

Minerals Planning Guidance 13: Guidelines for peat provision in England

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Overview

Mineral Planning Guidance Notes set out the Government's policies on minerals planning issues, and provide guidance to local authorities, the minerals industry and other interested parties. Local planning authorities must take their contents into account in preparing their development plans. The guidance may also be material to individual planning applications and appeals.

This Guidance Note provides advice to mineral planning authorities and the peat extractive industry on the exercise of planning control over the extraction of peat. It sets out the national picture on peat production, permitted reserves and consumption for horticultural purposes; and on the current amounts, sources and likely trends in usage of alternatives to peat, over the next 10 years.

The guidance:

- indicates the national policy considerations to be taken into account when drawing up policies for peatlands in development plans, and from this;
- advises local authorities on the identification and protection of important peatland habitats and archaeological sites;
- sets out criteria for selection and identification in plans of acceptable new sites for peat extraction, and factors which need to be considered when determining applications for planning permission;
- provides a framework for updating old permissions for peat extraction, with particular emphasis on the rehabilitation of sites to enhance nature conservation;
- provides guidelines for the rehabilitation of damaged peat bogs.

Introduction

1. The extraction of peat from British bogs, particularly from sites known as "lowland raised mires", has been a source of concern. The Department of the Environment convened a Working Group to consider the balance between nature conservation interests and the market demand for peat. The terms of reference and membership of the Group are reproduced in Annex A. The Group's report has been published.

2. The use of peat in England, and also in the UK as a whole, is almost entirely related to horticulture, either as **growing media** (materials in which plants are grown isolated from open ground) or as a **soil improver** (materials added to soil, ie open ground, mainly to improve its physical condition). In contrast to some other European countries, peat is not extracted commercially on any scale for use as a fuel. Current estimates indicate a present UK usage of horticultural peat of approximately 2.55 million cubic metres per year, of which 87% (2.2 million cubic metres per year) is used as growing media, and 13% (330,000 cubic metres) as a soil improver. The two main markets for peat are amateur gardeners and the professional horticulture industry, accounting for 58% and 39% of total usage respectively. The private sector landscaping and local authority sectors account for the remaining 3% used. About 60% of this peat comes from production within the UK, mainly from sites in England, and the remaining 40% from imports.

3. The use of alternatives to peat has more than doubled (120% increase) since the early 1980's, and now accounts for almost 30% of all substrate used for horticulture. This trend is expected to continue, albeit probably at a slower rate, since much of the most readily achievable substitution of materials, as soil improvers, has already taken place. By the year 2005 it is predicted that alternatives will account for over 32% of total substrate use. There are, however, a number of specialist uses for which satisfactory alternatives do not yet exist.

4. It is Government policy to maintain and encourage a competitive UK horticultural industry, while the general gardening public and the landscaping industry require a range of suitable, technically sound products at competitive prices. The Government believe that there continue to be market demands for peat which should, in part, continue to be met by peat extraction from sites in Great Britain.

5. However, it is also Government policy that peat bogs which retain a high level of nature conservation interest and which represent a part of the country's "critical natural capital", or are important for the archaeological heritage, should be protected and conserved for the benefit of future generations. In accordance with these policies, continued and future peat extraction should be limited to areas which have already been significantly damaged by recent human activity; whilst in line with the "polluter pays principle", planning permissions for all current extraction sites should be updated to modern standards to require appropriate working methods and restoration. In many cases restoration towards raised bog or other wetland habitats can improve the nature conservation importance of a worked out bog.

6. Forecasts of demand for peat and for alternatives to 2005 are provided in these guidelines based on predicted market requirements. The guidelines identify ways in which the demands of the horticultural industry and other users of peat can best be met from supplies of domestic and imported sources for at least the medium term in a sustainable way; and how alternatives to peat can be expected to contribute to market requirements. However it is recognised that advances in the development of alternatives, possibly within the short to medium term, may modify demand for peat. In order to keep abreast of future developments the Department will be monitoring the

effectiveness of these guidelines. It proposes also to support an independent unit to monitor the range and performance of peat and other organic products used in the markets in Britain, and to provide further guidance as necessary.

Policy And Objectives

General

7. The Government wishes to see indigenous mineral resources developed within its broad objectives of encouraging competition, promoting sustainable economic growth, assisting the creation and maintenance of employment, and protecting the environment. For the economic well being of the country, it is essential that there is an adequate and steady supply of minerals to meet the needs of the community and to foster economic growth. At the same time, the Government recognises that peat is ultimately a finite resource, and that its extraction can have a significant environmental impact (see the UK Strategy for Sustainable Development (Cm 2426 - January 1994)).

Sustainable policies for minerals

8. The implications of sustainable development for minerals planning in general are that avoidable and irretrievable losses of natural resources, such as minerals, should be limited. The objectives of sustainable development for minerals planning are:

- i) to conserve minerals as far as possible, while ensuring an adequate supply to meet the needs of society;
- ii) to minimise production of waste and to encourage efficient use of materials, including appropriate use of high quality materials, and recycling of wastes;
- iii) to encourage sensitive working practices during minerals extraction, and to preserve or enhance the overall quality of the environment once extraction has ceased;
- iv) to protect designated areas of critical landscape or nature quality from development, other than in exceptional circumstances where it has been demonstrated that development is in the public interest.

Nature conservation and biodiversity

9. The Government's objectives for nature conservation are to ensure that its policies contribute to the conservation of the abundance and diversity of British wildlife and its habitats, or minimise the adverse effects on wildlife where conflict of interest is unavoidable, and to meet its international responsibilities and obligations for nature conservation.

10. An essential task for Government, local authorities, and all public agencies concerned with the use of land and natural resources is both to make adequate provision for development and economic growth and to ensure effective conservation of wildlife and natural features.

11. The Biodiversity Action Plan has set out underlying principles and objectives, to conserve and enhance biological diversity within the UK, and to contribute to the conservation of global biodiversity through all appropriate mechanisms. Objectives for conserving biodiversity are:

- i) To conserve and where practicable to enhance: a) the overall population and natural ranges of native species and the quality and range of wildlife habitats and ecosystems;

- b)** internationally important and threatened species, habitats and ecosystems;
- c)** species, habitats and natural and semi-natural habitats that are characteristic of local areas;
- d)** the biodiversity of natural and semi-natural habitats where this has been diminished over recent past decades.

ii) To increase public awareness of, and involvement in, conserving biodiversity.

iii) To contribute to the conservation of biodiversity on a European and global scale.

Aims

12. The aims of these Guidelines are:

- i)** to provide a clear framework within which mineral planning authorities can develop policies for peat in development plans and can carry out development control over peat extraction;
- ii)** to provide guidance to local (including mineral) planning authorities to ensure conservation of important peat habitats and archaeological deposits in development plans;
- iii)** to serve as a national framework for the Secretary of State:
 - a)** when formulating Regional Planning Guidance;
 - b)** when exercising his functions under the Town and Country Planning Act 1990, as amended by the Planning and Compensation Act 1991 in respect of development plans;
 - c)** within which the merits of individual planning applications on appeal and any applications called in for determination can be considered;
- iv)** to help reduce the number of cases going to appeal;
- v)** to provide the basis for informed consideration at national, regional and local level of the implications for peat working of other policies;
- vi)** to provide guidance on the requirements for updating existing planning permissions for peat extraction to modern standards.

13. These guidelines:

- i)** outline - the Government's strategies for sustainable policies for minerals, nature conservation and archaeology with regard to peat;
- ii)** set out the national planning policy framework for the working of peat;
- iii)** outline the specific environmental impacts of the peat industry; and constraints on new developments;
- iv)** establish policies for the working and restoration of cut-over peat bogs;
- v)** summarise the national trend in peat production and consumption; life of permitted reserves; and the usage and sourcing and trends in alternatives to peat.

14. The guidance supplements the general guidance contained in the Mineral Planning Guidance Note 1 "General Considerations and the Development Plan System" (MPG1). Guidance is also provided on the review of existing planning permissions for peat extraction, supplementing the general guidance in MPG4 "The Review of Mineral Working Sites".

15. These policy Guidelines apply only to England. The Scottish Office Environment Department has already published guidelines for peat extraction in Scotland which accord with the findings of the Peat Working Group, in National Planning Policy Guideline 4 "Land for Mineral Working" issued in April 1994. They will consider in due course whether, in the light of the published Working Group report, any further guidance is needed. The Welsh Office may issue guidance in due course.

16. These guidelines are only applicable to peat which is cut for the purpose of sale, and which is therefore subject to planning control. Some activities which may take place in limited areas of England under, for example, "rights of turbary" are outside the scope of this MPG.

National Overview

Types and present condition of peat bogs

17. There are two fundamental types of peatland in Britain: fens and bogs. Fens occur in waterlogged situations where they receive nutrients in water from the surrounding catchments as well as from rainfall. Bogs occur in areas where they are largely dependent on precipitation for supply of water. The bog vegetation is characterised by acid tolerant plant communities in which the genus *Sphagnum* usually is, or has been, a significant component (and hence they may be called "acid bogs").

18. There are two main types of acid bog peatlands in Britain. **Raised bogs** are characteristic of an almost or completely flat underlying topography and so are mainly found on low plains or broad valley floors while **Blanket bogs** occur in areas which are sufficiently cool and constantly wet to allow the accumulation of peat on all but the more steeply sloping ground. A third form of acid bog which exhibits characteristics intermediate between raised and blanket bogs (Intermediate bog) has also been classified. A summary of the nature and origins of peatland types and of their classification and mapping is in Annex B.

19. In England, raised bogs in their natural state originally covered almost 37,500 hectares (ha) at just over 200 sites. Blanket bog peats, mainly in the uplands of Northern England but also in parts of the South West, extend to about 214,000 ha. Whilst considerable areas of *Sphagnum* dominated blanket bog are thought to remain, the majority of raised bogs in England have been altered by human activities - especially through agricultural drainage.

Planning permissions for peat extraction

20. Planning permissions for commercial peat extraction affect 17 raised bog sites in England, with a total area of 5,793 ha. within 11 Mineral Planning Authorities (MPAs). It is not thought that there is any current commercial peat extraction from blanket bogs in England. [Table 1](#) summarises, by MPAs, the main areas presently permitted for extraction.

Table 1 - The area of raised bog in England with planning permission for peat extraction, and the area within SSSIs

MPA	Planning Permission Area (ha)	Area of permissions within SSSIs (ha)
Cheshire	197	10
Cumbria	923	514
Doncaster	2414	2414
Humberside	482	475
Lancashire	136	0
Merseyside	45	0
Northumberland	43	0
Salford	226	0

Shropshire	71	71
Somerset	1176	623
Wigan	80	10
Total	5793	4117
Source: MPAs		

21. However, several major sites with permission are now covered by agreements between English Nature (EN) and the peat extraction industry, resulting in the purchase by or lease to nature conservation bodies. It is estimated that the remaining area with planning permission in England where extraction is taking place, or may do so, therefore totals 4,240 ha.

22. An assessment of the data on planning permissions in England provided by MPAs, together with information on land designated as Sites of Special Scientific Interest (SSSIs), indicates that just over 70% of the areas of peatland with planning permission (rather over 4,100 ha), are also designated as SSSIs. However, further assessment of the data indicates that less than 2,500 hectares of SSSIs, are continuing to be worked, and such working is mainly confined to surfaces already made bare by earlier peat extraction.

23. The results of a survey of PPA members in 1993, for the Working Group, provided estimates of permitted reserves intended for working. The data identifies reserves of 57 million cubic metres in England (equivalent to 26 million cubic metres of processed peat). These figures exclude permitted reserves which have been given up in nature conservation agreements.

24. However, the nature and scale of peat workings means that whilst some sites have continued life expectancies in excess of 50 years, a number of the largest and most productive sites in England will become worked-out within the next 10-20 years. A small number of sites are predicted to become worked-out within the next 10 years. [Table 2](#) illustrates this.

Table 2 - The number of peat working sites and permitted areas in England predicted to become worked-out with time

Time (years)	Number of sites	Area of sites (ha)
0 - 5	1	200
6 - 10	0	0
11 - 15	2	1141
16 - 20	3	1611
21 - 30	2	447
31 - 50	2	258
51 - 80	2	130

Production, imports and consumption of peat

25. Data on the production of peat within Great Britain have only been collected in a systematic way since 1991, and are published in the CSO statistical publication for minerals, the Business Monitor PA 1007. Total sales of GB produced peat in 1993 were estimated to be about 1.45 million cubic metres (Mm³), of which almost 1.1 Mm³ were from bogs in England, with the remainder (nearly 0.4 Mm³) from Scotland (see [Table 3](#)). There is now no commercial peat production in Wales. [Table 4](#) provides regional production figures for England for 1993, as far as they can be made available.

