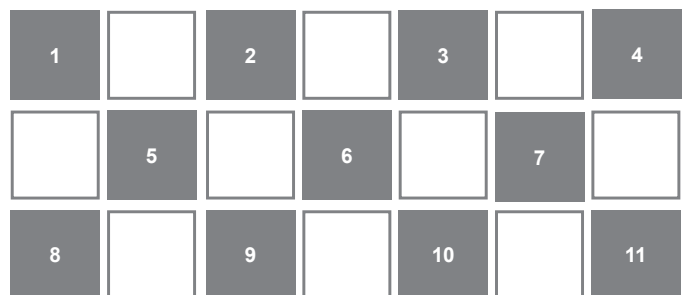


Scott
Wilson

Strategic Review and Implementation Plan for The Cotswold Water Park

Summary of Stage 1 Technical Reports
May 2007





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Strategic Review and Implementation Plan for The Cotswold Water Park

SUMMARY OF STAGE 1 TECHNICAL REPORTS

May 2007

Rev	Date	Details	Prepared by	Reviewed by	Approved by
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1 Introduction

Study Overview

- 1.1 The following report provides a summary of Scott Wilson's current investigations examining the audit of the resources and activities. This is to be used to help determine the future potential of the Cotswold Water Park (CWP) to become a resource of local, regional, national and international significance.
- 1.2 The study is to provide a strategic review and implementation plan for the Cotswold Water Park in order to present a clear, robust and evidence based framework for delivery of an achievable vision. As specified by the brief, this needs to be achieved through the following stages of work:
- Stage 1: The production of an evidence base and analysis of currently available data and reports across the sectors of activity identified as key drivers and integrated issues.
 - Stage 2: The identification of a vision for the future of the CWP and an evaluation of the various options for achieving such a vision.
 - Stage 3: The development of a practical framework of policies and proposals, accompanied by a phased implementation plan.
- 1.3 This summary provides an overview of the investigations conducted under Stage 1 of Scott Wilson's work programme.

Study Approach

- 1.4 The work programme identified five key drivers and several 'integrated issues' that are highly significant in the CWP. These are required to be assessed before any vision can be determined. The key drivers are:
- A. Socio-Economic and Travel Profiles
 - B. Biodiversity/Nature Conservation
 - C. Sand and Gravel Extraction
 - D. Tourism, Leisure, Recreation and Sport
 - E. Agriculture
- 1.5 The integrated issues are defined as:
- Hydrology
 - Heritage
 - Landscape
 - Transport and access

- 1.6 Each of these issues has been examined in detail in relation to the Cotswold Water Park, with the investigations provided as individual Technical Papers attached to this summary report. The following provides an overview of each of these reports, identifying the key issues and challenges facing the CWP from a more strategic perspective.

[The investigations being conducted by Scott Wilson are still on going, with a number of potential sources of information likely to come to light during Stage 2. Whilst it is not anticipated that any future information will change the direction of the findings, it will be important to include any further and relevant information collected within further versions of the reports as they arise. As such, the following summary should be treated as an interim assessment of the key findings.]

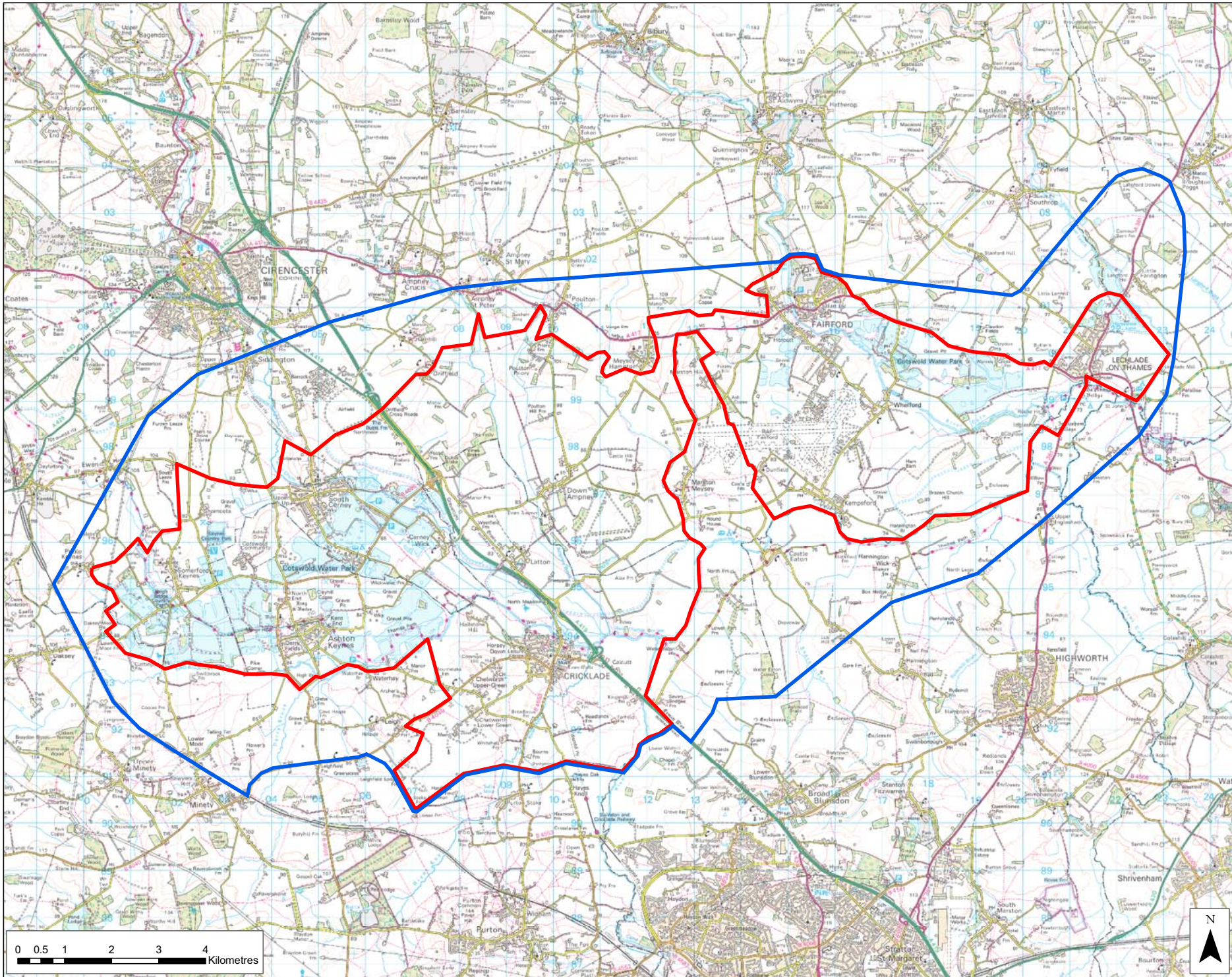
2 Overview of the Cotswold Water Park

Location and Setting

- 2.1 The Cotswold Water Park is located in the Upper Thames catchment area that covers North Wiltshire and the Cotswolds. As is demonstrated on Figure 1, the current designated area for CWP lies between Swindon to the south and Cirencester to its north, stretching from Poole Keynes in the west to Lechlade in the east (red line).
- 2.2 Overall, the CWP covers some 40 square miles of countryside. Within this area currently lie 147 lakes (see Figure 2), each constructed through the activities of mineral extraction that have taken place within the area for over 50 years.
- 2.3 A wider boundary (blue line) has also been provided for the purpose of this study. This boundary reflects the wider influence that the CWP has on the area as a whole, and also denotes the potential for the CWP to expand further.
- 2.4 The CWP is essentially divided into three areas; the western, central and eastern sections. The western section stretches from Poole Keynes, through Somerford Keynes, Shorncombe and Ashton Keynes to South Cerney. The central section runs from Cerney Wick and Cricklade, across the A419 to beyond Latton, and Down Ampney. The eastern section includes the villages of Kempford, Fairford, Whelford and Lechlade.

History & Heritage

- 2.5 According to a recent archaeological assessment conducted on the CWP by Oxford Archaeology, the Upper Thames Area, within which the CWP sits, has been populated for over 6,000 years, with evidence of occupation since the prehistoric period. Furthermore, there is evidence of settlements from every period since. Thus, the area as a whole, including the CWP, represents one of the most plentiful areas of archaeological sites in Britain.
- 2.6 To act as an example to this, archaeological evidence that has been uncovered in the CWP includes:
- causeway camps, cursus monuments and henges;
 - distinctive Beaker pottery relating to burial rites and new technologies in Britain around 2000-1600BC;
 - evidence of settlements from the Bronze Age has been widely found across the CWP;
 - a hill fort dating back to the Iron Age has been identified at a location to the south-east of Ampney St Peter, whilst the remains of round houses have been excavated at Claydon Pike and Thornhill Farm;
 - Roman villas at Claydon Pike, Latton, Rough Ground Farm and Hannington Wick, demonstrating the wider area beyond Cirencester in which the Romans settled;



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Boundary

- Designated Site Boundary
- Functional Site Boundary

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


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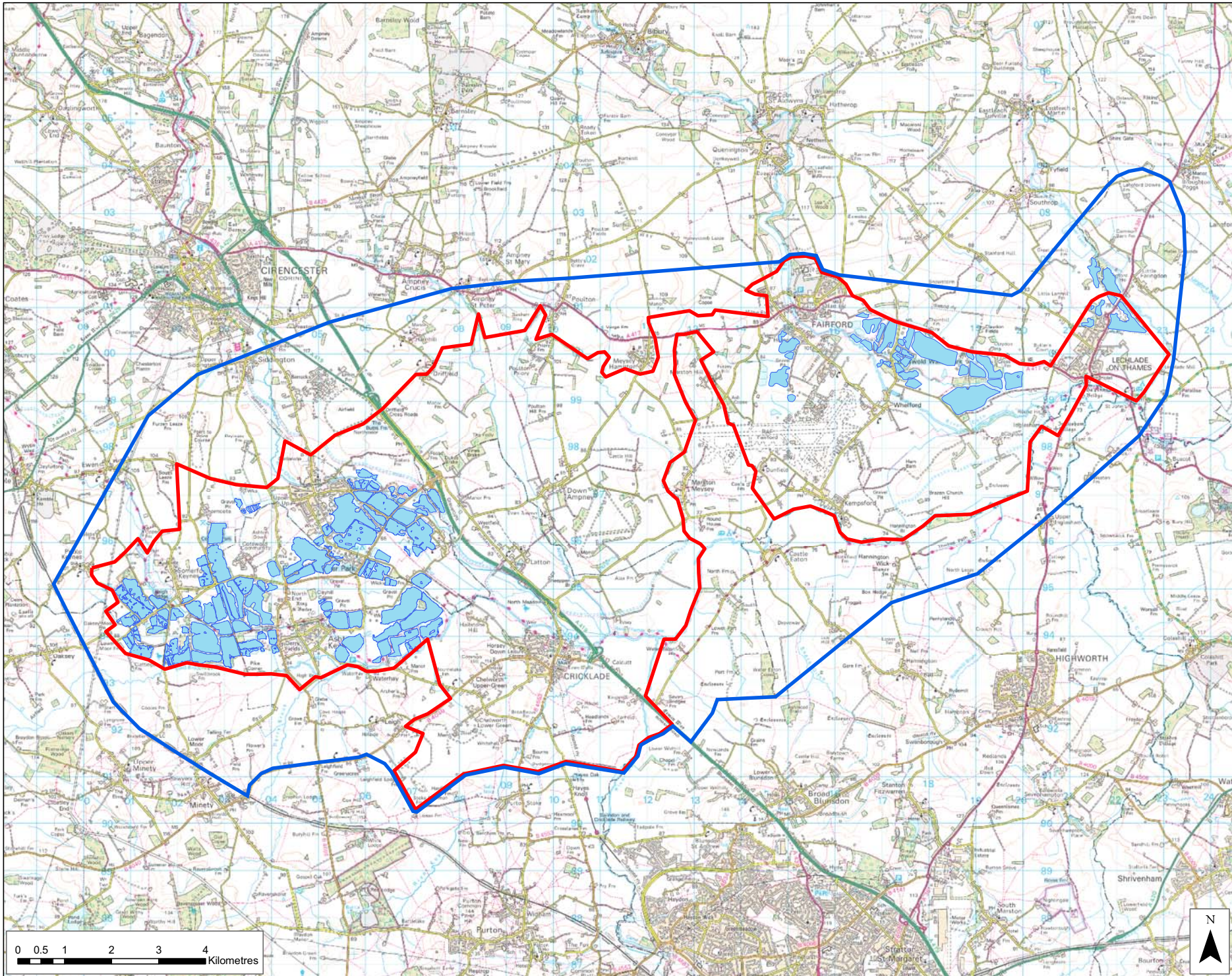
Lakes

