

## 2 Supply and demand for minerals

2.1 The Oxfordshire Structure Plan states:

*M1 The County Council will release land for mineral working so as to maintain an adequate and steady supply to contribute to local, regional and national needs provided that they are satisfied that the demand cannot reasonably be met from existing planning permissions.*

*M2 In assessing applications for mineral working the County Council will take into account the quality and quantity of the deposit in the application site and the availability of proven deposits elsewhere in the county which might provide less damaging alternative sources of supply.*

*M7 The County Council will seek to maintain a stock of land in the county with planning permission for the extraction of aggregates equivalent to at least a 10 year supply, provided that sufficient applications are made which do not conflict with policies M9-M14<sup>1</sup>. In addition borrow pits may be permitted to serve specific large scale projects in accordance with policy M8.*

*M8 Permission may be granted for borrow pits to serve major construction projects in Oxfordshire provided they do not cause serious local environmental problems In particular they should seek to avoid the constraints in policy M9<sup>1</sup> and adequate provision must be made for restoration. Borrow pits will be permitted only to supply specific projects and where there is no equally acceptable site already permitted or allocated for extraction. They will not be regarded as setting a precedent for further extraction.*

2.2 Figure 1 (overleaf) shows the locations of the main existing workings. The following paragraphs provide more detailed information and interpretation of the Structure Plan policies.

### Sand and gravel

2.3 Sharp sand and gravel is used mainly in the construction industry, particularly for making concrete and road building. In the past an average of some 2 million tonnes have been extracted each year in Oxfordshire.

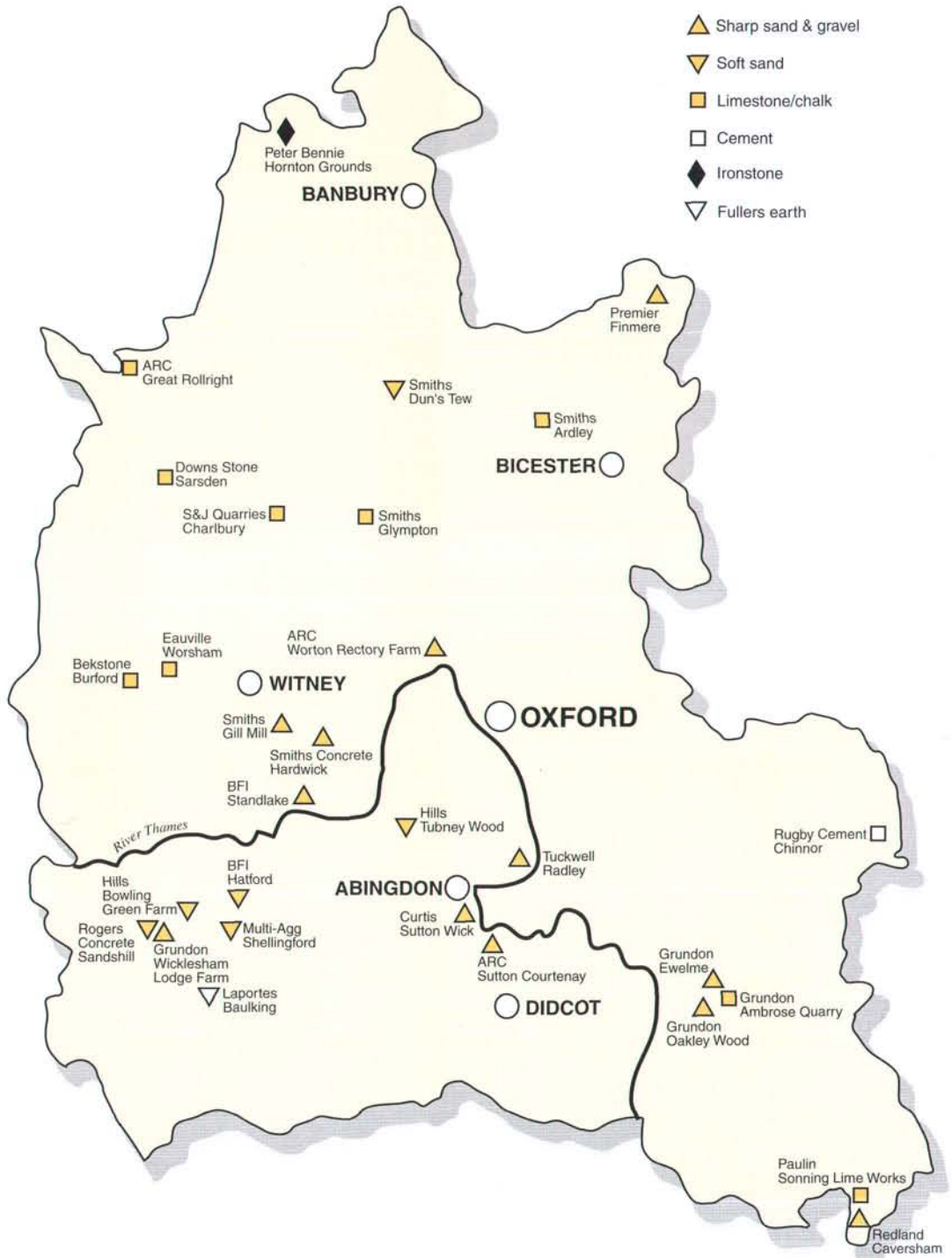
2.4 The main deposits of sharp sand and gravel are found in the Thames and Windrush valleys. Less extensive deposits are found in the valleys of the Cherwell, Evenlode, Ock and Thame. The valley gravels are generally of a good quality with the better quality gravels found downstream of Abingdon. The water table in the river valleys is usually near the surface. This means that after working, pits tend to be left as lakes.

