

Minerals & Waste Core Strategies

Joint Technical Evidence Paper:

WCS-MCS-6



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Archaeology and the Historic Environment

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Cover image: Archaeological excavation in advance of gravel extraction at Horcott near Fairford, Gloucestershire:
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Section 1 Introduction

1. Archaeology and the historic environment and why it matters

1.1 The archaeology and historic environment of Gloucestershire are the result of thousands of years of human interaction with the landscape and encompass all material remains of the human past left by previous generations. This is an extremely diverse resource which includes buried deposits and remains, visible earthworks, artefacts, evidence for past environments, standing structures or buildings and the landscape of both the countryside and built up areas.

1.2 Archaeology and the historic environment are a fundamental part of the cultural heritage, both of Gloucestershire and the wider community, and are valued for many reasons:

- They contribute to a better understanding of our common past. Archaeology is the only source of information about much of the human past, and is also a valuable component of the record of more recent periods.
- They contribute to a better understanding of the present, through enhanced awareness of the processes which have created the modern world.
- They contribute to an awareness of the value of localities within the county, engendering a sense of local, regional and national identity.
- They can have visual appeal, providing inspiration and enjoyment of the environment for residents of the area.

- They are of enormous importance as an educational resource, informing and illustrating key elements of the school curriculum and also acting as a source of information for life-long learning.
- They are of value as a recreational resource, attracting visitors both from within the county and further afield. As such they add to the economic health of the area not only through their contribution to the leisure and tourism industries, but also through the wider economic benefits which visitors generate.
- They can be a catalyst for regeneration, providing a high quality environment to support economic development.

1.3 The surviving elements of the archaeological resource and the historic environment are vulnerable, finite and non-renewable. Once destroyed, they can never be replaced and those who manage the environment have a duty of care, on behalf of both current and future generations

1.4 Many of the more important elements of the archaeology and historic environment of Gloucestershire are classed as Scheduled Monuments, Listed Buildings or Conservation Areas and protected through specific legislation (see paragraph 2.2 – 2.3 below). Selected battlefields and historically important parks and gardens are included in registers of significant sites compiled by English Heritage (see paragraphs 5.6 and 5.7 below). This does not provide them with statutory protection, but enhances their status as a material consideration within the planning process. The vast majority of archaeological and historical sites however, not all of which are of less significance, are safeguarded by the policies and guidance relating to archaeology and the

historic environment set out in Section 3 (below).

1.5 Minerals and waste development have the potential to obliterate or diminish this resource. Valuable archaeological sites, historic buildings or historic landscapes can be damaged, destroyed, or contaminated, or sites disconnected from their landscape context irretrievably compromising their setting and value.

1.6 The continuing need for mineral extraction and the provision of waste facilities requires a balance to be achieved between the protection of the archaeological resource and historic environment and the need for essential development.

1.7 This balance can be achieved through the application of existing legislation, policy and planning guidance, in conjunction with a sound knowledge of the nature of the archaeological resource and the historic environment. This serves as the framework against which informed judgments can be made regarding future waste and minerals development.

2 Legislation

2.1 This section sets out the key national legislation relating to archaeology and the historic environment.

2.2 *The Ancient Monuments and Archaeological Areas Act 1979* is the principal current legislation that protects archaeological sites in England. Under this legislation archaeological sites may be designated as Scheduled Monuments. There are no separate grades of Scheduled Monument; the designation includes sites from a variety of periods and of different types. All are considered to be of equal national significance, and there is a presumption in favour of the preservation of such sites and their settings. Although there are 517 Scheduled Monuments in Gloucestershire (see paragraph 5.3 below), the county also contains numerous other sites which, when measured against the criteria used for scheduling could be regarded as nationally important, but which are not currently protected by this legislation. Under the terms of current Planning Policy Guidance (PPGs 15 and 16), there is a similar presumption in favour of the protection of such sites and their settings (see paragraphs 3.4 and 3.5 below).

2.3 *The Planning (Listed Buildings and Conservation Areas) Act 1990* is the principal legislation safeguarding structures deemed to be of national significance. There are three grades of Listed Building, which, in ascending order, are: Grade II - nationally important and of special interest, Grade II* - particularly important buildings of more than special interest, and Grade I, the highest designation which are of exceptional interest, sometimes considered to be internationally important

(<http://www.english-heritage.org.uk/server/show/nav.1373>). Like Scheduled Monuments, Listed Buildings and their settings are protected by legislation, although much of the decision making process has been devolved to local authority conservation officers. This Act also made provision for local authorities to designate Conservation Areas. These are areas of "special architectural or historic interest the character or appearance of which" has been deemed "desirable to preserve or enhance" (Part II, paragraph 69). These areas are subject to more stringent controls on development, particularly relating to the demolition or alteration of buildings within them.

2.4 The Department of Culture, Media and Sport is in the process of reforming this system of heritage protection in England. A draft Heritage Protection Bill was published in 2008 and proposed the introduction of a single system for designation in the historic environment, replacing scheduling and listing. There is currently no date for the introduction of the draft bill into Parliament.

3 Policy and guidance

3.1 This section sets out the principal policy and guidance documents relating to archaeology and the historic environment of Gloucestershire.

3.2 *Planning Policy Statement 1 (PPS 1): Delivering Sustainable Development* (January 2005), states that “The Government is committed to protecting and enhancing the quality of the natural and historic environment, in both rural and urban areas. Planning policies should seek to protect and enhance the quality, character and amenity value of the countryside and urban areas as a whole. A high level of protection should be given to the most valued townscapes and landscapes, wildlife habitats and natural resources. Those with national and international designations should receive the highest level of protection” (paragraph 17).

3.3 *Planning Policy Statement 10 (PPS 10): Planning for Sustainable Waste Management* (July 2008), states that issues to be considered in respect of waste development will include the adverse affect of this on any site or building with a nationally recognised designation to include Scheduled Monuments, Conservation Areas, Listed Buildings, Registered Historic Battlefields and Registered Parks and Gardens (Annex E, paragraph e).

3.4 *Planning Policy Guidance 15 (PPG 15): Planning and the Historic Environment* (September 1994) sets out Government policies for the identification and protection of historic buildings, Conservation Areas, Registered Parks and Gardens, Registered Historic Battlefields and the wider historic environment (e.g. historic landscapes), and provides

guidance to local authorities on the way the planning system should be used to protect these resources. Key policy statements in PPG 15 are the presumption in favour of the preservation *in situ* of listed buildings and their setting (paragraph 2.4), and the requirement to preserve, or enhance the character of Conservation Areas (paragraph 3.3). PPG 15 also states that local authorities should protect Registered Parks and Gardens and take account of Registered Historic Battlefields in preparing development plans and in determining planning applications (paragraphs 2.24, 2.25).

3.5 *Planning Policy Guidance 16 (PPG 16): Archaeology and Planning* (November 1990) sets out government policy on terrestrial archaeological remains. The document recognises that archaeological deposits are finite and irreplaceable, and stresses the need to mitigate the impact development proposals may have on them. Key policy statements in PPG 16 include the presumption in favour of the preservation *in situ* of nationally important archaeological remains and their settings, whether scheduled or not (paragraph 8), and the recognition that remains of “more local importance” may warrant preservation (paragraph 16). PPG 16 also offers advice on the process of assessing the impact of development proposals on archaeological remains at an early stage and the arrangements necessary for mitigating the impact of development on less significant archaeological remains through modification of development designs or recording (paragraphs 21, 24-26).

3.6 A proposed new Planning Policy Statement on the historic environment, is currently in preparation and a consultation draft was published in July 2009. The new PPS will bring

together government planning policy in respect of the historic environment into a single document, replacing PPGs 15 and 16.

3.7 Minerals Planning Guidance Notes describe government policy on minerals and provide guidance to local authorities on the way the planning system should be used to implement these. *Minerals Planning Guidance Note 2; Applications, permissions and conditions* (July 1998) is of particular relevance to the archaeology and the historic environment as it sets out the importance of Environmental Statements in advance of any development to ensure the impact of that development is fully understood and mitigated.

3.8 Minerals Policy Statement 1 (MPS1): *Planning and Minerals* (November 2006) is the overarching planning policy document for minerals planning in England, replacing the earlier Minerals Planning Guidance Note 2 (see above). MPS1 provides local authorities and the minerals industry with guidance to ensure that the impact of the economic need for minerals is balanced with its impact on the environment and communities. Section 14: Protection of Heritage and Countryside, states that there should be a presumption in favour of the preservation of all nationally important archaeological remains and listed buildings and their settings. It also states that Planning Authorities should give "great weight" to the cultural heritage when determining planning permission for minerals development. MPS 1 also identifies the need for Minerals Planning Authorities to "have regard to the local, regional and national need for certain building and roofing stones for the conservation and restoration of England's historic built environment" (Annex 3, Section 3.6). To meet this need they should identify suitable minerals

sources (Annex 3, Section 3.9) and liaise with English Heritage to investigate the potential for restoring suitable building stone quarries. Where practical this should be linked with new opportunities for archaeological and industrial heritage conservation and education whilst retaining access to small quantities of stone which may be needed from time to time for restoration purposes (Annex 3, Section 3.6). Annex 2, Section 3.3 makes similar provision for the supply of brick clay for heritage conservation projects.

