Wiltshire and Swindon Second Local Aggregate Assessment

September 2014

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Minerals LAA 2013

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1 Introduction

Introduction

1.1 Wiltshire Council and Swindon Borough Council ('the Councils') have jointly prepared and adopted a suite of documents that form the Minerals Development Framework. To support this work the Councils have prepared their **2nd Local Aggregate Assessment (LAA)** to cover the years up to and including 2012 in order to monitor and project supply rates, providing evidence to assist the Councils in determining the need for plan review.

1.2 The National Planning Policy Framework (NPPF) requires Minerals Planning Authorities to prepare an annual Local Aggregate Assessment (LAA) which sets out the context for the demand and supply of aggregates within their area and thereby the evidence to support a sustainable approach to long-term provision.

1.3 The NPPF states that “Minerals planning authorities should plan for a steady and adequate supply of aggregates by preparing an annual Local Aggregate Assessment, either individually or jointly by agreement with another or other mineral planning authorities, based on a rolling average of 10 years sales data". The LAA must include:

- a forecast of the demand for aggregates based on the average 10 year sales data and other relevant local information;
- an analysis of all aggregate supply options, as indicated by landbanks, mineral plan allocations and capacity data e.g. marine licences for marine aggregate extraction and the potential throughput from wharves;
- and an assessment of the balance between demand and supply, and the economic and environmental opportunities and constraints that might influence the situation. It should conclude if there is a shortage or surplus of supply and, if the former, how this is being addressed.

1.4 The Government also published further Guidance on the Managed Aggregate Supply System (MASS) in October 2012. It sets out that the LAA should cover an assessment of:

- Recycled aggregate;
- Secondary aggregate;
- Marine aggregate;
- Imported/exported aggregate; and
- Land-won aggregate.

1.5 The Councils' adopted Minerals and Waste Development Framework promotes a continuation of existing supply patterns for the two main primary aggregate resources - soft sand and sharp sand and gravel over the period to 2026. The Councils' first LAA (July 2012) was initially produced to inform the preparation of the Wiltshire and Swindon Aggregate Minerals Site Allocation Local Plan. Therefore this second LAA will provide an up-to-date position and will be consulted on, as per MASS guidance, through the scrutiny of the South West Aggregate Working Parties, relevant neighbouring authorities and industry.

2 Overview of aggregates resources in Wiltshire and Swindon

Geology

2.1 Unlike other forms of development, the location of sites for minerals extraction is essentially dictated by the extent and accessibility of the underlying geology; and market demand for the mineral in that particular location. In this sense the spatial distribution of current minerals development provides a good indication of where future development is likely to occur.

2.2 The geological circumstances of Wiltshire and Swindon are such that the principal mineral types worked today include: - sand, gravel, limestone, sandstone and chalk in varying quantities. Their occurrence is shown on the simplified geological map in Figure 2.1.

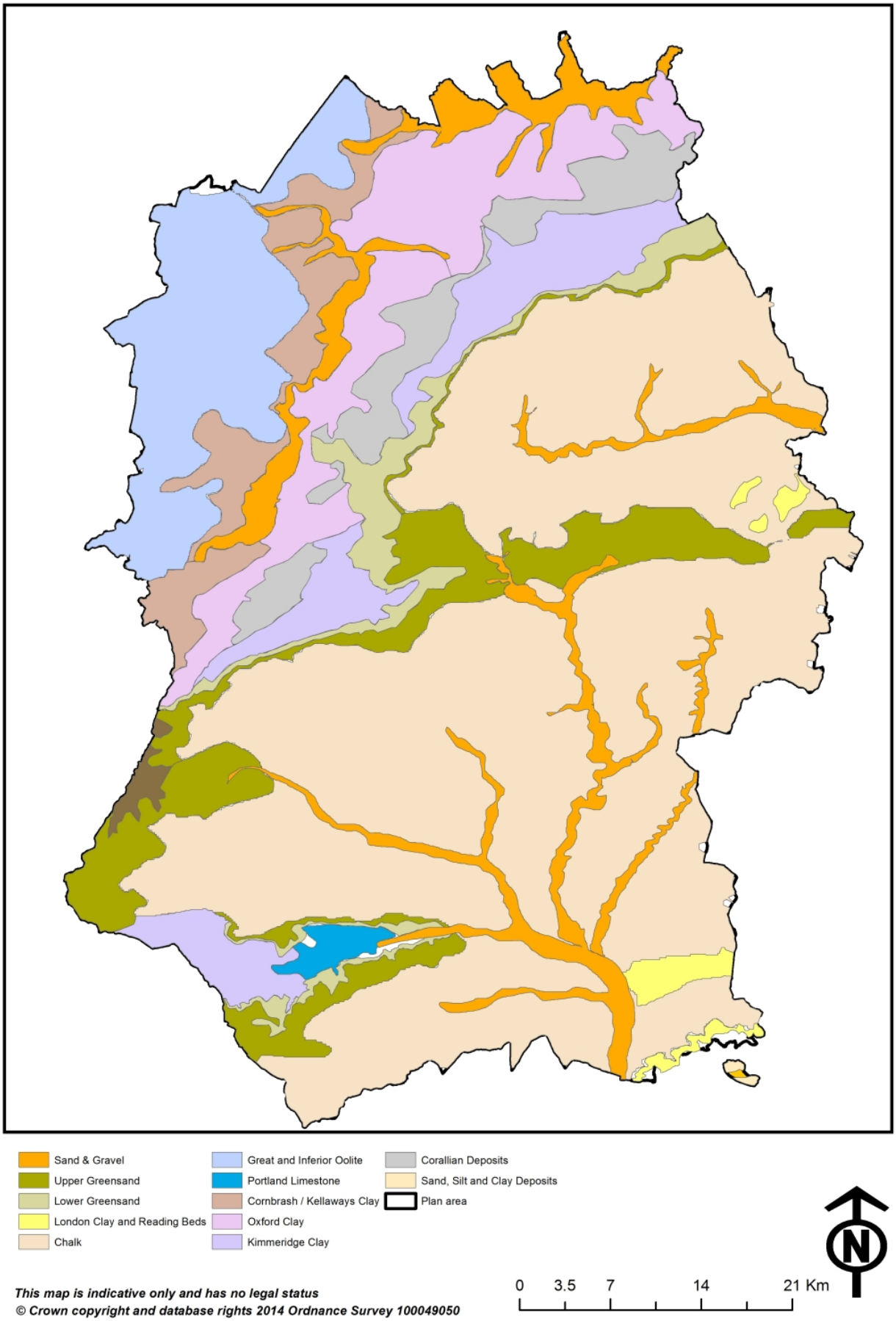
2.3 In terms of age, the geology of Wiltshire and Swindon is relatively young when compared to other parts of the South West. In principle there is a broad progression from younger deposits dating back to the Tertiary and Cretaceous periods in the south east of the County to older deposits of Jurassic age in the north-west. Over this solid geology can be found the more recent alluvium and valley gravel deposits associated with the retreat of last period of glaciation in Britain.

2.4 There have been numerous sand and gravel producing quarries in Wiltshire which, in the past, have tended to be small-scale sites serving local needs for building materials and agricultural conditioners (i.e. chalk). However, in more recent years there has been a shift within the industry towards fewer, larger sites serving wider market areas.

2.5 The Swindon Borough area has seen comparatively little mineral working and, at present, has no permitted mineral extraction sites.

2.6 The bulk of the minerals which are extracted in the Plan area are required for use as aggregates - bulk granular materials such as sand and gravel which are used in the construction industry for purposes such as making of concrete and concrete products, mortar and asphalt, or for fill material or drainage media.

