Topic Paper 11 - Soil and Land

Soil and Land

Baseline

Soil

1 Soil is a valuable and finite resource which covers a large amount of the Earth's surface and supports diverse life forms. Soils perform a range of essential functions. They have a role in nutrient cycling; regulate the drainage, flow and storage of water and solutes; help to support the production of biomass, such as food and timber; they support biological habitats; act as a filter to protect the quality of water, air and other resources; act as an anchorage for man-made structures; and can provide protective cover for archaeological remains [(1)]. Soil also has a role in maintaining carbon stores and regulating greenhouse gases.

2 Soil types for the county have been recorded by the National Soil Resources Institute at Cranfield University. The Agricultural Land Classification (ALC) system provides a framework for classifying land according to the extent to which its physical or chemical characteristics impose long-term limitations on agricultural use. The principal factors influencing agricultural production are climate, site and soil. These factors together with interactions between them form the basis for classifying land into one of five grades; Grade 1 land being of excellent quality and Grade 5 land of very poor quality. Grade 3, which constitutes about half of the agricultural land in England and Wales, is now divided into two subgrades designated 3a and 3b [(2)].

3 Agricultural land makes up over three-quarters of the total area of Dorset. It therefore has a large influence on the landscape. NPPF defines the 'Best and most versatile agricultural land' as land in grades 1, 2 and 3a of the ALC. It states that local planning authorities should take into account the economic and other benefits of the best and most versatile agricultural land. Where significant development of agricultural land is demonstrated to be necessary, local planning authorities should seek to use areas of poorer quality land in preference to that of a higher quality.[(3)]

4 Soils are under continuing threat of being lost to housing and commercial, industrial and infrastructure development. Net loss of soils to development is one of the Government's Quality of Life indicators. Pressures of erosion, compaction and organic matter decline are all an issue, and the impacts of development also include sealing and increased run-off and pollution. Such issues are likely to be exacerbated by climate change.

5 Development can therefore have adverse effects on both the biological and physical properties of soil and can limit its future uses. The sustainable use of soil requires that a sufficient quantity of greenfield soils be retained for present and future needs. [(4)]

6 Figure 1 shows that the majority of agricultural land in Dorset is classified as Grade 3, (although a breakdown between grades 3a and 3b is not currently available).

1 http://soilquality.org/functions.html
2 MAFF (1988) *Agricultural Land Classification for England and Wales* at: http://www.defra.gov.uk/foodfarm/landmanage/land-use/documents/alc-guidelines-1988.pdf
3 National planning Policy Framework, Department for Communities and Local Government, March 2012
4 http://www.environment-agency.gov.uk/cy/ymchwil/llyfrgell/data/34289.aspx

