CHAPTER 1: INTRODUCTION

All building works and some manufacturing processes require minerals of one kind or another. Most minerals are extracted from the ground, and to do this land somewhere has to be excavated. The areas where suitable raw materials can be extracted are determined by two factors:

a) the geological presence of suitable minerals;
b) the commercial costs of extraction.

1.2 Nationally the mineral extraction industry is of considerable economic importance. At the local level, locally-won minerals reduce construction costs and increase the generation of wealth in terms of employment and spending power.

1.3 For the foreseeable future there will be a continuing need for the extraction of minerals both nationally and locally. Because of the extensive nature of mineral extraction, the potential for environmental damage is high, and the working itself, unless carefully planned and controlled, can lead to difficulties for those living in the area. Policies are required to balance the need for mineral extraction with the social, agricultural, environmental and other considerations arising from the extraction process. The County Council, which is the Minerals Planning Authority, believes the preparation and adoption of a Minerals Local Plan provides the best means of establishing those policies.

SCOPE OF PLAN

1.4 There are many different minerals deposited throughout Britain. However, this County is relatively limited in the range of minerals found within its boundaries. Present knowledge reveals the existence of the following commercially exploitable minerals: sand, gravel, moulding sand, limestone, dolomite, igneous and metamorphic rock, clay, coal and salt. Of these, sand, gravel, clay, moulding sand and limestone are the major minerals being commercially exploited both for the present time and probably for the foreseeable future. Oil exploration licences have been granted by the Department of Energy covering various parts of the County but as yet there has been no evidence of commercial deposits.

The plan is intended to deal with policies for the extraction of any minerals in the County, but inevitably deals in the greatest detail with the extraction of aggregates ("aggregates" is a term loosely used to describe a variety of materials used in construction) as these are currently the most extensive of the minerals operations in the County.

It is the primary intention of this local plan to:

a) elaborate on the Structure Plan Minerals policies;
b) identify areas in the County where the extraction of aggregates would be least damaging; and,
c) set out policies to guide the extraction and restoration of minerals sites and to safeguard aggregate resources.

This will assist in making decisions upon planning applications and at the same time give guidance to the minerals industry.
LEGISLATIVE BACKGROUND

1.6 The comprehensive control of mineral working in England and Wales dates from 1st July 1948 when the Town and Country Planning Act 1947 introduced general planning control over the development of land. There were many subsequent amendments to the Act, all of which were consolidated in the Town and Country Planning Act 1971, which itself has since been amended on several occasions. The Town and Country Planning Act 1990 has now superseded the 1971 Act for the purposes of controlling mineral working.

1.7 In recognition of the fact that the winning and working of minerals and associated activities inevitably had a greater impact on the environment than most other forms of development, the Government appointed in 1972 a Committee under the Chairmanship of Sir Roger Stevens to review the operation of the planning system as it related to mineral workings. In response to some of the recommendations contained in the Committee's Report (published 1976) the Government introduced the Town and Country Planning (Minerals) Act 1981 amending the 1971 Act in respect of the winning and working of minerals.

1.8 The Town and Country Planning (Minerals) Act 1981 made County Councils the "Mineral Planning Authority" for their areas and conferred on them responsibility for all matters relating to the development and control of mineral operations. The County Council must consider applications to work land for minerals and reach a decision on whether to grant permission. In so doing it must judge applications against (inter alia) the general policies set out in the Structure Plan. The current set of Approved Structure Plan minerals policies are reproduced in Appendix 2.

1.9 During the course of preparation of this local plan, the County Council has taken into account the advice and guidance contained in the Department of the Environment's Minerals Planning Guidance (MPG) Notes 1 to 14 where this is appropriate.

AGGREGATE EXTRACTION

1.10 In the early 1970's there was increasing concern as to how the longer term demand for aggregates could be met. Growing demand was putting increasing pressure on local authorities to release land, whilst at the same time the amount of mineral bearing land which was still unworked and was not agriculturally or environmentally precious was, and still is, declining steadily. An Advisory Committee on Aggregates under the Chairmanship of Sir Ralph Verney was appointed in 1972 (contemporaneously with the Stevens Committee) to review the problems and its report "Aggregates: The Way Ahead" was published in 1976.

1.11 Many of the Verney Committee recommendations were subsequently accepted by the Government. The Committee strongly recommended the establishment of Regional Aggregates Working Parties to include representatives from the aggregates industry, mineral planning authorities and Central Government, and the setting up of a National Co-ordinating Group to ensure consistency of approach between the Working Parties. Following on from the detailed studies and analysis carried out by Working Parties the Government produced National Guidelines for Aggregate Provision in England and Wales indicating levels of production initially under Circular 21/82 and latterly under MPG6. Mineral Planning Authorities were requested to take the national guidelines into account when preparing or reviewing development plans or other policies for mineral working, and when dealing with planning applications relating to aggregates.

1.12 In accordance with the national advice in MPG6, the Council will seek to maintain a seven year landbank throughout the Plan period and at its end. Therefore, the aim of the Plan is to identify a 17 year land supply from January 1994. This is shown in Appendix 3.
1.13 In April 1994, new National Guidelines were published in MPG6 which identified new production figures for the Region. The WMRAWP interpretation of the National Guidelines figures are reproduced below in Table 1 and form the basis of production figures used in this Plan. Applying the 12.7% sand and gravel figure to the guidance figure of 180mt over the 15 year period gives an annual production requirement of 1.524mt for this County. For crushed rock the position is somewhat different, with Hereford and Worcester County being a very small producer within the region. On the basis of this County having to produce 7.3% of the requirement, the average annual production is calculated as 0.73mt.

**TABLE 1 COUNTY SHARE OF REGIONAL PRODUCTION 1992 - 2006**

(Source WMRAWP July 1995)

<table>
<thead>
<tr>
<th>County</th>
<th>Sand and Gravel</th>
<th>%</th>
<th>Crushed Rock</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hereford and Worcester</td>
<td>22.86</td>
<td>12.7</td>
<td>10.9</td>
<td>7.3</td>
</tr>
<tr>
<td>Shropshire</td>
<td>16.74</td>
<td>9.3</td>
<td>52.65</td>
<td>35.1</td>
</tr>
<tr>
<td>Staffordshire</td>
<td>120.06</td>
<td>66.7</td>
<td>46.65</td>
<td>31.1</td>
</tr>
<tr>
<td>Warwickshire</td>
<td>12.24</td>
<td>6.8</td>
<td>31.35</td>
<td>20.9</td>
</tr>
<tr>
<td>West Midlands</td>
<td>8.1</td>
<td>4.5</td>
<td>8.4</td>
<td>5.6</td>
</tr>
</tbody>
</table>

Regional Total         | 180.0           |     | 150.0        |     |

All figures in million tonnes

**TIMESCALE AND CONTENT OF THE LOCAL PLAN**

1.14 The implementation period for this Local Plan is 1994-2003. The Plan:

a) sets out a brief analysis of the broad range of minerals found in the County;

b) examines existing reserves of aggregates with planning permission and ascertains quantity and type of material available;

c) examines the location within the County of other known aggregate deposits;

d) examines the future need for aggregate supply in terms of likely overall demand and, as far as possible, the nature of the demand within the County;

e) analyses identified aggregate deposits against appropriate land-use and environmental protection criteria in order to identify locations with the least environmental objections to extraction;

f) identifies other areas where there is a need to prevent aggregate reserves being unnecessarily sterilized by other forms of development;

g) considers the positive contribution mineral workings can make to the creation of recreation, nature conservation and/or waste disposal facilities;

h) sets out policies for the extraction of minerals.
THE FORM OF THE PLAN AND PLAN-MAKING PROCESS

1.15 The Plan is a statutory local (subject) plan and, in accordance with the Town and Country Planning (Structure and Local Plans) Regulations 1982, will cover the whole of the County. The Plan will include a Written Statement and Proposals Maps.

1.16 The Local Plan has been prepared under the Town and Country Planning Act 1990 following an extensive period of public consultation during which some 2,000 letters have been received by the County Council. These comments and objections have been taken into account by the Council in preparing the Plan.

1.17 Following this initial consultation period the Draft Plan was placed on formal deposit in September 1991 when some 974 representations were received. The Plan was the subject of a Public Local Inquiry in the Autumn of 1992. The Inspector's Report was received in December 1993 and the Authority then proposed modifications and following a public comment period proposed further changes to the modifications. The second Public Local Inquiry into these matters was held, commencing November 1995, with the Inspector's Report being received in July 1996.
INTRODUCTION

2.1 This chapter seeks to define the broad range of minerals found in the County and to indicate the location of those minerals. A description of the underlying geology of the County is contained in Appendix 1 to this document and the Proposals Map illustrates the location of known mineral deposits in the County. Figure 1 identifies the area in the west of the County where information on sand and gravel deposits is absent.

