KENT MINERALS LOCAL PLAN
CHALK AND CLAY/OIL AND GAS

ADOPTED
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FOREWORD

The Approach

Current national minerals policies are based on:-

* the importance of minerals as national resources
* sustainable development
* a high level of environmental protection.

The Minerals Plan draws on these as important starting principles.

Its general objectives are:

* to identify and secure the community’s future needs for Kent’s chalk and clay resources, with due regard to the protection of the environment
* to ensure that any environmental impact from new mineral or mineral related development is minimised
* to secure speedy and high quality restoration
* to prevent the unnecessary sterilisation of chalk and clay resources
* for Kent to play its part in the national search for new onshore oil and gas reserves while paying due regard to the protection of the environment

The Plan sets down policies and proposals for future chalk and clay working and policies for any future proposals for the exploration, appraisal and development of oil and gas. The Plan also has regard to the ‘sustainable development’ approach which is integrated into the Planning Authority’s strategic planning policies.

Additional Information

As part of the background material for the Kent Minerals Local Plan, the Planning authority will publish in 1998 a comprehensive register and plan of all mineral workings in Kent.

Documents Available

This Plan is available for purchase at a price of £20.

An Environmental Appraisal of the two sections of the Plan is published as a background paper, price £5.
CHALK AND CLAY
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DEFINITIONS

The Best and Grades 1, 2 and 3a of the Ministry of Agriculture, Fisheries and Most Versatile Food Agricultural Land Classification.

Agricultural Land

Cement In Kent, the product of burning a mixture of chalk and clay. With the addition of a small amount of gypsum, the clinker is then ground to a fine powder to produce cement.

Clinker

Ecosystem Interacting, interdependent living and non-living things.

Restoration Work to achieve a planned afteruse. Restoration does not include new areas of land from the sea.

Sustainable Development Development that can meet the needs of the present without compromising the ability of future generations to meet their own needs. This means, amongst other considerations, improving the quality of human life while being within the carrying capacity of supporting ecosystems, and handing on an environment in a state which does not diminish the enjoyment of future generations. The sum total of decisions in the planning field should not deny future generations the best of today’s environment.

ABBREVIATIONS

A(s)ONB - Area(s) of Outstanding Natural Beauty
DoE - Department of the Environment
EA - Environment Agency
EAs - Environmental Assessment
ES - Environmental Statement
EU - European Union
ha - hectare(s)
LNR - Local Nature Reserve
m$^3$ - cubic metres
MAFF - Ministry of Agriculture, Fisheries and Food
MGB - Metropolitan Green Belt
MPA - Mineral Planning Authority
mt - million tonnes
NNR - National Nature Reserve
OD - Ordnance Datum
PPG - Planning Policy Guidance Note
SAC - Site of Nature Conservation Interest
SERPLAN - The London and South East Planning Conference (comprising London Boroughs, County and District Councils in the region)
SNCI - Site of Nature Conservation Interest
SPA - Special Protection Area
SSSI - Site of Special Scientific Interest
t - tonnes
PRINCIPAL SOURCE DOCUMENTS

NATIONAL

* Planning Policy Guidance Note 12 - Development Plans and Regional Planning Guidance (HMSO 1992)
* Department of Trade and Industry, Business Monitors, 1984 to 1996

REGIONAL

* Regional Planning Guidance for the South East, RPG9 (HMSO, 1994)

LOCAL

* Kent Structure Plan, 1996
PART 1
THE FRAMEWORK
CHAPTER 1
INTRODUCTION
THE NEED FOR A PLAN

1.1 The County Council as Mineral Planning Authority has a statutory duty to prepare a Minerals Local Plan. When the Minerals Local Plan is formally adopted it becomes part of the Development Plan. Plans are seen by government as the principal component in a ‘plan-led’ planning system; they are the main guide to decisions on planning applications for development.

1.2 Because of the number of different minerals in Kent and of the complex planning issues that their working raises, the Kent Minerals Local Plan has been prepared in sections. This section deals with chalk and clay, and also with proposals relating to the cement industry. Sections on Construction Aggregates (sand, gravel and ragstone) and Brickearth have already been adopted (in 1993 and 1986 respectively) and are published as separate documents.

1.3 Preparation of the Chalk and Clay section of the Kent Minerals Local Plan was authorised by the Planning Authority in March 1993. In January 1994 the Authority authorised work to begin on the Oil and Gas section, and decided that these two sections would be progressed together through the statutory stages to adoption.

THE MAIN ISSUES

1.4 Plans must make both adequate provision for development, and take account of the need to protect the natural and built environments.

The Cement Industry

1.5 The largest overall user of Kent’s chalk and clay resources is the County’s cement industry. The provision of raw materials for this industry is a major issue for the Plan.

1.6 In addition to its duty to determine applications for mineral working, the County Council is also the Planning Authority for deciding applications for the erection of any building, plant or machinery which it is proposed to use for the manufacture of cement.
Other Uses of Chalk and Clay

1.7 Other important uses of Kent’s chalk and clay resources are:

Chalk - Agricultural lime and for manufacturing processes such as the production of whiting for paper.

Clay - For brick and tile making and in sea defence works.

Some of these minerals are known to be, or to have been, transported out of Kent for use elsewhere. The planning issues arising from continued provision of minerals for these uses need to be addressed.

Impact on Local Environment

1.8 The Planning Authority recognises that all mineral working and mineral related developments can have an adverse impact on the local environment. The physical environment is a valuable asset which must not be wasted or unnecessarily harmed, and so it is an important objective of the Plan that adequate protection be secured for areas which would be affected by any future chalk and clay working. This objective is addressed by way of the environmental control criteria that will be applied when considering relevant planning applications.

CONTENTS OF THE PLAN

MPG1

1.9 The Minerals Local Plan is required to set out the Authority’s detailed policies for its whole area in respect of development consisting of the winning and working of minerals or involving the depositing of mineral waste.

1.10 Government advice is that the Plan needs to have regard to national policies for landscape and historic or nature conservation and for agriculture, which may constrain the choice of sites for mineral working. These issues are addressed in Chapter 10.

1.11 The Plan should also set out the criteria against which planning applications will be assessed and which new applications must satisfy, as well as policies for the working, landscaping, reclamation and after-use of mineral working sites. These issues are addressed in Chapters 10 and 11.

1.12 The government also advises that areas for mineral development should be identified on an Ordnance Survey base (see paragraph 1.15).
1.13 The Minerals Plan should normally provide for the maintenance of landbanks. The landbank is a stock of planning permissions designed to provide industry with a steady and secure supply of minerals so that it can respond to demand. The government specifically advises that 'sufficient land should be allocated to maintain this landbank throughout, and at the end of, the plan period'.

1.14 Government advice (PPG12) is that Minerals Local Plans should:

(i) carry forward policies which provide for:-
* the supply of minerals
* ensuring the required degree of environmental protection to be associated with the development;

(ii) indicate, in more detail than is possible in the Structure Plan, those areas where:-
* provision is made for mineral working and the disposal of mineral wastes;
* mineral resources are to be safeguarded for future working;

(iii) set out:-
* the development control criteria that will be applied in considering applications for mineral working;
* requirements for the restoration and aftercare of such sites.

1.15 The Proposals Map is an integral part of the Minerals Local Plan. Its main purpose is to provide on a map a comprehensive, countywide index of the Plan’s proposals. From this the reader can identify whether property interests are likely to be affected. Accordingly it is on an Ordnance Survey base and shows national grid lines and numbers, with the scale and an explanation of the notations used. For specific proposals larger scale insets are used, with their boundary shown on the main Proposals Map. The Map:-

(i) defines the area of the Minerals Local Plan;

(ii) locates the specific proposals which are identified in the Written Statement.

1.16 The Plan addresses the duties, issues, objectives and requirements outlined in paragraphs 1.1 to 1.14 above.

1.17 The Plan includes both detailed survey material and a reasoned justification for the policies and proposals.
THE PLAN PERIOD AND THE AREA COVERED

1.18 The Plan outlines a strategy and policies for the longer term by looking forward some 15 years to 2011. This is consistent with the timescale of the Structure Plan (which also looks to 2011). Proposals are made for the whole Plan period.

1.19 Chalk and clay are found across the whole of Kent, from the London/Surrey borders in the west to the channel coast in the east (Map 2.1). Whilst the whole of Kent is the Plan area for this section of the Minerals Local Plan, the most far reaching and contentious issues are likely to relate to the mineral requirements of Kent’s cement industry. For this part of the Plan the focus area is centred on the two established cement works at Northfleet and Rochester. The focus area stretches to the limit of the chalk and clay outcrops to the south, and to the County boundaries to the north and west.

MONITORING AND REVIEW

1.20 It is important both to secure and to maintain a steady supply of minerals to meet the community’s requirements, and at the same time to ensure that environmental conditions and standards are continually improved. Accordingly the Plan will be monitored, reviewed and rolled forward on a regular basis. The need for regular review is particularly important as the current level of permitted reserves would not be sufficient for all anticipated requirements for chalk and clay to maintain a landbank beyond the end of the Plan period (see paragraph 1.13).

1.21 It is the intention of the Planning Authority to monitor the supply of, and demand for, chalk and clay, and to measure progress in implementation. Unless future circumstances argue for a shorter period, it is intended that the Planning Authority will consider whether a review is necessary in about 5 years. At that time any proposals considered to be necessary to implement the longer term elements of the strategy will be reassessed.
CHAPTER 2
KENT'S CHALK AND CLAY RESOURCES
KENT’S CHALK AND CLAY RESOURCES

CHALK

2.1 Kent’s chalk was formed in the Cretaceous geological period, which ended about 65 million years ago. Later dislocation, folding and erosion of the rocks contributed to the present landform. Chalk is a countywide resource, the outcrop running west/east across Kent (Map 2.1). The south facing scarp slope of the North Downs is its southern boundary. From the scarp (at maximum elevation of 245 metres OD near Westerham) the chalk dips northwards under the Thames and its estuary (known in geological terms as the London Basin). Where they survive, later (Tertiary) deposits overlie the chalk (Diagram 2.1).

2.2 Chalk is a soft, white, friable limestone. There are three distinct sub-divisions, reflecting changes in the marine sedimentary environment at the time the chalk was deposited. However, within each sub-division there is little lateral variation along the outcrop, an indication of uniform sea conditions at the time of deposition. The three main sub-divisions are Lower, Middle and Upper (Diagram 2.3).

2.3 The LOWER CHALK is seldom more than 70 metres thick, and is mainly exposed in a gentle slope at the foot of the North Downs scarp. Flint is not present in any part of the Lower Chalk. The highest beds of Lower Chalk have a calcium carbonate content of over 90% and the lowest beds about 60%. The average is about 80%. Lower Chalk from the Medway Valley area is currently used for cement making at Rochester Works.

2.4 MIDDLE CHALK forms the greater part of the face of the chalk scarp (see diagram 2.2). Some dry valleys on the dip slope reach down to Middle Chalk. It is about 60-80 metres thick. Middle Chalk forms a conspicuous topographic feature and invariably locates the change in slope between the steep scarp and the gentle slope of the Lower Chalk. Flints occur commonly in the top 10 metres of this formation, becoming scarcer at lower horizons. Its calcium carbonate content is 93-95%.

2.5 The complete thickness of UPPER CHALK is more than 200 metres but this never occurs in Kent, the higher horizons having been extensively eroded prior to the deposition of younger rocks on top. In the west of Kent it is not thicker than 35 metres; in east Kent it can exceed 100 metres. Flint is present throughout the Upper Chalk. Calcium carbonate content is usually above 95%.
KENT MINERALS LOCAL PLAN:
CHALK AND CLAY

Diagram 2.1 Idealised Sketch Section Through The London Basin and The Weald
KENT MINERALS LOCAL PLAN:
CHALK AND CLAY

Diagram 2.2 Idealised Sketch Section Through The Kent Downs (West of The Medway Gap)

N.B. Vertical Scale 10X Horizontal Scale

Legend:
- Upper Chalk
- Middle Chalk
- Melbourne Rock
- Lower Chalk
- Upper Greensand
- Folkestone Beds
- Hythe Beds
- Saturated aquifer
### Diagram 2.3 The Chalk Outcrop in Kent: Its Principal Relevant Characteristics.

<table>
<thead>
<tr>
<th>MAIN SUBDIVISIONS</th>
<th>TERTIARY BED RESTS ON UPPER CHALK</th>
<th>ROCK TYPE</th>
<th>CHARACTERISTICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>UPPER CHALK (650 ft)</td>
<td>-</td>
<td>White chalk with flints and seams of marl.</td>
<td>Generally absent in Kent</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>Chalk with regularly spaced lines of nodular or tabular flint. (Micraster Coranquinum Zone)</td>
<td>Major concentration of flint Calcium Carbonate content more than 95%</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>Chalk with nodular bands. Hard rough chalk with nodular bands and seams of marl. Grey-white chalk with seams of marl. Flints in the upper beds.</td>
<td>Some Flints Calcium Carbonate content 93-95%</td>
</tr>
<tr>
<td>MIDDLE CHALK (210 ft)</td>
<td>-</td>
<td>Grey-white massive chalk Bedded shelly chalk with nodular Melbourne Rock at the base. Grey-green marls alternating with bands of marly chalk Massive grey and white marly chalk Grey chalk and marl becoming thinly bedded below. Glauconitic sandy marl with remanie fossils and nodules - Chloritic Marl</td>
<td>No Flints Calcium Carbonate content average 80% 92% 60%</td>
</tr>
<tr>
<td>LOWER CHALK (230 ft)</td>
<td>-</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

...
2.6 Chalk formations are an important aquifer and provide a very high percentage of the water abstracted in the Canterbury and Chatham areas, and a lesser percentage in the Sevenoaks and Maidstone areas. Smaller scale agricultural lime quarries in the chalk are unlikely to affect the hydrogeology, or to have much impact on the aquifer. However larger scale chalk extraction can have a much greater significance.

2.7 Within the area of focus for chalk for cement making there are more than 20 water abstraction wells. Groundwater levels generally vary from place to place in the same way as the topography, but with a more subdued profile (diagram 2.2). Near the crest of the scarp to the south, the groundwater level is elevated to +90 metres OD. To the north the level lowers progressively to reach +15 metres near Longfield and Cobham, and +2 metres near Dartford and Higham. To the east and the west the groundwater level is depressed to river level in the Medway and Darent Valleys.

2.8 The calcium carbonate content of chalk determines whether, and if so how much, clay needs to be added to it to make cement clinker. Both Upper and Middle chalk require an addition of clay to give the correct chemical balance to the kiln feed. If Lower chalk is used, the clay requirement is either reduced or is unnecessary.