Figure 2.1 Simplified Geological Resource map of Wiltshire and Swindon



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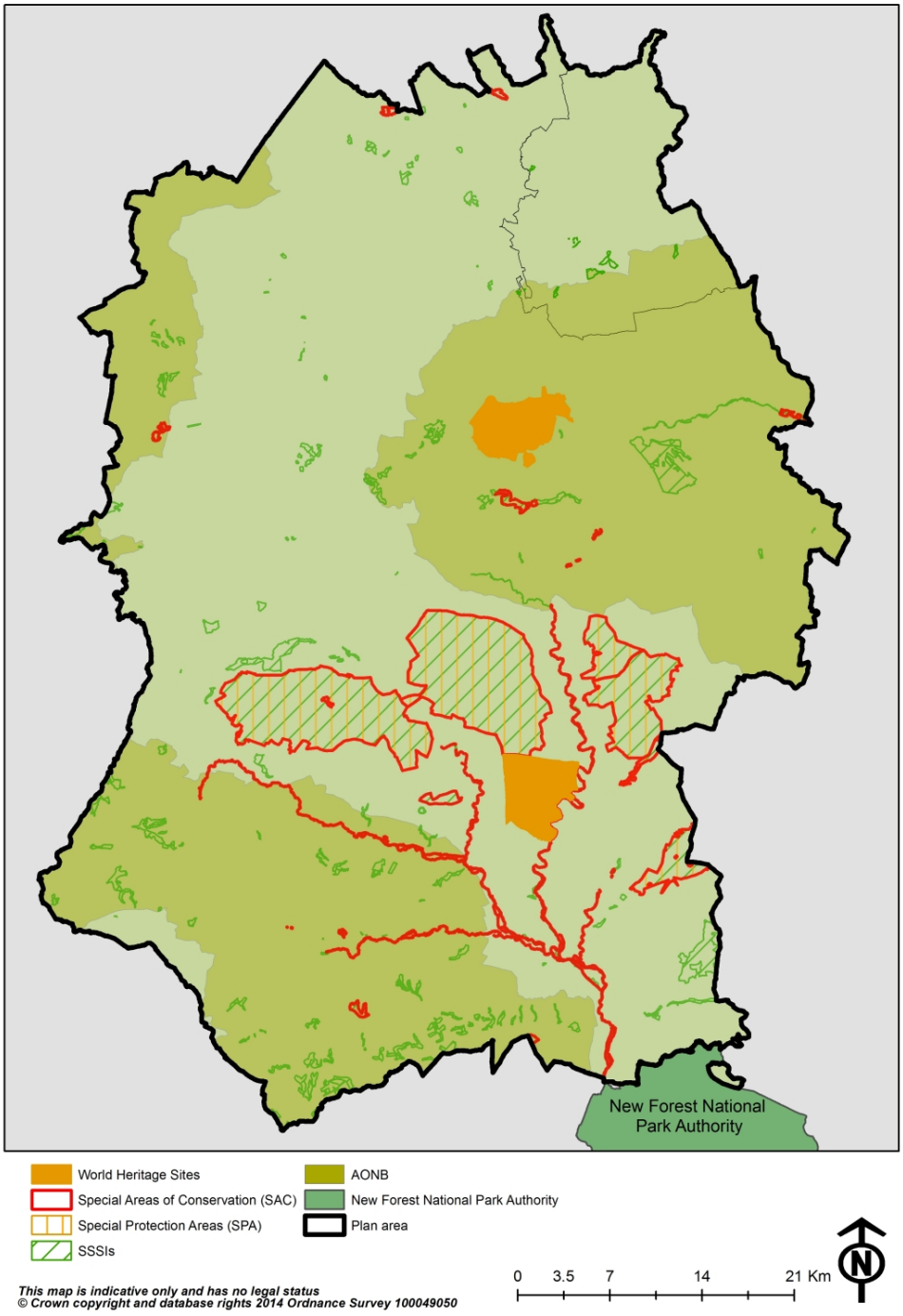
Natural and Historic Environment

2.7 The Plan area is both naturally and historically diverse with over two thirds (68.6%) designated for its international, national and local environmental importance (see Figure 2.2 below). This includes the three Areas of Outstanding Natural Beauty of the Cranborne Chase and West Wiltshire Downs, North Wessex Downs, and Cotswolds, covering 43% of the Plan area; 12 European protected nature conservation sites; over 130 Sites of Special Scientific Interest; and the World Heritage site of Stonehenge and Avebury. Additionally, the New Forest National Park, along the southern boundary of Wiltshire, is of national importance, within which, some areas are of international importance.

Figure 2.2 Plan area natural and historic designations



2.8 The prevalence of mineral workings in rural locations can exacerbate the potential for impacts upon the landscape and the Councils recognise that even development outside of the AONBs and National Park can adversely impinge upon these areas leading to impact upon their natural beauty, character and special qualities.

2.9 The biodiversity value of Wiltshire and Swindon represents a restraint, or more often constraint for minerals development, but the restoration of mineral workings offers the opportunity to make positive contributions to biodiversity and geodiversity conservation. The targets set within local Biodiversity Action Plans (BAPs), along with the South West Nature Map provide a basis for considering the contribution minerals development can make to the biodiversity and geodiversity value of Wiltshire and Swindon.

2.10 North Meadow and Clattinger Farm Special Areas of Conservation (SAC) is of particular relevance to the future supply of sand and gravel as it is located within the vicinity of a concentration of current mineral workings in the Upper Thames Valley. The potential for cross-boundary impacts of minerals development on biodiversity interests, for example upon the River Avon SAC and the New Forest SAC/Special Protection Areas (SPA) /Ramsar must also be robustly considered.

2.11 Minerals development can be significant and unless effectively and robustly controlled, have adverse environmental impacts. The adopted Minerals Development Framework presents policies designed to ensure that applications for minerals development result in sites that are operated and managed to high standards with minimum impacts to local communities and the environment. This is achieved through delivery of the 'Vision and Strategic Objectives' set out in the Minerals Core Strategy and through the provision of more detailed, criteria based policies in the Minerals Development Control Development Plan Document (DPD). The policies concentrate on the impacts that are likely to affect amenity, the environment (noise, dust, vibration, lighting and emissions to air) and water.

Primary aggregates

2.12 There are technical specifications and standards [(1)] for minerals used for aggregates but for the purposes of this report the British Geological Survey (BGS) provides an adequate definition of aggregates as being "*hard, granular, materials which are suitable for use either on their own or with the addition of cement, lime or a bituminous binder in construction.*" [(2)]. The BGS defines primary aggregates as those "*produced from naturally-occurring mineral deposits, extracted specifically for use as aggregate and used for the first time*."

2.13 In the context of Wiltshire and Swindon, the primary aggregates that have been worked in the Plan area generally fall into the following categories:

2.14 **Soft sand** mainly used as an aggregate in the building industry for producing mortars and plasters and in the manufacture of asphalt and macadam. Some high quality soft sands can also be used for industrial purposes such as foundry moulding, glass and paint manufacture. Such industrial sands are typically clean, well graded and of high chemical purity.

2.15 Within the Plan area, soft sand is mainly found in the Lower Greensand deposits along with the Reading Beds, Bagshot Beds and the Corallian deposits. Currently most soft sand produced in the County is extracted from the Lower Greensand east of Calne where two quarries currently operate and a third is at present dormant but nonetheless has the benefit

1 BS EN 12620 – Aggregates for concrete; BS EN 13043 - Aggregates for bituminous mixtures and surface treatments for roads, airfields and other trafficked areas; BS EN 13055 - Lightweight aggregates; BS EN 13139 - Aggregates for mortar; BS EN 13242 - Aggregates for unbound and hydraulically bound materials for use in civil engineering work and road construction; BS EN 13383 – Armourstone; BS EN 13450 - Aggregates for railway ballast

2 Minerals Planning Factsheet: Construction Aggregates, BGS, 2005

of a valid planning permission. The sand deposits are worked dry and the excavated quarry voids are restored to predominantly agricultural use through landfilling with a range of waste materials. The majority of the sand produced is used on site to service a concrete batching plant and a concrete products factory located within the quarries.

2.16 Soft sand is also being worked at Brickworth Quarry near Whiteparish in the south of the County which produces sand from a geological formation known as the London Clay and Reading Beds.

2.17 **Sharp sand and gravel** which is more angular and coarse than soft sand, and is primarily used, together with gravel, as aggregate in the production of concrete, either for use directly in construction or in the manufacture of concrete products such as lintels, pipes, concrete blocks and reconstituted stone products. Other lower quality sharp sand and gravel is used as fill material on construction sites and for road base construction. Sharp sand and gravel with naturally high clay content, known as "Hoggin", is a particularly useful fill material because the clay helps to bind it together when compacted.