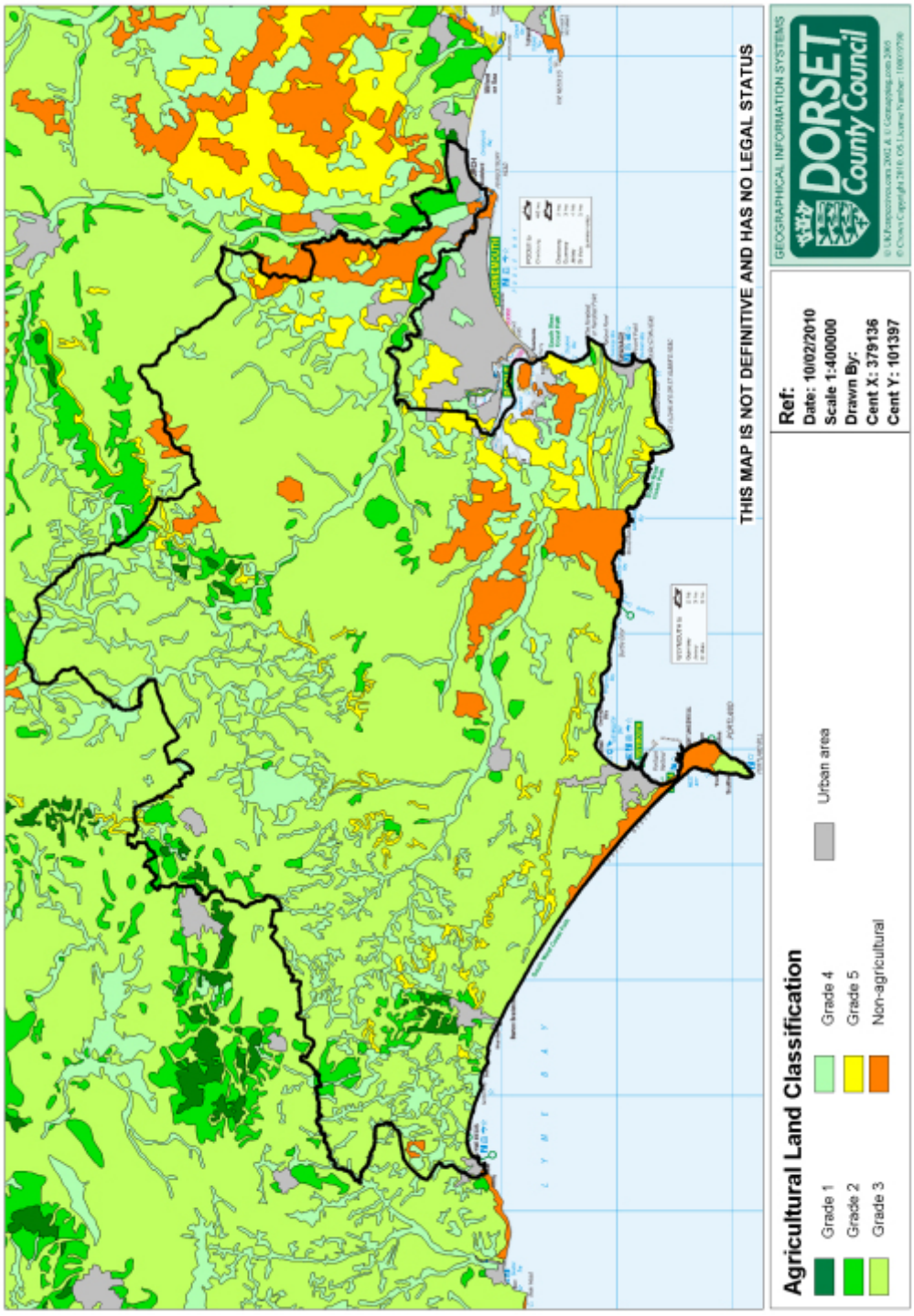

Figure 1 Agricultural Land Classification

7 It is likely that threats to soil will increase in the county due to increasing development, including the development of waste facilities which will result in soil loss and sealing with impermeable construction materials. This will prevent water filtrating into the soil, increase run-off and promote soil erosion and the likelihood of flooding.

Land Contamination

In a small number of situations where certain criteria are met, a site might be determined 'contaminated land' which has a specific legal definition set out in Part IIA of the Environmental Protection Act. The term 'land contamination' covers a wide range of situations where land is contaminated in some way. This could be due to previous industrial use, often associated with traditional processes that are no longer used. Such sites may present a hazard to the general environment, but there is a growing need to reclaim and redevelop[5]. Opportunities should be taken wherever possible to use the development process to assist and encourage the remediation of land already affected by contamination.

To prevent unacceptable risks from pollution and land instability, planning policies and decisions should ensure that new development is appropriate for its location. The effects (including cumulative effects) of pollution on health, the natural environment or general amenity, and the potential sensitivity of the area or proposed development to adverse effects from pollution, should be taken into account. Where a site is affected by contamination or land stability issues, responsibility for securing a safe development rests with the developer and/or landowner. [6]

Summary of relevant policy documents - Soil and Land

N.B. More detail on these and other policy documents is included at the end of this topic paper.

Table 1 Key messages from relevant policy

Policy Documents	Relevance to Waste and Minerals Plans
Key National/Regional Policy • National Planning Policy Guidance • Safeguarding our Soils: A Strategy for England • Construction Code of Practice for the Sustainable Use of Soils on Construction Sites • The State of Soils in England and Wales (EA)	• The various policy documents establish the importance of protecting and enhancing, and minimising disturbance to, soils. • The economic value of best and most versatile agricultural land should be taken into consideration.
Key Local Policy • Bournemouth, Dorset and Poole Waste Local Plan 2006	

Impacts potentially due to mineral extraction and processing and waste management facilities

- Effect of dust on soil and agriculture
- Effect on soil quality and utility of land through changes to hydrology and possible contamination

5 http://www.environment-agency.gov.uk/research/planning/33706.aspx
6 National Planning Policy Framework, Department for Communities and Local Government, March 2012

- Risk of subsidence or instability from sub-surface working, tipped land or hydrological changes
- Land take and permanent loss of soils
- Fragmentation of agricultural holdings
- Degradation of soil stored during period of mineral working
- Coastal erosion due to mineral working of coastal resources
- Land contamination

Issues

- Soils can be damaged by the extraction of minerals and there may be cases where waste facilities are located in former quarries. Soil is a valuable raw material to be protected through careful storage during the life of any operations and then to be used during restoration of mineral extractions. However damage may be exacerbated by extending the life of storage if landfill follows mineral working. Protection is therefore a significant issue.
- Soils can contain valuable seedbanks - these are particularly useful for the restoration of heathland.
- Due regard should be given to the diverse role of soils as a resource and the interaction of land, water and air pollution from minerals operations, waste sites and transportation.
- The highest quality agricultural land should be safeguarded where possible.
- Loss of soil and high quality land
- Mineral extraction should not cause irreversible loss of land quality and reclamation should be given a high priority with an emphasis on returning high quality land to agricultural use.
- Regard should be given to land instability during mining operations and reclamation.
- The production and use of products from waste treatment for use on land
- Additional landfill increases the chance of conflict with land of high value and soils

Suggested Sustainability Objectives

To maintain, conserve and enhance soil quality.

...and Broad Indicators

"To what extent does the strategic option, objective, strategy or policy..."

- Encourage the de-contamination and/or re-use of soils?
- Conserve or enhance soil quality?
- Reduce the capacity of the soil to hold carbon?
- Increase land contamination?