26. Imports of peat have provided a significant proportion of total UK consumption of the mineral for more than a decade but only since 1991, when domestic figures for sold output have been collected, has it been possible to assess the overall proportions. In addition, imports are recorded in tonnes rather than cubic metres, so that a conversion factor has to be applied - a factor of 4 cubic metres per tonne was used by the Working Group. Imports of peat are thus calculated to have been 1.0 Mm³ in 1992, accounting for approximately 40% of UK consumption. Over 85% of imports came from the Republic of Ireland, with the remainder largely from Germany, the Netherlands (as re-exported peat), the former Soviet Union and Finland. The UK is the largest export market for Irish peat and most of this imported peat is processed in Liverpool prior to national distribution.

27. The demand by UK users for peat for consumption within the professional and amateur markets in the early 1990's is estimated to be 2.55 million cubic metres a year. The largest use of peat is by the amateur gardening sector, thought to account for almost 1.5 Mm³ per year (1993 data). The professional horticultural industry are estimated to consume 1.0 Mm³ (1990 data), and the local authority and professional landscaping sectors 22,800 m³, and 58,100 m³ respectively ([Figure 1](#)). For comparison [Figure 2](#) provides a summary of the total substrate used by the 4 main market sectors, and [Figure 3](#) the sources of materials.

Table 3 - Sales of peat from bogs in England and Scotland in 1991, 1992 and 1993

	Horticultural Use			Other Uses			Total		
	1991	1992	1993	1991	1992	1993	1991	1992	1993
England	1202	1079	1071*	2	4	1*	1204	1083	1072
Scotland	241	332	287*	116	91	93*	357	423	380
Total	1443	1411	1358	118	95	94	1561	1506	1452
* Figures based on DOE estimates									
Source: CSO Business monitor PA 1007									

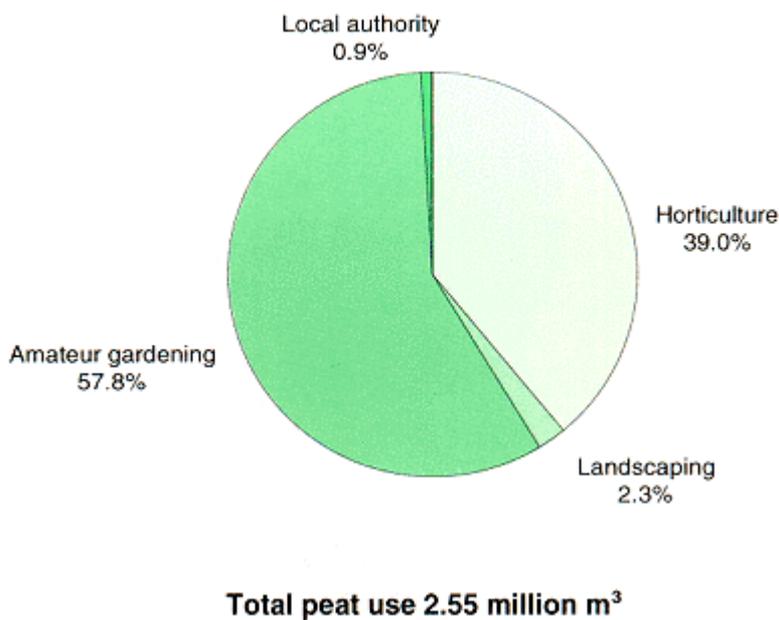
Table 4 - Volumes of peat sold from bogs within regions of England in 1993

Area of origin	Horticultural Use	Other Uses	Total
North	273	0	274
Yorkshire and Humberside	438	1	439

North West	178	0	178
East Anglia	*	0	*
South West	*	0	*
Total	1071**	1**	*
* Data withheld to prevent disclosure of individual company information.			
** Figures based on DOE estimates			
Source: CSO Business monitor PA 1007			

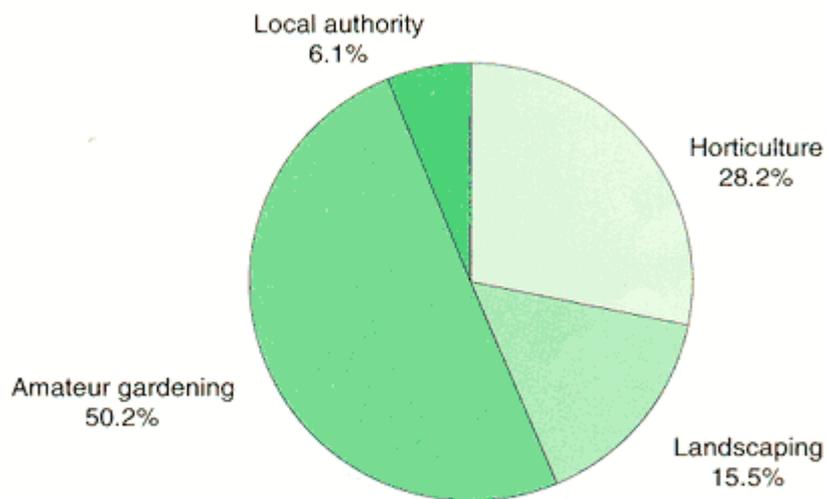
28. Some of these markets have regional concentrations whilst others are national. Over a third of the total glasshouse area in the UK is based in South East England, with a further 13% in Yorkshire and Humberside and 12% in the North West. Markets for other uses, especially amateur gardening, are national.

Figure 1. Total use of peat for horticulture and landscaping in the UK.



Source: Aspinwall & Company

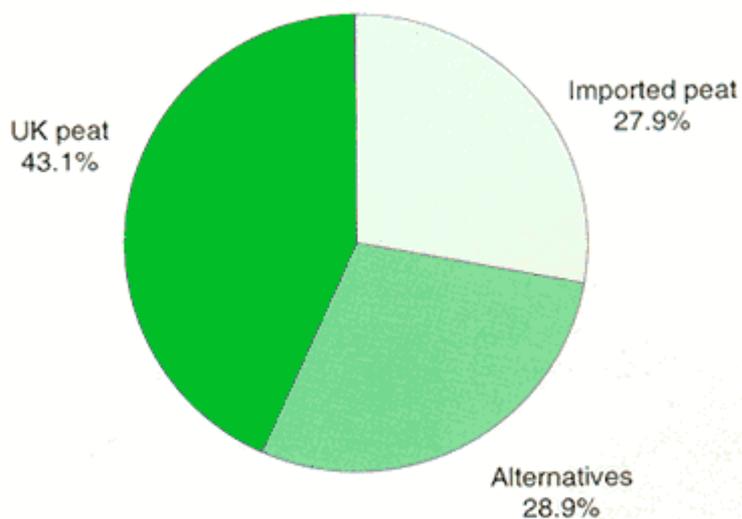
Figure 2. Total use of substrate for horticulture and landscaping in the UK.



Total substrate use 3.6 million m³

Source: Aspinwall & Company

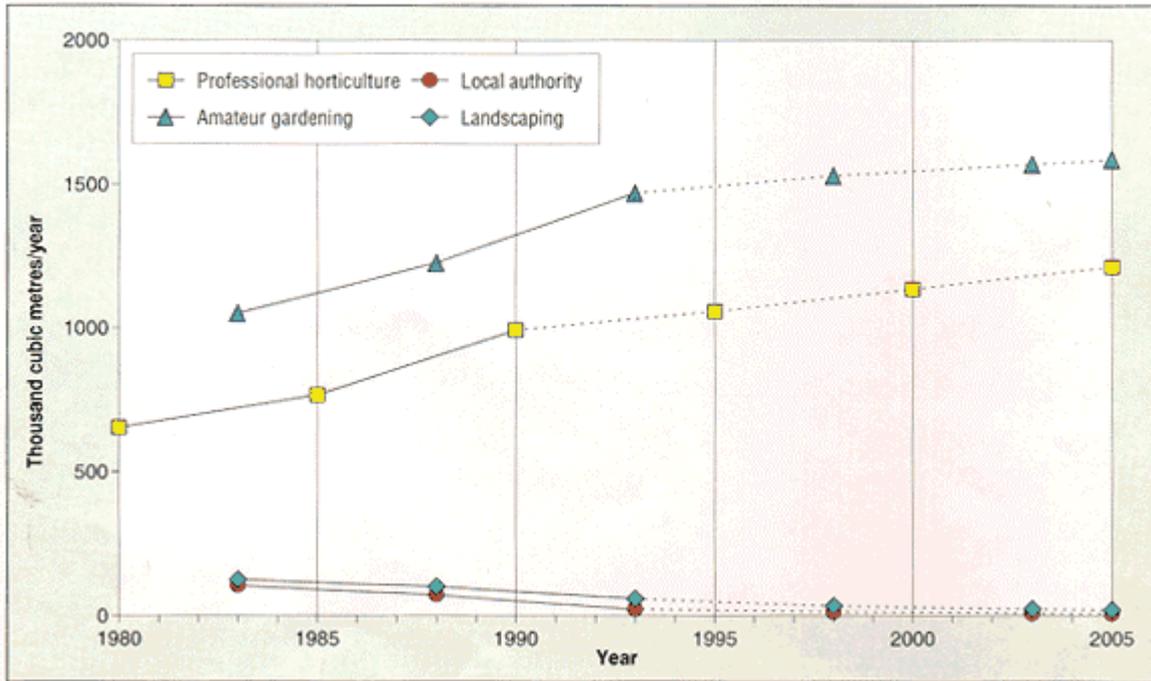
Figure 3. The source of materials for use in horticulture and landscaping.



Total substrate use 3.6 million m³

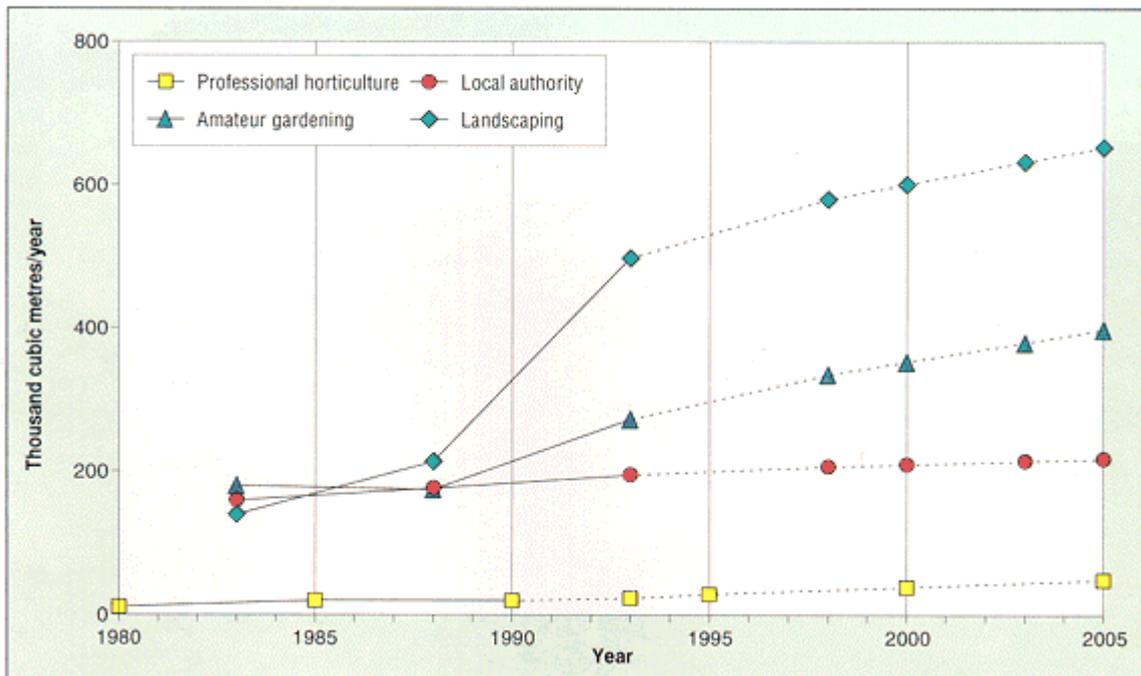
Source: Aspinwall & Company

Figure 4. Past, current and predicted future use of peat by the main user sectors.