 Current Lakes

Boundary

 Designated Site Boundary

 Functional Site Boundary



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Drawing Number **FIGURE 2**

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- Cricklade, which is widely reputed to be one of the most intact examples of a late Saxon town in Britain, with the settlements of Lechlade and Fairford also both heavily influenced during this period; and
 - the villages of Kempford, Whelford, Meysey Hampton, Somerford Keynes, Ashton Keynes, Siddington, Oaksey, Hannington, South Cerney, Down Ampney, Moor Farm, Castle Eaton, Minety, all have their origins in the medieval period, with many of the connecting roads between these settlements still in evidence today.
- 2.7 Although this heritage and history is very important to the CWP and how the existing settlements have developed, it is the extraction activity that has taken place within the last 50 years that has been the most dramatic in terms of change.

Population and Core Settlements

- 2.8 Approximately 22,000 people live in the CWP area, the majority being in one of the 14 main settlements. The settlements of Cricklade (4,000 population), South Cerney (3,000), Fairford (3,000) and Lechlade (3,000) provide the largest centres within the CWP, although there are several other villages across the CWP area that provide further important population centres, particularly within the central section.
- 2.9 The examination of the socio-economic profile, and in particular the standards set by the index of multiple deprivation (IMD) demonstrates that the settlements within the CWP are markedly less deprived than many other areas in the South West region, with generally good access to facilities concerning health, education, housing and employment.
- 2.10 The highest areas of relative deprivation are located in the eastern areas, with Hannington Wick and Castle Eaton up to Inglesham and Lechlade scoring an average IMD score of over 16. Nevertheless, this compares favourably with the South West as a whole, where the highest IMD score is nearly 80.
- 2.11 This observation is generally supported by the fact that 94% of the population claim to be healthy or fairly healthy; generally between a third and two-thirds of the population for most settlements within the study area work in managerial, professional, or associated sectors; and that only a small proportion (generally less than 4%) of the economically active population in the CWP area are registered as being unemployed.
- 2.12 Overall, 11,000 (around half) of the population are defined as being economically active. As a whole, the assessment of residents working patterns suggest that people tend to work within or close to the CWP, with 71% of the workforce commuting a distance of no more than 20km from home. This finding is perhaps unsurprising given the proximity of the CWP to central Swindon (13 km from Cricklade) and central Cirencester (6km from South Cerney). It should be noted that over a quarter (28%) of the workforce travel no more than 2km to their work place, with nearly half of these working from home.

Geology

- 2.13 A geological survey of the Upper Thames area was undertaken in the 1970s. This remains the main source of geological information on the CWP.
- 2.14 To summarise, the geology of the CWP has been heavily influenced by the flows and fluctuation of the River Thames and its tributaries over time. In particular, the geological mechanics of the Pleistocene glacial activity and glacial meltwater has created river terraces that are rich in mineral and gravel deposits. These deposits have been derived through the process of bedrock erosion and the crushing of hard rocks such as limestone or sandstone and igneous/metamorphic rocks.
- 2.15 Four identified river terraces in the CWP area constitute the main mineral resource, comprising subrounded calcareous (oolitic limestone), quartz, and quartzite pebbles with coarse quartz with limestone sand. The calcareous nature of the gravel marks it as different in composition to other UK river terrace sand and gravels. The types of mineral that can be found in the terraces are suited for use in concrete applications and are largely found at a sufficient mass (2 metres to 6 metres in depth). A further advantage is the relatively thin (0.3-1.5m thickness) veneer alluvium which overlies the gravel deposits.
- 2.16 It is this accessibility and relative thickness of the gravel that has made the area attractive for extraction activities within Wiltshire and Gloucestershire.

Hydrology

- 2.17 The hydrology of the area is closely linked to the geology of the CWP. The CWP area consists of a large number of rivers, streams and lakes interacting with the groundwater in the sand and gravel deposits.
- 2.18 The groundwater is present at two depths:
- 'Deep' groundwater within the confined and unconfined oolitic limestone aquifers (defined as a water bearing rock); and
 - 'Shallow' groundwater within the sand and gravel drift deposits.
- 2.19 The 'deep' aquifer within the area is subject to abstraction from four deep borehole sources; Latton, Baunton, Meysey Hampton and Ashton Keynes. These sources are operated by Thames Water under license agreement granted by the Environment Agency.
- 2.20 The 'shallow' groundwater is underlain by Oxford Clay and other impermeable layers that isolate this groundwater system from the 'deep' aquifers. It is these deposits that provide the baseflow of water for local rivers and streams. It is also this system that interacts with the extraction sites that allow the natural infilling of the sites with water to create the lakes that are now highly prevalent in the area.
- 2.21 As with other shallow groundwater supplies, the volumes of water held are subject to fluctuation throughout the year. During periods of heavy rainfall, the deposits become saturated relatively quickly which can lead to localised flooding. Conversely, in periods of dry

weather, the natural demands of the rivers and streams that abstract water from these shallow reserves often exceed the rate of replenishment.

- 2.22 Under normal conditions this fluctuation would expect to be managed naturally. However, the lakes provide another additional influence on the hydrology of the CWP that needs to be taken into consideration.

Landscape

- 2.23 The landscape of the CWP area is essentially divided into three distinct zones - east, west and central. All of the zones vary in character due to influences past and present; natural and man-made.

- 2.24 The landscape in the west is the most heavily influenced by the extraction activity, with vast areas now including wetlands. Furthermore, some of these lakes have been developed for other specific uses, whose impact has been to add a new dimension to this once predominantly rural area. In contrast, the central area is still largely rural in nature with relatively little extraction activity.

- 2.25 The River Thames meanders through the whole of the CWP. The Gloucestershire Landscape Character Assessment (LCA) establishes that the River Thames is the 'back-bone' of the CWP and has heavily influenced parts of the landscape through numerous mills, locks, weirs, wharves and bridges. However, its influence has been more defined within the eastern area of the CWP, largely as a result of Lechlade masking the head of the River Thames and the point at which the river becomes impassable by large motorised craft. This meant that Lechlade was, in the past, an important trading post for the area, with the associated activity subsequently influencing the built landscape of the surrounding area.

- 2.26 However, it is the extraction activity that provides the predominant influence on the natural landscape of the CWP in the present day, a situation that is likely to continue to create landscapes and forms that will almost be permanent and will thus remain far in to the future.

Economic Activity

- 2.27 Historically, agriculture has been the main economic activity conducted within the CWP area, although as previously stated Lechlade was an important staging post for the area in the past.

- 2.28 The advent of mineral extraction workings, however, has produced a significant shift in the direction of its industrial and economic prosperity. Not only has the area become one of the most significant areas for mineral workings in the South West region, its legacy has been the required loss of agricultural land and the creation of the current 147 lakes.

- 2.29 The potential value of these lakes has long been recognised, with the ability to use them as resources for sports, leisure, recreation and tourism stipulated in the first documented vision and strategy for the CWP in 1969.

2.30 This continues to be echoed, with the latest strategy for the CWP which states:

“The CWP is and will continue to be a premier site for nature conservation, sports, recreation, leisure and tourism.....”

2.31 However, to date this potential has yet to be realised for the whole of the CWP. There are pockets where development has opened up a lake or series of lakes for particular uses. Nevertheless, given the level of existing lakes, this represents only a fraction of the overall capacity.

Future Scope

2.32 Gravel extraction within the CWP continues to serve the growing needs of development in the Wiltshire/Gloucestershire sub-region. There are currently seven mineral extraction companies producing an average of 2 million tonnes of sand and gravel per annum. Furthermore, some 370 hectares of land has already been given planning permission for extraction and emerging minerals plans propose another 550 hectares for extraction.

2.33 Overall, it is envisaged that there is enough sand and gravel within the area to suggest that extraction activities could continue for a further 50 years, though discussion is usually centred on there being at least a further 20 years of extraction. Overall, the extent of lakes and lakeland settings available within the CWP area could more than double from the existing level.

2.34 After a relatively subdued period of development activity initially, there is now clear evidence that the gravel extraction is resulting in new opportunities, especially for the commercial sector and particularly related to tourism. In the past 10 years, there has been considerable investment in property designed specifically as ‘holiday’ or second homes. More recently, there has been the investment in a new large-scale hotel complex. Furthermore, planning applications have been received for further serviced sector, second home and self-catering complexes.

2.35 However, the structure of this development is considered to be relatively ad hoc and not the result of any specific growth or development strategy. The risk is that, if allowed to develop further on the basis of commercial forces alone, the overall ambitions for the CWP could be compromised by certain activities, whilst new and equally valuable opportunities may be missed.

2.36 Likewise, the CWP has become a biodiversity site of national and even international significance almost by default. Although individual species and habitats have specific conservation programmes, the scope now is for a more strategic view regarding the creation of significant new conservation areas and associated landscapes.

2.37 It is within this context that a comprehensive assessment of the current position of the CWP, and the establishment of a coherent vision and masterplan, is considered a key requirement.

3 Summary of Key Drivers

3.1 The following provides a summary of the investigations into the key drivers.

Sand and Gravel Extraction

3.2 The many lakes of the CWP provide the visible evidence of the long history of mineral working within the area.

3.3 Minerals can only be extracted where they are found, and are only supplied to areas of demand when economically viable and extraction is considered environmentally acceptable. In this regard, the area is considered rich in mineral deposits resulting from the historical activities and fluvial changes of the Upper Thames and its tributaries that have left large volumes of river terrace deposits; whilst certain conurbations in the South West represent significant growth areas, especially neighbouring Swindon which has seen a number of large scale and high profile companies establish their head offices in the Town.