2.9 Chalk for cement making must be freed of flints. Flint separation adds to processing costs so, other things being equal, most of the Middle and all of the Lower chalk are preferable as a raw material. In general however, outcropping Middle and Lower Chalk is not accessible except at visually sensitive scarp slopes.

2.10 If new workings do not go below ground water level (implying an agricultural or forestry after use rather than a lake), then a quarry west of the Medway could have a working depth (below the surface and above water) of up to 60 metres in the vicinity of the A2 and up to 90 metres further south; this in turn affects the area of land needed to extract a given amount of chalk. Where younger rocks overlie the chalk they form an overburden which has to be removed and dealt with before and during any chalk extraction; at Bean for example there are 45 metres of overburden.

CLAY

2.11 Clay is formed from the deposition of extremely fine particles which have been worn away from earlier rock structures. Its plasticity and chemical composition are the properties of most economic interest. The principal clay outcrops in Kent are from five different geological ages (Map 2.1):-
(i) **LONDON CLAY** of Eocene age outcrops adjacent to the Thames estuary around Whitstable, on Sheppey and Grain, and in limited areas near Shorne and Bean. It occurs in varying thicknesses up to 140 metres. The fresh clay is coloured blue to slate, weathering to brown on exposed surfaces. Being close to the estuary it is used by the river authority in sea defence works.

(ii) **GAULT CLAY** of Lower Cretaceous age outcrops across Kent immediately below (to the south of) the North Downs chalk scarp. When fresh it is dark blue to grey in colour, weathering orange to yellow. Its thickness varies between 40 and 100 metres. Clay from Greatness near Sevenoaks is used for brick making. It is also dug at Platt to the east of Borough Green, and has been worked at Paddlesworth to the west of Snodland, as a raw material for cement making.

(iii) **ATHERFIELD CLAY** of Lower Cretaceous age outcrops immediately below the Greensand escarpment. It is a shallow deposit, the thickness often being less than 12 metres. Springs issue along the outcrop and give rise to wet and boggy land. Atherfield Clay is not used for any industrial purpose.

(iv) **WEALD CLAY** of Lower Cretaceous age outcrops in Kent to the north of Edenbridge and Tonbridge, and southwards from Yalding, Sutton Valence, and near Ashford. The formation has a variable thickness of 110-270 metres. Minor horizons of sand or limestone occur within the deposit. The fresh clay is pale or dark grey, with tingeing of blue or brown, weathering to a mottled brown or yellow. The clay is particularly suitable for brick making, and a number of brickworks once existed. Weald Clay is currently worked at Hawkenbury to the south of Maidstone and at Pluckley.

(v) **WADHURST CLAY** is of very early Cretaceous age. It outcrops over extensive areas near the southern boundary of Kent, from Tunbridge Wells eastwards through Goudhurst and Biddenden. The formation has a thickness up to 60 metres, with some minor horizons of sand. Old brick pits are common, and ironstone was often yielded from the same workings.
CHAPTER 3
THE PLANNING BASIS
THE EUROPEAN UNION

3.1 The Treaty of Rome seeks to preserve, protect and where possible improve the quality of the environment.

3.2 Towards Sustainability (A European Community Programme of Policy and Action in relation to the Environment and Sustainable Development) has the aim of transforming the patterns of growth in the community in such a way as to reach a sustainable development path. It means that:

- it be recognised that continued human activity and further economic and social development depend on the quality of the environment and its natural resources and on their satisfactory guardianship;

- since the reservoir of raw materials is finite, the flow of substances through the various stages of processing, consumption and use should be so managed as to facilitate or encourage optimum reuse and recycling, thereby avoiding wastage and preventing depletion of the natural resource stock;

- the behavioural trends of citizens within the community should reflect an appreciation that natural resources are finite and that one individual’s consumption or use of these resources must not be at the expense of another’s; and that neither should one generation’s consumption be at the expense of those following.

NATIONAL POLICY

This Common Inheritance

3.3 As part of its general approach the government advises that:

* the environmental costs of transporting minerals must be fully considered
* land used for mineral working must be reclaimed at the earliest opportunity.

Sustainable Development

3.4 The UK Strategy for Sustainable Development recognises that minerals are important national resources which make an essential contribution to national prosperity and quality of life, for example by providing inputs to many industrial processes. The government recognises that new extraction sites will be needed. It wishes to see indigenous mineral resources developed within its broad objectives of promoting economic growth, assisting the creation and maintenance of employment and protecting the environment.
3.5 The supply of minerals should not be viewed as infinite.

3.6 For these reasons a sustainable framework for their extraction is required. The UK Strategy identifies the following considerations:

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

3.7 The government’s way forward is to ensure that society’s needs for minerals are met, while encouraging greater efficiency, effectiveness and economy in the supply and use of resources. Improved standards of operation will be sought, along with high and consistent standards for restoration. Where they can substitute for primary minerals, the reuse and recycling of waste materials will be promoted.

3.8 These principles are set out in MPG6 (paragraphs 32 and 33), which although about aggregates, is a relevant summary of this aspect of government policy:

‘It is in the national interest that aggregates and products manufactured from aggregates, should be recycled wherever possible. Government policy is to encourage the use of secondary and recycled materials in construction, and it is committed to increasing significantly the level of use.’

3.9 The practical implications of these objectives are carried forward in the Plan:

- during extraction (Chapter 11)
- in restoration (Chapter 11)
- in use of minerals (Chapter 10)
- avoidance of sterilisation (Chapter 10)
3.10 The Government will also continue its programme of revising and expanding Minerals Planning Guidance Notes, to reflect the principles of sustainable development.

3.11 The main relevant aspects of national policy from MPGs and Planning Policy Guidance Notes (PPGs) are summarised in the following paragraphs and are set out in more detail in Appendix 1.

**MPG1**

3.12 Mineral applications in AONBs ‘should be subject to the most rigorous examination’.

**The Cement Industry**

**MPG10**

3.13 Minerals Planning Guidance Note 10 (Provision of Raw Material for Cement Industry, HMSO 1991) provides a national planning context for the cement industry. The government recognises the cement industry as being of major importance to the national economy, supplying an essential product to the construction and civil engineering industries. In addition the government places great importance on reducing the level of imports of building and construction materials. To counter the rising import trend and to provide employment, it wishes to encourage domestic cement production and would also not wish to discourage any export opportunities that may arise.

3.14 In summary the government takes the view that it is in the national interest to maintain and increase cement production, and to increase the scope for competition. Although there is no government target for cement production, it is considered essential for the industry to be able to meet the needs of the community.

**Raw Materials for the Cement Industry**

3.15 It is therefore necessary to have an adequate and continuous supply of raw material to maintain cement production. The government considers that sufficient reserves of minerals should be permitted for this. Landbanks to provide the industry with a stock of permitted reserves should be calculated for each site.

3.16 Mineral planning authorities are asked by the government to maintain for each works a landbank of at least 15 years (provided the industry come forward with sufficient environmentally acceptable proposals).

3.17 Where significant new investment in plant is agreed, the landbank should provide for at least 25 years.

3.18 As indicated in paragraph 1.13, the government advises that ‘sufficient land should be allocated to maintain this landbank throughout, and at the end of, the plan period’.
3.19 In cement producing areas planning authorities are expected to assess likely raw material needs and to examine supply options.

3.20 Preferred areas to meet the needs should be identified, taking account of national policies. It is recognised that in the short run, reliance is likely to be placed on existing plant and that the mineral planning authority will need to identify areas of working and to safeguard resources, reasonably near existing plant. Planning authorities are also asked to make every effort to safeguard those deposits which are of economic importance against other types of development which would be a serious hindrance to their extraction. It will usually be necessary to consider need over a much longer period than for most other land use planning issues.

3.21 In recognition of the recent development of wharves by the cement industry, the government asks planning authorities to make every effort to identify and safeguard suitable locations for wharves in their development plans.

Environmental Effects

3.22 Recognising also the significant environmental effects that both cement production and quarrying for its raw materials can have, the government states that the encouragement of cement production must be balanced against important environmental and conservation interests. It therefore advises planning authorities on what needs to be done to ensure an adequate and continuous supply of raw material to maintain production in a manner which has full regard to the environment. The government stresses the importance of combining economic growth with care for the environment in order to attain sustainable development, and of ensuring that short term gains are not achieved by creating environmental debts for future generations.

Other Uses for Chalk and Clay

3.23 For all non-aggregate minerals, planning authorities are expected by government to recognise the importance of maintaining a continuing supply, and of any particular policy issues that may arise in each case. For example, planning authorities should have regard to the need for bricks, tiles and pipes generally and engineering fill and the continuing demand for products with particular physical and aesthetic qualities. Such qualities are mostly the direct result of the physical characteristics of the raw material used, which may be available in only a few locations (eg. facing and engineering bricks and floor and roof tiles). Authorities should consider these special needs, bearing in mind that they will usually involve quite small scale operations, in the light of the social and environmental implications of clay extraction in the area.
3.24 The Kent Structure Plan recognises that the community has an essential requirement for minerals. The Plan accepts that Kent’s minerals can help to meet local, regional and national requirements, and that their supply makes an essential contribution to economic development. In making provision for mineral working, the County Council seeks a balance between meeting future community requirements, and ensuring adequate protection of the environment. General Policies NR6 and NR7 are set out in Appendix 2.

3.25 More specifically the Structure Plan identifies chalk and clay as supporting industries that are important to the national, as well as Kent’s, economy. They also provide raw materials for specialist uses. The relevant policy is NR12.

3.26 In addition the Structure Plan recognises Kent’s agricultural industry as a major employer which makes a key contribution to the County’s economy and is of national importance. Local authorities are expected to play a positive role in providing for agricultural development needs. This would include the provision of chalk (see Chapter 8).

3.27 The Kent Structure Plan seeks to move towards the principles of, and a strategy for, ‘sustainable development’. The Structure Plan accepts that such a move is likely to be a slow process; the objectives of sustainable development cannot be achieved overnight. However, the Structure Plan lays the foundations for a land use pattern which embodies sustainable principles. A major objective is ‘that the overall effect of the sum total of its policies reflects the concept of sustainability’.

3.28 ‘All development should be planned and managed in an environmentally sustainable manner, ensuring wherever possible that tomorrow’s prospects are not sacrificed for short term gains today’. However, there is a continuing need to support and foster the development of Kent’s economy and the Structure Plan acknowledges that ‘it is not possible therefore to ensure that all policies are sustainable in all respects’.

3.29 The Structure Plan envisages that a move towards sustainability could embrace the following (which have a direct bearing on the Minerals Local Plan):

* using vacant and derelict land in preference to seeking greenfield sites;
* more attention to enhancing the quality of the built environment;

* more stringent protection of the Kent Countryside;

* seeking a better relationship between new development and employment centres and transport;

* greater emphasis on reducing and recycling the County’s waste;

* increased protection for groundwater aquifers and the river systems and conservation of water resources.

3.30 In addition, SP Policy ENV20 seeks to avoid or minimise pollution impacts.

3.31 The Structure Plan envisages that when preparing the Minerals Local Plan, full account will be taken of the long term welfare of the environment in its widest sense.
PART 2
KENT'S CEMENT INDUSTRY
CHAPTER 4
THE CURRENT POSITION AND FUTURE PROSPECTS

Information in this and subsequent Parts relating to Blue Circle uses 1996 as its base date, that relating to Rugby Cement uses 1994.
4.1 The cement manufacturing process is outlined in Appendix 6.

4.2 Kent has long had a very close and important association with the cement industry. This was due to the geological juxtaposition of the two primary raw materials (chalk and clay), together with proximity to navigable waterways for moving the bulky finished product to the nearby London market. The earliest cement works were located close to rivers or other navigable waterways on the Thames (at Greenhithe, Swanscombe, Northfleet and Cliffe), on the Medway (at Gillingham, Frindsbury, Cuxton, Halling, Wouldham, Holborough and Burham) and at Sittingbourne. Each works had its own chalk quarry adjacent, and often used alluvial clays from riverside marshlands. The world’s first commercial production of Portland cement was in North Kent in 1845.

4.3 In the 1950’s there were twelve cement works in operation in Kent. With the opening of the Northfleet works in the early 1970’s this number reduced to five. More recent rationalisation has seen the number of works reduced further to two, at Northfleet and Rochester.

4.4 The South East region is the largest producer, as well as the largest consumer, of cement (MPG10). Over one quarter of all British cement is produced in the region. Kent is the most important cement producing county in the United Kingdom, and Northfleet and Rochester are the two largest works in the South East region. Together they make an important contribution to both regional and national production. Table 4.1 shows the current position. Employment in the two Kent works and quarries is over 900 and the cement industry is one of the largest employers in Gravesham. However its economic significance undoubtedly goes beyond this in terms of goods and services supplied to it from other local firms. Also it makes demands for supplies of coal and electricity.

4.5 The importance of the two Kent works in terms of regional production increased with the bringing on stream of Rugby’s rebuilt Rochester Works in 1980. This helped to offset the loss in regional cement manufacturing capacity from the closure of Rugby’s Lewes works in East Sussex in 1981 and Blue Circle’s works at Holborough, Kent in 1984.

4.6 Continued rationalisation and the downturn in the economy led to Blue Circle closing their works at Shoreham, West Sussex and at Swanscombe, Kent in 1991, with the possibility of regular supplies from their Northfleet works being supplemented from Aalborg Portland, Blue Circle’s joint venture company in Denmark. Two of the South-East’s three remaining cement works are now in Kent.
TABLE 4.1 1992 - THE CEMENT INDUSTRY IN THE UNITED KINGDOM, THE SOUTH EAST REGION AND KENT

<table>
<thead>
<tr>
<th></th>
<th>UNITED KINGDOM</th>
<th>SOUTH EAST</th>
<th>KENT</th>
<th>KENT AS % OF SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of plants</td>
<td>20</td>
<td>3</td>
<td>2</td>
<td>67%</td>
</tr>
<tr>
<td>Employees</td>
<td>N/A</td>
<td>1300</td>
<td>900</td>
<td>69%</td>
</tr>
<tr>
<td>Capacity (1992)</td>
<td>12.3mt</td>
<td>2.8mt</td>
<td>1.9mt</td>
<td>68%</td>
</tr>
<tr>
<td>Production</td>
<td>10.2mt</td>
<td>2.4mt</td>
<td>1.4mt</td>
<td>58%</td>
</tr>
<tr>
<td>Sales (1993 est.)</td>
<td>11.6mt</td>
<td>1.7mt</td>
<td>1.2mt</td>
<td>71%</td>
</tr>
<tr>
<td>Imports from Overseas (1993 est.)</td>
<td>1.4mt</td>
<td>0.3mt</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Overseas exports</td>
<td>0.06mt</td>
<td>0.06mt</td>
<td>0.06mt</td>
<td>100%</td>
</tr>
</tbody>
</table>

N/A - Not available  
mt - million tonnes of cement clinker

NORTHFLEET WORKS

4.7 Northfleet works was built between 1969/71. It is on the site of the former Bevans works, and also replaced production from Cliffe, Johnston, Kent and Holborough works, together with Wouldham, and Metropolitan Works in Essex. Production capacity has now been reduced to two kilns, one of which is at present mothballed. The capacity of each kiln is 670,000 tonnes per annum of clinker though, when running together, their joint output would be limited to 1.2 million tonnes per annum by the slightly smaller capacity of the filter press feeder system. Blue Circle advises that:

“To improve energy efficiency, the two kilns that remain have already been converted to a 'semi-wet' process. Nevertheless the existing Works is nearly thirty years old with some site infrastructure approaching a century old. In order to achieve sustainable development and optimise operational efficiency, continued updating of existing plant may be insufficient. Blue Circle has identified a need to invest in new technology and environmental control equipment.

