

Topic Paper 6: Soils and Geology

Policy Context

Overall aim or purpose of document	Objectives / targets
Proposals for an EU Soil Framework Directive	
<p>The EU has been working on proposals for a EU Soil Framework Directive since 2002. The commissions proposals would involve very wide ranging measures covering protection of agricultural soils, soil contamination, soil sealing, and a general duty on policy makers to take into account the impact of their policies and activities on soil and on land users to prevent and minimise negative impacts.</p> <p>However, ministers have not been able to reach an agreement on this approach.</p>	None
The First Soil Action Plan For England: 2004-2006 (DEFRA, 2004)	
<p>The Action Plan contains 52 actions on issues ranging from soil management on farms to soils in the planning system, soils and biodiversity, contamination of soils and the role of soils in conserving cultural heritage and landscape. All of the actions take a step towards more sustainable soil use and protection. It sets out a widely accepted way of understanding the benefits provided by soil in terms of the key functions that soil performs. The key soil functions may be summarised under the following headings:</p> <ul style="list-style-type: none"> • Providing a platform for development • Playing a key role in natural systems such as environmental buffering • Supporting 'food and fibre' production; • Contributing to biodiversity by supporting habitats on and in soil • Providing a source of raw materials such as peat and clay • Recording and protecting cultural heritage 	<p>Objectives</p> <p>The following actions are relevant to planning:</p> <ul style="list-style-type: none"> • DEFRA will work with other Government Departments and Agencies (including in the Devolved Administrations), the National Soil Resources Institute at Cranfield University (as co-owners of key data sets) and other soil data users, to develop and provide better access to information on soils • DEFRA will work with the Office of the Deputy Prime Minister (ODPM), representatives of planning authorities and other partners to develop a consensus on the procedures needed to give soils appropriate protection during the planning process. Good practice guidance has been issued in April 2004
Consultation on the Draft Soil Strategy for England (DEFRA, March 2008)	
<p>The purpose of the strategy is to provide a sound framework for policy making and delivery with the aim of ensuring the sustainable management of England's soils. The draft Strategy sets out the pressures on soils and the priority work areas identified on the basis of these pressures. It explains current policy measures which are in place to achieve sustainable soil management and then sets out in broad terms what it is that DEFRA hope to achieve and some initial steps they intend to take in the next few years.</p> <p>In parallel to the draft Soil Strategy for England, DEFRA has commissioned specialist research with regard to 'soil and construction sites', and is exploring how to manage soil resources in a sustainable manner. This includes the publication of a draft '<i>Code of Practice on the Sustainable Use and Management of Soil on Construction Sites</i>' on 28 July 2008. The draft Code of Practice is the subject of a period of consultation to 20 October 2008 and a final version is anticipated sometime in 2009.</p>	<p>The draft strategy has the following key objectives:</p> <ul style="list-style-type: none"> • Ensure that measures for the protection of soil functions in respect of agricultural and forest soils are effective, targeted and proportionate, take into account future pressures including our changing climate and minimise adverse impacts on air, water, biodiversity and greenhouse gas emissions • Reduce the rate of soil organic matter decline and protect habitats based on organic soils, such as peat bogs, to maintain our carbon stores (to mitigate climate change) and soil quality • Establish the degree of risk from putting organic material on soils and the consequences of human, animal and plant health and the environment, and to seek to keep these risks to an acceptable level • Ensure that in accordance with the principle of sustainable development the construction industries and planning authorities take account of the need to protect soil resources and ensure soils in the built environment are able to fulfil as many as

