



Wiltshire and Swindon Local Aggregate Assessment

July 2012

Swindon Borough Council

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Front cover: Imagery used at the public consultation for Bore Hill Farm, Warminster.
Client: Malaby Biogas. Landscape Architects: Macgregor Smith Landscape Architects

Wiltshire & Swindon Minerals and Waste Development Framework

Draft Local Aggregate Assessment

July 2012

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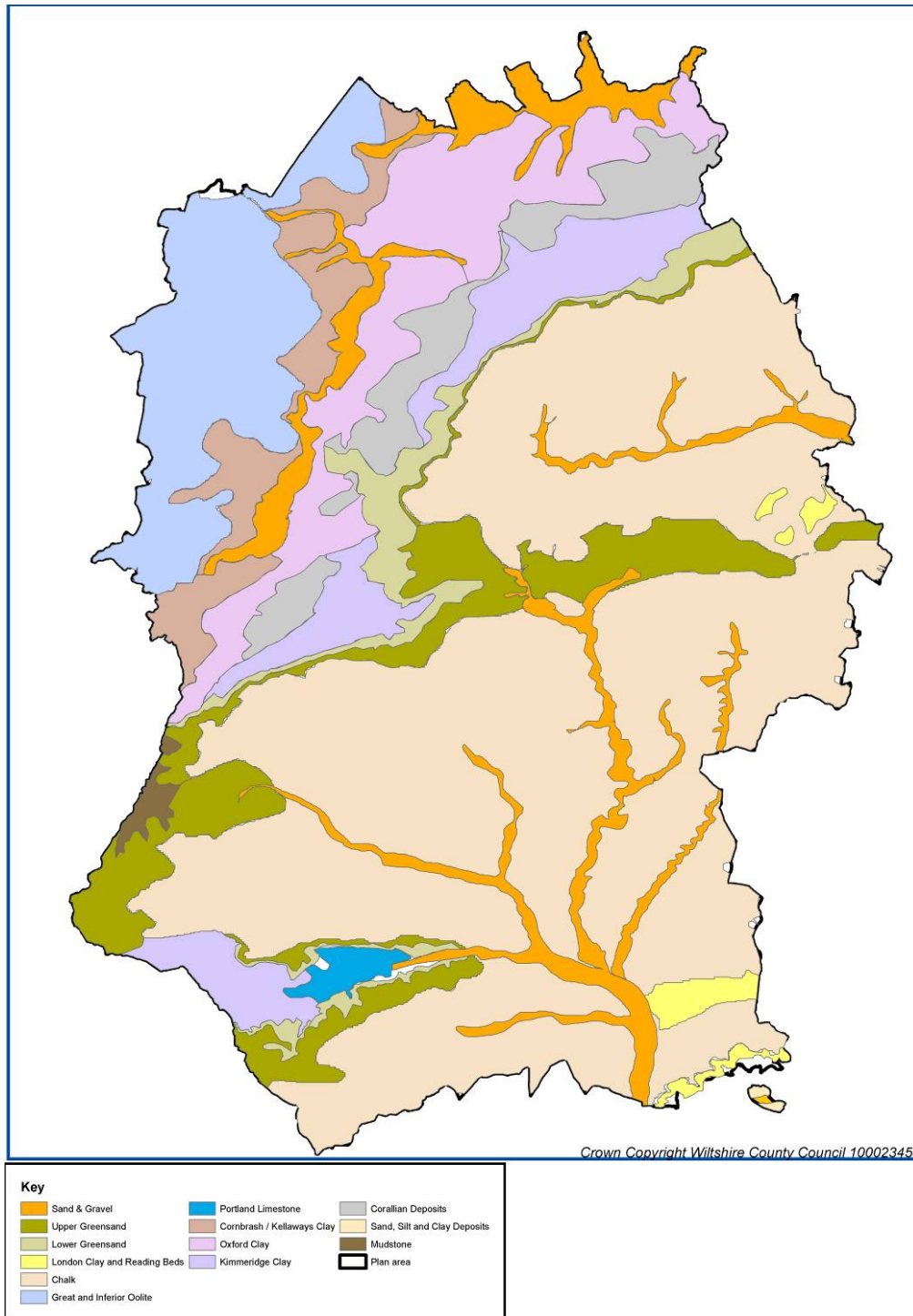
1. Introduction

- 1.1 Minerals are recognised as an important national resource. Virtually everything we use is made of minerals, requires minerals in its manufacture or depends on minerals for its operation. The winning and working of minerals and particularly aggregate minerals therefore makes an essential contribution to the nation's prosperity and quality of life. As Mineral Planning Authorities (MPAs), Wiltshire Council and Swindon Borough Council are responsible for ensuring that society's need for minerals is met without incurring social, environmental and economic costs. In essence, planning for the delivery of minerals represents a balance between basic economic need and wider social and environmental considerations.
- 1.2 This Local Aggregate Assessment (LAA) has been prepared as the evidence base for the adopted Minerals Site Allocations Local Plan and provides information and data relating to the need for minerals supply within the plan area of Wiltshire and Swindon.

Geological context for Wiltshire and Swindon

- 1.3 The distribution of mineral resources throughout Wiltshire and Swindon is of course determined by geology; the same geology which also creates the important landscapes and natural habitats that society values. Consequently, minerals often occur within areas of attractive landscape, high amenity value, nature conservation interest, or underlie good quality farmland. In some instances important mineral deposits are found close to towns and villages.
- 1.4 The geological circumstances of Wiltshire and Swindon are such that the principal mineral types worked today include: - **sand, gravel, clay, chalk, limestone** and **sandstone** in varying quantities. Their occurrence is shown on the simplified geological map in **Figure 1.1**.
- 1.5 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.
- 1.6 There have been numerous mineral workings in Wiltshire which, in the past, have tended to be small scale sites serving local needs for building materials and agricultural conditioners. However, in more recent years there has been a shift within the industry towards fewer, larger sites serving wider market areas.
- 1.7 The Swindon Borough area has seen comparatively little mineral working in the past and, at present, has no permitted mineral extraction sites.

Figure 1.1: Simplified Geological Map of Wiltshire and Swindon



- 1.8 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.
- 1.9 The following sections assess the available evidence for minerals in Wiltshire and Swindon, by mineral type.

2. Primary aggregates

2.1 There are technical specifications and standards¹ 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.**”

2.2 Primary aggregates generally come in the following forms:

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.

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.

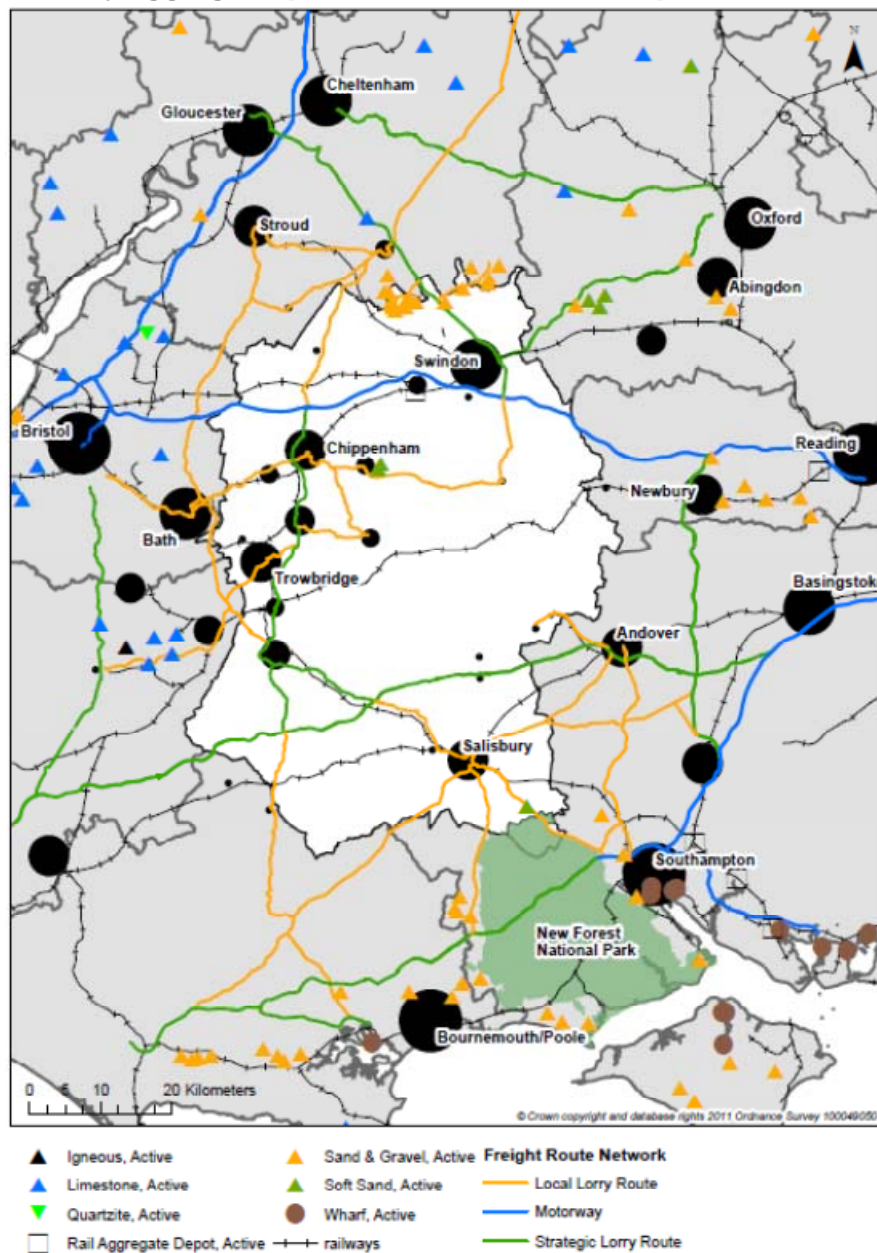
Crushed rock is sourced from sedimentary deposits (limestone, sandstone etc), igneous (granite, basalt etc) or metamorphic rock crushed down to produce aggregates of various grades and qualities. Crushed rock can serve all of the end uses outlined for sharp sand and gravel, and other end uses such as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

Secondary / recycled aggregate is either the by-product of industrial processes such as china clay waste and pulverised fuel ash (PFA), or involves the crushing down and reuse of material such as construction and demolition waste, road surface planings etc. Secondary and recycled aggregates are generally used in low grade products, such as landscaping and construction fill, although PFA is used to provide an alternative ingredient to primary aggregate for block manufacture. (Secondary and recycled aggregates are discussed further in section 3).

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.

Figure 2.1: Primary aggregate quarries in and around the plan area



2.3 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 dormant³ but nonetheless has the benefit of a valid planning permission. The sand deposits are worked dry and the excavated quarries 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.

³ As classified by the Environment Act 1995.

- 2.4 Soft sand has also been traditionally worked from the Bagshot Sands at Pound Bottom⁴, east of Redlynch and more recently at Brickworth Quarry near Whiteparish in the south of the County which now produces sand from a geological formation known as the London Clay and Reading Beds.
- 2.5 Within Wiltshire and Swindon, 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, Wylve and Salisbury Avon.
- 2.6 The mineral deposits of the Upper Thames Valley in Wiltshire and Swindon are thought to represent the best deposits 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 Wylve 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 pockets of sand and gravel in these valleys though their exploitation may be constrained by other factors, notably environmental designations.
- 2.7 Although much of Wiltshire's sharp sand and gravel deposits have been worked to some extent in the past, 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 Cotswold Water Park.
- 2.8 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. There are currently no aggregate producing limestone quarries operating in Wiltshire and Swindon.
- 2.9 Aggregates are transported on average by, 40 km by road, with distances over 60km more likely to be covered by rail⁵. None of the aggregate quarries in Wiltshire and Swindon are rail linked and therefore it is assumed that they mostly supply 'local' markets. The Rail Aggregate Depot at Wootton Bassett imports crushed limestone from quarries located in the Mendip Hills in Somerset.

End-uses of sand and gravel produced in the plan area

Annual Minerals Raised Inquiry (AMRI) Data

- 2.10 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 on sales of

⁴ On land that now forms part of the New Forest National Park

⁵ Planning Matters Factsheet "Construction Aggregates", BGS, 2007

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 the 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 the table below:

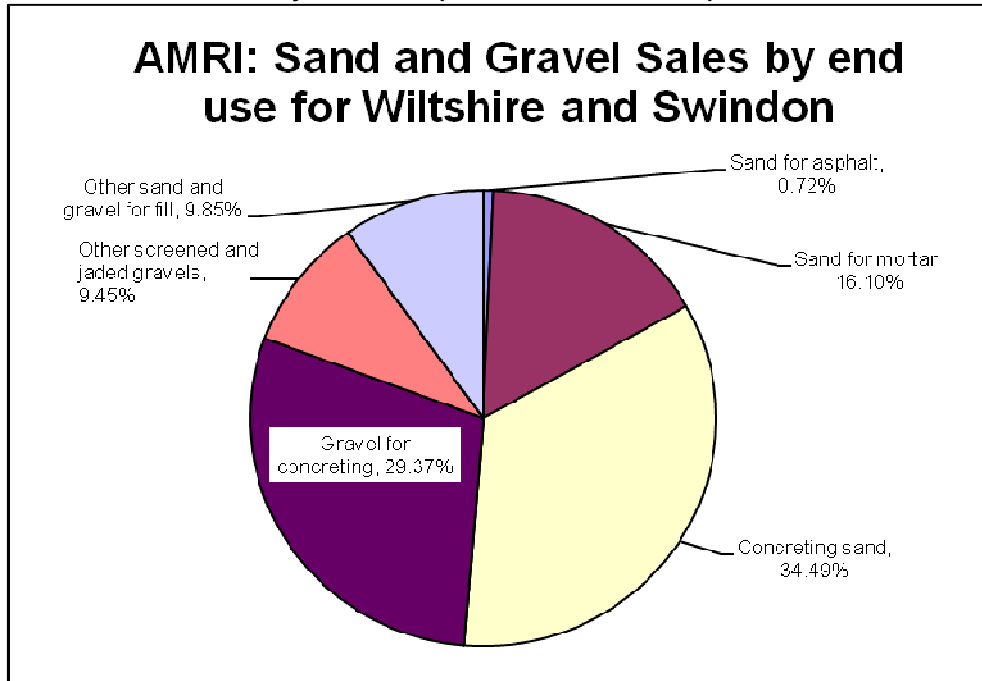
Table 2.1: Primary aggregates and main end uses

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

2.11 Wiltshire and Swindon, as a soft sand and sharp sand and gravel producing area, can supply materials for some, but not all of the above end-uses. By presenting the breakdown of end-uses as a percentage of production⁶, it is possible to identify the main market areas served by aggregates producers from within the plan area.

⁶ Percentages have been produced by averaging AMRI data for 1999-2008. Where data was withheld to protect commercial confidentiality, an average figure was substituted based on those years that have been represented.

Figure 2.2: AMRI Sales by end use (Source: ONS, 2008)



2.12 According to the AMRI 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. The majority of the remaining aggregate produced in Wiltshire and Swindon 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.

2.13 This data shows that, for Wiltshire and Swindon, soft sand and sharp sand and gravel provide for distinctly different end-uses.

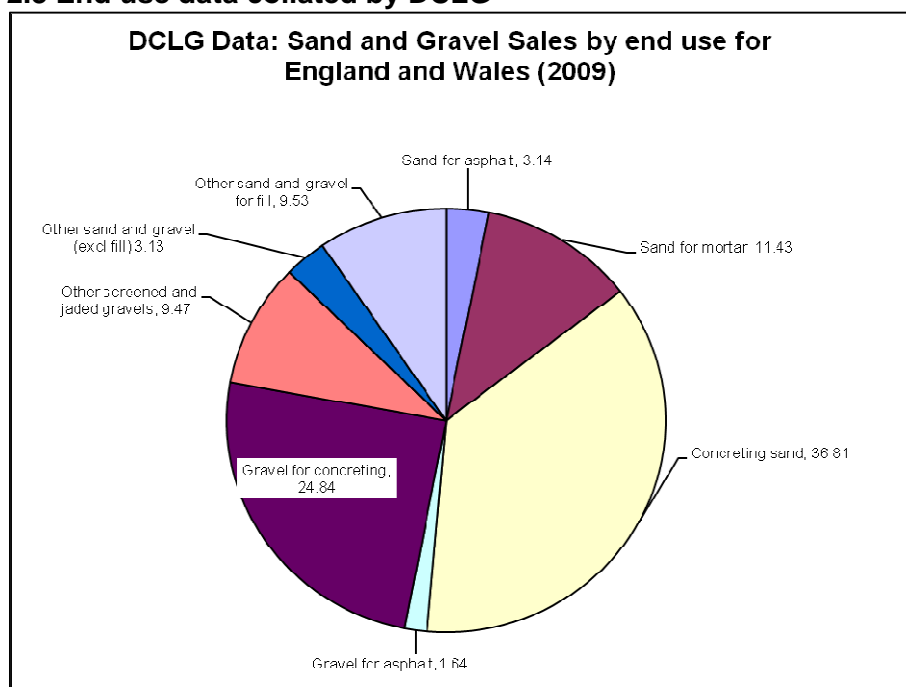
2.14 Every four years central government commission a survey of aggregates production in England and Wales⁷. The most recent of these surveys was undertaken in 2009. There is a consistency between the surveys and the AMRI data with respect to the percentage of primary aggregates produced in Wiltshire 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% - 65%⁸ 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.

2.15 The complete breakdown of sales by end use as collated through the AM2009 Survey is shown in Figure 2.3.

⁷ Figures taken from table A1 (page 107) of the Collation of the results of the 2009 Aggregate Minerals Survey for England and Wales, DCLG, 2011

⁸ This figure is fairly consistent with the national figure (69%) for sand and gravel sales by end use for 2004. (Source: BGS, 2005, *Minerals Planning Factsheet: Construction aggregates*)

Figure 2.3 End use data collated by DCLG



Final uses of primary aggregates from Wiltshire and Swindon

2.16 As the predominant end-use for much of the aggregate mineral worked in Wiltshire and Swindon it is worth mentioning some of the applications of concrete. Projects that utilise concrete are:

- Housing: foundations, lintels, paving;
- Industrial / Commercial: foundations; structural components;
- Public Sector building: hospitals, schools, civil engineering projects, etc;
- Water Industry: reservoir linings and sewage works; and
- Major projects: airports; docks; etc

2.17 Many of the projects will also involve the use of soft sand for mortar and lower grade sand and gravel for certain elements of infrastructure such as fill for landscaping. This evidence demonstrates the clear link between primary aggregates production and development.

2.18 The use of aggregates in end products is controlled through European Standards as adopted in the UK in 2004. These standards set specific criteria that determine the suitability of minerals for particular applications.

Policy context

National Planning Policy Framework (NPPF)

2.19 In March 2012 the National Planning Policy Framework (NPPF) was published⁹, replacing existing planning policy statements and some circulars

⁹ Separate guidance is currently being prepared relating to topics such as waste.

with a new concise Framework. Section 13 'Facilitating the sustainable use of minerals' and the accompanying Technical Guidance Note should now be used when planning for minerals.