AGGREGATES

Hard Rock

There are five potential sources of rock in the County:-

a) Silurian Limestone present in the Abberley/Suckley/Malvern/Ledbury range of Hills, the Woolhope Dome, Shucknall Hill and the north-west of the County in the Aymestrey/Presteigne areas.

b) Oolitic Limestone present in a small area in the extreme south-east of the County and on Bredon Hill.

c) Carboniferous Limestone which is present on the flanks of the Forest of Dean Coalfield, south-west of Ross-on-Wye.

d) Igneous and Metamorphic Rocks which occur in the Malvern Hills.

e) Cambrian Quartzite which forms the central axis of the Lickey Hills.

Other sources of rock in the County such as Old Red Sandstone and much of the Jurassic Limestone do not have the necessary properties of composition, strength, durability and porosity to be considered as sources of aggregate at present.

Sand and Gravel

Sand and gravel occurs in three forms within this County:-

a) Solid Deposits

These are mainly found in the north-east of the County in the Kidderminster Formation (formerly termed the Bunter Pebble Beds) which yield coarse sand and gravel with a high gravel content capable of producing high grade concreting aggregate. Elsewhere in the formation, where the pebbly horizons are absent, building or soft sands are present. The Wildmoor Formation (formerly the Upper Mottled Sandstone Formation of the Bunter) contains important sources of moulding sand used in the foundry industry.

b) River Terrace Deposits

These are most widespread in the Severn, Avon and Salwarpe Valleys to the east of the Malverns and to a lesser extent in the Wye and Lugg Valleys to the west. Fan gravels washed down from Bredon Hill and the surrounding hills occur south of Bredon Hill and have been partly re-deposited in river terraces.

c) Glacial Deposits

Extensive drift deposits occur to the north and west of Hereford with scattered remnants around Leominster. Other glacial deposits are found to the west of the
Malvern Hills around Mathon. To the east of the Malvern Hills glacial deposits are found in association with boulder clay in the north-east of the County and to the north-west of Evesham around the Lenches.

OTHER MINERALS

Coal

Deposits of coal are found in two areas of the County. One is an extensive deposit forming an extension to the Highley Beds and extends from Abberley/Clows Top and through into the Wyre Forest. The second is the Howle Hill area near Ross-on-Wye. This is an outlying feature related to the Forest of Dean coalfield. In the past both these areas have been worked for coal and in 1989 an application was refused to deep mine coal at Clows Top.

The major interest in coal extraction is in the north-east of the County and is for open cast working. No further interest has been expressed in working the Howle Hill area. The extent of the deposits is illustrated on the Proposals Map.

Salt

The main salt deposits are all located in the Bromsgrove/Droitwich area and extraction ceased many years ago. The salt deposits have now been largely worked out, but the effects of working them are still observable in the form of subsidence in and around Droitwich. There are no plans to resume extraction or to drill further wells in the area.

Clay

Clay is extensively distributed in the County and has been widely worked in the past. Evidence of this is shown by the number of old brick and tile works lying derelict or converted to other uses in the east of the County. Only one brick manufacturer remains in production and is based at Hartlebury. The brick industry is dominated by a number of large producers tending to work on a large scale utilising heavily capitalised processes generally close to the sources of clay. Given the dispersed nature of suitable clay deposits and their limited size, further clay extraction in this County is likely to be limited.

Moulding Sand

These sands are found within the boulder clay in the north-east of the County. The sand is in part used for constructional fill and this element is included within the aggregate figures and part is used for industrial purposes.

2.9 Oil

A number of preliminary geological surveys have been carried out in those sectors of the County which have been released for prospecting by the Government. There are no current oil exploration licences. To date there is no evidence to suggest the presence of oil in the County. In the event of significant oil deposits being discovered, a review of the relevant aspects of the Plan will be undertaken to take account of the changed circumstances.

EXISTING MINERAL WORKINGS AND SURVEY INFORMATION

2.10 Figure 1 illustrates the location of present mineral planning permissions.
CHAPTER 3: HARD ROCK EXTRACTION

INTRODUCTION

3.1 Rock is quarried in this County for two principal uses. One is as cut stone for building purposes. The major source of cut stone is at Fish Hill, Broadway (which also produces crushed stone) and a second at two small quarries near Monmouth. The output of cut stone because of its specialised nature and extremely small scale production is not considered in this Local Plan. The main use of rock is as crushed stone for use as an aggregate. Crushed rock aggregate is used largely as a base in road making, drainage works and foundations and, in the case of one quarry, as coated road stone for the tarred road surface.

3.2 All the rock extracted for crushed rock purposes is taken from various limestone outcrops. The sandstone outcrops which also exist in the County, mainly in the north east around Kidderminster, are not used as the quality of the rock is not suitable for constructional purposes. In the past granite was quarried from the Malvern Hills. This quarrying has now ceased and the Approved Structure Plan policy is to oppose any further granite extraction from the Malvern Hills.

PRODUCTION OF CRUSHED ROCK

In January 1994 eight quarries in the County had planning permissions (see Figure 1). Geographically seven quarries are located in the centre and west of the County and one in the east. Of the eight quarries only four are active, Leinthall Earls, Perton, Woodbury and Fish Hill with Nash Rocks and Shavers End lying dormant and Whitemans Hill now worked out. Penny Hill also has a planning permission but is now used for waste tipping and unlikely to be worked for minerals.

The historical annual production of crushed rock (1984-1993) from the County is detailed in Table 2 together with the County’s share of regional demand. The total output of 10.95 million tonnes represents only a small proportion of the regional output of 150 million tonnes during 1992-2006. Whilst not being significant in gross terms, it nevertheless helps to spread the regional sources of crushed rock. Since 1984 the County has broadly maintained its required level of output in terms of tonnage although actually below its percentage share due to the abnormally high levels of crushed rock output elsewhere in the region in this period. This overall high level of regional output can probably be explained by major one-off projects in the region such as the M42 and M54 motorways creating a large increase in demand for crushed rock. Because most of the hard rock quarries are in the west of the County, it is believed that little demand was made on them for these major schemes. Local output has in the main continued to service its own markets throughout this period.

TABLE 2 PRODUCTION OF CRUSHED ROCK IN HEREFORD AND WORCESTER 1984-93
(SOURCE: BUSINESS MONITOR, WMRAWP)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual Production</td>
<td>0.664</td>
<td>0.547</td>
<td>0.682</td>
<td>0.794</td>
<td>0.854</td>
<td>0.834</td>
<td>0.679</td>
<td>0.863</td>
<td>0.775</td>
<td>0.774</td>
</tr>
<tr>
<td>Proportion of Regional Demand (Mid-Point)</td>
<td>0.6</td>
<td>0.65</td>
<td>0.7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proportion of Regional Demand (High-Point)</td>
<td>0.7</td>
<td>0.7</td>
<td>0.75</td>
<td>0.56</td>
<td>0.574</td>
<td>0.57</td>
<td>0.596</td>
<td>0.612</td>
<td>0.73</td>
<td>0.73</td>
</tr>
<tr>
<td>Regional Output (% actual share)</td>
<td>7.5</td>
<td>N/A</td>
<td>7.7</td>
<td>7.9</td>
<td>6.8</td>
<td>6.5</td>
<td>6.1</td>
<td>8.6</td>
<td>10.0</td>
<td>9.4</td>
</tr>
<tr>
<td>Regional Output (% agreed share)</td>
<td>8.75</td>
<td>8.75</td>
<td>8.75</td>
<td>6.6</td>
<td>6.6</td>
<td>6.6</td>
<td>6.6</td>
<td>6.6</td>
<td>7.3</td>
<td>7.3</td>
</tr>
</tbody>
</table>

N.B. Production figures 1984-92 from Business Monitor. Production figures 1993 from WMRAWP. (All figures in millions tonnes)
FUTURE SUPPLY AND DEMAND FOR CRUSHED ROCK

3.5 The forecast demand for crushed rock is taken from the WMRAWP Interpretation of the MPG.6 figures as produced in June 1995. These indicate that the demand for crushed rock for the period 1994-2010 to be about 12.41 million tonnes. This would require an average annual output of about 0.73 million tonnes throughout the period. Recent current output has been above this average level and consequently the reserves are being depleted more quickly than the estimated demand would require.