2.5 Sharp sand and gravel is also found in the Chilterns north of Reading and east of Wallingford and north of Bicester near Finmere. These "plateau" gravels generally have a high proportion of silt and clay which have to be washed out if they are to be used for concrete. They occur above the water table and pits can normally be restored to agriculture.

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<sup>1</sup> Structure Plan policies M9, M10, M11 and M12 can be found at paragraph 4.1, M13 at paragraph 7.1 and M14 is now policy PE1 of this Plan at paragraph 4.2.

Figure 1 – Location of active mineral workings in Oxfordshire



Notes (a) Some quarries produce more than one type of mineral. On this map the main mineral is shown.  
 (b) Situation as at January 1996.



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- 2.6 Soft sand is used mainly for mortar and asphalt. In the past an average of some 200,000 tonnes has been extracted each year in Oxfordshire.
- 2.7 Soft sand is found in a band running from Faringdon to Abingdon, in the Cherwell valley north of Steeple Aston and in small outcrops in the north of the county.
- 2.8 One of the main issues to be decided in this Local Plan is how much land should be allocated for sand and gravel working and where.
- 2.9 Government guidance (MPG6 April 1994) envisages that in the South East Region, over the period 1992-2006 420 million tonnes (mt) of land won sand and gravel will need to be worked. Oxfordshire's apportionment of this total has been agreed through SERPLAN (Report RPC 2705 December 1994)<sup>1</sup> to be 2 mt per annum(pa). This comprises 1.8 mt of sharp sand and gravel and 0.2 mt of soft sand. Prior to this the apportionment for Oxfordshire was 2.2 mt pa.
- 2.10 MPG6 says that local plans should contain policies for the maintenance of landbanks and requires a minimum landbank for sand and gravel of 7 years. It recognises that the maintenance of such a landbank in practice depends on the minerals industry coming forward with planning applications in the right place at the right time. It also says that in preparing local plans mineral planning authorities should be able to demonstrate that sufficient resources have been identified or can be identified to ensure that the landbank can be maintained at the requisite level throughout the Plan period. There should be a commitment that a landbank can be maintained at the end of the Plan period but it is not necessary to make full provision at the start of the Plan period. Separate landbanks for sharp sand and gravel and for soft sand are commended.
- 2.11 **SD1 Separate landbanks will be maintained for sharp sand and gravel and for soft sand at levels which accord with current Government advice and with the current regional apportionment.**
- 2.12 Figure 2 relates the sand and gravel resources identified for working in this Plan (see Chapter 7) to Oxfordshire's apportionment agreed through SERPLAN (see paragraph 2.9).