2.20 Paragraph 145: 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 and other relevant local information, and an assessment of all supply options (including marine dredged, secondary and recycled sources);
- participating in the operation of an Aggregate Working Party and taking the advice of that Party into account when preparing their Local Aggregate Assessment;
- making provision for the land-won and other elements of their Local Aggregate Assessment in their mineral plans taking account of the advice of the Aggregate Working Parties and the National Aggregate Coordinating Group as appropriate. Such provision should take the form of specific sites, preferred areas and/or areas of search and locational criteria as appropriate;
- taking account of published National and sub-National Guidelines on future provision which should be used as a guideline when planning for the future demand for and supply of aggregates;
- using landbanks of aggregate minerals reserves principally as an indicator of the security of aggregate minerals supply, and to indicate the additional provision that needs to be made for new aggregate extraction and alternative supplies in mineral plans;
- making provision for the maintenance of landbanks of at least 7 years for sand and gravel and at least 10 years for crushed rock, whilst ensuring that the capacity of operations to supply a wide range of materials is not compromised. Longer periods may be appropriate to take account of the need to supply a range of types of aggregates, locations of permitted reserves relative to markets, and productive capacity of permitted sites;
- ensuring that large landbanks bound up in very few sites do not stifle competition; and
- calculating and maintaining separate landbanks for any aggregate materials of a specific type or quality which have a distinct and separate market.

The National and Local Guidelines for Aggregates Provision in England 2005 – 2020, DCLG, 2011

2.21 These Guidelines provide a national forecast of aggregates demand broken down to the local level. The forecasts are based on the relationship between past production and past economic growth, taking into account changing practices in the construction sectors towards a less intensive use of primary

aggregates. They predict a 3.7% overall decrease in sand and gravel demand and a 7.8% decrease for crushed rock compared to previous forecasts (2001 – 2016). For the south west region the forecasts predict a 19.8% decrease for sand and gravel and a 9.1% decrease for crushed rock. It is worth noting that the previous forecasts should not be taken as a reflection of actual past production which, for most years, has been lower than the 2001 – 2016 guideline figures. The details of the current forecast are shown in table 2.2 below with the previous guideline figures shown in the grey shaded cells.

Table 2.2: National and Regional Guidelines for Aggregates Provision 2001 – 2016 (shaded grey) and 2005 – 2020.

New Regions	Guidelines for land-won production for forecast period (million tonnes)				Assumptions (million tonnes)					
	Land-won Sand & Gravel		Land-won Crushed Rock		Marine Sand & Gravel		Alternative Materials		Net Imports to England	
South East England	212	195	35	25	120	121	118	130	85	31
London	19	18	0	0	53	72	82	95	6	12
East of England	256	236	8	8	32	14	110	117	8	7
East Midlands	165	174	523	500	0	0	95	110	0	0
West Midlands	162	165	93	82	0	0	88	100	16	23
South West	106	85	453	412	9	12	121	142	4	5
North West	55	52	167	154	4	15	101	117	50	55
Yorkshire & the Humber	73	78	220	212	3	5	128	133	0	3
North East	20	24	119	99	9	20	76	50	0	0
England	1068	1028	1618	1492	23	259	919	993	169	136

Source: DCLG, 2009, Revised National and Regional Guidelines for Aggregates Provision in England 2005-2020. Shaded cells show 2001 – 2016 guideline figures.

The local guideline figures for the South West

2.22 In 2009 the south west Regional Planning Body (RPB) commenced work on apportioning the revised guidelines 2005 - 2020, but this work was not completed due to the RPB being disbanded in 2010, in lieu of the Government's intention to abolish RSS¹⁰. The South West Aggregates Working Party continued the work started by the RPB and submitted sub-regional figures in 2010 which were eventually endorsed and 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 2.3 below.

¹⁰ The Government revoked Regional Spatial Strategies and Structure Plans by Act of Parliament on 20th May 2013.

Table 2.3: Sub-regional apportionment figures for south west (2005 – 2020)

Mineral Planning Authority	Crushed Rock (Mt)	Annualised production rate (Mt)	Sand and Gravel (Mt)	Annualised production rate (Mt)
<i>Former Avon</i>	79.10	4.94	0	0
<i>Cornwall</i>	26.94	1.68	Included with Devon (c)	0
<i>Devon</i>	51.21	3.20	14.91	0.93
<i>Dorset</i>	4.82	0.30	31.56	1.97
<i>Gloucestershire</i>	36.01	2.25	16.07	1.00
<i>Somerset</i>	214.65	13.42	Included with Devon (c)	Included with Devon (c)
<i>Wiltshire</i>	Included with Dorset (c)	Included with Dorset (c)	22.46	1.41 (proposed)
TOTAL	412.73	25.79	85.00	5.30
(c) = confidential				

2.23 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 should not provide strategic direction in terms of identifying broad locations for new or extended crushed rock quarries.

The local guideline figures for the South East

2.24 The plan area of Wiltshire and Swindon shares part of its boundary with the local authorities of Oxfordshire, former Berkshire and Hampshire in the south east region. It is therefore important to consider the regional approach to aggregates supply for these areas.

2.25 High levels of economic growth and associated construction activity sustained over several decades has exhausted some aggregate bearing resources within the south east, particularly around London, meaning that parts of the south east are becoming increasingly dependent on aggregates imported from other regions. This is particularly the case for crushed rock aggregates as, like Wiltshire and Swindon, the geology of the south east in this respect is limited. Nonetheless, the south east must continue to make provision for the supply of aggregates where resources are available.

Table 2.4: Sub-regional apportionment for adjacent authorities in the South East (2005-2020)

Mineral Planning Authority	Crushed Rock (Mt)	Annualised Production Rate (Mt)	Sand and Gravel (Mt)	Annualised Production Rate (Mt)
<i>Berkshire</i>	-	-	21.28	1.33
<i>Hampshire (inc Southampton and Portsmouth)</i>	-	-	32.80	2.05
<i>Oxfordshire</i>	10.56	0.66	33.60	2.10

Source: National and Local Guidelines 2005 – 2020, DCLG, 2011.

Relevant local level policy

- 2.26 Unlike other forms of development, the location of sites for minerals extraction is dictated by the extent and accessibility of the underlying geology and the need 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. Figure 2.1 on page 7 shows the principle active aggregates quarries in relation to the plan area.
- 2.27 The policies of the **Wiltshire and Swindon Adopted Minerals Core Strategy** promote a continuation of existing supply patterns for soft sand and sharp sand and gravel in the short to medium term. However, it is recognised that the resource in the Upper Thames Valley is significantly diminished and therefore towards the end of the plan period (2026) sites from other sand and gravel bearing resources may need to come forward for development.
- 2.28 However, as demonstrated later in this LAA, the current landbank of permitted reserves for soft sand and sharp sand and gravel combined is significantly below the 7 year minimum. At the time of writing, two of the Preferred Areas (allocated by policy 35 of the former Minerals Local Plan), Eysey and Roundhouse, are now active quarries, two areas have been permitted but as yet development has not commenced, and the three remaining allocated Preferred Areas are the subject of a planning application. Due to the fact that the remaining undeveloped Preferred Areas are not sufficient to meet forecast demand, Wiltshire and Swindon are considered as a shortfall sub-region, and will need to identify additional areas of land to meet forecast demand to 2026.
- 2.29 Similarly in **Gloucestershire**, the current Minerals Local Plan (adopted 2003) approach is to concentrate sand and gravel production on the resources of the Upper Thames Valley. Over 90% of sand and gravel production in Gloucestershire is sourced from the Upper Thames Valley with a relatively small amount extracted in the Severn Vale. Gloucestershire also produces crushed rock from the Carboniferous limestone of the Forest of Dean area, and Jurassic limestone from the Cotswolds. The current national policy regarding the allocation of minerals development in AONB¹¹ could mean that meeting the sub-regional forecast provision rate for crushed rock will be a significant challenge for the MPA. In terms of sand and gravel supply, Gloucestershire is also a shortfall authority. The Gloucestershire Minerals Core Strategy is currently in preparation¹² and the county plans to consult on site options in December 2013/January 2014.
- 2.30 The predominance of mineral workings in the Upper Thames Valley in both Wiltshire and Gloucestershire, on what is effectively a shared resource, means that future development would benefit from a coordinated approach between MPAs. The Wiltshire and Gloucestershire MPAs meet on a regular basis to discuss the issues related to minerals development in this area. To resolve these issues both authorities support, in principle, the development of a consistent approach (e.g. a shared vision and objectives) and collaborative working for minerals development in the Upper Thames Valley.

¹¹ The National Planning Policy Framework (NPPF) Paragraphs 115 and 116.

¹² Work has effectively been parked to allow for the completion of the Gloucestershire Waste Core Strategy.

Policy MCS5 of the Wiltshire and Swindon Minerals Core Strategy demonstrates this commitment.

- 2.31 **Oxfordshire** has traditionally provided supplies of soft sand, crushed rock and sharp sand and gravel. Soft sand and sharp sand and gravel is found predominantly in the south and west of the county whereas limestone and ironstone for crushed rock is found mainly in the north and west. Oxfordshire also has an issue of meeting forecast supply from existing limestone producing areas because a significant proportion of the resource is within an AONB. The emerging Oxfordshire Minerals and Waste Core Strategy will be submitted in August 2012. The proposed submission document¹³ sets out the County Council's minerals planning strategy and policies for the period to 2030, planning for locally-derived annual supply figures of sand and gravel (1.26 million tonnes a year) and crushed rock (0.63 million tonnes a year). These figures are based on work by consultants commissioned to provide a locally based assessment of Oxfordshire's aggregate requirements as an alternative to the figures in the South East Plan, which sets a greater apportionment for the area. The plan also recognises a need to safeguarding the four existing and permitted rail depots for importing aggregates to the county. Oxfordshire has identified a number of mineral site options and intend to prepare a Minerals Site Allocations document, which will follow on from the Minerals and Waste Core Strategy.
- 2.32 The **former Berkshire** sub-region provides for sand and gravel and soft sand but has no suitable deposits of hard rock resulting in crushed rock being supplied by rail from the south west region. All current aggregate sites within the sub-region occur east of Newbury.
- 2.33 In **Hampshire** the production of aggregates is also limited to sand and gravel, which according to research undertaken by Hampshire County Council serves mainly local markets, with a small percentage being exported to Wiltshire¹⁴. The area of Wiltshire that lies within the New Forest National Park (NFNP) now forms part of the NFNP Planning Authority. The NFNP elected to prepare their Minerals and Waste Development Framework jointly with Hampshire County Council, Southampton City Council and Portsmouth City Council, including the area of the NFNP within Wiltshire.
- 2.34 Hampshire (including Southampton, Portsmouth & the NFNP) adopted its Minerals and Waste Core Strategy in July 2007. The policies within this plan will be superseded by the Hampshire Minerals and Waste Plan, which was submitted to the Secretary of State in February 2012. Policy 17 of the Plan relates to aggregate supply and states, "An adequate and steady supply of aggregates until 2030 will be provided for Hampshire and surrounding areas from local sand and gravel sites at a rate of 1.56 mtpa, of which 0.28 mtpa will be soft sand". This locally-derived figure is less than the sand and gravel apportionment of 2.05 mtpa set for Hampshire in the South East Plan¹⁵.

¹³ Oxfordshire Minerals and Waste Core Strategy Proposed Submission Document (May 2012)

¹⁴ Hampshire Minerals and Waste Development Framework, The Strategy Technical Supporting Document, 2006, (p52)

¹⁵ The South East Plan: Secretary of State's Proposed Changes, Regional Spatial Strategy for the South East, Policy M3: Primary land-won aggregates and sub-regional apportionment (Government Office of the South East, 2010)

- 2.35 As identified in the Hampshire Minerals and Waste Plan, several active and proposed sand and gravel quarries in Hampshire are located in close proximity to or just within the New Forest boundary. These are thought to supply the markets of south west Hampshire, South Wiltshire, and Bournemouth and Poole in Dorset.
- 2.36 In **Dorset** nearly all of the aggregate producing quarries are located in the south of the county. There is currently one active limestone quarry in the north near to the Wiltshire and Somerset borders. The majority of active quarries produce sand and gravel with crushed rock also being produced from mineral waste at two sites near to the coastline. The waste product of ball clay extraction can potentially provide a source of aggregate. However, deposits of sand and gravel that are acceptable in planning terms are becoming scarce and may lead to difficulties in identifying suitable land to meet future provision, within acceptable social and environmental limits. Dorset is also a sand and gravel shortfall authority.
- 2.37 The Bournemouth, Dorset and Poole Minerals Core Strategy Pre-submission Draft was published for public consultation in July 2012. Dorset has undertaken work to determine the most appropriate level of provision of aggregates in order to achieve continuity of supply. The Pre-submission draft Core Strategy makes provision for 1.78 million tonnes of sand and gravel per annum, and 0.30 million tonnes per annum of crushed rock, to 2028. These figures are less than the current apportionment set by the regional level.
- 2.38 **Somerset** is a regionally and nationally important producer of crushed rock, supplying many sub-regions in the south west and south east regions. A substantial amount of crushed limestone (c 5 million tonnes¹⁶) is exported by rail to London and the South East region. In contrast to other sub-regions, Somerset does not have any active sand and gravel quarries. The close proximity of the Mendip quarries to parts of Wiltshire (less than 10km to the Wiltshire boundary), means that crushed limestone can easily be transported by road into areas of north, west and south Wiltshire. The economies of scale associated with such large quarries is thought to represent significant competition against any new, smaller scale sharp sand and gravel quarries located within the Bristol Avon Valley close to the Wiltshire/Somerset boundary. However, at this stage, the evidence is not available to suggest that mineral extraction would not be viable in the Bristol Avon Valley because of this. The main minerals planning policy document is the Minerals Local Plan for Somerset, which was adopted in April 2004.
- 2.39 The **West of England** (former Avon sub-region) produces crushed rock and a relatively small amount of sand and gravel. Most extraction occurs in the South Gloucestershire and North Somerset unitary authority areas. It is assumed that the active quarries in this area supply the substantial local markets of Bristol and surrounding areas. The adopted South Gloucestershire Minerals and Waste Local Plan (2002) identifies three Preferred Areas for the extraction of crushed rock to 2026, based on MPG6 forecasts. The subsequent forecasts and sub-regional apportionment for 2001 – 2016, and then 2005 - 2020 show a decrease in overall demand for

¹⁶ Collation of the Results of the 2009 Aggregate Minerals Survey for England and Wales, 2011, Table 4a.

crushed rock from the former Avon area, meaning that existing provision should be more than sufficient to meet forecast demand to 2026.

Meeting the need for primary aggregates in Wiltshire and Swindon

Testing the capacity of the plan area to meet forecast demand

- 2.40 The NPPF outlines 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 and other relevant local information, and an assessment of all supply options (including marine dredged, secondary and recycled sources).”¹⁷
- 2.41 As discussed previously in this report, forecasts of demand for aggregates have historically been prepared for each sub-region at the national level. They are based on an economic model of past levels of production and predictions of likely future rates of consumption by region. These forecasts are then broken down to sub-regions (which generally conform to former county boundaries), using each sub-region’s percentage share of past production as the basis for dividing up the regional forecast figures. The most recent published (albeit not formally approved by the Government) sub-regional apportionment for Wiltshire and Swindon (for the period 2005 – 2020) is 1.41 million tonnes per annum¹⁸..
- 2.42 Policy MCS1 of the adopted Wiltshire and Swindon Minerals Core Strategy sets out the councils’ commitment to “**...aim to make provision of land in Wiltshire and Swindon sufficient to meet demand for sand and gravel in accordance with national and regional policy.**” This policy statement essentially identifies the need to test the capacity and environmental acceptability of the sub-regional apportionment for Wiltshire and Swindon through the preparation of the Aggregate Minerals Site Allocations Plan but does not commit the councils to a fixed annualised rate of production. The policy was also written in the context of a diminished sand and gravel resource in the Upper Thames Valley, and the uncertainty over whether full provision at the sub-regional apportionment rate could be made.

The sand and gravel provision to be made in Wiltshire and Swindon

Production

- 2.43 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. Table 2.5 sets out production (sales) figures for sand and gravel between 1991 and 2011. There had been a general peak in production during the period 1998 - 2006 but, with the exception of some

¹⁷ The National Planning Policy Framework (NPPF) Paragraph 145.

¹⁸ The adopted sub-regional apportionment figure for the period 2001 – 2016 is 1.85 million tonnes per annum.

notable years, the actual output of sand and gravel in Wiltshire and Swindon has never met the forecast provision rates set out in the successive sub-regional apportionment exercises.

2.44 When analysing the data in table 2.5 and taking a rolling average of the past 10 years production/sales data, in this case from 2002 – 2011 (inclusive) (shaded grey), it is clear to see that production at 1 Mt per annum is significantly lower than Wiltshire and Swindon’s annualised sub-regional apportionment figures of both 1.85 Mt per annum and most recent 1.41 Mt per annum (2011). The downturn in production in recent years can in part be attributed to economic factors. However, the evidence reports listed in paragraph 2.122 of this report, following an assessment of all resource and site options collectively indicate that the plan area of Wiltshire and Swindon is simply running out of deliverable sand and gravel resources.

Table 2.5: Wiltshire and Swindon Sand and Gravel Production: 1991 – 2011
(data from cells highlighted in grey have been used to calculate a rolling 10 year average production/sales)

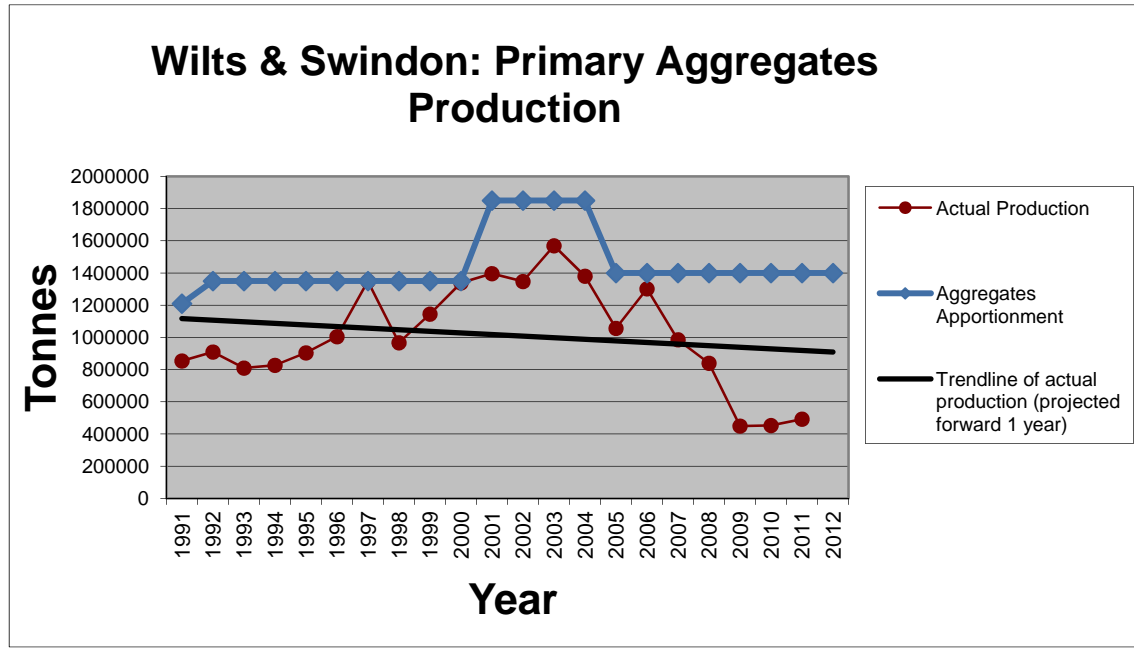
Year	Total Prod. (sales) of sand & gravel (Mt per annum)	Annualised Sub-regional Apportionment (Mt per annum)	Difference (Mt)
1991	0.85	1.21	-0.36
1992	0.91	1.35	-0.44
1993	0.81	1.35	-0.54
1994	0.83	1.35	-0.52
1995	0.90	1.35	-0.45
1996	1.00	1.35	-0.35
1997	1.35	1.35	0.00
1998	0.97	1.35	-0.38
1999	1.14	1.35	-0.21
2000	1.34	1.35	-0.01
2001	1.40	1.85	-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 ¹⁹	-0.80
2006	1.30	1.41	-0.55
2007	1.04	1.41	-0.81
2008	1.08	1.41	-0.77
2009	0.45	1.41	-1.40
2010	0.45	1.41	-1.40
2011	0.49	1.41	-1.36

2.45 Figure 2.4 provides an illustrative account of ‘actual’ sand and gravel production in Wiltshire and Swindon over the period 1991 – 2011. As actual production has to date 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

¹⁹ Please note, the sub regional apportionment figure of 1.85 was revised down to 1.41 by the 2005 - 2020 National and Regional Guidelines in September 2011 but were not formally ratified by the government. However they have been used in table 2.5 and in figure 2.4 since 2005 for illustrative purposes.