3.6 Estimated reserves of crushed rock with existing planning permissions in the County, based on the Aggregates Monitoring Survey 1993 (AM 93), are about 13.848 million tonnes in January 1991. The required output for crushed rock for the period 1994-2003 is estimated to be 7.3 million tonnes.

3.7 In 1990 the Secretary of State approved a policy for future hard rock extraction in the First Alterations to the Structure Plan, which favours the extension of existing quarries viz:-

"M7. PROPOSALS FOR THE EXTENSION OF EXISTING HARD ROCK QUARRIES WILL NORMALLY BE PREFERRED TO THE CREATION OF NEW QUARRIES WHERE ENVIRONMENTALLY AND ECOLOGICALLY ACCEPTABLE."

This policy does not give "carte blanche" authority for the exploitation of all, or any, reserves adjacent to existing quarries. The County Council will require that the industry in submitting proposals has due regard to the environment and amenities of an area and will seek to ensure that the impact on the surrounding areas is kept to a minimum.

3.8 Because the locations of potential hard rock extraction sites are likely to be within Areas of Outstanding Natural Beauty, or Areas of Great Landscape Value, it would be inappropriate to take those criteria as absolute constraints. Government Policy in MPG6 acknowledges this by making it clear that in National Parks and Areas of Outstanding Natural Beauty proposals to extract minerals "should be subject to the most rigorous examination". Consideration of mineral applications in such areas should therefore normally 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; and

iv) in the case of extensions to existing quarries, the extent to which the proposal would achieve an enhancement to the local landscape.

3.9 The County Council consider that Areas of Great Landscape Value should receive similar consideration. They are in particular concerned about the visual impact of mineral working on the Abberley Hills and have decided to limit future hard rock quarrying to the areas presently being worked under the terms of existing planning permissions. They consider that the range of hills from Martley northwards through Great Witley and Abberley towards Dunley, is a very attractive and prominent landscape feature. Consequently the Council feel that quarrying should not be allowed to continue indefinitely or become more widespread, if the character and appearance of the hills is to be protected.
3.10 The Secretary of State has approved the following statement as Structure Plan Policy M.8:-

"UNLESS IT CAN BE SHOWN THAT THE NEED FOR THE MINERAL OVERRIDES ENVIRONMENTAL CONSIDERATIONS, NO FURTHER PLANNING PERMISSIONS WILL BE GRANTED FOR AGGREGATE MINERAL WORKING IN THE ABBERLEY HILLS AREA APART FROM THE POSSIBLE MODIFICATION OF WORKING, SUBJECT TO ENVIRONMENTAL CONSIDERATIONS, WITHIN THE EXISTING LATERAL LIMITS OF WOODBURY AND SHAVERS END QUARRIES."

The Abberley Hills Quarrying Policy Area is shown on Inset Proposals Map AH and detailed in Policy 5.

3.11 The County Council has examined the potential for extensions at existing quarries and has identified areas for extension at three quarries. Policy 7 sets out the Authority's stance on the development of these extensions and also the general criteria against which any application for a new quarry would be considered. The intention of the policy is to overcome any crushed rock annual productive capacity shortfall which might occur in the County.

HARD ROCK QUARRIES

3.12 In introducing the brief descriptions of the existing quarries in the County and their potential for extension, it is important to recognise the landscape quality of all of the sites. All of the existing hard rock quarries are within Areas of Great Landscape Value or Outstanding Natural Beauty. Indeed in the case of the Abberley Hills quarries the County Council has already taken that decision. In view of these landscape factors, the County Council have examined all the quarries in the County and have identified extension areas at Fish Hill, Perton and Leinthall Earls.

3.13 Shavers End Quarry

Planning permission for an extension to this quarry was granted in 1986 which was intended to give it about 16-18 years (from 1989) further life. This estimate has been subsequently re-evaluated by the operator and the quarry is currently not in operation, although retaining some reserves. After the exhaustion of the reserves available within this extension the County Council's policy will require the restoration of the quarry and the cessation of any further working subject to the policy set out in paragraph 3.10. Any application for planning permission must satisfy the criteria contained in Policy 5 and would be expected to deal with the protection and conservation of the existing conserved features within the quarry limits.

3.14 Woodbury Quarry

Planning permission for an extension to deepen this quarry was granted in 1988 which was estimated to give an additional twenty years life to the quarry. After the exhaustion of this permission the County Council's policy will require restoration of the quarry and the cessation of any further working subject to the policy set out in paragraph 3.10. Any application for planning permission must satisfy the criteria contained in Policy 5 and would be expected to deal with the protection and conservation of the existing conserved features within the quarry limits. This quarry has been designated as a SSSI and English Nature should be consulted on any changes in the working practices at the quarry.

3.15 Whitemans Hill Quarry

Operations are currently controlled by a planning permission granted in 1960. The only
major impact of the quarry in landscape terms is in the view eastwards from Ridgeway Cross on the A4103 where the centre of the ridgeline appears hollowed out. Tree planting which has recently taken place along the western flank of the quarry to supplement the existing trees along the perimeter should ameliorate this.

Work ceased at this quarry in June 1988 and the machinery has been removed.

3.16 Nash Rock Quarry

The quarry is currently dormant but is covered by a 1951 planning permission covering some 18 hectares. Estimated figures indicate it contains sufficient reserves to satisfy the plan period giving a life of at least 10 years at proposed output levels. Further consideration of a possible extension will be undertaken, should extraction resume at the quarry or at the time of the Review of the Plan.

3.17 Penny Hill Quarry

No further lateral extensions of operations will be allowed under the Abberley Hills Quarrying Policy to this virtually worked out quarry which is now used for waste disposal.

3.18 Fish Hill Quarry - Inset Proposals Map 1R - Crushed Rock Preferred Extension Area - Fish Hill

After a long period of dis-use, new operators have re-opened this quarry to produce both crushed rock for aggregate purposes together with a small amount of cut stone.

A rigorous examination of an extension to the east of the quarry, has been carried out. The findings of this examination have identified an area between the lane leading to Broadway Country Park and the existing quarry. The area is bounded to the south and east by existing drystone walls and to the north by the abrupt change in levels as the land slopes down to the A44. The site also adjoins Hills Meadow and Happyland Quarry Special Wildlife Site and falls within the catchment of the Broadway Springs public water supply sources. This area could be worked with little effect on the landscape of this part of the AONB. The containment of this area is such that the impact of the potential extension on visitors to Broadway Tower Country Park is minimal to car borne or pedestrian travellers, coach borne visitors will have limited views into the area. Such an extension could yield between 3-400,000 tonnes. It is proposed that any application for an extension must be accompanied by a suitable restoration scheme for both the existing quarry and extension. The restoration scheme must also take full account of the needs of the Hills Meadow part of the adjoining SWS and the nearby Broadway Meadow SSSI and the public water supply abstractions at Broadway Springs. These aspects must not suffer any significant degradation as a result of the extension of quarry working.
Excavations have taken place in the Aymestry Limestone and adjoining beds on the basis of a planning consent granted in 1958 for a site of approximately 3.25 hectares. The bedding planes of the limestone dip at approximately 15° to the north, and the practice of working the quarry in a north-south direction led to large blocks sliding down the bedding planes following the removal of supporting stone on the north side of the face. The instability problems culminated in extensive landslips in 1977 and 1984 when large quantities of material from outside the permitted area slipped into the quarry. A proposal to stabilise the quarry mostly by working additional land to the south, was approved in 1987.

This approval is now being implemented with work commencing in July 1988. The quarry is well located to serve central Herefordshire and has a limited impact in landscape terms. Working the remaining reserves at the site in the manner described above should provide nearly 1 million tonnes of limestone.

The Preferred Extension Area is to the south of the existing working, extending its boundary about 140 metres further south. The landscaping associated with this development will require careful treatment at the application stage to ensure that the site’s location in an Area of Great Landscape Value has a minimal visual and landscape impact on the area.

Any application to work the extension shall include proposals for the re-alignment of the UC72211; measures to protect the living conditions of the occupants of Copgrove, particularly from noise; an assessment of the risk of the workings affecting the water supply to Copgrove and other nearby properties to the south of the extension and, if necessary, the measures to be taken to ensure a continuous supply of water to the properties.