Source: Aspinwall & Company; ADAS; DOE

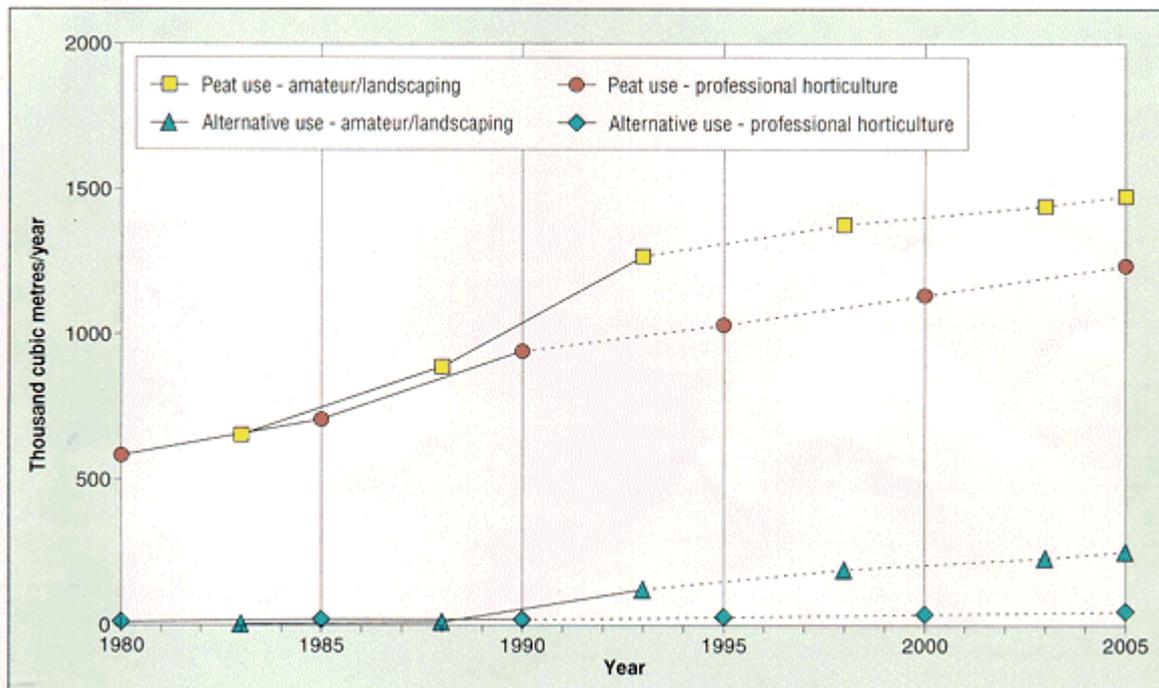
Figure 5. Past, current and predicted future use of alternatives by the main user sectors.



: Aspinwall & Company; ADAS; DOE

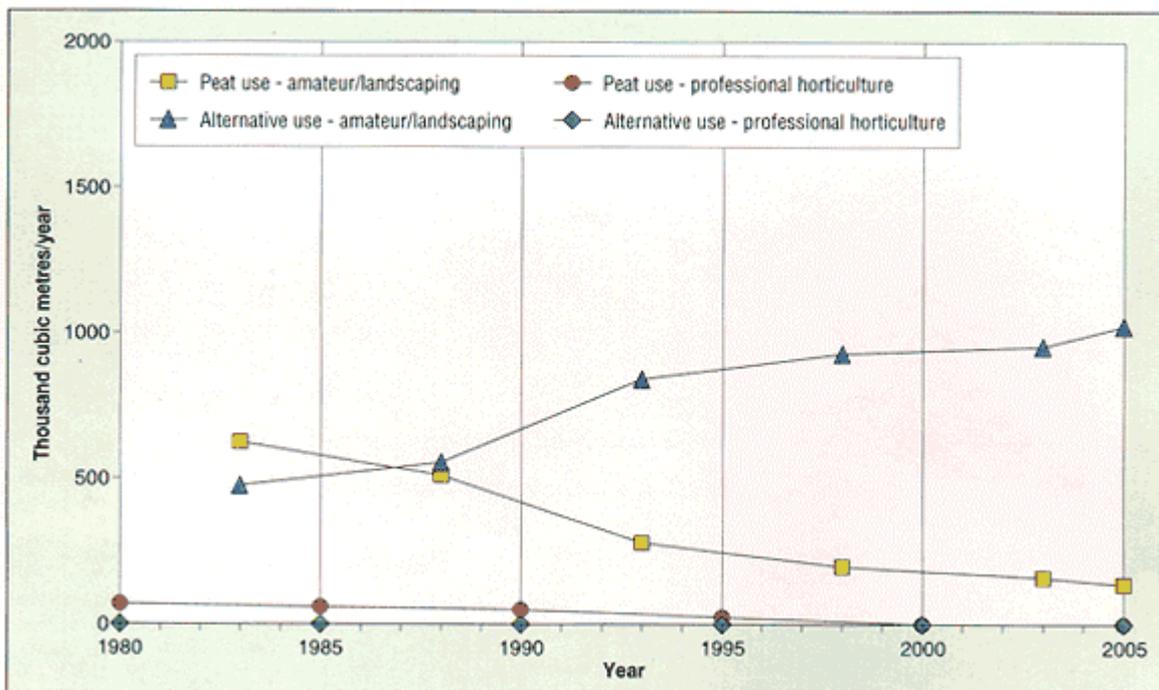
Source

Figure 6. Past, current and predicted future use of peat and alternatives as growing media.



Source: Aspinwall & Company; ADAS; DOE

Figure 7. Past, current and predicted future use of peat and alternatives as soil improvers.



Source: Aspinwall & Company; ADAS; DOE

Peat alternatives, consumption and sources

29. The range and availability of alternatives to peat has increased significantly over the last few years. The main alternatives to peat and the quantities used in the amateur gardening, landscape and local authority sectors are summarised in [Table 5](#). Bark is the most common material, accounting for 84% of the total. Statistics for these materials are available only for the UK as a whole.

Alternatives account for almost 30% of the total quantity of substrate used by the professional and amateur sectors. The greatest use of alternatives (80%), is as a soil improver. It is estimated that alternatives account for over 70% of the total of materials used as soil improvers. In contrast, alternatives account for only 9% of the substrates used as growing media. Further information on the current position with regard to peat alternatives is summarised in Annex C.

30 There is relatively little use of these alternatives by the professional horticulture industry, 20,000 m³ (2% of their total substrate use). However, in addition most production of glasshouse salad crops uses other mineral materials (rockwool or perlite) which are not generally considered as "peat alternatives" for other market sectors.

31 The amateur gardening sector increased the use of alternatives to peat from 175,000 m³ to 273,000 m³ between 1988 and 1993, an increase in absolute terms of 56%. The use of alternatives as soil improvers increased from 28% to 39% over this period, and for growing media from 1% to 9%. Despite these changes, peat consumption also rose by 20% in absolute terms and there is still an overwhelming reliance (84%) on peat as growing media by this sector ([Table 6](#)).

Table 5 - The types and quantities of peat alternatives used for growing media and soil improving by the amateur gardening, local authority and landscaping sectors in 1993 cubic metres

	Soil Improvers	Growing Media	Total
Bark	783000	25000	808000
Coir	*	70000	70000
Wood waste	7100	17300	24400
Paper waste	3200	10500	13700
Mushroom compost	18600	0	18600
Composted waste	10100	200	10300
Cocoa shells	10000	0	10000
Straw	10000	0	10000
Poultry manure	1000	0	1000
Total	843000	123000	966000
* Note: very small quantities of coir are known to be used in some soil improver products, but the quantities are not believed to be significant.			
Source: Aspinwall & Co.			

Table 6 - The use of peat and alternatives for growing media and soil improving by the amateur gardening sector in 1993

	Peat	Alternatives	('000m ³) Total
Soil improvers	239,400	156,400	395,800

Growing media	1,229,700	116,200	1,345,900
Total	1,469,100	272,600	1,741,700
Source: Aspinwall & Co.			

32 Local authorities are estimated to have used 196,000 m³ of peat alternatives in 1993, 97% of which was used as soil improvers ([Table 7](#)). As 96% of all soil improver materials used are now peat-free there is limited scope for further decreases in the use of peat within this sector. The use of alternative materials in growing media increased from 2% to 27% by volume since 1988.

Table 7 - The use of peat and alternatives for growing media and soil improving by the local authority sector in 1993

	Peat	Alternatives	`000m³ Total
Soil improvers	7,200	190,100	197,300
Growing media	15,600	5,700	21,300
Total	22,800	195,800	218,600
Source: Aspinwall & Co.			

33 The private landscaping sector is predominantly a market based on soil improvers, and is the largest user of alternatives of the sectors considered. Alternatives account for 94% of soil improvers (496,500 m³), but only 4% of growing media ([Table 8](#)).

Table 8 - The use of peat and alternatives for growing media and soil improving by the private sector landscaping industry in 1993

	Peat	Alternatives	`000m³ Total
Soil improvers	33,400	496,500	529,900
Growing media	24,700	1,100	25,800
Total	58,100	497,600	555,700
Source: Aspinwall & Co.			

34 All of the coir and cocoa shells used by these markets are imported, as is a significant proportion of bark (25% in 1993). Further details are in the Working Group's report.

35 In November 1994 the EC Commission adopted the UK developed criteria which set standards for soil improvers under the EU Ecolabelling scheme. A soil improver will only be considered for the award of an eco-label if its organic matter content is provided by constituents derived from the processing and/or re-use of waste materials (as defined in Directive 75/442/EEC on waste). All other criteria must also be met.

Employment

36 The peat extractive industry has a direct work force of about 1,000 (including part-time workers). In many cases this is in rural areas where other forms of employment may be limited. The peat industry supply about 10,000 growers, 2,000 garden centres and 850 DIY multiple outlets with peat. The latter 2 are also outlets for peat alternatives.

Future estimates of demand for peat and alternatives in the UK

37 Estimates of the consumption of, and demand for, peat and alternatives in the UK have been prepared by the Ministry of Agriculture, Fisheries and Food (MAFF) for the professional horticultural sector, and through a research project for DOE for other sectors. It is not possible to provide separate future estimates for England.

38 The predictions of future market demands are based on observed trends for 1988-1993, extrapolated and modified by pragmatic expectations of market behaviour. The development of the market for soil improvers and growing media can be affected by a variety of economic, technical and political factors. [Table 9](#) summarises the market forces which have the greatest potential to influence the size and other characteristics of the future markets for materials other than used in professional horticulture. In the professional markets, a survey conducted by MAFF for the Working Group indicated that performance and the economics of materials used were the greatest influences on choice.

39 It is predicted that there will be a continuing growth in demand for horticultural materials in both the professional and amateur gardening markets. The general predictions from the estimates made, making no allowances for further intervention and market changes, indicate that in broad terms the total market demand for peat will be in the order of 2.6 Mm³ to 2.7 Mm³ by the year 2000 and 2.6 Mm³ to 2.8 Mm³ by 2005 ([Figure 4](#)). The use of alternatives is predicted over the same timescale to increase to about 1.2 Mm³ by the year 2000 and to about 1.3 Mm³ by 2005 (or slightly over 30% of the total market)- as indicated in [Figure 5](#). An assessment of the figures for predicted market demand, indicates that the overall increase in peat usage relates to the anticipated greater demand for growing media by the professional horticultural and amateur gardening sectors ([Figure 6](#)). The use of alternatives as growing media is also predicted to increase, and it is predicted that by 2005, approximately 10% of growing media will be non-peat based (300,000 m³). In contrast, it is predicted that peat will be used less for soil improving in the future, with increased reliance on alternatives ([Figure 7](#)). The professional horticulture sector are expected to have phased out peat use altogether for soil improving by 2005, while the usage of peat by the other market sectors is expected to be less than 150,000 m³ per year by this date, accounting for less than 13% of all material used for soil improving.

Table 9 - Main market forces influencing users

Market factor	Amateur	Local Authority	Private Sector Landscaping
Overall level of activity in the landscape gardening market (eg increase in gardening as a leisure activity, or improvements in the property development market).	High	High	High

Price differential peat vs peat free materials	High	Medium	High
Quality differential peat vs peat free materials (especially for growing media)	Medium	Low	Low
Availability of raw materials for peat free products	Medium	Medium	Medium
Environmental concerns	Medium	High	Low
Legislation favouring the use of composed waste	Medium	Medium	Medium
Source: Aspinwall & Co.			

40 However, the Government wishes to continue to encourage the development of alternatives to peat for both the less demanding uses and of more specialised alternatives for more demanding uses. Some of the initiatives in the January 1995 consultation draft of "A Waste Strategy for England and Wales" have potential to increase the use of recycled materials as peat alternatives, particularly as soil improvers. These include the effects on overall management of "green wastes" from introduction of the Government's proposed landfill tax and from the target that 75% of local authorities should actively promote composting by the year 2000. The Government intends to encourage practical measures to promote greater efficiency of the use of materials, and the draft Waste Strategy for England and Wales states that Government will work with industry to overcome market barriers to compost-based products. Consequently the Government believes that it would be realistic to set a target for 40% of the total market requirements for soil improvers and growing media to be supplied by non-peat materials within the next 10 years.