1.41 million tonnes per annum, and as a number of years have elapsed since the adoption of the Minerals Core Strategy, the councils considered it logical to establish a base date for the Minerals Site Allocations of 2011 from which to plan for future provision.

Figure 2.4: ‘Actual’ Production of Sand and Gravel in Wiltshire and Swindon: 1991 - 2011



Context – Analysis of Regional/Wiltshire and Swindon import and export data 2009

2.46 The data presented has been obtained from the most recent Aggregate Minerals survey of England and Wales, conducted in 2009 (published 2011)²⁰. 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, and outlines the import and export patterns of the Wiltshire MPA sub-region.

The South West Region

2.47 In 2009, the South West was the sixth largest 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 numbers for 2009 are the lowest recorded figures since the Aggregate Minerals survey began, illustrating a downward trend in mineral production and development over recent years.

²⁰ Collation of the results of the 2009 Aggregate Minerals Survey for England and Wales, 2011

2.48 In 2009, 597,000 tonnes of sand and gravel were exported out of the South West (16 per cent of the region's sales), and 430,000 tonnes were transported into the region (12 per cent of South West consumption). In context, the South West was the sixth biggest exporter and seventh biggest importer of the nine English regions. The vast majority of the South West's sand and gravel trade (imports and exports) is with the South East region. It should be noted that the inter-regional flows of crushed rock are significantly larger than for sand and gravel because of the overall larger demand for crushed rock (and a lack of quality crushed rock resources in London and the South East). In 2009, Wiltshire sold 450,000 tonnes of land-won sand and gravel. This figure is less than the sales of Devon²¹, Dorset and Gloucestershire, but represents 14 per cent of land-won sand and gravel sales from the South West AWP area (3.2 Mt), or 12 per cent of total sand and gravel sales for the region (including marine sources).

Wiltshire and Swindon

2.49 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.

2.50 Wiltshire imported 633,000 tonnes²² of sand and gravel in 2009, more than any other sub-region in the South West. Wiltshire was also the biggest user of sand and gravel in the South West, consuming 900,000²³ tonnes in 2009 (see table 2.6). 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 2.6 Consumption of sand and gravel in Wiltshire and Swindon, 2009

Position	Tonnes
Wiltshire and Swindon Total Sales	450,000 tonnes
Wiltshire and Swindon Total Exports	184,000 tonnes
Wiltshire and Swindon Total Imports	633,000 tonnes
Wiltshire and Swindon Total Consumed	900,000 tonnes ²⁴

How does the Aggregate Minerals Survey data reflect Wiltshire's position?

2.51 Although some caution should be demonstrated in interpreting the consumption figures set out above, it is clear that Wiltshire and Swindon are shortfall MPAs²⁵. In 2009, sand and gravel aggregate sales from Wiltshire were approximately half of what was consumed by the plan area.

²¹ Devon also includes land-won sand and gravel for Cornwall.

²² Figures for imports by sub-region cannot be compared with the imports by region previously stated. Imports by sub-region includes not only imports from other regions (inter-regional flows) but also flows from sub-region to sub-region within the same region.

²³ The Aggregate Minerals survey emphasises that some caution should be used in interpreting consumption figures as they are calculated from the principal destination of aggregate flows. Final sales may be to other regions.

²⁴ Figures do not sum due to rounding.

- 2.52 Through analysis of this data it is evident that Wiltshire and Swindon need to identify additional sand and gravel sites to meet demand. This position further supports the basis of which the Minerals Site Allocations Local Plan is premised on – that historically production in Wiltshire and Swindon is declining, that there are very few remaining options available and this explains the lack of sites being promoted or supported by the minerals industry. The Minerals Site Allocations Local Plan has assessed all available remaining resource options in the plan area and presents a list of suitable site options based on a rigorous sustainability appraisal of each site. This approach is discussed further from paragraph 2.86.

Landbanks

- 2.53 In preparing development plans, the requirement to make provision for aggregate minerals to meet forecast demand is met by ensuring that sufficient resources are identified, or can be identified to ensure that the 'landbank', i.e. the stock of permitted reserves, can be maintained at an appropriate level throughout the plan period.
- 2.54 The length of a landbank (in years) remains a key indicator in determining whether or not additional reserves should be identified and permitted. It should also reflect the time needed to obtain planning permission and bring new sites into full operation. The Government advises that landbanks for sand and gravel should extend for a *minimum* of 7 years²⁶ but conversely MPAs are also advised to avoid making excessive provision. So, 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.

Calculating landbanks and determining long-term provision

- 2.55 As outlined above, landbanks and landbank commitments are calculated with reference to current production rates and the provision requirements set out through the sub-regional apportionment process. The NPPF prescribes a 7 year landbank which can be calculated as follows (calculation previously described within MPS1):

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].

- 2.56 Therefore, in the case of Wiltshire and Swindon the landbank commitment at 31 December 2011 can be calculated as follows:
- Sand and Gravel Landbank²⁷: 4.29 million tonnes

²⁶ The National Planning Policy Framework Paragraph 145

²⁷ Landbank taken as measured at 31st December 2011 (excluding dormant consented reserves).

- Sand and Gravel Requirement Rate: 1.41 million tonnes per annum
- Length of Landbank: $4.29 / 1.41 = 3$ Years.

2.57 As demonstrated in figure 2.4, actual primary aggregates production in the plan area has been consistently and significantly lower than forecast rates of production. Therefore, a landbank based on an average of the past 10 years production (**4.29 / 1.0 = 4.29 years**) would perhaps be a more realistic approach for Wiltshire and Swindon to take. That said, the landbank would still be below the 7 year minimum required by the NPPF.

Capacity of existing Minerals Local Plan Preferred Areas

2.58 The policies of the former Minerals Local Plan (MLP) included six Preferred Areas allocated for sand and gravel minerals development to meet forecast demand²⁸ (see figure 2.5). Of these, only 3 (Eysey Manor Farm, Roundhouse Farm and Latton Lands) have been granted planning permission. Using the base date of 31 December 2011 this leaves Preferred Areas 1 (part of), 3 and 4 as allocated but as yet undeveloped²⁹. The following table sets out details on the Preferred Areas in terms of potential reserves.

Table 2.7: Status of Preferred Areas in 2011

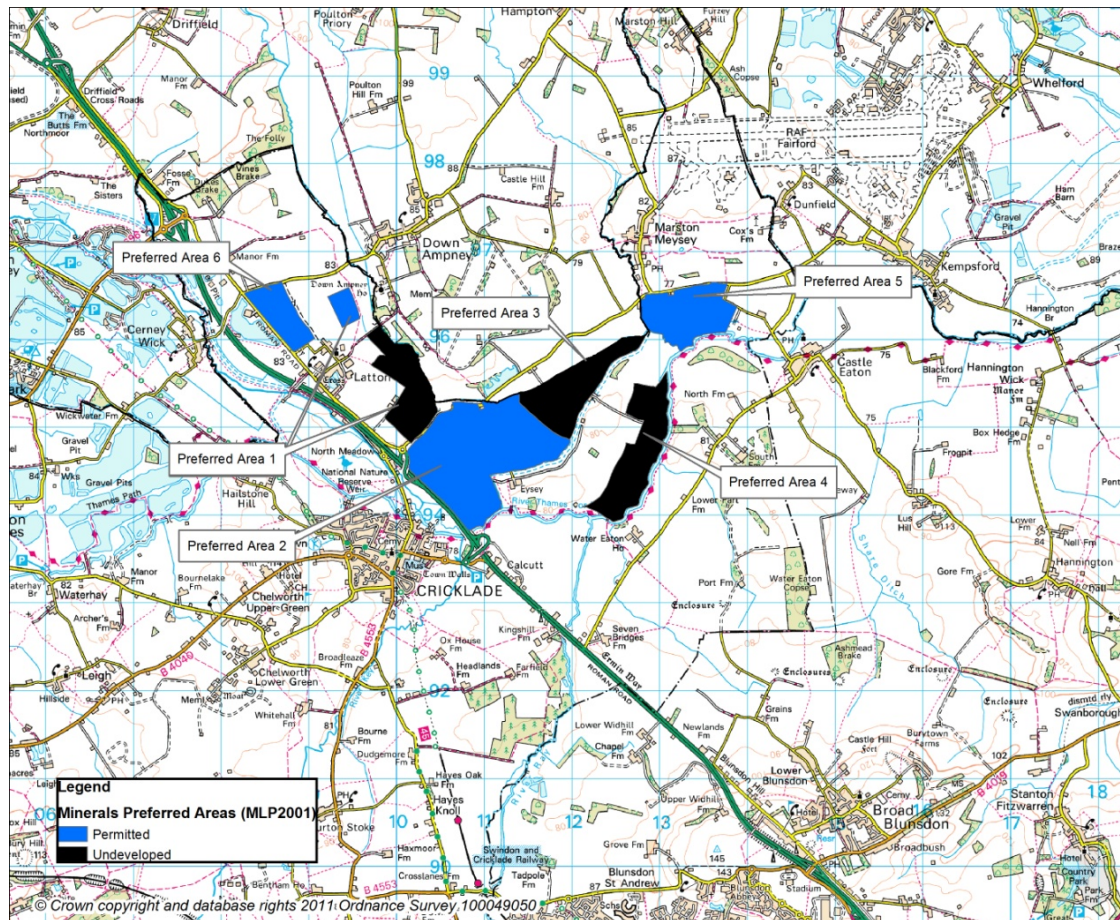
Preferred Area	Title	Area (hectares)	Permitted (million tonnes)	Remaining (million tonnes)
1	Land East of Latton	59	0.1	1.3
2	Eysey Manor Farm	156	2.7	-
3	Alex Farm	56	-	1.1 – 1.4
4	Land North West of Water Eaton House	65	-	0.7
5	Round House Farm	56	1.2	-
6	North West of Latton	29	0.4	-
TOTAL		421	3.9	3.1 – 3.4

2.59 The former Minerals Local Plan also made provision for a **strategic resource block** known as Cox's Farm. This area of land was originally identified as a Preferred Area (potentially yielding an additional 2.4 million tonnes) but was 'down-graded' to resource block status as a result of the Local Plan Inquiry on the basis of a lack of need. However, it is important to stress that, in making this recommendation, the Planning Inspector considered that there was a long-term role for Cox's Farm in terms of supplementing the landbank if overall production rates out-stripped the forecast supply rates.

Figure 2.5: Wiltshire and Swindon Minerals Local Plan (2001) – Preferred Areas

²⁸ The previous Adopted Minerals Local Plan made provision to meet forecast demand for the period 1991 to 2006 (established as a result of the demand forecasts published in MPG 6, 1994). The 'annualised' forecast production rate at the time was 1.35 million tonnes.

²⁹ These remaining Preferred Areas are currently the subject of a planning application for sand and gravel extraction.



Future aggregates supply from Wiltshire and Swindon

- 2.60 As mentioned previously it is logical to use a base date of 31 December 2011 for the purposes of establishing how much primary aggregates the councils should endeavour to make provision for until the end of the plan period.
- 2.61 Taking into consideration the landbank position and remaining undeveloped Preferred Areas as of 2011, table 2.8 below presents the requirements for sand and gravel.

Table 2.8: Sand and Gravel Provision Requirements: 2012 – 2026

	A Remaining Local Apportionment (2012 – 2020) 9 years	B Residual requirement (2021 – 2026) 6 years	C Remaining Reserves (at 31/12/11)	D Remaining Allocated sites	E Revised Requirement Mt (A+B) - (C+D)
Sub-regional apportionment at 1.41 million tonnes per annum	12.69	8.46	4.29	3.1	13.76
Local forecast at 1.0	9	6	4.29	3.1	7.61

million tonnes per annum (10 years average at 2002-2011 inclusive)					
Local provision rate based on average of past 10 years production and contingency ³⁰ (1.2 million tonnes per annum)	10.8	7.2	4.29	3.1	10.61

- 2.62 During the past twenty years production in Wiltshire and Swindon has not come close to matching forecast rates except in a few exceptional years.
- 2.63 The Minerals Products Association has helped develop and endorse the NPPF policy approach (paragraph 145) whereby local authorities base their provision rate on the average of the past 10 year's production³¹. The average annual production in Wiltshire and Swindon for the period 2002-2011 (inclusive) equates to 1.0 million tonnes per annum. Taking this position into account, it is therefore reasonable to suggest that a local forecast of 1.0 million tonnes per annum more closely reflects recent demand and industry operations than figures derived from national and regional forecasts. However, given the uncertain economic times of the last 2-3 years and the decrease in production associated with this, it would be more prudent to suggest that a local forecast figure of 1.2 million tonnes per annum would offer the flexibility required to increase production as and when economic conditions dictate and would factor in any discrepancies between estimated reserves and actual reserves.
- 2.64 In order to provide greater certainty for developers, communities and landowners, it is essential to be as confident as possible that the site allocations in a plan are likely to come forward during the plan period. For this reason it is important to test whether any forecast of need for an area is realistic and achievable. An assessment of remaining resource options was undertaken in line with the requirements of the now superseded National policy (MPS1) which accepted the need to test sub-regional apportionment figures and in paragraph 3.8 stated "sub-regional apportionments should not be regarded as inflexible. The preparation by MPAs of their LDDs provides an important opportunity to test the practicality and environmental acceptability of policy proposals at the local level. The provision to be made in each area will need to be justified in relation to other relevant considerations affecting planning for the area." MPAs are therefore required to justify the allocation of sites to meet either the sub-regional apportionment or any locally derived alternative.
- 2.65 Similarly the NPPF (paragraph 145) now calls for Local Aggregate Assessments to be undertaken by MPA's when planning for the steady and adequate supply of aggregates. It indicates that a Local Aggregate Assessment should be informed by a 'rolling average of 10 years sales data and other local information, and an assessment of all supply options'.

³⁰ See paragraph 2.83

³¹ As presented to the East of England RAWP by the Minerals Products Association on 22 March 2011 and circulated to all RAWP Secretaries on 30 March 2011

Furthermore, the NPPF calls for MPA's to also take 'account of published National and Sub National Guidelines on future provision which should be used as a guideline when planning for the future demand for and supply of aggregates' (paragraph 145).

Assessment of remaining resource options

- 2.66 The councils have undertaken a comprehensive assessment 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. The findings from this assessment are detailed below.
- 2.67 As the aggregate bearing Mineral Resource Zones (MRZs) within Wiltshire and Swindon are limited by their extent and quality (see figure 2.6), the opportunity to consider various future supply patterns is restricted. To ensure that the approach in the Core Strategy could be considered sound the councils commissioned the British Geological Survey (BGS) to undertake an assessment of the sand and gravel resources of Wiltshire and Swindon³². The main objective of the report was to provide an estimate of remaining constrained³³ and not constrained reserves within the County and Borough, the results of which are summarised in table 2.9.

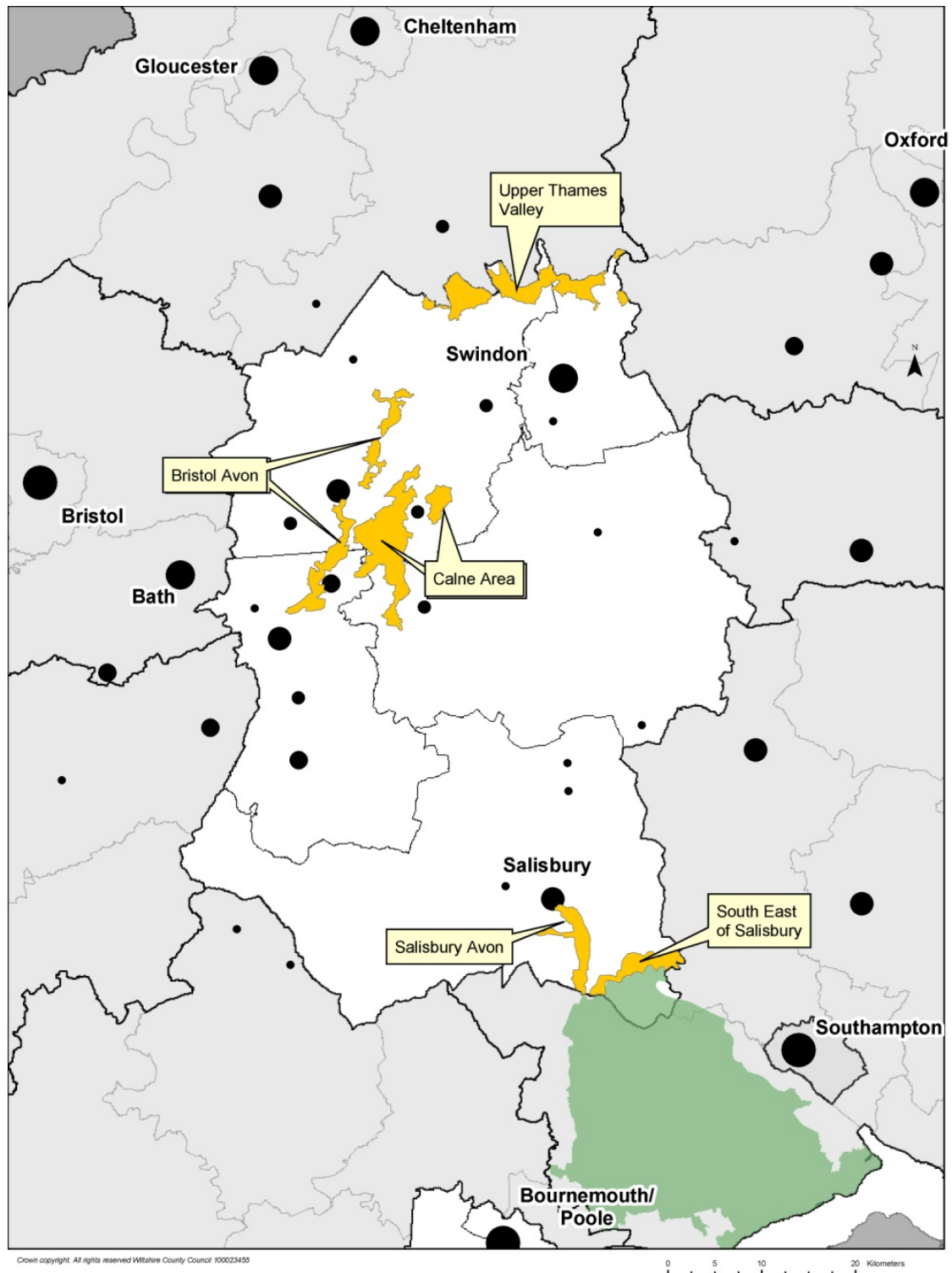
Table 2.9: British Geological Survey estimates of remaining resource, 2007

Mineral Resource Zone	Estimated resource not constrained by any environmental designations (Mt)	Estimated resource constrained by 1 environmental designation (Mt)	Estimated resource constrained by more than 1 environmental designation (Mt)	Total estimated resource (Mt)
Bristol Avon	0	0	0	0
Calne Soft Sand	362	3	0	366
Salisbury Avon (south of Salisbury)	299	11	9	319
Upper Thames Valley	105	0	3	108
Whiteparish Soft Sand	61	0	0	61
TOTALS	827	15	12	854

Figure 2.6: Sand and gravel resources assessed by the British Geological Survey (BGS)

³² A Provisional Assessment of the Sand and Gravel Resources of Wiltshire and Swindon, BGS, 2007 is available to view on the Minerals and Waste Evidence Archive page of the Wiltshire Council website at www.wiltshire.gov.uk/mineralsandwastevidencebase/mineralsandwastevidencearchive

³³ Only concerning the International and National environmental designations of SAC, SPA, AONB & SSSI, National Nature Reserve and National Park.