In the light of these considerations, Blue Circle has advised that it is reviewing its operations in the South East in order to secure its long term future in the area. This review will consider alternatives to the current operations at Northfleet, including redevelopment at Northfleet or other sites in Kent and the South East”
Map Description: Kent Minerals Local Plan: Chalk and Clay
Map 4.1 BCI Northfleet Cement Works and Eastern Quarry
Scale 1:25,000
4.8 To service its London and South East markets, Blue Circle uses road transport for Northfleet. It also despatches cement and clinker by road to other UK works and depots as the market place demands. Northfleet can also despatch cement from its wharf to ports elsewhere.

4.9 The bulk of the country’s cement and clinker exports to overseas markets used to come from Northfleet works. However, the general trend of exports has been one of almost total decline from a peak of 1.86mt in 1978. The decline reflects current over capacity in the world to produce cement, arising from the recession and from a recent worldwide development of new cement making capacity.

4.10 Northfleet cement works is supplied with Upper chalk from Eastern Quarry (see Map 4.1), and with mainly Lower Chalk from Holborough Quarry in the Medway Gap (Map 4.2). Western Quarry became exhausted in 1994. Permission for the continued working of Eastern and Western Quarries was given by the then Minister of Housing and Local Government in 1952. Working was limited to a depth of +2.42m (+8 feet) OD.

4.11 In 1969, in conjunction with the expansion of capacity at Northfleet works, the County Council granted permission for chalk extraction over 283 hectares (700 acres) in Eastern and Western Quarries. Some 38.5 hectares (95 acres) of this consent was sterilised by the construction of an electricity sub-station (Map 4.1). Working was limited to a depth of -6.7m (-22 feet) OD. Temporary permission was given at the same time for the erection of the existing washmills complex in Eastern Quarry, subject to a condition that they be removed on or before 31 December 1998, to coincide with the then estimated life of the chalk reserves. In 1988, a further permission was granted for deeper digging to -10m (33 feet) OD in part of Eastern Quarry (Cherry Orchard).

4.12 In December 1995 the County Council granted a permission which consolidated the planning control over the majority of Eastern Quarry (excluding the area of the 1988 consent for Cherry Orchard). This permission brought all the consented chalk within the approved working plans and within the control of modern conditions. The Company has voluntarily agreed to work only within the terms of this 1995 permission.

4.13 The chalk worked in Eastern Quarry is fed by ground conveyor to the washmills. Here primary flint separation and size reduction occur. A chalk slurry is prepared and mixed with clay brought in by pipeline from the Company’s clay quarry at Ockendon, Essex. The finished slurry is then pumped along pipelines to Northfleet works.
4.14 In 1979, following a public inquiry, the Secretary of State for the Environment dismissed applications by Blue Circle to extend the chalk quarries into Darenth Park and to deepen parts of the existing chalk workings in Eastern and Western quarries, a part alternative to extraction at Darenth Park. This was so that proper consideration should be given to:

(1) alternative sites elsewhere, and
(2) obtaining the full amount of chalk available within the boundaries of Eastern and Western quarries.

The decision left Blue Circle with no secured long term supply of chalk for its Northfleet Works.

4.15 However, in 1988 Blue Circle’s reserves position was improved by a permission for the use at the washmills at Eastern Quarry of chalk reserves from Holborough, and for its transport there by road (see paragraph 5.7).

4.16 At the beginning of 1996 the total consented chalk reserves available in Eastern Quarry were assessed at 24.9 million tonnes (as dug), and at Holborough 20.0 million tonnes (as dug). The reserves position is considered in more detail in chapter 5.

4.17 Northfleet cement works is supplied with clay from Essex. The reserves position is considered in Chapter 6.

**Operations**

4.18 The 1952 and 1969 planning permissions for Eastern and Western Quarries require the submission of landscaping and restoration schemes. In agreement with the Planning Authority, Blue Circle submitted updated working, landscaping and restoration schemes, and in 1988 a scheme was approved with phasing up to 1997. This restoration scheme was superseded by the 1995 planning permission. Restoration within the 1995 consent maintains the two lakes from the earlier restoration scheme, but introduces an improved landform for the western half of the quarry and makes provision for the South Thameside Development Route.

4.19 An alteration to the currently approved working, landscaping and restoration schemes for Eastern Quarry will be required to allow extraction of the remaining reserves permitted in 1969.

**ROCHESTER WORKS**

4.20 Following the granting of planning permission by the Secretary of State in 1973, Rugby rebuilt its Rochester Works. The purpose of the rebuilding was two-fold. Firstly it increased the capacity of the works, to enable Rugby better to meet demand for its products in the
South East. It also enabled the older Lewes works in East Sussex to be closed. Secondly, the rebuilding provided a plant with lower production costs such that Rochester is now one of Rugby’s most fuel efficient works. This has been achieved by replacing three old kilns with one large one, combined with a series of new filter presses enabling the works to operate on a ‘semi-wet’ process. The energy saving with this process arises from removal of two thirds of the moisture in the kilnfeed.

4.21 In 1993 permission was granted for a new grinding mill and new storage facilities. The permission also included provision for a possible new filler silo, to increase the volume of finished cement produced from a given amount of clinker. The decision to build the silo will depend on the outcome of EU deliberations on a new cement standard.

4.22 It is expected that the Lepol grate system which currently feeds the kiln will have to be replaced with a cyclone and heater system to cope with the different type of chalk available from their new source in Dean Valley (see paragraph 4.24). The company advise that a major investment will be required prior to 2008 in order to process the Dean Valley chalk and to increase output to about 720,000t of clinker per year. The Company consider the life of the works to be in excess of 20 years.

Markets and Distribution

4.23 Rugby no longer operate any depots, and all their distribution of finished cement is by road. Currently they do not import or export any cement or clinker.

Raw Materials

4.24 The Works is supplied with chalk from the adjoining Halling quarry. Permission for extensions to the then quarry was granted by the former Strood Rural District Council in 1947. This permitted Rugby to continue to extract chalk from that part of the quarry known as Grey Pit and over larger areas extending to Pilgrims Way and North Halling, and also to extract chalk from White Pit for a limited period of 10 years (see Map 4.3). An application to further extend the quarry and, separately, to open up a new quarry nearby at Dean Valley, Cuxton was made in 1971 (see Map 4.3). The proposals included provision for a major extension to the Works. Following a public inquiry, the Secretary of State for the Environment granted permission in 1973 for extensions to the existing quarry and to the Works, but refused permission for a new quarry at Dean Valley.

4.25 The Dean Valley proposal was resurrected in 1988 and permission was subsequently granted by the Planning Authority. Dean Valley chalk is to be brought to the works by conveyor via a tunnel under the North Downs scarp.
KENT MINERALS LOCAL PLAN: CHALK AND CLAY

MAP 4.3 RPC Rochester Works and its sources of Chalk

Area for which consent was given in 1947 for continued excavation for a limited period of 10 years (White Pit)

Area for which consent was given in 1947 for continued excavation (Grey Pit)

Area for which consent was given in 1989 for excavation (Dean Valley)

Works Site

Existing Quarry

Extension permitted in 1973

Based upon the Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationery Office (C) Crown Copyright. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings. Kent County Council licence No. LA076708.
4.26 In Halling quarry the excavations are split into two quite separate and distinct operations, above and below water. Above water the upper part of the Lower Chalk is quarried in benches using hydraulic excavators. These load a fleet of dump trucks which transport the material to a primary crusher for reduction to less than 100mm. The crushed material is then transported to the wash mills for a slurry preparation. Above water quarrying takes place between the hours 6.00am-10.00pm all through the week.

4.27 Below the water table the purity of the chalk gets less, with calcium carbonate levels ranging between 85-50%. Lower still lies Gault Clay, which is extracted in conjunction with the chalk. This chalk and clay is excavated from a face which extends to approximately 40m below water, by an electrically powered multi-bucket excavator. When operating, the excavator works 24 hours a day. As the excavator traverses on tracks to and fro along the face, a chain of buckets supported by a boom scrapes a thin layer from the sloping face. A crusher mounted on the excavator reduces the lump chalk to less than 150mm in size in readiness for direct transport by belt conveyor to the plant for conversion into a slurry.

4.28 Information given by the Company shows the kiln feed to be a blend of chalk excavated from the two sources. The production process demands chalk with an average calcium carbonate content of about 80%. As the quality of the chalk continually varies there is a need for constant monitoring. The calcium carbonate content of the Dean Valley chalk is likely to average 96%, compared with the 87% content of the best chalk in the existing quarry. The chalk reserves position is considered in chapter 5.

4.29 Limitations on space within the quarry, and maintenance requirements, mean the multi-bucket excavator cannot work all the time. As a result chalk marl (lower chalk) and clay from the quarry are sometimes unavailable or insufficient for full production needs. When this occurs supplementary clay comes from a quarry at Park Farm, Wrotham, near Borough Green. This quarry in the Gault Clay was permitted by the Planning Authority in 1954 but extraction did not commence for some years. The clay is transported by road to Rochester as required to enable the right cement slurry blend of chalk and clay to be obtained. About 90,000 tonnes of clay was worked at Platt in 1992. This created on average some 100 lorry movements per week. The clay reserves position is considered in Chapter 6.

4.30 A landscaping scheme for Halling quarry has been agreed with the County Council in accordance with conditions imposed on the 1973 planning consent by the Secretary of State. This provides for screen mounding and planting around the quarry. It has been implemented, and is being maintained. Working will produce a large
lake area resulting from the excavation below water level, surrounded by steep sided slopes (60°) which are to be progressively hydroseeded. Small parts of the quarry are also to be partially backfilled with quarry waste, graded and landscaped. The construction of the Halling bypass (A228) has opened the quarry to public view from Halling Village and from along the new road. Because of the volume of material that would be needed and of the proximity of a water borehole, there is no realistic prospect of sufficient and acceptable materials being available to fill the quarry, or to reinstate it to a new landform.

4.31 Dean Valley will be progressively restored and landscaped according to schemes submitted with the planning application, and managed according to a separate legal agreement.

FUTURE PROSPECTS FOR THE CEMENT INDUSTRY

4.32 The most recent review of future prospects for the cement industry is in MPG10 (see paragraph 3.13). This gives forecasts for the demand for minerals for cement production and consumption in Great Britain up to the year 2011. The forecasts are based on estimates of investment in construction and an estimate of the relationship of this investment to the demand for cement products. The forecasts were made in 1990 and updated in 1991, with the intention to further update them every four years.

4.33 The Government sets no targets for cement production but is keen to reduce the amount of imports and to maintain a healthy industry capable of meeting the needs of the community, while recognising the need to balance the release of land for mineral workings and cement production against environmental, social, agricultural and other relevant considerations. MPG10 also considers issues of restoration and other environmental matters.

The Demand for Cement

4.34 Both nationally and regionally, cement production and sales have fallen from the peaks of the 1970s. For most of the 1980s national production of finished cement was in the region of 12-13 million tonnes a year, roughly in line with domestic consumption, and about 25% less than in the late 1970s when Britain was a major exporter of cement. An upturn in demand from mid-1987 rapidly outstripped domestic production capacity and led to the import of cement. In 1989 Great Britain imported 3.8 million tonnes. Current estimates (1993) show home produced cement sales (ie. net of imports/exports) some 17% below maximum production capacity at 10.3mt, though imports are shown at 1.4mt. This downward trend reflects the recession in the construction sector. A significant part of the reduction in production is also accounted for by a decline in exports.
The Demand for Minerals

4.35 The government’s forecasts of demand for minerals in cement manufacture (MPG10) show a low plateau in 1990-92 with an upturn in 1993. The plateau is just over 20mtpa of minerals, which is about the same as the previous low in 1981. Demand is forecast to rise to about double this amount by 2011 (within a range of plus or minus 25%).

4.36 However, it is now known that the decline in sales continued into 1993. This implies a lower and later starting point for the predicted upturn in demand.

The Position in Kent

4.37 For the two cement works in Kent, estimates of future requirements for chalk and clay are based on the following levels of production, although shorter or longer lives would result from increases or decreases in output.

* At Northfleet one kiln is in constant use, with a second in operation for most of the time. For the purposes of this Plan, reserve life is estimated on the basis of 1.2 million tonnes of clinker production per annum.

* At Rochester an upturn in sales is assumed from 1994, reaching full production from 2009. This would give an output of 550,000t of clinker in 1994, 580,000t a year in 1995 and 1996, 620,000t a year from 1997 until 2008 and 720,000t a year from 2009.

4.38 These figures have been supplied by the respective companies and reflect both the expected upturn in economic activity and the forecasts set out in MPG10. However, recent lower levels of cement production are persisting and so recovery in output is delayed beyond the date anticipated in MPG10. Accordingly the estimates of future chalk and clay requirements for the cement industry, as assessed in Chapters 5 and 6, are regarded as maxima.
CHAPTER 5
CHALK FOR CEMENT MAKING
5.1 This chapter assesses chalk requirements for Northfleet and Rochester works on the basis of the future clinker production estimates set out in Chapter 4.

5.2 For each tonne of cement clinker produced, approximately 1.8 tonnes of as-dug chalk is needed. The precise amount varies according to the amount of clay that needs to be added (see Appendix 6).