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<p>The Soil Strategy for England takes account of the EU Thematic Strategy for Soil Protection and the accompanying proposals for a Soil Framework Directive. DEFRA considers that that the draft Soil Strategy for England sets out sufficiently broad and high level objectives to allow future soils policy to be adapted in the event that a Directive is adopted in the future. DEFRA consider the vision and objectives of the Strategy for England to be entirely consistent with the broad direction of EU policy, and do not therefore need to await decisions on specific legislative proposals.</p>	<p>possible of their functions especially storing, transporting and filtering water.</p> <p>Key next steps specifically relating to development include:</p> <ul style="list-style-type: none"> • Work with partners to promote a new topsoil standard • Work with CLG to provide better information for planners and developers • Evaluate impact and uptake of built environment policies and tools and determine if further action is required.
<p>Planning for soil: Advice on how the planning system can help to protect and enhance soils (SNIFFER, April 004)</p>	
<p>The guidance recognises that soil has never had direct protection from the planning system. The advice note aims to help planning authorities address soil issues in forward planning and development control. The guidance sets out how development activities can have effects on soil properties and soil functions.</p>	<p><u>Actions which the development planning system can take:</u></p> <ul style="list-style-type: none"> • Soil issues should be considered during the process of developing plan policies. Soil should be included as a criterion in SEA • Plans should include high level plan policies on soil setting out a commitment to the protection and enhancement of soils as part of a wider sustainable approach to development • Strategic development plan proposals should include consideration of their likely effect on soil and soil function • Soils should be included as a criterion within more detailed development plan policies • Outline guidance should be provided for developers to ensure that soil is considered as a factor throughout the design and implementation of a project
<p>Planning Policy Statement 9 – Biodiversity and Geological Conservation (ODPM, 2005)</p>	
<p>PPS9 sets out planning policies on protection of biodiversity and geological conservation* through the planning system. Published in August 2005, it replaces PPG Note 9 on nature conservation.</p> <p>*In the context of this PPS, geological conservation relates to sites designated for geology and/or geomorphological importance.</p>	<p>Objectives:</p> <ul style="list-style-type: none"> • To promote sustainable development by ensuring geological diversity is conserved and enhanced; to ensure policies and decisions relating to land use integrate geological diversity with other considerations • To conserve, enhance and restore the diversity of England's geology, by sustaining and where possible improving the quality and extent of geological/geomorphological sites; the natural physical processes on which they depend <p>Key Principles:</p> <ul style="list-style-type: none"> • Development plan policies/planning decisions should be based on up-to-date information about the environmental characteristics and geological resources of the area. LAs should assess how they can sustain and enhance these resources • LAs should give appropriate weight to designated sites of international, national and local importance, and to geological interests within the wider environment • Plan policies should promote opportunities to incorporate beneficial geological features in development design

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	<ul style="list-style-type: none"> • Planning decisions should prevent significant harm to geological conservation interests. If significant harm cannot be prevented, adequately mitigated against, or compensated for, planning permission should be refused • LDFs should indicate the location of designated sites of importance for geodiversity, making a clear distinction between the hierarchy of international, national, regional and locally designated sites
Farming and Food Strategy 2002 (DEFRA, 2002)	
<p>Our overarching aim is to promote a competitive and efficient farming and food sector which protects and enhances our countryside and wider environment, and contributes to the health and prosperity of all our communities.</p>	<p>Objectives Key principles for sustainable farming and food now and in the future:</p> <ul style="list-style-type: none"> • Support the viability and diversity of rural and urban economies and communities; • Respect and operate within the biological limits of natural resources (especially soil, water and biodiversity) • Achieve consistently high standards of environmental performance by reducing energy consumption, by minimising resource inputs, and use renewable energy wherever possible
The Delivery Plan for a Sustainable Farming & Food Industry in the South West (South West Sustainable Farming & Food Steering Group, 2004)	
<p>The delivery plan sets out a range of proposed actions to make sure that the Strategy for Sustainable Farming and Food makes a real difference in the South West. It also sets out the agricultural and environmental context for the South West, describing the importance of food and farming for the region, to English agriculture and to the food chain.</p>	<p>Objectives: Contains over 90 objectives organised under 5 themes: Knowledge, The Food Chain, Environment, Broadening the Economic Base, and Human and Animal Health. The objectives include:</p> <ul style="list-style-type: none"> • Encourage District Councils to encourage renewable energy developments through their economic development and forward planning functions • Improve biodiversity, natural resources (soil, air and water) and natural and historic landscapes • Help rural tourism to make a positive contribution to the environment; • Improve the mutual understanding of planners and land-based business people • Build opportunities for a stronger connection between the value of the South West's environment and the market place <p>Targets Contains a number of 'Measurements of Success', which include:</p> <ul style="list-style-type: none"> • A year-by-year increase in the participation of the rural workforce in training and development; • A marked increase in the awareness of the rural workforce of sustainability • An increase in the profitability of rural businesses, particularly land-based ones • Water resource and quality targets met; and • Reduction in farm and catchment-scale soil erosion, compaction and run-off
The Somerset Minerals Local Plan 1997-2011 (Somerset County Council, Adopted 2004)	