2.68 In their report, the BGS does not consider the Bristol Avon, or parts of the Salisbury Avon north of Salisbury as having any resource potential. In their opinion this is due to the general poor quality of deposits, although it is acknowledged that there may be pockets of viable mineral resources within these areas. The Council has previously permitted sites for minerals extraction in these areas, and considered a range of potential sites in the Bristol Avon Valley through the preparation of the former Minerals Local Plan, 2001. Because of this, the Bristol Avon was not immediately discounted at this stage.

Testing the capacity of resources in Wiltshire and Swindon to meet forecast demand for sand and gravel – an overview of the findings

- 2.69 The preparation of the Aggregate Minerals Site Allocations Plan presented an opportunity to establish whether the regional forecast rate can be maintained or whether there is a need for a lower level of delivery in the plan area. The councils undertook an extensive constraints sieving exercise³⁴ (informed by SA/SEA) of the five mineral resources zones³⁵ in Wiltshire and Swindon to identify further site options in addition to those put forward by the minerals industry. The results of the sieving exercise demonstrated that significant areas of unexploited resource are highly constrained and/or inaccessible. However, through this exercise, owners of potentially mineral bearing land were contacted and a total of 62 site options were put forward for initial consideration.
- 2.70 These initial 62 site options were subjected to further SA/SEA analysis through a matrix approach which assessed each site option against a set of SA/SEA criteria and colour coding scheme based on a site's impact on each criterion.³⁶
- 2.71 Although many of the 62 site options would have presented potentially significant issues if they were to be developed as quarries, the councils included them in an initial site options report³⁷ to provide stakeholders and communities an opportunity to offer up additional information about the sites to help inform the decision making process through consultation. It also provided an opportunity for additional alternative site options to be put forward by landowners and/or the minerals industry.
- 2.72 Following the consultation, 40 of the initial site options were dropped from further consideration on the basis that they would have overriding environmental constraints (some of those 40 site options were withdrawn from further consideration by the landowner). This left 22 site options remaining for further assessment.
- 2.73 The further assessments were undertaken by officers at Wiltshire Council with expertise in relevant fields including ecology, landscape, transport and the historic environment³⁸. The results of these assessments were then used to further inform the grading of the sites against the developed sustainability criteria³⁹. This reduced the number of site options considered suitable for development to 7 (with extensions to Brickworth Quarry considered as one option due to shared characteristics and their potential to

³⁴ Wiltshire & Swindon Aggregate Minerals Site Allocations DPD - Evidence Report. The results of a constraints sieving exercise applied to remaining sand and gravel resources in Wiltshire and Swindon (March 2010).

³⁵ The Mineral Resource Zones are identified in the adopted Minerals Core Strategy as broad areas of search for future sand and gravel and soft sand extraction in Wiltshire and Swindon.

³⁶ Wiltshire and Swindon Minerals and Waste Development Framework – Wiltshire and Swindon Aggregate Minerals Site Selection & Site Appraisal Methodology (August 2009).

³⁷ Initial Site Options Report for the Wiltshire and Swindon Aggregate Minerals Site Allocations DPD (August 2010).

³⁸ See the accompanying Submission Minerals Sites Plan library of supporting documents

³⁹ For a complete analysis of all site options considered throughout the site identification and assessment process see: Wiltshire and Swindon Minerals and Waste Development Framework: Summary of minerals site appraisal matrices (November 2011).

be brought forward and worked together in a phased manner) for the period to 2026. The 7 site options would be expected to yield an estimated 10.86 million tonnes.

Testing the capacity of resources in Wiltshire and Swindon to meet forecast demand for sand and gravel – site selection and assessment process and outcomes

The market catchments of the Mineral Resource Zones

- 2.74 In order to ensure that an appraisal of the capacity of Wiltshire and Swindon to meet forecast need is realistic, it is necessary to appreciate, as much as possible, the relationship between the mineral resources and the markets they serve. Wiltshire and Swindon covers a large geographical area of 3455km². The pattern of urban/rural development and the location/type/dispersal of the mineral resources within the plan area mean that the different Mineral Resource Zones (MRZs)(identified in figure 2.6) will, in most if not all cases, serve different market catchment areas. Due to the relatively high costs associated with the transportation of minerals by road - for sand and gravel use of rail is rarely an option due to the significant investment in rail infrastructure required against the generally short lived nature of these types of development - these mineral resources tend to supply areas within 40km⁴⁰ of their point of origin.
- 2.75 Based on the limited catchment of road borne aggregates, the majority of sand and gravel from the north of Wiltshire (i.e. the Upper Thames Valley) can be assumed to supply markets of Swindon, Chippenham, Cheltenham, Gloucester, Bristol, Bath and possibly Oxford. For quarries in the south of the plan area, the market catchment is likely to extend as far north as Salisbury, but due to the road network has better connectivity to parts of Hampshire and Dorset to the south. It is therefore reasonable to conclude that a shortfall in supply in the north cannot be made up for from resources in the south of the county.
- 2.76 In the adopted Wiltshire and Swindon Minerals Core Strategy the councils acknowledge this point. However, in relation to a predicted shortfall in supply from the Wiltshire and Swindon side of the Upper Thames Valley sand and gravel deposits towards the end of the plan period, the councils accept that the capacity of the other MRZs, such as the Bristol Avon, to make up for this shortfall still needed to be assessed through the preparation of the Aggregate Minerals Site Allocations Local Plan.

The Upper Thames Valley Mineral Resource Zone

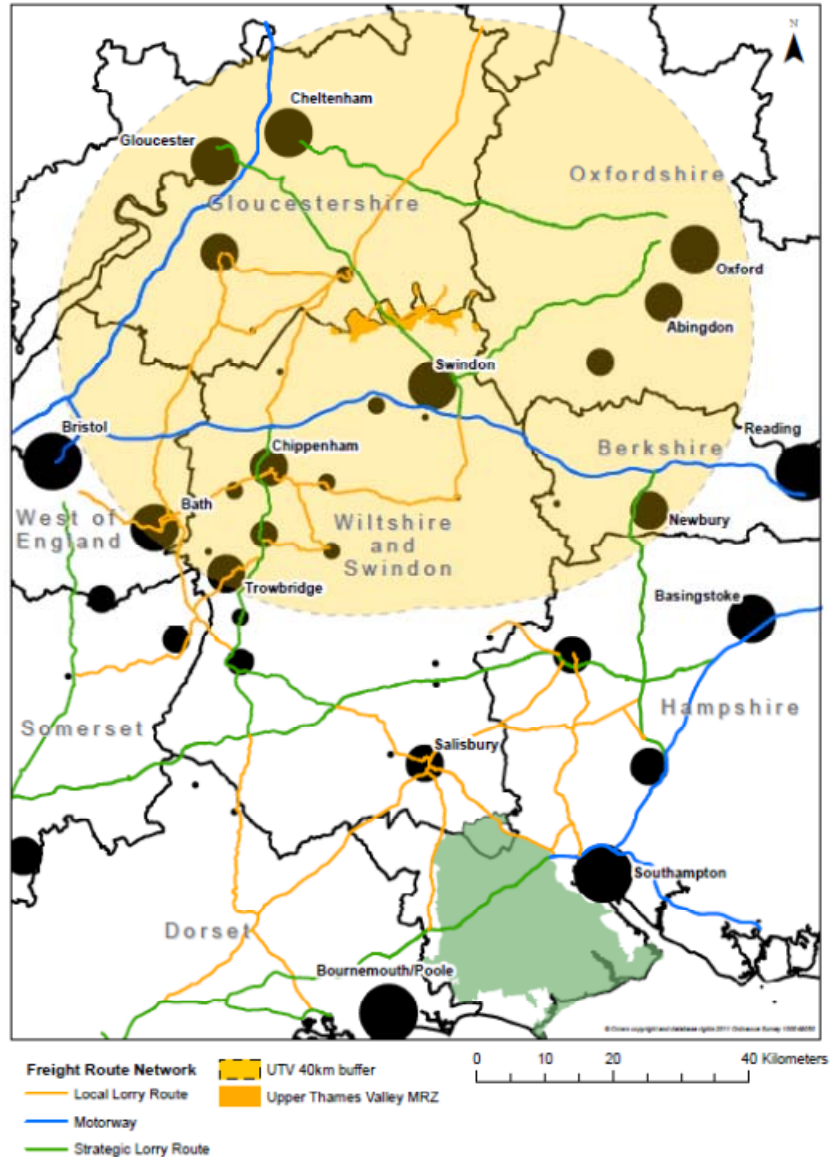
- 2.77 The Upper Thames Valley has consistently contributed to 75%- 80% of sand and gravel produced in Wiltshire and Swindon for the period 1991 - 2010. A significant proportion of the sharp sand and gravel from the Upper Thames Valley can be assumed to supply aggregate for concreting uses⁴¹. The

⁴⁰ Minerals Planning Factsheet: Construction Aggregates, (Page 25), British Geological Survey and Department for Communities and Local Government, Feb 2007.

⁴¹ Collation of the results of the 2009 Aggregate Minerals Survey for England and Wales, DCLG, 2011, shows that 62% of sand and gravel extracted in England and Wales is used as concreting aggregate.

remainder is likely to be used for screened and graded gravels and possibly bulk fill for construction projects. Due to its angular properties and consequently poorer compaction and binding than soft sand in relatively thin layers, sharp sand is not generally considered suitable for use in mortar. However, technology is now being implemented allowing a soft sand equivalent to be produced in limited quantities by utilising silt from sharp sand and gravel quarries.

Figure 2.7: The assumed market catchment of the Upper Thames Valley MRZ



2.78 Figure 2.7 shows the assumed market catchment area for the Upper Thames Valley MRZ within a 40km distance. It is appreciated that figure 2.7 is purely illustrative and does not necessarily map the exact catchment for the MRZ. However it reasonable to assume that only limited percentage of mineral (up to 20%) will travel more than 40km. The market catchment area can be defined as including Swindon, Cheltenham, Gloucestershire, Bath, Bristol, Chippenham, Trowbridge, Newbury, Abingdon and Oxford. However it should be noted that those urban areas on the outer limits of the 40km catchment could be served by quarries from other counties, such as the Mendip quarries in East Somerset. Although quarries will supply projects beyond this distance it can be assumed that this will be for a small

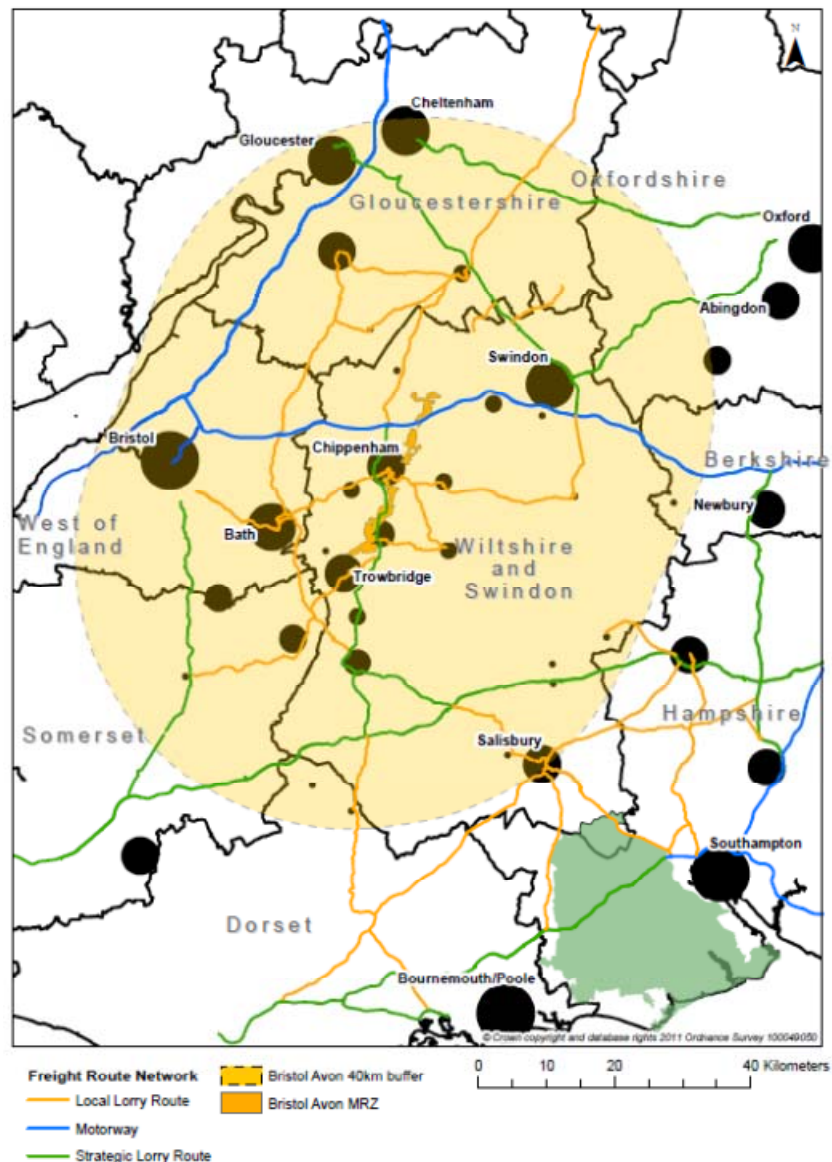
proportion of the total sand and gravel supplied from the Upper Thames Valley. Most of the major urban areas that fall within 40km of the Upper Thames Valley MRZ are well served by the road network.

- 2.79 Figure 2.7 also shows that a significant proportion of the south of Wiltshire is unlikely to be served by the Upper Thames Valley, firstly due to the fact that it is more than 40km from the MRZ, and secondly due to the lack of suitable routing via the primary or advisory HGV road network. For example, a journey to Salisbury from the Upper Thames Valley using the primary or advisory HGV route network would need to cover a distance of approximately 120km.

The Bristol Avon Mineral Resource Zone

2.80 The Bristol Avon MRZ is generally viewed by many representatives of the minerals industry as containing poor quality, 'dirty' gravels. This view has been reiterated by the BGS in their provisional assessment of the sand and gravel mineral resources in Wiltshire and Swindon, where they dismissed the Bristol Avon as a potentially viable resource⁴². However, some minerals industry representatives suggested that the Bristol Avon may contain isolated pockets of mineral which may be viable within the plan period. For this reason, and without the benefit of site specific details, it was considered prudent to identify the Bristol Avon as a Mineral Resource Zone in the Minerals Core Strategy.

Figure 2.8: The assumed market catchment of the Bristol Avon MRZ



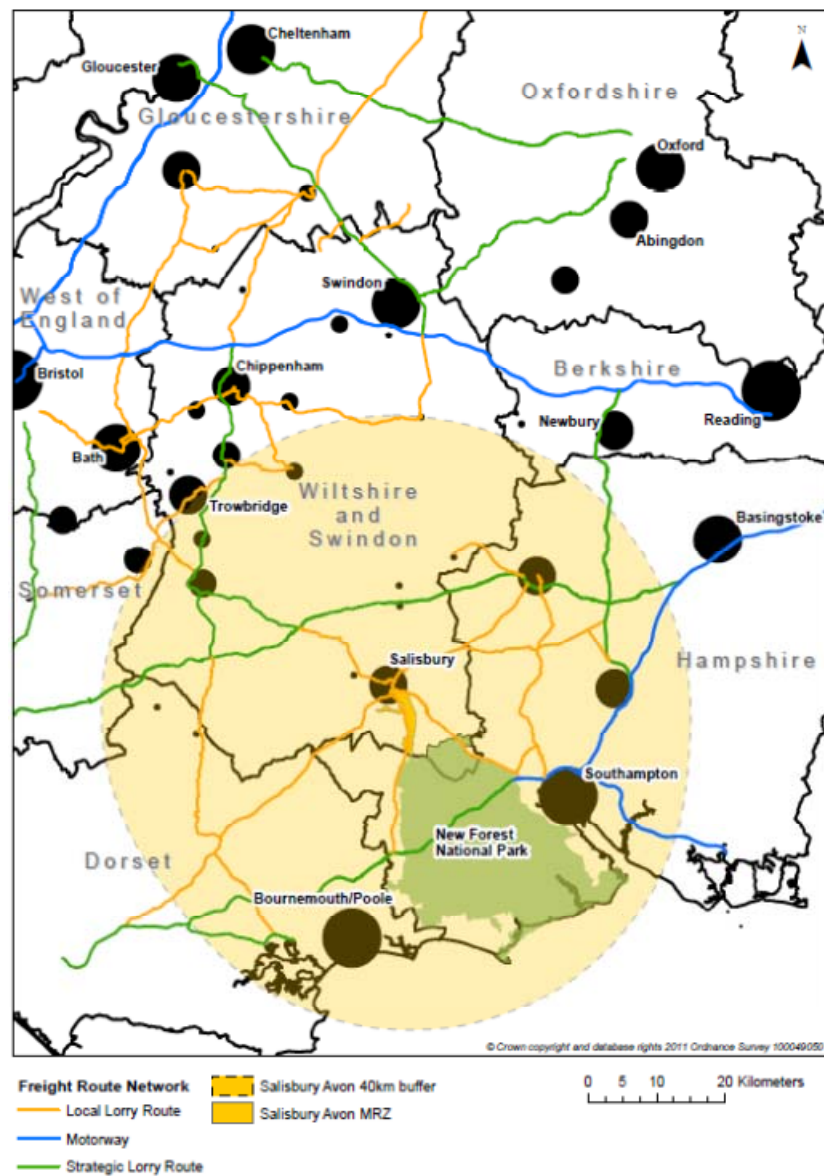
⁴² A Provisional Assessment of the Sand and Gravel Mineral Resources in Wiltshire and Swindon, British Geological Survey, 2007, page 5

- 2.81 The sand and gravel of the Bristol Avon can be assumed to provide materials for similar end-uses as the Upper Thames Valley. Small scale sand and gravel extraction is believed to have taken place during the 1960s and 1970s at locations north of Beanacre and south east of Sutton Benger. Both operations appear to have involved infilling with municipal waste. An application for sand and gravel extraction south east of Sutton Benger, followed by infilling of waste was submitted to the County Council in 1990 but refused on grounds of need and due to the likely adverse impacts of HGVs on the villages of Sutton Benger and Christian Malford. The minerals industry have not expressed any further interest in the mineral resources in the Sutton Benger and Christian Malford area.
- 2.82 An area south of Chippenham at Showell Farm had been promoted by the minerals industry for inclusion in the Minerals Local Plan during the 1990s. This area was revisited during the site selection process for this round of plan making. However, the owner of a substantial part of this land has informed the council that they do not wish their land to be promoted for sand and gravel extraction.
- 2.83 Figure 2.8 shows that, should viable deposits be found within the Bristol Avon, this area could, theoretically, serve many of the markets currently served by quarries operating in the Upper Thames area. However, the assessments of those site options in the Bristol Avon put forward for inclusion in the Minerals Sites Plan have demonstrated that it is extremely unlikely that this MRZ would act as a strategic alternative to the Upper Thames Valley or be worked on a significant scale during the plan period.