**Figure 2 – Oxfordshire sand and gravel apportionment**

	Sharp sand and gravel	Soft sand
Apportionment 1992-1994 inclusive	6.0 mt (2.0 mt pa)	0.6 mt (0.2 mt pa)
Apportionment 1995-2006 inclusive	21.6 mt (1.8 mt pa)	2.4 mt (0.2 mt pa)
Total 1992-2006 inclusive	27.6 mt	3.0 mt
Resources identified in the Plan	32.45 mt	4.76 mt

1 *Aggregates Apportionment – The Sub-Regional Apportionment of the Regional Sand and Gravel Requirement in MPG6, RPC 2705, SERPLAN, December 1994.*

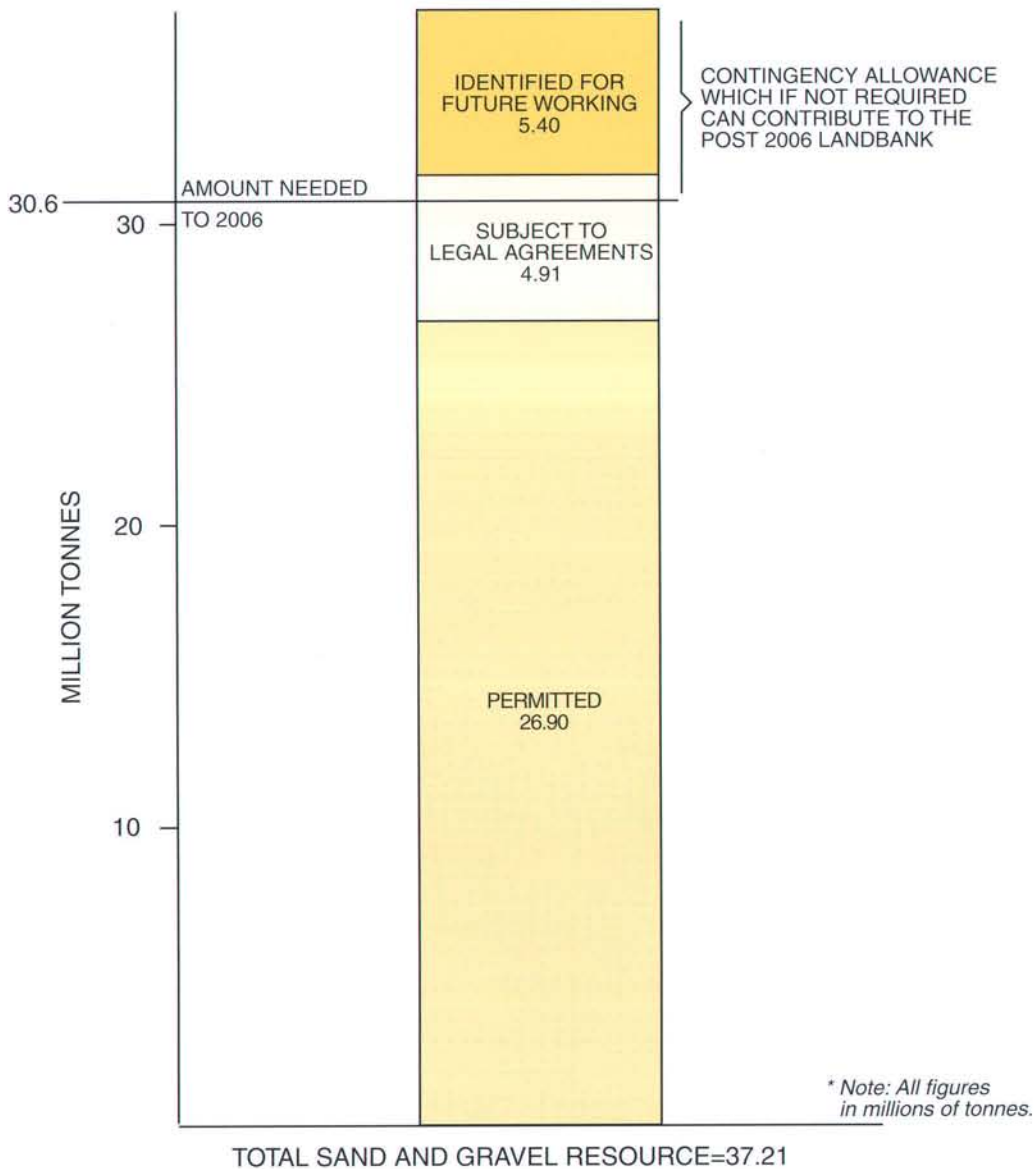
- 2.13 The resources of sharp sand and gravel identified in this Plan (see figures 3 and 4) are therefore sufficient to maintain production for the period of the Plan and for 2.7 years beyond it. This is consistent with the requirement in MPG6. The resources of soft sand identified in this Plan are sufficient to maintain production throughout and for 8.8 years beyond the Plan period. The provision for the working of soft sand therefore exceeds the requirements of MPG6<sup>1</sup>.
- 2.14 The Structure Plan identifies broad areas of search for sand and gravel (see paragraph 7.1 of this Plan). Within these broad areas of search, the Proposals Map of this Plan indicates areas identified to meet current requirements, based upon MPG6, for the Plan period. Further resources can be identified from within the broad areas indicated by the Structure Plan if this proves to be necessary in order to comply with the requirement to ensure that a landbank can be maintained at the end of the Plan period.
- 2.15 The estimated yield of individual sites is inevitably uncertain though by the time planning permission is granted the uncertainty is very much reduced. For this reason a contingency allowance needs to be included in the Plan. If the contingency (see figure 3) is not required during the Plan period then the resources can contribute to the post 2006 landbank.
- 2.16 **SD2 Planning permission will normally be granted for small extensions to existing operating sand and gravel quarries where they would comply with national, Structure and Local Plan policies. Extraction from a small extension will not be expected to last for more than three years. Subsequent extensions to the same workings will not normally be permitted in advance of a review of the Plan.**
- 2.17 This policy is to ensure that land that can reasonably be worked around an existing quarry, without unacceptable environmental damage, is worked as part of the main quarry. This avoids either (a) sterilising that resource or (b) mineral working being restarted at a later time where the disturbance of working had already ceased. In deciding what is small, in each case factors such as the relative size of the extension, the impact of the proposal in terms of landtake, considerations of sustainable development, level and effect of traffic generation and timescale of the proposal will be relevant.
- 2.18 The County Council will also encourage the use of recycled and rail-imported alternatives to locally dug sand and gravel.