41 At the same time, the Government takes the view that in order to meet a share of the anticipated market demand for growing media based on peat in the medium to long term, the UK peat extraction industry will require some new areas for extraction. Taking account of current permitted reserves, and losses to them through updating rehabilitation requirements for existing sites, together with the areas already given up for nature conservation, it is predicted that approximately 1,000 hectares may be needed over the next 10-20 years. This level of provision should be obtainable from sites within the UK which have already been considerably damaged and which meet the selection criteria set out in this guidance note. However, the area of 1,000 hectares should not be taken as a target to be achieved over the next 20 years. Rather it is an estimate based on current market conditions. The actual provision of new sites will depend on future market conditions, which will be influenced by factors such as future levels of imports and further developments in, and uptake of, alternatives, and the operation of the planning guidelines.

Government Policies In Respect Of Peatlands In England

42. The Government's policy for peatlands in England is to:

- i) conserve a sufficient range, distribution and number of all peatland habitats, representing part of the critical natural capital of the country; and promote the wise use of the wetland resource within the nation's peatland heritage;
- ii) avoid wherever practicable the destruction of important archaeological remains in peatland;
- iii) enable the horticultural industry to continue to be supplied with peat; and also to encourage the development and use of suitable alternatives so that market needs can be met in different ways;
- iv) provide a suitable framework for updating old permissions for peat extraction, especially in respect of rehabilitation of sites.

43. It is therefore the Government's intention that the future extraction of peat in England from any new sites should be restricted to areas which have already been significantly damaged by recent human activity and are of limited or no current nature conservation or archaeological value. Wherever possible, subsequent restoration of such sites should give priority to wetland rehabilitation and to the enhancement of the nature conservation resource.

44. Government policy, as agreed in Article 4 of the Framework Convention on Climate Change signed in Rio in 1992 and ratified in 1993, is to adopt policies and take corresponding measures to protect and enhance greenhouse gas sinks and reservoirs. Undisturbed peatlands store large amounts of carbon. There is probably a balance in undisturbed peatlands between natural emissions of methane (a powerful greenhouse gas) and the vegetative storage of carbon through the removal from the atmosphere of carbon dioxide (the most important greenhouse gas). However, drainage of peatlands promotes oxidation of carbon. The presumption in this MPG against the exploitation of peatlands which have not been significantly damaged will therefore help to meet the UK's Rio commitment.

45. The demands of the horticultural user markets should be met by a combination of home produced peat, imported peat, and alternative materials. The Government's commitment towards sustainable development and using resources prudently means that unnecessary wastage of resources should be avoided. Therefore, so far as possible, peat should be used for higher quality markets, while its use should be avoided or minimised where it is either not needed or not the best material, for example for general soil improving, and mulching. There may be further scope to reduce total usage of materials in some sectors. There should also be encouragement to use alternatives where these are suitable and represent other "sustainability" objectives such as recycling and waste minimisation. The range of alternatives suitable for the more specialised uses may increase as further research is undertaken.

46. The Government believes that producers and consumers of horticultural media all have a role to play in achieving a more efficient use of resources. The Government intends to encourage practical

measures to promote greater efficiency of use, and to monitor changes. Developments in the quality, performance and availability of peat and non-peat based growing media and soil improvers used in the professional, landscape and amateur gardening markets will be monitored for an initial period of 3 years by independent consultants for the Department. This research will also have regard to the development of international standards for these products, of other relevant policy developments (e.g. recycling), and the usage of materials for the same markets in other EC countries.

Development Plans

General considerations

47. The planning system provides a means of examining and reconciling the conflicting claims on land of mineral working, agriculture, amenity, building and other forms of development. The system also affords a means of preventing unnecessary sterilisation of mineral resources. As part of the overall planning process, national policies for provision of a particular mineral such as those for peat must be balanced with other Government policies for such matters as the protection and conservation of the natural environment and the preservation of the national cultural heritage. The policies which are likely to be of most importance are mentioned below. It is necessary to refer to the source documents in each case for the full context within which these policies have been developed.

48. Policies for the development and use of land, including the extraction of minerals, are set out in statutory development plans drawn up by local authorities under the Town and Country Planning Act 1990 (the 1990 Act) as amended by the Planning and Compensation Act 1991 (the 1991 Act). Under section 54A of the 1990 Act (inserted by section 26 of the 1991 Act) planning applications should be determined in accordance with the relevant development plan unless material considerations indicate otherwise. This means that there is in effect a presumption in favour of proposals which are in accordance with the development plan. This reflects the Government's commitment to a plan-led system of development control. MPAs are required to draw up a minerals local plan covering the whole of their area. In metropolitan areas, mineral policies will be contained in Unitary Development Plans (UDPs). The Government expects there to be substantial coverage of these plans by the end of 1996.

49. Planning Policy Guidance Note 1 -"General Policy and Principles"(PPG 1) and Minerals Planning Guidance Note 1 "General Considerations and the Development Plan System"(MPG 1 - currently under review) provide further advice on planning policy for both MPAs and the minerals industry. PPG 12 -"Development Plans and Regional Planning Guidance", provides advice on the preparation of development plans.

50. With a plan-led system of development control, the Government attaches considerable importance to having up-to-date minerals local plans in place. The preparation of plans provides an important opportunity to test locally the practicality and environmental acceptability of the policies and guidelines included in this MPG. It therefore looks to mineral planning authorities to ensure that minerals local plans are prepared as a matter of priority and kept up to date.

51. In preparing Minerals Local Plans and UDPs, local authorities in appropriate areas should take into account the policies contained in this MPG. They should make provision for the conservation of peatland habitats and for identification of specific sites or areas which meet the criteria for selection for future peat working, as explained in [paragraphs 52 to 61](#). Early discussion with the minerals industry and with English Nature (EN) and English Heritage (EH) in the preparation of plans will be helpful.

Policies for nature conservation of peatland habitats and for peatland archaeology in development plans

52. Sites of raised bog and other peatland habitats of key nature conservation importance should be identified in development plans. In respect of raised bogs, such sites are likely to be areas which

retain a primary peat surface or include a significant proportion of species characteristic of a lowland raised mire habitat (further details are in Annex B). Many peatlands are already notified as SSSIs; some may be classified as Special Protection Areas under the EC Birds Directive or as Special Areas of Conservation under the EC Habitats Directive. The Conservation (Natural Habitats &c.) Regulations 1994 formally transpose the requirements of the EC Habitats Directive into national law. Planning authorities should seek advice from EN, who have a statutory role in advising on development plan preparation. Further advice on legislation and policies on nature conservation and development is in [paragraphs 62 to 70](#). Plans should also identify principal areas of major archaeological significance after consultation with the County Archaeological Officer (see [paragraphs 75 to 77](#)).

Criteria for selection of sites for future peat working

General Approach

53. Peat producers, and other suppliers of materials to the user markets, should determine the level of output they wish to aim for in the light of market conditions. However, the acceptability of proposals for the development of new sites and of extensions to existing sites will be determined by the land-use planning system. The following criteria are set out as guidelines.

Regional Position

54. Peat bogs occur only in some areas of England. Unlike some more nationally widespread minerals, it is not therefore appropriate to consider landbanks within most local authority areas or even regions.

55. Within some areas of current production, it is likely that there may be only limited opportunities for the development of new sites, or for extensions to existing sites, because of a lack of bogs which meet the selection criteria consistent with these guidelines.

Guidelines For Development Plans

56. It may be possible to identify, in development plans, peatlands which could be acceptable for future working from sites which have been significantly disturbed and damaged in the past by drainage for agriculture or forestry or from earlier domestic peat extraction. Such sites may often have limited nature conservation importance, and may therefore justify lesser protection from development than less disturbed examples. However, some sites within these land-use classes, as defined in the National Peatland Resource Inventory (NPRI - see Annex B) do retain significant nature conservation interest and there may be other constraints on development such as archaeology or the quality of the land for agriculture. Conversely some of these damaged sites may ultimately benefit in the longer term from controlled peat extraction followed by the reinstatement of the optimal wetland conditions which would enable a raised bog to regenerate. MPAs should have regard to all material considerations when determining applications on these areas, including other national and regional policy guidelines.

57. To conserve a full range of peatland habitats and archaeological deposits, peat extraction from bogs which retain a high level of nature conservation or archaeological interest should be permitted only in exceptional circumstances. These circumstances are only likely to arise where it can be demonstrated conclusively that extraction will not adversely affect the habitats, species or deposits being safeguarded. The lowland raised bogs of high nature conservation interest will primarily

relate to sites, or areas within bogs, which are defined in the National Peatland Resource Inventory as land-use classes P1-P4, or where secondary peat surfaces contain valuable peat-forming species (see Annex B). These are areas which retain a primary peat surface or include a significant proportion of species characteristic of a lowland raised bog habitat. The Secretary of State would normally call-in, for his decision, planning applications which are likely significantly to affect these classes of raised bog. The advice of EN will be taken into account in deciding which applications are likely to have such effects. It is not expected that such sites would be identified for extraction in development plans. The archaeological value of all peatland is not yet systematically recorded, but EH has supported extensive survey work in several major areas and the results of this, and other, survey work is available in the Sites and Monuments records maintained by County Archaeological Officers, who should therefore be consulted by MPAs during plan preparation.

58. Comprehensive inventories of other peatlands such as intermediate and blanket bogs and fens are not currently available. When preparing development plans and in considering any applications for their extraction, mineral planning authorities will need to consider the nature conservation interest of these areas or sites. Where the peatland retains a primary surface, which includes a significant proportion of species characteristic of ombrotrophic (bogs) or minerotrophic (fens) conditions, planning permission should, as in the case of raised bogs, only be granted in exceptional circumstances. MPAs should consult EN when determining such cases.

59. To ensure that as far as possible any areas identified in a development plan for peat extraction can be translated into workable reserves, MPAs should make reasonable efforts to satisfy themselves that sites are:-

- i)** of little or no nature conservation or archaeological value;
- ii)** of economically workable deposits;
- iii)** likely to become available to the minerals industry within the plan period; and
- iv)** are not constrained by other land-use policies (e.g. high quality agricultural land).

60. Where the criteria listed above cannot be resolved satisfactorily, development plans should be sufficiently flexible to make allowance for any uncertainty. But plans must be clear and unambiguously expressed in accordance with PPG 12.

61. A summary of projected future demand for peat and alternatives for use in the horticultural and amateur markets is given in paragraphs 37 - 41. This projection is intended to give mineral planning authorities some indication of future likely demand. MPAs may wish to use the information given to assist them in identifying specific sites, preferred areas or areas of search which may meet these needs. Discussions with individual operators about their longer term intentions may also be helpful in establishing the provisions for peat which should be made in the plan.

Areas designated for their nature conservation importance

General

62. Conservation legislation in the UK has developed alongside a comprehensive system of town and country planning legislation. A framework of statutory measures to safeguard wildlife habitats and natural features of the environment has been established since 1949. Special policy considerations apply to mineral proposals within sites designated for their national or international

nature conservation importance. Planning authorities must consult EN on any development proposals which are likely significantly to affect these sites (see PPG9 "Nature Conservation").

Sites Of Special Scientific Interest (SSSIs)

63. Under the Wildlife and Countryside Act 1981, the statutory conservation organisations have a duty to identify sites with a special scientific interest and to notify landowners and occupiers, local planning authorities and the appropriate Secretary of State of them. Many peat bogs in England, including a significant proportion of existing extraction sites, have been notified as SSSIs. Whilst all SSSIs form part of a national series and are subject to the basic procedures for protection detailed in PPG9, some sites have additional designations conferred on them for specific reasons outlined in the following paragraphs.

National Nature Reserves (NNRs)

64. National Nature Reserves are designated by EN under the National Parks and Access to the Countryside Act 1949 or the Wildlife and Countryside Act 1981. These SSSIs are of national importance where the primary use is for nature conservation.

Special Protection Areas

65. Some peatland SSSIs are of international importance and have been designated **Special Protection Areas (SPAs)** or identified as **potential SPAs** under the EC Directive on the Conservation of Wild Birds (79/409/EEC).