This quarry has been designated as a SSSI and English Nature should be consulted on any changes in the working practices at the quarry.
3.20 Leinthall Earls Quarry - Inset Proposals Map 3R - Crushed Rock Preferred Extension
Area -Leinthall Earls

Excavations are taking place into the southern flank of a prominent ridge of Aymestry Limestone. The most recent planning permission was granted in 1983 for a 7 hectare extension north and westwards and incorporated an agreement covering improvements to and the maintenance of the "C" Class road between the site and the A4110.

The visual impact of the quarry from a medium to long distance is limited. There are few viewpoints from the main more trafficked highways in the area. The impact on the immediately adjoining village of Leinthall Earls, however, is significant, although this situation appears to be accepted locally, probably as a result of the longevity of the quarry.

Leinthall Earls is the only quarry in the County which has resources of sufficient quality and consistency to produce coated roadstone and considerable investment has recently taken place in updating and improving the coating plant. Continuity of supply is therefore important, not only to the quarry company, but also to consumers within the County.

There are no opportunities for further extensions in an easterly direction as this would enter into an area of mixed deciduous woodland (Limekiln Coppice). Any major extension northwards into the rising ground would increase the height of the face of the quarry which could result in a greater impact on the landscape than is presently the case.

The preferred direction for extension would be westwards into O.S. Field parcel 7857, with the northern boundary continuing westwards along the line of the northern boundary of the existing quarry. 'Shirt and Sleeve Wood' should be retained along the western boundary, and the southern boundary between OS field parcels 7857 and 8516, which is currently a low hedge, could be thickened up with tree planting to provide an additional screen. Reserves at this quarry are estimated (1994) to be sufficient, at current extraction rates, for some 16 years. The extension area outlined above would add a further 16-20 years.

The opportunities for deepening the existing quarry floor either in association with such an extension or in isolation could also be explored.
Inset Proposals Map

Preferred Extension Area

Leinthall Earls

Scale: 1:10,000

Preferred Hard Rock extension area

Existing minerals planning permission

Identified Hard Rock deposit

THE COUNTY OF HEREFORD AND WORCESTER MINERALS LOCAL PLAN
CHAPTER 4 : SAND AND GRAVEL EXTRACTION

INTRODUCTION

4.1 At the 1st January 1994 there were twenty-two sand and gravel sites with extant planning permissions. Seventeen of these sites are active and varying types of drift and solid deposits are worked for aggregate purposes. Nine are working river terraces, four are working glacial deposits, four are working solid deposits, of these two are in part producing moulding sand.

Eight of the active sites are located in the north and north-eastern part of the County, six are located in the central and south-eastern part of the County and three are located in the west around Hereford and Leominster. This distribution reflects the greater demands for aggregates in the urbanised areas of the County particularly in the north and north-east with its many towns and more complex road patterns and its proximity to the West Midlands Conurbation.

PRODUCTION OF SAND AND GRAVEL

4.3 The annual production levels of sand and gravel are shown in Table 3. It will be noted that output, in tonnage terms, has risen above the Mid-point estimate produced by WMRAWP. This increase may be due to the changing patterns of local purchasing but is more likely to be a result of improvements in the local economy. As is the case with crushed rock production, although the County output in tonnage terms exceeds the estimated forecast, in the first five years 1984 to 1988, in the second five years actual output was depressed and the County did not achieve its percentage share of regional output.

TABLE 3: PRODUCTION OF SAND AND GRAVEL, HEREFORD AND WORCESTER 1984-93
(SOURCE: BUSINESS MONITOR, WMRAWP)

<table>
<thead>
<tr>
<th>Actual Production (1.567 1.702)</th>
<th>Proportion of Regional Demand (Mid-Point) 1.2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proportion of Regional Demand (High-Point) 1.4</td>
<td></td>
</tr>
<tr>
<td>Regional Output (% actual share) 13.7 13.7 15.6 13 11.1 10.0 10.0 11.6 11.6</td>
<td></td>
</tr>
<tr>
<td>Regional Output (% agreed share) 14.5 14.5 14.5 13.75 13.75 13.75 13.75 12.7 12.7</td>
<td></td>
</tr>
</tbody>
</table>

N.B. Production figures from Business Monitor.

(All figures in millions tonnes)

FUTURE SUPPLY AND DEMAND FOR SAND AND GRAVEL

4.4 The future demand for sand and gravel in the County is taken from the WMRAWP Interpretation of the MPG.6 figures as produced in June 1995. This apportionment of the Regional demand to the County for the period 1992 to 2006 is about 22.86 million tonnes. This would require an annual output of about 1.524 million tonnes, this figure is well within the scope of the local production rate.

Estimated reserves of sand and gravel in the County at January 1994 with current planning permissions total 20.561 million tonnes. Using the annual apportioned output figure these reserves would indicate about 13.5 years supply.
4.6 The additional preferred areas for minerals extraction proposed in this plan would, in the County Council's view, ensure an adequate landbank could be maintained for the foreseeable future. The potential reserves identified by these areas amount to about 9.316 million tonnes of sand and gravel resources. The effect of this would be to increase the potential reserves in the landbank by 6 years to a total of 19.5 years.

4.7 In summary, the Regional Interpretation of the MPG.6 Sand and Gravel Demand figures (see paragraph 4.4) indicates a need for some 25.908 million tonnes in the period 1994-2010. This can be compared to the present reserve figure of 20.561 million tonnes and the potential reserves of 9.316 million tonnes referred to in paragraphs 4.5 and 4.6 above. This would create an approximate total reserve landbank of some 19.5 years at an average annual output of 1.524 million tonnes. Table 1, Appendix 3 gives a breakdown of the tonnages attributed to the individual sites included in the above paragraphs.
CHAPTER 5: THE CHOICE OF FUTURE AREAS FOR MINERALS EXTRACTION

5.1 The majority of mineral applications and mineral workings in the County are for constructional aggregates. This chapter deals with the identification of areas for future sand and gravel extraction. It is intended that whilst no areas for other mineral extraction have been identified in the plan, applications for the extraction of surface minerals will be subject to the same procedure as those set out in the following paragraphs.

One of the main aims of the plan is to analyse the identified sand and gravel deposits in the County against constraints and other factors in order to identify areas for extraction that have the least planning objections. In doing so a balance will need to be struck between the economic need for the aggregates and the protection of the environment.

The County Structure Plan in its mineral policies (see Appendix 2) contains a number of general criteria against which applications for minerals extraction are to be examined. This Local Plan amplifies those criteria and utilises them as constraints in a sieve process of primary and secondary constraints and by adopting a three stage process to identify potential areas for sand and gravel extraction:

Stage 1

An eliminative environmental appraisal to identify those areas where there are no constraints or only one secondary constraint.

Stage 2

A preliminary judgement of the scope for restoration of workings, particularly those in Green Belt areas. In the context of the best and most versatile agricultural land; this will involve assessment of whether restoration to a high standard is practicable and, therefore, whether the land is subject to a primary or secondary constraint.

N.B. Restoration to a high standard, in the case of the treatment of best and most versatile agricultural land, is defined by the Authority as being in accordance with paragraph 3.(i) of Schedule 5 Town and Country Planning Act 1990.

Stage 3

Feasibility check on viability, availability lead times and markets. Viability and availability concern the existence of an economically workable deposit, and the likelihood of it becoming available to the minerals industry within the plan period.

5.4 Stage 1

The criteria used in analysing the known aggregate deposits have been categorised into:

(A) Primary Constraints - those arising from statute or national advice and hence assuming national importance. Any land affected by one or more of these constraints is removed from further consideration. These include:

* Best and most versatile agricultural land where restoration to a high standard seems unlikely. Where small areas of best and most versatile agricultural land are contained (or appear from the Agricultural Land Classification Survey information to be contained) within sites of predominantly lesser agricultural quality, the location has been included in those of least environmental objection, where no
other constraint exists. In such cases detailed fieldwork may be needed to
establish the extent of the quality of agricultural land and an appraisal of the
prospects of restoring the high grade land to a high standard.

* Areas of Outstanding Natural Beauty
* Sites of Special Scientific Interest
* National Nature Reserves
* Scheduled and other Ancient Monuments
* Ancient semi-natural woodland
* A buffer strip of 200m from the boundary of a potential working area to the nearest
  main walls of the nearest property in a settlement group of 6 or more dwellings.