The Salisbury Avon Mineral Resource Zone

- 2.84 In their Provisional Assessment of the Sand and Gravel Resources of Wiltshire and Swindon the British Geological Survey advised the councils that only the sand and gravel deposits south of Salisbury should be considered as an economic resource. The Salisbury MRZ therefore extends from Salisbury to the Wiltshire/Hampshire county boundary. The sand and gravel of the Salisbury Avon can be assumed to provide materials for similar end uses as per the Upper Thames Valley resources. As shown in figure 2.9 below the market catchment area for the Salisbury Avon would be unlikely to supply the same markets as the Upper Thames Valley but would instead supply the major urban markets of Salisbury, Southampton, Bournemouth and Poole.

Figure 2.9: The assumed market catchment of the Salisbury Avon MRZ

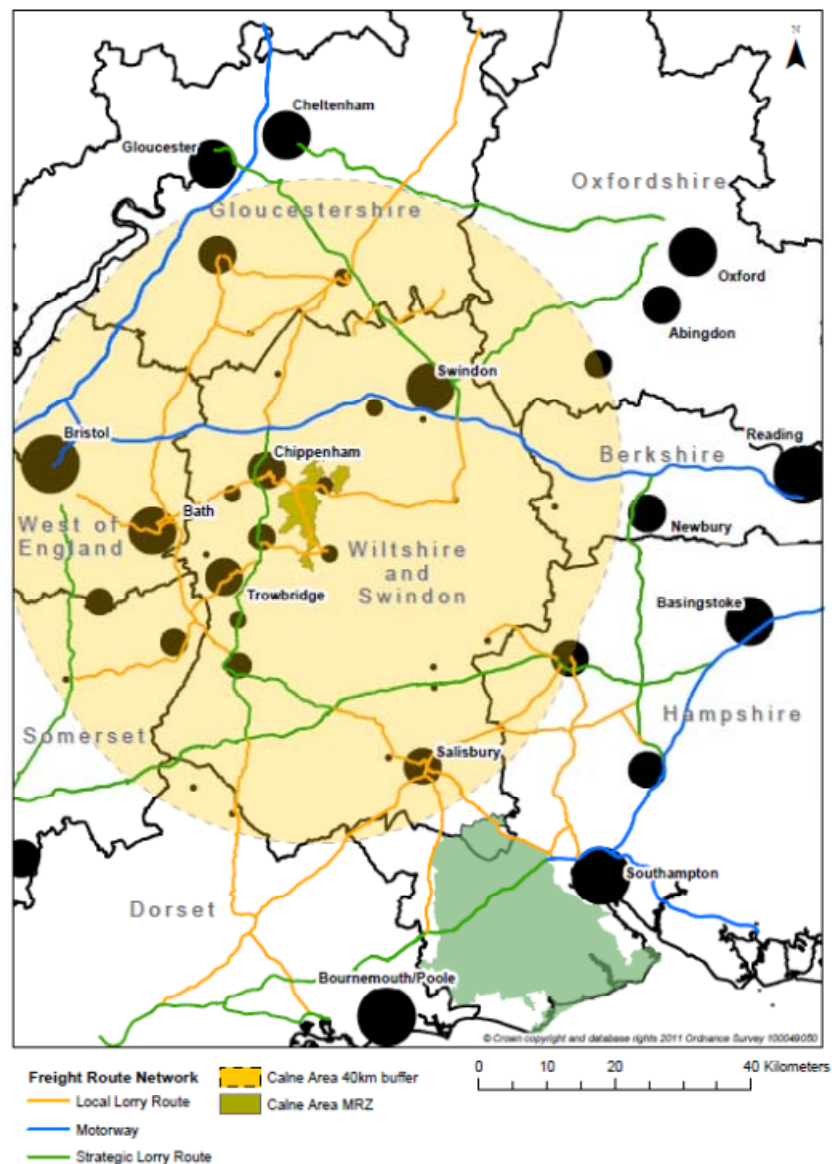


2.85 Historically very little sand and gravel extraction has taken place in the Salisbury Avon MRZ and there are currently no active quarries in this area. As demonstrated by the sieving report and detailed assessments undertaken by the councils, the area is highly constrained and therefore would be unsuitable for extraction on a significant scale during the plan period.

The Calne Area Mineral Resource Zone

2.86 The Calne Area MRZ has, for several decades, provided a source of soft sand that can be assumed to predominantly be used in mortar and to some extent asphalt. These are distinctly different markets to those supplied by the sand and gravel resources of the Upper Thames Valley.

Figure 2.10: The assumed market catchment of the Calne Area MRZ



2.87 Current extraction takes place at two quarries to the east of Calne near Compton Bassett. Production from this area is substantially less than for the Upper Thames Valley with soft sand production from within the plan area (Calne area and South East of Salisbury combined) contributing approximately 20% - 25% of total aggregates production. Figure 2.10 shows the assumed catchment area for the Calne area soft sand.

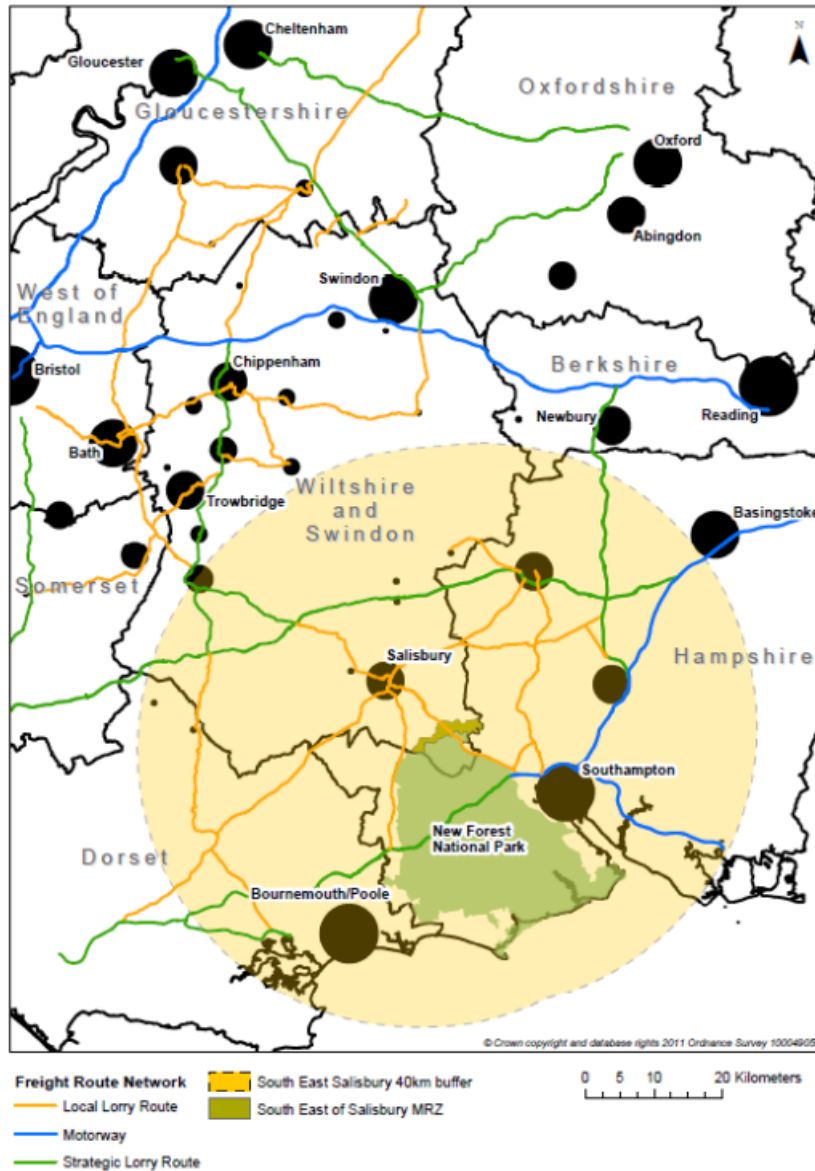
The South East of Salisbury Mineral Resource Zone

2.88 The south east of Salisbury area has provided a source of soft sand for several decades albeit with some of this production taking place within an area of Wiltshire that now forms part of the New Forest National Park⁴³. As is the case for the Calne Area, end uses can be assumed to be

⁴³ The part of Wiltshire within the New Forest National Park no longer forms part of the plan area and therefore any future extraction from this area will not contribute to production figures from Wiltshire and Swindon.

predominantly for mortar and to some extent asphalt. Extraction currently takes place at a single quarry, at Brickworth, near Whiteparish.

Figure 2.11: The assumed market catchment of the South East of Salisbury MRZ



The provision to be made in the Aggregate Minerals Site Allocations Local Plan

2.89 From the evidence presented in this chapter and through all the evidence base documents created to inform the Minerals Sites Allocations Local Plan, it is therefore reasonable to conclude that a decline in production in the Upper Thames Valley is unlikely to be met by other resources within the plan area and the minerals industry are likely to look to areas outside of Wiltshire and Swindon where better quality resource with a higher yield per

hectare could be achieved⁴⁴. This view has been reaffirmed through dialogue with representatives of the minerals industry; through the results of the sieving exercise; the consultation exercise held in 2010 and the results of the assessments of the available site options. Therefore any shift in the current pattern of supply will almost certainly result in a permanent decline in levels of sand and gravel extraction from within the plan area compared to that of the past 20 years.

- 2.90 The councils' evidence shows that a shift in the pattern of aggregates supply within Wiltshire and Swindon is likely to occur during the plan period up to 2026, and may have already started. The adopted Minerals Core Strategy predicts that the tipping point for this change relates to the future of extraction in the Upper Thames Valley, where large-scale sand and gravel extraction has taken place since the 1960s and consistently at 75-80% of Wiltshire and Swindon's total production. This intensive extraction has left a diminished resource, significantly reducing the options for future minerals development in Wiltshire and Swindon. This view is reinforced by the fact that despite several calls for sites since 2003 the minerals industry has not been able to identify and put forward sufficient land to meet forecast demand in Wiltshire and Swindon. In fact only one site in the Upper Thames Valley has been promoted by the minerals industry. This is not a result of reticence on their part but simply a confirmation of what the evidence is indicating in terms of resource availability and the level of constraint in the plan area. The councils have assessed the capacity of other sources of sand and gravel within Wiltshire and Swindon to make up for a shortfall in supply from the Upper Thames Valley and, as explained in the previous paragraphs, there are no realistic alternatives from within Wiltshire and Swindon.
- 2.91 The councils have taken all reasonable steps to ensure that the capacity of the plan area to deliver the requirements of the sub-regional apportionment has been fully tested against relevant sustainability criteria and in line with MPS1 paragraph 3.9 and the requirements of the NPPF.
- 2.92 From this it is clear that the current sub-regional apportionment of 1.85 million tonnes per annum for the period 2010 – 2026 cannot be met. This leaves two realistic options for the provision to be made in the Aggregate Minerals Site Allocations Plan.

Options considered for the provision to be made in the Aggregate Minerals Site Allocations Plan

- 2.93 Two options regarding the provision to be made in the Aggregate Minerals Site Allocations Plan (informed by the work undertaken to identify suitable sites) were presented to Wiltshire Cabinet on 14 June 2011. **Please note**, these options were based on data taken from 2010 and therefore should be considered as historical evidence, Table 2.8 provides an updated provision requirement picture as at 31 December 2011.

⁴⁴ Sand and gravel deposits in the Upper Thames Valley extend into Gloucestershire and Oxfordshire, and would serve the same markets as those historically quarried in Wiltshire and Swindon. Although Gloucestershire also has a diminished resource there are potentially substantial deposits across the border in Oxfordshire.

- **Option 1** - Allocate only those sites that are considered suitable with minerals industry support.
- **Option 2** - Allocate sites that are considered suitable with industry support together with those site options which the Council believe to be the most suitable for development that are not currently being promoted by the industry.

Table 2.14: Option 1 Scenario (not to be taken forward)⁴⁵

		A	B	(A – B)	
	Site options required to deliver Option 1 (million tonnes)	Forecast of need based on average of 10 years past production (million tonnes)	Permitted reserves and allocations (million tonnes)	Residual requirement (million tonnes)	Estimated yield of site options (million tonnes)
Upper Thames Valley (sharp sand and gravel)	U3 (2.4)	13.73	3.22 (+3.1 allocated as Preferred Areas at Down Ampney)	7.41	2.4
Soft sand (Calne and South East of Salisbury)	SE2 (0.7) SE3 (1.25)	3.87	1.49	2.38	1.95
Salisbury Avon	None	0	0	0	0
Bristol Avon	None	0	0	0	0
Totals		17.6	7.81	9.79	4.35

Table 2.15: Option 2 Scenario (to be taken forward as the basis for the Minerals Sites Plan)⁴⁶

		A	B	(A – B)	
	Site options required to deliver Option 2 (million tonnes)	Forecast of need based on average of 10 years past production (million tonnes)	Permitted reserves and allocations (million tonnes)	Residual requirement (million tonnes)	Estimated yield of site options (million tonnes)
Upper Thames Valley (sharp sand and gravel)	U3 (2.4) U4 (0.81) U5 (0.3) U7 (2.2) U22 ⁴⁷ (2.76)	13.73	3.22 (+3.1 allocated as Preferred Areas at Down Ampney)	7.41	8.47
Soft sand (Calne and South East of Salisbury)	C3 (0.45) SE2 (0.7) SE3 (1.25)	3.87	1.49	2.38	2.39

⁴⁵ Note this is an historical reference calculated from data taken from a report submitted to Wiltshire Cabinet on 14 June 2011 using 2010 data.

⁴⁶ Note this is an historical reference calculated from data taken from a report submitted to Wiltshire Cabinet on 14 June 2011 using 2010 data.

⁴⁷ Including additional land adjacent to site option (i.e. part of U23 and area within Cotswold Community school which will be vacant as of close of term in July 2011).

Salisbury Avon	0	0	0	0	0
Bristol Avon	0	0	0	0	0
Totals		17.6	7.81	9.79	10.86

- 2.94 Whilst Option 1 would provide the most certain option in terms of deliverability, it would fall significantly short of the forecast need for sand and gravel from within the plan area.
- 2.95 The councils therefore consider that Option 2 should be taken forward on the basis that it will ensure that the councils can plan to meet a reasonable apportionment and will provide greater certainty for local communities and developers as to where new sites should come forward. It is also considered to better reflect actual demand, taking into account a gradual, managed decline in production in the Upper Thames Valley as predicted in the Minerals Core Strategy.
- 2.96 It should be noted that very few of the site options put forward for consideration were put forward by the minerals industry. This indicates, but does not necessarily substantiate a view that there is little industry appetite for aggregate resources at forecast rates, prepared at the national and regional level, from within the plan area for the period to 2026 and brings 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 are realistic or deliverable. Through the assessment of all site options and resource areas in the plan area, the expected estimated yield of the 7 sites at 10.86 million tonnes would be sufficient to meet a locally derived apportionment figure of 1.2 million tonnes per annum up to 2026 (see table 2.8).
- 2.97 The site options included in the Wiltshire and Swindon Aggregate Minerals Sites Allocations Local Plan are as follows:
- Cox's Farm (U3) – estimated 2.4 million tonnes
 - Blackburr Farm (U4) – estimated 0.81 million tonnes
 - North Farm (U5) – estimated 0.3 million tonnes
 - Land east of Calcutt (U7) – estimated 2.2 million tonnes
 - Land at Cotswold Community (U22 and part U23) – estimated 2.76 million tonnes
 - Land near Compton Bassett (C3) – estimated 0.45 million tonnes
 - Extensions to Brickworth Quarry (SE2 and SE3) – estimated 1.9 million tonnes.
- 2.98 The work undertaken to test the sub-regional apportionment summarised in the previous paragraphs has resulted in the following additional evidence reports:
- The results of a constraints sieving exercise applied to the remaining sand and gravel resources in Wiltshire and Swindon
 - Initial Site Options Report
 - A report of the results of consultation on initial site options for sand and gravel extraction
 - Summary of minerals site appraisal matrices report

- Further assessment for aggregate mineral site options – Archaeology
- Further assessment for aggregate minerals site options – Ecology⁴⁸
- Further assessment for aggregate minerals site options – Historic built environment
- Further assessment for aggregate minerals site options – Landscape and visual impact
- Further assessment for aggregate minerals site options – Transport
- NAM Report of Stakeholder consultation event – developing restoration objectives
- Air Quality Assessment
- Noise impact assessment
- Hydrogeological Impact Assessment
- Flood Risk Assessment – Sequential Test Statement
- Wiltshire Cabinet reports and key decisions detailing the minerals site selection process.