Special Areas Of Conservation

66. The EC Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora - the Habitats Directive (92/43/EEC) adopted in 1992 identifies several acid bog habitat types as endangered, rare or endemic and requiring particular attention. Two, **active raised bogs and active blanket bogs**, are included in those identified as priority habitats (see Annex B). Degraded raised bogs which are still capable of natural regeneration are also listed but are not a priority habitat. National lists of proposed sites to be protected as **Special Areas of Conservation (SACs)** under the Habitats Directive are to be submitted by Member States to the Commission by June 1995, and a list of sites of Community importance must be agreed between the Commission and Member States by June 1998. Measures to protect sites must be in place from the time they are selected as sites of Community importance. For the UK, such sites will already be notified as SSSIs.

67. The UK is bound by the EC Birds and Habitats Directives. Special considerations therefore apply to developments affecting SPAs and to SACs under these Directives. The Conservation (Natural Habitats &c.) Regulations 1994 (the Habitats Regulations) apply the requirements of the Habitats Directive to future SACs and to existing and future SPAs. As a matter of policy the Government wishes development proposals affecting potential SPAs and candidate SACs before they have been agreed with the European Commission to be considered in the same way as if they had already been classified or designated. Further advice is given in PPG9 "Nature Conservation".

Ramsar Site

68. Ramsar sites are wetlands of international importance. Under the Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat (Cm 6465), contracting

parties are required, inter alia, to designate sites for inclusion in a list of wetlands of international importance and to compensate for any loss of listed wetlands. Contracting parties must also include wetland conservation considerations within their national land-use planning, and promote the wise use of wetlands generally. The Government has chosen to apply the same considerations to development proposals affecting listed Ramsar sites as are applied to SPAs and SACs (see PPG9).

Nature Conservation, Including Conservation Of The Natural Beauty And Amenity Of The Land, In Development Plans

69. Structure Plans and part I of unitary development plans set out general policies and proposals on key strategic issues, taking account of the appropriate Published: 10 May 2002 national and regional policy guidance. They should identify key sites of nature conservation importance, such as SSSIs, NNRs, SPAs, SACs and Ramsar sites, to establish a strategic framework and exemplify the particular characteristics of nature conservation interest in the plan area in their national and international context. Policies to be applied to these sites should reflect their relative significance and place particular emphasis on the protection of internationally important sites. The detailed policies in local plans and part II of unitary development plans should conform to this framework.

70. Structure plans, local plans and UDPs must include policies in respect of the conservation of the natural beauty and amenity of the land. Arising from article 10 of the Habitats Directive, regulation 37 of the Habitats Regulations states that such policies shall include policies encouraging the management of features of the landscape which are of major importance for wild flora and fauna. Suitable planning conditions and obligations may promote such management (for further advice see PPG9 "Nature Conservation").

National Parks, and Areas of Outstanding Natural Beauty (AONBs)

71. Planning Policy Guidance Note 7 - "The Countryside and the Rural Economy"(PPG 7) provides detailed Government planning policies for development in National Parks, the Broads and AONBs. The same policies apply to the New Forest Heritage Area. The Government considers that major developments should not take place in these areas save in exceptional circumstances. Because of the serious impact that mineral developments may have on the natural beauty of these areas the Government considers that all mineral applications must be subject to the most rigorous examination, and all mineral developments should be demonstrated to be in the public interest before being allowed to proceed.

72. Consideration of mineral applications in such areas should therefore include an assessment of:

- i)** the need for the development in terms of national considerations of mineral supply; and the impact of permitting the development, or refusing it, on the local economy;
- ii)** whether alternative supplies can be made available at reasonable cost; and the scope for meeting the need in some other way;
- iii)** any detrimental effect of the proposals on the environment and landscape, and the extent to which that should be moderated;
- iv)** in the case of extensions to existing workings, the extent to which the proposal would achieve an enhancement to the local landscape.

Green Belt

73. Proposals for mineral working also arise within Green Belts. The Government's policy is set out in Planning Policy Guidance Note 2 - "Green Belts"(PPG 2). Mineral extraction need not be inappropriate development in Green Belts; it need not conflict with the purposes of including land in Green Belts provided that high environmental standards are maintained and that the site is well restored.

Other environmentally important areas

74. Planning authorities may designate in their development plans other environmentally significant areas, such as special landscape areas of great landscape value or sites of local nature conservation importance. These areas may be important locally and mineral extraction proposals which fall within them will need to be given careful consideration, although the degree of protection given to such areas should not be as high as that given to the nationally designated areas referred to above. When considering the extent of such areas Mineral Planning Authorities will wish to bear in mind that minerals can only be worked where they are found and their responsibility for making adequate provision for minerals in accordance with these Guidelines.

Archaeological and other cultural interests

75. Peatlands frequently contain remains of archaeological and palaeo-environment significance, including organic items which have survived in exceptionally good condition, due to the waterlogged, anaerobic nature of peat. Sites can also provide evidence of the history of climate, past land-use and landscape creation over the last several thousand years. Remains and deposits in peat, however, are generally very fragile and can be destroyed by desiccation following the lowering of the water table or exposure as well as by physical removal.

76. The peat industry should, wherever practical, ensure that important archaeological and historic remains or features are physically preserved, and MPAs should have regard to the desirability of preserving the wider historic landscape (as defined in PPG15, paragraph 6.40) and of the archaeological heritage when determining planning applications. Planning Policy Guidance Note 16 - "Archaeology and Planning"(PPG 16), and the revised CBI Code of Practice for Minerals Operators both underline the importance of early identification of possible archaeological constraints to development. There should be early consultation with the County Archaeological Officer (listed in PPG 16). Where physical preservation is not practical, MPAs should ensure that appropriate provision is made for the recording of archaeological remains, the conservation of significant artifacts and the publication of scientific results.

77. Some of the most important sites in peatland may be scheduled as ancient monuments (Ancient Monuments and Archaeological Areas Act 1979), in which case scheduled monument consent (SMC) from the Secretary of State for National Heritage, who is advised by EH, must be obtained before any work can commence. It is generally advisable to seek SMC in parallel with a planning application.

Agricultural land

78. Almost a third of the original area of lowland raised bogs in the UK has been reclaimed to agriculture, and where drained many of these areas, particularly in lowland England, constitute "best and most versatile agricultural land"(Grades 1, 2 and 3a of the MAFF classification). The

Government's policy, as set out in PPG7, is that the best and most versatile agricultural land is a national resource for the future and considerable weight should be attached to protection of such land against irreversible development. Peat differs from most other forms of mineral working, in that it is the exploited mineral which provides the high quality of the land. Therefore, while mineral extraction is not normally seen as irreversible development, in the case of peat extraction there will be fewer opportunities to reinstate the former agricultural land quality.

79. There is less need to protect lower grades of land for agricultural purposes, and such sites may be considered more favourably for extraction. Restoration may be to an agricultural or alternative afteruse. In many cases it may be possible to reinstate wetland areas, including conditions suitable for the reestablishment of peatland habitats. Therefore, when considering the allocation of land for mineral development and in deciding any application for planning permission affecting agricultural land the agricultural implications must be considered together with the environmental and economic aspects, and the feasibility of a high standard of restoration.

Forestry

80. A number of raised bogs in England have been drained and planted with trees. Some of these sites retain a nature conservation interest and may be notified as SSSIs. Other sites however, are of lesser nature conservation importance and may provide possible sites for peat extraction on removal of the trees. Site rehabilitation could be to forestry, nature conservation or other after-uses. The potential for further exploitation of peatlands currently under forests is more likely in Scotland, where almost 200 raised bogs are currently affected by forestry.

81. The Government has published a report "Sustainable Forestry, the UK programme"; and is supporting the joint initiative of the Forestry Commission and Countryside Commission to create a series of new "Community Forests" in several parts of England. It proposes to issue guidance on the preparation of indicative forestry strategies. The scope of the Government's forestry and environmental policies for woodlands includes encouraging the establishment of new woodlands which enhance the character and appearance of landscapes and promoting the restoration of derelict land to woodland.

Other developments affecting peatlands

82. A number of other types of development have also affected peatlands. In England, for example, landfilling has occurred on some raised bog sites in Cheshire and the North West, while wind farms have been sited or proposed on blanket bog sites in the uplands. Some deposits of opencast coal have been extracted from beneath peat areas.

83. Careful consideration should be given to the need for any other types of development to take place on peatlands. The general criteria on national policies in this guidance note therefore have relevance for developments other than peat extraction, and which may affect peatland sites of importance for nature conservation, archaeology or for other national policies.

Treatment And Reviews Of Existing Permitted Extraction Sites

84. Many existing permissions for peat extraction in England were given in the early years following the 1947 Planning Act, and have few, if any, conditions to control working practices, or to secure the rehabilitation and longer term management of worked out areas.

85. The Government considers that, in the context of sustainable development, it is essential to bring permissions up to modern standards. The Department issued a consultation paper on old mining permissions in 1992. Peat was identified as a particular problem. A second consultation paper on the reform of old mineral permissions was issued in April 1994. In this, the Government proposed that all mineral planning permissions should be reviewed and planning conditions should be brought up to modern standards. It proposed that there should be no compensation for complying with modern sensory conditions (which includes restoration and aftercare) on active sites; and that dormant sites should not be reactivated without full modern conditions. It also proposed that there should be no blanket revocation of minerals permissions in SSSIs, National Parks or AONBs, although as for sites elsewhere, they should be subject to modern planning conditions. The paper looked to proposals to come forward from the Department's Peat Working Group for any special measures to deal with the problem of old peat permissions.

86. As part of the discussions of the Working Group, the Peat Producers Association (PPA), which represents the majority of producers, agreed to the updating of their permissions to modern standards within 3-5 years, ahead of any wider changes for the minerals industry as a whole and which may require new legislation. The PPA already have a Code of Practice which covers many of the desirable points for modern schemes; but the agreed schemes will usually need to be site specific.

87. The current statutory options for achieving such updating of old peat permissions under the 1990 Act would be by legal agreement (S.106 planning obligation); by a Modification Order (S.97) or by the applicant applying to continue operations but vary the conditions (S.73).

88. However, the Government has now brought forward amendments to the Environment Bill, to deal statutorily with the problems of updating old mineral permissions (Commons Committee Hansard, 13 June 1995, Cols. 624-646). These will require the initial updating of planning permissions where the predominant planning permission was granted after 1 July 1948 and before 22 February 1982. It is proposed that active sites will be reviewed in two consecutive phases, with the oldest sites first. However, to deal with the particular problem of sites wholly or partly within national parks, AONBs and SSSIs, all of these will also be reviewed in the first phase. The majority of existing permissions for peat extraction will therefore fall within the first phase of reviews. For peat sites, the Government's announcement will carry forward into legislation the voluntary agreement already given by the PPA. The difference will be that the owner or operator will have to submit a scheme of updated conditions, by a specified date, for the approval of the MPA. This approach will broadly follow that adopted for Interim Development Orders.

89. The Department will be issuing guidance on the updating of old mineral permissions, after the passage of the legislation. However, this section of the MPG, together with Annex D, outline the general principles which the Government intends should be followed by owners and operators of peat sites when submitting their schemes of conditions. Wherever practical, a priority for after-use schemes should be to provide areas for nature conservation unless a different after-use is already specified by the planning permission and remains technically achievable and appropriate. However, this may not always mean re-creating the conditions which would lead to the re-establishment of a

raised bog system. The topics to be covered in rehabilitation and after-use schemes should include: the phasing of remaining extraction; hydrology, water controls and drainage; depths of peat and its characteristics; underlying geology; extraction methods; preservation or recording of archaeological remains; final excavated site topography; vegetation protection, regeneration and management; methods and timescales of site management.

90. It may be helpful to seek further advice from EN on the preparation of updated schemes for individual sites. For some sites the terms of existing legal agreements between EN and a site owner or operator should be drawn on in the preparation of schemes to submit to the MPA. Where appropriate, the use of agreements (e.g. S.106 planning obligations) to secure the successful rehabilitation of sites may be desirable in addition to updated planning conditions. Implementation of rehabilitation schemes, which should be phased and progressive wherever possible, has potential to provide new or additional sites of nature conservation value totalling several thousand hectares.

91. Where an existing site under consideration forms part of a raised bog which also retains areas of nature conservation or archaeological importance, there should be appropriate safeguards to minimise the risk of damage to such areas. In some cases this may include the need to introduce buffer zones between the worked and undisturbed areas; but such measures should be proportionate to the importance and size of the undisturbed areas and their conservation and/or archaeological value.

Considering Individual Planning Applications

General

92. MPAs should have regard to all material considerations when determining applications, including this Guidance Note and relevant policies in development plans. MPAs will need to consider in detail matters such as the economic, environmental, nature conservation, archaeological, agricultural, landscape, traffic, site restoration and other effects of the proposals that are relevant to the planning decision. For its part, the industry will need to demonstrate that it has considered these potential effects when preparing planning applications and has sought to mitigate them as appropriate.