2.18 Within the Plan area, sharp sand and gravel occurs almost entirely in the form of terrace deposits laid in Pleistocene times by rivers of melt-water emanating from retreating glaciers and are now found in river valleys such as the Thames, Bristol Avon, Wylye and Salisbury Avon.

2.19 The mineral deposits of the Upper Thames Valley in the Plan area are thought to represent the best resource of sharp sand and gravel in the region in terms of quantity and quality. In general terms, geological mapping and prospecting undertaken by mineral companies indicates that deposits in the Bristol Avon, and parts of the Wylye and Salisbury Avon, are shallower, less extensive, of a poorer quality and are much more fragmented than those in the Upper Thames Valley. There are, however, believed to be viable pockets of sand and gravel in these valleys though their exploitation may be constrained by other factors, notably environmental designations.

2.20 Although much of the sharp sand and gravel deposits within the Plan area have been worked to some extent, currently all of the sharp sand and gravel produced in the Plan area comes from sites located in the Cotswold Water Park / Upper Thames Valley. Areas of high aggregates production, like the Cotswold Water Park, are able to support energy and resource intensive concrete products facilities provided significant reserves are made available through the planning process. One concrete products factory is currently located in the area.

2.21 **Crushed rock** is sourced from sedimentary deposits (limestone, sandstone etc) crushed down to produce aggregates of various grades and qualities. Crushed rock can serve practically all of the end uses outlined for sharp sand and gravel, and other end uses such as road-coating and railway ballast.

2.22 The geological circumstances in Wiltshire have resulted in the winning and working of Jurassic limestone from relatively small-scale quarries in the north west of the Plan area. When compared with the Carboniferous limestone won in Somerset and the former Avon area, Jurassic limestone is much softer and hence has only ever been used as a relatively low-grade construction aggregate.

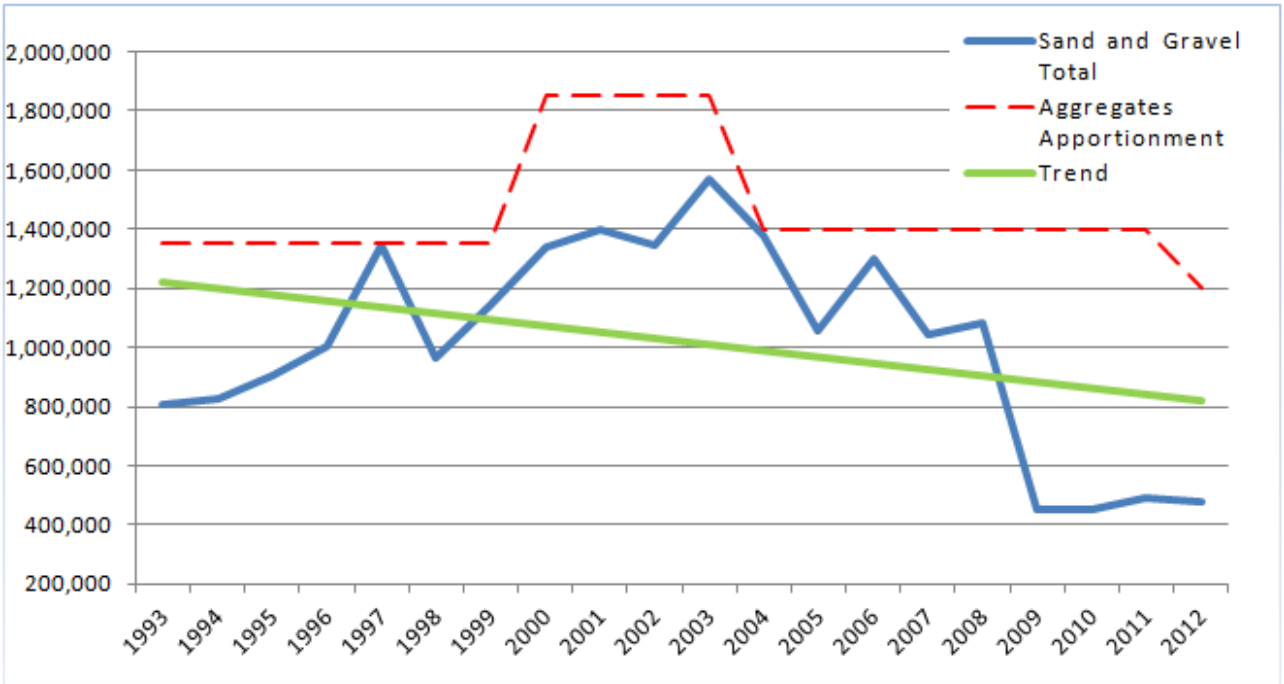
3 Assessment of demand and supply by minerals type

Sand and Gravel

Sales Data

3.1 The production of sharp sand and gravel and soft sand in Wiltshire and Swindon over the past 20 years, from 1993 - 2012, is shown below in Figure 3.1.

Figure 3.1 Wiltshire and Swindon Sales Data 1993-2012



3.2 It can be seen that sales in the past 20 years gradually increased between 1993 and 2003, but have seen a downward trend in recent years. This trend is not entirely unexpected as it reflects prevailing macro-economic conditions and could also be as a result of changing mineral operator strategies and a lack of operator interest in the remaining (more constrained) resource in Wiltshire and Swindon.

3.3 The National Planning Policy Framework (NPPF) requires that authorities produce data on the production of aggregates for the most recent ten year period. Sales of sharp sand and gravel and soft sand produced in Wiltshire and Swindon over the past 10 years (2003 - 2012) are shown in Table 3.1.

3.4 When looking at short-term supply trends over the past 3 years (2010 - 2012), as suggested by the current Guidance on the Managed Aggregate Supply System, and comparing it to the past 10 year data, there is a noticeable difference in production with nearly half the amount of sand and gravel being produced in the past 3 years when compared to the past 10 years. This is a dramatic downturn in production (0.93 mt to 0.47 mt).

Table 3.1 Sand and gravel sales (sharp and soft sand) in Wiltshire and Swindon 2003 - 2012 (million tonnes)

Year	Sales (mt)	Rolling 10 year Average (mt)	Rolling 3 year Average (mt)
2003	1,569,338	=930,770	
2004	1,380,502		
2005	1,056,274		
2006	1,301,752		
2007	1,040,698		
2008	1,083,845		
2009	449,540		
2010	452,961		=475,249
2011	492,400		
2012	480,387		

Current Supply

3.5 There are (as of 2012) currently 7 sand and gravel sites in Wiltshire and Swindon as detailed below in Table 3.2. This lists sites with current planning consent, excluding dormant and restored sites.

Table 3.2 Permitted sand and gravel sites in Wiltshire and Swindon

Site	Operator	Aggregate	Location	Status
Cleveland Farm	Aggregate Industries	Sharp sand & gravel	Upper Thames Valley	Active
Eysey Manor Farm	Tarmac	Sharp sand & gravel	Upper Thames Valley	Active
Roundhouse Farm	Cullimore	Sharp sand & gravel	Upper Thames Valley	Active
Latton (Areas 1 & 6)	Cotswold Aggregates	Sharp sand & gravel	Upper Thames Valley	Permitted but no development has commenced
Sands Farm	Aggregate Industries	Soft Sand	Calne	Active
Compton Bassett	Hills	Soft Sand	Calne	Active
Brickworth Quarry	Raymond Brown Ltd	Soft Sand	SE of Salisbury	Active

3.6 The total reserve (as at December 2012) at these sites was approximately 3.6 million tonnes. Further analysis of the reserve context is set out in section 4 of this report.

Imports and exports

3.7 The data presented has been extracted from the most recent Aggregate Minerals Survey of England and Wales, conducted in 2009 (published 2011). Aggregate Minerals Surveys, provide an in-depth and up-to-date understanding of regional and national sales, inter-regional flows, transportation, consumption and permitted reserves of primary aggregates. The Survey provides information on how the South West region operates within the national context of primary aggregates supply; and outlines the import and export patterns relating to the Wiltshire Minerals Planning Authority (MPA) sub-region.