3.4 According to the British Geological Survey for the Upper Thames Valley area (1970s), the gravel deposits in the area can reach 6 metres at the deepest point and have the advantage of being accessible due to the relatively thin veneer of alluvium which overlays them. However, it is believed that the most accessible and thickest deposits have, on the whole, been exploited and that workings in the future will be based on thinner deposits. As a guide, deposits usually have to be 2 metres in thickness with a minimum overburden (overlying material) to be considered economic within a new mineral prospect area. However, mineral horizons less than 2 metres and as little as 1 metre in thickness may be worked economically if immediately adjacent to the main deposit or as the last phase of operation.

3.5 The overall composition of minerals within the CWP is typically 50% gravel, 45% sand, and 5% fine materials (i.e. silt). The primary end use of the minerals is for concrete applications.

Future Scope

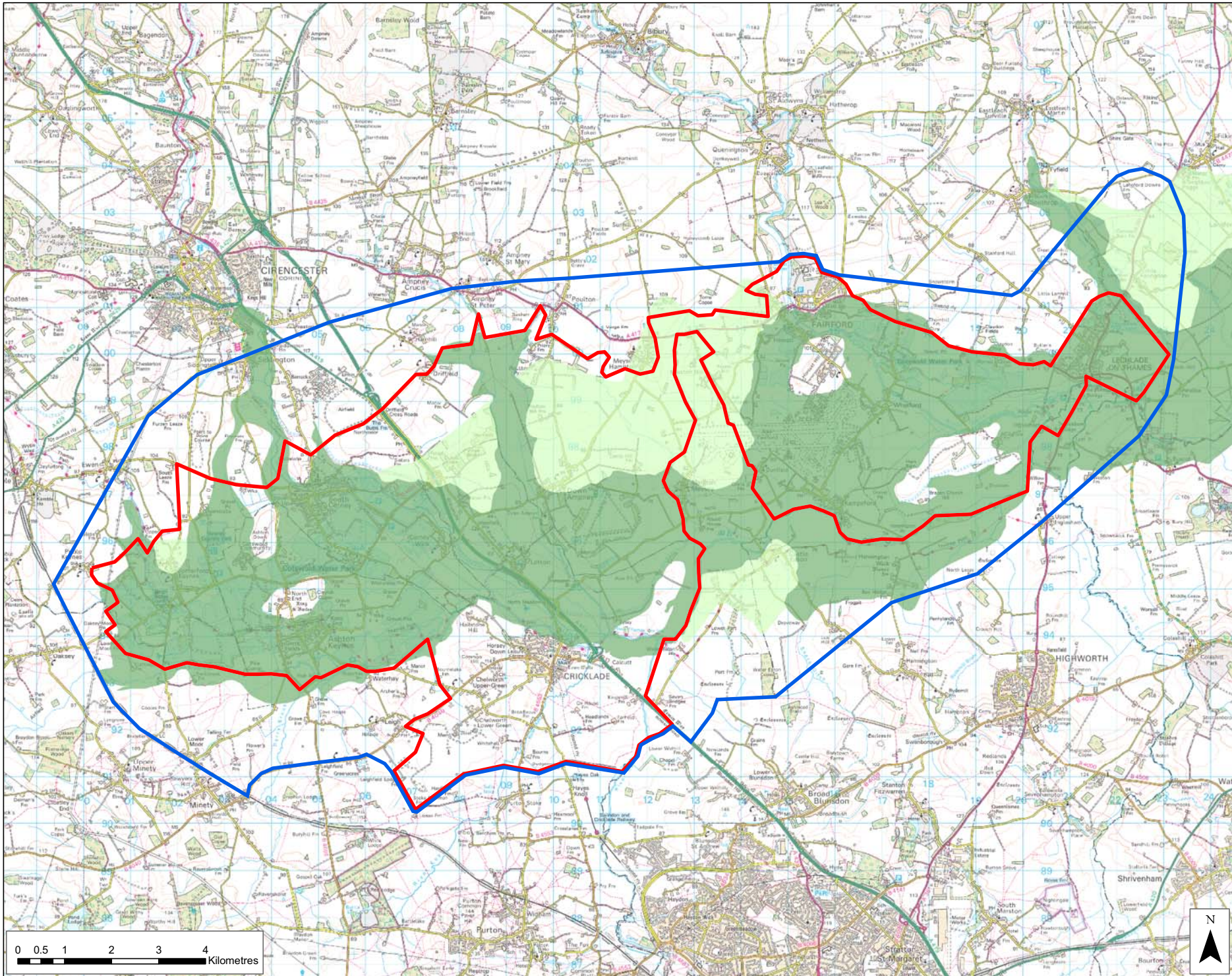
3.6 Figure 3 shows the current extent of the minerals against existing and planned extraction activity. Overall, it demonstrates that there is considerable capacity for the CWP to be subject to further gravel workings.

3.7 There is a general cross-industry consensus that there is sufficient extractable resource at current levels of production for a further 20 years of activity, with a further 10-15 years with work being conducted at a lesser level until the resource is effectively exhausted.

Planning Policy

Extraction

3.8 The Gloucestershire and Wiltshire Minerals Local Plans (MLPs) dictate the existing levels of extraction permitted within the CWP, with local authorities acting as consultees for both policy and individual applications. The plans for both counties were originally adopted for the period



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Extent of Sand and Gravel

- Defined Mineral Resource Block
- Non Continuous Deposits

Boundary

- Designated Site Boundary
- Functional Site Boundary

Source
COTSWOLD WATER PARK & ESRI

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Job Title
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EXTENT OF SAND & GRAVEL DEPOSITS

Scale at A3
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FIGURE 3

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to 2006, though the plan for Wiltshire has been saved up until at least September 2007 and Gloucestershire until at least 2009, so the policies they contain are still relevant at present.

3.9 The Plans highlight key policies influencing and directing mineral extraction that are of particular relevance to the CWP. These include:

- Gloucestershire Mineral Local Plan 1997-2006:
 - Gloucestershire has an annual apportionment of 1.29 million tonnes of sand and gravel production per year over the plan period, and 3.17 million tonnes of hard rock aggregate;
 - A seven year landbank of sand and gravel has been permitted from nine preferred sites up to 2006, with a further four Areas of Search (amounting to approximately 11 million tonnes) to satisfy demand for a period beyond 2006;
 - Overall, Gloucestershire has a 97% dependence upon the Upper Thames Valley for sand and gravel.
- Wiltshire & Swindon Mineral Local Plan 2001-2006:
 - Wiltshire and Swindon combined has an annual apportionment of 1.038 million tonnes per annum over the plan period;
 - A seven year landbank of sand and gravel has been permitted from other reserves for the period of the plan, and a further seven years beyond that to 2013 from six Preferred Areas;
 - The Wiltshire and Swindon MLP denotes full dependence upon sites within the boundary of the CWP for sand and gravel extraction.

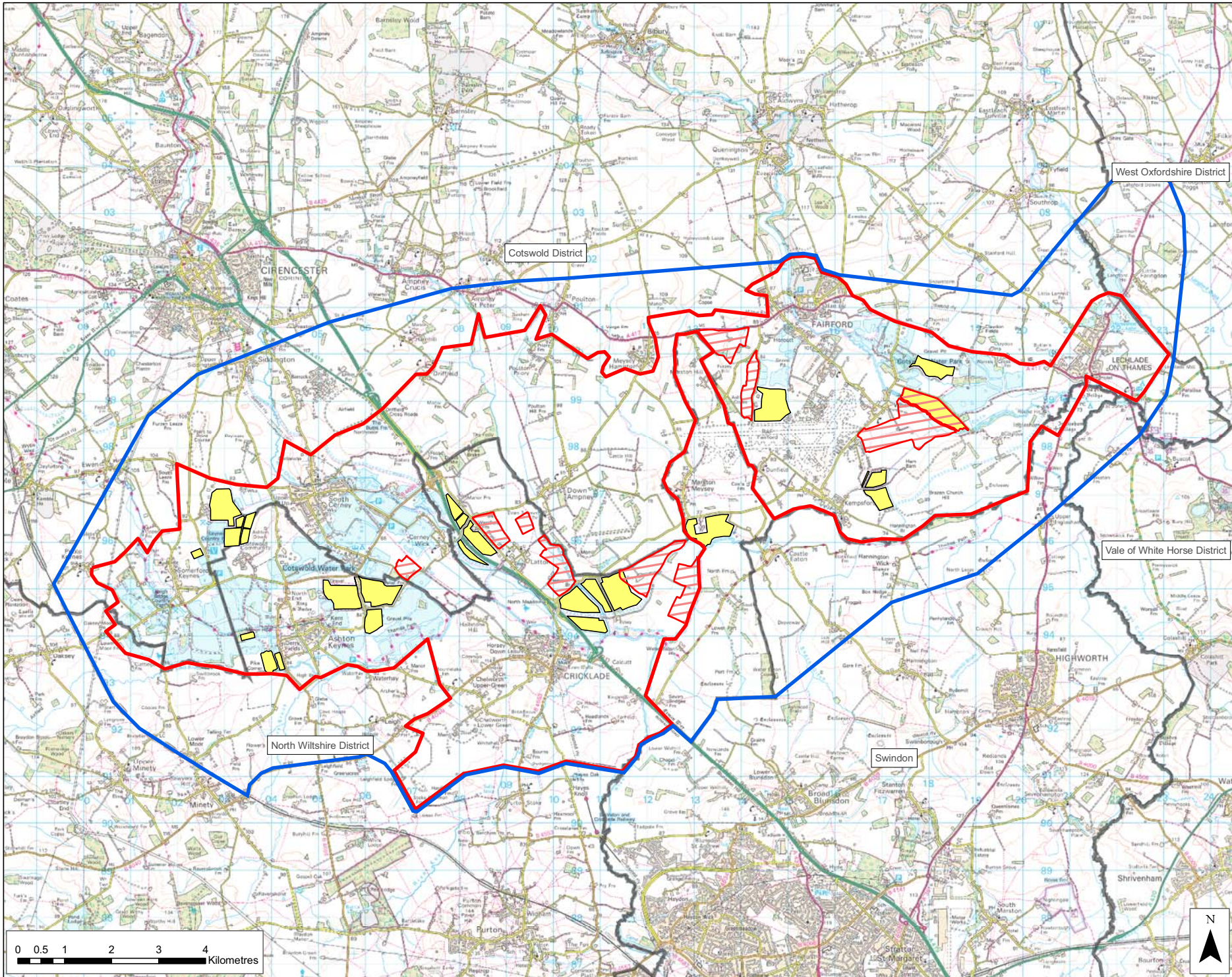
3.10 These policies, particularly in relation to the dependency on the CWP area, demonstrate the value of the zone to the gravel extraction commitments of both Gloucestershire and Wiltshire.

3.11 However, there is a significant policy within the Gloucestershire Mineral Local Plan that highlights a key issue that has been widely observed in the area. Policy A7 stipulates the recognition that future areas of working may be contiguous with the Wiltshire County boundary and 'workings in Wiltshire should take place before and without prejudice to those in Gloucestershire'. Moreover, there is no policy within either plan which requires consideration of extraction across boundaries despite the mutual interest and stewardship of the CWP.

Restoration

3.12 The formation of lakes once extraction is completed is a function of the natural hydrology of the area (see hydrology section). However, aggregate companies are required as part of any agreement to restore the surrounding land after the cessation of extraction workings, and are thus required to present a suitable restoration scheme for the whole site.