93. In considering proposals for peat extraction, authorities will wish to satisfy themselves that the operator's proposal for managing the site in accordance with planning conditions, and the restoration of the site and aftercare, are acceptable. Operators may therefore wish to call attention to, and authorities will wish to consider, any evidence as to how their proposed methods of site management, restoration and aftercare are likely to work out in practice. This might be done by providing evidence from an existing, similar site. MPAs should thus have regard to the practicality of the proposal before them.

94. The Government encourages the use of environmental codes by the minerals industries, and welcomes the steps taken by the PPA in initially preparing a Code and in agreeing to revise it to take account of further matters, such as archaeology, which have arisen from the outcome of the Peat Working Group.

95. Some peat extraction operations involve simple methods of working and processing which do not involve major capital expenditure. On the other hand, many sites necessitate a very lengthy period of planning and development work including initial vegetation clearance and drainage. It is important to recognise that development proposals may come forward which involve extraction over a long period because of this or perhaps related to phased schemes for restoration and aftercare.

96. While in the past, the majority of peat extraction has been on lowland raised mires, there is potential for working blanket and intermediate bogs which have sufficient depths of peat and meet other suitability criteria. Mineral planning authorities should have regard to the guidance given in paragraphs 52 to 61.

Environmental Assessment

97. Environmental assessment (EA) is an important technique for ensuring that the likely environmental effects of development are fully understood and taken into account before development is allowed to go ahead. Where proposals for mineral development are likely to have significant effects on the environment, applications will need to be subject to EA under the Town and Country Planning (Assessment of Environmental Effects) Regulations 1988. Whether or not a particular mineral development proposal would have such effects so as to require an EA will depend upon such factors as the sensitivity of location, size, working methods, proposals for disposing of waste, the nature and extent of processing and ancillary operations, the arrangements for transporting products away from the site, and proposals for restoration and aftercare. The duration of the proposed workings is also a factor to be taken into account. DOE Circular 15/88

explains the provisions of the regulations and gives advice on their implementation. Further advice is given in "Environmental Assessment: A Guide to the procedures"(DOE 1989).

Transport

98. Peat is a light, but bulky, and relatively specialist mineral, which is extracted from a limited number of areas within England. While some bogs serve local needs, it is generally economic to transport peat by road from production sites to the main markets. The Government would like to see as much freight as possible carried by rail or waterway rather than by road wherever possible. However, it is recognised that the location of peat deposits in relation to these other transport modes, as well as the nature of the markets, may make it more difficult than for some other minerals to use non-road transport. Further advice on planning policies for freight is given in PPG13 "Transport".

Working Practices, Restoration, Aftercare And After-Use

99. It is established Government policy that restoration and aftercare will be required to make mineral workings environmentally acceptable and fit for beneficial after-use. This may include restoration to peatland habitats, agriculture, forestry, or other forms of amenity use. Applications for extraction of peat need to include information which demonstrates that the site can be restored satisfactorily; and if there is serious doubt whether a new extraction proposal can meet this requirement then it is doubtful whether permission for working should be given. Wherever practicable, MPAs and mineral operators should agree schemes of working and reclamation of sites which provide for progressive restoration, unless to do so would be likely to affect adversely the standard of restoration achieved. Advice on the restoration, aftercare and longer term management of peat bogs for conservation is given in Annex D. This includes a general review of the essential technical requirements which need to be considered when planning conditions are drawn up.

100. Reinstatement of sites to a condition suitable for an appropriate after-use should be an integral part of the planning of peat extraction. As recognised in MPG 7, whilst final site reclamation and possible after-uses must be considered at the time of a planning application and appropriate provision made in the conditions, it is likely that most schemes prepared before extraction commences will require updating and amendment during the lifetime of a working. Planning conditions may allow for this by requiring a general treatment scheme to be prepared and agreed before extraction starts, to be followed up by submission of detailed schemes for restoration and aftercare for particular phases, and by setting a time limit for submission of the final restoration plan which is commensurate with the duration of the mineral permission.

Implementation And Review

101. This Guidance Note will provide the basic framework for the planning for provision of peat and alternatives for soil improvers and growing media. It will be taken into account by the Secretary of State when considering development plans and individual applications which come before him for decision.

102. MPAs should take this Guidance Note into account when preparing development plans. Development plans should recognise the need to make provision for a continuing supply of materials in a manner compatible with environmental objectives. The plans should also provide guidance on the environmental objectives and the development control criteria which will be applied.

103. The peat industry should endeavour to ensure that proposals for mineral development are consistent with this Guidance Note and that they are brought forward at the right time. The industry is also responsible for achieving a high standard of operation while a site is being worked and for restoring the site when working has finished.

104. This Guidance Note has been based on the best information currently available. It will need to be kept under review and updated to reflect changes in demand, development of alternatives and environmental standards.

Annex A Peat Working Group - Terms Of Reference And Membership

A1 The Working Group has been convened by the Department of the Environment (DOE). Membership includes representatives of the peat industry, mineral planning authorities, the statutory nature and countryside conservation bodies, the Ministry of Agriculture, Fisheries and Food (MAFF), the Forestry Commission and the Scottish Office Environment Department, together with the Directorate of Rural Affairs and the Minerals Planning & Land Reclamation Division of DOE.

A2 The Working Group will advise the Department about:

- current peat extraction and usage having regard to the overall peatland resource in Britain and the place of imports and alternatives, and having regard to the Government's general policies for reconciling the supply of minerals with sustainable development;
- any required guidance at national level in respect of development control over existing extraction sites; guidance on rehabilitation of existing workings; and guidance in respect of future land-use issues affecting peatlands, especially the nature conservation of, and extraction from, lowland peat mires.

A3 Particular topics which the Group will need to consider include:

- i)** occurrence and types of peat;
- ii)** the nature conservation status of the identified peat areas, including the scale and extent of the protected areas; and the archaeological and landscape importance of peatlands;
- iii)** current areas of peat production;
- iv)** production and uses of peat, and the place of imports;
- v)** peat working practices, rehabilitation and after-uses, including the issues of old peat permissions as part of the Department's review of the operation of the 1981 Minerals Act;
- vi)** peat alternatives;
- vii)** the effects of mineral extraction on other peatland landuses (e.g. conservation, agriculture and forestry);
- viii)** other land-uses affecting peatlands (e.g. agriculture and forestry);
- ix)** use of information from the above to consider preparation of further planning guidance about nature conservation, peat extraction and other land-use matters affecting peatlands.

A4 Information on the above topics will be obtained through factual papers and other information provided by DOE and other members of the Working Group. The Department may also invite information and views on these topics from additional consultees.

A5 The Department's remit for minerals and planning policy legislation and guidance covers England. The Scottish and Welsh Offices are associated with the Group, whose work will assist in preparing any similar guidance for those countries.

Figures B1A, B1B and B2 below have been made available in *Adobe Acrobat* format for [downloading](#). The *Adobe Acrobat Reader* can be freely downloaded.

Viewers with visual difficulties may find it useful to investigate services provided to improve the accessibility of Acrobat documents -- <http://access.adobe.com>

Annex B - Peatland Types, Their Distribution And Condition

National Peatlands Resource Inventory and SSSI guideline definitions of UK peatlands

B1 A National Peatland Resource Inventory (NPRI) was initiated by the former Nature Conservancy Council (NCC) and is now coordinated by Scottish Natural Heritage (SNH). Its aim is to develop a database of information on the GB resource of acid (ombrotrophic) peatland, their past and current land-uses, and their present and potential value for nature conservation.

B2 The April 1994 draft of the NPRI refers to the definitions of peatland used in the 1989 SSSI guidelines which distinguish two fundamental types of peatland; fens and bogs.

B3 Fens (also termed "minerotrophic" mires) occur in waterlogged situations such as basins, valleys and flood plains where they receive nutrients from the surrounding catchment as well as from rainfall.

B4 Bogs ("ombrotrophic" mires) occur in areas where inputs of waters (almost exclusively from precipitation) have a low nutrient content and the local climate is generally cool and damp, or where the rainfall is sufficient to maintain the ground surface in a waterlogged condition. These can form above fen peats. Bog vegetation is characterised by acid tolerant plant communities in which the genus *Sphagnum* usually is, or has been, a significant component.

B5 Two main types of ombrotrophic bog are recognised to occur in Britain. **Raised bogs** are characteristic of an almost or completely flat underlying topography and so are mainly found on low plains or broad valley floors. Different types of raised bog are recognised by their location in the landscape and development history. "Typical raised bogs" are discrete areas bounded by mineral ground, on alluvial or fluvial glacial flood plains. In most cases surrounding flood plain fens have been reclaimed, leaving an otherwise agricultural landscape. Some examples occur in upland situations. "Estuarine raised bog" are formed on marine clays of estuaries, "basin raised bogs" are usually associated with and grade into basin fens.

B6 The vegetation cover of raised bogs, in particular the abundance of some *Sphagnum* species, is of critical importance to the development of the bog. This is because plant growth provides the basis for peat formation, water storage and impeded drainage, while the growth of *Sphagnum* species in particular helps to create the strongly acidic conditions of ombrotrophic peat and water.

B7 Within raised bogs, plant species show some micro-habitat preferences, particularly associated with the heterogeneous microtopography of the surfaces, which is induced primarily by plant growth. Certain plant species tend to occupy fairly distinct zones with respect to water level, either as part of the small-scale mosaic of a patterned bog surface or as part of a wider change in water level from the wet centre to the drier margins of a bog.

B8 Blanket bogs are identified as occurring in areas which are sufficiently cool and constantly wet to allow the accumulation of peat on all but the more steeply sloping ground.

B9 In many areas peatlands which may have begun as raised bogs have become swallowed up in the general expanse of the blanket bog, losing their distinctive marginal features, and in some cases the raised bog units have "often become impossible to detect without stratigraphic surveys". The SSSI guidelines suggest that in such circumstances it is "generally not practical to separate the raised bog elements from the general blanket bog classification". Many blanket bogs are also closely associated with fen peatlands.

B10 The guidelines distinguish a further type of acid peatland, known as "**intermediate bog**". These occur under conditions of climate and topography which are marginal for the development of blanket bog, but exceed those necessary for raised bog formation. They have the appearance of raised bogs which have expanded laterally so that the edge of the peat mass tends to merge gradually into surrounding areas of mineral soil. Sometimes two originally adjacent peat lenses have coalesced across a low intervening mineral ridge to form a single bog expanse. Though isolated in nature, intermediate bogs tend to occupy positions within the landscape which are more typical of blanket bog - watershed summits, saddles and spurs (ie areas which were water shedding prior to peat development), and are thus dependent upon a climatic regime more typical of true blanket bog development.

B11 Chapter 8 of the SSSI guidelines, which deals with bogs, was updated in December 1994 by the Joint Nature Conservation Committee (JNCC).

The extent and distribution of peatlands

B12 The draft NPRI has used British Geological Survey 1" and 1:50,000 Drift Edition Map Series, supplemented where necessary with the Soil Survey of Scotland 1:50,000 maps to assess the extent and distribution of peat deeper than 1 metre in Britain.

B13 Peatlands are extensive in Great Britain, covering almost 1.65 million hectares (Table B1). Blanket bogs are the most extensive, covering 1.43 million hectares, while raised bogs are estimated to once have covered at least 69,390 hectares. Maps of the distribution of peatlands based on the NPRI are reproduced at [Figures B1 A & B](#).

B14 A total of 1,034 raised bogs are identified in Great Britain of which 207 are in England.

The condition and nature conservation status of lowland raised bogs in England

B15 The draft NPRI provides an assessment of the current condition of the raised bogs in Great Britain. Ten land-use classes are identified, as summarised in [Box B1](#) and illustrated in [Figure B2](#). The ninth and tenth categories which are not illustrated in the Box represent respectively bogs which have been built upon and those where the condition of the bog is unknown.

B16 Areas of peat bogs which retain primary peat surfaces and which were considered to be either near-natural (class P1), moribund (class P2) or drained (class P3) were measured from aerial photographs and maps. For areas affected by other land-uses, sites have been categorised on the basis of the best land cover (in terms of the condition class closest to the natural condition) found on the site, and on the most extensive land-use. This information has been taken from a variety of sources, which in most cases is less than 5 years old.

B17 A summary of the current condition of raised bogs in England is provided in [Table B2](#) on the basis of the major condition or use of the bog, and for classes P1-P3 additional figures are given of

the measured area. Similarly the area affected directly by planning permissions for peat extraction is provided.