The South West Region

3.8 In 2009, the South West was the third smallest consumer of sand and gravel in England, accounting for 8 per cent (3.5 Mt) of national consumption. The South West's total sand and gravel sales and consumption for 2009 were the lowest recorded figures since the Aggregate Minerals Survey began, illustrating a downward trend in mineral production and development over recent years. The reasons for this trend are undoubtedly linked to macro-economic factors.

3.9 In 2009, 597,000 tonnes of sand and gravel were exported out of the South West (16 per cent of the region's total sales), and 430,000 tonnes were transported into the region (12 per cent of overall South West consumption). In context, the South West was the third smallest exporter and second smallest importer of the nine English regions.

3.10 The vast majority of the South West's sand and gravel trade (imports and exports) is linked to demand within the South East region. It should be noted that the inter-regional flows of crushed rock are significantly larger than for sand and gravel, but this mirrors trends dating back many years and reflects the relative value of crushed rock to construction markets. In addition, there is a general lack of crushed rock resources in the South East which has led to sustained demand for such materials, particularly from rail-linked quarries in Somerset.

3.11 In 2009, Wiltshire sold 450,000 tonnes of land-won sand and gravel. This figure is less than the sales of Devon, Dorset and Gloucestershire, but nonetheless represents 14 per cent of land-won sand and gravel sales from the South West AWP area (total land won output equated to 3.2 Mt), or 12 per cent of total sand and gravel sales for the region (including marine sources).

Wiltshire and Swindon

3.12 Of the 450,000 tonnes of sand and gravel produced in Wiltshire in 2009, 59 per cent (266,000 tonnes) was sold in Wiltshire, 23 per cent (104,000) was sold elsewhere in the South West, and 18 per cent (80,000 tonnes) was sold outside of the region. This is comparative with the proportion of overall sand and gravel exported out of the South West.

3.13 Wiltshire imported 633,000 tonnes of sand and gravel in 2009, more than any other Mineral Planning Authority in the South West. Wiltshire was also the biggest user of sand and gravel in the South West, consuming 900,000 tonnes in 2009 (see Table 3.3). However, for total primary aggregates, Wiltshire was the fourth biggest consumer in the South West due to the greater levels of crushed rock consumption in Somerset, Avon and Devon.

Table 3.3 Consumption of sand and gravel in Wiltshire and Swindon in 2009

Position	Tonnes
Wiltshire and Swindon Total Sales	450,000
Wiltshire and Swindon Total Exports	184,000
Wiltshire and Swindon Total Imports	633,000
Wiltshire and Swindon Total Consumed	900,000

3.14 Although some caution should be demonstrated in interpreting the consumption figures set out above, and their relevance to the present day situation, it is clear that, in 2009, sand and gravel aggregate sales from Wiltshire were approximately half of what was consumed in the area. The trends in terms of imports and exports suggests that there may be underlying factors (beyond the economic slowdown of recent years) governing the pattern of supply to local construction markets. These factors were largely identified and reported through the preparation of the adopted Wiltshire and Swindon Minerals Core Strategy and further confirmed through work undertaken on the Minerals Site Allocations Local Plan, and include:

- **Resource availability** - Wiltshire and Swindon's traditional sand and gravel producing area (the Cotswold Water Park / Upper Thames Valley MRZ) has seen a significant reduction in available resources due to past rates of extraction and subsequent resource depletion.
- **Economic factors** - despite identifying resources in the Cotswold Water Park / Upper Thames Valley MRZ for future provision over the period to 2026, the minerals industry do not appear keen to bring forward applications at this stage. This could be due to economic factors (e.g. the current price of primary aggregates); recent changes in the global aggregates industry and a move away from small sand and gravel operations in favour of crushed rock; or local environmental factors such as flood risk, ecological designations etc.
- **Local environmental factors** - Wiltshire and Swindon are relatively constrained in terms of landscape, ecological and related factors. As minerals can only be worked where they exist the pressure associated with bringing forward development to service growth in our principle settlements, market towns and large villages is likely to exacerbate the risk that resources may become sterilised.

3.15 This underpinned the need to identify and allocate additional sand and gravel sites in the Plan Area - a need which was addressed through the adoption of the Wiltshire and Swindon Minerals Site Allocations Local Plan in 2013, allocating 7 sites in the process (discussed further in section 4).

Future Supply Scenarios

3.16 The adopted Minerals Core Strategy identifies five broad locations in Wiltshire and Swindon (referred to as 'Mineral Resource Zones') which are considered to be capable of providing a long term supply of sand and gravel (see figure 3.2).

3.17 **The Upper Thames Valley Mineral Resource Zone (MRZ)** - Crosses the northern boundary of Wiltshire and Swindon. The sand and gravel resource extends northwards into Gloucestershire and eastwards into Oxfordshire. The Resource Zone has long-standing, strategic significance for Wiltshire, Swindon, Gloucestershire and Oxfordshire as it has been

the traditional supply source of construction aggregates into local markets for the last 80 years. In terms of local supply, the area has consistently contributed approximately 70% - 80% of total sand and gravel production from Wiltshire and Swindon.

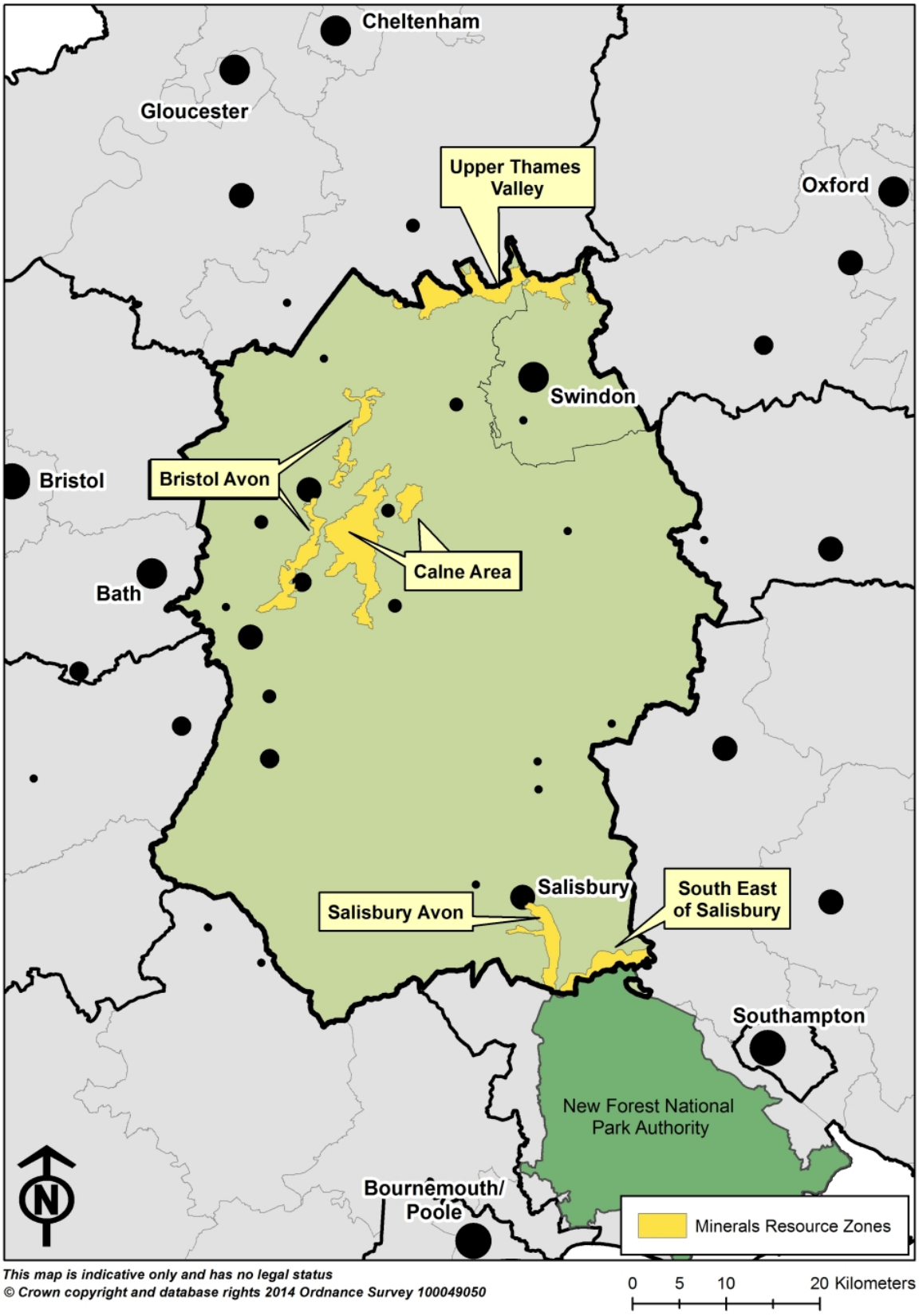
3.18 **The Bristol Avon Mineral Resource Zone (MRZ)** - Sand and gravel deposits are typically shallow and of poorer quality than the Upper Thames Valley deposits. This has been confirmed both by the British Geological Survey and the minerals industry. Although there may be isolated pockets of viable resource the industry have indicated that they are not keen to move to this area in the foreseeable future unless market conditions dictate otherwise.