3.13 At a national mineral planning level, the Mineral Policy Guidance note MP7, "Reclamation of Mineral Workings", states that restoration proposals and after-use should be considered at the earliest opportunity. It is recognised by the MPG that the content and timing of restoration of mineral extraction schemes will vary according to the circumstances of the particular case.



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- MPA Preferred Area of Search
- Active Quarries
- District Boundaries

Boundary

- Designated Site Boundary
- Functional Site Boundary

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Job Title
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Drawing Title
CURRENT & PROPOSED FUTURE GRAVEL WORKINGS

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FIGURE 4

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However, the MPG states that restoration for 'softer' uses with vegetation covering the majority of the restored surface is an acceptable standard that would generally not require additional planning consent. Examples of such uses include agriculture, forestry, sport and recreation (though not large indoor facilities), public open space, wildlife habitats (including any water environments) and other uses aimed at environmental improvement. In addition, the guidance stipulates that restoration schemes should take account of the desirability for recording or preserving any historical or archaeological sites.

- 3.14 Any restoration schemes that would involve the re-development of land for hard end uses would require separate planning permission. Should planning permission be refused, the site is obliged to be restored to the most appropriate soft use.
- 3.15 To supplement this guidance, the Gloucestershire and Wiltshire & Swindon MLPs both identify/specify for the key considerations for restoration schemes within their respective Mineral Local Plans. In summary, reference is generally made for the need to consider:
- the enhancement of the local character of the area;
 - the protection and/or enhancement of amenities for the local community;
 - schemes that replace or create new access opportunities to open spaces and countryside by the public; and
 - the protection and/or replacement of sites that are acknowledged (be it at a local, national, or international level) to be of importance to local biodiversity.
- 3.16 Furthermore, the Gloucestershire MLP stipulates that all the after-use proposals must be acceptable in terms of traffic impact, whilst the Wiltshire and Swindon MLP gives greater consideration to details that need to be included in the restoration scheme such as angles of quarry slopes; the size, shape, and depth of lake or water areas; provision of land drainage; the sowing of seeds; and the planting and the maintenance of trees and shrubs.

Key Issues and Considerations

Extraction Site Identification

- 3.17 The differing approaches of Gloucestershire and Wiltshire County Councils toward the forward planning of extraction sites has led to a spatial disparity between the existing Preferred Areas and Areas of Search for further extraction between the two counties. Figure 4 denotes this disparity, with Wiltshire generally concentrating new sites around the central areas of the CWP, whilst for Gloucestershire there are smaller clusters within the eastern and western sections, but relatively little close to the proposed/preferred areas of working within Wiltshire.
- 3.18 There are examples in the UK whereby multiple authorities may agree to collaborate to produce a single plan for a shared area of interest and based upon historical boundaries, such as has been witnessed for Wiltshire and Swindon. However, at present, there is no indication that there will be a significant departure from the existing policies in any revised development plan in relation to the CWP.
- 3.19 If this situation continues, the ability of the CWP to realise any specific aspirations could become inhibited as any scope for activity and spatial zoning of the activity would be limited.

Rather, any framework for developing new lakes for specific purpose (e.g. leisure, sport, recreation, tourism, nature conservation, farming) would either persist in being relatively piecemeal and ad hoc in nature as has been witnessed to date, or would need to accept any subsequent time delays until the realisation of more strategic and appropriate extraction sites.

Extraction Site Restoration

- 3.20 Although both the MLP for Gloucestershire and Wiltshire & Swindon state the need to consider the suitable restoration of the mineral extraction sites, neither examines in any depth what measures and treatments would be considered best practise to ensure a progressiveness and consistency of approach by the aggregate companies.
- 3.21 This is a key consideration for the CWP in particular, where the close proximity of the extraction sites means, to date, the treatment of individual sites is effectively at the discretion of the aggregate company. With seven companies operating in the area, it is understandable that the interpretation of what constitutes a 'suitable restoration scheme' and 'after-use' will differ. This situation has presented issues in relation to the landscaping of the CWP, the ability to increase and improve the biodiversity of the area, and the disjointed after-uses of certain lakes available for public access.
- 3.22 A good practice guide, akin to the 'Good Practice Guide in Mineral Site Restoration and Enhancement' provided by Surrey County Council, would certainly help to resolve this situation in the future. This document could be used to discuss the acceptable types of restoration and the key considerations that should be explored by the restoration plan (e.g. existing and previous influences; transport issues; local area distinctiveness; landscape character; wider restoration benefits; and economic viability and demand for after-use).
- 3.23 The more specific impacts of the lack of a restoration strategy for either specific lakes or identified zones of the CWP area is discussed in more detail in the following sections.

Biodiversity/Nature

Overview of Current Position

- 3.24 The CWP is heralded as an important area for water and land-based habitat creation. The lakes themselves are considered the most important marl lake complex in the UK supporting:
- nationally important numbers of wintering waterbirds such as pochard, gadwall, coot, great crested grebe and smew;
 - internationally important numbers of the lesser black-backed gull;
 - a thriving otter population and an expanding water vole population;
 - an aquatic plant assemblage (in terms of abundance and species diversity) of European importance, notably stoneworts; and
 - a regionally important dragonfly assemblage, with several locations exceeding criteria for designation as Sites of Scientific Interest.

- 3.25 Further important habitats are provided by the 66.5km of rivers and streams provided by Swill Brook, River Thames, River Churn, Ampney Brook, Marston Meysey Brook and River Coln; the increasing provision of fen, marsh and reed swamp as mostly marginal fringe habitat of standing open water; and neutral grassland, with the particularly important North Meadow which is home to the rare *Fritillaria meleagris* or Snakeshead Fritillary.
- 3.26 In particular, the North Meadow represents the only National Nature Reserve (NNR) within the CWP and is part of the North Meadow and Clattinger Farm Special Area of Conservation (SAC). It is also one of nine Sites of Special Scientific Interest (SSSi) within the CWP, including one designation that covers ten lakes due to their notable presence of eight species of pondweed including the nationally scarce hair-like pondweed *Potamogeton trichoides*.
- 3.27 Further habitats are created by existing woodland, albeit that most of the woodland is considered secondary or plantation woodlands of recent origin; the abundance of agricultural land; and built structures, such as swallow nesting in old barns and newts over-wintering in stone walls. Overall, therefore, the CWP is considered an area of high biodiversity importance, a situation reflected in its inclusion in the South West Nature Map (under the categories of Neutral Grassland, Open Water and Floodplain Grazing Marsh) which is closely aligned with the South West's Spatial Strategy (see Figure 5).

Future Scope

- 3.28 The projected growth of the CWP's open water implies that there could be extensive scope to open up the CWP further to habitat creation. This is to be reflected in the emerging CWP Biodiversity Action Plan (BAP), to be managed by the Cotswold Water Park Society (CWPS) and partners, and which is to set targets for conservation works between 2007 and 2017.
- 3.29 The overall vision of the BAP for the CWP is that by 2050 it should be a premier site for nature conservation where the requirements of industry, leisure, people and wildlife are successfully integrated. To achieve this, the BAP identifies a series of habitat action plans (HAPs) and species action plans (SAPs) that target the continued improvement of biodiversity within the CWP. In particular, the level of standing open water could more than double in size to over 2,260 hectares just through the land that has either already gained permission for extraction or has been identified as areas for potential permissions. In turn, this could have a major role to play in contributing to a range of UK and CWP BAP targets.
- 3.30 Likewise, activities in relation to the restoration of the Thames & Severn Canal, farming, and leisure and recreation within the CWP could all lead to greater scope to develop and promote biodiversity and nature.
- 3.31 Furthermore, it needs to be recognised that the existing lakes themselves are generally considered to be at the early stages of ecological development. Therefore, these too present further scope to encourage greater biodiversity. This can be seen through the erection of a bird platform specifically designed to attract ospreys, and the exploration for introducing the European Beaver to the CWP.
- 3.32 These types of actions will need to be continued, and potentially on a more intensive scale, if the aims and objectives of the CWP BAP are to be realised, namely to become one of the premier sites for nature conservation in the UK by 2050.

Key Issues & Considerations

Quarry Activities

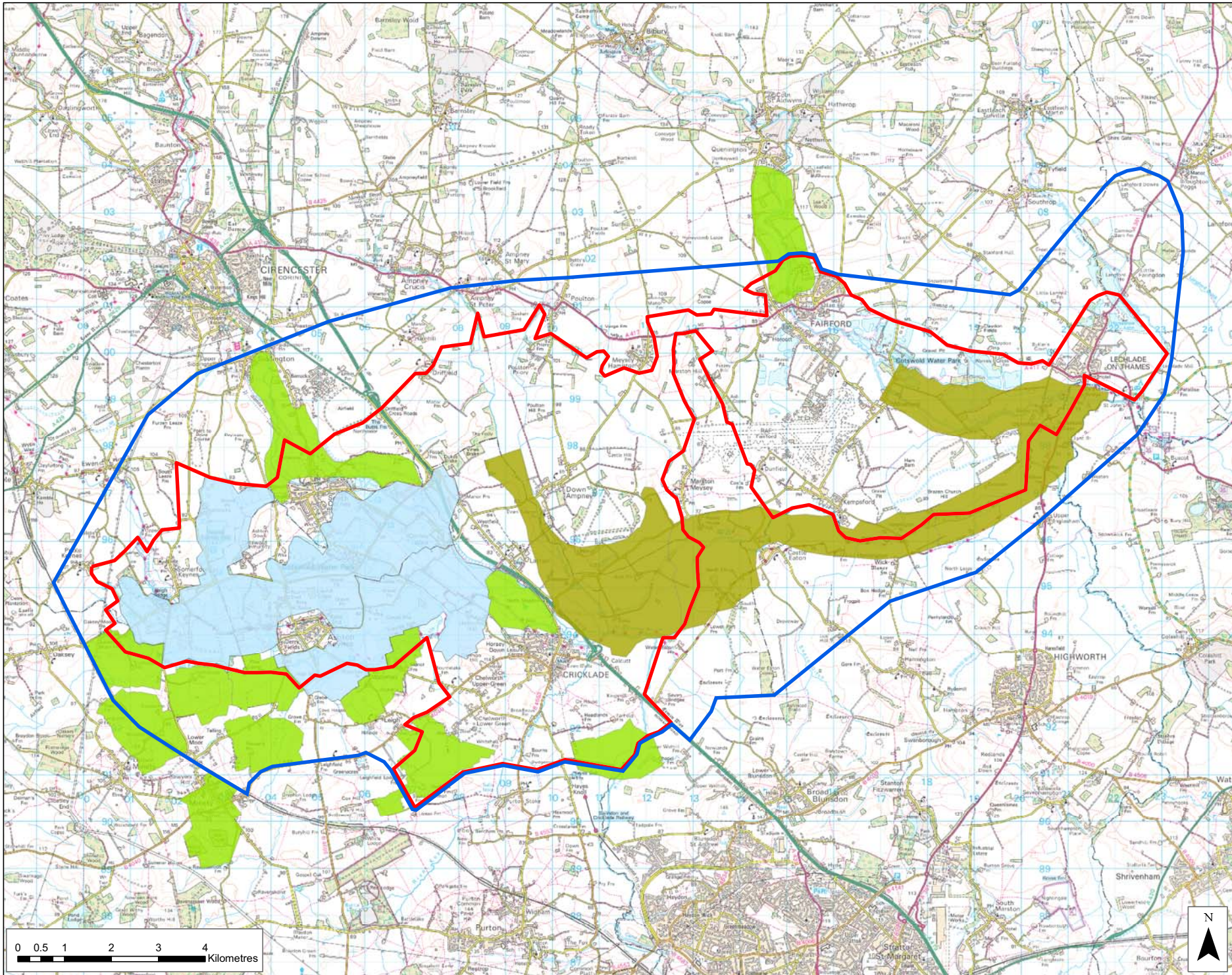
- 3.33 A key concern in relation to biodiversity has been the lack of consideration given to species protection/conservation and habitat promotion both during and post extraction activities. In particular, there has been little stipulation or guidance as to the most appropriate principles for restoring quarries to maximise their biodiversity potential, thus resulting in missed opportunities in relation to habitat creation and promoting species development.
- 3.34 A key priority of the 1997-2007 Biodiversity Action Plan has been to seek better engagement with mineral companies and quarry managers to promote wildlife-friendly management. There has been evidence of some success, with support being given for breeding species such as the Little Ringed Plover, Sand Martin, Lapwing, Reed Bunting, Water Vole and Scarce Blue Tailed Damselfly. However, this success has been largely ad hoc and sporadic, and requires a high level of commitment and co-operation from the key stakeholders to ensure delivery.
- 3.35 Improving the wildlife and biodiversity potential in quarries continues to be a key priority for the CWPS. The latest CWP BAP registers the need for habitat and biodiversity works to be included within the required processes involved during quarrying activity, and throughout any agreed restoration programme. This is to ensure their contribution towards meeting biodiversity targets.
- 3.36 Key to this process is ensuring that operators have a greater understanding of the role that they have in ensuring that quarries continually provide a habitat for species, be it prior to, during or immediately after quarrying. It is recognised that the activities of extraction continually change, and with it greater risks are experienced by local wildlife. However, ecosystems themselves are in a constant state of flux, and thus there is scope to ensure that certain activities integral to the extraction are not undertaken at inappropriate times. This concept forms an integral part of the CWP BAP Habitat Action Plans for Sand and Gravel Quarries.