3.9 The draft *Regional Spatial Strategy* was submitted to the government by the South West Regional Assembly in April 2006. Section 7: Enhancing Distinctive Environments and Cultural Life states that local authority strategies and plans should be based on adequate identification and assessment of historic environment assets (paragraph 7.2.14). It is currently anticipated that the Regional Spatial Strategy will be published in late 2009.

3.10 The currently approved version of the *Gloucestershire Structure Plan* (adopted November 1999) recognises the distinctive historic environment of Gloucestershire and states that it should be conserved, enhanced and protected from the adverse effects of development (Policy NHE.6). It states that provision of the supply of minerals should follow national and regional guidance to protect the historic environment (Policy M.3) and that waste management facilities should have no adverse impact on "Internationally, nationally, regionally and locally important areas of landscape...and archaeological interest" (Policy WM.2). The County Structure Plan is currently saved under transitional arrangement only until the adoption of the Regional Spatial Strategy (see paragraph 3.9 above).

3.11 The Gloucestershire Waste Local Plan 2002-2012 (adopted October 2004) makes provision for the mitigation of the impact of waste development proposals on archaeology and the historic environment, although some policies in this document have expired following directions from the Secretary of State (dated October 2007). Current policies include recognition of archaeological and heritage sites of both national and local importance and acknowledgement that some archaeological remains which are neither scheduled nor listed may be nationally significant. The plan also takes account of the fact that current knowledge of the archaeological resource is not comprehensive and that a detailed assessment and evaluation of prospective waste sites may be needed to fully understand their archaeological potential (Policies 28 and 29). The plan also recognises the value of non-statutory designations such as Registered Historic Battlefields, Registered Parks and Gardens and also locally important, but not registered, parks and gardens (Policy 31). These policies state that there should be a presumption in favour of the preservation of nationally important archaeological sites or elements of the historic environment, but other mitigation strategies may be more appropriate for locally significant sites. Policy 30, which imposed restrictions on waste development affecting Listed Buildings or Conservation Areas and their settings, expired in October 2007 following directions from the Secretary of State, as this repeated national guidance set out in PPG15 (see paragraph 3.4 above).

3.12 The Minerals Local Plan 1997-2006 (adopted April 2003) also recognises the need for the mitigation of the impact of minerals development on archaeology and the historic

environment, although like the Waste Local Plan (see above) some policies in this document have expired following directions from the Secretary of State (dated September 2007). It identifies Primary Environmental Constraints which include designated sites of national importance such as Scheduled Monuments and non-statutory designations such as Registered Historic Battlefields or Registered Parks and Gardens, and nationally important archaeological remains which are not protected by statutory designation. The document states that there should be a presumption in favour of the preservation of these in any minerals development plans (Policies E4 and E6). Locally important archaeological sites, landscapes and parks and gardens are classed as Secondary Archaeological Constraints and other mitigation strategies which may be appropriate for these are identified (Policy E8). This document takes account of the fact that current knowledge of the archaeological resource is not comprehensive and that a detailed assessment and evaluation of prospective minerals sites is needed to fully understand their archaeological potential (Policy E4, Paragraph 2.2.10). It also makes provision for the protection of “old colliery spoil tips, which contribute to the ... industrial heritage of the Forest of Dean” (Policy EM4). Policy E5, which imposed restrictions on minerals development affecting Listed Buildings or Conservation Areas and their settings, expired in September 2007 following the directions from the Secretary of State as this policy was adequately addressed by national planning policy.

3.13 Mineral Extraction and the Historic Environment, published by English Heritage (January 2008), sets out English Heritage’s position on mineral extraction and the high-level

policies which form the basis of their response to minerals development proposals. This document itemises the potential impacts which mineral extraction may have on the historic environment. It highlights the damaging effects this has had on the archaeological resource in recent times, whilst also recognising that many historically significant landscapes are largely the result of former mineral extraction. It points out that the requirements of the historic environment need to be balanced against those of mineral extraction and asserts that continuing dialogue between heritage professionals, the minerals industry and minerals planners is key to ensuring that this balance is achieved.

3.14 Mineral Extraction and Archaeology: A Practical Guide, published by the Minerals and Historic Environment Forum, made up of representatives from a number of heritage, minerals and planning organisations (May 2008), provides clear and practical guidance to planning authorities, mineral planners, mineral operators, archaeologists and consultants on appropriate and cost-effective ways of dealing with archaeological remains as part of mineral development through the planning process. It provides an overview of the planning process with regard to minerals and heritage, and summarises a range of suitable assessment and mitigation strategies.

4. Key references

4.1 Legislation

- The Ancient Monuments and Archaeological Areas Act, 1979.
- The Planning (Listed Buildings and Conservation Areas) Act, 1990.
- Draft Heritage Protection Bill, 2008.

4.2 Policy and guidance documents

- Planning Policy Statement 1 (PPS 1) Delivering Sustainable Development (January 2005).
- Planning Policy Statement 10 (PPS10): Planning for Sustainable Waste Management (July 2008).
- Planning Policy Guidance 15 (PPG15): Planning and the Historic Environment (September 1994).
- Planning Policy Guidance 16 (PPG16): Archaeology and Planning (November 1990).
- Consultation paper on a new Planning Policy Statement 15: Planning for the Historic Environment (July 2009).
- Minerals Planning Guidance Note 2 (July 1998).
- Minerals Policy Statement 1 (MPS1) Planning and Minerals (July 1998).
- Draft South West Regional Assembly, Spatial Strategy (April 2006).
- The Gloucestershire County Council, County Structure Plan. 2nd review (adopted November 1999).
- The Gloucestershire County Council Waste Local Plan 2002-2012 (adopted October 2004), subject to alterations following directions from the Secretary of State October 2007.
- The Gloucestershire County Council Minerals Local Plan 1997-2006 (adopted April 2003), subject to alterations following directions from the Secretary of State September 2007.
- Mineral Extraction and the Historic Environment, English Heritage (January 2008).
- Mineral Extraction and Archaeology: A Practical Guide, Minerals and Historic Environment Forum (May 2008).

Section 2

Archaeology and the historic environment in Gloucestershire

5. The resource

5.1 Gloucestershire has a long and varied history evidenced by over 30,000 known archaeological sites and monuments distributed across all parts of the county.

5.2 Flint tools recovered from gravel pits in the Severn Valley (principally from Barnwood, Gloucester) and the Upper Thames Valley are the earliest (Palaeolithic) evidence for human activity in the county, dating to before the end of the last ice age (c. 12,000 BC). Evidence for post-glacial (Mesolithic, between c. 10,000 BC and c. 3500 BC) occupation, again mainly in the form of scatters of flint recovered from field surfaces, is much more widespread with significant concentrations both in the Cotswolds and the Forest of Dean.

From c. 3500 BC hunting and gathering was gradually replaced by farming. This more stable lifestyle in relatively permanent settlements introduced ritual monuments to the landscape, which over the next 2000 years became increasingly populated. Although relatively few settlement sites are known from this period (the Neolithic and Bronze Age - c. 3500 BC – c. 750 BC), burial mounds (barrows) survive as earthworks throughout the Cotswolds, particularly along the edge of the Cotswolds escarpment - Belas Knap near Winchcombe and Hetty Pegler's Tump near Coaley are notable examples. Other contemporary sites are known in the Upper Thames Valley and

Severn Valley. The Forest of Dean contains relatively little evidence from these periods, although recent research has suggested that this is the result of a lack of detailed investigation, partly impeded by the extensive tracts of woodland in this area which has made archaeological survey more difficult.

By the Iron Age (c. 700 BC – AD 43) the landscape of Gloucestershire was extensively farmed and contained a wide range of settlement types. The most well known of these are the hillforts, distinguished by their locations and enclosing earthworks. These are especially common along the Cotswold scarp edge at sites such as Painswick Beacon, Crickley Hill, or Leckhampton Hill, but are also known on the higher ground to the west of the River Severn at sites such as Lydney Park, Symonds Yat or Welshbury (near Littledean). There is also considerable evidence for small Iron Age farmsteads scattered throughout the countryside. In the Upper Thames Valley a number of these (e.g. Claydon Pike and Thornhill Farm near Lechlade) have been excavated in advance of gravel extraction, whilst others are known from cropmark evidence.