3.19 **The Calne Area Mineral Resource Zone (MRZ)** - No sites have been formally promoted for future extraction by the minerals industry in the Calne area MRZ which is centrally located within the Plan area and theoretically contains extensive deposits of soft sand ('building sand') albeit in most cases in heavily constrained locations. The area has historically provided a source of sand for mortars, and also supplies resource for a local block making plant.

3.20 **The South East Salisbury MRZ** - Is located near to the southern boundary of the Plan area and provides a source of soft sand on a small scale, which is assumed to be predominantly used for mortars and asphalt, within markets in the south of the county (Salisbury area) and the neighbouring counties of Dorset and Hampshire.

3.21 **The Salisbury Avon MRZ** - Lies in the south of the Plan area and contains deposits of sand and gravel that have not historically been quarried other than for very limited local use.

Figure 3.2 Sand and Gravel Mineral Resource Zone context map



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Crushed Rock

3.22 The county has 1 quarry with permitted reserves for crushed rock (Jurassic limestone resources), but due to reasons of commercial sensitivity, no data can be provided through this LAA. However the quarry operates on a relatively small-scale producing predominantly building stone and smaller quantities of low grade aggregate.

3.23 Data from the most recent Aggregate Minerals survey of England and Wales indicated that in 2009, 1,116,000 tonnes of crushed rock were imported into the Plan area, which was 100% of total consumption.

Recycled and Secondary Aggregate

3.24 Secondary aggregates are materials which do not meet primary aggregate specification but which can in some cases be used instead of primary aggregates. They are generally produced as by-products from other processes, including industrial processes, or the production of primary aggregates. Potential sources of secondary aggregates include:

- Colliery spoil;
- Slate waste;
- China clay waste;
- Power station ashes (pulverised fuel ash and furnace bottom ash);
- Incinerator bottom ash;
- Blast furnace and steel slags; and Foundry sands.

3.25 In Wiltshire and Swindon there are currently no known sources of secondary aggregates in close proximity to any of the likely construction markets in the County or Borough. However, this position may well change in the future and will therefore be kept under review through the LAA monitoring process.

3.26 Recycled aggregates are materials that have been previously used in construction projects. Sources of recycled aggregates include:

- Construction and demolition wastes arising from either the total or partial demolition of buildings and/ or civil engineering infrastructure; or the construction of buildings and/ or civil engineering infrastructure such as roads and road planings;
- Excavation wastes including both clean and contaminated waste soil, stone and concrete arising from development processes or engineering works, but excluding all wastes defined as 'hard construction and demolition wastes'; and 'mixed hard construction and demolition and excavation wastes'.

3.27 The main source of alternative aggregates in Wiltshire and Swindon arises from construction, demolition and excavated waste (often referred to as CDE waste). There are currently no significant producers or sources of secondary aggregates within the Plan area.

3.28 Information on the full nature and extent of facilities for the processing and use of recycled aggregate within Wiltshire and Swindon is limited by the fact that, in many cases, the product is managed by temporary mobile operations related to a specific redevelopment project. Often in cases such as these, the operator need only obtain a licence from the Environmental Health department of the Council, and does not necessarily require planning permission. Aggregates recycled ‘on-site’ are most likely reused ‘on-site’ as part of the overall redevelopment and therefore information relating to their re-use will not necessarily be recorded.

Rail-head capacity

3.29 The existing Rail Aggregate Depot at Wootton Bassett imports crushed limestone from the Mendips for local construction markets in the Swindon area. The capability for the use of rail to transport minerals was assessed in the Rail Aggregate Depot study[3]. Since much of the mineral extracted in the Plan area is used locally, none of the existing mineral workings have rail links as it is considered uneconomic to haul low value products over relatively short distances by rail. Aggregates are transported on average 40 km by road, with distances over 60km more likely to be covered by rail. The RAD study looked at the possibilities of potential and existing rail-head or rail-linked facilities across Wiltshire and Swindon. Wootton Bassett RAD was judged to be of vital importance to the local area and should continue to be safeguarded from development that may prejudice its future use. With the level of future growth anticipated for the North Wiltshire and Swindon areas, the focus for identifying any additional sites should be directed towards Swindon Borough subject to market forces and future development pressure.

3.30 The vast majority of mineral won in the Plan area is transported by road. Mineral sites are sometimes reliant on the need for ultra-short transfer of material within sites or to other nearby sites for batching, processing etc.

Marine Aggregate

3.31 The Plan area of Wiltshire and Swindon is land locked and therefore has no licenced areas for marine aggregate extraction. However, 45,000 tonnes of marine-won sand and gravel were imported into the Plan area in 2009. [4]

3.32 None of the mineral produced in Wiltshire and Swindon is currently transported by water. The scope for water transportation is limited due to a current lack of viable infrastructure.

End Use of aggregate

3.33 The Office of National Statistics (ONS) has historically collected data from mineral operators on behalf of the Department of Communities and Local Government (DCLG) and Department of Trade and Industry (DTI) on the sales of mineral by major end-use through the Annual Minerals Raised Inquiry (AMRI). The most recent available figures presented by the ONS are from 2008. In order to protect the commercial confidentiality of certain sites, the data from individual quarries are amalgamated. However some assumptions can still be made about the nature and end-uses of primary aggregates extracted in Wiltshire and Swindon. The categories of end-use collected through the AMRI survey are different for each mineral type, reflecting the range of uses specific to that product. The end-uses and materials suitable for each use are shown in table 3.4 below.

3.34 Wiltshire and Swindon, as a soft sand and sharp sand and gravel producing area, can supply materials for some, but not all of the end-uses set out in table 3.4. However, by presenting the breakdown of end-uses as a percentage of production, it is possible to identify the main market areas served by aggregates producers from within the Plan area.

3.35 According to the AMRI assessment of 'sales by end-use', approximately 64% of sand and gravel extracted in Wiltshire and Swindon has been used in the production of concrete, with approximately 16% contributing to 'mortar' applications. The majority of the remaining

3 Wiltshire and Swindon Rail Aggregate Depot Study (RAD) November 2003
4 Aggregate Minerals Survey of England and Wales 2009 (published 2011)

aggregate produced is used as 'screened and graded gravels' (approximately 9%) and 'constructional fill' (approximately 10%). Less than 1%, on average, appears to be used for 'asphalt'.

3.36 Although the data suggests that soft sand and sharp sand and gravel service differing end-use applications, Wiltshire Council and Swindon Borough Council have not prepared separate landbanks for a range of reasons, including:

- The ability to produce 'soft sand' type product from sharp sand product; and
- The need to maintain commercial confidentiality in relation to soft sand production as two operators have entered into a joint marketing venture.