The Management of Standing Open Waters

- 3.37 With extraction activities likely to continue for the foreseeable future, the potential for further standing open water to be created is considerable. However, the BAP identifies a number of principle factors that affect standing open waters that need to be taken into consideration in relation to the existing and future biodiversity of these habitats. These include:
- eutrophication;
 - pollution from litter, organic matter and salt;
 - lowering water levels;
 - urbanisation and filling in of ponds;
 - poor management of multiple use water bodies;
 - changes in surrounding land-use that may remove adjacent habitat;
 - the rate of economic growth, as this affects the demand for aggregates; and

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- Coastal and Floodplain Grazing Marsh
 - Neutral Grassland
 - Standing Open Water
- Boundary**
- Designated Site Boundary
 - Functional Site Boundary



Source: SOUTH WEST NATURE

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Revision Details	By	Date	Staff

DRAFT

Job Title: COTSWOLD WATER PARK

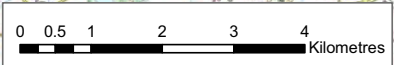
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Scale at A3: 1:75,000

Drawn: JM Approved:

Stage 1 check: Stage 2 check: Originated: Date:

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Drawing Number: **FIGURE 5**

- recreational disturbances.
- 3.38 Ultimately, the BAP stipulates that the value of the standing open water and its associated habitats underpins the essence of the CWP. Therefore, resolving these issues are integral to the aims and objectives of the BAP if its overall vision is to be realised.
- 3.39 It is envisaged that many of the issues could be suitably addressed through the restoration process, and the stipulation of specific wildlife after-uses to certain lakes. However, because of the lack of guidance for best practice that aggregate companies are required to follow, this level of management consideration has not been forthcoming across the board.

Zoning for Biodiversity Action



- 3.40 The more strategic zoning of activities for lakes is being promoted by the BAP based on development pressures and other considerations such as flood risk, the RAF Fairford Bird Strike Zone (see below), and the commercial/farming development pressures. The BAP suggests that the most appropriate zone for nature conservation and biodiversity promotion would be the quieter and more rural locations, and those in close proximity to the floodplain of rivers.
- 3.41 When combined with appropriate macro and micro landscaping, it should be possible to ensure that such standing open waters are developed at the outset for biodiversity management that would incorporate other activities, but whose conservation aims would ultimately take precedence.

RAF Bird Strike Zone



- 3.42 A significant issue facing the growth of standing open water and biodiversity is in relation to RAF Fairford and its requirement for a Bird Strike Zone (see Figure 6).
- 3.43 Within this Zone, which covers the whole of the CWP area, the RAF is a statutory consultee on any developments that could result in the promotion of bird species and that could subsequently interfere with its operations. It is well recognised that the lakes themselves have an important role to play in promoting bird species within the CWP, with the Bittern, Tufted Duck, Pochard, Gadwall and Reed Bunting all favouring wetland areas and wet vegetation. However, a key concern is that the gathering of large concentrations of such bird species could interfere with flights in and out of the base.
- 3.44 As a rule of thumb, it is generally considered that lakes within the immediate surrounds of the base present the greatest risk and thus lake development, and especially those that could potentially attract wildlife, appear to have been resisted to date. The areas of the CWP beyond the immediate surrounds are considered to be less contentious, and thus biodiversity activity designed to encourage bird life within lakes is potentially more acceptable, albeit still subject to consultation with the RAF.

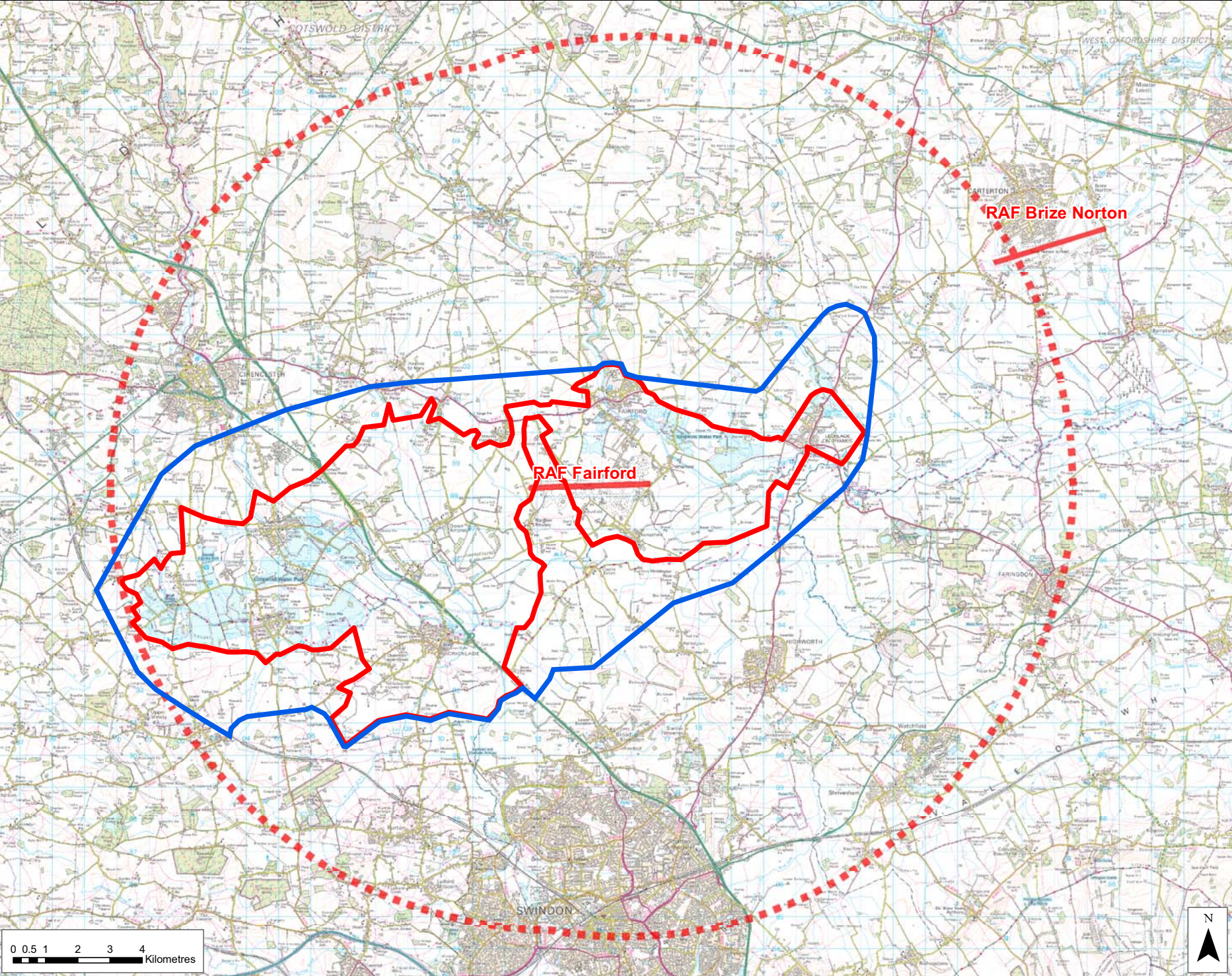
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Airfield Safeguarding

-  Location of Airports
-  13KM consultation zone based on RAF Fairford

Boundary

-  Designated Site Boundary
-  Functional Site Boundary



Source: DEFENCE ESTATES

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Revision Details	By	Date	Suffix
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DRAFT

Job Title
COTSWOLD WATER PARK

Drawing Title
BIRD STRIKE ZONE

Scale at A3: 1:109,070

Drawn: **JM** Approved:

Stage 1 check: Stage 2 check: Originated: Date:

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Drawing Number: **FIGURE 6**

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Tourism, Leisure & Recreation

3.45 Throughout its history, the CWP has been heralded as a resource that could have tremendous tourism, leisure, recreation and sport potential. As stated in section 2, this sentiment is echoed in the following statement that can be found in the latest CWP strategy:

“The CWP is and will continue to be a premier site for nature conservation, sports, recreation, leisure and tourism.....”

3.46 However, until recently this potential has largely been unrealised.

Assets and Attractors

3.47 The CWP stands at the foot of the Cotswold Area of Outstanding Natural Beauty (AONB), recognised as one of the most attractive countryside destinations in the UK and attractor of an estimated 38 million day visitors per annum. The proximity of the CWP to the Cotswolds is reflected in the towns and villages of Lechlade, Fairford, South Cerney and Ashton Keynes, whose architecture uses the Cotswold stone reminiscent of the flagship settlements of Stow-on-the-Wold and Chipping Campden in the AONB itself.

3.48 However, it is the mineral extraction workings and resulting lakes rather than the associations with the Cotswold AONB that has driven the potential of the area for tourism, recreation and leisure, particularly in more recent times.

3.49 The primary asset of the CWP for visitors is Keynes Country Park close to Aston Keynes, whose lakeside beach, children’s play area, and opportunities for members of the public to participate in water sports and cycling activities, attracts an estimated 200,000 visitors per annum. This is supplemented by Neigh Bridge Country Park and the Gateway Centre as facilities operated and managed by the CWPS for use by visitors. The popularity of the Country Park is such that during good weather, the site reaches its capacity with ease. The problem is that it is a highly weather dependent facility.