(B) Secondary Constraints - these constraints are identified locally and regionally. Any
land affected by two or more of these constraints is removed from further
consideration. These include:-

* Best and most versatile agricultural land where restoration to a high standard is
  possible.
* Special Wildlife Sites
* Section 39 Nature Conservation Sites (defined under the 1981 Wildlife and
  Countryside Act)
* Groundwater Source Protection Zone, as defined by the National Rivers
  Authority in their document "Policy and Practice for the Protection of
  Groundwater".
* Land within or abutting a Conservation Area
* Areas of Great Landscape Value
* Adopted Landscape Protection Areas
* Local Nature Reserves
* Other County Trust Reserves
* Country Parks
* Sites of archaeological importance
* Access to the site including the effects on the surrounding highway network and
  local environment. In practical terms, the following criteria are used:

  a) ease of access to a Class "A" or "B" road;

  b) the avoidance of existing villages in the vicinity of the working.
The landscape quality of the site where no specific landscape designation exists. Factors to be considered in assessing landscape quality include:

a) the importance of the loss of landscape features in areas which have not been identified as being of particular landscape value. The major features to be included in the assessment of the impact on landscape quality are:
   (i) skyline and hill features including prominent views of such features;
   (ii) areas of dense hedgerows and tree patterns;
   (iii) trees and groups of trees;
   (iv) water features;
   (v) landscape settings of other features, eg historic buildings, water courses, historic landscapes, SSSI's and other conservation features;
   (vi) linear features of visual importance.

b) the scale of the loss

The immediate visual impact of the working. The major elements which create visual impact can be related to:

a) the frequency of the observation,

b) the numbers of observers affected,

c) the exposure of the site and the ability to screen the working

Common land

National Trust land

Areas of nature conservation importance.

Applications for minerals extraction which would involve the loss of existing playing fields or recreational facilities will be considered in the light of the needs of the community for recreation or amenity open space. Unless the relevant Local Plan shows an excess of sports pitch provision and public open space in the area, applicants will be expected to demonstrate that alternative provision of equivalent community benefit would be provided both during the active phases of the operation and after the site's restoration.

APPLICATION OF CONSTRAINTS

5.5 The constraints outlined above have been used to identify those areas of the identified deposits which, in the County Council's view, have the least environmental constraints to mineral extraction. The assessment of the deposits, as with most planning analysis, involves a level of judgement as to the possible effects of any one constraint in any particular area. In this Local Plan the application of the constraints followed a three-stage process outlined in Paragraph 5.3 above. From this process a number of Preferred Areas for Mineral Extraction have been identified and these are set out on the Proposals map and its insets and will be considered under Policy 1.
PREFERRED AREAS FOR EXTRACTION

5.6 Within the identified mineral deposits there are locations which the County Council consider to have the least environmental constraint to mineral working and they are the locations the County Council would wish to see investigated for working by the minerals industry during the plan period. Directing the industry towards these areas does not mean that planning permission for extraction of the mineral will be automatically granted. The County Council are simply indicating that in their opinion these are the areas of the County where the least objection to mineral extraction is likely to arise and where applications for planning permissions have the best chance of success.

UNIDENTIFIED MINERAL DEPOSITS

5.7 As the geological map coverage of the County is incomplete (see Figure 1), it is the intention that the County Council will judge any applications for sand and gravel extraction outside the identified areas against the criteria outlined in paragraph 5.4 and considered under Policy 2. In such an instance it would be beneficial for the applicant to contact the County Council at an early stage.

PROTECTION OF MINERAL RESOURCES

5.8 Being a finite resource, it is in the long-term national interest to protect identified mineral resources from being sterilized by other forms of development. Policy 3 of this plan sets out the County Council's stance on the safeguarding of identified aggregate deposits. In addition the County Council propose to satisfy the requirements of Policy M.2 of the Approved Structure Plan, by taking advantage of the provisions under Schedule 1 para. 7(3)(C) of the Town and Country Planning Act 1990. This Schedule allows the County Council to notify District Planning Authorities of areas in which development is likely to affect, or be affected by the winning and working of minerals (other than coal). Such areas are normally referred to as Mineral Consultation Areas and it is incumbent on the District Planning Authority to consult the County Council before determining applications for planning permission for the carrying out of significant development within such areas. The County Council has informed the District Councils of the areas affected and have supplied them with copies of the plans relating to these areas.

5.9 The major threat to the protection of workable mineral resources comes from pressures for development in areas surrounding various settlements. The general Structure Plan policies should provide adequate protection for minerals resources over most of the rural areas of the County. However, within these areas there may be significant developments proposed which could sterilise workable mineral deposits. In these circumstances the County Council would wish to see the deposits extracted prior to the development taking place.

5.10 Local Authorities have the power under Regulation 4 of the Town and Country Planning (Applications) Regulations 1988 to direct an applicant to supply further information necessary to enable them to determine an application. The County Council will, if necessary, use these powers in connection with applications for mineral working. For any other form of development affecting a mineral deposit, where there is doubt about the quantity or quality of the minerals present, the County Council will encourage the District Planning Authority to obtain the appropriate information on the mineral deposit. Information on the mineral resource will be an essential aid in determining the implications of granting planning permission for the proposal.
PHASING OF THE DEVELOPMENT OF MINERALS WORKINGS

5.11 Twelve locations for potential sand and gravel extraction are identified as Preferred Areas for Extraction in this plan. The potential output from these locations together with existing reserves is considered adequate for the foreseeable future.

5.12 The County Council intend to maintain a land bank of permitted reserves sufficient to ensure a seven year supply of sand and gravel (Approved Structure Plan Policy M.1) throughout the plan period and at its end. Therefore, the aim of the plan is to identify a 17 year supply from January 1994. It is also considered that the wide geographical distribution of locations identified are sufficient to satisfy the needs of the market.

5.13 The County Council is also concerned about two further aspects: firstly, to ensure that the output conforms to, and generally is maintained at, a level commensurate with the regional demand, and secondly, to avoid a proliferation of quarries operating at the same time.

AFTER-USE OF MINERAL WORKING SITES

SAND AND GRAVEL

5.14 Policies 11 to 14 set out the Authority's detailed policies for the implementation of Structure Plan Policy M.3 (Appendix 2) which requires that land used for mineral working should be restored to some beneficial after-use. It will not be possible or appropriate in all cases of mineral extraction to restore the site to agricultural use. Indeed in some cases it may well be desirable to restore the land to some other use. For example because of the local conditions, poor soils or steepness of slopes on a site it may be more practical to rehabilitate land to forestry use. Such a use would be acceptable to the County Council if it was either in the authority's view, desirable in a particular location or if the operator could clearly demonstrate that because of the site conditions agricultural restoration would not be a viable option.

5.15 Operations below the water table, which create wet areas, are the most obvious instances where agricultural restoration is not the most practical final use. Policy 13 sets out the Authority's stance on the restoration to water uses. In some cases it is possible to restore wet working to agriculture by infilling but this is problematic and not at the present time normally considered to be a viable option within the County (see paragraphs 5.21 - 5.23 on the use of infilling material).

5.16 For successful restoration of wet workings the end use of the site has to be decided upon before excavation takes place. This is because such factors as the size of lake, depth, shape, steepness of banks and other considerations will differ depending on whether the end use is to be one of recreation, nature conservation, fish farms, fishing and so forth. Clearly the method of working has to be attuned to the proposed end use of the site.

HARD ROCK

5.17 Hard rock quarries present an obvious restoration problem. When quarries work into the centre of a hillside and leave defined edges on the perimeter there is the opportunity for waste disposal into the void if the geological structure is suitable. Usually total restoration of hardrock quarries is not possible and where excavation has been on the flanks of a hill, rehabilitation must concentrate on reducing the impact of the cliff face in the landscape by planting or otherwise modifying the face and making the best possible use of the former quarry floor.
5.18 Efforts can be made to screen the scars by ensuring that the quarry face is left as a series of benches upon which substantial tree planting can take place. At the same time sensitive siting of waste and overburden mounds which can be similarly planted or seeded will help to provide extra screening. In many cases the floors of hard rock quarries are wet and incapable of beneficial use, due to their shape, size and depth. Where the quarry floor however remains dry the confined space could be used for some of the more hazardous recreational activities such as target shooting.

5.19 Policy 7 sets out the Authority’s stance on crushed rock extraction, including the identification of three Preferred Extraction Areas for crushed rock extraction. The County Council will wish however to ensure that when it becomes necessary to grant permission for extensions to existing workings or completely new workings, sufficient steps will be taken by the operators to minimise the effects of the workings in the landscape by the implementation of rehabilitation and landscaping schemes. The long-term character of hard rock quarries is such that it may not be possible to identify final end uses for the quarries at the planning application stage and in such cases the County Council will require a restoration scheme to be submitted at a future date.