2.99 The evidence, taken as a whole, shows 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 plan period.

⁴⁸ Including Test of Likely Significance in accordance with requirements of Habitats Regulations Assessment

Summary of chapter - key findings and conclusions

- 2.100 Based on past production both nationally and locally, there is a clear indication that demand for primary aggregates will continue into the future. However, the current decreasing trend in the aggregates land-bank for sand and gravel in Wiltshire and Swindon, particularly in light of the sub-regional apportionment and the fact that the remaining Preferred Areas are insufficient to meet forecast demand, demonstrates that there is a need to identify additional land to 2026, to ensure a planned approach to future minerals extraction.
- 2.101 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. It has been demonstrated by the councils' evidence base 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 be met. It is therefore necessary for Wiltshire and Swindon to adopt a lower local forecast rate of demand (requested to be 1.2 million tonnes per annum) which more realistically matches actual levels of production than the forecasts prepared at the national and regional levels and factors in appropriate flexibility and contingencies should economic conditions improve and market demands increase in the future.

3. Secondary and recycled aggregate

- 3.1 Whilst difficult to accurately quantify, Construction, Demolition and Excavation (CD&E) wastes arise in considerable volumes - nationally, approximately 90 million tonnes were produced in 2005, of which 9.5⁴⁹ million tonnes is known to arise in the south west region. The difficulty in quantification exists at the sub regional level for which, at present, there is little by way of audited data for such arisings and their management anywhere in the UK, including Wiltshire and Swindon.
- 3.2 These materials currently offer the greatest potential, both generally and in Wiltshire and Swindon, for use as an alternative to primary aggregate due to their widespread creation and availability. They can provide an end product that has a variety of different construction uses and, where adequate sorting and storage facilities are provided (either on development sites, waste management sites or mineral sites) these recycled materials can compete with a wide range of primary aggregates and other materials.
- 3.3 However, there are problems associated with transforming CD&E waste into useable, saleable recycled aggregate. Supplies of waste material vary in quantity and in quality, depending on the location of the source and the level and type of activities within the C&D industries. For example, the quantity of materials available for processing may be affected by major civil engineering projects, such as the construction of new roads. Such projects can often offer opportunities for low cost disposal as part of the process of engineering the project which in turn may cause supplies of material in a locality to 'dry up'.
- 3.4 Conversely, major individual projects can generate large quantities of waste in a short time. Unless considerable storage, sorting and transfer capacities are locally available recycling facilities may be overwhelmed leading to much material being disposed of to landfill to ensure that the waste can be managed.
- 3.5 The disposal of CD&E wastes is clearly the most direct barrier to increased use of recyclable aggregates. Other than use for engineering and restoration purposes at landfill sites, the disposal of CD&E waste to landfills, quarries and waste management licence exempt facilities represents the direct loss of an opportunity to recycle that material. However, in all three instances, there is usually an opposing need for that material to assist in the restoration of the void in question or re-engineering of the land and the material itself may also be beyond the point of re-use.

Secondary aggregates

- 3.6 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

⁴⁹ Source: DCLG. Survey of Arisings and Use of Alternatives to Primary Aggregates in England, 2005. HMSO. This is the most up-to-date information currently available to inform the evidence base as these surveys have since ceased.

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. In Wiltshire and Swindon there are currently no sources of secondary aggregates in close proximity to any of the likely markets for aggregates in the County or Borough.

Recycled aggregates

- 3.7 Recycled aggregates are aggregates that have been previously used in construction. Sources of recycled aggregates include: Hard 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 rocks arising from development processes or engineering works, but excluding all wastes defined as hard construction and demolition wastes; and Mixed hard C&D and excavation wastes.

National arisings of CD&E Wastes

- 3.8 Table 3.1 below shows data for national arisings of CD&E wastes from four studies carried out for the Environment Agency and ODPM by Symonds. The data for 1999 and 2001 has been adjusted to discount data from Wales from the survey results shown in the table to allow direct comparison with the data for 2003 and 2005, which does not include any survey results for Wales.

Table 3.1: National CD&E waste arisings 1999/ 2001/ 2003/ 2005 (million tonnes) (adjusted to discount Wales)

All Management Methods	1999 ¹	2001 ²	2003 ³	2005 ⁴
Used as Recycled Aggregate	22.7	36.47	39.597	42.07
Used as Recycled Soils	2.435	6.81	5.852	4.36
Used for Landfill Engineering or Restoration	9.532	8.75	6.454	9.61
Used to Backfill Quarry Voids	<i>(Not Recorded)</i>	10.59	13.410	<i>(Not Recorded)</i>
Spread on Exempt Sites	20.313	22.4	16.429	15.44
Disposed of to Landfill	17.503	3.87	9.192	18.14
Total Arisings	72.483	88.89	90.934	89.63

Sources:

- 1 EA SWMA 2000 South West
- 2 ODPM/ Symonds October 2001
- 3 ODPM/ Symonds September 2003
- 4 DCLG/ Symonds 2005.

- 3.9 Whilst there is a need for caution when extrapolating trends from only 4 years data, it can be seen that, overall, the data shows an increase in recorded arisings of CD&E wastes. In particular, the amount of CD&E waste

used either as recycled aggregate or recycled soils shows an increase from a combined total in 1999 of 25,135,000 tonnes to 46,430,000 tonnes in 2005. As a percentage of total arisings these recycling achievements for CD&E wastes (nationally) equate to 34.7% in 1999, 48.7% in 2001, 50% in 2003 and 52% in 2005.

- 3.10 The trends presented by the data for other CD&E waste arisings are more volatile. However, there are generally decreasing quantities of CD&E materials being used for engineering or restoring landfill sites, being spread on exempt sites or disposed of to landfill although there was a small increase in 2005.

Regional arisings of CD&E wastes

- 3.11 Table 3.2 shows that, as with the national data, there has been an overall upward trend in the use of CD&E waste as recycled aggregate and soil. In 1999, the combined total of CD&E waste recycled stood at 2,477,000 tonnes, which has rose to 4,030,000 in 2005. As a percentage of the total arisings of CD&E wastes in the South West these tonnages represent 36.4% of total arisings in 1999; 28.4% in 2001; 50.9% in 2003, and a decrease in 2005 at 42.4%.
- 3.12 This clearly indicates a trend of increasing tonnages of CD&E waste recycled survey by survey, apart from the decrease in 2005. With regards to disposals and other use of CD&E wastes at landfills, quarries and exempt sites, the regional data shows similar overall trends to those seen at the National level.

Table 3.2: CD&E waste arisings in the South West Region 1999/2001/2003/2005 (million tonnes)

All Management Methods	1999 ¹	2001 ²	2003 ³	2005 ⁴
Used as Recycled Aggregate	2.203	2.8	4.473	3.70
Used as Recycled Soils	0.274	0.78	0.617	0.33
Used for Landfill Engineering or Restoration	0.797	0.85	0.672	1.12
Used to Backfill Quarry Voids	<i>(Not Recorded)</i>	1.38	0.959	<i>(Not Recorded)</i>
Spread on Exempt Sites	2.052	6.33	2.412	2.02
Disposed of to Landfill	1.481	0.48	0.875	2.31
Total Arisings	6.807	12.62	10.007	9.5

Sources:

- 1 EA SWMA 2000 South West
- 2 ODPM/ Symonds October 2001
- 3 ODPM/ Symonds September 2003
- 4 DCLG/ Symonds 2005.

Local arisings of CD&E wastes

- 3.13 Put simply, there is currently no audited data available to the Councils with regards to tonnages of CD&E waste arising in Wiltshire and Swindon. Data is available for the management of CD&E waste within the County and Borough (this can be seen in Section 4 of the Evidence Base: Part B – Waste). This limits the Councils' understanding of the activity itself and the linkages with land use in Wiltshire and Swindon.

The need for additional sites

- 3.14 The future requirements for CD&E waste management are outlined in the Section 4 of the Evidence Base Section B – Waste. Originally this outlined in 2006 that approximately 950,000 cubic metres of landfill voidspace will be required over the period to 2026. The findings also indicated that 90,000 tonnes per annum capacity for the transfer of CD&E waste will also be required.
- 3.15 Since this original position in 2006, a total of 988,000 cubic metres of landfill voidspace has been provided for the disposal of CD&E waste (including for use in restoration and landscaping proposals for quarries within the plan area). The requirement to also provide 90,000 tonnes per annum capacity for the transfer of CD&E waste has also been met with 96,730 tonnes per annum now provided. Therefore there is now no current additional landfill voidspace or CD&E waste transfer capacity requirement up to 2026.

Summary of chapter - key findings and conclusions

- 3.16 It is clear, from recent population and household projections and the extsant and emerging development plan that development areas of Swindon, Chippenham, Trowbridge and Salisbury will continue to be expected to provide for the majority of housing and employment development in Wiltshire and Swindon. By association, this activity is likely to generate a significant amount of CD&E waste.
- 3.17 With regards to trends surrounding CD&E waste management, it can be seen that the national trend of decreasing disposals of CD&E waste to landfills, quarries and exempt facilities and an increasing diversion of waste, especially through recycling, is mirrored regionally in the South West.
- 3.18 Future development pressures will not lead to a relaxing of the requirements to manage CD&E wastes in Wiltshire and Swindon. In the face of a medium term but finite landfill voidspace reserve for CD&E wastes it is likely that increased diversion will continue to be required and additional facilities required. Increased diversion will also lead to a greater provision of CD&E waste as recycled aggregate assisting the Councils in working towards any future secondary or recycled aggregate production requirements, and achieving a Government led reduction in the demand for primary aggregate.

Appendix 1: External evidence base documents cited in text

National Plans and Strategies	Year
Minerals Planning Guidance 1: General considerations and the development plan system	1996
Minerals Planning Guidance 6: Guidelines for Aggregates Provision in England	1994
Minerals Policy Statement 1: Planning and Minerals	2006
National and Local Guidelines for Aggregates Provision 2005 – 2020, DCLG	2011
National and Regional Aggregates Provision: 2001 – 2016, ODPM	2003
National Planning Policy Framework, DCLG	2012
Planning and Minerals: Practice Guide	2006
Planning Policy Statement 12: Local Development Frameworks	2004

Acts and Regulations	Year
Environment Act	1995
The Localism Bill (as Act)	2011
Town and Country Planning Act	1990

Regional Strategies and Plans	Year
Draft Regional Spatial Strategy for the South West	2006
The Draft Revised Regional Spatial Strategy for the South West incorporating the Secretary of State's Proposed Changes – for Public Consultation.	2008
The South East Plan: Regional Spatial Strategy for the South East of England	2009
The South East Plan: Secretary of State's Proposed Changes, Regional Spatial Strategy for the South East, Policy M3: Primary land-won aggregates and sub-regional apportionment	2010

Local Strategies and Plans	Year
A Sustainable Community Strategy for Wiltshire – Working together to create stronger and more sustainable communities 2007 – 2016	2007
Gloucestershire Minerals Local Plan	2003
Hampshire Minerals and Waste Core Strategy	2007
Hampshire Minerals and Waste Plan Submission Draft	2012
Minerals Local Plan for Somerset	2004
Oxfordshire Minerals and Waste Core Strategy Proposed Submission Document	2012
South Gloucestershire Minerals and Waste Local Plan	2002
Wiltshire and Swindon Minerals Local Plan	2001
Wiltshire and Swindon Waste Local Plan	2005
Wiltshire and Swindon Minerals Core Strategy DPD	2009
Wiltshire and Swindon Waste Core Strategy DPD	2009
Wiltshire and Swindon Minerals Development Control Policies DPD	2009

Wiltshire and Swindon Waste Development Control Policies DPD	2009
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Other Evidence and Studies	Year
A Guide to Minerals Safeguarding in England, BGS	2007
A Provisional Assessment of the Sand and Gravel Resources of Wiltshire and Swindon, BGS	2007
Collation of the Results of the 2005 Aggregate Minerals Survey for England and Wales, DCLG	2007
Collation of the Results of the 2009 Aggregate Minerals Survey for England and Wales, DCLG	2011
Hampshire Minerals and Waste Development Framework, The Strategy Technical Supporting Document	2006
Minerals Planning Factsheet: Construction Aggregates, BGS	2005
South West Regional Assembly Waste Energy and Minerals Committee: Apportionment of Aggregates, SWRA	2004
Survey of Arisings and Use of Construction, Demolition and Excavation Waste as Aggregate in England, ODPM / Symonds	2001
Survey of Arisings and Use of Construction, Demolition and Excavation Waste as Aggregate in England, ODPM / Symonds	2003
Survey of Arisings and Use of Alternatives to Primary Aggregates in England, DCLG	2005
Technical and Strategic Assessment of Aggregate Supply Options in the South West Region, SWRA	2005
Technical and Strategic Assessment of Current Aggregate Reserves and Potential Use of Secondary and Recycled Aggregates in the South West Region, SWRA	2005
Paper on RAWP and Managed Aggregates Supply System to East of England AWP, Minerals Products Association	2011

Appendix 2: A summary of the results of the detailed assessments and how they relate to sustainability criteria

In accordance with national planning policy, Mineral Planning Authorities are required to secure adequate and steady supplies of minerals needed by society and the economy within the limits set by the environment, assessed through sustainability appraisal, without irreversible damage (paragraph 9, Minerals Policy Statement 1; and NPPF).

Wiltshire Council, and plan making partner Swindon Borough Council, have developed and applied sustainability criteria to critically appraise 62 site options for sand and gravel extraction across Wiltshire and Swindon. By March 2011 several site options had been withdrawn by the landowners; and sufficient information was available to allow the exclusion of further site options when assessed against sustainability criteria, with the remaining 22 site options needing further evidence and assessment before a recommendation could be made. Since then sufficient information has now been provided by statutory bodies and professional input from Wiltshire Council for relevant topic areas, to inform a recommendation whether to exclude further site options, based on relevant sustainability criteria, or to carry site options through into the Aggregates Minerals Site Allocations Plan.

This Appendix provides a table for each of the remaining 22 site options with the sustainability criteria listed as numbers under topic headings. A key identifying each of the sustainability objectives against their reference number used in the site option tables is provided below. A summary table showing which site options should be dropped and those that should be carried forward into the Aggregate Minerals Site Allocations Plan is shown at the end of this Appendix.

Biodiversity and Geodiversity

1	To protect and enhance the intrinsic value of internationally, nationally, regionally and locally designated sites.
2	To avoid the loss or damage to ancient woodland and aged or veteran trees.
3	To protect and enhance community forest.
4	To ensure that minerals development (including restoration following extraction) aims to reduce and buffer the impacts of climate change on vulnerable habitats and species.
5	To identify areas for creation, restoration and enhancement of BAP habitats following minerals extraction that contributes towards targets in local and regional BAPs.
6	To protect populations of protected or notable species.
7	To maintain and expand the Strategic Nature Areas that are identified in the South West Nature Map.
8	To recognise the importance of soil as an ecosystem for vital organisms and minimise the loss of soil resources and encourage the re-use of soils locally.
9	To reduce the spread of non-native invasive species.

Historic Environment

1.	To preserve and enhance sites, areas or structures of international, national and local historic and cultural heritage importance and their setting.
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Human Health and Amenity

1	To maintain and enhance the quality of life of people living and working in proximity to minerals development.
2	To maintain and where possible enhance the overall amenity of the countryside to residents and visitors.
3	To avoid the loss or damage to protected trees/groups of protected trees.

4	To minimise the detrimental impacts of noise and vibration associated with the extraction, processing, management or transportation of minerals.
5	To minimise the detrimental impacts of dust and particulates associated with the extraction, processing, management or transportation of minerals.
6	To minimise the detrimental impacts of light intrusion associated with the extraction, processing, management or transportation of minerals.
7	To minimise any detrimental effects to air quality.
8	To avoid loss to public footpaths and public rights of way and where possible enhance the overall network of rights of way within the Plan area

Land Use

1	To identify and protect wherever possible areas of best and most versatile agricultural land from significant minerals development
2	To avoid prejudicing designated Development Plan land uses (e.g. housing, tourism, recreation etc).
3	To wherever possible allocate sites for minerals development from environmentally acceptable sources within identified 'Mineral Resource Zones'.
4	To reduce reliance upon primary, land-won minerals in favour of increasing the contribution made by secondary and/or recycled materials.
5	To favour extensions to existing mineral sites over new mineral sites, subject to environmental acceptability.

Landscape, townscape and Visual

1	To protect and enhance the character and local distinctiveness of the landscape and townscape setting of Wiltshire and Swindon and surrounding areas
2	To prevent visual intrusion from minerals development.
3	To avoid inappropriate minerals development in the Green Belt.

Restoration

1	To ensure that mineral developments, including schemes for restoration, do not significantly increase risks to aircraft (civil or military) through 'bird-strike'. ⁵⁰
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Traffic and transportation

1	To minimise vehicular movements by encouraging the most sustainable transport mode options for minerals supply.
2	To locate future mineral developments as close as practicable to local centres of demand.
3	To promote development sites with good links and access to the Wiltshire HGV route network and Primary Route Network (PRN) and to recognise the benefits of inter-connecting the transport network to accommodate associated vehicle movements.

Water Environment

1	To encourage appropriate development in a floodplain that would increase its flood storage capacity and reduce as far as possible the risk of flooding.
2	To avoid, mitigate and, where necessary compensate for any significant impacts on the quality and quantity of groundwater, surface water and drinking water resources.

For ease of reference a colour code system has been used to grade each site against sustainability criteria which can be summarised as follows:

	Absolute sustainability constraint – site should be excluded
	Sustainability issues – mitigation considered problematic
	Sustainability issues – mitigation considered achievable
	No sustainability constraints
	Development will support sustainability objectives

⁵⁰ Note: this objective has not been included in the tables as, in principle, Defence Estates do not object to any of the site options and therefore would not lead to the site exclusion. Further dialogue will be undertaken to help ensure the most appropriate restoration scheme is identified for each site option in the draft Minerals Sites DPD.

Site Option: U2 Location: Upper Thames Valley Nearest Settlement: Meysey Hampton (to west), Fairford (to east). Resource Type: Sand and Gravel Potential Yield: 355,250 tonnes Size: 10.2 hectares Current land use: Agricultural	Biodiversity		Historic environment		Human health and amenity		Land use		Landscape / Visual Impact		Transport		Water environment	
	SA objective	Grad	SA objective	Grad	SA objective	Grad	SA objective	Grad	SA objective	Grad	SA objective	Grad	SA objective	Grad
1	Yellow	1	Blue	1	Orange	1	Orange	1	Yellow	1	Orange	1	Blue	
2	Orange			2	Orange	2	Blue	2	Orange	2	Yellow	2	Orange	
3	Blue			3	Orange	3	Green	3	Green	3	Red			
4	Orange			4	Orange	4								
5	Green			5	Orange	5								
6	Yellow			6	Yellow									
7	Blue			7	Yellow									
8	Orange			8	Blue									
9	Yellow													

Comments
The site is located in a rural setting with residential properties in close proximity (some adjacent to site boundary). The site is also situated within a Groundwater Source Protection Zone 1 (the most sensitive level for known sources of water abstraction) and as a result is highlighted by the Environment Agency as being of significant concern. Although these issues are considered problematic they are not necessarily insurmountable if appropriate mitigation measures are put in place.

No mineral company interest. The operator of the nearby Horcott quarry in Gloucestershire (Hanson) has recently informed the Council that they have no plans to extend the quarry during the plan period. This would mean that another operator would need to take on site U2 without the benefit of the Horcott access and routing arrangements. The A417 passes through bottlenecks in villages in both directions which would not be able to cope with minerals HGVs.