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<p>The plan serves as the principal means against which mineral planning proposals in Somerset will be assessed. The plan aims to find a balance between the demand for minerals and the needs of the Somerset environment. It considers mineral issues at the local level and puts forward a set of mineral policies which build on those laid out in the Regional Planning Guidance. Mineral development policies cover a broad range of areas including: landscape, water, archaeology, public rights of way, noise etc. (This plan excludes Exmoor National Park).</p> <p>Somerset County Council has recently started production of the Minerals and Waste Development Framework. However, no documents have been produced at this stage.</p>	<p>Objectives: The overarching strategy guiding the policies within this plan is for Somerset's mineral extraction to make an appropriate contribution to the local, regional and national need for minerals, which does not compromise the pattern of sustainable development across Somerset, and recognises the need to encourage material recycling.</p> <p>Targets No specific targets</p>

Baseline Review

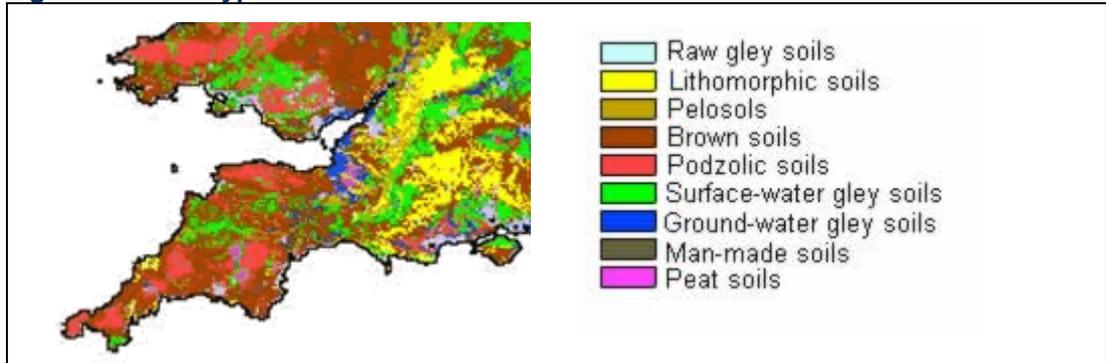
This paper reviews the information available on soils and geology in West Somerset. This includes issues such as soil type and vulnerability, mineral development and development on contaminated land.

Soils

Information is taken from the Environment Agency's 2004 report on *The State of Soils in England and Wales* unless otherwise stated. Soil is the physical material that covers much of the earth's surface and serves a number of purposes such as:

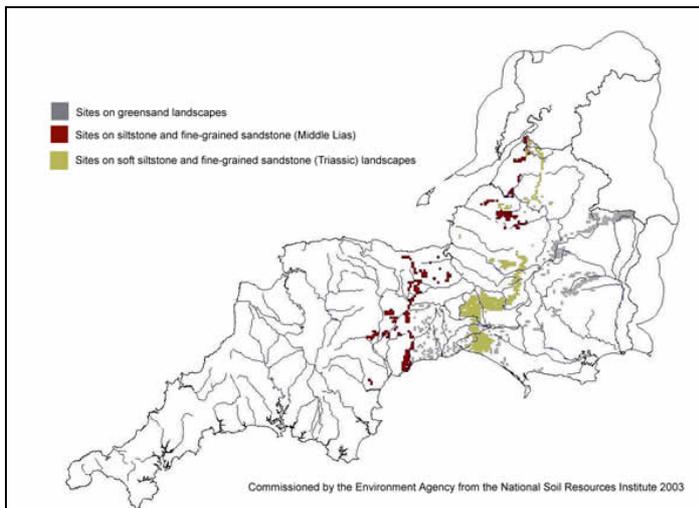
- Providing a platform for development.
- Playing a key role in natural systems such as environmental buffering.
- Supporting 'food and fibre' production.
- Contributing to biodiversity by supporting habitats on and in soil.
- Providing a source of raw materials such as peat and clay.
- Recording and protecting cultural heritage.

The extended timescales over which soils are formed means that they should be regarded as a non-renewable resource. At the same time they are a fragile resource, being particularly vulnerable to contamination, compaction and erosion by wind or water. There are nine major soil types in England and Wales as mapped below by the National Soil Resources Institute. The South West Region contains a wide variety of soils associated with its diverse range of landscapes. Figure 6.1 shows the main distribution of soils in the South West.

Figure 6.1: Soil Types in the South West

(Source: www.swenvo.org.uk)

West Somerset mainly has podzolic and brown soils with some surface water gley soils. According to the National Soils Institute West Somerset does contain some soils that are particularly vulnerable to erosion. These are the siltstones in the Taunton Vale area (see Figure 6.2).