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<sup>1</sup> *The Government advises that data on annual production, production capacity, and reserves should be publicly available. For Oxfordshire this will include details of workable resources in the locality of the broad areas of search identified in the Structure Plan.*

Figure 3 – Planning for sand and gravel to 2006

Permitted	26.90
+ Sites subject to legal agreements	<u>4.91</u>
Gives	31.81
– Total needed 1992-2006	30.60
Leaves	1.21
+ Amount identified in the Local Plan	<u>5.40</u>
Provides a contingency allowance of	6.61 *





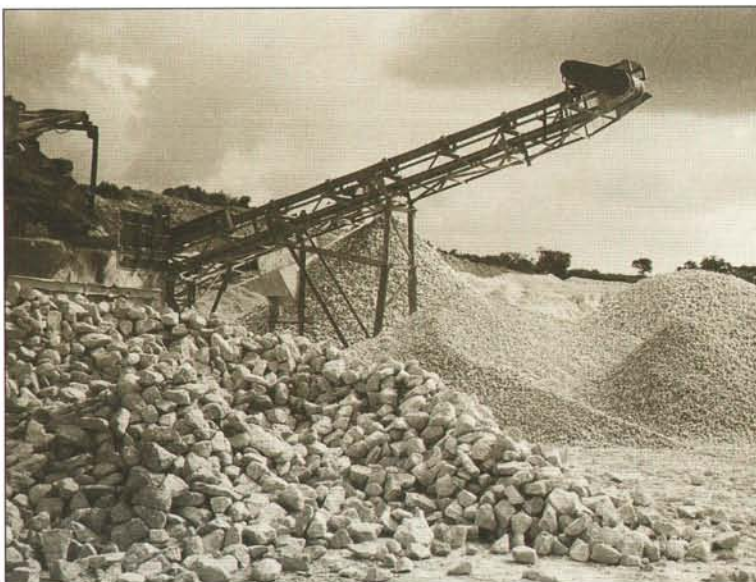
**Figure 4 – Breakdown of identified sand and gravel resource**

<i>Sharp sand and gravel</i>		
(a)	Land with planning permission at 01.01.92	18.34 mt
(b)	Land granted planning permission between 01.01.92 and 01.01.96	
	● Finmere	1.20
	● Little Faringdon	0.55
	● Sutton Wick	0.28
	● Standlake	0.77
	● Caversham	<u>1.00</u>
		3.80 mt
(c)	Land with planning permission in principle awaiting completion of legal agreements	
	● Sutton Courtenay	0.91
	● Stonehenge Farm <sup>1</sup>	<u>4.00</u>
		4.91 mt
(d)	Areas identified for future working	
	● Sutton Wick	0.4
	● Lower Windrush Valley	4.5
	● Cassington-Yarnton	<u>0.5</u>
		5.4 mt
	Total sharp sand and gravel (a + b + c + d)	32.45 mt
<i>Soft sand</i>		
(a)	Land with planning permission at 01.01.92	2.98 mt
(b)	Land granted planning permission between 01.01.92 and 01.01.96	
	● Shellingford	1.00
	● Bowling Green Farm	0.60
	● Wicklesham Lodge Farm	0.03
	● Duns Tew	<u>0.15</u>
		1.78 mt
	Total soft sand (a + b)	4.76 mt

1 Although the County Council has resolved to grant planning permission for the extraction of 4 mt of gravel at Stonehenge Farm, approximately half the site is a Scheduled Ancient Monument. Some 2 mt from this land cannot therefore be dug unless Scheduled Ancient Monument consent is first granted by English Heritage.

### Limestone and chalk

- 2.19 In Oxfordshire limestone is used as an aggregate in the construction industry and for making building blocks, paving stones and slates, and as agricultural lime. Chalk is used chiefly in the cement industry, but is also used in small quantities as an aggregate and as agricultural lime.
- 2.20 Limestone is found in a broad band running from Broughton Poggs in the west, through Charlbury and Stonesfield, to Stratton Audley in the east. It is also found to a lesser extent in a smaller band from Shrivenham to Oxford. Chalk is found in the south and south east of the county in the North Wessex Downs and in the Chilterns.
- 2.21 Traditionally some 300,000 tonnes of limestone and chalk aggregate has been produced each year, but production was substantially higher during the construction of the M40. Reserves of chalk and limestone suitable for aggregate use stand at 7.75 million tonnes (January 1992). This is more than enough to allow aggregate supply at 300,000 tonnes per year to continue, in accordance with Government guidance and Structure Plan policy M7, which both require a 10 year landbank for limestone and chalk aggregate. Planning permission is normally likely to be refused if existing permissions provide a 10 year landbank (3 million tonnes).
- 2.22 **SD3** Planning permission will not normally be granted for new limestone and chalk quarries. Extensions to existing limestone and chalk quarries will be considered against national policies and those in the Structure and Local Plan. Very small quarries to supply traditional local building stone to the immediate area may be permitted as an exception to this policy.