NORTHFLEET WORKS

The Amount of Chalk Required

5.3 To meet the future estimated output of cement clinker at Northfleet Works of 1.2 million tonnes per annum there would be a chalk requirement of 2.1 million tonnes per annum for 15 years amounting to 31.5 million tonnes to the end of the plan period (January 1996 to January 2011). Blue Circle advise that:

“the current processing plant at Eastern Quarry can only accept a ratio of two parts Eastern Quarry chalk to one part Holborough chalk. The existing plant was designed to process Eastern Quarry chalk and relies on the flint content of the chalk to act as a grinding medium. Holborough chalk contains very little flint and to date no higher ratio than 2 to 1 has proven practicable. Attempts to introduce additional flint to the grinding mills have not succeeded, and a substantial investment in new grinding mills in the context of the existing operation cannot be justified. In Blue Circle’s view therefore, the effective reserve available to Northfleet is 24.9 million tonnes from Eastern Quarry and 12.5 million tonnes from Holborough, giving a total of 37.4 million tonnes. This leaves 7.5 million tonnes at Holborough that cannot be used separately.”

5.4 The Planning Authority notes the advice of Blue Circle in respect of the use of its permitted chalk reserves at the processing plant at Eastern Quarry. However, as a general planning objective the Authority would wish to see all permitted mineral reserves worked out as part of a structured programme of resource use. Operators would be expected to take account of this principle in their long term forward planning.

5.5 In order to maintain a 15 year landbank for the Works at the end of the Plan period (see paragraphs 3.15-3.18), a further 31.5 million tonnes of chalk would be needed. By this time very little chalk would remain in Eastern Quarry.
Existing Sources

**Eastern and Western Quarries**

5.6 Consented reserves currently available (1 January 1996) for Northfleet works are estimated as 24.9 million tonnes of as-dug chalk in Eastern Quarry.

**Holborough Quarry**

5.7 Planning permission was granted in 1988 for the use at Northfleet of reserves at Holborough (see Map 4.2). These had originally been permitted for use at the now closed Holborough Cement Works. The permission allows transport of chalk to the washmills in Eastern Quarry to feed Northfleet Works. The current working scheme, with its progressive restoration provisions, covers the area south of Ladds Lane which from the beginning of 1993 is estimated to yield 11.4mt of as-dug chalk. The area north of Ladds Lane, which is not covered by the current working scheme, would yield about 8.6mt, subject to prior agreement of a further working and restoration scheme.

**Conclusions**

5.8 Total reserves with planning consent amount to:-

* Eastern Quarry 24.9 million tonnes
* Holborough 20.0 million tonnes

**ROCHESTER WORKS**

**The Amount of Chalk Required**

5.9 To meet the future estimated output of cement clinker at Rochester Works (580,000t in 1995, rising to 720,000t by 2009) there would be an initial chalk requirement of 1.00mt a year for 1994 to 1997, rising to 1.04mt between 1997 and 2008 and to 1.07mt from 2009 (see Table 5.1). This would give a total requirement of some 18.7mt to the end of the Plan period (January 1994 to December 2011).

5.10 In order to be able to maintain a 15 year landbank for the Works at the end of the Plan period (see paragraphs 3.15 and 3.18), provision would need to be made for a further 16.0mt (15 years at 1.07mt a year).

5.11 The company advise that a major investment in new plant is proposed to be commissioned in 2008 (see paragraph 4.22 above). In accordance with MPG10 they state a requirement for 25 years security of reserves beyond the date of commissioning. The company has identified a projected shortfall of 17mt of chalk beyond 2019 which will need to be addressed during the Plan period.

**Existing Sources**

**Halling Quarry**

5.12 Rochester works is supplied with chalk from the adjoining Halling Quarry in two distinct operations, as explained in Chapter 4.
Consented reserves there are currently estimated (at January 1994) as 2.7 million tonnes above water and 6.3 million tonnes below water.

**Dean Valley**

5.13 Consented reserves in Dean Valley currently amount to 17.0 million tonnes. The first stage in developing the permitted new source in Dean Valley has been completed. Chalk has been brought direct to the works by conveyor belt through a tunnel in the Downs for testing purposes. The tests have shown a need for modifications, firstly to the washmills to cope with an increased flint content, and also to the kiln feeder to cope with the softer chalk. These changes will be made by 1997, when the above water chalk in Halling Quarry is expected to be exhausted, and Dean Valley comes on stream full time.

5.14 The switch to the high purity Dean Valley above water chalk implies a change in the mix of chalk, and clay from Park Farm at Wrotham. However, taking a long term view, variations in the feed mix are not considered to be significant in estimating a future chalk requirements. The implications for the rate of extraction of clay at Park Farm Quarry are discussed in the next chapter.

**Conclusions**

5.15 Total reserves with planning clearance amount to some 26.0mt. On the basis of the estimated requirements they would enable cement production to continue until about 2018 (Table 5.1).

<table>
<thead>
<tr>
<th>Period</th>
<th>Chalk Source</th>
<th>Average Annual Chalk Requirement</th>
<th>Total Chalk Requirement for the Period</th>
<th>Total Cumulative Chalk Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994-96 (3 years)</td>
<td>above and below water from Halling Quarry</td>
<td>1.00</td>
<td>3.00</td>
<td>3.00</td>
</tr>
<tr>
<td>1997-2008 (12 years)</td>
<td>below water from Halling plus Dean Valley</td>
<td>1.04</td>
<td>12.48</td>
<td>15.48</td>
</tr>
<tr>
<td>2009-2018 (10 years)</td>
<td>Dean Valley only</td>
<td>1.07</td>
<td>10.70</td>
<td>26.18</td>
</tr>
</tbody>
</table>

**TABLE 5.1 ESTIMATED CHALK REQUIREMENTS FOR ROCHESTER CEMENT WORKS (million tonnes)**

NB. (a) - from 1 January each year
(d) - (a) x (c)
(e) - running total of column (d)
Totals may not sum due to rounding
The period to 2018 is used to equate roughly to the expected life of the Dean Valley chalk (see Chapter 5).
CHAPTER 6
CLAY FOR CEMENT MAKING
6.1 This chapter assesses clay requirements for Northfleet and Rochester works on the basis of the future clinker production estimates set out in Chapter 4.

The Need for Clay

6.2 Clay is also a primary raw material in cement making. It provides silica, alumina and iron to react with the calcium in the chalk. Ordinary Portland Cement typically requires about 20% clay in the raw mixture; this equates to about 0.4 tonnes of as dug clay for each tonne of cement clinker produced (see Appendix 7).

NORTHFLEET WORKS

The Amount of Clay Required

6.3 To meet the future estimated output of cement clinker at Northfleet works at 1.2mt a year would require 430,000 tonnes a year. This would amount to 6.5 mt in total by the end of the plan period in 2011.

Existing Sources

6.4 Clay is currently supplied from BCI’s quarry at South Ockendon, Essex where at January 1996 6.8mt remained with planning permission. The excavated clay is made into a slurry before being pumped beneath the River Thames to the washmills at Eastern quarry. The land currently being worked was the subject of a planning permission granted by Essex County Council in July 1983 and is subject to conditions requiring restoration by 2013. To work this site beyond this time will require a variation of condition.

6.5 Included within the site boundary at South Ockenden, but with no planning permission for extraction (see para. 6.7) is a further estimated 4.2mt of clay resources.

6.6 BCI also have permitted clay reserves at Paddlesworth, which used to supply their Holborough Cement Works. These are estimated to amount to 8.4mt. BCI do not have any intention of working here at present, provided that clay can continue to be supplied from Ockenden. The old workings at Paddlesworth are the subject of an interim landscaping scheme. Paddlesworth is referred to also in Chapter 12 (paragraph 12.9) in relation to the Review of Minerals Sites.

6.7 Total permitted clay reserves in Essex amount to 6.8mt. On the basis that the planning condition requires the site’s restoration by 2013, extraction must cease by 2011. The position thereafter depends upon an application to vary the planning condition for an extension of time if permitted reserves have not been extracted. Essex County Council advise that a new planning permission would be required if the additional estimated resources of 4.2mt were to be extracted. However, no such proposals exist within the Essex Minerals Local Plan, First Review (Adopted January 1997), indeed the Plan suggests that no further reserves will be permitted.
ROCHESTER WORKS

The Amount of Clay Required 6.8  The need for clay at Rochester Works varies according to which chalk source is being used to make the cement. Dean Valley chalk is of higher purity (in terms of its calcium carbonate content) than the above water chalk in Halling Quarry which in turn is of higher purity than the below water chalk. Also, the layers of below water chalk dip away from deepest level that the bucket wheel excavator can reach, so the calcium carbonate content of the cut chalk varies as the excavator moves.

6.9  On the basis of the production estimates in Chapter 4, clay requirements can be estimated as set out in Table 6.1. Total requirement to the end of the plan period (end of December 2011) would be about 2.7mt. A further 2.0mt would be required for the Dean Valley chalk, which is estimated to be exhausted by about 2018.

Existing Sources 6.10  When Rugby need clay at their Rochester Works to mix with the chalk from the adjoining Halling Quarry then it is imported from permitted workings at Park Farm, Wrotham. Planning permission for this clay quarry was granted in 1954 (Map 6.2). The permitted area was significantly reduced by construction of the M26 motorway. This not only sterilised land where the clay deposits are at their deepest, but also severed a small area of the permission. Nonetheless, workable reserves remain to the south of the motorway, currently estimated to be in the region of 2.5 million tonnes.

6.11  The estimates set out in Table 6.1 have regard to the very much smaller amounts of clay required whilst the below water chalk at Halling is being used (see paragraph 4.27).

Conclusion 6.12  On the basis of the estimates in Table 6.1, the permitted clay reserve at Park Farm, Wrotham will last until about 2009. Accordingly a new source of clay for Rochester Works will be required towards the end of the plan period.
<table>
<thead>
<tr>
<th>Period</th>
<th>Chalk Source</th>
<th>Average Annual Clay Requirement</th>
<th>Total Clay Requirement for the Period</th>
<th>Total Cumulative Clay Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a)</td>
<td>(b)</td>
<td>(c)</td>
<td>(d)</td>
<td>(e)</td>
</tr>
<tr>
<td>1994-96 (3 years)</td>
<td>above and below water from Halling Quarry</td>
<td>0.09</td>
<td>0.27</td>
<td>0.27</td>
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<tr>
<td>1997-2008 (12 years)</td>
<td>below water from Halling plus Dean Valley</td>
<td>0.13</td>
<td>1.56</td>
<td>1.83</td>
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<tr>
<td>2009-2018 (10 years)</td>
<td>Dean Valley only</td>
<td>0.29</td>
<td>2.90</td>
<td>4.73</td>
</tr>
</tbody>
</table>

NB. (a) - from 1 January each year  
(d) - (a) x (c)  
(e) - running total of column (d)  
Totals may not sum due to rounding  
The period to 2015 is used to equate roughly to the expected life of the Dean Valley chalk (see Chapter 5).
CHAPTER 7
THE CEMENT WORKS AND WHARVES
The Cement Works

7.1 Northfleet cement works is identified as an existing industrial area in the Gravesham Local Plan First Review. Policy E1 gives priority to the need for employment in such areas.

7.2 An integral, but separate, part of the works at Northfleet are the Swanscombe Washmills at Eastern Quarry. They operate under a temporary planning permission. On the Dartford Borough Local Plan the site is within the Green Belt. However the principle of removing this area from the Green Belt has been endorsed through the Kent Structure Plan (Third Review).

7.3 Rochester works is shown as within an established employment site in the Medway Towns Local Plan. It is subject to Policy E1; subject to the protection of local amenity and highways and parking considerations, there is a general presumption in favour of business, general industrial and warehousing developments, in order to consolidate the existing uses and to generate additional employment.

Wharves

7.4 Both Northfleet and Rochester cement works front onto rivers. Structure Plan Policy S7 encourages the movement of freight by river.

7.5 Northfleet Wharf is in active use and is part of the ‘Commercial Riverside’ area in the Gravesham Local Plan First Review. Policy R1 applies and gives a preference to development which would require a riverside location and would make use of the river as a means of transport. Structure Plan Policy S5 recognises the transport potential of the River Thames, and Policy NK1 provides for opportunities for enhancing the transport potential of the river to be exploited.

7.6 The Halling Wharf at Rochester Works is used occasionally. On the Medway Towns Local Plan the wharf is within a Site of Nature Conservation Interest which stretches from Halling to Cuxton. It is subject to Policy C8: development will not be permitted if it is likely to cause a loss of habitats or features.
PART 3
CHALK AND CLAY FOR USES OTHER THAN CEMENT
CHAPTER 8
CHALK FOR USES OTHER THAN CEMENT
ITS USES

8.1 The historic use of chalk, long preceding that for cement and of vital importance still, is for agricultural lime. Chalk also contributes to a variety of manufactured products and can be used in construction projects as bulk fill. The quarries from which the chalk for these uses is taken are small compared with the cement quarries, and they are spread right across Kent (see Map 8.1). Some are on the scarp face of the North Downs or in other prominent locations, which gives them a particular significance in the landscape. Most are served by country lanes not suitable for modern heavy traffic.

Agricultural Liming

8.2 Chalk is used by the agricultural industry primarily for applying to soils in the form of lime. It also has a secondary use in the construction or surfacing of farm roads and yards. Lime has two main functions:

* to counter high soil acidity (low soil pH)
* to supply calcium, either alone or with magnesium, both being essential plant nutrients.

8.3 The former function is the more important because it produces effects on a wide range of chemical changes in the soil. Correct liming ensures the most effective action of fertilisers, which leads to better yields of arable crops and grassland and gives fodder of higher nutritive value. Generally speaking the more important and valuable the agricultural crop, the less tolerant it is to lime deficiency in the soil. This is particularly so in Kent where a wide variety of crops are grown and intensive horticulture and fruit growing is widespread.

8.4 Historically the chalk was "burnt", driving off the carbon dioxide to leave "quick lime" which, as its name suggests is rapid in its reaction when water is added. Raw chalk is slower acting but therefore also longer lasting; this consideration, together with the high energy costs of burning the chalk, means that burning has now entirely ceased in Kent.

8.5 For use in the agricultural industry, the chalk needs to be converted into a suitable form to facilitate spreading and absorption. Because chalk is a soft rock with a high moisture content it is difficult to grind to a suitable size for application to the land. Excess moisture is an "impurity", lowering quality and also making the chalk difficult to spread mechanically. Agricultural chalk production, therefore, involves drying the chalk to a suitable level either artificially or by means of sun and wind. There are two main production methods,
KENT MINERALS LOCAL PLAN: CHALK AND CLAY

MAP 8.1 Location of Chalk Quarries for Non-Cement Uses

REFERENCE

CHALK OUTCROPS

1. Rowling Chalk Pit
2. Bramling Lime Works
3. Crundale Lime Works
4. Beacon Hill Quarry
5. Detling Quarry
6. Cliffe Chalk Quarry
7. Pinden Quarry
8. Darenth Chalk Pit

SCALE

0 10 20 30km

N
producing dried ground chalk or screened chalk. The method used influences both the working scheme and quarry location.