3.50 Other attractors for the area, and attractions within the area, include:

- the Royal International Air Tattoo at RAF Fairford, with the event held over two days in Mid-July, established as the premier air display in the country;
- the wildlife sites and reserves of North Meadow Nature Reserve, Clattinger Farm, Swillbrook Lakes, Whelford Pools, for example;
- the lakes that are available to the general public for water sports such as ski-ing, sailing, jet ski-ing, and fishing for example.
- Head-4-Heights, a private company specialising in aerial adventure situated at Keynes Country Park; and
- Butts Farm Rare Breeds and Shop, a family run attraction centred around the farm’s rare breeding programme of cattle, sheep, pigs, goats, and poultry.

3.51 The Royal Air Tattoo, the fishing provision (with South West Tourism highlighting the CWP as a place to enjoy fishing) and North Meadow (as one of the few sites remaining in the UK where

the Snakes Head fritillary can be witnessed), are arguably the main assets that can drive overnight stays in the area, with the Air Tattoo attracting an estimated 150,000 visitors per annum for example. However, in the case of the Air Tattoo and the North Meadow, the level of visits generated (be it day or overnight stays) are concentrated in very short periods of time during specific times of the year. Outside of these and fishing, there are few existing or developed assets at present within the CWP that could be utilised for promoting tourism within the area, especially all year round tourism.

- 3.52 The CWP also has an extensive network of footpaths, together with a limited number of bridle paths and the former canal path. Although these are not fully linked together in a co-ordinated system, improvements are underway with the work of Sustrans on a national cycle scheme coming through the area; the designation of the Thames Path as a National Trail; the current provision of the cyclepath along the Spine Road; the provision of cyclehire services; and the eventual restoration of the Thames and Severn Canal; all indicate the full potential of the CWP as a destination for countryside recreation opportunities.

Accommodation Provision

Commercial

- 3.53 The existing level of commercial accommodation provided for tourists to the CWP is relatively limited, reflecting the current low level of attraction provision within the CWP itself that could act as an attractor to overnight visits.
- 3.54 There are just 23 establishments providing serviced accommodation, such as hotels and B&Bs, within the CWP providing 318 bedspaces, and two holiday park businesses with Hoburne Holiday Park providing the majority of the capacity (355 static caravans; 41 self-catering chalets; 189 touring pitches).
- 3.55 Existing provision has, however, been bolstered through new self-catering accommodation provision that has emanated from the development of second home properties around the lakes, with the Lower Mill Estate and Watermark being two of the larger sites (see below). A significant proportion of owners of the second home properties are exploiting the holiday let market to provide an income from their investment. Altogether, it is estimated that 152 units (including the 41 self-catering chalets within the Hoburne complex) are available as rental properties for holidaymakers.

Private Accommodation Provision

- 3.56 The provision of second homes has been one of the most significant developments in the CWP in recent years.
- 3.57 Second homes are generally classified as a means of attracting 'visitors' into any given area, though the inclusion of second home 'visitors' is highly debated from a tourism perspective as the character, behaviour and value of owners is considered sufficiently different to warrant consideration in their own right.

- 3.58 The two main developments of the Watermark and Lower Mill Estate are defined as purpose built second home complexes set within attractive, secluded and exclusive environments. Altogether, these two complexes alone provide 471 properties.

Developing Capacity

- 3.59 A significant feature of the CWP in relation to tourism is the imminent growth of commercial accommodation capacity, particularly in the serviced sector.
- 3.60 The largest existing development is the Four Pillars Hotel scheduled to open in August 2007. In this one development alone, the provision of serviced bedspaces in the CWP will more than double the existing level to over 800. Although it is likely that the hotel will be predominantly geared towards the business market, leisure visitors will no doubt form a key part of the business plan in order to fill spare capacity at weekends in particular. This premise is evident in the inclusion of spa and leisure facilities within the complex, and the fact that part of the accommodation provision itself has been defined as fractural ownership, namely individuals investing in particular rooms with access for their own use for certain periods.
- 3.61 This development appears to be spurring further interest in hotel investment within the CWP. For instance, outline planning permission has been granted for a further hotel (66-bedroom) to be sited opposite the Four Pillars site; a 120-bedroom hotel and 160 holiday cabins are being proposed within the Claydon Pike site, which is set to become a multi-use Country Park; whilst a further hotel was incorporated within a large scale holiday complex covering lakes 103, 103a and 104 located to the west of Lechlade, however planning permission was recently refused.
- 3.62 Further proposals have also been identified for second home and holiday home complexes. According to the existing planning consents, a further 700 properties are in line to be developed in the near future. Again, it is likely that a proportion of these properties will be utilised by their owners as holiday lets as a means of securing a return on their investment.
- 3.63 Overall, this indicates that there is a clear commercial interest for accommodation growth within both the serviced and self-catering sectors in the CWP.

Future Scope

- 3.64 It is evident from the planned and proposed accommodation developments that the capacity of the CWP to cater for visitors is set to become much stronger than at present, and especially in the more up-market sector. Although a significant proportion of the hotel sector will be targeting business tourism based upon the proximity and accessibility of this attractive countryside/waterside setting so close to Swindon, the proposed growth in self-catering premises will require a strong leisure-based product and recreational activities if it is to be successful. This in turn should also benefit the day visitor market by presenting a much greater critical mass of things to do and see that will appeal to a broader audience base.
- 3.65 Therefore, in realising the potential of the CWP for tourism, recreation and leisure purposes, it will be important to understand the position of the CWP and the dynamics of the key visitor markets.
- 3.66 Tourism is an ever-evolving industry. Improved personal wealth, pressures on the work-life balance, increased mobility and sophistication in relation to packaging of products are shifting

consumer aspirations. Two significant trends need to be recognised, firstly that tourism trips in the UK are now predominantly short breaks, and secondly that these breaks are increasingly being geared towards specific experiences.

- 3.67 With the number of lakes and extent of open water forecast to increase considerably beyond that which already exists, there is certainly scope for the CWP to be developed further for tourism purposes utilising distinctive experiences based on its water setting.
- 3.68 Water has a strong appeal for visitors, especially in countryside settings, and the CWP is no exception. The audit denotes that the assets of the CWP are readily conducive to several visitor themes. These include:
- nature experiences, especially if it can be focussed on the increasing importance of the CWP in terms of wildlife and biodiversity;
 - activities breaks, drawing upon the increasing capacity of the open water available for sports and water sports; and
 - rest, recuperation and relaxation, a theme that tends to have a good synergy with water resources.
- 3.69 The existing provision of leisure and recreation amenities (walking, cycling, horse-riding, golf) should be also be incorporated to ensure that the destination has a sufficient mass of things to do and see so that effective packages can be established. Again, this will need to be based around, and give access to, attractive waterscapes.
- 3.70 It is anticipated that existing amenities will continue to appeal to a day visitor audience, particularly amongst the family market through the Keynes Country Park. However, with growing awareness could come greater demand and the need for additional facilities and attractions, or at least an expansion of existing capacity, will be paramount. The quality and value for money of the supporting amenities will also need to be considered to ensure that they match the expectations of the market, whilst also supporting the prosperity of local businesses and the community as whole.

Key Issues & Considerations

- 3.71 The ability of tourism to be developed within the CWP will be dependent upon addressing the key issues that have been identified by the audit.
- 3.72 Significant constraints to the existing visitor product within the CWP include:
- restricted access by general members of the public to many of the sites that contain existing activities;
 - the spatial fragmentation of the primary assets and resources, with Keynes Country Park in particular being some distance off of the A419 as the primary access route, whilst the Gateway Centre directly adjacent to the A419 has limited scope for additional amenities;
 - a lack of signage and linkages between the key assets to present a coherent and recognisable visitor experience;

- capacity issues relating to the primary resources, particularly Keynes Country Park, which can have knock on implications for the local transport and road network;
 - a lack of facilities and amenities that provide access to wildlife and birds within the CWP; and
 - the ability to access walking and cycling routes is constrained by the lack of access points, limited waymarking and, in some instances, inappropriate route designation.
- 3.73 Certain aspects of these issues may conceivably be addressed through commercial enterprise. It is certainly anticipated that further supply-side investment interest in services and amenities will be forthcoming as a result of the market opportunity presented by the increasing commercial accommodation supply. Likewise, it is understood that the RSPB is interested in developing a reserve within the CWP at some point in the near future.
- 3.74 Further developments are also being considered which will influence any future development for tourism and leisure. The proposed Cricklade Country Way neighbouring the CWP is seeking to create a significant leisure resource, and similarly the Cotswold Canal is seeking to be restored with its leisure and recreation potential seen as a key driver of economic return. In addition, the Cleveland lakes (68a & 68b) has been earmarked for some time as a major water sports complex presently focussing on rowing. If developed, this in turn could become a facility for packaging and promoting sports tourism.
- 3.75 The positioning of the CWP in relation to the wider tourism assets also needs to be considered, especially in relation to the Cotswolds AONB which presents both a strength and threat from a strategic perspective. On the one hand, the Cotswolds helps provide the Water Park with an identity in terms of its geographical position, and also in terms of the shared characteristics of certain villages and towns. On the other hand, however, the perceptions of visitors are likely to be guided by their understanding of the proposition and experiences presented by the Cotswolds AONB. It is considered that the proposition of the CWP is actually something quite different.
- 3.76 In fact, because of the continual change and lake creation that is being undertaken, it is possible that the CWP can be quite innovative in its approach to developing its tourism, leisure and recreation potential. It is certainly suggested that options for an all-weather attraction and/or one that could be used as a flagship from which to promote the CWP should be explored.

Sports

- 3.77 As has already been identified, sport as a function of the CWP is an integral part of the overall vision for the CWP and is recognised as a viable after-use of extraction sites.
- 3.78 There is certainly evidence that the lakes of the CWP have been developed with sports in mind, with sailing, motorised water sports and fishing the predominant activities. Altogether, for instance:
- 70 lakes have been identified as being open to fishing;

- sailing is available on lake 9 (Cotswold Sailing Club), 16 (South Cerney Sailing Club), 26 (Whitefriars Sailing Club), 150 (Bowmoors Sailing Club) and 37 (Keynes Country Park);
 - a multi-activity centre is also available within the CWP, Waterland Outdoor Pursuits, which contains both land and water-based activities;
 - both the Waterland Outdoor Pursuits and the South Cerney Sailing Club are RYA registered centres offering associated sailing and other water sports courses.
- 3.79 However, a key issue to realising the potential of the lakes for sporting pursuits lies in the fact that many facilities are only accessible to members. This restricts the potential for attracting new visitors as part of a sports tourism package, for example, or on a pay-and-play basis.

Future Scope

- 3.80 Sports, and the potential health and well-being benefits of sport, are now firmly entrenched within Government Policy.
- 3.81 It is generally accepted that the strategic focus for sports development has tended to concentrate on provision within the main population centres. However, the success of London to secure the Olympics in 2012 has highlighted the need to look at the provision of sporting facilities for a wider array of sporting disciplines, and especially those requiring larger spaces and/or water resources. It is in this context that the CWP is considered to have its greatest potential.
- 3.82 The prospect of developing an international standard 2,000 metre rowing course on Cleveland lake just to the north of Cricklade has been under investigation for at least 15 years, and there is still the ambition to secure a joint venture with private sector investors/developers. It is understood that a significant barrier to this development surrounds the full length of the site which is only just beyond the 2,000 metres required, which in turn inhibits the ability of craft to be able turn at the end of the race or training session. However, if this, or other facilities like it, can be developed, it would certainly raise the profile and value of the CWP as a resource. It would also match the requirements of both national and regional investment in accessible sporting facilities to develop and train athletes from grass roots level.
- 3.83 In return, such facilities would present an opportunity for the CWP to benefit from sports tourism through providing training and development camps for national and international athletes, and through the hosting of competition and events.