After Britain became part of the Roman Empire in AD 43, the density of Roman settlements in Gloucestershire is indicative of the prosperity of much of the county. Gloucester, originally a Legionary fortress, became a *colonia*, an important Roman town founded to house retired soldiers. Cirencester was the second largest Roman town in Britain after London. There were other sizeable settlements in the county (e.g. Bourton-on-the-Water, Andoversford, Kingscote, and Dorn near Moreton-in-Marsh in the Cotswolds; Dymock, west of the River

Severn), whilst the countryside contained numerous farmsteads and well-appointed villas (such as Chedworth in the Cotswolds, Roughground Farm near Lechlade in the Upper Thames Valley, Frocester in the Severn Valley and Woolaston in the Forest of Dean) connected by a network of surfaced and maintained roads. The iron industry in the Forest of Dean was important for much of this period, exploiting the iron ores in the carboniferous limestones which ring the central Forest and perhaps also those found in the Newent area.

When Britain ceased to be part of the Roman Empire in AD 410, there is unlikely to have been an immediate impact on the way the landscape of Gloucestershire was settled or used, although over time the Roman urban centres may have become less populated, and some smaller towns were abandoned altogether. Evidence for early Saxon activity is found in the eastern part of the county, particularly in the Upper Thames Valley where extensive cemeteries are known at Lechlade and Fairford. By the 8th century Gloucestershire was part of the Saxon Kingdom of Mercia. The southern section of Offa's Dyke, built on the orders of the Mercian King Offa, overlooks the western borders of his kingdom along the high ground on the Gloucestershire side of the Wye Valley. In the late 9th century both Gloucester and Winchcombe were part of a network of fortified towns created against the threat of Viking invasion. After the Norman conquest of 1066 the Gloucestershire landscape continued to evolve. Norman fortifications were built in many parts of the county (e.g. at Dymock and Newnham west of the River Severn and at Brimspield and Upper Slaughter in the Cotswolds) occasionally, as at St Briavels and Gloucester, developing into stone castles. In

many areas what may have been a more dispersed Saxon settlement pattern evolved into more nucleated villages around stone churches within a farmed landscape of open fields and woodland. As the centuries progressed a number of these settlements, such as Upton, Farmington or Hawling, were abandoned, whilst others developed into the villages or small towns that survive in the modern landscape.

Gloucestershire's industrial heritage is also important. The Forest of Dean contains widespread evidence of the coal and iron industries with some significant iron working sites such as Gunns Mill near Mitcheldean and Whitecliff Furnace near Coleford. The Cotswolds contain many historic quarries, such as Leckhampton, and the surviving mills of the Stroud Valleys cloth industry (e.g. Stanley Mill, Stonehouse) are recognised as nationally significant. In addition the industrial infrastructure survives throughout the county with the remains of minerals tramways (e.g. Bixslade) in the Forest of Dean, and canals (e.g. the Stroudwater Canal) in the Cotswolds and Upper Thames Valley. The county also contains more recent archaeological remains. The remains of World War II airfields and transit camps are common throughout the county, particularly in the Cotswolds. A number of pill boxes are found along both the Severn Estuary and the Stroudwater canal which were part of the Stop Line between Highbury (south of Weston Super Mare) and Framilode to defend central England from invasion from the Severn Estuary.

5.3 A small proportion of the archaeological resource is protected through scheduling, and Gloucestershire currently contains 517

Scheduled Monuments. These are distributed throughout the county, although a higher proportion is found in the Cotswolds and Thames Valley in the eastern part of the county. The Scheduled Monuments within the county encompass a wide range of site types and dates including prehistoric burial mounds, Iron Age hillforts, Roman settlements and villa sites, medieval villages, and 19th century industrial remains.

5.4 The county currently contains 14,869 Listed Buildings. The majority of these are classed as Grade II, although just over 5% are Grade II* and 2% are Grade I. Listed buildings are found throughout the county in both rural and urban settings. There are, however, clear concentrations in historic towns, particularly Cheltenham, Cirencester and Gloucester, and also in the former industrial areas of the Stroud Valleys.

5.5 Gloucestershire contains 268 Conservation Areas. These include both urban and rural areas and there is a strong correlation between this designation and concentrations of Listed Buildings (e.g. in the centre of historic towns such as Cheltenham or Gloucester and in the industrial Stroud Valleys), and, to a lesser extent, other designations such as Registered Parks and Gardens (e.g. Batsford Park and Westonbirt).

5.6 Gloucestershire contains 55 Parks and Gardens registered by English Heritage as of special historic interest. Almost all of these are sited in the Cotswolds, in the eastern part of the county, and represent designed landscape parks dating from the 17th – 19th centuries. Of these 29 are classed as Grade II, whilst a further 18 are considered to be of exceptional historic interest and are classed as Grade II*.

The remaining eight, including Cirencester, Westonbirt, Lodge Park (Sherborne) and Sezincote are designated Grade I indicating that they are of international importance. This registration brings no statutory controls, but the impact development would have on these sites is a material consideration in all planning decisions. In addition to the Parks and Gardens listed on the English Heritage Register, the Gloucestershire County Historic Landscape Characterisation has identified a further 95 parks and gardens which can be regarded as locally important.

5.7 Gloucestershire contains two areas included in English Heritage's Register of Historic Battlefields. These are the sites of the battles of Tewkesbury (1471), south of the town, and Stow (1646) north of Stow-on-the-Wold. As with Registered Parks and Gardens, this registration brings no statutory controls, although the impact development would have on these sites is a material consideration in all planning decisions.

6. Sources of information on archaeology and the historic environment in Gloucestershire

6.1 The principal source of information on archaeology and the historic environment informing the planning system in Gloucestershire is the County Sites and Monument Record. This digital record, which include GIS mapping, has the remit to record all archaeological sites, and other aspects of the historic environment, in the county, and currently contains over 30,000 individual entries. These include sites and finds from all periods ranging from Palaeolithic artefacts dating to c. 500,000 BC to the remains of World War II fortifications (see paragraph 5.2 above). This record also encompasses sites of all levels of importance from isolated artefact finds to nationally significant sites such as Scheduled Monuments or Listed Buildings. The Sites and Monuments Record is maintained by the Archaeology Service of Gloucestershire County Council and is continuously expanding as more information is revealed through new research. In many instances this research is small-scale work undertaken in advance of specific development proposals, but two large research projects undertaken by Gloucestershire County Council in the Forest of Dean and the Severn Estuary have identified over 2000 potential new archaeological sites. Information on many of these is contained in the documents described below, but will be added to the SMR in due course. Gloucester City Council also maintains a complementary record (the Gloucester City Historic Environment Record) for sites within the City of Gloucester.

6.2 In addition to the Sites and Monuments Record a number of studies set the broader

research context within which decisions are made on the significance of the archaeology of the county, or provide further information of particular relevance to areas of potential mineral extraction. Key documents are described in paragraphs 6.3 – 6.10 and listed in Appendix A (below). Copies of these reports are held by the Gloucestershire County Archaeology Service. Where appropriate Web links have been added to the source references in Appendix A.

6.3 *The Archaeology of South West England: South West Archaeological Research Framework, Resource Assessment and Research Agenda*, was published in 2008 and is the result of a project to assess the known archaeology of southwest England (including Gloucestershire) and set a research agenda for the region. This document is not specifically aimed at understanding the archaeological resource in areas of proposed minerals or waste development, but acts as a useful summary of the archaeological background which will underpin decisions regarding the significance of archaeological remains potentially affected by minerals or waste development.

6.4 *The Aggregate Landscape of Gloucestershire, Predicting the Archaeological Resource* is the result of a project undertaken by Gloucestershire County Council Archaeology Service to assess the archaeological resource in areas of aggregate mineral reserves in Gloucestershire. This project considered the archaeology in the aggregate producing areas of the county and formulated a Resource Assessment and Research Framework for those areas. The report also identified areas where further work should be targeted in order

to understand better the archaeology of areas which may be affected by aggregate extraction.

6.5 The Forest of Dean Archaeological Survey Stage 1: Desk-based assessment is the report produced on the results of the first stage of a long-term project, undertaken between 2002 and 2005 to enhance the Sites and Monuments Record in parts of the Forest of Dean in west Gloucestershire. The survey area included all of the hard rock aggregates areas and approximately 50% of the sand and gravel resource west of the River Severn. The report summarises the archaeological resource in that area at the time, and sets out a local archaeological research agenda for the Forest of Dean. Although not specifically aimed at understanding the archaeology of areas of potential minerals or waste development, the report summarises the archaeological context that will be relevant to proposed minerals or waste development in the area.

6.6 The Scowles and Associated Iron Industry Survey reports on a survey undertaken between 2003 and 2004 as part of the Forest of Dean Archaeological Survey. This investigated scowles, landscape features unique to the Forest of Dean, which are the result of a combination of natural geological processes and human extraction of iron ore. These features are found in the outcrops of Carboniferous Limestones around the edge of the central Forest of Dean, including the Lower Dolomite, identified in the Gloucestershire Minerals Local Plan, Policy A5, Paragraph 3.5.3, as a significant source of limestone for aggregates. Enhanced information on the significance and location of scowles gained by this survey will have a direct impact on the archaeological response to minerals development proposals in this area.