Recommendation
Due to lack of appropriate access, this site option is regarded as impractical for use as a quarry and therefore site option **U2 should be excluded** when considered against transport objective 3.

Site Option: U3 Location: Upper Thames Valley Nearest Settlement: Marston Meysey (to west), Cox's Farm and Dunfield (to east) Resource Type: Sand and Gravel Potential Yield: 2,400,000 tonnes Size: 106.1 hectares Current land use: Agricultural	Biodiversity		Historic environment		Human health and amenity		Land use		Landscape / Visual Impact		Transport		Water environment	
	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade
1	Yellow	1	Orange	1	Orange	1	Orange	1	Yellow	1	Orange	1	Yellow	
2	Yellow			2	Orange	2	Yellow	2	Orange	2	Yellow	2	Orange	
3	Blue			3	Orange	3	Green	3	Green	3	Orange			
4	Orange			4	Orange	4	Orange							
5	Yellow			5	Orange	5	Yellow							
6	Orange			6	Yellow									
7	Blue			7	Yellow									
8	Yellow			8	Orange									
9	Yellow													

Comments
The site is located in a rural setting with residential properties in close proximity (some adjacent to site boundary). There are a number of currently active and proposed quarries operating in this area. There are concerns locally regarding the impacts on the setting of the village of Marston Meysey and the potential to increase flooding. The Environment Agency has flagged up significant concerns in relation to groundwater (the entire site is within Groundwater Source Protection Zone 1) and although technically feasible to mitigate, further investigation will need to be undertaken on this matter. There are potential issues for restoration of the site in terms of avoiding or increasing the risk of birdstrike for aircraft using the adjacent operational airbase of RAF Fairford (dialogue with the Defence Estates will continue to ensure that suitable restoration scheme can be implemented). There are also issues with the use of the local road network that may require improvements to be made. This area is considered to be an area of high archaeological potential. Although these issues are considered problematic they are not necessarily insurmountable if appropriate mitigation measures are put in place.

Aggregate Industries, mineral operator and landowner, have promoted the site. The site was given 'resource block' status in the Minerals Local Plan 2001, essentially meaning that this site has been in the development plan for a number of years as the next suitable location for development once the Preferred Areas for sand and gravel extraction in Wiltshire had been developed.

Recommendation
In the absence of more suitable alternatives, site option **U3 should therefore be carried forward** for inclusion in the Aggregate Minerals Site Allocations DPD.

Site Option: U4 Location: Upper Thames Valley Nearest Settlement: Castle Eaton (to east) Resource Type: Sand and Gravel Potential Yield: 812,000 tonnes Size: 49.7 hectares Current land use: Agricultural	Biodiversity		Historic environment		Human health and amenity		Land use		Landscape / Visual Impact		Transport		Water environment	
	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade
1	Yellow	1	Orange	1	Orange	1	Orange	1	Yellow	1	Orange	1	Yellow	
2	Yellow			2	Yellow	2	Blue	2	Orange	2	Yellow	2	Orange	
3	Blue			3	Orange	3	Green	3	Green	3	Yellow			
4	Orange			4	Orange	4	Orange							
5	Yellow			5	Orange	5	Yellow							
6	Yellow					6	Yellow							
7	Green					7	Yellow							
8	Orange					8	Yellow							
9	Yellow													

Comments
Wiltshire Council owns the 3 parcels of land that comprise U4. The site is located in a rural setting in proximity to the village of Castle Eaton and adjacent to Second Chance Touring Park. There are open views to the eastern part of the site from Castle Eaton (a Conservation Area) and most notably St Mary’s Church, a Grade I listed building. The potential impact on the setting of St Mary’s Church and Castle Eaton Conservation Area is considered to be a potentially significant issue although appropriate mitigation can be planned at any future planning application stage. This area is also considered to be an area of high archaeological potential. The parcels are separated by single track lanes, which are lined by substantial hedgerows and trees, offering an element of natural screening. Although there are a number of issues that are considered problematic they are not necessarily insurmountable if appropriate mitigation measures are put in place.

No minerals companies are formally promoting the site at this stage but it is considered to have potential for working (possibly in conjunction with adjacent quarries) and therefore would not wish to see it discounted.

Recommendation
In the absence of more suitable alternatives, site option **U4 should therefore be carried forward** for inclusion in the Aggregate Minerals Site Allocations DPD.

Site Option: U5 Location: Upper Thames Valley Nearest Settlement: Castle Eaton (to east) Resource Type: Sand and Gravel Potential Yield: 300,000 tonnes Size: 75.6 hectares Current land use: Agricultural	Biodiversity		Historic environment		Human health and amenity		Land use		Landscape / Visual Impact		Transport		Water environment		
	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	
1	Yellow	1	Orange	1	1	Orange	1	Orange	1	Yellow	1	Yellow	1	Yellow	
2	Orange			2	2	Orange	2	Blue	2	Orange	2	Yellow	2	Orange	
3	Green			3	3	3	Yellow	3	Green	3	Orange				
4	Orange			4	4	4	Orange								
5	Yellow			5	5	5	Yellow								
6	Yellow					6	Yellow								
7	Green					7	Yellow								
8	Yellow					8	Yellow								
9	Yellow														

Comments
 The site is located in a rural setting in proximity to the village of Castle Eaton and adjacent to Second Chance Touring Park. There are open views to the eastern part of the site from Castle Eaton (a Conservation Area). Impact on the setting of the Conservation Area is considered to be a potentially significant issue. This site option is also in an area of high archaeological potential. Although there are a number of issues that are considered problematic they are not necessarily insurmountable if appropriate mitigation measures are put in place.

The site option cannot be accessed by road and would need to be linked to an adjacent quarry across the River Thames or connected to site option U7. There is no mineral company interest in this site option at this stage.

Recommendation
 In the absence of more suitable alternatives, site option **U5 should therefore be carried forward** for inclusion in the Aggregate Minerals Site Allocations DPD.

Site Option: U6 Location: Upper Thames Valley Nearest Settlement: Marston Meysey (to north), Castle Eaton (to east) Resource Type: Sand and Gravel Potential Yield: 350,000 tonnes Size: 20.1 hectares Current land use: Agricultural	Biodiversity		Historic environment		Human health and amenity		Land use		Landscape / Visual Impact		Transport		Water environment	
	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade
1	Yellow	1	Red	1	Orange	1	Orange	1	Yellow	1	Yellow	1	Yellow	
2	Orange			2	Orange	2	Blue	2	Orange	2	Yellow	2	Orange	
3	Green			3	Orange	3	Yellow	3	Green	3	Orange			
4	Orange			4	Orange	4	Orange							
5	Yellow			5	Orange	5	Yellow							
6	Yellow			6	Yellow									
7	Green			7	Yellow									
8	Yellow			8	Yellow									
9	Yellow													

Comments
Site option U6 is in a very remote and isolated part of the Upper Thames Valley, adjacent to the Preferred Area currently subject to a planning application at Down Ampney. The site is screened by the fact that it is located in a shallow natural depression and by the established natural vegetation. A significant proportion of the site option is designated as a Scheduled Ancient Monument. English Heritage has confirmed that allocation of this SAM for sand and gravel extraction would not be appropriate due to the level of information required to support such an allocation as a plan proposal. If proposals to work mineral within SAMs are submitted to the Council, then a significant amount of evidence would be required to fully justify development.

Recommendation
This site option **should be excluded** from further consideration when considered against Historic Environment SA Objective 1.

Site Option: U7 Location: Upper Thames Valley Nearest Settlement: Castle Eaton (to northeast), Cricklade (to west). Resource Type: Sand and Gravel Potential Yield: 2,200,000 tonnes Size: 172.6 hectares Current land use: Agricultural	Biodiversity		Historic environment		Human health and amenity		Land use		Landscape / Visual Impact		Transport		Water environment	
	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade
1	Yellow	1	Yellow	1	Orange	1	Orange	1	Yellow	1	Orange	1	Yellow	
2	Yellow			2	Orange	2	Yellow	2	Orange	2	Yellow	2	Orange	
3	Blue			3	Orange	3	Green	3	Green	3	Yellow			
4	Orange			4	Orange	4	Orange							
5	Yellow			5	Yellow	5	Yellow							
6	Orange			6	Yellow									
7	Blue			7	Yellow									
8	Yellow			8	Orange									
9	Yellow													

Comments
Although this site option is large in size, the mineral is not evenly distributed within the site boundary. This has been taken into account in the original estimate of yield, although the exact quality and quantity of sand and gravel within this site option is unknown. There are listed buildings in proximity to site option and the area is considered to be of medium archaeological potential, however, mitigation is considered achievable. Access to this site via a new junction from the A419 is considered inappropriate if it were to be operated as a standalone quarry. Ideally it would be worked as an extension to the quarries currently operating in close proximity to the site to the north. The Environment Agency has expressed significant concern regarding the proximity of the site option to North Meadow Special Area of Conservation and the River Thames. The site is substantial in size and therefore in principle can accommodate options for controlling groundwater surface water flow and standoffs from the river. At this stage no detailed hydrological and hydrogeological information has been provided and this will be required to support the allocation moving forward. Although there are a number of issues that are considered problematic they are not necessarily insurmountable if appropriate mitigation measures are put in place.

No mineral company has expressed an interest in this site at this stage.

Recommendation
In the absence of more suitable alternatives, **site option U7 should therefore be carried forward** for inclusion in the Aggregate Minerals Site Allocations DPD.

Site Option: U9 Location: Upper Thames Valley Nearest Settlement: Latton (to north) Resource Type: Sand and Gravel Potential Yield: 1,250,000 Size: 42.1 hectares Current land use: Agricultural	Biodiversity		Historic environment		Human health and amenity		Land use		Landscape / Visual Impact		Transport		Water environment	
	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade
1	Orange	1	Red	1	Orange	1	Orange	1	Yellow	1	Orange	1	Yellow	
2	Yellow			2	Yellow	2	Blue	2	Orange	2	Yellow	2	Orange	
3	Blue			3	Orange	3	Green	3	Green	3	Yellow			
4	Orange			4	Orange	4								
5	Yellow			5	Orange	5								
6	Orange			6	Yellow									
7	Yellow			7	Yellow									
8	Orange			8	Blue									
9	Yellow													

Comments
This option is located adjacent to the village of Latton which could potentially lead to issues with noise and dust. However it should be noted that the A419, as a source of noise, contributes significantly to background noise levels at Latton. The Environment Agency has expressed significant concern regarding the proximity of the site option to North Meadow Special Area of Conservation.

No formal mineral company interest in this site option at this stage.

A significant proportion of the site option is designated as a Scheduled Ancient Monument. English Heritage has confirmed that allocation of this SAM for sand and gravel extraction would not be appropriate due to the level of information required to support such an allocation as a plan proposal. If proposals to work mineral within SAMs are submitted to the Council, then a significant amount of evidence would be required to fully justify development.

Recommendation
Therefore **site option U9 should be excluded** from further consideration when considered against Historic Environment SA Objective 1.

Site Option: U16 Location: Upper Thames Valley Nearest Settlement: Ashton Keynes (to north) Resource Type: Sand and Gravel Potential Yield: 1,975,000 tonnes Size: 62.7 hectares Current land use: Agricultural	Biodiversity		Historic environment		Human health and amenity		Land use		Landscape / Visual Impact		Transport		Water environment		
	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	
1	Orange	1	Orange	1	1	Orange	1	Orange	1	Yellow	1	Orange	1	Yellow	
2	Orange			2	2	Yellow	2	Blue	2	Orange	2	Yellow	2	Orange	
3	Green			3	3	3	Orange	3	Green	3	Orange				
4	Orange			4	4	4	Orange								
5	Yellow			5	5	5	Orange								
6	Orange			6	6		Yellow								
7	Yellow			7	7		Yellow								
8	Yellow			8	8		Orange								
9	Yellow														
Comments <p>The Chancel, a Grade II* listed building, is located within the south eastern part of the site. A church, which once stood adjacent to the chancel was relocated from the site in the late 19th Century. The building is well maintained and surrounding land in proximity to the building has nature conservation value (it is allocated as a County Wildlife Site). The Chancel is still in use (the local community occasionally hold religious services there). Other parts of the site option have areas of nature conservation value. Landscape, visual impacts and impacts to the historic built environment are also considered to be of significant concern for a substantial part of the area within the east of the site and parts of the western side. These issues could be mitigated for by including a separation distance between the sensitive area and mineral extraction, and managing the timing of operations. However the yield for this site would be expected to be reduced significantly. In addition access to site is considered to be problematic.</p> <p>No mineral company interest. Only 25% of site falls within Mineral Resource Zone. Representatives of the minerals industry have recently informed the Council that the mineral within this area is shallow and of poor quality due to the presence of lignites (carbonaceous material) and high levels of interbedded silt / silty clay. The actual yield is very likely to be significantly less than estimated. Consequently, with better quality alternatives from within Wiltshire, Gloucestershire and Oxfordshire, it would not be considered viable within this plan period.</p> Recommendation <p>Due to the poor quality of mineral it is recommended that site option U16 is excluded from further consideration on the grounds that the mitigation required to allow development to proceed when considered against the criteria graded orange above, would outweigh any benefit from extraction.</p>															

Site Option: U17 Location: Upper Thames Valley Nearest Settlement: Ashton Keynes (to north) Resource Type: Sand and Gravel Potential Yield: 680,000 tonnes Size: 13.0 hectares Current land use: Agricultural	Biodiversity		Historic environment		Human health and amenity		Land use		Landscape / Visual Impact		Transport		Water environment		
	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	
1	Yellow	1	Orange	1	1	Orange	1	Orange	1	Yellow	1	Orange	1	Yellow	
2	Orange			2	2	Yellow	2	Blue	2	Yellow	2	Yellow	2	Orange	
3	Green			3	3	3	Yellow	3	Green	3	Green	3	Orange		
4	Orange			4	4	4	Orange								
5	Yellow			5	5	5	Orange								
6	Yellow					6	Yellow								
7	Yellow					7	Yellow								
8	Orange					8	Blue								
9	Yellow														

Comments
Access to site would be feasible in principle but the routing of traffic would need to use the B4696 through the village of Ashton Keynes, which is flagged as a concern.

No mineral company interest has been expressed at this stage. The site option is relatively unconstrained and the issues likely to be associated with development of the site although problematic in some cases would, in principle, be possible to mitigate. However, representatives of the minerals industry (two companies have previously investigated the land) have recently informed the Council that the mineral within this area is shallow and of poor quality due to the presence of lignites (carbonaceous material) and high levels of interbedded silt / silty clay. The actual yield would be significantly less than estimated.

Consequently, with better quality alternatives from within Wiltshire, Gloucestershire and Oxfordshire, it would not be considered viable within this plan period.

Recommendation
Due to the poor quality of mineral it is recommended that **site option U17 is excluded** from further consideration on the grounds that the mitigation required to allow development to proceed against the criteria graded orange above, would outweigh any benefit from extraction.

Site Option: U18 Location: Upper Thames Valley Nearest Settlement: Ashton Keynes (to north) Resource Type: Sand and Gravel Potential Yield: 1,780,000 Size: 42.4 hectares Current land use: Agricultural	Biodiversity		Historic environment		Human health and amenity		Land use		Landscape / Visual Impact		Transport		Water environment		
	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	
1	Orange	1	Orange	1	1	Orange	1	Orange	1	Yellow	1	Orange	1	Yellow	
2	Orange			2	2	Yellow	2	Blue	2	Orange	2	Yellow	2	Orange	
3	Green			3	3	3	Yellow	3	Green	3	Orange				
4	Orange			4	4	4	Orange								
5	Yellow			5	5	5	Orange								
6	Yellow					6	Yellow								
7	Yellow					7	Yellow								
8	Orange					8	Blue								
9	Yellow														

Comments
 Access to site would be feasible in principle but the routing of traffic would need to use the B4696 through the village of Ashton Keynes.

No mineral company interest has been expressed at this stage. The site option is relatively unconstrained and the issues likely to be associated with development of the site although in some cases problematic would, in principle, be possible to mitigate. However, representatives of the minerals industry (two companies have investigated the land) have recently informed the Council that the mineral within this area is shallow and of poor quality due to the presence of lignites (carbonaceous material) and high levels of interbedded silt / silty clay. The actual yield would be significantly less than estimated.

Consequently, with better quality alternatives from within Wiltshire, Gloucestershire and Oxfordshire, it would not be considered viable within this plan period.

Recommendation
 Due to the poor quality of mineral it is recommended that **site option U18 is excluded** from further consideration on the grounds that the mitigation required to allow development to proceed against the criteria graded orange above, would outweigh any benefit from extraction.

Site Option: U22 Location: Upper Thames Valley Nearest Settlement: Ashton Keynes (to south) Resource Type: Sand and Gravel Potential Yield: 1,260,000 tonnes Size: hectares Current land use: Agricultural	Biodiversity		Historic environment		Human health and amenity		Land use		Landscape / Visual Impact		Transport		Water environment	
	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade
1	Orange	1	Orange	1	Orange	1	Orange	1	Orange	1	Orange	1	Yellow	
2	Orange			2	Blue	2	Blue	2	Orange	2	Yellow	2	Orange	
3	Blue			3	Orange	3	Green	3	Green	3	Yellow			
4	Orange			4	Orange	4								
5	Yellow			5	Orange	5								
6	Orange			6	Yellow									
7	Yellow			7	Yellow									
8	Orange			8	Yellow									
9	Yellow													

Comments
The site is located adjacent to a residential school (Cotswold Community School). The school is closing and will be vacant from the end of term 6 in July 2011 and therefore use as a school should not be considered as a sensitive receptor. A number of Grade II listed buildings are located within the boundary of the school and mitigation would be required to ensure the setting of the listed buildings in question is not compromised. This area is also considered to be an area of high archaeological potential but it is considered that appropriate mitigation could be designed and applied at an application stage. Due to the closure of the school additional land within the area can now be considered (the landowner for site options U22 and U23 also owns the land associated with the school), which is estimated to increase the potential yield for this site by at least 1.5 million tonnes (initial calculations indicate that up to 2 million tonnes additional resource could be available) if the non-scheduled part of U23 is incorporated into this option (please refer to site option U23 below). Access to the local road network is considered to be problematic. Therefore this site would ideally be linked to an adjacent quarry to the north. Although there are a number of issues that are considered problematic they are not necessarily insurmountable if appropriate mitigation measures are put in place.

Although there is no formal mineral company support for this site option at this stage, it has been indicated by representatives of the minerals industry that this would be a feasible option for a quarry.

Recommendation
In the absence of more suitable alternatives, **site option U22 should therefore be carried forward** for inclusion in the Aggregate Minerals Site Allocations DPD, including a revised estimate of resource.