3.37 Every four years central government commission a survey of aggregates production in England and Wales. The most recent of these surveys was undertaken in 2009. There is a consistency between the surveys and the AMRI data with respect to the percentage of primary aggregates produced in Wiltshire and Swindon that contribute to concrete and sand for mortar as end-use products. Where the AMRI figures collected by the ONS for sand and gravel shows that 68% is used for concreting in Wiltshire, the AM Survey shows that approximately 62% is used for concreting. From this evidence we can assume with some confidence that approximately 60% - 70% of sand and gravel extracted in Wiltshire and Swindon is used in concrete production. The same sources also report that approximately 11% - 16% of sand and gravel is supplied for mortar as an end-use.

3.38 The complete breakdown of sales by end use as collated through the AM2009 Survey is shown below in Table 3.4.

Table 3.4 Primary aggregates and main end uses

End use	Soft Sand	Sand and Gravel	Crushed Rock
Mortar	Y		
Asphalt	Y	Y	Y
Concrete		Y	Y
Uncoated road-stone			Y
Surface dressing chippings			Y
Rail ballast			Y
Armourstone and gabion construction			Y
Other – Screened and graded		Y	Y
Other – Fill material		Y	Y
Other constructional material	Y	Y	Y

Key findings and conclusions

Sand and Gravel

- Based on past production there is a clear indication that production of primary aggregates (sand and gravel) has been on a downward trend in Wiltshire and Swindon for several years. This suggests that demand in the area has been significantly affected by macro-economic factors including the slow-down in construction activity over the last 5 - 7 years.

- This trend is also mirrored in the rate of housing completions over the same period. At this stage, it is too early to say with confidence that demand for primary aggregate will increase significantly to warrant a re-evaluation of supply scenarios and projected production rates.

- Sand and gravel sales have fallen by approximately 70% overall between 2003 and 2012, plateauing off since 2009.

Secondary/Recycled Aggregates

- There are currently no significant producers or sources of secondary aggregates within the Plan area.

Imports and Exports (2009)

- The total consumption of sand and gravel was 900,000 tonnes, 70% of this amount was imported;
- In total 633,000 tonnes of sand and gravel were exported from the Plan area.
- 1,116,000 tonnes of crushed rock were imported to the Plan area. This comprised 100% of total crushed rock consumption. Wiltshire and Swindon are therefore net importers of crushed rock.
- The trends in terms of imports and exports suggests that there may be underlying factors (beyond the economic slowdown of recent years) governing the pattern of supply to local construction markets including resource availability, economic factors and local environmental factors. These factors were largely identified and reported through the preparation of the adopted Wiltshire and Swindon Minerals Core Strategy and further confirmed through work undertaken on the Minerals Site Allocations Local Plan.

4 Options for long-term supply

Regional apportionment

4.1 In 2009 the South West Regional Planning Body (RPB) commenced work on apportioning the revised guidelines for aggregates provision (2005 - 2020), but this work was not completed due to the RPB being disbanded in 2010 in connection with the Government's intention to abolish the regional tier of plan making. The South West Aggregates Working Party continued the work started by the RPB and submitted sub-regional figures in 2010 which were eventually published by Central Government in September 2011. Through this, a new sub-regional apportionment figure for Wiltshire and Swindon of 1.41 million tonnes per annum for sand and gravel was proposed as shown in Table 4.1 below.

Table 4.1 Sub-regional apportionment figures for south west (2005 – 2020)

Minerals Planning Authority	Crushed Rock (mt)	Annualised production rate (Mt)	Sand and Gravel (Mt)	Annualised production rate (Mt)
Former Avon	79.10	4.94	0	0
Cornwall	26.94	1.68	Included with Devon (c)	0
Devon	51.21	3.2	14.91	0.93
Dorset	4.82	0.30	31.56	1.97
Gloucestershire	36.01	2.25	16.07	1.00
Somerset	214.65	13.42	Included with Devon (c)	Included with Devon (c)
Wiltshire	Included with Dorset (c)	Included with Dorset (c)	22.46	1.41 (proposed)
Total	412.73	25.79	85.00	5.3
(c) = confidential **Annualised production rate (Mt) figures** proposed by the SWAWP for testing through plan preparation				

4.2 During the past ten years, production in Wiltshire and Swindon has not matched the government's forecast provision rates, and does not currently meet the latest proposed production guideline figure of 1.41 million tonnes per annum as evidenced through table 4.2.

4.3 In accordance with national policy, at the time of preparing the Minerals Site Allocations Local Plan, the Councils effectively based planned provision requirements for the remainder of the plan period on the criteria prescribed through national guidance, including taking the average of the past 10 year's production and assessment of remaining resource options alongside several call for sites, discussions with the minerals industry, testing of apportionment scenarios and detailed assessment of site options considered. For Wiltshire and Swindon, this resulted in a **local forecast rate of 1.2 million** tonnes per annum being taken forward. The Councils are confident that using this figure more closely reflects actual demand and

provides a sufficient supply of mineral in times of increased or reduced production rather than figures derived from national and local forecasts published by Department for Communities and local Government (DCLG).

4.4 The assessment of mineral reserves, and the issue of long-term supply to meet the local forecast provision rate, should be treated flexibly. In the interests of protecting commercial confidentiality in the Plan area and to accord with policy MCS1 of the Minerals Core Strategy, the councils do not (in policy terms) differentiate between different mineral types for the purposes of landbank maintenance.

4.5 In overall terms, Wiltshire and Swindon has sufficient resources to meet the residual forecast provision requirement (i.e the level of resource required) of 16.8 million tonnes over the remaining plan period to 2026, this is discussed further below.

4.6 The agreed sub-regional apportionment does not stipulate a specific provision rate for crushed rock aggregate from Wiltshire and Swindon and as such, the Minerals Development Framework does not seek to provide strategic direction in terms of identifying broad locations for new or extended crushed rock quarries.

Wiltshire and Swindon's local approach to determining Sand and Gravel Apportionment

4.7 In order to provide a context for the national and regional forecast rate for sand and gravel it is worth considering the 'actual' rate of supply over a longer cycle than 10 years [(5)]. Table 4.2 provides an illustrative account of 'actual' sand and gravel production in Wiltshire and Swindon over the period 1991 – 2012. There had been a general peak in production during the period 1998 - 2006 but generally speaking, actual production has been significantly lower than the annualised rate of 1.85 million tonnes (as prepared by the SW Regional Aggregates Working Party and agreed by central government) and subsequent lower figure of 1.41 million tonnes per annum.

Table 4.2 Wiltshire and Swindon Sand and Gravel Production: 1991 – 2012

Year	Total Production (sales) of sand & gravel (Mt per annum)	Annualised Sub-regional Apportionment (Mt per annum)	Difference (Mt)
1991	0.85	0.85	0.00
1992	0.91	1.35	-0.44
1993	0.81	1.35	-0.54
1994	0.83	1.35	-0.52
1995	0.90	1.35	-0.45
1996	1.00	1.35	-0.35
1997	1.35	1.35	0.00
1998	0.97	1.35	-0.38
1999	1.14	1.35	-0.21

5 National Planning Policy framework (NPPF)

Year	Total Production (sales) of sand & gravel (Mt per annum)	Annualised Sub-regional Apportionment (Mt per annum)	Difference (Mt)
2000	1.34	1.35	-0.01
2001	1.40	1.35	-0.45
2002	1.35	1.85	-0.50
2003	**1.57**	**1.85**	**-0.28**
2004	**1.38**	**1.85**	**-0.47**
2005	**1.05**	**1.41**	**-0.36**
2006	**1.30**	**1.41**	**-0.11**
2007	**1.04**	**1.41**	**-0.37**
2008	**1.08**	**1.41**	**-0.33**
2009	**0.45**	**1.41**	**-0.96**
2010	**0.45**	**1.41**	**-0.96**
2011	**0.49**	**1.41**	**-0.92**
2012	**0.48**	**1.41**	**-0.93**
Total 10 year average sales = 0.93 mtpa			

4.8 When analysing the data in Table 4.2 and taking a rolling average of the past 10 years production/sales data, in this case from 2003 – 2012 (inclusive) (displayed in Table 4.2 in **bold**), it is clear to see that a 10 year average production at 0.93 mt per annum is significantly lower than Wiltshire and Swindon's annualised sub-regional apportionment figures of both 1.85 Mt per annum and more recent 1.41 Mt per annum (2011).