Relevant Policy Documents: Soil and Land

National Planning Policy Framework

The National Planning Policy Framework (NPPF) was published on 27 March 2012. It sets out the Government's planning policies for England and how these are expected to be applied to protect the environment and to promote sustainable growth.

The NPPF states that the planning system should contribute to and enhance the natural and local environment, including by protecting and enhancing valued landscapes, geological conservation interests and soils.

With regards to agricultural land, local planning authorities should take into account the economic and other benefits of the best and most versatile agricultural land. Where significant development of agricultural land is demonstrated to be necessary, local planning authorities should seek to use areas of poorer quality land in preference to that of a higher quality.

In terms of minerals development, planning authorities should put in place policies to ensure that high quality restoration and aftercare of mineral sites takes place, including for agriculture (safeguarding the long term potential of best and most versatile agricultural land and conserving soil resources).

Implications:

The policy guidance contained within the NPPF will be fundamental to the preparation of the Waste/Mineral Plans.

EU Thematic Strategy for Soil Protection (2006)

Different EU policies (for instance on water, waste, chemicals, industrial pollution prevention, nature protection, pesticides, agriculture) are contributing to soil protection. But as these policies have other aims and other scopes of action, they are not sufficient to ensure an adequate level of protection for all soil in Europe. For all these reasons, the Commission adopted a Soil Thematic Strategy (COM(2006) 231) and a proposal for a Soil Framework Directive (COM(2006) 232) on 22 September 2006 with the objective to protect soils across the EU.

The Strategy seeks to ensure sustainable use of soil. It takes into account all the different functions that soils can perform, their variability and complexity and the range of different degradation processes, while also considering socio-economic aspects. The overall objective is protection and sustainable use of soil, based on the following guiding principles:

- Preventing further soil degradation.
- Restoring degraded soil to a level of functionality consistent at least with current and intended use.

Implications:

The objectives of the EU Thematic Strategy for soil protection should be taken into account in the development of the Waste Local Plan and Mineral Sites Plan with regard to the minimisation of negative impacts on soil resources.

Directive on the Management of Waste from the Extractive Industries (2006/21/EC)

The Directive aims to ensure the continuous and consistent application across the EU of the environmental protection and resource efficiency objectives of the "parent" Waste Framework Directive

Member States shall:

- take the necessary measures to ensure that extractive waste is managed without endangering human health and without using processes or methods which could harm the environment, and in particular without risk to water, soil and fauna and flora, without causing a nuisance through noise or odours and without adversely affecting the landscape or places of special interest
- take the necessary measures to prohibit the abandonment, dumping or uncontrolled depositing of extractive waste
- ensure that the operator takes all measures necessary to prevent or reduce as far as possible any adverse effects on the environment and human health brought about as a result of the management of extractive waste, including the management of any waste facility, also after its closure, and the prevention of major accidents involving that facility and the limiting of their consequences for the environment and human health

Implications:

The requirements of the Directive will be taken into consideration.

Safeguarding Our Soils: A Strategy for England (DEFRA: 2009)

The Strategy sets out a vision: By 2030, all England's soils will be managed sustainably and degradation threats tackled successfully. This will improve the quality of England's soils and safeguard their ability to provide essential services for future generations.

The Vision expects that:

- agricultural soils will be better managed and threats to them addressed;
- soils will play a greater role in the fight against climate change and in helping us to adapt to its impacts;
- soils in urban areas will be sufficiently valued for the ecosystem services they provide and given appropriate weight in the planning system.
- where development occurs, construction practices will ensure that vital functions can be maintained; and
- pollution of soils is prevented and our historic legacy of contaminated land is being dealt with.

Implications:

The Soil Strategy will be taken into account during the preparation of the Waste Local Plan and Mineral Sites Plan.

Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (DEFRA: 2009)

This practical guide will assist anyone involved in the construction industry (including the waste industry) to protect the soil resource. It is particularly intended for use in England. It contains guidance of interest to those involved at all stages of construction projects, from the developer, designer, contractor, sub-contractor (earthworks, landscape) and regulator. The Code itself is not legislatively binding, but outlines current guidance and legislation concerning the use of soil in construction projects, before offering stage by stage guidance on the use, management and movement of soil on site.

The protection, use and movement of soil should be considered from the outset of a development project's planning, through its design and construction phases and on into future maintenance. The Code provides guidance on the various stages of site development where soil should be considered and contains ten sections to provide practical advice on different aspects of using soil sustainably on construction sites.

Implications:

The Code of Practice will be taken into account during the preparation of the Waste Local Plan and Mineral Sites Plan.

The State of Soils in England and Wales (Environment Agency 2004)

Healthy soils are vital to a sustainable environment. They produce food and timber, filter water, store carbon, support wildlife and the built landscape and preserve records of our ecological and cultural past. However there are increasing signs that the condition of soils has been neglected. It cannot be assumed that soil loss and damage will be recoverable. This report therefore states that soils should be managed sustainably to keep them healthy for future generations.

Implications:

This report's objectives should be taken into account in the preparation of the Waste Local Plan and Mineral Sites Plan.