  - Urban





## Contaminated Land

**C.140** Under Part IIA of the Environmental Protection Act 1990, Herefordshire Council is responsible for regulating contaminated land. This requires surveying Herefordshire, determining contaminated land, ensuring a solution is found, and identifying who should bear the costs of the solution.

**C.141** In accordance with Section 78R of the Environmental Protection Act 1990, the Council is also required to maintain a public register of contaminated land, which serves as a permanent record of all regulatory action undertaken to ensure remediation of any site that has been classified as contaminated.

**C.142** The definition of contaminated land from Part IIA Environmental Protection Act 1990 (as amended), Section 78A is: 'any land which appears to the local authority in whose area it is situated to be in such a condition, by reason of substances in, on or under the land, that:

- significant harm is being caused or there is a significant possibility of such harm being caused; or
- significant pollution of controlled waters is being, or is likely to be, caused'

**C.143** Local authorities are required to take a strategic approach in inspecting their area and are required to publish this as a part of a written strategy. The Council recently decided after inspection that a single site should be determined under the Part IIA regime as contaminated land in Herefordshire. This is a former landfill site to the north of Hereford [\[See reference 193\]](#).

## Water resources and flooding

**C.144** Herefordshire lies largely within the River Wye management catchment. Operational river catchments in the county include the Wye catchment, the Arrow, Lugg and Frome catchment and the Monnow catchment:



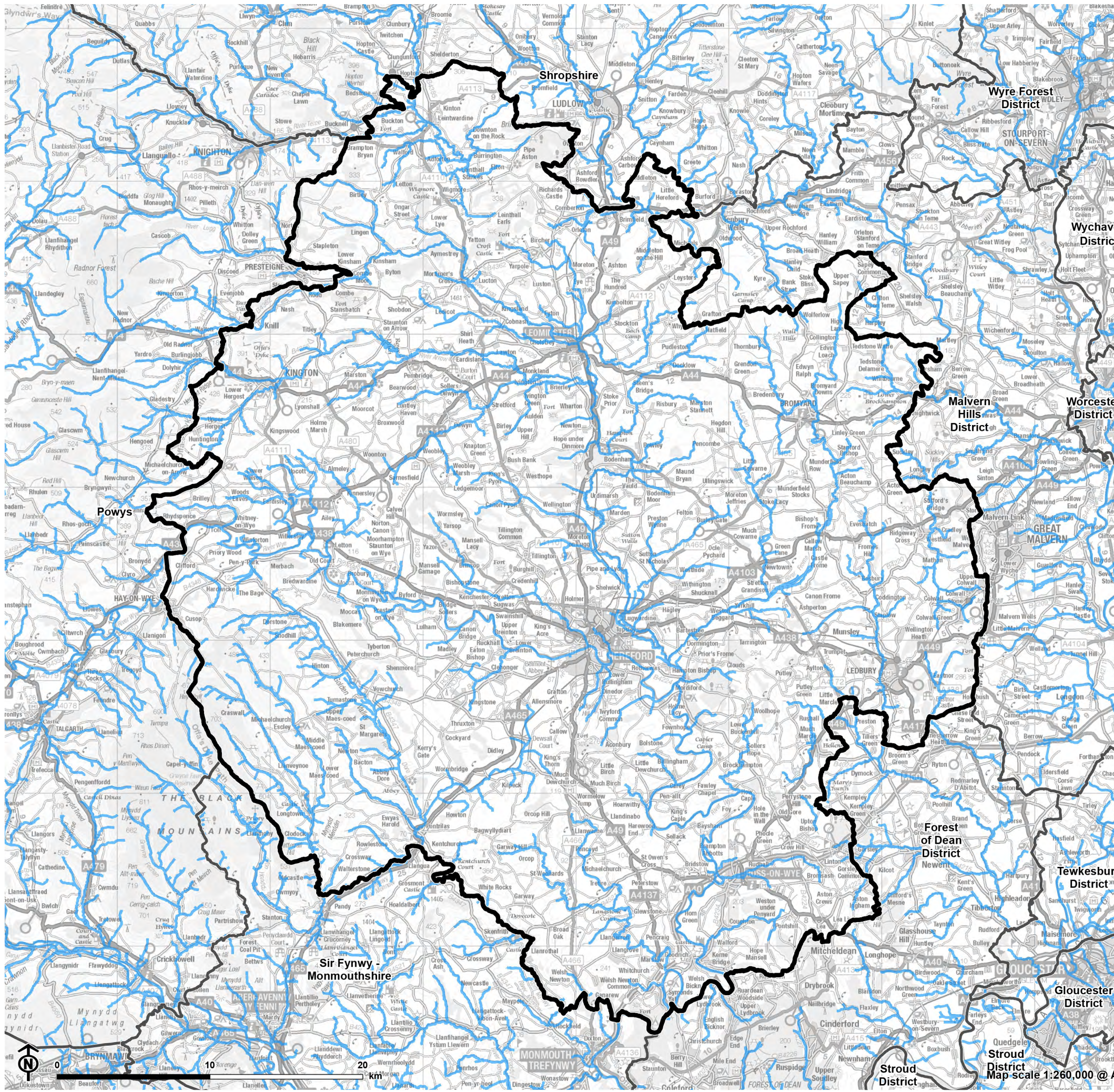
## Appendix C Baseline Information for Herefordshire