**Dried Ground Chalk**

8.6 To produce dried ground chalk a conventional quarry face is excavated, for example by mechanical shovel. The excavated chalk is rough crushed to break up large lumps, before being dried in a rotary kiln. It is then milled to a fine grade to provide a saleable product. Production can be continuous throughout the year although costs, due to the extra drying required, are much higher in wetter months. The middle chalk, which is generally found only in the scarp face of the North Downs (see paragraph 2.4) is well suited to the production of ground chalk as it is generally hard and at lower levels free of flints. Upper chalk is not generally suited for this method of production due to its softness, and the abundance of flints which would damage milling machinery. Removal of flints from chalk is laborious and costly.

**Screened Chalk**

8.7 Screened Chalk is worked from the surface. The Upper Chalk, because of its relative softness, is most suited to this method of production. An area of chalk is stripped of overburden and then scarified with discs. The resultant tilth, dried by the action of sun and wind, is screened to provide a saleable product. This is of a coarser grade than ground chalk. The chalk is too wet to work during the winter months. Production is therefore seasonal, March to October, much dependent upon favourable weather, but with the right conditions considerable output at moderate cost is possible. As this method requires a naturally soft chalk deposit the maximum depth of working is usually about 20 to 30 feet, below which the chalk tends to become too hard for discing. If the deposit becomes so hard that it is uneconomic to work, a fresh area of soft chalk has to be opened up.

8.8 The quality of all forms of lime is assessed on their neutralising value (NV), that is the ability of the lime to neutralise acid. Ground chalk generally has a higher NV than screened chalks. Although the finest grades of screened chalk approximate to ground chalk in efficiency, a heavier rate of application is required for the coarser grades to maintain efficiency.

**The Demand for Agricultural Lime**

8.9 The use of agricultural lime in the past has been influenced by government subsidies. An annual subsidy to farmers as a contribution towards the cost of liming land was introduced in 1937 as a result of government concern about the low level of agricultural production in Great Britain. At that time national annual lime use was about 500,000 tonnes. With the subsidy, consumption increased steadily to a peak in the late 1950s and early 1960s when an average of over 6 million tonnes was used annually. In 1965 a lower rate of subsidy was introduced, after which consumption declined to an average of 4.3 million tonnes per annum in the early 1970s. The government lime
subsidy was ended in 1976.

8.10 In 1980 some 3.20 million tonnes of lime were used in Great Britain, rising to 3.50 million in 1981 and 3.60 million tonnes in 1982. Allowing for the differential effects of weather conditions on these figures it would appear that nationally lime use has stabilised at a level of some 3.5 million tonnes per annum. Data for the years 1985 to 1992 do not show any significant change in lime use nationally for that period.

**Manufacturing** (fillers, powders, whittings)

8.11 Chalk is used in an extensive range of products from, for example, the paper, pharmaceutical, glass, plastics, rubber, carpet and food industries. Chalk is a form of calcium carbonate and nationally the amount of this mineral used in these industries per year is of the order of two million tonnes. But this is calcium carbonate from all sources and so includes limestone.

**Whiting**

8.12 The chalk that is used is finely ground and is then called whiting. It must be of a high quality - of uniform bright white colour and containing over 97.5% calcium carbonate. Accordingly not all chalk sources are suitable. In Kent it is the Upper and Middle chalks which can be used (see Chapter 2).

8.13 The largest consumer of whiting is the paper industry, which uses it for filling and coating paper. Whiting is increasingly replacing china clay in these regards as paper mills change from acid to alkaline processes. Chalk quarries in north west Kent have long been a source for the supply of whiting to the local paper industry.

**Constructional Use**

8.14 Chalk is sometimes used as bulk fill in foundations for construction projects. Such a use is spasmodic, depending rather on what projects may occur close to the chalk source, the scale of the project, and its particular requirements. It is likely that the chalk would only be taken if it were the cheapest available material taking into account travel distance. Generally speaking engineers do not like using chalk as it has a tendency to settle with time and can be a problem when wet, when it can become an unstable slurry.

**THE INDUSTRY IN KENT**

8.15 There are numerous small historic and now abandoned chalk pits across the North Downs, testifying in the main to past farming practices. The extraction of chalk within a farm for its own purposes is permitted under planning legislation by the General Development Order; although it is a permission that can be removed if planning
circumstances require. (Removal would require the approval of the Secretary of State.) The extent to which farmers exercise this permitted development provision is probably only slight, mainly because it is not the farms on the chalk which need it so much for liming.

8.16 Specific planning permission is needed for the working of chalk for commercial purposes. The following are the existing commercial sites in Kent. Most of them are historic pits. They provide a spread of supply points across the County. Their locations are shown on Map 8.1.

1. **Rowling Chalk Pit** (Dover District)

   The chalk working here is based upon a planning permission given in 1949. In 1988 planning permission was given for an extension to the pit and this enabled stricter working conditions to be applied to the earlier permitted reserves.

2. **Bramling Lime Works** (Canterbury District)

   Chalk has been worked on a small scale in this locality since before planning legislation. The present workings are taking place under a planning permission given in 1974 for the deepening of a pit permitted in 1954.

3. **Crundale Lime Works** (Ashford District)

   An old quarry which was given planning permission for renewal of working in 1961, and for a further extension in 1981.

4. **Beacon Hill Quarry, Charing** (Ashford District)

   The original quarry pre-dated planning legislation. The present area of working was permitted in 1978.

5. **Detling Quarry** (Maidstone District)

   This old quarry was reactivated under a planning permission in 1978 which provided for an extension.

6. **Cliffe Chalk Quarry** (Rochester upon Medway District)

   Chalk is available for excavation still under planning permissions which were given in 1951 and 1952 for large scale working for the cement industry. Much chalk has been excavated for this purpose, leaving a deep wide pit. After a
dormant period of some years chalk working was resumed in 1992, in preparation for the construction of a processing plant to produce material for use in manufacturing industry (see paragraph 8.11).

7. **Pinden Quarry** (Dartford District)

A large area for chalk extraction was consented in 1947 under the Town and Country Planning (Interim Development) Act, 1943. Registration of the quarry under the Planning and Compensation Act 1991 was accepted in 1992.

8. **Darenth Chalk Pit** (Dartford District)

Planning permission for this was given in 1955.

9. **Hegdale Quarry** (Ashford District)

Planning permission was granted in March 1995 to extract 109,000m³ of chalk.

8.17 The total reserves that currently remain under the planning permissions at these eight sites are of the order of 10 million tonnes. The figure is given as a total for Kent because individual operators wish to keep confidential the reserves at individual pits. Kent extractors’ sales of chalk in the ten years to 1993 are shown in Table 8.1. It includes chalk used for cement making.

**TABLE 8.1** KENT EXTRACTORS’ SALES OF CHALK (in ‘000 tonnes)

<table>
<thead>
<tr>
<th></th>
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<td>73</td>
<td>81</td>
<td>104</td>
<td>*</td>
<td>79</td>
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<td>*</td>
<td>79</td>
<td>92</td>
<td>*</td>
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<td>-</td>
<td>*</td>
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<td>*</td>
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<td>*</td>
<td>*(i)</td>
<td>*(i)</td>
<td>*(i)</td>
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<td>Construction</td>
<td>*</td>
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<td>31</td>
<td>112</td>
<td>116</td>
<td>*</td>
<td>56</td>
<td>26</td>
<td>*</td>
<td>12</td>
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<td>4177</td>
<td>4282</td>
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<td>*</td>
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<td>*</td>
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<td>2085</td>
<td>*</td>
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</tr>
</tbody>
</table>

Source: Business Monitor (Central Statistical Office, PA 1007)
* figure withheld to avoid disclosure
- nil, or less than half the final digit shown
(i) listed as ‘fillers, powders, whittings’
8.18 The production in Kent of 79,000 tonnes of chalk for agricultural use in 1991 compares with 84,000 tonnes in 1983 and 78,000 tonnes in 1976.

FUTURE REQUIREMENTS AND THEIR SUPPLY

Agricultural Lime

8.19 The Ministry of Agriculture, Fisheries and Food indicate that there is a continuing need for lime nationally to maintain or increase soil pH on large areas of land. In their view, should supplies of lime not be available to match demand there would almost certainly be a significant drop in agricultural production. The Ministry advise that:

(i) Current research and development is indicating larger losses of lime from soils than previously thought.

(ii) Reform of the Common Agricultural Policy and lower prices for agricultural products are unlikely to affect significantly the use of lime on either cropped land or rotational set aside land.

(iii) Although the introduction of non rotational set aside is likely to result in a significant reduction in lime use on that land, in the Ministry’s view this is unlikely to mean more than a 2-3% reduction in overall lime need.

8.20 The overall conclusion is that unless large areas of land are to be permanently removed from agricultural production by set aside or other means, current usage of agricultural lime is unlikely to alter significantly.

8.21 Sales in Kent average some 80,000 tonnes per year. It is understood that most of the agricultural chalk produced in Kent is for the local Kent market. A proportion is sold in Essex.

8.22 The permitted reserves, spread amongst the quarries in Kent that produce the agricultural lime, namely Rowling, Bramling, Crundale, Beacon Hill, Detling, Pinden and Darenth are considered to be sufficient for more than 25 years supply at this rate of usage, and therefore meet the conditions of the strategy of this plan without further provision needing to be made now. There is additional potential existing at Cliffe for chalk to be available for agricultural lime, from that which may not be suitable for whiting production, but nonetheless has planning permission for extraction.

8.23 It is understood that chalk for agricultural lime has traditionally been sold locally. To reflect this consideration, and also the principle of attempting to achieve patterns of development that will reduce movement, the permitted reserves have been assessed as to the relative positions in East Kent and West Kent. For reasons of commercial
confidentiality figures are not given, but the conclusion is that there are sufficient permitted reserves to maintain a 10 year landbank in both East and West Kent.

**Manufacturing**

8.24 Manufacturing industry will continue to have a need for calcium carbonate for a wide range of products. The British Calcium Carbonates Federation expects that over the next 15 years, consumption of calcium carbonate in all major markets will increase by about 4% per year.

8.25 Most of the Kent chalk produced for manufacturing purposes other than cement production is used ultimately in the local paper industry. There are particular requirements in respect of both quality and colour.

8.26 Two quarries in Kent, at Pinden and Cliffe, are helping to supply these markets. For example, both despatch chalk to Swanscombe Works for the manufacture of whiting. At the production levels that are forecast by the suppliers, reserves of chalk that are already permitted will last for in excess of 30 years and so meet the conditions of the strategy of this plan, without further provision needing to be made now.

**Engineering**

8.27 There will always be a need for foundation fill. A variety of materials are used for this of which chalk is but one, and one which has the limitations described in paragraph 8.14 above. In Kent alternatives are lower grade sands and gravels, hassock, and colliery minestone. Also increasing interest is being shown in the spoil and demolition waste from construction projects themselves. Much of this until now has been thrown away, taking up space in scarce waste disposal landfill sites, or dumped on unauthorised sites. Better use can and needs to be made of this material whose possible use as foundation fill could be more fully realised. Chalk has a greater value as agricultural lime and its general use as engineering fill should be discouraged.
CHAPTER 9
CLAY FOR USES OTHER THAN CEMENT
ITS USES

9.1 The principal uses of clay in Kent, other than for cement production, are for brick and tile making. It also has engineering uses, including for example in sea defence works and at landfill sites.

9.2 There are several outcrops of clay in Kent from which the mineral is drawn for these purposes. They are identified on Map 9.1. In addition, clay may be available from other quarries, where a mineral which underlies or overlies the clay is being worked.

9.3 For brick and tile making clay working is normally periodic, as sufficient can be dug in a short while for several months production, and as it can be done anyway only when the clay is dry enough to handle. Excavation is by means of a scraper or by a mechanical multi-bucket excavator.

Brick and Tile Making

9.4 The various stages in brick and tile making can be summarised as follows:

(a) Preparation Before clay can be made into bricks or tiles it must be transformed from its natural state into a homogeneous material of predictable performance. This is done mechanically. Other materials may be added; sand to give strength and colouring, ‘breeze’ (coal fragments) to assist in firing in the kiln, and chemicals to improve appearance and colour. The result of the kneading and mixing of these materials is a plastic, well tempered clay ready for moulding.

(b) Moulding This is done both by hand and machine. Clay is forced into a mould of the desired shape. The shaped brick or tile is removed from the mould and placed on pallets ready for drying.

(c) Drying Bricks and tiles must be thoroughly dry before firing. The pallets on which they are placed after moulding are placed in a tunnel/chamber which is heated and has a controlled air circulation.

(d) Firing To change the dried mud into the finished product the bricks and tiles must be burnt at a bright red heat. This is done in a kiln, in which the bricks and tiles are carefully stacked to allow fire gases to circulate around the chamber. Firing produces a series of chemical and physical changes and needs to be rigorously controlled to ensure consistent appearance and strength. After grading, some 95% of the fired products should be saleable.
KENT MINERALS LOCAL PLAN:
CHALK AND CLAY

MAP 9.1 Location of Clay Quarries for Non-Cement Uses

REFERENCE
- London Clay
- Gault Clay
- Weald Clay
- Weddington Clay
- Thanet Beds (Part)

1. Hamhill, Woodnesborough
2. Pluckley
3. Hawkenbury
4. Sevenoaks
5. Chiddingstone
6. Frittenden
7. Naccol
8. Grafth
9. Brambledown
10. Chelford
11. Aylesford
12. Winterbourne

N

10
20
30km
Sea Defences

9.5 The sea defences along the banks of the Thames, Medway and Swale estuaries require periodic maintenance and renewal. This is done principally by the Environment Agency, although works can be done by the landowner. As the estuaries are bordered by outcrops of London Clay, suitable material is ready to hand. For maintenance, limited amounts of clay are required but there are occasional requirements for larger quantities to supply capital projects. In the past planning permissions have been sought to fulfil specific contracts; and where appropriate permissions have been tied by condition to the sea defence requirement. The planning applications are made by owners of the land that contains the clay, who subsequently bid for the clay supplying contracts.

9.6 Sea defence of major development sites in Thames Gateway will be provided for by the Environment Agency’s general sea defence works. Where land may need to be raised to overcome waterlogged ground conditions, then material other than clay could be used, for example material in the form of spoil or dredgings. Re-use of such material is preferred to the use of primary minerals. Stone Marshes was raised, for example, with dredgings pumped direct from the Thames. In addition, clay may not be the best medium to raise ground levels in low lying or flood risk areas. It may be necessary for instance to install a drainage blanket if clay is to be used. The placed clay would need to be properly compacted and this could be difficult to accomplish if the underlying ground strata were to be soft and waterlogged.