6.7 The Forest of Dean Lidar Survey reports on a survey that was undertaken in March 2006 as a further stage of the Forest of Dean Archaeological Survey. Its principal aim was to make use of innovative aerial survey technology to identify earthwork features in areas of woodland and the hard rock aggregates resource area in the Forest. Over 1000 new sites of potential archaeological significance were discovered. Of particular significance to minerals development were extensive areas of early surface coal extraction sites identified along the coal outcrops of the Forest of Dean.

6.8 Historic Landscape Characterisation has been undertaken for the whole of Gloucestershire. This process characterises the modern landscape in terms of those elements of its form which indicate the processes through which it has been created. The results of this work are stored as mapped information as part of the SMR on the Gloucestershire County GIS, although a report on the characterisation process has been produced and is held by the County Archaeology Service. Although not aimed at understanding the archaeology of areas of potential minerals or waste development, this survey provides information on the historic character of the landscape which may be a consideration in any choice of sites for minerals or waste development.

6.9 As part of the country-wide *National Mapping Programme*, funded by English Heritage, Gloucestershire County Council Archaeology Service is currently reviewing aerial photographic information and mapping the archaeological data they contain onto the SMR. To date this process has been undertaken over much of the Forest of Dean,

the Severn Estuary, the Upper Thames Valley and part of the northern Cotswolds.

6.10 In addition to the data contained on the SMR database and GIS, Gloucestershire County Council Archaeology Service holds copies of numerous reports on discrete desk-based research or fieldwork projects undertaken in advance of development of all kinds throughout the county and a number of management plans, and management survey reports. With a few exceptions, these do not directly address issues surrounding mineral or waste proposals, but may inform any future decisions for development proposals which impact on the vicinity of these sites.

Section 3 **Minerals and archaeology and the historic environment**

7. Potential impacts of mineral development on archaeology and the historic environment

7.1 Direct impacts

In general the following section does not make specific distinctions between buried archaeological remains, earthworks, structures or buildings as many of the issues discussed have the potential to impact on more than one category of archaeological and historic site.

7.1.1 As has already been stated (see paragraph 1.4 above), minerals development can have a serious impact on archaeological sites or other elements of the historic environment, although this can vary depending on the nature of the minerals development and associated works, and the nature of the historic environment within which it is sited. In appropriate cases, where planning permission for minerals development is given, this can open up opportunities for further research into those archaeological sites which are affected by it (see paragraph 8.4 below).

7.1.2 The majority of archaeological deposits and sites, particularly those post-dating the last glaciation (from c. 12,000 BC), survive either within or immediately below the soils which seal mineral deposits. These are completely destroyed by minerals extraction which removes this overburden to gain access to the minerals below.

7.1.3 Significant remains may also be destroyed, or buried beneath, additional works relating to minerals extraction, such as spoil heaps, bunds, ancillary buildings or the creation of new haulage routes.

7.1.4 In some cases archaeologically significant remains may survive within minerals deposits themselves. Examples of this would include evidence for activity pre-dating the end of the last glaciation within gravel and sand deposits, and also evidence for early mining activity, particularly iron ore or coal in the Forest of Dean, but also limestone in the Cotswolds. These are also vulnerable to both surface-based minerals extraction and subterranean mining operations.

7.1.5 Vibration from increased traffic or blasting may impact on standing structures, earthworks and buried deposits, whilst subsidence may also destabilise them where mining is taking place.

7.1.6 Additional traffic associated with minerals development may increase levels of nitrogen oxides and sulphur dioxide, produced by exhaust fumes which can have a detrimental impact on the fabric of historic buildings (<http://www.buildingconservation.com/articles/atmospheric/atmospheric.htm>).

7.1.7 Mineral extraction may affect the water table, dewatering the surrounding landscape with a detrimental impact on nearby archaeological remains (particularly palaeoenvironmental deposits) and historic buildings.

7.1.8 Environmental mitigation strategies, such as the planting of trees to shield development,

or the creation of new wildlife habitats may also damage buried archaeological deposits.

7.1.9 Increased levels of dust produced by minerals development may also impact directly on nearby archaeological and historic sites. Historic buildings may be most susceptible to the effects of this.

7.1.10 The compound effect of these should not be underestimated and even relatively insignificant impacts may combine together, or with existing environmental factors (such as agricultural practices), to produce a significant impact on nearby archaeological sites or structures

7.2 Setting

7.2.1 Even where visible archaeological remains and elements of the historic environment are not destroyed by minerals development, their setting can be compromised either by the proximity of surface workings themselves or by unsympathetic structures or developments to the infrastructure supporting both surface and below ground minerals operations.

7.2.2 Setting has been defined as “the surroundings in which a place is experienced, its local context, embracing present and past relationships to the adjacent landscape” (*Conservation principles, policies and guidance for the sustainable management of the Historic Environment*, English Heritage, April 2008, 72). This can include a number of elements, which although not of great individual merit, collectively contribute to the harmony of a range of buildings or the landscape setting of an archaeological site, or its links with associated landscape features.

7.2.3 Setting issues are not restricted to development in close proximity to historic sites, and distant features which impact on vistas, into or from them, can compromise their settings.

7.2.4 Nor is setting a purely visual issue, and development which affects the soundscape of a monument, e.g. increased traffic or industrial noise, may be deemed to compromise its setting even if not visible from the site itself.

7.2.5 Increased levels of dust produced by minerals development may affect the setting of archaeological and historically significant sites even where these do not impact directly on the monument or structure itself.

7.2.6 Unsympathetic landscape restoration following minerals development can also have a major impact on the setting of surviving archaeological or historically significant remains and may significantly reduce the historic character and legibility of the landscape in which these are sited. The Gloucestershire Minerals Local Plan 1997-2006, Policy R1 states that reclamation measures should protect “local, regional and national sites of acknowledged importance” which would include archaeological and heritage sites.

8. Mitigation of the impacts of minerals development

8.1 Once destroyed archaeological deposits and elements of the historic environment can never be recreated. Accordingly, preservation *in situ* is the preferred option for all sites and areas of national significance (see paragraph 3.5 above). In addition other sites and structures of more local significance may merit preservation.

8.2 Where archaeological deposits and elements of the historic environment are deemed to be of lesser significance, however, strategies to ensure that significant remains are recorded prior to destruction (Preservation by Record) may be deemed appropriate. A range of strategies for this are summarised in Mineral Extraction and Archaeology: A Practical Guide (see paragraph 4.2 above). Suitable strategies will include desk-based assessment and field evaluation, whilst mitigation strategies may include sampling, building recording, watching brief and partial or full excavation.

8.3 Key to the success of this, however, is close liaison between minerals operators, minerals planners and local authority historic environment advisors. This should ensure that important archaeological sites and historic structures are preserved where appropriate and that suitable evaluation and assessment strategies are put into place at an early stage to identify the correct archaeological mitigation, and make sure that this is properly resourced, both in terms of time and funds.

8.4 Since the introduction of PPG 16 development has been the primary driver of much archaeological field research in Britain.

Large-scale development projects such as quarrying can afford positive opportunities for archaeological research over extensive areas and high quality archaeological results can be achieved.

8.5 Within Gloucestershire the Cotswold Water Park in the Upper Thames Valley is an example of this. The Water Park is now one of the most intensively investigated archaeological landscapes in Britain as large-scale excavations in advance of gravel extraction continue to discover a wealth of information about prehistoric and Roman settlement in the area.

8.6 Another positive benefit of minerals development in Gloucestershire has been the introduction of the Aggregates Levy Sustainability Fund. The portion of this fund administered by English Heritage has been used to fund, or part fund, a number of positive archaeological initiatives in recent years, including the following undertaken by Gloucestershire County Archaeology Service:

- The survey of scowles in the Forest of Dean and associated information leaflet.
- The lidar survey of the Forest of Dean.
- Information booklet on the archaeology of the Cotswold Water Park.
- Archaeological assessment and further excavation at Netherhills Quarry, Frampton on Severn.
- Transcription of archaeological sites identified through aerial photographs in the Leadon Valley.
- County-wide assessment of the archaeology of the aggregates resource in Gloucestershire.

8.7 Many sites of early mineral extraction are, themselves, now significant elements of the

historic environment. In the Forest of Dean the scowles found in the carboniferous limestones which ring the central Forest may be indicative of iron ore extraction originating in the prehistoric period, and the extensive areas of surface coal extraction pits recently discovered by lidar survey represent evidence for Roman, medieval and post-medieval exploitation of this resource. The area also abounds with remains of later, post-medieval mines, stone quarries and associated structures or communications systems. Limestone was also an important resource in the Cotswolds. Roman limestone quarries are known at the Querns, Cirencester, and many worked out quarries, some of which may originate in the medieval period or earlier, now form an intrinsic part of the landscape of the area. Where minerals development is proposed in the area of these historic sites, there may be opportunities to enhance the conservation and presentation of these and associated structures as part of any mitigation strategies adopted.