Key Issues & Considerations

- 3.84 Although the number of lakes being developed through extraction is considerable, it is not automatic that they will present suitable open water for water sports, particularly those that have specific needs or requirements.
- 3.85 The example above of the lake being proposed for international standard rowing course has demonstrated that the hydrology of the Upper Thames area, mixed with the geology of the gravel deposit can present difficulties in delivering sites that are suitable for water sports. However, it is felt that if any problems can be identified early on in the process of restoration and after-use planning, then it is possible that solutions could be determined.

- 3.86 A further consideration that will need to be addressed if the CWP is to realise its potential as a valuable sports resource is in relation to access for all. There is a lack of facilities that can be used as 'pay-and-play' both in terms of water sports and land sports provision. Other considerations include security of the CWP to ensure the protection of expensive equipment from theft, and general awareness of the facilities that are available as sports resources.

Agriculture

- 3.87 Agriculture continues to be a key land use within the CWP, although the overall land mass given to agriculture is being reduced bit-by-bit by mineral extraction activities.
- 3.88 As with most blocks of countryside, the farmed area within the CWP is both diverse and fragmented. There is a typical mix of owner-occupation plus privately and institutionally owned estates with land farmed both in hand and tenanted. The area, which is not well endowed with high grade land (Class 1 and 2), is home to the normal range of arable and mixed farming regimes plus a few intensive poultry units and fish farm enterprises.
- 3.89 The Co-operative Group (CWS) is a major landowner within the CWP area, and whose business has traditionally been based on dairy produce. However, five dairy farming enterprises ceased operation in 2002/3 due to the reduction in support levels and changing consumer preferences which has reduced demand. The CWS are now concentrating operations on cereals and arable break crops. This has resulted in considerable reductions in staff resource requirements, which has had a subsequent effect on the local economy of Down Ampney. It is recognised that this trend is not isolated to the CWP, but rather reflects the changing dynamics of the farming sector and the resourcefulness of landowners to adjust their supply to match demands to ensure financial stability. However, the implications for the economy and community of such shifts in operation can be significant.

Future Scope

- 3.90 The future prosperity and scope of the agricultural sector is dependent upon a number of factors at a national, regional, and local perspective. These are explained in more detail within the Technical Paper, the most prominent of which are the changes to the Common Agricultural Policy (CAP). The Government's response to the changes in CAP have resulted in a new policy 'instrument', the England Rural Development Programme (ERDP). This programme consists of two types of scheme:
- Schemes to conserve and improve the rural environment (Land-based Schemes); and
 - Schemes to help farming, forestry and other rural businesses and communities to adapt to changing circumstances and to develop (Project-based schemes).
- 3.91 Of particular interest to the future scope of agriculture within the CWP, and the contribution agriculture could make to the overall vision of the area, is in relation to the Land-based Schemes. The key components of these schemes include:
- Environmental Stewardship which is designed to conserve and promote biodiversity within the countryside, thereby securing wildlife benefits within agricultural land;

- Energy Crops Scheme, which provides establishment grants for two energy crops, short rotation coppice and miscanthus; and
 - The English Woodland Grant Scheme, managed by the Forestry Commission to promote woodland planning, assessment, regeneration, improvement, management and creation.
- 3.92 Overall, the implications of the various influences and factors point to the prospect of a rural economy in which pressures to sustain financial viability are likely to increase, suggesting that farmers will look to diversify their operations. This diversification could see the introduction of new crops, such as green energy crops, and in non-farming activities including property development, storage, and tourism for example. However, tourism is not considered a financial panacea as not all landowners and farmers will be motivated by a desire to manage service orientated people enterprises.
- 3.93 The development of niche markets, products and specialist systems (e.g. organic farming; direct from farm delivery systems) is likely to be restricted to those opportunities which yield a realistic premium, but it could go hand-in-hand with interest shown by farmers to improve the price they receive on produce through more direct selling – e.g. on-farm, in farm shops, and farmers markets.

Key Issues & Considerations

- 3.94 Although agriculture is a significant economic activity within the CWP, it is accepted that the continued mineral extraction will diminish the value of this activity over the forthcoming years. This is because it is generally considered to be unviable to return the land to its pre-extraction use due to the considerable inert infill material required. Therefore, it is anticipated that further significant swathes of agricultural land and practices will be lost due to extraction activity.
- 3.95 However, this does not mean that the agricultural sector does not have a significant role to play in both the existing and future fabric of the CWP area. Firstly, agricultural land will remain, as not all land will be suitable for extraction; secondly, extraction could possibly continue up to another 50 years (though a period of 20 years tends to be discussed more) and thus there will be a considerable time lag before agricultural land is lost in many cases; and thirdly, in many instances the agricultural land owners will retain ownership of the land once extraction activities have ceased, and thus will be key stakeholders in terms of planning suitable after-uses.
- 3.96 To exemplify this latter point, the CWS as one of the predominant landowners is currently seeking to understand the opportunity that will result from its land being extracted for minerals. This is to be based on suitable after-uses to ensure that the land will continue to have an economic value for the benefit of the CWS, the local community of Down Ampney and the surrounding area.
- 3.97 Overall, it is recognised that the agricultural sector will have an important role to play in the continued development of the CWP, and in realising any specific vision related to sustainable communities, sustainable tourism, and CWP identity creation.

4 Integrated Issues

Hydrology





Additional Pressure on Shallow Groundwaters

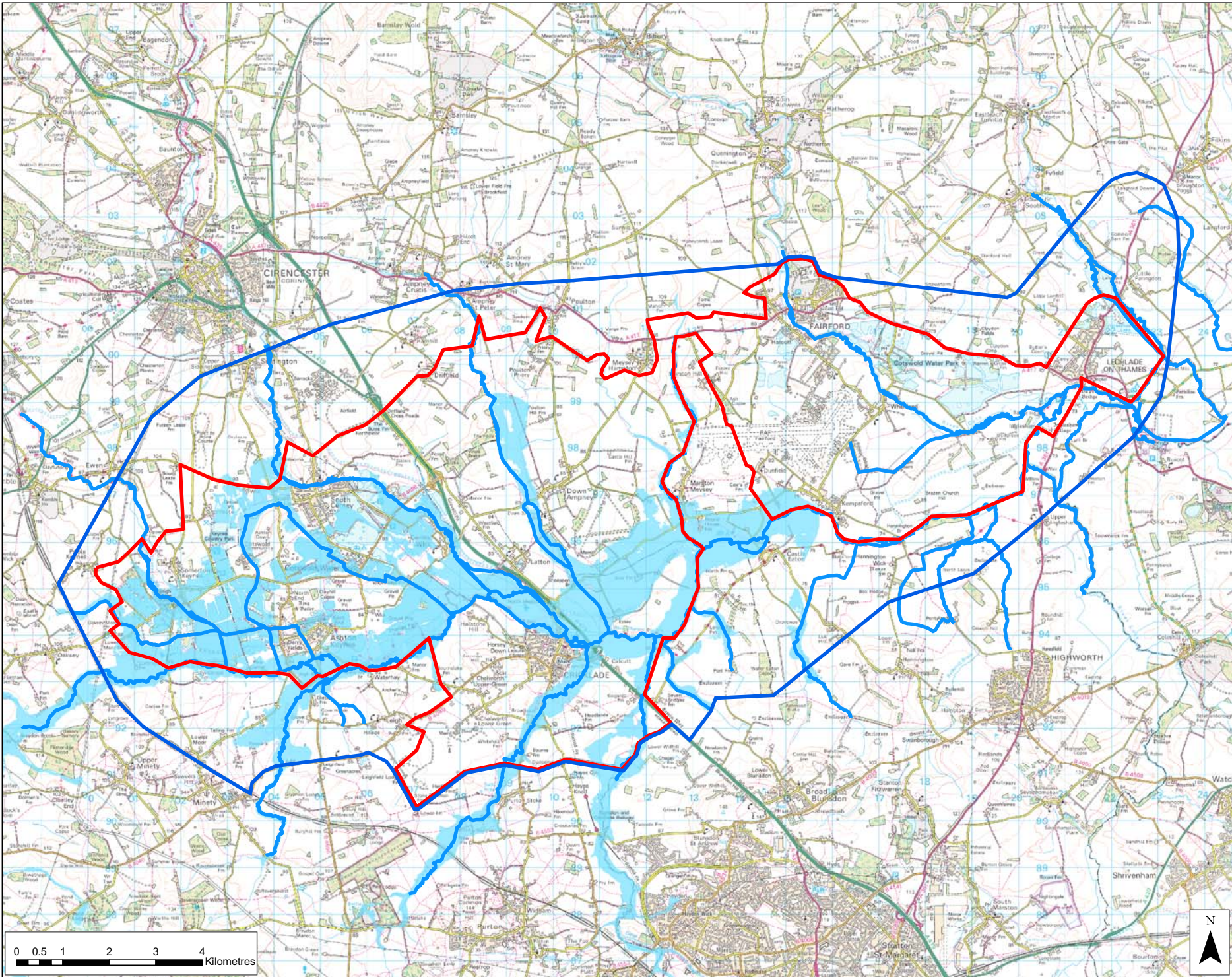
- 4.1 It is widely understood that the formation of the lakes within the CWP is a consequence of the extraction areas being allowed to fill with water from the surrounding shallow groundwaters.
- 4.2 A key issue that faces the continual growth of lakes within the CWP is the additional pressure this will place on the natural hydrological processes. The extraction of porous rocks from the local geology means that there is less material to absorb rainfall in periods of heavy downpour. Furthermore, the volume of water required to fill the lakes is considerably higher than the mass of water that would have been contained within the rocks prior to extraction.
- 4.3 Added to this is the evaporation of surface water. Evaporation rates from open water is generally higher than the evaporation rate from vegetated surfaces. This means that evaporation losses from lakes during summer months with little replenishing precipitation can reduce the level of water within the lakes themselves.
- 4.4 Altogether, these factors mean that there is a greater loss of water from shallow groundwater supply than would be expected from natural hydrological processes alone due to extraction activities. Furthermore, as mineral extraction works continue, there is a very real risk that the creation of more lakes will cause further drain on an area that already, from time to time, experiences low water flow through its rivers and tributaries.
- 4.5 This in turn could have consequences for other aspects of the CWP area that have an interdependence on the hydrological system. The River Thames and River Churn are two obvious examples, but there could be further implications for associated wetland habitats and ecosystems. There is certainly a significant question as to whether this situation is sustainable should current changes in climate conditions persist.