9.7 It is not considered possible to quantify the amount of clay required for private sea defences. However it is know that some land owners have preferred to use inert waste material rather than their own clay resources to maintain/improve defences to protect their farmland. There is no evidence that any such private demand has led to supply problems and impacts on the planning process. Wherever possible farmers would no doubt wish to use their permitted development rights.

Landfill

9.8 Clay provides a suitable impermeable lining and capping for sites being landfilled with non-inert waste. The technology of landfill is undergoing much new research and continuing reassessment. Critically, the role of landfill in waste management is changing because of costs, and land and environmental factors. There is likely to be a continuing need for landfilling, particularly in the short to medium term. The Kent Waste Local Plan recognises the continuing need for landfill, but looks in the future to a reducing requirement for the land disposal of waste. In volume terms a majority of the current existing non-inert waste landfill operations in Kent use their own capping material. There is very limited need for clay from outside sources. The Environment Agency advise that any land disposal should take
place preferably as land raising on non-aquifers. This almost inevitably means sites on clay. In principle clay would then be available “on site” for whatever engineering would be needed. Accordingly, only a limited off site clay requirement is expected to continue.

THE INDUSTRY IN KENT

Brick Making

9.9 In Kent bricks are made not only from clay but also from brickearth, which is a surface deposit of mixed sand and clay minerals found over parts of North Kent. Brickearth is considered in a separate section of the Kent Minerals Local Plan. Certain special bricks are made from a further kind of mineral, silica sand. This is considered in the Construction Aggregates section of the Minerals Local Plan.

9.10 The Southern Brick Federation advises that the brickmaking industry is these days concentrating its manufacturing base into a smaller number of high volume, low cost, more automated works; and that there is also a move towards the building of works in industrial areas.

9.11 Although there are still a number of small manufacturers with only one works, which continue to provide a product that is in demand for new and refurbishment work, the concentration means increasingly a separation of the brickworks from the minerals sites supplying them. Brickworks are now not necessarily relying upon one minerals source. It is known that some raw materials travel across County boundaries. Likewise the market for the bricks is regional, or national.

9.12 What the Federation describes can be seen to have been happening in Kent. In two cases in recent times longstanding brickworks at clay workings have closed. The clay has subsequently been taken, in one case to a brickworks outside of Kent and in the other to a new brickworks at Tilmanstone in East Kent.

Tile Making

9.13 There are tile making enterprises in the county some operating entirely on the basis of imported clay, this having been processed beforehand ready for use. Their preference would be though, for appropriate local clay material to be available to them.

Clay Workings and Planning Permits in Kent

9.14 The current clay working locations (excluding brickearth) in Kent and those ‘dormant’ sites with a valid planning permission are shown on Map 9.1. They are spread over the several types of clay strata. The locations are:

1. Hammill, Woodnesborough (Dover District)
   The original clay working in the locality pre-dated planning legislation. The current workings derive from planning
permissions given in 1961, 1968, 1969 and 1984. The material worked is a seam within the Thanet Beds, and it supplies local brickworks.

2. Pluckley (Ashford District)
Weald clay working here goes back to the last century. The present extractions are taking place from a large area given consent under the Town and Country Planning (Interim Development) Act 1943. Registration of the consent under the Planning and Compensation Act 1991 was granted in 1992. The brickworks on site are now closed indefinitely, with the clay being taken to a new brickworks at Tilmanstone.

3. Hawkenbury, Sutton Valence (Maidstone District)
Weald clay is excavated for the production on site of specialist roof tiles and fittings under a planning permission given in 1989.

4. Greatness, Sevenoaks (Sevenoaks District)
Planning permissions dating from 1950 provide for Gault Clay working and brickmaking here. The current owners, Ibstock Brick, no longer make bricks at the site but take the clay to their factory at Ashington, West Sussex.

5. Chiddingstone (Sevenoaks District)

6. Frittenden (Tunbridge Wells District)

7. Naccolt (Ashford District)
Interim development permissions dating from the 1940s have been registered as valid at these three locations (5-7). However, as no operations for the winning and working of minerals or for the depositing of minerals waste were carried out in the two years ending with 1 May 1991, the three locations are ‘dormant’. This means that development may not recommence until a scheme of new conditions has been finally determined (see Appendix 1, paragraph 1.8). When determining a proposal for a new scheme of working the Planning Authority will have regard to the policies and principles set out in Chapter 11 of the Plan, and to the Supplementary Planning Guidance in Appendices 3, 4 and 5.

8. Whitehall Farm, Grain (Rochester upon Medway District)

9. Brambledown, Sheppey (Swale District)
At Brambledown there is a full permission for clay extraction for sea defence, construction and engineering needs; this
reserve was extended by a permission for further clay extraction granted in May 1996 (see also paragraph 9.26).

10. Shelford (Canterbury District)
In 1993 removal was authorised of no more than 50,000 m$^3$ of clay material over a period of 5 years. These last three sites have been used principally to supply material for sea defence works.

In 1996 a temporary planning permission was granted at Aylesford (Tonbridge and Malling). This was specifically to supply yellow firing clay to Tilmanstone Brickworks.

| TABLE 9.1 ESTIMATED PERMITTED RESERVES OF CLAY IN KENT |
|---------------------------------------------|-------------------------------|
| LOCATION          | RESERVES (tonnes) | CURRENT USE |
|                  | Permitted       | Additional  |                             |
| London Clay       |                 |             |                             |
| Brambledown, Sheppey | 1,256,000       | -           | Engineering                 |
| Whitehall Farm, Grain | 70,000          | -           | Sea Defence                 |
| Shelford, Canterbury | 100,000$^{(3)}$ | 2,800,000$^{(3)}$ | Unused                      |
| Winterbourne, Dunkirk | 234,000$^{(2)}$ | -           | Unused                      |
| Gault Clay        |                 |             |                             |
| Park Farm, Wrotham | 2,900,000       | -           | Cement                      |
| Paddlesworth, Snodland | 8,400,000$^{(3)}$ | -           | Unused                      |
| Greatness, Sevenoaks | 2,000,000       | -           | Bricks                      |
| Naccolt, Ashford  | 3,225,000$^{(3)}$ | -           | Unused                      |
| Aylesford Sandpit | 120,000$^{(1)}$ | -           | Bricks                      |
| Weald Clay        |                 |             |                             |
| Pluckley, Ashford | 640,000$^{(5)}$ | 2,360,000$^{(5)}$ | Unused                     |
| Hawkenbury, Maidstone | 60,000         | -           | Tiles                       |
| Frittenden, Tunbridge Wells | 650,000$^{(3)}$ | -           | Unused                      |
| Chiddingstone, Sevenoaks | 490,000$^{(3)}$ | -           | Unused                      |
| Total             | 20,145,000      | 5,160,000   |                             |

Footnotes
(1) Temporary planning permission.
(2) Calculation based on 3 metre depth of clay over permitted area.
(3) Dormant Interim Development Order Permission. The exact amount of clay which can be worked will be established on the determination of a new scheme of conditions. The estimates in the table will not prejudice the Authority’s consideration of any submitted scheme.
(4) Agreed Phase 1 working. The additional figure is an estimate dependent on final agreement of phase 2 working limits.
(5) As resolved by the County Planning Authority.
(6) The operator uses clay from this pit to manufacture yellow bricks. He estimates that reserves of true yellow burning clay amount to 300,000 tonnes.

9.15 Kent extractors’ sales of clay and shale in the 12 years to 1995 are shown in Table 9.2. The information comes from the Central Statistical Office (CSO). It relates to mineral extraction in Great Britain and is collected pursuant to the Statistics of Trade Act 1947. The results are described by the CSO as providing the government with
essential information about the demands made on mineral resources and the depletion rates of reserves, and as important in land use planning and in relation to the environment.

<table>
<thead>
<tr>
<th>TABLE 9.2</th>
<th>KENT EXTRACTORS’ SALES OF CLAY AND SHALE (in ‘000 tonnes)</th>
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<td>Bricks/tiles</td>
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<td>Cement</td>
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<tr>
<td>Construction</td>
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</tr>
<tr>
<td>Other Uses</td>
<td>-</td>
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<tr>
<td>Total</td>
<td>446</td>
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Source: Business Monitor (Central Statistical Office, PA 1007)

* figure withheld to avoid disclosure
- nil, or less than half the final digit shown

FUTURE REQUIREMENTS AND THEIR SUPPLY

**Brick and Tile Making**

9.16 The general economic recession of recent years has meant that requirements for bricks have been exceptionally low. The Southern Brick Federation advises that clay brick despatches nationally in 1992 were 36% fewer than those of 1988. They cannot predict what future requirements will be, but the expectation should be that economic circumstances will improve, and that there will be a growing requirement for bricks.

9.17 The Federation speak of the South East region as being both an importer and an exporter of bricks. There is not therefore a self-contained regional market; and even less so a specific Kent market. For example, some Kent clay is currently taken to West Sussex, whose bricks are sold nationally. In other instances clay is being taken to brickworks away from the clay fields. There are increasingly complex manufacturing or marketing patterns. Different types and horizons of clay can produce different types and colours of brick, to reflect different requirements and tastes. All these factors point to the need for greater flexibility in the way in which sources of clay may be employed.

9.18 Additional major contributions to the national requirements for bricks are at the same time being made by the brickearth and silica sand industries, covered by other sections of this Minerals Local Plan.

9.19 The clay tile industry in Kent is specialised and small-scale, its products being in demand for the repair of historic buildings and the construction of new high quality buildings. This is an assured market, though it is one that will remain essentially small. There is a present
partial dependence on imported clays which it would benefit the
industry to replace with an entirely local clay source.

9.20 Table 9.2 indicates the amount of Kent clay sold each year for
brick and tile making over the 10 year period 1984 to 1993 as in the
range 120,000 tonnes to 160,000 tonnes. If production were to rise to
the national 1988 levels advised by the Southern Brick Federation, that
would be an increase of an order approaching 40%, say to 175,000
tonnes per annum. Thirty years production at this rate of extraction
would require reserves of 5.25 million tonnes.

9.21 The existing permitted clay sources are considered to be
sufficient for these requirements.

**Sea Defences**

9.22 The Environment Agency has a continuing programme of
works as described in paragraph 9.5. No major schemes are identified
at the present time, but there is a continuing maintenance requirement.
The maintenance requirement is 300,000m$^3$ over the 5 years to
1999/2000. There is also a capital requirement of 300,000m$^3$ which is
said to be no more than a guide figure and is also subject to funding
agreements. The EA state that the estimated capital programme may
not begin until 1999, the end of their 5 year programme. It is noted
that the EA programme runs over a 5 year period. Whilst the EA
estimate a maintenance requirement of 300,000m$^3$ to 1999/2000, this
would be subject to appropriate funding being available. The need to
satisfy the Ministry of Agriculture in respect of the costs and benefits
of a defence scheme should also be noted. PPG20 (Coastal Planning)
notes that in low lying, undeveloped coastal areas, options for coastal
defence may include a policy of managed retreat. In such areas it
should be not be presumed that it will be economically justified to
maintain the existing coastal defence. To supply any future major
scheme, the movement of material to which would have environmental
and traffic implications, the Planning Authority would support
proposals for the clay to be obtained from ‘borrow pits’ near the
shoreline.

**Landfill**

9.23 Clay may be used in the engineering of landfill sites, for waste
disposal, depending on the form of engineering chosen and the
geological formation in which the landfill occurs. Although the
requirement would need to be determined in each case, a major waste
disposal operator in Kent estimates that sites being infilled with non-
inert waste and not protected by underlying clay strata would need
60,000m$^3$ of clay for each hectare of landfill. This would include base
lining, capping, outside walls and internal bunds. At the present time,
two of the three major landfill sites in Kent (at Shelford near
Canterbury and at St Mary Hoo on the Hoo Peninsula) have their own
clay resources on site. The Environment Agency, in its rôle as waste
licensing authority, advise that:-
(i) clay is not an automatic requirement for landfill engineering; 
best environmental practice should apply;

(ii) the need for landfill is reducing;

(iii) for the treatment of contaminated land, measures other than 
encapsulation are becoming more important in the cleaning up of sites.

9.24 Overall, existing permitted clay sources are considered to be 
sufficient to meet such landfill requirements. Alternative sources, if 
they would be more convenient, could be examined by way of planning 
applications. The role of landfill in waste disposal is however being 
considered afresh through the Kent Waste Local Plan.

Other Engineering
Requirements

9.25 Recent information has identified a specific requirement for 
clay as part of a major land reclamation project at Sheerness Port. This 
is considered to be an important development for economic reasons. A 
requirement was identified for a further 50,000m$^3$ of clay. A 1996 
permission for further clay extraction at Brambledown was given to 
meet this. The clay requirement is considered to be separate from that 
requirement at Sheerness Port for material for general reclamation, for 
which the use of secondary or otherwise waste materials is preferred.

9.26 In June 1996 the Harbour Company advised that it no longer 
had a direct requirement for clay, except for minor engineering works; 
this need could be satisfied from material brought to the site by 
contractors who pay for the disposal of such material.

9.27 Clay is a relatively abundant mineral resource in Kent. In 
principle the use of clay is supported in those circumstances where it 
could be substituted for scarcer primary mineral resources. For 
example it could be used in the manufacture of an aggregate product. 
However as a general principle the use of secondary and waste 
materials (e.g. colliery shale, dredging or construction spoil) is a first 
preference.
PART 4
THE STRATEGY, POLICIES AND PROPOSALS
CHAPTER 10
THE MAIN FINDINGS
THE STRATEGY
GENERAL POLICIES
SPECIFIC PROPOSALS
SAFEGUARDING
## THE MAIN FINDINGS

### National Policy

10.1 Chalk and clay resources support important industries and supply essential materials to the community. A principal objective of government policy is to ensure an adequate supply of these minerals at the same time as establishing a sustainable framework for their extraction. A main issue for the Plan is to secure supply with due regard to the protection of the environment and of natural resources, at the same time as minimising the impact of any necessary development.

10.2 Industries using mineral resources need security of supply to justify plant investment. Legislation such as the Environmental Protection Act requires investment to achieve higher environmental standards.

### Resources in Kent

10.3 Kent’s chalk and clay resources are very extensive. Their occurrence right across the County means that, in order to secure future provision for the community’s requirements for these two minerals, in principle the most important natural resource and environmental constraints could be avoided.