9. Policy options for archaeology and the historic environment and minerals development

9.1 Provision for the protection of archaeology and the historic environment should be built into the strategic objectives of the emerging Minerals Core Strategy.

9.2 This is currently included in the preferred option for the environment (MPO 10) within Gloucestershire County Council's Minerals Core Strategy: Preferred Options (January 2008). The preamble to this option recognises the existing national policies contained with PPG15 and PPG16 and recognises that "proportional levels of policy protection are based on the international, national and local significance of each asset" (paragraph 181). The policy itself proposes that this constraints hierarchy should be used within the emerging Minerals Core Strategy as the "framework for future detailed policies within the Development Control Policies Development Plan Document" and also to "assist in the identification and consideration of future mineral site allocations" It also recognises that elements of this may need to be amended to reflect future changes in national policy or the recognised status of archaeological sites.

9.3 MPO10 should be largely maintained in its present form, although a clearer distinction between Archaeology and Historic Environment and other environmental resources may be beneficial. This has been recognised through the consideration of the responses to the Preferred Options of the Minerals Core Strategy, and will be taken into account in formulating the policy approach.

9.4 Archaeology and the historic environment should be specifically considered in any site appraisals of sites to be included in a Development Plan Document.

Section 4

Waste and archaeology and the historic environment

10. Potential impacts of waste development on archaeology and the historic environment

10.1 Direct impacts

In general the following section does not make specific distinctions between buried archaeological remains, earthworks, structures or buildings as many of the issues discussed have the potential to impact on more than one category of archaeological and historic site.

10.1.1 Waste development can take a number of forms and includes landraising and landfill sites, sewage treatment works, recycling facilities and sites to generate energy from waste. Waste development can have a serious impact on archaeological sites or elements of the historic environment, although this will vary depending on the nature of the proposed waste development and the nature of the historic environment in which these are sited. If properly managed, however, waste development can open up opportunities for further research into those archaeological sites which are affected by it (see paragraph 11.5 below).

10.1.2 Landraising and landfill sites may cover archaeological sites and deposits below thick layers of refuse. Although in theory burial of archaeological remains does not necessarily equate to their destruction, the impact of landraising and landfill are so large-scale and irreversible that it should be regarded as a destructive process. In addition any archaeological remains near the surface will be

vulnerable to damage from ground preparation works, particularly the excavation of cells (similar to shallow mineral works) which are part of an element of large-scale landfill/landraising works. The long-term exposure to leachates, changes in soil hydrology, and perhaps also the increased weight of overburden may also have a negative impact on any buried archaeological remains.

10.1.3 Significant remains may also be destroyed, or buried beneath additional works relating to landraising or landfill such as bunds, ancillary buildings or the creation of new access routes.

10.1.4 Like any other development, sewage treatment works, recycling facilities and waste recovery works can have a direct impact on archaeological remains through construction works for these facilities or the creation of their infrastructure such as drainage, or new access routes

10.1.5 Vibration from increased traffic may impact on standing structures, earthworks and buried deposits.

10.1.6 Waste development, particularly landraising or landfill, may alter the hydrology of the surrounding landscape with a detrimental impact on nearby archaeological remains and historic buildings.

10.1.7 Carbon dioxide, sulphur dioxide, nitrogen oxides and particulates, such as smoke, can all have a detrimental impact on the fabric of historic buildings (<http://www.buildingconservation.com/articles/atmospheric/atmospheric.htm>). Proposers of any waste development will need to be mindful of the possible increases of these, either as a

direct result of waste processing or from emissions from increased traffic levels.

10.1.8 Environmental mitigation strategies, such as the planting of trees to shield development, or the large scale landscaping associated with landraising and landfill sites may also damage buried archaeological deposits.

10.1.9 The compound effect of these should not be underestimated and even relatively insignificant impacts may combine together, or with existing environmental factors (such as agricultural practices) to produce a significant impact on nearby archaeological sites or structures.

10.2 Setting

10.2.1 Even where visible archaeological remains and elements of the historic environment are not destroyed or buried by waste development, their setting can be compromised either by the proximity of landraising or landfill sites, unsympathetic structures or developments to the infrastructure supporting them.

10.2.2 Setting has been defined as “the surroundings in which a place is experienced, its local context, embracing present and past relationships to the adjacent landscape” (*Conservation principles, policies and guidance for the sustainable management of the Historic Environment*, English Heritage, April 2008, 72). This can include a number of elements, which although not of great individual merit, collectively contribute to the harmony of a range of buildings or the landscape setting of an archaeological site, or its links with associated landscape features.

10.2.3 Setting issues are not restricted to development in close proximity to historic sites, and distant features which impact on vistas, into or from them, can compromise their settings.

10.2.4 Setting is not simply a visual issue, and any development which affects the soundscape of a monument, e.g. increased traffic or industrial noise, may be deemed to compromise its setting even if not visible from the site itself.

10.2.5 Increased levels of air pollution produced by waste management systems may also affect the setting of archaeological and historically significant sites even where these do not impact directly of the monument or structure itself.

10.2.6 Unsympathetic landscape restoration following waste development, particularly relevant to landraising or landfill sites, can also have a major impact on the setting of surviving archaeological or historically significant remains and may significantly reduce the historic character and legibility of the landscape in which these are sited. The Gloucestershire Waste Local Plan 2002-2012 does not list archaeology or heritage as issues to be considered in restoration and after use of waste sites (Policy 42 and 43). Policy 43 does however state that reclamation measures should seek to enhance “landscape features” and sites of “scientific interest” which could include archaeological and heritage sites.

11. Mitigation of the impacts of waste development

11.1 A key component in the mitigation of the impact of waste development on archaeology and the historic environment is minimising the amount of waste produced, in line with Key Objective 1 in the Gloucestershire Waste Local Plan 2002-2012, and limiting landraising and landfill as a means of waste disposal, a system identified as “unsustainable” in the Minerals and Waste Local Plan (paragraph 2.1, bullet point 2). It should be stressed, however, that this does not fully resolve the issue, and alternative waste developments, such as recycling facilities, will also have an impact on archaeology and the historic environment.

11.2 Once destroyed archaeological deposits and elements of the historic environment can never be recreated. Accordingly, preservation *in situ* is the preferred option for all sites and areas of national significance (see paragraph 3.5 above). In addition other sites and structures of more local significance may merit preservation.

11.3 Where archaeological deposits and elements of the historic environment are deemed to be of lesser significance, however, strategies to ensure that significant remains are recorded prior to destruction (Preservation by Record) may be deemed appropriate. Suitable strategies will include desk-based assessment and field evaluation, whilst mitigation strategies may include sampling, building recording, watching brief and partial or full excavation.

11.4 Key to the success of this, however, is close liaison between waste operators, waste planners and local authority historic

environment advisors. This should ensure that important archaeological sites and historic structures are preserved where appropriate and that suitable evaluation and assessment strategies are put into place at an early stage to identify the correct archaeological mitigation, and make sure that this is properly resourced, both in terms of time and funds..

11.5 Since the introduction of PPG 16 development has been the primary driver of much archaeological field research in Britain, and development projects can afford positive opportunities for archaeological research, and with the correct forward planning high quality archaeological results can be achieved.

12. Policy options for archaeology and the historic environment and waste development

12.1 Provision for the protection of archaeology and the historic environment should be built into the strategic objectives of the emerging Waste Core Strategy.

12.2 This is currently included in the preferred option for Archaeology (WPO 13) within Gloucestershire County Council's Waste Core Strategy: Preferred Options (January 2008). This document sets out two options for this. WPO 13a only makes reference to nationally important archaeological sites, stating that waste development with an adverse impact on them would not be permitted, regardless of whether these sites are scheduled or not. The second option WPO13b states that future waste development proposals will be determined in accordance with the existing national policies of PPG15 and PPG16.

12.3 The Waste Core Strategy Preferred Options Consultation Response Report (Summer 2008) indicates an equivocal response to options WPO 13a and 13b with a slight majority in favour of WPO 13b, i.e. indicating that the national policies contained in PPG15 and PPG16 would be sufficient to safeguard archaeology and the historic environment in the event of proposed waste development (The Waste Core Strategy Preferred Options Consultation Response Report, 57). However, the same document goes on to point out that Waste Planning Authorities should ensure that development plans do not simply repeat national policies. Accordingly WPO 13a should be included in the forthcoming Waste Core strategy, although its compass

could be widened to include archaeology of regional or local significance. This could be achieved by the addition of an additional clause as follows: "Suitable measures will be employed to mitigate the effects of these on archaeological or historical remains deemed to be of less archaeological significance in accordance with national policies".