RESTORATION USING IMPORTED FILL

The County Council consider that agricultural restoration and waste disposal need not be mutually exclusive and if a waste disposal scheme is properly designed at the outset, and suitably managed during its implementation, there is no reason why satisfactory restoration of the site to agricultural use should not follow infilling. There is the added advantage that the site can be restored to its original levels which may be more acceptable in environmental terms. There are several examples in the County of sites being restored to agricultural use to a reasonable standard following the infilling with imported waste material. Whilst it is likely that dry sand and gravel sites will be progressively restored at lower levels, schemes which involve restoration to original levels using imported waste material will be considered on their merits, subject to the general principles set out in paragraph 5.23.

5.21 Mineral workings which are worked below the water table can be restored to agricultural use without imported material by permanent pumping to reduce the water level. Where imported material is used to restore the levels to above water table, some material can be obtained from within the extraction site by way of waste products, especially silt generated during the processing of the sand and gravel, the opportunity to provide "fill" by the extensive importation of waste material to wet sites is limited because of the dangers of contaminating ground water sources. Waste material other than that classified as being strictly inert (which is unlikely to be available in sufficient quantities), can produce polluting leachates and as such could not be disposed of in river valley sites where most of the sand and gravel deposits occur unless the site is first pumped dry and lined with either natural impermeable material or a synthetic lining.

The opportunities for infilling hard rock quarries will be dependent upon the particular geological formation being worked and in particular the presence of joints and fractures within the rocks, and the dip of the rocks. These matters will affect the range of waste materials which can safely be accommodated without problems of ground water pollution. Deep quarries with well defined edges can, however, provide excellent opportunities for waste disposal, with the voids capable of accommodating large quantities of waste material.

5.23 Policy 9 sets out the Authority’s stance on the use of imported fill materials in the restoration of workings. Before agreeing to the restoration of workings by the use of imported fill the County Council will wish to be satisfied on several counts:-
a) That sufficient volumes of waste material will become available within the stated estimate of the life of the site. This is to ensure that where appropriate a balance is kept between the progress of excavation and restoration behind the working face in order to prevent the occurrence, at any one time, of large areas of unreclaimed land. The demand for a waste disposal facility and the likely supply of waste material will therefore need to be assessed in considering the infill proposal.

b) The geological strata of the site must be capable of accommodating the range of waste material proposed to be deposited there without any attendant risk of ground water pollution. If necessary, the County Council will require a hydrogeological survey to be carried out to assess the potential implications of infilling on ground water resources.

c) The access to the site, and the highway network in the vicinity of the site, must be capable of accommodating the additional traffic associated with waste disposal if mineral extraction and waste disposal takes place concurrently.

d) The scheme of operations for waste disposal must be designed and implemented in a manner which will ensure that waste disposal operations are carried out without undue detriment to the amenities of the adjoining area.

AFTERCARE OF RESTORATION SCHEMES (POLICIES 11-14)

5.24 Satisfactory initial restoration of mineral sites can be quickly undone if there is not a commitment to on-going management and after-care, whether the end use is agriculture, forestry, recreation or nature conservation. Restored agricultural land for example will only become productive again by the correct use of fertilisers, drainage and a correct selection of cropping programmes over a period of years, all of which require very close management.

5.25 Schedule 5 (2) of the Town and Country Planning Act 1990 gives Mineral Planning Authorities the power to impose after-care conditions, where the proposed use is for agriculture, forestry or amenity, requiring land to be specially treated for a period of up to 5 years after initial restoration. Steps imposed under such a scheme may include, planting, cultivation, fertilising, watering, draining or otherwise treating the land according to its end use. The County Council will impose after-care conditions on applications and will obtain the advice of the Ministry of Agriculture, Fisheries and Food, the English Nature and other bodies as appropriate.

5.26 In order to ensure the proper reinstatement of worked out mineral sites the portable and fixed plant, machinery and on-site buildings will need to be removed once all operations have ceased. This may be by demolition or removal to other sites. The rural location of most mineral workings generally means that the sites are unsuitable for other industrial uses for which existing buildings could be used.

PREFERRED AREAS FOR MINERALS EXTRACTION

5.27 The following paragraphs give general descriptions of those areas which, having applied the methodology outlined in paragraphs 5.3 and 5.4, the County Council consider to be the locations with the least environmental objection to mineral working. The descriptions are based on all the relevant information available at the present time and their inclusion in the plan does not commit the County Council to granting planning permission in any area. It is estimated that sufficient reserves overall exist within these areas to enable the demand to be met during the plan period and maintain a seven year landbank. Any application will be
subject to normal development control considerations and the relevant Structure Plan policies on environmental matters, particularly Minerals Policies M3, M4 and M5 (Appendix 2).
The area of about 23 hectares comprises a narrow first river terrace running directly north-south on the north side of Grimley. The river terraces in the region have been extensively worked in the past at both the existing Grimley and Holt pits. The first river terrace is thought to reach thicknesses up to 6 metres in the area.

The land at present is in agricultural use and is in the main classified as Grade 3a with part Grade 2. However, in view of the difficulties likely to be experienced in identifying any suitable sites in the Severn Valley between Worcester and Stourport the County Council may be prepared to allow working of the Grade 2 land in this area. The working of the terrace to the north east may be allowed north of the road running through the village as an extension to the existing operation at Grimley. Working of the narrower terrace immediately east of the village will however not be allowed because of the likely detrimental effect on the village. Access to this site would have to be taken via the existing Church Farm workings.

An amended area to the south of the Grimley Brook was granted planning permission in June 1991.
Committed Areas are those areas with existing planning permissions which have not been commenced at the plan base date, fail the sieve test of the methodology but which the County Council wish to retain within the current reserves.

Policy 12 applies to those sites where the best and most versatile agricultural land is involved, unless contradicted by the current planning consent.
5.30 Inset Proposals Map 3S. Preferred Area for Extraction: Extension to Aston Mill - Kemerton

The area comprises a mixture of second river terrace and fan gravel, flanking the western and northern limits of the restored working area at Aston Mill. The site has no road frontage and it is envisaged that the deposit would only be worked as an extension to the existing operation, using the existing access.

The deposit of about 47 hectares is believed to underlie land of Grade 3A agricultural quality. Planning consent to work the land will depend on satisfactory evidence that the best and most versatile land within the site can be restored to a high standard (without imported fill) in accordance with Policy 12. The western boundary of the area will be formed on a line 150 metres to the east of, and roughly parallel with, footpath No. 12 as shown on the Proposals Map.
5.31 Inset Proposals Map 4S. Preferred Area for Extraction: Extension to Kemerton Quarry

This area of about 8 hectares lies to the north of existing quarry and has been granted planning permission for mineral extraction. The northern boundary of the extension is considered to be the limit of working and the County Council will resist further extension in this direction. The site is well-screened on the western, northern and eastern sides by existing planting. The site will be worked as an extension to the existing quarry using its access to the B4079. Restoration of this site and the worked out area to the south will be to a lake and wet meadow for nature conservation.

A further extension to the south-west of the worked out area will not be permitted.
5.32 Inset Proposals Map 5S. Preferred Area for Extraction: Extension to existing site at Ripple

This proposal is for southward extension of the area already given planning permission for sand and gravel working. The proposed extension has been limited to 16 hectares in order to protect the riverside area to the west. The site is Grade 3 agricultural land and part of the flat Severn floodplain. There is no road access to the area, and the site should only be worked as part of the area with planning permission where material is to be removed by barge. Its addition may require a reconsideration of the method of working the total area.
This area extending to about 30 hectares contains a known deposit which has been tested and proved. The area does not form part of the best and most versatile agricultural land, and is contained by existing hedges on all sides and is located at the change of level where the floodplain meets the higher land to the east. Its western boundary is in the main some 300 metres from the river except at its north-western corner where this distance reduces to about 150 metres. The nearest groups of housing are at Quay Lane, Hanley Castle and Severn End, both more than 400 metres distance.

The site has no road frontage and road access to the south is undesirable because of the potentially lengthy and visually exposed haul road to the A4104. Road access to this site will have to be taken from the north of the site to the A38. The A38 is currently a trunk road and the Department of Transport has made a principal objection to new accesses to trunk roads, however this status is to be changed in 1996. The preferred method is to remove the material by barge from the north of the site, in accordance with Structure Plan Policy M.5. The County Council would favour this latter course of action if it can be achieved.
5.34 Inset Proposals Map 7S. Preferred Area for Extraction: Saxon's Lode Farm

The site lies to the east of the River Severn, north of Uckinghall, west of Naunton and south of Ryall. The area is well screened from public view except from a little used footpath. There is an existing quarry to the north of Saxon's Lode at Ryall House Farm, with an access to the A.38. It is envisaged that the deposit would only be worked as an extension to that operation, utilising the existing access onto the A.38. The deposit containing an estimated reserve of 0.5mt. covers an area of approximately 18 hectares of predominantly best and most versatile land. Restoration of the land to a high agricultural standard will be required.