- The River Wye flows through Herefordshire and Hereford city. The source of the River Wye lies in the Cambrian Mountains and the river flows from the west to the southeast of the county. After leaving Herefordshire, the river flows south to join the River Severn.
- The River Lugg flows from Pool Hill in Wales, through Leominster to join the River Wye near Hampton Bishop.
- The River Arrow flows from west to east to join the River Lugg just south of Leominster.
- The River Dore flows through Hereford to join the River Monnow, which forms the southern border of the county.
- The River Monnow runs along the county's southern boundary to join the River Wye near Symonds Yat.
- The River Frome flows roughly north to south through Herefordshire, passing through Bromyard then joining the River Lugg east of Hereford.

**C.145** Information from the Environment Agency details the peak river flow allowances by river basin districts in England showing the anticipated changes to peak flow with consideration for climate change allowances. **Table C.13** below shows the peak river flow allowances for the River Severn Basin for a period which includes the plan period (i.e. the '2020s') using the period 1961 to 1990 [See reference 194] as a baseline. Figure C.12 identifies watercourses across Herefordshire.



Figure C13: Watercourses in Herefordshire



- County of Herefordshire
- Neighbouring authority boundary
- Watercourse



**Table C.10: Peak river flow allowances for the River Severn Basin**

Allowance category	Total potential change anticipated for the '2020s' (2015-2039)
Upper end (based on scenarios at 90th percentile)	20%
Higher central (based on scenarios at 70th percentile)	15%
Central (based on scenarios at 50th percentile)	10%

**C.146** Information available from Herefordshire Council relating to fluvial risk identifies that there is a need to consider different climate change allowances (peak river flows) to inform the location, impacts and design of a scheme depending on development vulnerability. The Environment Agency has produced maps which set out the likelihood of surface water flooding in England and these should also be taken account of when considering other types of flooding. A small area of the county, around Ledbury, lies within the Severn Vale management catchment and the Leadon operational catchment. The River Leadon flows north to south through Ledbury, to join the River Severn [See reference 195]. In addition, the River Teme which runs from west to east in the north of the county is also within the catchment of the River Severn. The River Teme is also designated as a Surface Water Safeguarding Zone to ensure the protection of drinking water in the area.

**C.147** The Wye catchment contains 19 natural rivers, all of which have failed to achieve good chemical status (2019 Cycle 2) (in the 2016 Cycle 2 all achieved good chemical status). Only one of these rivers are recorded as being of good ecological status, whilst 15 are of moderate status (14 in the 2016 Cycle 2) and three are of poor status (four in the 2016 Cycle 2). 18 rivers are expected to achieve good status by 2027. The main reason for not achieving good status is agriculture and rural land management [See reference 196]. The River Wye SAC Nutrient Management Plan [See reference 197] is seeking to address issues of water quality, particularly in terms of nutrient loading.

**C.148** The Arrow, Lugg and Frome catchment contains 24 natural rivers. All rivers have failed to achieve good chemical status (2019 Cycle 2) (in the 2016 Cycle 2 all achieved good chemical status). One river has achieved good ecological status. Of the remaining rivers, 13 are of moderate ecological status, seven are of poor and three are of bad status. By 2027, all rivers are expected to achieve good status. The main reason for not achieving good status is agriculture and rural land management.

**C.149** The Monnow catchment contains seven natural rivers. All of these have failed to achieve good chemical status (in the 2016 Cycle 2 all achieved good chemical status), and only one has achieved good ecological status. Five rivers are of moderate ecological status (six in the 2016 Cycle 2) and one has a poor status (none in the 2016 Cycle 2). All seven rivers are expected to achieve good status by 2027.