12.4 Archaeology and the historic environment should be specifically considered in any site appraisals of sites to be included in a Development Plan Document.

Appendix A: Selected key references for information on archaeology and the historic environment in Gloucestershire

Copies of the following reports are held by Gloucestershire County Council Archaeology Service

- The Archaeology of South West England: South West Archaeological Research Framework, resource Assessment and Research Agenda, Webster CJ (ed), Somerset County Council, 2008. A copy of this report is held by Gloucestershire County Council Archaeology Service. It is also available via the following web link: <http://www.somerset.gov.uk/somerset/culture/heritage/swarf/index.cfm>
- The Aggregate Landscape of Gloucestershire, Predicting the Archaeological Resource, Mullin D, Gloucestershire County Council Archaeology Service, February 2008. A copy of this report is held by Gloucestershire County Council Archaeology Service. It is also available on the Archaeology Service website: <http://www.gloscc.gov.uk/archaeology/>
- Forest of Dean Archaeological Survey Stage 1: Desk-based assessment, Hoyle J, Gloucestershire County Council Archaeology Service, 2008. A copy of this report is held by Gloucestershire County Council Archaeology Service. It is also available on the Archaeology Service website: <http://www.gloscc.gov.uk/archaeology/>
- The Scowles and Associated Iron Industry Survey, Hoyle J, Butler L, Tait G & Wootton D, Gloucestershire County Council

Archaeology Service 2007. A copy of this report is held by Gloucestershire County Council Archaeology Service. It is also available on the Archaeology Service website:

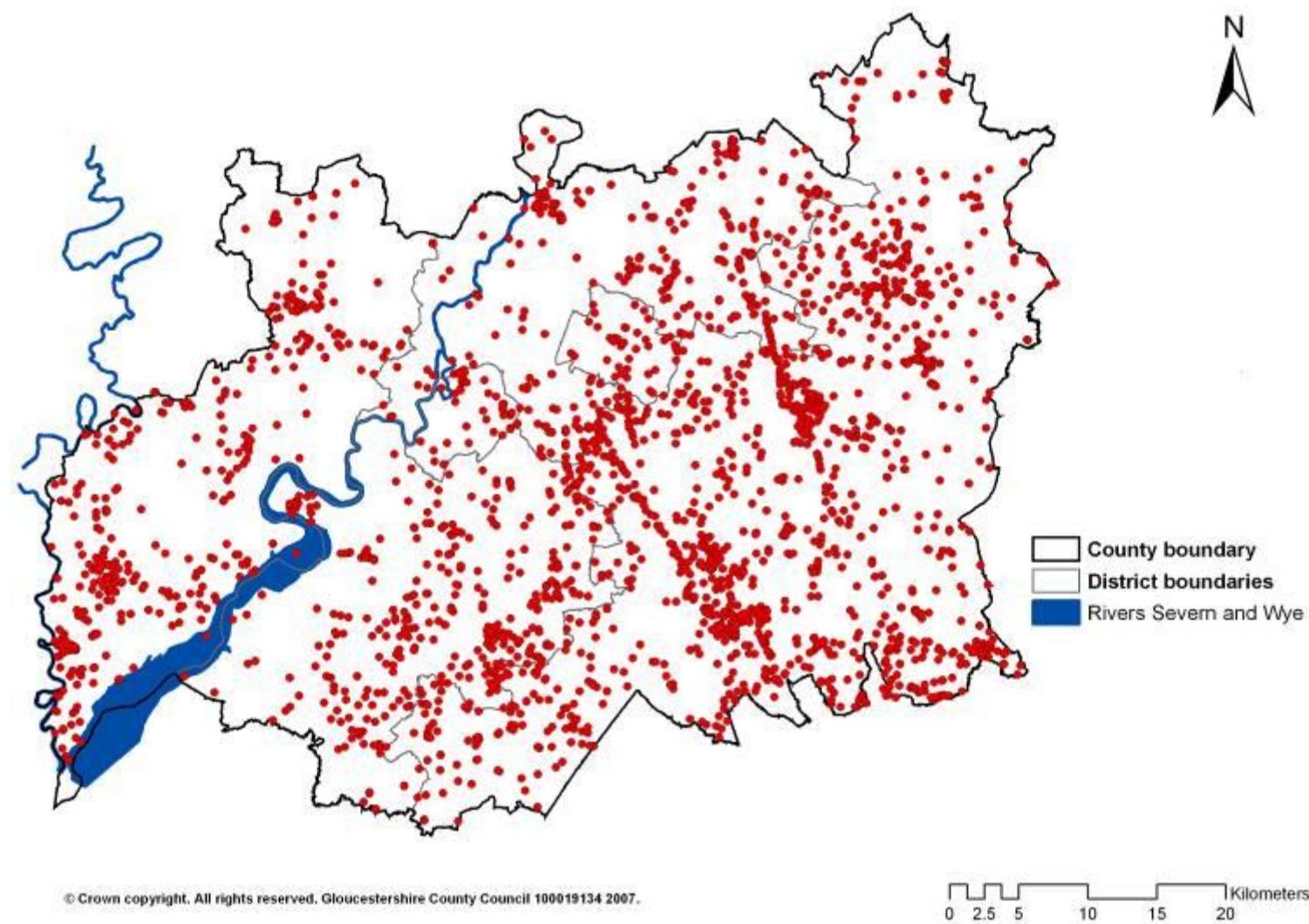
<http://www.gloscc.gov.uk/archaeology/>

- Draft report on the Forest of Dean Lidar survey, Hoyle J, Gloucestershire County Council Archaeology Service 2007. A copy of this report is held by Gloucestershire County Council Archaeology Service, although as it is still in draft form it is not available on the internet. A summary report on the survey is available on the Archaeology Service website: <http://www.gloscc.gov.uk/archaeology/>
- The Cotswolds AONB, Gloucestershire and the Wye Valley AONB: Historic Landscape Characterisation, Hoyle J, Gloucestershire County Council, Archaeology Service, 2006. A copy of this report is held by Gloucestershire County Council Archaeology Service. It is also available on the Archaeology Service website: <http://www.gloscc.gov.uk/archaeology/>
- Severn Estuary Rapid Coastal Zone Assessment Survey, National Mapping Programme, Crowther S & Dickson A, Gloucestershire County Council Archaeology Service, 2008. A copy of this report is held by Gloucestershire County Council Archaeology Service. It is also available on the Archaeology Service website: <http://www.gloscc.gov.uk/archaeology/>
- Gloucestershire Forest of Dean National Mapping Programme, Small F, Stoertz C (eds.) Bishop S, Carpenter E & Winton H, English Heritage, 2006. A copy of this report is held by Gloucestershire County Council Archaeology Service. It is not available via the internet but copies can be

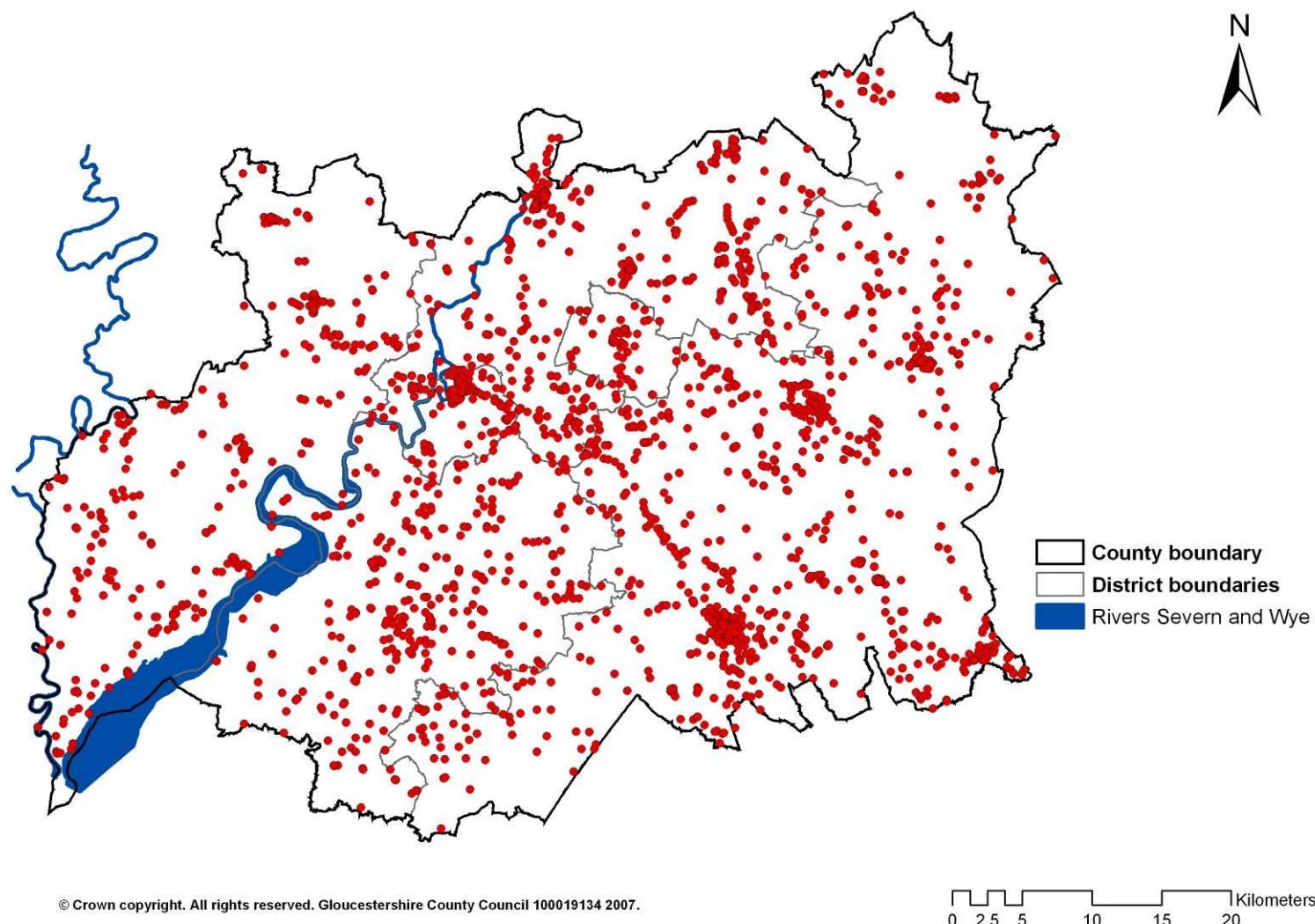
obtained by contacting English Heritage via
the following web link:
<http://www.english-heritage.org.uk/server/show/nav.20008>