B18 Of the original 207 raised bogs in England only 15 retain areas in a natural or near-natural condition (class P1), with an area of 493 hectares. A further 33 bogs retain areas of drained or moribund primary bog (Classes P2 and P3).

B19 Scrub encroachment onto primary bog (class P4) is identified as the major condition class on 14 sites in England, affecting a total bog area of almost 430 hectares.

B20 Woodland establishment is the major land-use on 41 sites in England with a total bog area of 1,730 ha.

B21 A large number of raised bogs have been damaged in the past by commercial and domestic peat extraction and have since been abandoned and are now in the process of regenerating. The NPRI identifies 15 sites where regeneration is identified as the major condition of the site (total bog area 1,160 ha).

B22 In England there are a number of bogs with secondary surfaces (*sensu* NPRI, in Class S1), which have a high proportion of peat-forming plant species and are therefore actively regenerating.

B23 The NPRI provides data on sites with planning permission for peat extraction. Seventeen bogs are identified to have planning permission for peat extraction, with a total permitted area of 6,360 hectares. These figures include sites such as Fenns/Whixall Mosses where the site has been purchased by English Nature, but where the permission has not been revoked and is therefore still valid, and areas given to English Nature by Fisons. (Note: the assessment of planning permissions made by DOE, which was based on individual site data provided by MPAs, identified the permitted area in England to be 5,793 hectares).

B24 The drainage of raised bogs for agriculture is identified as the greatest cause of damage to the natural condition of raised bogs. Agriculture is the major land-use on 92 bogs with a total area of almost 17,000 ha.

Raised bogs notified as SSSIs

B25 In England, 41 raised bogs have been notified as SSSIs, with a total area of 11,100 hectares, although in many cases the designation extends beyond the boundary of the bog. Some of these SSSIs are areas with active primary bog surfaces, but also there are considerable areas of secondary surfaces with characteristic Sphagnum - dominated plant communities. Nine of these bogs also have planning permissions for commercial peat extraction.

B26 Since the MPA data was collated, extraction has ceased on a considerable area of permissions within SSSIs. The total areas have been reduced by the combined purchase and lease of Fenns/Whixall Mosses by English Nature in 1990 and by the areas immediately protected under the agreement reached between English Nature and Fisons (now Levington Horticulture). Under the terms of the agreement, the ownership of all Fisons freehold peatland (3,240 hectares of lowland peat in Cumbria, Somerset, South Yorkshire and Humberside) have been conveyed to English Nature. All the land with nationally important vegetation (1,550 ha) is already under conservation management, with the rest being leased back to the peat company for managed peat extraction over an agreed timescale.

B27 A recent assessment suggests that 2470 ha of raised bog are still being worked within SSSIs, with a further 135 ha identified where working has not yet started. Continued extraction within SSSIs is now almost exclusively on existing bare peat areas which have little or no direct current conservation interest.

Figure B1A: Classified historical distribution of peatlands for England and Wales
(*Adobe Acrobat - 121kb*)

Figure B1B: Classified historical distribution of peatlands for Scotland
(*Adobe Acrobat - 135kb*)

Figure B2: Diagrammatic representation of raised bog condition classes (based on NPRI)
(*Adobe Acrobat - 97kb*)

Box B1 - Summary of land-cover classes used in the NPRI

Class 1 (P1) Primary natural/near-natural

A primary dome with extensive Sphagnum-rich hummock-hollow microform features. Marginal drainage on almost all sites is thought to have reduced the natural prominence of the hummock pattern, and restricted the distribution of species typical of hollows.

Class 2 (P2) Primary degraded

Bogs damaged by fire may pass through a stand still phase where peat formation is interrupted by the removal of the natural surface vegetation. Vegetation may take over 20 years to reestablish. Degradation may also be caused by the lowering of the water table resulting in the increased colonisation by shrubs.

Class 3 (P3) Primary drained

Where the primary dome has had a network of drains installed, water is shed from the site causing drying of the surface layers. The intensity and age of drainage channels influences the degree of damage and composition of the vegetation. Vegetation may still retain features and species which occur on near natural bogs, although bog moss hummocks and hollows are lost.

Class 4 (P4) Primary open canopy

Drying out of the peat surfaces by drainage or removal of peat from the margins encourages the invasions of self-sown scrub (in particular birch). Water loss and leaf litter can effect moss species composition, and a limited range of Sphagna species are typical, most of which are not characteristic of open bog conditions in Britain.

Class 5 (P5) Primary closed canopy

Bogs affected by trees which have reached closed canopy

stage. Trees may have established through natural encroachment but more commonly through deliberate planting. Tree cover exacerbates peat oxidation and shrinkage through loss of water by evapotranspiration. Some sites may retain typical bog species beneath the trees, but with many the original vegetation is lost.

Class 6 (S1) Secondary revegetating

A secondary bog is one where the surface layers of peat have been removed, usually through domestic or commercial peat extraction. Following abandonment of a site, vegetation reestablishes generally through natural regeneration. Species composition depends largely on the characteristics of the peat remaining, the quality of water retained on the site and available seed sources. Where the peat remains sufficiently wet and acidic, characteristic bog vegetation may reestablish and peat formation may restart.

Class 7 (S2) Secondary, active commercial peat extraction

Modern extraction techniques require large expanses of bare peat, which is drained in advance of working. The landform produced depends on the extraction techniques employed. Block cutting and milling are the two most common methods of extraction. As peat fields are repeatedly worked, vegetation establishment is prevented, and sites remain bare. The important aim of restoration is to establish conditions following extraction which enable appropriate species to reestablish.

Class 8 (A1) Archaic (agriculture)

Many peat bogs have been drained for agriculture. Continued drainage results in oxidation of the peat which results in the lowering of the surface. Ultimately fen peat, or mineral soils are exposed.

Table B1. The area and distribution of peatland types in GB

					Hectares
	Fen	Raised Bog	Blanket Bog	Intermediate Bog	Total Area
England	131672	37413	214138	948	384171
Wales	2867	4086	158770	85	165808
Scotland	1215	27890	1056198	10652	1095955
Total	135754	69389	1429016	11685	1645844

Source: NPRI (draft)

Table B2. The major land-cover classes of raised bogs in England, and measured areas of primary near natural (class P1), primary degraded and drained bog (classes P2 & P3) and commercial peat extraction

Condition Class	Major land cover		Measured area		
	Number of bogs	Area (ha)		Number of bogs	Area (ha)
Primary near-natural (P1)	1	8		15	493
Primary degraded (P2)	9	1699	(Classes P2 & P3)	33	1391
Primary drained (P3)	13	562			
Primary Scrub (P4)	14	427			
Closed canopy woodland (P5)	41	1734			
Secondary regenerating (S1)	15	1163			
Secondary moribund (S2)*	15	14498**		17	6360
Agriculture (A1)	92	16972			
Built (A2)	7	350			
Condition unknown (U)	0	0			
Total	207	37413			
* Including commercial peat extraction.					
** This figures does not represent the area either permitted for, or actually affected by commercial peat extraction. Refer to main text for further details.					
Source: NPRI (draft)					

Peatlands and the Habitats Directive

B28 The Habitats Directive, in Annex 1, lists the following peatland habitat types, although not all of these occur in the UK.

Raised bogs and mires and fens

Sphagnum acid bogs

51.1 *Active raised bogs

51.2 Degraded raised bogs (still capable of natural regeneration)

52.1 and 52.2 Blanket bog (*active only)

- 54.5 Transition mires and quaking bogs
- 54.6 Depressions on peat substrates (Rhynchosporion)

Calcareous fens

- 53.3 *Calcareous fens with *Cladonium mariscus* and *Carex davalliana*
- 54.12 *Petrifying springs with tufa formation (Cratoneurion)
- 54.2 Alkaline fens
- 54.3 *Alpine pioneer formation of *Caricion bicoloris-atrofuscae*.

(* indicates a priority habitat).

B29 Two types of acid peatland occurring in the UK, active raised bogs and active blanket bogs, are priority habitats. A joint scientific committee of the EC is preparing an explanatory memorandum for the Directive, including definitions. The final definitions for these two habitat types have been agreed and adopted by the Adaptation Committee of the Habitats Directive, and are presented in Boxes [B2](#) and [B3](#).

Box B2

51.1 *Active raised bogs

habitat code: 7110 corine 91:51.1

Raised bogs and mires and fens/Sphagnum acid bogs

1) Active raised bogs

2) Acid bogs, ombrotrophic, poor in mineral nutrients, sustained mainly by rainwater, with a water level generally higher than the surrounding water table, with perennial vegetation dominated by colourful *Sphagnum* hummocks allowing for the growth of the bog (*Erico-Sphagnetalia magellanici*, *Scheuchzerietalia palustris p.*, *Utricularietalia intermedio-minoris p.*, *Caricetalia fuscae p.*). Typically, pools may be present in western United Kingdom and Ireland. The term "active" must be taken to mean still supporting a significant area of vegetation that is normally peat forming, but bogs where active formation is temporarily at a standstill, such as after a fire or during a natural climatic cycle eg, a period of drought, are included.

3) Plants: *Erico-Sphagnetalia magellanici p Andromeda polifolia, Carex pauciflora, Cladonia spp., Drosera rotundifolia, Eriophorum vaginatum, Odontoschisma sphagni, Sphagnum magellanicum, S. imbricatum, S. fuscum, Vaccinium oxycoccus. Scheuchzerietalia palustris p., Utricularietalia intermedio-minoris p., Caricetalia fuscae p. p Carex fusca, C. limosa, Drosera anglica, D. intermedia, Eriophorum gracile. Rhynchospora alba, R. fusca, Scheuchzeria palustris, Utricularia intermedia, U. minor, U. ochroleuca. Animals:* Dragonflies ~ *Leucorrhini dubia, Aeschna subartica, A. caerulea, A. juncea, Somatochlora arctica, S. alpestris*. Butterflies ~ *Colias palaeno, Boloria aquilonaris, Coenonympha tullia, Vacciniina optilete, Hypenodes turfosalis, Eugraphe subrosea*. Spiders ~ *Pardosa sphagnicola, Glyphesis cottonae*. Ants ~ *Formica transkaucaassia*. Cricket/Grasshopper ~ *Metrioptera brachyptera, Stethophyma grossum*.

4) Geographical distribution: Belgium, Denmark, Germany, Spain (Pyrenees and Cantabrian mountains), France, Italy, Ireland, Netherlands and United Kingdom. Variations can occur

depending on local climatic and geomorphological conditions. In Belgium, this habitat is only present in High Ardennes; a typical site is the Fagne wailone. Corresponding category in the United Kingdom National Vegetation Classification: "M1 *Sphagnum auriculatum* bog pool community", "M3 *Eriophorum angustifolium* bog pool community", "M18 *Erica tetralix*-*Sphagnum papillosum* raised and blanket mire", "M20a *Eriophorum vaginatum* blanket and mixed mire - species poor sub community".

5) In order to support the conservation of this ecosystem over its geographic range and its genetic diversity, marginal areas of lower quality as a result of damage or degradation which about active raised bogs may need to be included, protected and, where practicable, regenerated. There are very few intact or near-intact raised bogs in Europe.

Box B3

52.1 and 52.2 - Blanket bog (*active only)

habitat code: 7130 - corine 91: 52.1 and 52.2

Raised bogs and mires and fens/*Sphagnum* acid bogs

1) Blanket bog (*active only)

2) Extensive bog communities or landscapes on flat or sloping ground with poor surface drainage, in oceanic climates with heavy rainfall, characteristic of western and northern Britain and Ireland. In spite of some lateral water flow, blanket bogs are mostly ombrotrophic. They often cover extensive areas with local topographic features supporting district communities [*Erico-Sphagnetalia magellanici*: *Pleurozium purpureae*-*Ericetum tetracilis*, *Vaccinio-Ericetum tetracilis* p; *Scheuchzerietalia palustris* p., *Utricularietalia intermedio-minoris* p., *Caricetalia fuscae* p.]. *Sphagna* play an important role in all of them but the cyperaceous component is greater than in raised bogs.

The term "active" must be taken to mean still supporting a significant area of vegetation that is normally peat forming.