The Saxon’s Lode Farm site adjoins the Ryall House Farm workings, it contains four fields between two lines of oil storage tanks and a further two fields immediately to the south as shown on the Inset Proposals Map. Any application for this site will be required to protect these oil storage installations. An archaeological evaluation of the site would also be required at the application stage, in addition to a satisfactory restoration and after-care scheme and measures to retain adequate feeding grounds for local badgers will be required. The site also adjoins a major river gauging station and any proposals must demonstrate that its function will not be affected.
5.35 Inset Proposals Map 8S. Preferred Area for Extraction: Strensham

The area forms part of the Avon Second Terrace and is located on a low east facing slope to the east of the M5. The site which comprises two fields is bounded to the west and south by existing hedge lines, to the east by a hedge line and a small wooded area known as Arle Covert. The northern boundary is formed by the lane to the south of Strensham Water Treatment Works. The land is of best and most versatile agricultural quality and planning consent will be dependent upon evidence at detailed application stage that the land can be restored to a high standard, without the use of imported fill. The detailed examination of the working practices to be used to restore the land to a high standard will form part of the consideration of a planning permission for this site. Any application to work this area will need to make special arrangements with regard to Bredon Fields Cottages on the southern boundary of the site and the two dwellings beside the water treatment works close to the northern boundary of the site.

The immediate access to the site cannot be directed through the village of Upper Strensham and an alternative access will be required. This access would bypass the village and must be completed prior to the development of the site. An archaeological evaluation of this site will be required before the granting of a planning permission. Special care will be required to protect the woodland of Arle Covert and the Special Wildlife Site on the Avon floodplain during the course of the extraction and as part of the restoration programme.
5.36 Inset Proposals Map 9S. Preferred Area (Committed): Lugg Bridge

This is an area, with an existing planning permission, which has not been commenced at
the plan base date, passes the sieve test of the methodology and which the County Council
wish to retain within the current reserves.

Policy 12 applies to those sites where the best and most versatile agricultural land is
involved, unless contradicted by the current planning consent.
This area, with an existing planning permission, has not been commenced at the plan base date, passes the sieve test of the methodology and which the County Council wish to retain within the current reserves.

Policy 12 applies to those sites where the best and most versatile agricultural land is involved, unless contradicted by the current planning consent.
5.38 Inset Proposals Map 11S. Preferred Areas for Extraction: Wellington Quarry Extension (Area 1), Wellington Quarry Extension (Area 2), Moreton-on-Lugg

Wellington Quarry Extensions (Areas 1 and 2)

Area 1 forms a small extension to the north of Wellington Quarry and bounded by Marden Lane to the north, the existing quarry to the south and east, and a high pressure gas pipeline to the west. Area 2 is bounded by the main railway line to the east, the boundary fence around the MOD site to the west and the existing quarry. These areas can only be worked as extensions to the existing working and Area 1 will form the limit to further extraction to the west and north of the quarry. These two extensions will extend the life of this quarry by about six years. An archaeological evaluation of the site will be required at the application stage. Restoration of the extension to the south will need to take into account the restoration proposals on the adjoining Preferred Area at Moreton-on-Lugg MOD site. Additionally the site is affected by the River Lugg floodplain and associated drainage channel corridors which will require mitigating works to offset the effects of the extraction works. It is suggested that these measures are discussed with the Environment Agency prior to making any planning application.

Moreton-on-Lugg

This area of approximately 61 hectares contains a proven deposit of approximately 3.4 million tonnes. The workable area is bounded to the north by the existing quarry to the east by the Hereford/Shrewsbury railway line, to the west by the A.49 and to the south following a field boundary some 400 metres north of Moreton-on-Lugg. Some of the area is part of a Ministry of Defence Depot and the remainder is in agricultural use.

The site is well screened from the west by existing mature and semi-mature trees and some buildings which are likely to be retained. The northern part of the MOD area is currently developed with a number of storage buildings erected during the War but in some cases upgraded to more modern standards. To the south of this area, also in MOD ownership, is an area of mature woodland known as the Long Coppice and two large modern industrial buildings. Immediately to the north of these buildings and the woodland is a Special Wildlife Site, this designation is based on the marshy nature of the area which is believed to be a remnant of the original Wellington Marsh. The SWS, the woodland and the industrial units will not form part of the Preferred Area.

There is an existing road access to the west onto the A.49. It is considered preferable however to remove the material by rail via an existing access onto the main line to the east of the area. In common with other sites within the Lugg Valley, the extraction area is below the water table and consequently will form a lake. In view of the extent of this area and the adjoining quarry it may be possible to form a significant water recreation lake, however, in view of potential for pollution this use may have to be restricted to non-powered craft.

As a considerable portion of the area is currently in non-agricultural use and the agricultural land is not part of the best and versatile land, there is no primary constraint to extraction. The protection of the SWS will require monitoring of the water table in the marsh area to establish the regime of the water levels within the site. This information will be required prior to the consideration of planning permission in order that the working practices used for the extraction of the aggregate can be designed to protect the SWS and its water table regime. The treatment and protection of the SWS will be a matter for detailed examination at the planning application stage. Additionally the site is affected by the River Lugg flood plain and associated drainage channel corridors which will require mitigating works to offset the effects of the extraction works. It is suggested that these measures are discussed with the Environment Agency and the River Lugg Internal Drainage Board prior to making any planning application. Because of the developed nature of the MOD owned land it is probable that an opportunity exists for the reclamation of aggregate from roadways, rail tracks and foundations, this issue should be considered at the time of making a planning application. An archaeological evaluation of this area will be required prior to a decision on any planning application.
APPENDIX 1: GEOLOGY

A1.1 The County of Hereford and Worcester is divided by the Malvern, Suckley and Abberley range of Hills. The Malvern Hills are formed by the oldest rocks in the County (600 million years), dating from Pre-Cambrian times, and comprise various igneous and metamorphic rocks. The Suckley and Abberley Hills are formed by alternating outcrops of limestones and shales of Silurian age (440 million years old) with the limestone, the harder rock, typically forming prominent often well-wooded escarpments, and the softer shales occupying lower land between the limestone ridges.

A1.2 To the west of the these Hills lies an extensive area of old Red Sandstone of Devonian age (410 million years) which forms a landscape of gently rolling terrain traversed by the broad flood plains of the Rivers Wye and Lugg. Silurian rocks are present in the extreme north-west of the County in a much eroded dome structure, the outside edges of which are bounded by well-wooded limestone ridges whilst in the centre, in the softer shales, lies the Vale of Wigmore. Similar Silurian rocks also occur in the Woolhope Dome, Shucknall Hill and the Ledbury/West Malvern area where a similar type of scenery occurs, namely the alternation of wooded limestone scarps with valleys cut in the intervening shales. To the south-west of Ross-on-Wye, carboniferous rocks (345 million years old) occur at the northern edge of the Forest of Dean coalfield.

A1.3 East of the Malverns, Keuper Marl of Triassic age (200 million years) forms a gently undulating landscape with occasional bands of sandstone forming low ridges. South-east of the Keuper Marl, Lower Lias Clay of Jurassic age (195 million years) forms an almost flat and featureless plain, punctuated only by a Jurassic Limestone inlier at Bredon Hill. The Cotswold escarpments of Jurassic Limestone (160 million years) abut the south-east boundary of the plain.

A1.4 North of the Keuper Marl lie sandstones of Triassic and Permian age (between 225 and 280 million years), with the lowest rocks of the Bunter series of the Triassic period forming prominent escarpments north-east of Bromsgrove and west of Kidderminster. North-west and north-east of the Bunter sandstones lie carboniferous rocks, some of which contain coal measures, and which continue northwards into the West Midlands Conurbation, Staffordshire and Shropshire.

A1.5 During the Ice Ages the whole County was subjected to glacial conditions and a series of ice flows interspersed with periods of deglaciation covered extensive areas with drift deposits, primarily laid down in association with the advance and melting of ice sheets and glaciers. Glacial sand and gravel was deposited within and around the melting ice often in association with boulder clay and fluvo-glacial terraces of sand and gravel accumulated rapidly in valleys downstream beyond the ice margins.