**C.150** The Leadon catchment contains eight natural rivers. All of these are failing to achieve good chemical status (in the 2016 Cycle 2 all achieved good chemical status), none are of good ecological status. Five rivers are of moderate ecological status and three of poor status, but a total of seven rivers are expected to achieve good status by 2027.

**C.151** Data provided via the Data Catcher Explorer also provides an opportunity to view details of water bodies associated with particular locations. Searching by settlement, the database shows here there are:

- 14 water bodies in Bromyard



## Appendix C Baseline Information for Herefordshire

- 14 water bodies in Hereford
- 9 water bodies in Kington
- 14 water bodies in Ledbury
- 12 water bodies in Leominster
- 11 water bodies in Ross-on-Wye

**C.152** Of these 74 water bodies, only one is identified to have good ecological status. This is Rudhall Brook in Ross-on-Wye. In contrast, the following water bodies are described to have bad water quality:

- Bodenham Brook to the River Lugg, Bromyard, Leominster
- Moreton Brook, Hereford
- Suckley Brook, Bromyard
- Tedstone Brook, Bromyard

**C.153** Water bodies described to have poor ecological status include the following:

- Bushley Langdon Brook, Ledbury
- Cheaton Brook to the River Lugg, Leominster
- Frome (source to Tedstone Water), Bromyard
- Garren Brook, Ros-On-Wye
- How Caple Brook, Ross-on-Wye, Hereford and Ledbury
- Kempley Brook, Ross-on-Wye
- Kempley Brook to the River Leadon, Hereford
- Madresfield Brook, Ledbury
- Pentaloe Brook, Hereford
- Pool Brook, Ledbury
- Preston Brook, Ross-on-Wye

## Appendix C Baseline Information for Herefordshire

- Preston Brook to the River Leadon, Ledbury
- Prisley Brook to the River Lugg, Leominster
- Sandstone Newark, Ledbury
- Sapley Brook, Bromyard
- Stretford Brook to the River Arrow, Leominster
- Tarrington Brook, Ledbury
- Wellington Brook to the River Lugg, Leominster
- Wellington Brook, Hereford
- Westbury Brook, Ross-on-Wye
- Withington Marsh Brook, Hereford and Bromyard
- Wye Secondary Devonian ORS, Hereford

**C.154** In terms of drinking water, the Environment Agency identifies certain locations as Drinking Water Protected Areas (DrWPAs) [\[See reference 198\]](#). These areas, that comprise rivers, lakes and groundwater sources, are those that currently (or will in the future) supply more than 10m<sup>3</sup>/day of water for human consumption, or provide drinking water to more than 50 people. In the context of Herefordshire, these designated areas extend across Hereford, Ross-on-Wye, and Bromford. There are no such designations affecting Ledbury, Kington or Leominster. The DrWPAs cover:

- Land to the south of Leominster, stretching though to Bodenham and Hereford.
- To the north of Leominster and Stockton.
- The whole of Bromyard and stretching south towards Bishops Frome and then westwards towards Hereford.
- The majority of Hereford city.
- Land adjacent to the western boundary of Ross on Wye, with this area stretching north to Hereford city and south towards Brierley.



## Appendix C Baseline Information for Herefordshire

**C.155** There are a number of groundwater Source Protection Zones within Herefordshire to ensure that rivers and aquifers are protected from pollution. The Environment Agency provides details, with a series of zones being spatially defined [See reference 199]. These zones are calculated on the basis of:

- how long it will take for a pollutant to travel from the water below ground (any point below the water table) to the source (the point where water is taken).
- the area around the source which needs protecting from potential pollutants,

**C.156** SPZs across the county include those at:

- Land to the north west of Hereford (to the north of the A438)
- Land to the east and south of Leominster, as well as a large tract of land to the north west,
- Land to the south of Marlbrook, on the A49 between Leominster and Hereford.
- Land to the south, east and north-east of Ross-on-Wye
- Land to the east of Ledbury.