*Limestone working at Town Quarry, Charlbury.*



- 2.23 Extensions to quarries will be considered on their merits against planning policy. Amongst the factors to be taken into account will be the need for the material and the environmental impact of the working. In some cases, an extension to a quarry may be permitted where it involves the agreed revocation, without compensation, of an existing planning permission containing workable reserves in an environmentally sensitive area. Such an exchange could reduce the number of unrestored quarries in the county.
- 2.24 A 10 year landbank of limestone and chalk reserves can be maintained from existing permissions. There may be cases where a very small quarry to supply traditional local building stone is acceptable, even possibly within an Area of Outstanding Natural Beauty (AONB). In any such proposal the environmental impact of the quarry will need to be balanced against the local need for traditional building materials.

### Cement

- 2.25 There is an existing cement works at Chinnor, at the foot of the Chilterns escarpment and partly within the AONB. Government guidance<sup>1</sup> indicates that the works at Chinnor had a 29 year landbank at January 1990 although not all of the permitted reserves are chemically suitable for cement production. The cement plant is expected to close in 1997 with cement production transferring to Rugby. However, the Interim Development Order permission for chalk extraction at Chinnor has a condition which allows chalk extraction to continue to the end of 2005. Until recently cement was also produced at Shipton-on-Cherwell.
- 2.26 Any proposals for development in or adjoining these quarries will need to be assessed against the policies in the Structure Plan, this Local Plan and the relevant district local plans. Key issues are the effect on the local road network and the potential impact on the Chiltern's AONB and the Oxford Green Belt.

### Restoration and after-use

- 2.27 The restoration of limestone quarries may be difficult where they are of substantial depth. Where very large quantities of waste are needed to restore them to agriculture, transport and access problems may arise, or there may be implications for water abstraction/water supply and pollution control. Restoration to woodland and/or a nature conservation use may be a good alternative; recreational after-use may also be acceptable. In all cases, the after-use must be appropriate to the area.

### Ironstone

- 2.28 There are two ironstone workings in the north of the county at Hornton and Alkerton (the latter is not active at present). The ironstone deposit is found in a thin band of marlstone between Edge Hill and Wardington in the north and Lower Heyford in the south. The iron content is low, but it is free from phosphorous and high in lime which makes it useful in the smelting process. However, recently most of the quarried rock has been used as fill in construction projects.

<sup>1</sup> MPG10 Provision of Raw Material for the Cement Industry, Department of the Environment, 1991.



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- 2.29 **SD4 Planning permission for additional ironstone extraction will only be granted in exchange for an agreed revocation, without compensation, of an existing planning permission containing workable reserves.**
- 2.30 There are large reserves of ironstone with planning permission for extraction in Oxfordshire. In the 1950s the Minister of Housing and Local Government granted planning permission on six applications to work a total of 1250 hectares of ironstone. It is estimated that there remain some 33.5 million tonnes (472 hectares) which could be worked.
- 2.31 There is no need to release any additional land for ironstone working during the Plan period. Therefore permission for new areas of ironstone working will be granted only if the applicant is willing to accept the revocation without compensation of an existing planning permission which is unsatisfactory by current standards eg because it allows working too close to settlements.

### Fullers earth

- 2.32 Fullers earth is a term covering a wide variety of clays which are able to absorb grease, oil and water. It was originally used for cleansing or “fulling” woollen cloth. It is now put to such uses as sealing lakes and reservoirs in civil engineering projects, as a lubricant and cooling agent in oil drilling and in moulding processes in foundries.
- 2.33 Fullers earth is extracted at only one site in Oxfordshire, at Baulking, in a form known as calcium montmorillonite. Planning permission was originally granted by the Secretary of State on appeal in 1976, largely because nationally it is a relatively scarce and important mineral.
- 2.34 A recent study<sup>1</sup> by the British Geological Survey (BGS) indicates that there are further significant reserves of fullers earth to the west of Baulking and north of Uffington.
- 2.35 This Plan makes no proposals for further working of fullers earth in the Plan period but it is possible that planning applications will be made. Any such applications would be considered on their merits in the light of Structure and local plan policies and the national need for the mineral to be worked.
- 2.36 It is unlikely that working would be allowed where it would adversely affect Fernham Meadows Site of Special Scientific Interest (SSSI), south of the old canal where it would impinge on the environment of Uffington or on higher ground around Fernham where workings would be visually very prominent. The optimum location for any processing plant, the potential to use conveyors to avoid lorries using local roads and proposals to restore worked areas to agricultural, woodland or nature conservation use should all be discussed with the minerals planning authority and included in any application. The nature of the local road network may limit the rate at which the mineral should be extracted, and may necessitate control to prevent unacceptable intrusion into surrounding villages.