### The Demand for, and Supply of, Kent’s Chalk and Clay Resources

#### The Cement Industry

10.4 The government sees the cement industry as of major importance to the national economy. It is considered to be in the national interest to maintain and increase cement production to meet the needs of the community. The government would also not wish to discourage any export opportunities that may arise.

10.5 Kent’s cement industry is an important component in national production, a point which is recognised and taken forward in both the Structure Plan and this Plan.

10.6 For the preparation of this Plan, a 15 year landbank for the mineral requirements of Kent’s cement industry is considered to be an appropriate horizon. This is because significant new investment in plant is not at present planned (paragraph 3.16 and 3.17). The Plan will however need to be reviewed in time to be able to take full account of the investment planned at Rochester Works (see paragraph 4.22) and as a result of Blue Circle’s review (see paragraph 4.7).

#### Chalk for Cement

10.7 Northfleet Works will require 31.5mt of as dug chalk during the Plan period (to 2011), and a further 31.5mt to maintain a 15 year landbank from 2011. There is adequate consented chalk for the Plan period itself, and a new source will be required for beyond this.
10.8 **Rochester Works** will require 18.7mt of chalk during the Plan period and a further 16mt to maintain a 15 year landbank from 2011. Total permitted reserves are 26mt. There is adequate consented chalk for the Plan period itself and a new source will not be needed before about 2018.

10.9 **Northfleet Works** will require 6.5mt of as dug clay during the Plan period and a further 6.5mt to maintain a 15 year landbank from 2011. Total permitted reserves in Essex are 6.8mt. There is also 8.4mt of permitted reserves at Paddlesworth clay pit, although there is no intention by Blue Circle to work this at present.

10.10 **Rochester Works** will require 2.7mt of clay during the Plan period and a further 2.0mt to maintain a 15 year landbank from 2011. Total permitted clay reserves amount to 2.5mt. Permitted reserves will last until about 2009, just before the end of the Plan period.

10.11 Agricultural lime will remain an important primary material for farmers. Also of importance are small, specialist manufacturers which supply traditional local products (eg. peg tiles). Kent’s permitted clay resources have not been intensively used in the recent past. There are permitted sites that have remained dormant for many years, even during the time of maximum development pressure in the late 1980s. Table 9.1 above identifies those permitted clay reserves that are currently active or unused. No clay has been worked recently from any of the dormant sites identified in para. 9.14 (5 Chiddingstone, 6 Frittenden, 7 Naccolt). Working at these sites cannot be recommended until a new scheme of conditions has been determined. No such schemes have been submitted. For the past decade the sites at Brambledown and Grain have in the main provided for the clay needs arising in North Kent. Together the two sites have combined permitted reserves of 1.33 million tonnes. The clay at Shelford and Winterbourne raises availability to 4.46 million tonnes. The removal of clay overburden from an existing permitted sandpit at Aylesford was permitted in July 1996 to meet a particular brickmaking need. A small amount of clay overburden was allowed to be removed from a sandpit at Harty Pit, Oare, to enable local sea wall maintenance on the south Swale.

10.12 There are extensive permitted reserves of chalk and clay in Kent. Whilst they are considered overall to be sufficient for non-cement uses for the Plan period, two particular local engineering requirements for clay are identified in Chapter 9:-

(i) Sea Defences.
(ii) Land Reclamation at Sheerness Port.
10.13 The circumstances are outlined in paragraphs 9.25 and 9.26 and the Planning Authority’s response is set out in paragraphs 10.22 and 10.23. There will also be a requirement for landfill engineering as identified in paragraphs 9.23 and 9.24.

THE STRATEGY

10.14 Developing national and Structure Plan policies, the general strategy for the Kent Minerals Plan for Chalk and Clay will be:-

* To ensure adequate provision for
  (i) a 15 years’ supply of chalk and clay for production in Kent of cement, whiting and bricks and tiles
  (ii) a 10 years’ supply of chalk for agricultural liming
  (iii) chalk and clay for engineering or other specific requirements.

* To secure a land use planning basis for the continued operation of Kent’s cement industry.

* To identify and safeguard suitable locations for cement wharves.

10.15 Proposals are made having taken into account the Government’s sustainable framework for minerals extraction, namely:-

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

The principle of protection can also be extended to the best and most versatile agricultural land.
10.16 As a general principle the Planning Authority will seek to secure provision for the community’s chalk and clay requirements. In planning terms the preferred long term solution for maintaining adequate supplies of chalk and clay is by the deepening of existing pits (including those currently worked for other minerals) rather than by their lateral extension, and before the opening of new pits. This would be subject to the effects on the environment and on other relevant planning constraints being acceptable. Such a preference would reduce the need to use greenfield sites.

10.17 Other potential clay resources are as follows. They carry forward the Plan’s approach to recycling and to the deepening of existing mineral workings, both of which as a first principle would be preferable to the opening of a new clay pit:-

(i) Use of Gault Clay overburden that overlies permitted Folkestone Beds Sand Pits. There is a benefit here to the sand pit operator in that the viability of the site would be improved by the removal of unwanted clay overburden, so gaining access to additional sand reserves.

(ii) Extension to existing permitted sites through deeper working rather than the opening up of new greenfield sites.

(iii) Channel Tunnel Rail Link (CTRL) - there will be clay and other materials arising as a by product from this major construction project, particularly tunnelling in North Kent and East London. Design constraints placed on the CTRL will generate surplus materials. For example, in the Boxley Valley the surplus amounts to 723,000 m$^3$ (1.45mt). The overall surplus for inert spoil from the CTRL project is put at 9.26mt. This is a considerable resource with potential for beneficial use in reclamation, or other uses.

(iv) In the wider context, the continued construction of extensions to London’s underground system would give rise to useable clay and other materials.

10.18 It is policy to promote the use of secondary materials where possible in preference to the use of primary minerals. The principle source of secondary materials in Kent are the stocks of Carboniferous Shales associated with the former collieries in East Kent. These stocks amount to an estimated 25 million tonnes.

10.19 Some existing pits are very prominent in the landscape and within areas identified as of environmental or natural resource value. Some do not enjoy good road access. Accordingly, when a need arises to make further provision, this will be sought in areas outside those
identified in Policy CC2, and where ready access to the primary or secondary road network could be secured.

The Cement Industry

10.20 A proposal for an additional clay source for Rochester Works is made in the Plan. Possibilities for some additional chalk working at Holborough are identified to secure an improved final landform, and are safeguarded at Eastern Quarry. No other specific proposals are made for further mineral working.

10.21 This approach does not meet fully the government’s advice for a sufficient landbank to be maintained at the end of the plan period (ie for a further 15 years from 2011). However, with additional clay identified for Rochester Works, a 20 year plus supply is secure now for both Works and the provision of resources beyond the Plan period can be addressed satisfactorily at a subsequent review of the plan. This approach is acceptable to the cement industry.

Other Requirements for Chalk and Clay

10.22 With the exception of a requirement for further clay for the Rochester cement works which is expected to arise towards the end of the Plan period, it is considered that the requirements of those other industries which use Kent’s chalk and clay resources can be addressed by:

(a) existing permitted reserves;
(b) responding to particular and specific project and local requirements as they arise, against the framework of Structure Plan Policy NR12 (iv) and Local Plan Policies CC1 to CC3. The current position in respect of the demand for and supply of clay for non-cement making is set out in Chapter 9 and paragraphs 10.11-10.13.

10.23 Two particular project requirements for clay are identified in paragraph 10.12. The Planning Authority will look to these requirements being met from existing permitted reserves. But where for planning reasons the scale of requirement and the scale and method of material movement argues for a more local solution, the following principles will apply:

(i) Sea Defences. Where the need for clay for sea defence works cannot be met from any consented reserves, favourable consideration would be given to appropriate proposals which would enable such requirements to be met from local clay resources in nearby coastal areas. This would avoid using local roads to bring the material into the area from outside. Any permission given would be limited to the amount of clay required for the particular sea defence project and to an operating regime appropriate to the needs of the project (eg seasonal working).
(ii) Land Reclamation at Sheerness Port. Favourable consideration would be given to appropriate proposals which would enable such requirements to be met from local clay resources on the Isle of Sheppey to minimise the movement of material. When assessing any relevant planning proposal, a distinction will be drawn between a requirement specifically for clay and a requirement for general reclamation materials. In this respect, regard would be had to the advice of the Port operator (see paragraphs 9.25 and 9.26).

Any proposal in Kent to supply clay to Sheerness Port by water will need to demonstrate that such supply can be despatched in a way consistent with the environmental and natural resource considerations set out in Plan Policy CC2.

**Chalk for Agricultural Lime**

10.24 The Structure Plan recognises Kent’s agricultural and horticultural industry as a major employer which makes a key contribution to the County’s economy, and is of national importance. A positive rôle is sought in providing for the development of a supporting infrastructure of service activities. This would include ensuring that development plan provision is made for the continued local supply of agricultural lime.

**GENERAL POLICIES**

**Sustainable Development**

10.25 The first starting point in developing policies for the Local Plan is Structure Plan Policy S1. This seeks to achieve a sustainable pattern and form of development which will reduce the need to travel, facilitate the conservation of energy and other natural and environmental resources, and minimise pollution.

10.26 Secondly come Structure Plan Policies S3 and NR12. These seek the growth of existing industries and the provision of chalk and clay for the community’s needs.

10.27 In accordance with the principles of sustainable development, the Planning Authority will take account of the contribution that can be made by secondary and waste materials to meeting the community’s overall requirements for raw materials. Beyond its own developments, the Minerals Planning Authority cannot directly ensure that developers utilise recycled secondary and waste materials in place of primary materials in the construction of particular developments. However, through granting permission for appropriate minerals related proposals which prepare secondary and waste materials for re-use, this will increase the availability of such materials, and hence, indirectly encourage their re-use. To this end, the Planning Authority will give permission for such appropriate minerals related proposals. Accordingly:-
Policy - Provision for Development

CC1 THE PLANNING AUTHORITY WILL MAINTAIN PROVISION FOR CHALK AND CLAY TO MEET THOSE LANDBANK AND OTHER NEEDS WHICH ARE IDENTIFIED IN STRUCTURE PLAN POLICY NR13 AND THIS LOCAL PLAN, IN LINE WITH NATIONAL AND STRATEGIC PLANNING POLICY GUIDANCE. TO THIS END, SUBJECT TO PLANNING, LANDBANK AND ENVIRONMENTAL CONSIDERATIONS, IT WILL GRANT PLANNING PERMISSION FOR THOSE MINERAL WORKING AND MINERAL RELATED DEVELOPMENTS AT THE LOCATIONS AND IN THE CIRCUMSTANCES IDENTIFIED IN THE PLAN.

CC1A TO INCREASE THE AVAILABILITY OF RECYCLED MATERIALS WHICH CAN BE USED IN SUBSTITUTION FOR PRIMARY MINERALS, THE PLANNING AUTHORITY WILL, SUBJECT TO PLANNING AND ENVIRONMENTAL CONSIDERATIONS, GIVE PERMISSION FOR APPROPRIATE MINERALS RELATED PROPOSALS TO PREPARE SUITABLE SECONDARY OR WASTE MATERIALS FOR RE-USE.

10.28 To help secure the increased use of secondary and waste materials, Policy CC1A will not be subject to any landbank or need considerations.

10.29 Thirdly, account is taken of the strategic planning objective of protecting important resources. The Kent Structure Plan (Policies ENV1 and ENV2) recognises Kent’s physical environment as a major national asset; the environment in its widest sense will be protected, as well as the countryside for its own sake. Structure Plan Policy NR6 states that before permitting any mineral extraction or associated plant and buildings, the Planning Authority will require to be satisfied that there is a need for such development which would override a material agricultural, landscape, conservation or environmental interest. The Structure Plan also looks to give increased protection to major and minor aquifers and to the river systems.

10.30 Against this framework the Local Plan seeks to direct development to the most appropriate locations. Accordingly, and pursuant to the levels of protection afforded by the environmental and natural resource policies in the Structure Plan:-

Policies - Protecting Environmental Resources

CC2 BEFORE PERMITTING ANY PROPOSALS FOR CHALK AND CLAY EXTRACTION AND RELATED DEVELOPMENTS THE PLANNING AUTHORITY WILL REQUIRE, PURSUANT TO STRUCTURE PLAN POLICY NR6, TO BE SATISFIED THAT THERE IS A NEED FOR
SUCH DEVELOPMENT WHICH WOULD OVERRIDE A MATERIAL AGRICULTURAL, LANDSCAPE, CONSERVATION OR ENVIRONMENTAL INTEREST. ACCORDINGLY SUCH PROPOSALS:-

(i) IN KENT'S AREAS OF OUTSTANDING NATURAL BEAUTY WILL BE SUBJECT TO THE MOST RIGOROUS EXAMINATION UNDER STRUCTURE PLAN POLICY ENV3.

(ii) WHICH WOULD MATERIALLY HARM THE SCIENTIFIC OR WILDLIFE INTERESTS OF RAMSAR SITES, DESIGNATED OR POTENTIAL SPECIAL PROTECTION AREAS AND SPECIAL AREAS OF CONSERVATION, NATIONAL NATURE RESERVES, AND SITES OF SPECIAL SCIENTIFIC INTEREST WILL NORMALLY BE REFUSED IN ACCORDANCE WITH STRUCTURE PLAN POLICY ENV5.

(iii) WHICH WOULD CAUSE A LOSS OF THE BEST AND MOST VERSATILE AGRICULTURAL LAND WILL NOT NORMALLY BE PERMITTED. THE LONG TERM PRODUCTIVE POTENTIAL OF AGRICULTURAL LAND WILL NORMALLY BE PROTECTED, UNLESS THERE IS AN OVERRIDING NEED IDENTIFIED IN THE DEVELOPMENT PLAN, IN ACCORDANCE WITH STRUCTURE PLAN POLICY ED6.

(iv) WHICH WOULD HARM THE NATURAL BEAUTY, HERITAGE AND WILDLIFE HABITATS OF HERITAGE COAST WILL NOT NORMALLY BE PERMITTED, IN ACCORDANCE WITH STRUCTURE PLAN POLICY ENV9.

(v) WHICH WOULD ADVERSELY AFFECT THE ARCHAEOLOGICAL AND HISTORIC INTEGRITY OF SCHEDULED ANCIENT MONUMENTS AND OTHER IMPORTANT ARCHAEOLOGICAL SITES AND HISTORIC LANDSCAPES, TOGETHER WITH THEIR SETTINGS, WILL NORMALLY BE REFUSED, IN ACCORDANCE WITH STRUCTURE PLAN POLICY ENV18.
(vi) WHICH WOULD AFFECT THE CHARACTER AND SETTING OF LISTED BUILDINGS WILL BE ASSESSED AGAINST STRUCTURE PLAN POLICY ENV19.