**C.157** There are no SPZs close to either Bromyard or Kington.

**C.158** Fluvial flooding (from rivers) is the largest single source of flooding in Herefordshire, based on notable flood events recorded from 1931 to 2018. The majority of fluvial flood risk in Herefordshire is associated with the main rivers that flow through the country, with the most extensive floodplains attributable to the River Teme, River Lugg, River Arrow, River Wye, River Frome, River Dore, River Leadon and Worm Brook. The second most common cause is flooding from surface water. Herefordshire Council prepared a Strategic Flood Risk Assessment (SFRA) to assess levels and types of flooding in the county to inform the Minerals and Waste Local Plan. Areas of high flood risk are primarily within the Lower Wye sub-catchment (including Hereford) extending along the River Wye between Belmont and Monmouth, with a significant number of

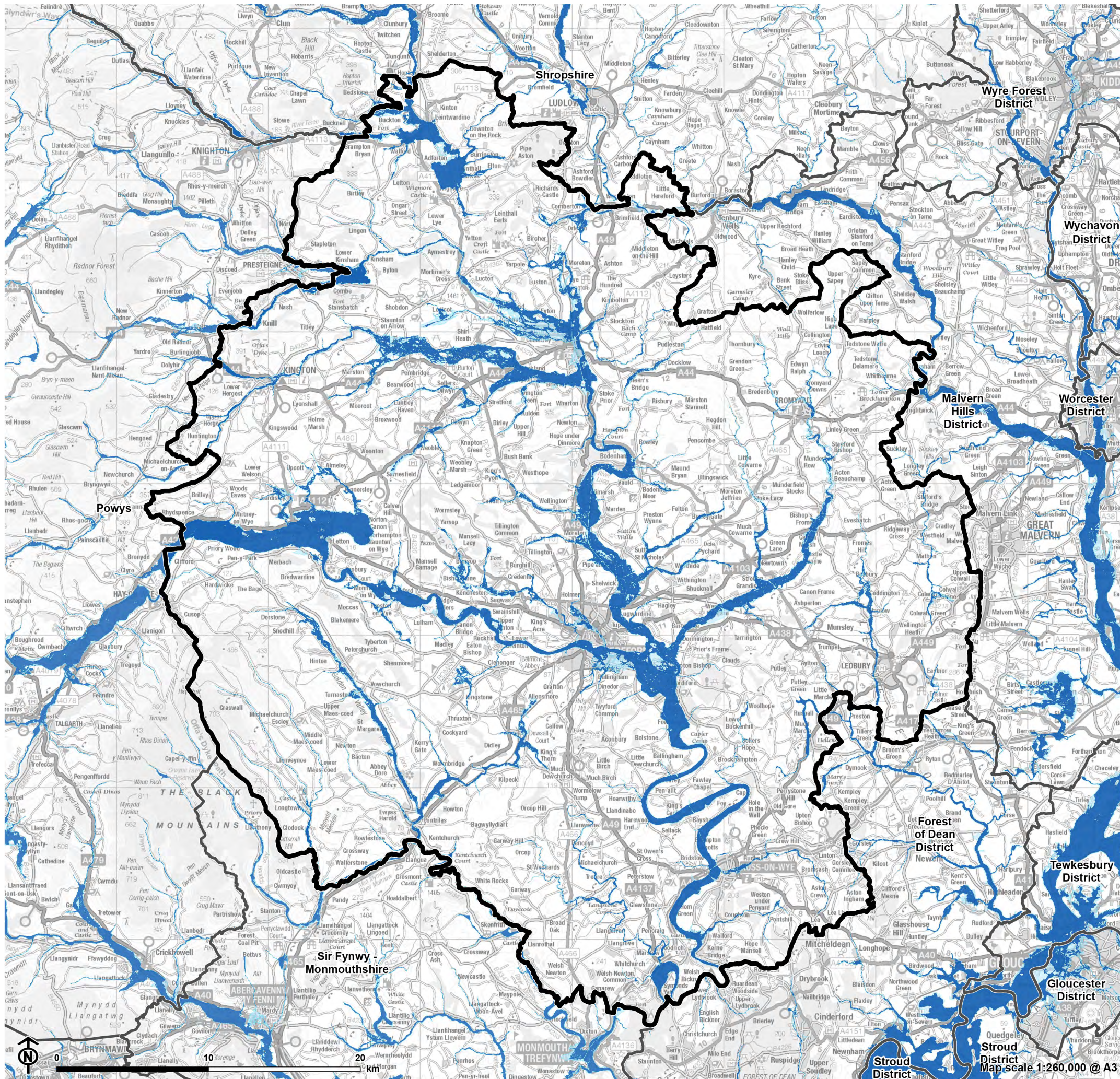
## Appendix C Baseline Information for Herefordshire

properties at risk from flooding events. Smaller settlements with a significant history of flood disruption include Bosbury, Eardisland, Ewyas Harold, Hampton Bishop, Hereford, Kington, Leintwardine, Leominster and Ross-on-Wye. Figure C.13 shows the extent of flood risk across Herefordshire. As the Environment Agency make clear, flood risk maps do not include climate change allowances and primarily shows potential flooding from main rivers. In addition, flood risk maps do not show un-modelled or ordinary watercourses (i.e. catchments smaller than 3km<sup>2</sup> are not represented).