1 *An appraisal of fullers earth resources in England and Wales, British Geological Survey, May 1992.*

### Clay

- 2.37 Clay has recently become a more valuable resource as a result of the need to line many landfill sites. The Environment Agency's policies<sup>1</sup> on the protection of groundwater require measures such as clay lining to prevent pollution at sites where previously dilution and dispersal of pollutants would have been accepted.
- 2.38 Many of the sand and gravel areas in Oxfordshire are underlain by clay which is suitable for this purpose. There are benefits to both the environment and operators if two minerals found together are worked concurrently<sup>2</sup>.
- 2.39 **SD5 The County Council will normally permit the extraction of clay only from the following areas where sand and gravel extraction is identified in this Plan or already in progress:**
- (a) the Sutton Courtenay area;
  - (b) the Stanton Harcourt area (Lower Windrush Valley);
  - (c) the Cassington-Yarnton area.
- All proposals must meet the requirements of other policies of the Development Plan.**
- 2.40 The County Council considers that there is enough clay, of suitable quality to line landfill sites, in areas currently identified for sand and gravel working. The Sutton Wick area is not considered suitable because of access problems. For the avoidance of doubt, clay extraction will not be permitted from former sand and gravel sites which have been restored.
- 2.41 Any clay underlying a landfill site can be used to line that site, but the County Council will require that this operation is specified in any proposal. The depth of clay extraction which is allowed will be controlled and will be determined according to local circumstances at the planning application stage.

### Minerals not currently worked

- 2.42 **SD6 Applications to work oil, gas, coal or any other minerals not currently worked in the county will be considered in the light of national policies and the policies in the Structure Plan and this Local Plan.**
- 2.43 The Structure Plan states:
- M5 Proposals for exploratory works (including those for oil and gas) will generally be approved provided that satisfactory measures are proposed:*
- (a) to safeguard the amenities of local residents and the environment;
  - (b) for vehicular access;
  - (c) for restoration.

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1 Policy and Practice for the Protection of Groundwater, National Rivers Authority (NRA), 1992. (In April 1996 The Environment Agency took over the functions of the NRA).

2 MPG1 General Consideration and the Development Plan System, Department of the Environment, January 1988, paragraph 70.



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*M20 The County Council will normally permit development for the extraction of oil and gas provided:*

- (a) the proposed development is part of a comprehensive plan for the area and the Council is satisfied that it is necessary to exploit the resources in the way proposed;*
- (b) the siting and management of the proposal minimises disruption and disturbance to local residents and the environment in the context of policies M9-M11 and M14;*
- (c) vehicular access, control and routeing, and the distribution of oil from the area preferably by pipeline or rail, are satisfactory;*
- (d) the methods for disposing of waste, safety precautions and means of minimising pollution are satisfactory;*
- (e) the location of processing, storing and distribution facilities avoid areas listed in policies M9 and M10;*
- (f) there is a comprehensive scheme for the removal of all plant, buildings and hardstandings, and for the restoration and aftercare of the land involved.*

### Recycling

2.44 The Structure Plan states:

*M3 The County Council will encourage the use of recycled materials to reduce the demand for locally dug minerals.*

(see recycling policies in Chapter 3)