Site Option: U23 Location: Upper Thames Valley Nearest Settlement: Ashton Keynes (to south) Resource Type: Sand and Gravel Potential Yield: 1,730,000 tonnes Size: 19.8 hectares Current land use: Agricultural	Biodiversity		Historic environment		Human health and amenity		Land use		Landscape / Visual Impact		Transport		Water environment	
	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade
1	Orange	1	Red	1	Orange	1	Orange	1	Orange	1	Orange	1	Yellow	
2	Orange			2	Blue	2	Blue	2	Orange	2	Yellow	2	Orange	
3	Blue			3	Orange	3	Green	3	Green	3	Yellow			
4	Orange			4	Orange	4								
5	Yellow			5	Orange	5								
6	Orange			6	Yellow									
7	Blue			7	Yellow									
8	Orange			8	Yellow									
9	Yellow													

Comments
The site is located adjacent to a residential school (Cotswold Community School). The school is closing and will be vacant from the end of term 6 in July 2011 and therefore use as a school should not be considered as a sensitive receptor. A number of Grade II listed buildings are located within the boundary of the school, although it is considered that mitigation is possible. This area is also considered to be an area of high archaeological potential, with a significant proportion of the site option is designated as a Scheduled Ancient Monument. English Heritage has confirmed that allocation of this SAM for sand and gravel extraction would not be appropriate due to the level of information required to support such an allocation as a plan proposal. If proposals to work mineral within SAMs are submitted to the Council, then a significant amount of evidence would be required to fully justify development. However, due to the closure of the Cotswold Community School, it is possible that additional land may be suitable for extraction which will thereby increase the potential yield. It is recommended that the non-scheduled part of U23 is incorporated into an extended U22 (see comments for U22 above).

Recommendation
The part of site option **U23 designated as a scheduled monument should be excluded from further consideration** when considered against Historic Environment SA Objective 1. **However, the remaining part of site option U23 should be carried forward and included as part of site option U22.**

Site Option: C3 Location: Calne area Nearest Settlement: Calne (to the west) Resource Type: Sand Potential Yield: 450,000 tonnes Size: 23.4 hectares Current land use: Agricultural	Biodiversity		Historic environment		Human health and amenity		Land use		Landscape / Visual Impact		Transport		Water environment	
	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade
1	Blue	1	Blue	1	Blue	1	Orange	1	Yellow	1	Yellow	1	Yellow	
2	Orange			2	Yellow	2	Blue	2	Yellow	2	Yellow	2	Orange	
3	Blue			3	Orange	3	Green	3	Green	3	Orange			
4	Orange			4	Yellow	4								
5	Yellow			5	Yellow	5	Green							
6	Yellow			6										
7	Blue			7	Yellow									
8	Yellow			8	Orange									
9	Yellow													

Comments
 This site option is located adjacent to an active quarry and concrete products factory, is fairly well screened and separated from other land uses and therefore considered relatively unconstrained. The grading against SA objectives demonstrate that this site option would be the first choice of the site options for the Calne area. Priority would also be given to this site in policy terms as an extension to an existing operational quarry. Although some issues are considered potentially problematic they are not necessarily insurmountable if appropriate mitigation measures are put in place.

Although the site option was not originally proposed by the minerals industry, it is considered to have good potential as an extension to the existing adjacent quarry. This site would not form an extension to the adjacent landfill (there is more than sufficient landfill capacity for Wiltshire and Swindon) but instead would be restored using inert material. The industry has indicated that they are confident that sufficient inert material would be available to restore site C3.

Recommendation
 In the absence of more suitable alternatives, **site option C3 should therefore be carried forward** for inclusion in the Aggregate Minerals Site Allocations DPD.

Site Option: C15 Location: Calne area Nearest Settlement: Derry Hill (to north), Sandy Lane (to south) Resource Type: Sand Potential Yield: 3,000,000 Size: 42.1 hectares Current land use: Agricultural	Biodiversity		Historic environment		Human health and amenity		Land use		Landscape / Visual Impact		Transport		Water environment		
	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	
1	Orange	1	Orange	1	1	Orange	1	Orange	1	Orange	1	Orange	1	Blue	
2	Orange			2	2	Yellow	2	Blue	2	Orange	2	Yellow	2	Orange	
3	Blue			3	3	Orange	3	Green	3	Green	3	Orange			
4	Orange			4	4	Orange	4	Orange							
5	Yellow			5	5	Orange	5	Orange							
6	Yellow			6		Yellow									
7	Yellow			7		Yellow									
8	Yellow			8		Blue									
9	Yellow														

Comments
 This option is located adjacent to the A342, with dwellings to the north and south of the site and the communities of Derry Hill/ Studley to the north east. Access is considered feasible but, despite forming part off the advisory HGV route network, use of the A342 is not currently considered suitable for minerals HGV use and therefore improvements to the road network along the stretch of A342 between the site option and the junction with the A4 would be required. From an historic environment perspective, development is considered to potentially lead to impacts on the setting of the historic park and garden at Bowood. However, from a landscape/ visual impact perspective, mitigation is considered achievable and there is potential for restoration to enhance the area through forestry. Although there are a number of issues that are considered problematic they are not necessarily insurmountable if appropriate mitigation measures are put in place.

No minerals company interest for this plan period although longer term (post 2026) this site option is considered to have some potential.

Recommendation
 In light of the fact that C3 offers a much more suitable option, and when taking into account the evidence the council now has to support a local forecast, rather than the forecast developed at the national and regional level, it is recommended that **site option C15 is discounted from inclusion in the development plan at this time.** The site option is considered to offer longer term (i.e. post 2026) potential for mineral working.

Site Option: C16 Location: Calne area Nearest Settlement: Westbrook (to east) Resource Type: Sand Potential Yield: 500,000 tonnes Size: 10.4 hectares Current land use: Agricultural	Biodiversity		Historic environment		Human health and amenity		Land use		Landscape / Visual Impact		Transport		Water environment	
	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade
1	Orange	1	Yellow	1	Orange	1	Orange	1	Yellow	1	Orange	1	Blue	
2	Orange			2	Yellow	2	Blue	2	Orange	2	Yellow	2	Yellow	
3	Blue			3	Orange	3	Green	3	Green	3	Red			
4	Orange			4	Orange	4	Orange							
5	Yellow			5	Orange	5	Yellow							
6	Orange			6	Yellow									
7	Yellow			7	Yellow									
8	Yellow			8	Yellow									
9	Yellow													

Comments
 The site is poorly screened from the road to the south and the properties to the east. Although access is considered achievable, the local road network is not part of the Wiltshire advisory HGV network and not considered suitable for minerals HGV use without significant upgrading.

This site option was originally put forward for consideration by Tarmac in 2003. Since 2003 an application for a concrete batching plant at this site was submitted and subsequently refused by the then Wiltshire County Council at Sahara Sandpit. It has recently been confirmed that there is no longer mineral company interest in this site option.

Recommendation
 Due to lack of appropriate access to the advisory HGV network, **site option C16 should be excluded** when considered against transport objective 3.

Site Option: C18 Location: Calne area Nearest Settlement: Bromham (to north), Rowde (to south east), St Edith's Marsh (to north east and east). Resource Type: Sand Potential Yield: 7,100,000 Size: 74.5 hectares Current land use: Agricultural	Biodiversity		Historic environment		Human health and amenity		Land use		Landscape/ Visual Impact		Transport		Water environment		
	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	
1	Orange	1	Orange	1	Orange	1	Orange	1	Orange	1	Orange	1	Orange	Blue	
2	Orange			2	Orange	2	Blue	2	Orange	2	Yellow	2	Yellow	Orange	
3	Blue			3	Orange	3	Yellow	3	Green	3	Orange				
4	Orange			4	Orange	4	Orange								
5	Yellow			5	Orange	5	Orange								
6	Orange			6	Yellow										
7	Blue			7	Yellow										
8	Yellow			8	Orange										
9	Yellow														

Comments
This site option covers a large area of search, relative to other site options in the Calne area. In certain parts of the site option, the issues in relation to landscape, visual impact and the historic environment associated with development of this site are considered significant, leading to the recommendation that parts of the site option should be excluded. However by applying separation distances and screening it is considered possible that some parts to the north of the centre of the site may be suitable. A significant part of the site option (40% within the southern part of the site) is outside of the designated Mineral Resource Zone (MRZ) for the area. In light of the fact that there are more suitable alternatives (C3 as a first choice and C15 second) there would be no justification for pursuing the part of the site outside of the MRZ. The potential yield would therefore be reduced significantly as a result of the need to mitigate for landscape, visual impacts and impacts to the setting of the historic built environment. The estimate of potential yield after mitigation measures have been implemented would be approximately 1.66 million tonnes. The site option is also classed as Grade 2 best and most versatile agricultural land, which in light of the outcomes of the assessments for the other site options in the Calne area, would place it low in order of preference (again C3 would be preferred). Access to the site is considered to be achievable but, despite forming part of the advisory HGV route network, use of the A342 is currently not considered suitable for minerals HGV use, unless significant improvements are delivered. In terms of comparison with C15 this site option would involve HGVs travelling greater distances of the A342 to reach the A4, making the necessary road improvements (to ensure that the route to the wider HGV network is suitable), would be unrealistic. There is no mineral company interest in this site option at this stage.

Recommendation
In light of the fact that C3 offers a much more suitable option, followed by site option C15, and when taking into account the evidence the council now has to support a local forecast, rather than the forecast developed at the national and regional level, it is recommended that **site option C18 is discounted from inclusion** in the development plan.

Site Option: SE1 Location: South East of Salisbury Nearest Settlement: Whiteparish (to east) Resource Type: Sand Potential Yield: 1,280,000 Size: 16.0 hectares Current land use: Agricultural	Biodiversity		Historic environment		Human health and amenity		Land use		Landscape / Visual Impact		Transport		Water environment	
	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade
1	Orange	1	Orange	1	Orange	1	Orange	1	Orange	1	Yellow	1	Yellow	
2	Orange			2	Yellow	2	Blue	2	Orange	2	Yellow	2	Orange	
3	Blue			3	Orange	3	Green	3	Green	3	Orange			
4	Orange			4	Orange	4	Green							
5	Yellow			5	Orange	5	Yellow							
6	Orange			6	Yellow									
7	Blue			7	Yellow									
8	Yellow			8	Blue									
9	Yellow													

Comments
This site option is located in proximity to a number of dwellings, some of which are of historic environment importance. There is also potential for impacts on the conservation area at Whiteparish to the east of the site option. The site is very open to views from the road (principally the A27) and nearby properties. Mitigation would be required to 'buffer' and screen potential adverse visual impacts. The site option is also considered to present road safety issues, although theoretically access to the A27 is possible.

No mineral company interest.

Recommendation
In light of the fact that SE2 and SE3 offer more suitable and deliverable options; and when taking into account the evidence the council now has to support a local forecast (rather than the forecast developed at the national and regional level), it is recommended that **site option SE1 is discounted from inclusion in the development plan.**

Site Option: SE2 Location: South East of Salisbury Nearest Settlement: Whiteparish (to east) Resource Type: Sand Potential Yield: 700,000 Size: 12.9 hectares Current land use: Agricultural	Biodiversity		Historic environment		Human health and amenity		Land use		Landscape / Visual Impact		Transport		Water environment	
	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade
1	Orange	1	Blue	1	Yellow	1	Orange	1	Orange	1	Yellow	1	Blue	
2	Orange			2	Yellow	2	Blue	2	Yellow	2	Yellow	2	Orange	
3	Blue			3	Orange	3	Green	3	Green	3	Blue			
4	Orange			4	Yellow	4	Green							
5	Orange			5	Yellow	5	Green							
6	Orange			6	Yellow									
7	Orange			7	Yellow									
8	Yellow			8	Yellow									
9	Yellow													

Comments
Apart from the classification of this site option as ancient woodland, there are very few constraints to development. The site has, for several decades, been used for forestry and therefore none of the trees contained within the site could be considered to be ancient or veteran. However, the seed bed contained within the soils is of importance, hence the classification. Mitigation involving adequate protection of the soils and seed bed has been successfully implemented at Brickworth quarry and is therefore considered feasible for SE2. The site would act as a natural extension to the existing quarry at Brickworth and therefore there are no concerns regarding the use of the current access to the A36.

This site option has minerals industry support.

Recommendation
In the absence of more suitable alternatives, **site option SE2 should therefore be carried forward** for inclusion in the Aggregate Minerals Site Allocations DPD.

Site Option: SE3 Location: South East of Salisbury Nearest Settlement: Whiteparish (to east) Resource Type: Sand Potential Yield: 1,248,000 Size: 12.3 hectares Current land use: Agricultural	Biodiversity		Historic environment		Human health and amenity		Land use		Landscape / Visual Impact		Transport		Water environment	
	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade
1	Orange	1	Blue	1	Yellow	1	Orange	1	Orange	1	Yellow	1	Blue	
2	Orange			2	Yellow	2	Blue	2	Yellow	2	Yellow	2	Orange	
3	Blue			3	Orange	3	Green	3	Green	3	Blue			
4	Orange			4	Blue	4	Green							
5	Orange			5	Blue	5	Green							
6	Orange			6	Yellow									
7	Orange			7	Yellow									
8	Yellow			8	Yellow									
9	Yellow													

Comments
Apart from the classification of this site option as ancient woodland there are very few constraints to development. The site has, for several decades, been used for forestry and therefore none of the trees contained within the site could be considered to be ancient or veteran. However, the seed bed contained within the soils is of importance, hence the classification. Mitigation involving adequate protection of the soils and seed bed has been successfully implemented at Brickworth quarry and is therefore considered feasible at SE3. The site would act as a natural extension to the existing quarry at Brickworth and therefore there are no concerns regarding the use of the current access to the A36.

This site option has minerals industry support.

Recommendation
In the absence of more suitable alternatives, **site option SE3 should therefore be carried forward** for inclusion in the Aggregate Minerals Site Allocations DPD.

Site Option: SA1 Location: Salisbury Avon Nearest Settlement: Salisbury (to north and west) Resource Type: Sand and Gravel Potential Yield: Size: hectares Current land use: Agricultural	Biodiversity		Historic environment		Human health and amenity		Land use		Landscape / Visual Impact		Transport		Water environment	
	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade
1	Red	1	Red	1	Orange	1	Yellow	1	Yellow	1	Orange	1	Yellow	
2	Yellow			2	Orange	2	Blue	2	Orange	2	Green	2	Orange	
3	Blue			3	Orange	3	Green	3	Green	3	Red			
4	Orange			4	Orange	4	Orange							
5	Yellow			5	Orange	5	Orange							
6	Orange			6	Yellow									
7	Blue			7	Yellow									
8	Yellow			8	Blue									
9	Yellow													

Comments
This site option is considered inappropriate in relation to the difficulties associated with access and use of the A36 at this location; the potential impacts on the integrity of the River Avon SAC (the majority of the site is within flood zone 3 and therefore there are limited options for storing soils etc, and particularly the use of measures to mitigate potential impacts of silt migration on the SAC); and the potential impacts on the historic environment. The Environment Agency has expressed significant concern regarding the proximity of the site option to the River Avon Special Area of Conservation.

A new sewage pipe has been installed across the site to provide an alternative discharge point for the adjacent sewage works. Not only does this provide indication of the sensitivity of the River Avon SAC at this location but would significantly impact upon the practicality of development of the site. There is no mineral company interest in this site option.

Recommendation
Due to lack of appropriate access to the A36, proximity to the River Avon SAC and potential impacts on the historic environment, this site option is regarded as impractical for use as a quarry and therefore **site option SA1 should be excluded** when considered against biodiversity objective 1, historic environment objective 1 and transport objective 3.

Site Option: SA2 Location: Salisbury Nearest Settlement: Alderbury (to east) Resource Type: Sand and Gravel Potential Yield: 2,200,000 Size: 63.9 hectares Current land use: Agricultural	Biodiversity		Historic environment		Human health and amenity		Land use		Landscape / Visual Impact		Transport		Water environment		
	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	
1	Red	1	Orange	1	1	Orange	1	Orange	1	Yellow	1	Orange	1	Yellow	
2	Orange			2	2	Yellow	2	Blue	2	Orange	2	Yellow	2	Orange	
3	Blue			3	3	3	Green	3	Green	3	Red				
4	Orange			4	4	4	Yellow								
5	Yellow			5	5	5	Orange								
6	Orange			6	6		Yellow								
7	Blue			7	7		Yellow								
8	Yellow			8	8		Yellow								
9	Yellow														

Comments
This site option is located in a rural area. It is considered inappropriate for development as a sand and gravel quarry due to the difficulties associated with access to and use of the A36 at this location (in particular there are serious concerns about the practicality of crossing the Witherington road and use of the proposed haul road to Alderbury to access the A36); the potential impacts on the integrity of the River Avon SAC; and the potential impacts on the historic environment (although the historic environment is not thought to be exclusionary in its own right). The Environment Agency has expressed significant concern regarding the proximity of the site option to the River Avon Special Area of Conservation. The County Ecologist has identified the proposed haul road as being of significant ecological value and therefore potentially inappropriate for use.

Although originally put forward by Tarmac for consideration in 2004, there is no longer any mineral company interest in this site option.

Recommendation
Due to lack of appropriate access and proximity to the River Avon SAC this site option is regarded as impractical for use as a quarry and therefore **site option SA2 should be excluded** when considered against biodiversity objective 1 and transport objective 3.

Site Option: BA4 Location: Bristol Avon Nearest Settlement: Beanacre (to south), Lacock (to north) Resource Type: Sand and Gravel Potential Yield: 500,000 Size: 33.3 hectares Current land use: Agricultural	Biodiversity		Historic environment		Human health and amenity		Land use		Landscape / Visual Impact		Transport		Water environment	
	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade	SA objective	Grade
1	Orange	1	Orange	1	Orange	1	Orange	1	Orange	1	Orange	1	Blue	
2	Orange			2	Orange	2	Blue	2	Orange	2	Yellow	2	Orange	
3	Blue			3	Orange	3	Green	3	Green	3	Red			
4	Orange			4	Orange	4	Orange							
5	Yellow			5	Orange	5	Orange							
6	Orange			6	Yellow									
7	Yellow			7	Yellow									
8	Yellow			8	Orange									
9	Yellow													

Comments
 This site options is located adjacent to the A350. However, it is considered that, due to the curve and geometry of the road along the frontage boundary of the site, there are no suitable places for safe access/egress. The site is also considered to be of high archaeological potential due to the route of a Roman road which passes through the site on an east- west alignment. A significant part of the site is classified as ancient woodland, although a large portion of the area is also in agricultural use.

There is no mineral company interest in this site option.

Recommendation
 Due to lack of safe access to the A350, it is considered inappropriate to allocate this site option for development as a quarry and therefore **site option BA4 should be excluded** when considered against transport objective 3.

Summary of Recommendations

Site options proposed to be carried forward into the draft Minerals Sites DPD	Yield (tonnes)
U3	2,400,000
U4	812,000
U5	300,000
U7	2,200,000
U22 (as amended to include non-scheduled part of U23 and part of adjacent land)	2,760,000
C3	450,000
SE2	700,000
SE3	1,248,000
Total	10, 870,000*

*Figures in the Wiltshire and Swindon Aggregate Minerals Site Allocations DPD have been rounded for ease of use and show a total yield of 10.86million tonnes.

Site options to be excluded from this development plan	Yield (tonnes)
U2	355,250
U6	350,000
U9	1,250,000
U16	1,975,000
U17	680,000
U18	1,780,000
U23 (part of)	1,730,000
C15 (although this site option is seen as having longer term potential)	3,000,000
C16	500,000
C18	7,150,000
SE1	1,280,000
SA1	1,350,000
SA2	2,000,000
BA4	500,000
Total	23,900,250

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>