Flood Risk

- 4.6 As Figure 7 demonstrates, vast areas adjacent to the main rivers and tributaries within the CWP are defined as flood risk areas.
- 4.7 Any development being considered within these areas will be subject to a Flood Risk Assessment (FRA) as a mandatory requirement if it includes residential development above 10 dwellings or 0.5ha in size; non-residential dwellings where the new floor space exceeds 1,000m²; the site area is 1ha or more; or if it falls within flood zone categories 2 or 3.
- 4.8 The flood risk areas are a significant consideration in relation to any future developments within the CWP. It is unlikely that any major construction works will be permitted within this zone. However, the zone would lend itself readily to increased biodiversity and help meet conservation targets. This premise is already being explored by the Cotswold Water Park Society through the latest Biodiversity Action Plan (BAP).

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-  Rivers
-  Flood Zones
- Boundary**
-  Designated Site Boundary
-  Functional Site Boundary



Source ENVIRONMENT AGENCY

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Drawing Number **FIGURE 7**

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- 4.9 The use of lakes as a flood alleviation mechanism should undertake due consideration to ensure that detrimental changes in ecologically sensitive areas (such as SSSI's and SAC areas) do not occur. Furthermore, there is a potential risk of the over-topping of lakes which could cause the infiltration of non-riverine species such as carp to be washed into the river system.

Restoration

- 4.10 The proposed restoration scheme for any mineral extraction site will depend on the hydrology of the site.
- 4.11 The hydrological mechanisms, when manipulated through strategic infilling and plantation, can help to present ecosystems more conducive to the desired biodiversity, or lakes that could have a much more defined scope for specific water sports. However a comprehensive understanding of these mechanisms is required, especially taking into consideration surface water evaporation losses which are anticipated to increase in the face of hotter and drier summers that are predicted as a result of global warming.

Heritage

- 4.12 Due to the abundance of archaeology in the area, it is highly likely that further archaeological deposits could be found in the CWP. This includes remains that could be considered of national or regional importance.
- 4.13 The CWP already contains 19 Scheduled Ancient Monuments. A key issue is that the considerable development of the area has meant interpretation of settlements and past landscapes is becoming increasingly difficult, especially for lay visitors seeking heritage discovery opportunities.
- 4.14 A further problem is that gravel extraction has destroyed, or at least impaired access to, sites that may have otherwise been of archaeological interest. This means that presenting the heritage of the CWP is highly constrained at present.
- 4.15 However, there is scope to utilise the heritage of the area to much greater effect through better interpretation. The principle techniques explored by Oxford Archaeology in its report include presenting access to live excavation sites; providing interpretation boards and trails; education services for academics, local interest groups and visitors alike; and potentially even a visitor centre.

Landscape

- 4.16 The continuing exploitation of sand and gravel has, and will continue to dramatically change the the historic landform of this part of the Upper Thames Valley. A key issue that has yet to be resolved is how these changes can be planned better to create a more coherent and continuous landscape.
- 4.17 To date this level of forward planning has not been highly prevalent, with advice only being sought or offered to aggregate companies on an ad-hoc basis. This has led to a landscape

that a recent Landscape Character Assessment has generally described as fragmented, poorly structured and illegible, especially when compared to its historical character.

- 4.18 Particular issues relating to the creation of boundaries surrounding the extraction sites have created enclosed spaces, even when there is a sequence of lakes and wetlands in close proximity; and the inappropriate planting of flora that has no link to the past, or strategic direction in relation to the future. This occurrence is essentially a consequence of the absence of consistent landscape planning guidance to promote best practice for the aggregate stakeholders.
- 4.19 It is considered that, ideally, the treatment of the landscape should be incorporated within the restoration schemes for the mineral extraction sites. It needs to be determined whether any recommendations should be based on a CWP-wide approach to landscape formation and design, or whether it would be more appropriate to apply design criteria to existing or new zones. However, whichever approach is determined to be more appropriate, the fundamental and overriding consideration should be in following a clear vision for ensuring that the landscape is consistent, recognisable and functional in relation to the overall character of the CWP. The current Upper Thames Heritage Project is progressing a Heritage Lottery Fund application to fund a series of locally generated landscape and conservation projects. It is likely that this will provide the CWP with a lead partner in matters of landscape enhancement around the River Thames. Whether this scope could feasibly be widened to include the whole of the CWP may be an area for further exploration.

Planning

- 4.20 Planning is a fundamental concern of the CWP. This is because the CWP straddles the administrative borders of North Wiltshire and Cotswold District Council, a small section of Swindon Borough Council, and Wiltshire and Gloucestershire County Council. Furthermore, in the future it is possible that the eastern section of the CWP could be extended into the Vale of White Horse District and Oxfordshire County administrative area. Thus, without a consistency of approach, there is the capacity for the planning and policy decisions relating to the CWP to be based on differing ideals and interpretations for the future of the area. It is arguable that this has already been witnessed to a certain degree.
- 4.21 An extensive review has been completed with regard to the planning policy and planning policy interpretation between the different planning authorities. The fundamental findings can be summarised as follows:
- The Cotswold DC area of the CWP has received by far the predominant share of development proposals when compared to North Wiltshire.
 - Development has largely been focussed on second homes and holiday homes, with the Lower Mills Estate being the original and subsequent catalyst for this type of development. A further 700 properties that have been granted planning permission have yet to be built.
 - A significant volume of serviced accommodation proposals have been forthcoming in recent times, again in the Cotswold DC area. This is on the back of the imminent opening of the Four Pillars Hotel.

- North Wiltshire has adopted more stringent planning policies in relation to the CWP, particularly in terms of 'hard' development. This stance has resulted in a low level of proposals being received, and a tendency towards refusal for any that are submitted.
 - The preference for North Wiltshire's Local Plan has been to explore and exploit its outdoor water-based activities and enjoyment of the countryside.
- 4.22 The differing approaches and the effect that this has had on the development of the CWP can be exemplified in relation to two hotel developments that were proposed in relatively close proximity to one another. In October 2005, a hotel development on a former mineral extraction site adjacent to the A419/Spine Road junction, was refused by North Wiltshire on the grounds that the proposal did not directly relate to the use of the site for outdoor recreation based on water activities or the enjoyment of the countryside. It was also felt that there was insufficient information regarding the effect on nature conservation and archaeology. Nevertheless, just 200-300 metres to the south west of the site, Cotswold District Council gave planning permission for the large-scale Four Pillars hotel that is due to open soon.
- 4.23 Although it has been suggested that the site of the Four Pillars Hotel had been identified for such a development in the past, the actual treatment of the cases is indicative of the approaches adopted. On the one hand, there is the more restrictive approach taken by North Wiltshire DC that has resulted in very little hard development; on the other there is the greater acceptance of Cotswold DC towards considering the hard development of lakes for tourism, recreation and sport purposes. It is not the purpose of this analysis to suggest which policy ethos has been of greater effect; in fact both have had their benefits and dis-benefits in relation to realising the potential of the CWP. Rather, a key conclusion is that the differing opinions and policies among the administrative authorities presents a significant barrier to realising the future potential of the CWP, and in particular has hindered the ability to present the CWP as a coherent and recognisable destination from which visitors and locals alike can benefit.
- 4.24 With development pressures on the CWP increasing, it is becoming ever more obvious that there is a necessity for a more consistent and co-ordinated approach to planning. There are several examples whereby a more homogenous approach (either through shared aims, objectives or policies, or better still through an Area Action Plan) can be subscribed to areas of local or regional significance that transcend differing administrative boundaries. Case studies relating to the Norfolk Broads and Lee Valley Regional Park can be found within the main CWP Planning Technical Report. Adopting such an approach for the CWP is certainly advised if the full potential of the area as a local, regional, and potentially national resource is to be realised.

5 Final Overview

- 5.1 The summary of the Stage One Technical Reports has noted several key and interrelated issues concerning the future development of the Cotswold Water Park. It is undisputed that the development potential of the CWP is considerable. 147 lakes have already been created, yet with the extent of the mineral resources representing upwards of a further 20 years worth of extraction activity, it is likely that this number could more than double.
- 5.2 This development is likely to bring with it significant opportunities on the one hand, and significant risks on the other.
- 5.3 In terms of opportunities the extraction will bring with it great potential to develop sport, leisure, recreation and tourism activities within the CWP. Of key importance will be the growth of lakes for pay-and-play sporting activities; the integration of recreation routes and leisure amenities within CWP; and presenting opportunities for discovering the natural and heritage assets that are recognised as being inherent within the CWP as a result of past, present and future development. This in turn will interact with, and potentially act as a key driver for overnight-tourism visits staying within the growing serviced and self-catering accommodation provision; those who purchase second homes within the area; and those that are within the local catchment of the CWP for the purpose of leisure day visits.
- 5.4 These visits could also be used as a catalyst for diversifying the activities of traditional farming, particularly in terms of increasing sales and income potential through direct activity (people-based enterprises via accommodation or attraction offerings; or through direct produce sales, organics and farm shops). In addition, farming could be encouraged to explore new forms of production that could better fit within any vision for the CWP, especially based on growing concerns of sustainability, and the delivery of sustainable communities and businesses. With interest growing in eco-tourism and sustainable tourism initiatives, this too would also have a strategic fit with the overall aspirations for the CWP to be utilised as a sports, recreation and leisure resource, but one with a considerably lower carbon footprint.
- 5.5 However, it is also envisaged that the growth of the CWP presents the following risks:
- The extraction and subsequent infilling of lakes with water is a man-induced force that, when married to recent climatic changes (i.e. drier summers and wetter winters), will place greater pressure on the hydrological system of the CWP.
 - The differing approaches by Gloucestershire and Wiltshire & Swindon MLPs in relation to defining preferred extraction sites and areas of search could inhibit the creation of a coherent visitor resource, and certainly a resource that could be considered more sustainable by the key stakeholders (visitors, industry, community, environment).
 - The lack of stipulation and guidance towards lake restoration will restrict the potential of any lakes to be specifically designed for a suited purpose.
 - Likewise, the lack of guidance on landscape formation will continue to lead to a disjointed and incoherent landscape for the area, a key criticism of the recent Landscape Character Assessment.

- The differing approaches to planning procedure and policy interpretation for the CWP will continue to result in spatially disproportionate development between North Wiltshire and Cotswold DC without any real justification or rationale from the perspective of the developer.
 - The opportunities to contribute to the biodiversity targets of the CWP BAP may be missed if stipulations concerning the necessary actions of the aggregate companies do not accompany planning or restoration scheme submissions.
- 5.6 Of critical importance to the viability of any future development options for the CWP will be the establishment of a co-ordinated approach to the CWP between the various administrative authorities that have a vested interest in the CWP. This is both in relation to development policies, and also in relation to extraction activity itself. In particular, there is a need for more of a consensus approach in relation to the identification of suitable and more spatially aligned mineral extraction sites between Gloucestershire and Wiltshire & Swindon MLPs. There is also a distinct need to provide common guidance on the types and requirements of lake restoration given to the aggregate companies to advise on the lake design and landscape techniques to be adopted. The lakes themselves should ideally be located within a suitable zone that guides the types of development matched to the character and nature of that specific zone, or a suggested future purpose. Once such a framework is in place, it will then be easier to determine the suitability of development proposals that come forward based on a holistic and rationalised approach.
- 5.7 This type of approach would allow both the aggregate/developer and the planning authority to understand the unique dynamics of the CWP and its key drivers from the outset, which in turn should present better opportunities to exploit the considerable resources presented by the CWP.
- 5.8 Ultimately, this all needs to be directed by a coherent vision and masterplan that clearly identifies the breadth of scope of each of the key drivers within the CWP. This will be explored further during Stage 2 of the investigation.

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