4.9 The downturn in production in recent years can in part be attributed to economic factors. However, the evidence gathered in the production of the Minerals Site Allocations Local Plan [6] found that following an assessment of all resource and site options collectively, indications are that the Plan area of Wiltshire and Swindon is simply running out of deliverable sand and gravel resources.

4.10 Although the national forecasts for aggregates provision and the subsequent sub-regional apportionment effectively limits options in terms of the scale of provision and spatial distribution of future aggregates production in Wiltshire and Swindon, there are indications that past and current rates of extraction in Wiltshire and Swindon cannot be sustained in the longer term (i.e towards the back end of the plan period - 10 years+).

4.11 It has been demonstrated by the councils' evidence base in the preparation of the Minerals Site Allocations Local Plan that the current and proposed sub-regional apportionment guideline figures of 1.85 and 1.4 million tonnes per annum respectively, for Wiltshire and Swindon, cannot realistically be met for a range of reasons and therefore a lower localised

6 Evidence Base Part C, Minerals Site Allocation Local Plan, Adopted May 2013

apportionment projection has been advocated (in line with National Guidance). **The Councils have therefore adopted a local forecast provision rate of 1.2 million tonnes per annum**, a figure which more realistically matches actual levels of production (as measured through trend analysis of past production) and the viability of site options but that also maintains the flexibility to respond to potential future economic fluctuations.

Landbank provision - sand and gravel

4.12 The Government advises that rolling landbanks for sand and gravel should extend for a *minimum* of 7 years. Although the length of the landbank will be a key indicator in determining the release of new reserves, other evidence may equally influence the phasing of supply (e.g. the levels of actual production / supply or significant economic fluctuations). Like all other MPAs, Wiltshire and Swindon currently monitor such factors through the collection and analysis of confidential data from the minerals industry.

4.13 The National Planning Policy Framework (NPPF) prescribes a 7 year landbank which can be calculated as follows - *if the current landbank equals [X], and the required rate of provision over the life of the plan (expressed on an annualised basis) equals [Y], then the length of the landbank (at any period in time) [Z], will be [X] divided by [Y].*

4.14 Therefore, in the case of Wiltshire and Swindon the landbank commitment at **31 December 2012** can be calculated as follows:

- Sand and Gravel permitted reserves: 3.65 million tonnes
- Sand and Gravel Requirement Rate: 1.2 million tonnes per annum
- **Official Landbank figure: 3.65 / 1.2 = 3 Years**

4.15 As demonstrated in Table 3.1, **actual** primary aggregates production in the Plan area has been consistently and significantly lower than forecast rates of production. When looking at hypothetical scenarios a landbank based on the average of the past 10 years production does improve the situation, furthermore, a scenario where the landbank is based on an average of the past 3 years production [(7)] would perhaps offer a more realistic picture of the current landbank condition in Wiltshire and Swindon:

- 10 year average production figures: 3.65 / 0.93 = 3.9 years
- 3 year average production figures: 3.65 / 0.47 = 7.7 years

4.16 If calculated along these lines, the local landbank would be in line with the requirement of a 7 year minimum set out by the NPPF.

Future aggregates supply from Wiltshire and Swindon

4.17 Through the preparation of the Aggregate Minerals Site Allocations Local Plan the Councils have undertaken a comprehensive assessment [(8)] of all remaining resource options; and have tested the capacity of the Plan area to meet the sub-regional apportionment figure of 1.85 Mt per annum and the recently revised figure of 1.41 Mt per annum.

7 Guidance on the Managed Aggregate Supply System, 2012
8 Evidence Base Part C, Minerals Site Allocation Local Plan, Adopted May 2013

4.18 As part of the wider Wiltshire and Swindon Minerals Development Framework, the Councils commissioned the British Geological Survey (BGS) [9] to undertake an assessment of the sand and gravel resources of Wiltshire and Swindon to use as a baseline for resource and site assessment work. Through the process of Minerals Site Allocations Local Plan preparation, the Councils assessed this baseline data and through a number of call for sites exercises, desktop analysis and initial site appraisals, 62 potential site options were considered. It should be noted that only 3 of the original 62 site options promoted for consideration were put forward by the minerals industry. This appears to indicate, but does not necessarily substantiate a view, that there is little industry appetite for sustaining quarrying activity in line with the previous forecast provision rates prepared at the national and regional level. This lack of industry appetite brought into question whether or not the forecast rates of 1.85 million tonnes per annum (as indicated through the Minerals Core Strategy DPD) and the more recently published figure of 1.41 million tonnes per annum were realistic or deliverable.

4.19 Through further detailed assessment of all potential site options and the resource areas of the Plan area, the adopted Minerals Site Allocations Local Plan allocated 7 sites with an estimated total yield of 10.86 million tonnes (see Table 4.3). As part of this assessment process, the Councils tested apportionment scenarios against the deliverability of appropriate site options (assessed against SA/SEA), the average of the past 10 years of sales data and other local information to arrive at what was determined to be an appropriate locally derived apportionment figure. Based upon recent and long-term evidence, the Councils are now confident that this projected reserve would be sufficient to meet **a locally derived apportionment figure of 1.2 million tonnes per annum** up to 2026.

Table 4.3 Allocated Sites in Adopted Wiltshire and Swindon Minerals Site Allocations Local Plan

Site Allocation	Estimated tonnes (million)
Cox's Farm	2.4
Blackburr Farm	0.81
North Farm	0.3
Land east of Calcutt	2.2
Land at Cotswold Community	2.76
Land near Compton Bassett	0.45
Extensions to Brickworth Quarry	1.94
Total	**10.86**

4.20 The evidence gathered in the writing of the Councils' adopted Minerals Development Framework demonstrates that there are very few remaining site options in Wiltshire and Swindon that can be considered appropriate and/or deliverable for sand and gravel extraction during the remaining plan period. There are however 2 applications pending a decision at Down Ampney and Wetstone Bridge in the Upper Thames Valley MRZ/Cotswold Water Park. The Down Ampney application covers two 'Preferred Areas' (the subject of 'saved

9 A Provisional Assessment of the Sand and Gravel Resources of Wiltshire and Swindon, BGS, 2007

policy' 35 of the adopted Wiltshire & Swindon Minerals Local Plan, 2001) and also part of 'Land east of Latton'. Should planning permission be granted for these sites, the overall landbank position will be further strengthened[10].

4.21 Table 4.4 shows the current position, with regards to permitted reserves and site allocations compared to forecast requirements (locally derived requirement of 1.2mtpa and 10 year/3 year average sales). The industry will inevitably respond to prevailing / projected market conditions. As such, with the level of planned provision (current applications, plus site allocations) in place, it is considered likely that the landbank will be bolstered to meet NPPF requirements.

Table 4.4 Sand and Gravel Provision

	Sand and Gravel (tonnes)
Permitted reserve (planning permission)	3,650,000
Sites allocated in the plan	10,860,000
Mineral Local Plan allocation	3,200,000
Total	**17,660,000**
Total requirement based on 1.2 mtpa	16,800,000
Total requirement based on 10 year average (930,770 mtpa)	13,030,780
Total requirement based on 3 year average (475,249 mtpa)	6,653,486
Shortfall / Surplus at 1.2 mtpa	**+860,000**

4.22 As set out in the adopted Minerals Core Strategy, the Councils predict that a continuation of current supply patterns (i.e. development in existing, traditional resource zones) can be sustained into the medium to long-term (towards the back end of the plan period - 10 years +). Pressure will be significantly increased beyond the current plan horizon of 2026, unless a fundamental shift in the 'balance of supply' in Wiltshire and Swindon is realised. This effectively means that the minerals industry may move away from a predominantly sharp sand and gravel extraction model towards a focus on soft sand resources in the centre of the Plan area. To effect such a change in approach will require market intervention and, at this stage, there is no evidence to suggest that the demand for soft sand in the local / sub-regional area is increasing. That said, if demand did increase, there is believed to be sufficient resource potential in the Calne MRZ to release through the Plan review process. Indeed, a number of site options have already been considered that could offer solutions to long-term aggregates supply subject to further detailed assessment and testing through the plan making process.