Figure 6.2: Soil Types in the South West

(Source: www.swenvo.org.uk)

Healthy soil is vital to a sustainable environment and an essential resource for life and human activity can have had a significant impact on *any* soil type through:

- Loss of soil structure.
- Soil erosion and soil wash off.
- Land take and direct loss of soils.
- Contamination.
- Acidification and the loss of biodiversity.

Geology and Minerals Development

The geology of the area is described in two publications (*The Minehead district – a Concise Account of the Geology* (BGS 1999) and *British Regional Geology South-West England 4th Edition* (BGS 1975)). The geology of West Somerset mainly consists of Devonian rocks comprising slates and sandstones. West Somerset is not currently an active area for quarrying although historically iron has been mined from the Brendons and copper from the Quantocks. West Somerset currently has very low levels of mineral activity restricted to some small scale working of building stone. The only recently active large quarry, Triscombe on the Quantock Hills, produced sandstone and quartzite for high quality road surfacing material. However, major conflicts with designated landscape and nature conservation interests have led to the cessation of working although the permission is still extant (but dormant).

Sites Designated for their Geological Value

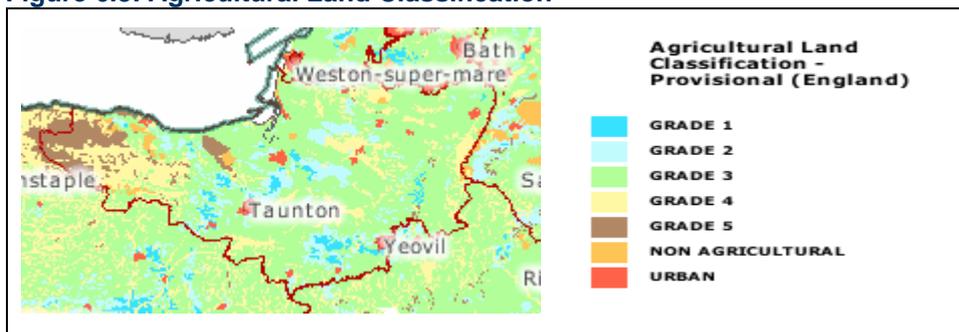
Somerset has 60 sites designated under the Geological Conservation Review (GCR) but relatively few of these are in West Somerset. Sites in West Somerset are Blue Anchor to the Listock Coast and Glenthorne.

<http://www.jncc.gov.uk/earthheritage/gcrdb/GCRsearcharea.asp?authority=UKK23>. The GCR was begun in 1977 and was designed to identify those sites of national and international importance needed to show all the key scientific elements of the Earth heritage of Britain. The GCR register presently underpins the process of selecting Earth science SSSIs. All of the above are also designated as geological SSSIs and RIGS http://www.english-nature.org.uk/special/sss/citation_results.asp?P=6&S=&c=35.

Agricultural Land Classification

The Agricultural Land Classification of West Somerset is shown in Figure 6.3.

Figure 6.3: Agricultural Land Classification



(Source: www.magic.gov.uk)

The map shows that the majority of West Somerset is listed as Grade 3 although some areas are Grade 1 and 2. More information is needed as to whether the land classed as Grade 3 is Grade 3a and therefore considered as best and most versatile agricultural land (along with Grades 1 and 2). Consultees attending the scoping workshop noted that agricultural designations have relations to historic landscape character.

Contaminated Land

The term 'Contaminated Land' is specific and is defined by the Environment Protection Act 1990 as land that is contaminated to such an extent that it poses an unacceptable risk or threat to human health or the environment. West Somerset Council produced a contaminated land strategy in 2001 and also an update in 2005 covering the period to 2009. This states that the identification of contaminated land in the district will be undertaken in a phased manner over a ten year period. An initial desk top study has provided a list of historic and current land use. From this the first areas to be examined will be the towns of Minehead, Williton, Watchet and Dulverton, any other areas which appear to be at risk and land owned by West Somerset Council. These sites will be subjected to a further desk-top study and a site visit. In any case where the land is identified as being contaminated land West Somerset Council shall, serve on each person who is an appropriate person, a remediation notice specifying what that person is to do by way of remediation and the periods which he is required to do of the things so specified. Until appropriate remediation has been carried out land will be unavailable for development. Assessment and required remediation undertaken should include protection and improvement of the quality of water interests, such as groundwater and watercourses.