A1.6 At the end of each period of glaciation the land, relieved of the weight of the ice, began to rise with the result that the rivers cut downwards into the recently deposited material leaving terraces on both sides above the eventual level of the river. A succession of climatic fluctuations therefore produced a series of river terraces in the main valleys. The Severn and Avon for example have a series of 5 river terraces at increasing levels and distances from the present courses of the rivers. The most extensive areas of glacial deposits occur west and north-west of Hereford primarily associated with the advance and retreat of the Wye Glacier. Other glacial deposits occur in the extreme north-west of the County, and around the Lenches near Evesham.
APPENDIX 2: APPROVED COUNTY STRUCTURE PLAN POLICIES FOR AGGREGATE SUPPLY AND MINERAL WORKING

Need for Minerals

Policy M.1 - WHEN CONSIDERING APPLICATIONS FOR MINERAL WORKINGS REGARD WILL BE GIVEN, WHERE APPROPRIATE, TO THE NEED FOR THE MINERAL TO BE WORKED. THE COUNTY WILL AIM TO MAINTAIN ITS SHARE OF REGIONAL PRODUCTION OF AGGREGATES AND WILL ENDEAVOUR TO MAINTAIN A LANDBANK OF PERMITTED RESERVES SUFFICIENT FOR AT LEAST 10 YEARS PRODUCTION, SUBJECT ALWAYS TO THE TAKING INTO ACCOUNT OF ENVIRONMENTAL CONSIDERATIONS.

Mineral Reserves

Policy M.2 - KNOWN MINERAL RESERVES WILL BE SAFEGUARDED AS FAR AS POSSIBLE. CONSIDERATION WILL BE GIVEN TO PROPOSALS FOR THE SURFACE DEVELOPMENT OF LAND KNOWN TO CONTAIN MINERAL RESERVES BEING PROGRAMMED TO ALLOW PRIOR EXTRACTION OF THE MINERALS.

Mineral Extraction

Policy M.3 - MINERAL EXTRACTION AND PROCESSING WILL NORMALLY ONLY BE PERMITTED WHERE THERE ARE SATISFACTORY SCHEMES FOR LANDSCAPING BOTH THE EXTRACTION AREA AND ANY PLANT SITE AND THE PROGRESSIVE RESTORATION OF THE SITE TO AN AGREED AFTER-USE, OR TO A STATE CAPABLE OF BENEFICIAL AFTER-USE.

Policy M.4 - IN CONSIDERING PROPOSALS FOR MINERAL EXTRACTION PARTICULAR REGARD WILL BE PAID TO THE LIKELY EFFECT OF THE PROPOSED WORKING UPON:

(i) THE BEST AND MOST VERSATILE AGRICULTURAL LAND AND THE FEASIBILITY OF ITS RESTORATION TO A HIGH STANDARD;

(ii) RESIDENTIAL AMENITIES OF SURROUNDING PROPERTIES;

SURROUNDING ROAD NETWORK AND ROAD SAFETY;

AREAS OF HIGH QUALITY LANDSCAPE; INCLUDING AREAS OF OUTSTANDING NATURAL BEAUTY, WHERE PROPOSALS WILL BE SUBJECT TO THE MOST RIGOROUS EXAMINATION;

(v) WATER SUPPLY AND LAND DRAINAGE;

AREAS OF NATURE CONSERVATION INTEREST; INCLUDING SITES OF SPECIAL SCIENTIFIC INTEREST AND NATIONAL NATURE RESERVES, WHERE PROPOSALS WILL BE SUBJECT TO THE MOST RIGOROUS EXAMINATION;

SITES OF ARCHAEOLOGICAL OR HISTORIC INTEREST;
(viii) LOCAL EMPLOYMENT; AND

(ix) THE POTENTIAL AFTER-USE OF THE SITE.

Transportation of Minerals
Policy M.5 - WHEREVER POSSIBLE, ENCOURAGEMENT WILL BE GIVEN TO THE TRANSPORTATION OF MINERALS BY RAIL OR INLAND WATERWAYS.

Hard Rock Extraction
Policy M.6 - NO FURTHER PLANNING PERMISIONS WILL BE GRANTED FOR THE EXTRACTION OF GRANITE FROM THE MALVERN HILLS.

Policy M.7 - PROPOSALS FOR THE EXTENSION OF EXISTING HARD ROCK QUARRIES WILL NORMALLY BE PREFERRED TO THE CREATION OF NEW QUARRIES WHERE ENVIRONMENTALLY AND ECOLOGICALLY ACCEPTABLE.

Policy M.8 - UNLESS IT CAN BE SHOWN THAT THE NEED FOR THE MINERAL OVERRIDES ENVIRONMENTAL CONSIDERATIONS, NO FURTHER PLANNING PERMISIONS WILL BE GRANTED FOR AGGREGATE MINERAL WORKING IN THE ABBERLEY HILLS AREA APART FROM THE POSSIBLE MODIFICATION OF WORKING, SUBJECT TO ENVIRONMENTAL CONSIDERATIONS, WITHIN THE EXISTING LATERAL LIMITS OF WOODBURY AND SHAVERS END QUARRIES.
### TABLE 1 - CURRENT ESTIMATED RESERVES

<table>
<thead>
<tr>
<th></th>
<th>Sand and Gravel</th>
<th>Crushed Rock</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Reserves at January 1994</td>
<td>20,561,000</td>
<td>13,848,000</td>
</tr>
<tr>
<td>B Tonnage recommended by Inspector and agreed by Committee 11th April</td>
<td>4,096,000</td>
<td>6,150,000</td>
</tr>
<tr>
<td>C Additional tonnage arising from re-assessment</td>
<td>5,220,000</td>
<td>6,150,000</td>
</tr>
<tr>
<td><strong>Total reserves including identified sites January 1994</strong></td>
<td><strong>29,877,000</strong></td>
<td><strong>19,998,000</strong></td>
</tr>
<tr>
<td>RAWP apportionment 1994 10 year plan period + 7 year landbank</td>
<td>25,907,000</td>
<td>12,410,000</td>
</tr>
</tbody>
</table>

**Notes**

- Sand and gravel sites identified under heading (A)
  - Portway (Herefordshire) - Preferred Area (Committed) $2,000,000$
  - Clifton - Committed Area $2,750,000$
  - Lugg Bridge - Preferred Area (Committed) $1,000,000$
  - Ripple - Existing Planning Permission $1,950,000$
  - Retreat Farm (Commenced 1995) $3,000,000$
  - **TOTAL** $10,700,000$

- Sand and gravel sites identified under heading (B)
  - Grimley $600,000$
  - Aston Mill $1,216,000$
  - Ripple $480,000$
  - Extensions at Wellington $1,300,000$
  - Extension at Saxon's Lode Farm $500,000$
  - **TOTAL** $4,096,000$

- Sand and gravel sites identified under heading (C)
  - Moreton-on-Lugg $3,400,000$
  - Ryall North $600,000$
  - Kemerton $120,000$
  - Strensham $1,100,000$
  - **TOTAL** $5,220,000$

- Crushed rock extension sites identified under (C)
  - Leinthall Earls $5,000,000$
  - Perton $800,000$
  - Fish Hill $350,000$
  - **TOTAL** $6,150,000$
APPENDIX 3

TABLE 2 - SAND AND GRAVEL PRODUCTIVE CAPACITY 1994 - 2003

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated output by year (in tonnes)</td>
<td>1577000</td>
<td>1577000</td>
<td>1172000</td>
<td>1147000</td>
<td>923000</td>
<td>905000</td>
<td>790000</td>
<td>790000</td>
<td>790000</td>
<td>790000</td>
</tr>
<tr>
<td>Apportionment by year (in tonnes)</td>
<td>1524000</td>
<td>1524000</td>
<td>1524000</td>
<td>1524000</td>
<td>1524000</td>
<td>1524000</td>
<td>1524000</td>
<td>1524000</td>
<td>1524000</td>
<td>1524000</td>
</tr>
</tbody>
</table>

Quarries in production in 1994 and included in these figures

1. Shepley
2. Chadwick Lane
3. Wolverley
4. Brant Farm/Lickhill
5. Grimley
6. Lower Moor
7. Aston Mill
8. Mathon The Brays
9. Stretton Sugwas
10. Chadwick Mill
11. Wellington
12. Retreat Farm
13. Ryall House Farm
14. Shobdon
15. Upper Lyde
16. Sandy Lane

Includes Retreat Farm (Commenced 1995)