Appendix B: Selected maps

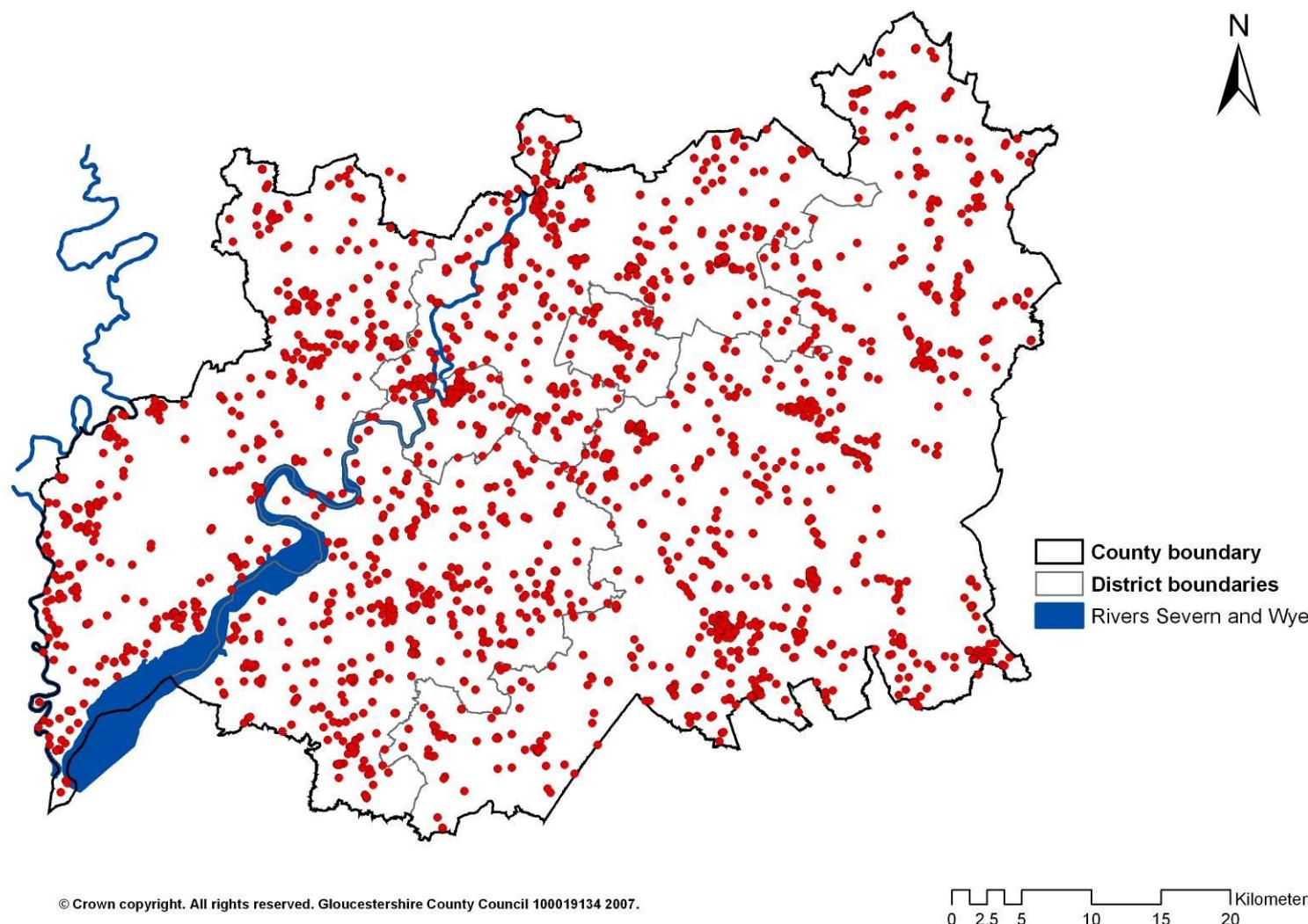
1. Gloucestershire - all prehistoric sites recorded on the Gloucestershire SMR - July 2009



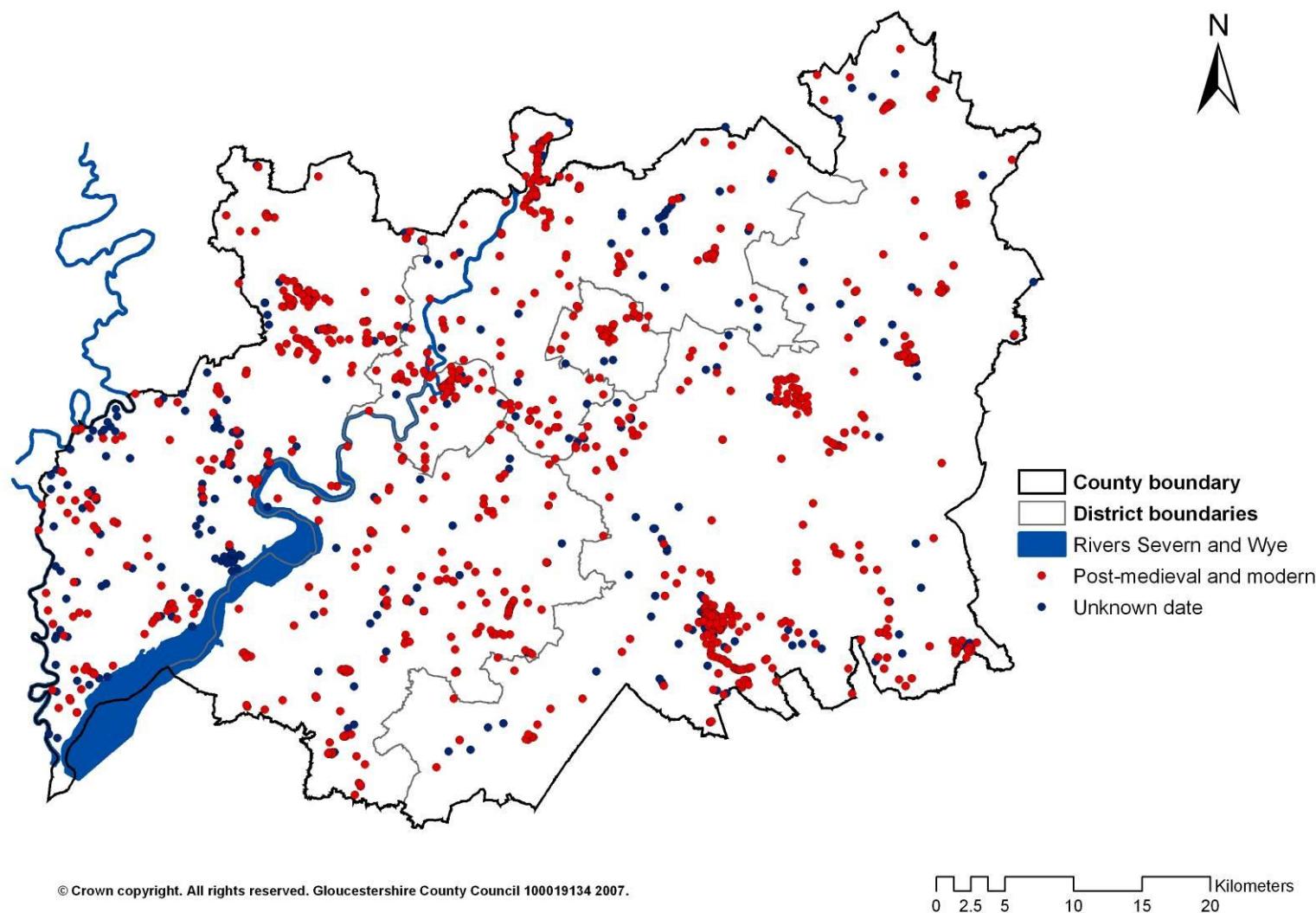
2. Gloucestershire - all Roman sites recorded on the Gloucestershire SMR - July 2009