Landbank provision - Crushed rock

4.23 The agreed sub-regional apportionment does not stipulate a specific provision rate for crushed rock aggregate from Wiltshire and Swindon, therefore the Councils do not face the same degree of pressure to find sites to meet a local apportionment; and have no need to provide strategic direction in terms of identifying broad locations for new or extended crushed rock quarries.

10 Calculation: 14 years of plan period remaining x 1.2 million tonnes per annum = 16.8 million tonnes. Permitted reserve (3.6 million tonnes) + allocated sites (10.86 million tonnes) + Minerals Local Plan (2001) sites (3.2 million tonnes) = 17.66 million tonnes

4.24 For the purposes of 'aggregate planning', Wiltshire and Swindon have been traditionally combined with Dorset for reasons of commercial confidentiality and hence there is a local expectation that Dorset (and surrounding MPAs) will meet the local demand / forecast provision rates into the longer-term. However, Wiltshire does have a legacy of dormant crushed rock sites and at least one operational site so there is theoretically potential to meet local demand should the need arise.

4.25 Due to the cessation of working from the only recently worked quarry (at Knockdown, near Sherston), Wiltshire and Swindon's landbank for crushed rock is effectively well in excess of that required to meet local demand for the Plan period.

Summary of chapter - key findings and conclusions

4.26 From the evidence gathered to date, primary aggregates production has declined over the past 10 years, which reflects regional and national trends in the construction sector. Analysis of the '10 year average' of past sales/production (2003 - 2012, Table 4.2) would present a localised provision rate to plan for of 0.93 mtpa. However, it would be reasonable to assume that a cautious assessment of future provision requirements should be adopted, particularly if economic output in the construction sector rapidly changes.

4.27 When looking at sales returns from the last three years of the monitoring period, at an average of 0.47mtpa, it is clear that the suppressed demand figure is partly as a result of the recent economic recession. Other local factors could also be suppressing the demand for resource extraction in the Plan area - such as the result of changing mineral operator strategies and a lack of operator interest in the remaining (more constrained) resource in Wiltshire and Swindon. For the purposes of planning and monitoring landbank requirements, the recent trend data demonstrates an option for assessing future demand looking ahead through the short to medium-term.

4.28 An appreciation of a rolling 3 year average merely helps to illustrate more recent sale trends alongside the 10 year average and indicates that sales have been suppressed for a variety of reasons as discussed, it also helps to justify the position adopted by the Councils in pursuing a **local forecast rate of 1.2mtpa** in relation to future provision rates. This local forecast rate (which is slightly higher than the 10 year average of past sales production) and the 7 site options allocated in the adopted Wiltshire and Swindon Minerals Site Allocations Local Plan will provide the Councils with a degree of contingency and flexibility to positivity respond to improving market conditions and the potential for future increased mineral operator interest in the Plan area resource.

5 Summary and conclusion

Future Provision

5.1 Wiltshire and Swindon have monitored a decline in sand and gravel production over the last 10 years which mirrors the general trend throughout the region and is believed to be due to macro-economic factors and a lack of minerals industry interest in the Plan area. That said, Wiltshire and Swindon have prepared and adopted plans to ensure a steady and adequate rate of provision into the future in accordance with national policy.

5.2 Wiltshire and Swindon have adopted the following documents, which constitute the current Minerals Development Framework:

- Wiltshire and Swindon Minerals Core Strategy (June 2009)
- Wiltshire and Swindon Minerals Development Control Policies Development Plan Document (September 2009)
- Wiltshire and Swindon Minerals Site Allocations Local Plan (May 2013)

5.3 Although the national forecasts for aggregates provision and the subsequent sub-regional apportionment effectively limits options in terms of the scale of provision and spatial distribution of future aggregates production in Wiltshire and Swindon, there are indications that current rates of extraction in Wiltshire and Swindon cannot be sustained in the longer term (towards the back end of the plan period and beyond 10+ years). It has been demonstrated through the councils' evidence base[(11)] that the previous sub-regional apportionment guideline figure of 1.85 and and proposed 1.4 million tonnes per annum respectively, for Wiltshire and Swindon, could not be met or realistically planned for. It has therefore been necessary for the councils to adopt a lower, **local forecast provision rate of 1.2 million tonnes per annum** (at the time of writing) which more realistically matches actual levels of demand (measured in terms of mineral production within the Plan area / sales) than the forecasts prepared at the national and regional levels. This locally derived provision rate also presents an appropriate level of flexibility and contingency should economic conditions improve, resource demand increases and mineral industry production strategies look more to the Plan area in the future.

5.4 The National Planning Policy Framework (NPPF) states that "Minerals planning authorities should plan for a steady and adequate supply of aggregates by preparing an annual Local Aggregate Assessment, either individually or jointly by agreement with another or other mineral planning authorities, based on a rolling average of 10 years sales data'. Taking an average over a 10 year period allows for variations in production without any distortion from historic sales which in the past have been higher. Taking a 3 year average may reflect better the current market due to the recent economic downturn and production patterns in the Plan area.

5.5 As stated in Chapter 3, there has been a considerable downturn in sand and gravel production over the past 10 years. Indeed when looking at the past 3 years sales data there is a dramatic downturn in production in Wiltshire and Swindon, as demonstrated in Table 3.1. This is mirrored not only in the South West region but also nationally.

5.6 Landbank provision based on an average of the past years production is as follows:

- 10 year average production figures - 3.65 / 0.93 = 3.9 years
- 3 year average production figures - 3.65 / 0.47 = 7.7 years

11 Minerals Site Allocation Local Plan Evidence base Part C

5.7 If the 3-year average figures are used, the projected landbank would be in line with the 7 year minimum required by the NPPF.

5.8 As detailed in Table 4.4, based on current production levels and provision of allocated sites, Wiltshire and Swindon have capacity to produce sufficient levels of sand and gravel to meet the landbank of 7 years as prescribed by the NPPF. The industry will inevitably respond to prevailing / projected market conditions. As such, with the level of planned provision (current applications, plus site allocations) in place, it is considered likely that the landbank will be bolstered to meet NPPF requirements.

5.9 The Councils have, throughout the plan making process, engaged with the minerals industry and there is continuing dialogue with relevant owners of land and industry representatives to address when allocated sites may be delivered. Should the industry determine that a move away from Wiltshire and Swindon best suits their supply chains to local markets, the Councils will exercise their rights through the duty - to -cooperate to explore how best to address the issue of planned provision on a sub-regional basis in differing ways. This could include considering the need or otherwise to enter into joint working arrangements with neighbouring authorities as detailed through policy MCS5 - Collaborative working in the Upper Thames Valley and as has been the case, albeit informally, in the past (e.g. the 'Wessex Aggregates Study').

5.10 Based on past production, both nationally and locally, there is a clear indication that demand for primary aggregates will continue into the future. However, given current production levels; the level of permitted reserves; projected reserves in sites that have been identified within the Aggregate Minerals Sites Allocations Local Plan / 'saved policy' 35 of the old Minerals Local Plan, there is no need at this time to identify more sites through the review the Minerals Development Framework.

5.11 As outlined above, the Councils continue to maintain dialogue with neighbouring Minerals Planning Authorities and will, as per strategic objective 5 of the Minerals Core Strategy, seek to identify, develop and implement opportunities to work with all those with an interest in sustainable minerals planning in Wiltshire, Swindon and the surrounding areas. As such the preparation of joint Local Development Documents will be advocated, where necessary to address long-term supply issues and environmental concerns, particularly in the Cotswold Water Park / Upper Thames Valley as outlined in policy MCS5.

5.12 There are currently no future projects identified in the National Infrastructure Plan (2013). However the emerging Wiltshire and Swindon Core Strategies have large numbers of new housing allocations that potential future demand needs to take into account, for example the Eastern Village development.

Monitoring Arrangements

5.13 To ensure adequate supply of all sources of construction minerals, the Local Aggregate Assessment will be monitored and reviewed annually as part of the Annual Monitoring Report regime.

This document was published by the Spatial Planning team, Wiltshire Council, Economic Development and Planning.

For further information please visit the following website:

http://www.wiltshire.gov.uk/planninganddevelopment/planningpolicy.htm