Development on Previously Developed Land

Between 2000/2003 the percentage of new dwellings built on previously developed land within the West Somerset district was 62%. This decreased to 46% in 2007 / 2008 (West Somerset LDF Annual Monitoring Report December 2008). The AMR argues that West Somerset usually enjoys a high rate of completions on previously developed land. However, due to the changes in the definition of what constitutes previously developed land (which used to include gardens but now does not), this figure has fallen.

A Strategic Housing Land Availability Assessment (SHLAA) is being undertaken for the Taunton and South Somerset area (covering West Somerset). This process will identify unallocated brownfield sites that have potential to make a significant contribution to housing delivery during the 5 year period. This process has not reported as yet. However, there are few brownfield sites left within the district so previous levels are unlikely to be achievable in the future. Consultees at the Scoping Consultation Workshop have indicated that there may be concern that the lower densities that may be seen with development on previously developed land don't reach government targets. However, they also indicated that high density development may be inappropriate for West Somerset. Consultees also registered a concern that previously developed sites may be valuable in terms of cultural heritage and archaeology and that the appropriate safeguards should be in place.

Housing Density

The 2004/05 Annual Monitoring Report indicates that 86.5% of new dwellings were completed at 30 dwellings or more per hectare coming close to the government target of 100%. Due to changes in the methods of monitoring housing development it has not been possible to provide definitive figures on development density since 2004/05.

With a more rigorous monitoring regime now established it will be possible to produce a more comprehensive and accurate picture of residential development in future Annual Monitoring Reports. Consultees at the Scoping Consultation Workshop have indicated that

there may be concern that high density development may be inappropriate for West Somerset.

Sources of Data

- The State of Soils in England and Wales (Environment Agency, 2004).
- The Minehead district – a Concise Account of the Geology (BGS 1999).
- British Regional Geology South-West England 4th Edition (BGS 1975).
- www.magic.gov.uk.
- www.swenvo.org.uk.
- Somerset Minerals Local Plan 1992 – 2011 (Adopted 2004).
- West Somerset LDF Annual Monitoring Report 2005/2006 and 2007/2008.

Data Gaps

Data is needed on which parts of land which are Grade 3 on the agricultural land classification are grade 3a (which are classed (along with Grades 1 and 2) as the best and most versatile)).

For the past few years data has not been available for development density.

The SHLAA study is not complete. Therefore, it is difficult to ascertain the number of brownfield sites available.

Trends

The level of mineral development in West Somerset has declined over the past few decades until only very small scale building stone development remains.

Future development on brownfield sites is likely to be lower than in the past as the number of sites declines.

No data on soil erosion has been found.

Soils and geology issues identified

- Some areas of West Somerset are classed as the best and most versatile agricultural land. The district does have some grade one and two agricultural land and therefore the high quality agricultural land should be protected.
- West Somerset has two sites registered under the Geological Conservation Review (GCR). These are Blue Anchor to the Listock Coast and Glenthorne.
- West Somerset currently has very low levels of mineral activity restricted to some small scale working of building stone.
- Development can impact on soils even if they are not classed as particularly vulnerable.
- West Somerset currently has low levels of new development on previously developed land.

- The Contaminated Land Strategy has a phased ten year programme for identifying these sites and this information can be utilised in the appraisal as it becomes available.
- The 2004/05 Annual Monitoring Report indicates that 86.5% of new dwellings were completed at 30 dwellings or more per hectare coming close to the government target of 100%. Data has not been reported since 2004/05 because of changes in the way housing completions are monitored. Consultees at the Scoping Consultation Workshop have indicated that there may be concern that high density development may be inappropriate for West Somerset.

Implications for the plan and the SA

The plan needs to consider how development will affect soils and the best and most versatile agricultural land. The availability of brownfield sites to enable development on brownfield sites as opposed to greenfield sites may be a key issue. Opportunities within the planning system to remediate contaminated sites requires consideration. The balance between high density development and local character requires careful deliberation.

Suggested SA Objectives and Indicators

SA objectives	SA indicators / appraisal questions. Will the plan lead to...
Reduce land contamination, and safeguard soil and geological quality and quantity.	<ul style="list-style-type: none"> • The remediation of contaminated sites? • Levels of development on brownfield sites that are above the national target of 60%? • Development that protects soil processes and functions and sites valued for their geological characteristics?