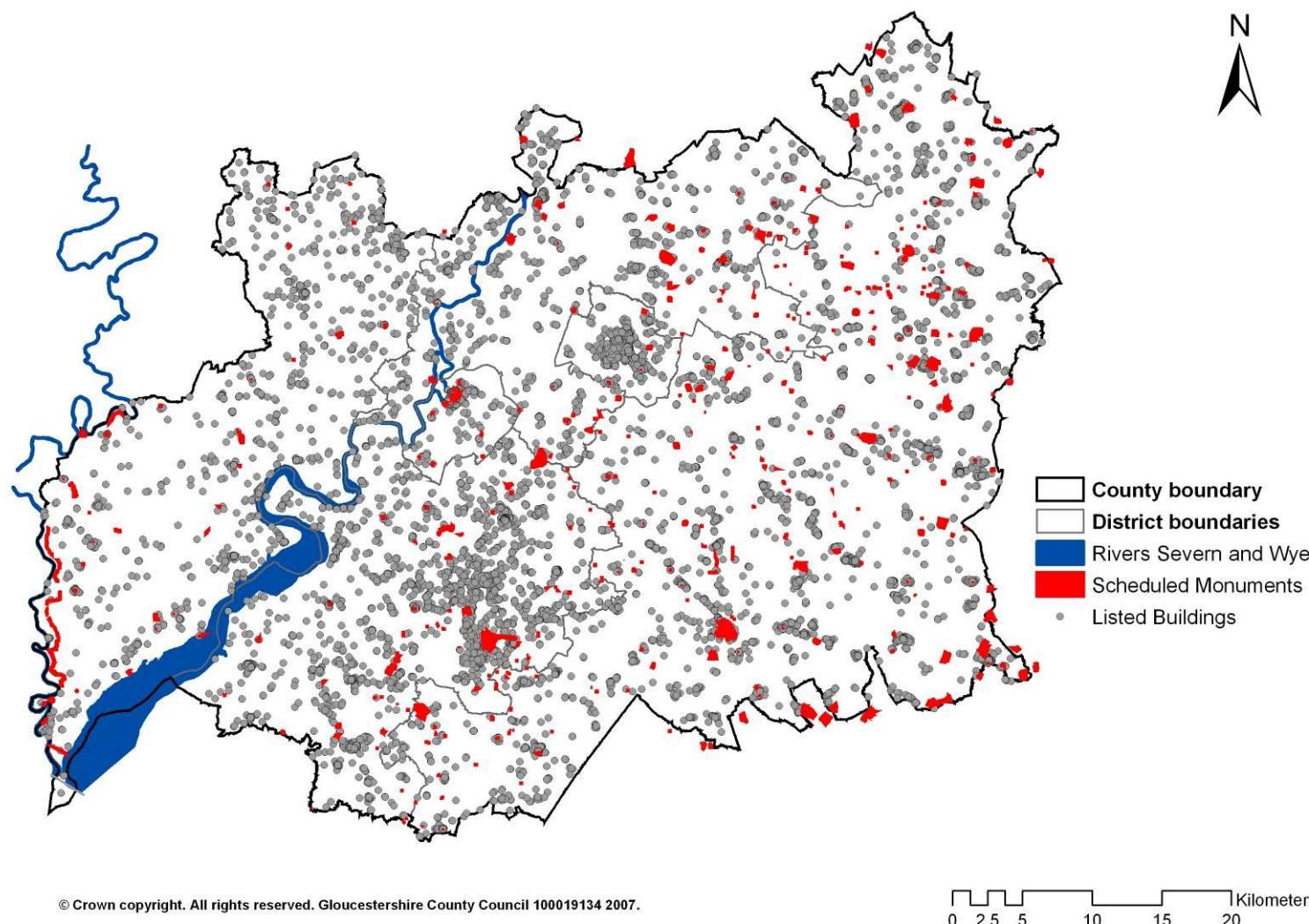
3. Gloucestershire - all medieval sites recorded on the Gloucestershire - July 2009



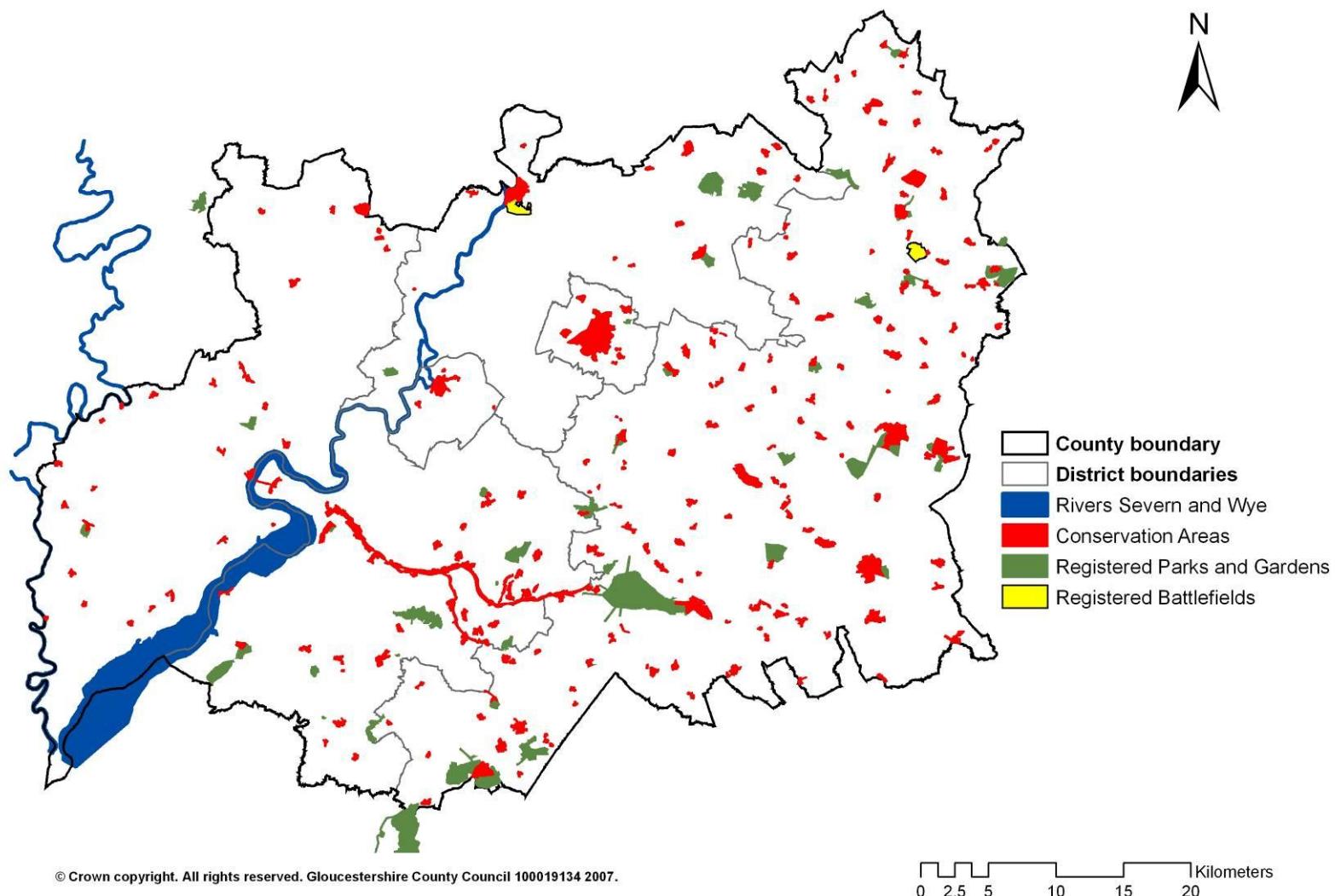
4. Gloucestershire - all post-medieval and undated sites recorded on the Gloucestershire SMR - July 2009



5. Gloucestershire - all Scheduled Monuments and Listed Buildings – July 2009



6. Gloucestershire - all Conservation Areas, Registered Parks and Gardens and Registered Historic Battlefields - July 2009





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