**C.159** Water supply and wastewater treatment in Herefordshire is managed by Welsh Water (Dŵr Cymru) and Severn Trent Water. There are nine Wastewater Treatment Works in the county (at Eign, Rotherwas, Fownhope, Kingsland, Leominster, Ivington, Ross-on-Wye, Bredwardine and Kington), one Sewage Pumping Station at Bromyard, and three Water Pumping Stations (at Leominster, Ross-on-Wye, and Bredwardine).



Figure C14: Flood Risk in Herefordshire



- County of Herefordshire
- Neighbouring authority boundary
- Flood Zone 2
- Flood Zone 3



**C.160** Welsh Water's 2019 Water Resources Management Plan [\[See reference 200\]](#) identifies Hereford as being in water surplus (i.e. supply is greater than demand) and identifies a number of measures to increase the efficiency of water provision [\[See reference 201\]](#). According to the Water Cycle Study [\[See reference 202\]](#), the River Teme, Leadon and Wye are all designated Sensitive Waters (susceptible to eutrophication) under the Urban Wastewater Treatment Directive. It also identifies that there are five Environment Agency defined Water Resource Management Units in Herefordshire (four in the Wye system and one in the Teme), all of which are at 'No Water Available' status which means that at the fully licenced uptake scenario, the ecological river flow objective would be compromised. This means that any increases in demand for water, for example through population growth, will have to be met through a combination of: decreased demand; increased efficiency of use; licence revocations; and seasonally or flow constrained licences. The River Wye Abstraction Licensing Strategy [\[See reference 203\]](#) demonstrates that there will be water available for licensing in the entirety of the catchment, with the exception of in dry, low rainfall conditions, when abstraction licenses are likely to be restricted. New consumptive licenses in the Wye are likely to be restricted.

**C.161** The Water Framework Directive (WFD) provides direction that all watercourses in the Plan area should reach Good Ecological Status or Potential (GES/GEP) by 2027 or as amended. The Environment Agency provides a Catchment Data Explorer Tool to help access information about the water environment [\[See reference 204\]](#). Nutrient pollution is a significant environmental issue that has the potential to significantly harm and disrupt a wide range of habitats [\[See reference 205\]](#). In freshwater habitats and estuaries, increased levels of nutrients (especially nitrogen and phosphorus) can speed up the growth of certain plants, disrupting natural processes and impacting wildlife. This process, that is called 'eutrophication', can damage water dependent sites and can harm the plants and wildlife that are meant to be there. As Natural England guidance explains, nutrients can put sites in an 'unfavourable condition' [\[See reference 206\]](#). The sources of excess nutrients are very site specific but include sewage treatment works, septic tanks, livestock, arable farming and industrial processes. Natural England has also developed a list of Nutrient Neutrality Principles [\[See reference 207\]](#).



**C.162** As with elsewhere in England, Herefordshire's rivers are currently struggling with high levels of nutrients entering the watercourses and adversely affecting their quality. Affected resources include the Rivers Wye, Frome, Lugg and Clun. Predominantly, the nutrients comprise phosphate, however, the River Clun is also suffering from high levels of nitrates [\[See reference 208\]](#). Herefordshire Council is therefore acting to improve the existing water quality, and to ensure that any new development does not affect nutrient levels in the county's rivers.

**C.163** Particular concern is directed to the impacts of nutrients upon the River Lugg and River Clun Special Areas of Conservation [\[See reference 209\]](#). In order to protect the integrity of these areas, applicants looking to progress development are being expected to demonstrate nutrient neutrality as part of any planning submission [\[See reference 210\]](#). Nutrient budget calculators have been prepared for each of the two river catchment areas [\[See reference 211\]](#)

**C.164** Much of Herefordshire falls within a Nitrate Vulnerable Zone, an area defined as being at risk from agricultural nitrate pollution [\[See reference 212\]](#). Kington is the only market town excluded, but land further east is designed.

**C.165** To provide an opportunity for mitigation, Herefordshire Council has developed a phosphates credit scheme linked to the creation of a new Integrated Wetland. The site for this is close to the Dwr Cymru Welsh Water (DCWW) plant at Luston [\[See reference 213\]](#).