2.45 The Department of the Environment in MPG6 expects that the use of secondary and recycled materials in England will rise to 40 mt pa in 2001 and to 55 mt pa in 2006, and 140 mt of aggregates will be provided from secondary and recycled materials in the South East region during the period to 2006. MPG6 does not suggest that this total can or should be apportioned between county areas in the way that primary aggregates are. The SERAWP 1993 Aggregates Monitoring Survey showed that between 0.52 and 0.57 mt of secondary aggregates were sold from Oxfordshire in 1993. The sources of this material were pulverised fuel ash and furnace bottom ash from Didcot Power Station, road and airfield surfacing and demolition and construction waste. It is expected and hoped that these sources of recycled aggregates will be sustained or expanded during the Plan period. Increased use of secondary or recycled aggregates will necessitate recycling facilities, policies for which are set out in Chapter 3 of this Plan. Increased use will also depend on market demand and on overcoming some of the specification standards which restrict the uses of recycled materials. The Government is in a position to influence these latter issues through fiscal measures and materials specifications.

### Rail depots

2.46 The Structure Plan states:

*M4 The County Council will support the development of rail depots for the import of minerals into the county where there are no overriding planning objections.*

*M17 The County Council will seek to minimise the effect of traffic on the highway network, and will encourage the use of rail, barge, pipeline, conveyor and other alternatives to road where this is feasible and beneficial, and would not lead to an increase in the rate of mineral extraction or create transport problems elsewhere.*

2.47 There are at present four rail depots in Oxfordshire for importing minerals: two in Banbury, one just south of Kidlington and one at Sutton Courtenay. Together, in 1989 they imported just under 800,000 tonnes of aggregates, of which about 90% was used within Oxfordshire.

2.48 The County Council would welcome in principle proposals for additional rail depots, if there is shown to be a need for more capacity. Any new depot would need to be well located in relation to the strategic road and rail network, and would have to take account of the Structure Plan strategy. This suggests that the Banbury, Bicester and Didcot areas would be the most likely to be acceptable.

2.49 SD7 Subject to the requirements of policy SD8, rail head development for the import of aggregates will be encouraged at the following locations shown on the inset maps:

Sutton Courtenay – Inset Map 1  
Banbury (two depots) – Inset Map 7  
Kidlington – Inset Map 8

2.50 SD8 Proposals for development of rail head aggregate depots must meet Structure Plan policies M9, M10 and Local Plan policy PE1, and those of the Development Plan generally. Where the coincidence of the road and rail networks requires an exception to be made to other policies of the Development Plan, the avoidance of harm due to the greater extraction of local reserves of aggregates will be a material consideration.

2.51 SD9 No development will be permitted which would prejudice the establishment and full use of rail depots identified under policy SD7, or subsequently permitted under policy SD8. Where development is proposed near to a proposed or approved rail depot, uses or buildings sensitive to disturbance from activities at the rail depot will not be permitted.



### Protection of mineral resources

2.52 The Structure Plan states, in line with Government advice<sup>1</sup>:

*M6 Development will normally be resisted where it would sterilise mineral resources that could be worked under the policies in this Plan.*

2.53 Minerals are a scarce and valuable resource which can only be worked where they are found. New development on mineral bearing land prevents those minerals from being worked, possibly for ever.

2.54 The County Council will seek to safeguard minerals which could be worked in accordance with the Structure Plan and this Local Plan.

2.55 In addition, the Government advises minerals planning authorities to safeguard deposits of economic importance in the longer term. Accordingly the County Council will seek to safeguard areas of important sand and gravel, soft sand, limestone, ironstone and fullers earth, together with buffer zones around them, from development which would sterilize them.

2.56 SD10 Mineral resources will be conserved for the benefit of future generations. Development which would sterilise or make the extraction of a mineral significantly more difficult will not be permitted unless it can be shown that the need for the development outweighs the economic and sustainability considerations relating to the mineral resource.

2.57 SD11 Development which would be contrary to policy SD10 may be permitted where the minerals are removed prior to development for processing appropriate to their characteristics.

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<sup>1</sup> MPG1 General Considerations and the Development Plan System, Department of the Environment, January 1988.