3) **Plants:** 52.1 ~ *Calluna vulgaris*, *Campylopus atrovirens*, *Carex panicea*, *Drosera rotundifolia*, *Erica tetralix*, *Eriophorum vaginatum*, *Molinia caerulea*, *Myrica gale*, *Narthecium ossifragum*, *Pedicularis sylvatica*, *Pinguicula lusitanica*, *Pleurozia purpurea*, *Polygala serpyllifolia*, *Potentilla erecta*, *Racomitrium lanuginosum*, *Rhynchospora alba*, *Schoenus nigricans*, *Scirpus cespitosus*, *Sphagnum pulchrum*, *S. strictum*, *S. compactum*, *S. auriculatum*. 52.2 p *Calluna vulgaris*, *Diplophyllum albicans*, *Drosera rotundifolia*, *Empetrum nigrum*. *Erica tetralix*, *Eriophorum vaginatum*, *Myrica gale*, *Narthecium ossifragum*, *Rubus chamaemorus*, *Scirpus caespitosus*, *Vaccinium myrtillus*. **Animals:** *Pulvialis apricana*, *Calidris alpina*.

4) **Geographical distribution:** France, Ireland and United Kingdom. Sub-types of the British Isles: 52.1 ~ Hyper-Atlantic blanket bogs of the western coastlands of Ireland, western Scotland and its islands, Cumbria, Northern Wales; bogs locally dominated by sphagna (*Sphagnum auriculatum*, *S. magellanicum*, *S. compactum*, *S. papillosum*, *S. nemoreum*, *S. rubellum*, *S. tenellum*, *S. subnitens*),

or, particularly in parts of western Ireland, mucilaginous algal deposits (*Zygonium*). 52.2 ~ Blanket bogs of high ground, hills and mountains in Scotland, Ireland, Western England and Wales.

Corresponding category in the United Kingdom National Vegetation Classification: "*M1 Sphagnum auriculatum* bog pool community", "*M15 Scirpus caespitosus-Erica tetralix* wet heath", "*M17 Scirpus caespitosus-Eriophorum vaginatum* blanket mire", "*M18 Erica tetralix-Sphagnum papillosum* raised and blanket mire", "*M19 Calluna vulgaris-Eriophorum vaginatum* blanket mire", "*M20 Eriophorum vaginatum* blanket mire".

5) In the United Kingdom discrete areas of raised bog and blanket bog may occur in some districts, showing their characteristic differences. In many other areas, however, peatlands which may have begun as raised bog have become merged in a general expanse of blanket bog, losing their distinctive marginal features. Within these blanket bogs, there are other peat-forming systems which, strictly speaking, form part of various biotopes of aquatic and amphibious zones, fens and moorland.

Annex C - Trends In The Use Of Peat And Alternative Materials

C1 MAFF have provided projections in these guidelines for the medium term demand for peat and alternatives by the professional horticulture industry. Research undertaken by independent consultants for DOE provided demand forecasts for the amateur gardening, private sector landscaping and local authority sectors. The MAFF projections initially looked to the year 2000, and the consultants' study to 2003. For the purposes of these guidelines, both sets of data have been projected forward to 2005.

Professional horticulture

C2 Trends in use of peat by the professional horticulture sector have been based on consideration of requirements of individual horticultural sectors, and the predicted availability and uptake of alternatives.

C3 Since 1980 there have been increases in demand for peat by all sectors (with the exception of glasshouse salad crop production and for soil conditioning). However, the container nursery stock and bedding plant sectors contributed most to this increase (200% and 150% increases respectively). It is anticipated that by 2000 the increase in use will continue, but at a more modest rate. The nursery stock and bedding plant sectors are expected to continue to show the greatest expansion.

C4 MAFF predict that on the basis of recent trends, by the year 2000 the demand for peat by the professional horticultural industry will increase by 14% to about 1.1 Mm³. Over the same period the use of alternatives is expected to increase by 95% to 39,000 m³, although this will still only account for 4% of total substrate use. Almost all of the peat used by the industry is as a growing medium (95%). The use of peat for soil improving by the professional horticultural industry has reduced from 70,000 m³ in 1980, to 50,000 m³ in 1990, and is expected to have been phased out completely by the year 2000.

Amateur gardening

C5 The key factor affecting the quantities of materials used for soil improvers and growing media has been assumed to be the overall growth in amateur gardening as a leisure activity. It has been assumed that the overall growth rate will continue to be about 1-1.5% per annum through the next decade.

C6 Following the trend observed between 1988 and 1993, growing media are predicted to take up an increasing proportion of the total market, which will maintain growth in demand for peat.

C7 Greater substitution of peat in this sector is expected to occur only when the performance of alternatives as growing media is improved. The predictions are based on the assumption that there are no rapid developments in the quality of alternatives, although it is accepted that should this occur, it is likely that there would be a shift towards greater use of alternatives by the turn of the century.

C8 Over 80% of peat used by the amateur gardener is as a growing medium (1.23 million m³), with only 239,000 m³ used for soil improving.

C9 It is estimated that the rate of growth in peat consumption will probably peak later in the 1990's and by 2003 demand is estimated to reach between 1.6 and 1.7 million m³. Demand for alternative materials is expected to increase from 273,000 m³ to around 380,000 m³ over the next 10 years.

Local authorities

C10 Local authorities have undergone a dramatic change in their pattern of materials consumption since 1988, primarily as a result of policy decisions. There has been a decline in the consumption of growing media and consequently of peat, but alternatives are being purchased at an increasing rate as soil improvers. However, this is in total the smallest of the 4 main market sectors.

C11 The overall market is assumed to be stable, assuming the requirements of local authorities to be unlikely to change greatly. Consumption of peat in 1993 was estimated to total 22,800 m³, of which 70% was used as a growing medium.

C12 The use of peat by local authorities is predicted to decline by 60% to 9,000 m³ by 2003. Within the same period alternatives are predicted to increase by about 10% from their 1993 level of 195,800 m³, to around 215,000 to 220,000 m³. Alternatives are therefore expected to account for 96% of total substrate use in 2003 compared with 90% in 1993.

Private sector landscaping

C13 The use of materials by the landscaping market has increased significantly since 1988, primarily because of an increase in the consumption of soil improvers, which has largely centred on the use of peat alternatives. This has in turn increased the consumption of non-peat materials, reflecting the bias towards the use of locally sourced materials. However, this may mean that much of the potential for substitution of peat has already occurred.

C14 It is assumed that the growth in this sector will track the economy, resulting in an aggregate growth of 10% over the next 5 years, slowing to 7% over the succeeding 5 year period to 2003.

C15 Peat use in 1993 was estimated to total 58,100 m³, and is predicted to decline by 59% to 24,000 m³ by 2003. The use of peat as a soil improver within this sector is expected to decline from about 9% of total substrate use to about 3.5% by 2003. The use of alternatives is expected to increase overall by about 27% between 1993 and 2003 from 497,600 m³ to around 630,000 m³.

Annex D - Guidelines For The Rehabilitation Of Raised Bogs

D1 Peat bogs that have been damaged by mineral extraction can be restored to a range of after-uses. In the past these have included agriculture and forestry, or where abandoned they have revegetated naturally. In the latter case the nature of the colonising vegetation is strongly influenced by a variety of site factors, including topography, hydrology, physical and chemical characteristics, and the availability of colonising species.

D2 The loss of raised mires to other land-uses in the past, and their current limited distribution, has created much interest in the possibility of rehabilitating damaged sites to reinstate raised bog habitats. Research undertaken for the Department on the rehabilitation of lowland peat bogs, provides guidelines for recreating raised bog habitats as well as alternative afteruses. The report stresses the need to consider the current condition of sites when determining the most appropriate after-use, and identifies circumstances under which the recreation of raised mires may not be feasible. A range of working practices to facilitate rehabilitation of sites are proposed. A summary of the principle approaches to reclaiming sites to raised bogs or other forms of wetland after-use are summarised below.

D3 The rehabilitation of cut-over peatlands to raised bog, may be achieved by following three different paths: direct colonisation of peat and waters by plants and mosses associated with typical bog vegetation; natural succession from fen; or natural succession over open water via fen. All three approaches, and in particular the last two, require long periods of time to achieve fully. The aim of restoration must therefore be to create environmental conditions which are conducive to the development of acid mire vegetation and peat accumulation. To achieve this the site must have a consistently wet surface, maintained primarily by rainfall and have chemical conditions which allow the development of peat forming vegetation types, dominated by Sphagnum species.

D4 The surface configuration left after peat cutting will greatly influence the ability to rehabilitate a site successfully. This will depend largely on the method and duration of peat cutting and the extent of drainage. Block cutting leaves a regular system of baulks, flats and trenches when extraction ceases which are usually dry, damp and wet respectively. The surfaces remaining after milling and extrusion are generally bare and dry, and usually cover large areas. The bare peat is likely to be compressed as a result of drainage and the passage of machinery.

D5 The complete removal of the vegetation over large areas of peatlands as in some extraction processes (e.g. milling) delays the start of the rehabilitation process until most of the peat has been harvested, and can result in the complete loss of the bog flora and fauna from the whole site. Where vegetated, unworked areas exist they can provide refugia for species characteristic of raised mires.

D6 Guidelines on appropriate working and reclamation methods will be site specific. However, the following principles should be considered and implemented wherever possible:

- i)** Critical refugia areas should be identified and steps taken to preserve or enhance their existing conservation interest. Such areas should not be subject to further peat extraction, unless as part of an agreed rolling programme of peat extraction and restoration.
- ii)** If feasible and necessary, a buffer zone of undisturbed peat should be designated around the core part of any refugia, which

should also remain uncut.

iii) Work should start on the restoration of abandoned areas and the maintenance of refugia as soon as possible so that dehydration is minimised.

iv) Peat should be extracted in such a way as to leave upstanding baulks at agreed intervals. These may be supplemented by constructed baulks after operations have ceased.

v) If feasible, operations should be phased such that:

a) areas closest to refugia should be abandoned first, leaving sufficient depths of peat.

b) contiguous areas should be finished in sequence. vi) A suitable depth of ombrotrophic peat should be left in situ, where this will assist in site rehabilitation. Sufficient peat should also be left to allow for constructs to impound water. This depth may vary according to the nature of the peat and the underlying substratum and its topography.

vii) Drains should not be dug into mineral subsoil (unless it is impermeable).

viii) Where possible, 'nursery' pools for the 'farming' of Sphagnum should be initiated, to provide an inoculum for abandoned areas.

ix) Drainage operations should be assessed, and where possible redesigned to minimise impacts on remnants and areas undergoing restoration. In low rainfall areas it may be desirable to pump drainage water into abandoned peat workings, subject to the quality of the pumped water.

Site management

D7 Vegetation management should be undertaken as soon as production ceases to reduce the establishment of undesirable species.

D8 Long term intermittent management will be required beyond a 5 year aftercare period. The restoration scheme should be designed to minimise on-going management requirements but also to make it practicable for them to take place.

D9 It may be necessary to consider inoculation of restored sites with the desirable species. This could be started in abandoned areas well in advance of complete cessation of extraction. When doing so, consideration should also be given to the possible effects that the deliberate or consequential introduction of plants and animals, including invertebrates, might have on local genotypes.

Other wetland after-uses

D10 In many situations it may not be possible, practical or desirable to reinstate ombrotrophic bog conditions. Examples include sites where insufficient ombrotrophic peat remains to prevent ingress of nutrient rich water, or where drains have extended into the mineral strata below the bog.

D11 A number of alternative restoration options are possible depending on site specific conditions including the development of open water areas, reedbeds, fen, fen woodland or fen meadow. The choice of after-use will depend to a large extent on the topography of the site, the water levels that can be maintained and the quality of the water used.

D12 Where the mineral substrate is exposed, restoration options will be influenced by the physio-chemical characteristics of the mineral material, which may, for example, vary from very acidic gravels to base-rich clays. Water tables may also be subject to variation as a result of drainage on adjacent land and abstraction from underlying aquifers. This may affect the ability of wetland to develop. Further guidance on reclamation options is given in Shaw and Wheeler (1995).

[PPG15](#) below have been made available in *Adobe Acrobat* format for [downloading](#). The *Adobe Acrobat Reader* can be freely downloaded.

Viewers with visual difficulties may find it useful to investigate services provided to improve the accessibility of Acrobat documents -- <http://access.adobe.com>

Annex E - Bibliography

Primary legislation

Ancient Monuments and Archaeological Areas Act 1979
Wildlife and Countryside Act 1981
Environmental Protection Act 1990
Town and Country Planning Act 1990
Planning and Compensation Act 1991

Statutory Instruments

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Conservation (Natural Habitats &c.) Regulations 1994

DOE Circulars

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Minerals Planning Guidance Notes

MPG 1 - General Considerations and the Development Plan System (1988, under revision)
MPG 4 - The Review of Mineral Working Sites (1988)
MPG 7 - The Reclamation of Mineral Workings (1989, under revision)

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PPG 1 - General Policy and Principles (1992)
PPG 2 - Green Belts (1995)
PPG 7 - The Countryside and the Rural Economy (1992)
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