PROPOSALS OUTSIDE OF THE AREAS AND SITES IDENTIFIED ABOVE WILL BE CONSIDERED AGAINST ALL RELEVANT STRUCTURE AND LOCAL PLAN POLICIES.

PROPOSALS SHOWN TO HAVE A SIGNIFICANTLY ADVERSE IMPACT ON THE AREAS AND SITES IDENTIFIED ABOVE WILL NOT BE PERMITTED.

10.31 In assessing impact, regard will be had to the appropriate level of protection identified in the Structure or District Local Plans.

10.32 Sites where the nature conservation interest is of international significance are Ramsar Sites, and declared and potential Special Protection Areas (SPA) and Special Areas of Conservation (SAC) under the Birds Directive and the Habitats Directive (see Appendix 1, paragraph 2.27). Applications within Areas of Outstanding Natural Beauty (AONB), National Nature Reserves (NNR) and Sites of Special Scientific Interest (SSSI) will be subject to the most rigorous examination.

CC2A BEFORE PERMITTING ANY PROPOSALS FOR CHALK AND CLAY EXTRACTION AND RELATED DEVELOPMENTS THE PLANNING AUTHORITY WILL REQUIRE, PURSUANT TO STRUCTURE PLAN POLICY NR6, TO BE SATISFIED THAT THERE IS A NEED FOR SUCH DEVELOPMENT WHICH WOULD OVERRIDE A MATERIAL AGRICULTURAL, LANDSCAPE, CONSERVATION OR ENVIRONMENTAL INTEREST.

ACCORDINGLY SUCH PROPOSALS:-

(i) IN SPECIAL LANDSCAPE AREAS WILL BE CONSIDERED AGAINST THE NEED TO PROVIDE LONG TERM PROTECTION TO SUCH AREAS PURSUANT TO STRUCTURE PLAN POLICY ENV4.

(ii) WHICH WOULD MATERIALLY HARM THE SCIENTIFIC OR WILDLIFE INTERESTS OF LOCAL NATURE RESERVES, OR SITES OF NATURE CONSERVATION INTEREST IDENTIFIED IN LOCAL PLANS, WILL NOT BE PERMITTED.
UNLESS THERE IS A NEED WHICH OUTWEIGHS THE LOCAL WILDLIFE OR HABITAT INTEREST, IN ACCORDANCE WITH STRUCTURE PLAN POLICY ENV6.

(iii) WHICH WOULD MATERIALLY DETRACT FROM THE SCENIC, HERITAGE OR SCIENTIFIC VALUE OF THE UNDEVELOPED COAST AND ESTUARIES AND ADJOINING COUNTRYSIDE WILL NOT NORMALLY BE PERMITTED, IN ACCORDANCE WITH STRUCTURE PLAN POLICY ENV10.

(iv) WHICH WOULD HARM THE SPECIAL CHARACTER OF CONSERVATION AREAS WILL NOT NORMALLY BE PERMITTED, IN ACCORDANCE WITH STRUCTURE PLAN POLICY ENV17.

(v) WHICH WOULD AFFECT URBAN FRINGE LAND, AREAS OF LOCAL LANDSCAPE IMPORTANCE COASTAL ZONES AND STRATEGIC GAPS IDENTIFIED IN DISTRICT LOCAL PLANS WILL BE ASSESSED AGAINST THE RELEVANT POLICIES IN THE DISTRICT LOCAL PLAN.

(vi) WHICH WOULD HAVE AN UNACCEPTABLE EFFECT ON THE QUALITY OR POTENTIAL YIELD OF GROUNDWATER RESOURCES WILL NOT BE PERMITTED, PURSUANT TO STRUCTURE PLAN POLICY NR3.

PROPOSALS OUTSIDE OF THE AREAS AND SITES IDENTIFIED ABOVE WILL BE CONSIDERED AGAINST ALL RELEVANT STRUCTURE AND LOCAL PLAN POLICIES.

PROPOSALS SHOWN TO HAVE A SIGNIFICANTLY ADVERSE IMPACT ON THE AREAS AND SITES IDENTIFIED ABOVE WILL NOT BE PERMITTED.

10.33 In assessing impact, regard will be had to the appropriate level of protection identified in the Structure or District Local Plans.

10.34 Policy CC2 refers to national policy designations, Policy CC2A to local designations.
10.35 In respect of CC2(iii), unless an overriding need can be established and which cannot be met on land of lower agricultural quality, the irreversible loss of the best and most versatile agricultural land (grades 1, 2 and 3a of the MAFF Agricultural Land Classification System) will not be permitted. In addition, where there is a choice of sites within these grades, development will be directed towards the lowest quality land. This is the application of the worst first principle.

10.36 In accordance with government advice (MPG1, paragraph 40), the Plan does not include development control policies which require developers to provide evidence on the need for the mineral in support of their planning applications. However, the government recognises that ‘need may be a consideration where material planning objections are not outweighed by other planning benefits’.

Visual and Ecological Impact

10.37 Over the years chalk quarrying in Kent has given rise to important planning issues. In particular, there is a legacy of chalk workings along the North Downs scarp and from the sides of the Darent, Medway and Stour Valleys. These are intrusive. The North Downs scarp and crest and the sides of the three main valleys are visually important, and have considerable wildlife interest relating to their permanent grasslands and broadleaf woodlands. In Kent the scarp is part of the Kent Downs Area of Outstanding Natural Beauty.

10.38 In addition an active quarry is likely to have a much greater impact than a disused one where the exposed chalk faces mellow with age. There is also a particular problem with restoring south facing slopes, especially when new planting is envisaged.

10.39 In view of this there is considerable merit to be gained in terms of landscape and visual impact by restricting further quarry development that would be prominent on the scarp face and main valley sides. To protect against further erosion of the natural character of the chalk outcrop, as a matter of general planning principle, further workings on the scarp face of the Downs and on the main valley sides will be resisted.

10.40 All proposals will be assessed against their ability to meet and maintain the environmental standards and planning requirements set out in Chapter 11. This will include taking account of the proximity of similar developments and proposals. Accordingly proposals which would not meet or maintain the environmental standards and planning requirements set out in policies CC12 to CC26 will not be permitted.

10.41 Conditions will be imposed on any planning permission to put into place the necessary management control framework to meet and maintain the Plan’s standards and requirements.
10.42 A further relevant consideration is that provided by national policy advice on Green Belts (Appendix 1 paragraph 1.33). The Structure Plan (Policy MGB3) endorses this policy advice and both are carried forward into the Minerals Local Plan. Accordingly:

**Policy - Metropolitan Green Belt**

**CC4 WITH THE EXCEPTION OF ESSENTIAL FACILITIES RELATED TO MINERAL WORKINGS AND THEIR RESTORATION, THERE WILL BE A GENERAL PRESUMPTION AGAINST PROPOSALS FOR ANY INAPPROPRIATE DEVELOPMENTS WITHIN THE METROPOLITAN GREEN BELT.**

10.43 Any proposals for inappropriate development in the Green Belt would need to be justified by very special circumstances and would be regarded as a departure from the Plan.

**SPECIFIC PROPOSALS**

**The Cement Industry**

**Chalk Areas**

10.44 Although there is no case of need for releasing new chalk areas within the Plan period, working of the existing permitted reserves at Eastern Quarry and Holborough during the Plan period will realise two potential opportunities for winning additional chalk based on the existing permitted working areas. These are addressed now in the interests of proper planning. The position will need to be kept under review should these opportunities be able to be brought forward.

10.45 The first, at Eastern Quarry, is the opportunity to win further reserves from an existing quarry. In this general area the Upper Chalk goes down to some 30m below OD. Planning permission currently exists to work the chalk down to a level of 6.7m below OD, and in one area to 10m below OD.

10.46 Subject to water resources being safeguarded to the satisfaction of the EA, and also to satisfactory working, landscaping and restoration proposals, there is planning advantage in winning from an area already opened for extraction and not restored, as much raw material as possible. This would be by deeper digging.

10.47 However Eastern Quarry is identified as a major development opportunity in the Kent Thameside area, within the context of the Thames Gateway Planning Framework. The Kent Structure Plan proposes to release Eastern Quarry from the Metropolitan Green Belt. The Quarry provides potential for meeting a significant part of the development requirements for Kent Thameside as set out in the Structure Plan. This will restrict any potential for further chalk working.
10.48 Until plans are complete it will be difficult to define the sequence in which worked-out areas will be developed. But it should be possible for development to proceed in the north eastern part of the Quarry whilst extraction continues to the south and west. It is essential that progress with the urban development requirements of Thames Gateway is not prejudiced and that the amenity of new and established development is protected. In particular it will be necessary to construct at an early stage an east-west spine road (with an associated passenger transport corridor suitably safeguarded) linking Bean Road/Bluewater and Ebbsfleet. For this land along the northern boundary of the Quarry will need to be made available. Extraction will then be confined to the south-eastern and western parts of the quarry.

10.49 Policy CC5 stipulates the criteria against which any future application for additional (deeper) chalk working would be judged. It would be for the operator in bringing forward any new mineral working proposals to establish, to the satisfaction of the planning authority, that criteria (i) to (iii) in Policy CC5 are fully met. Any new application would need to include phases of working that satisfactorily accommodate the Thames Gateway development proposals as they are developed in detail. Planning studies for Eastern Quarry in the context of the Thames Gateway strategy are not yet sufficiently advanced to determine the precise boundaries of any future mineral working areas within the plan period.

Policy

CC5  THE PLANNING AUTHORITY WILL SAFEGUARD EXISTING WORKING AREAS IN THE SOUTH-EASTERN AND WESTERN PARTS OF EASTERN QUARRY AS A POTENTIAL FUTURE SOURCE OF CHALK, SUBJECT TO:-

(i)  THE SAFEGUARDING OF WATER RESOURCES

(ii) THE PRIOR APPROVAL OF WORKING, LANDSCAPING AND RESTORATION SCHEMES WHICH ACCORD ALSO WITH POLICIES IN THE BOROUGH OF DARTFORD LOCAL PLAN AND ALLOW FOR THE EARLY PROVISION OF AN EAST-WEST TRANSPORT CORRIDOR LINKING BEAN ROAD/BLUEWATER AND EBBSFLEET

(iii) EXTRACTION NOT PREJUDICING THE DEVELOPMENT OF THE QUARRY IN THE CONTEXT OF THE KENT STRUCTURE PLAN AND THE THAMES GATEWAY PLANNING FRAMEWORK
10.50 Eastern Quarry is identified on Plan 4.1. Detailed development planning for the area may identify the desirability of linking visually, as well as in transport terms, Eastern Quarry with Blue Water to the west. If so the opportunity should be taken to utilise for cement making any chalk removed from the ‘spine’ under Bean Road.

10.51 The second opportunity is at Holborough. Planning permission exists to work the chalk on both sides of Ladds Lane (see Map 4.2). Provision is currently made for restoration at a lower level and thus would leave Ladds Lane on a spine. This is not considered to be an acceptable final landform and accordingly, when considering a working scheme for the area north of Ladds Lane, the Planning Authority will require the submission and approval of proposals to reduce the spine and to place Ladds Lane at a level similar to that of final levels in the adjoining quarries. A fresh planning permission will be required to work the chalk under Ladds Lane.

10.52 The opportunity should also be taken to separate the quarry traffic from the residential traffic. Accordingly:

\textit{Policy}

\begin{itemize}
  \item[(i)] An appropriate realignment of Ladds Lane, either permanently or temporarily to allow the working of the chalk under the lane, and then to leave it at a level similar to that of the adjoining restored land.
  \item[(ii)] A comprehensive restoration and aftercare scheme to include Monarch Hill Pit, and to retain in a state suitable for scientific study, the features of interest of Houlden and Monarch Hill Pits, Upper Halling SSSI.
  \item[(iii)] Access to the A228 for the whole chalk working to be separate from both the proposed residential redevelopment in the Holborough Quarry and the Holborough Mill Conservation Area.
\end{itemize}
10.53 As part of the overall scheme, provision will be made for Ladds Lane to remain open at all times. Account will also need to be taken of other planned development proposals in the area, as set out in the District Local Plan.

10.54 Working under Ladds Lane would release a further 2 to 3mt of chalk reserves.

Clay Sources

10.55 Chapter 6 identifies a need towards the end of the Plan period for a further source of clay for the Rochester Works. The Plan now gives consideration to the identification of this source.

10.56 The cement making process at the Works is established to use Gault as the necessary ‘clay’ part of the raw material mix. Consistency and security of supply are important considerations for the industry. In Kent the Gault outcrops below the chalk of the North Downs. In the mid Kent area this locates the clay to the south of the Works, and either below the scarp face of the North Downs or at the foot of the sides of the valley ‘Gap’ as the Medway cuts through the Downs. As part of the foot slope of these major landscape features, the clay outcrop falls mainly within the Kent Downs Area of Outstanding Natural Beauty (AONB). Park Farm at Wrotham is on the Gault clay but is the first location west of Paddlesworth which is outside the AONB. This general area can also gain more ready access to the primary and secondary road network than can those parts of the clay outcrop to the east between Trottiscliffe and Paddlesworth.

10.57 For these reasons land has been examined in the vicinity of the Work’s existing clay quarry at Park Farm to assess the feasibility in principle of its being extended.

10.58 For geological and physical reasons the quarry cannot be extended either south or north. The quarry is at the southern limit of the clay outcrop and any northern extension is ruled out by the M26 motorway. An eastward extension would be constrained physically by Firemanshaw Wood, protected by a Tree Preservation Order.

10.59 The land to the west is shown in the Adopted Malling Rural Area Local Plan as within the Green Belt and a Special Landscape Area. Structure Plan Policies MGB3 and ENV3 apply. Although mineral working need not be incompatible with Green Belt objectives, under Policy ENV3 the Planning Authority provides long term protection for this area and will normally give priority to the conservation and enhancement of natural beauty, including landscape, wildlife and geological features, over other planning considerations.

10.60 The need to secure raw materials for Kent’s cement industry, the principle of avoiding working in the AONB and the advantage of
extending an existing relatively unobtrusive quarry which already supplies the cement industry, in a traditional area of mineral working, is considered to constitute sufficient justification for identifying the area for future clay working. This would be subject to:-

* securing improved access arrangements by utilising an already permitted access to the A25 to the east via Nepicar Farm, and to closing the existing access via Platt. The Nepicar Farm access is to an existing sand quarry. The access is well designed and the route to it from the clay quarry would use land largely within consented mineral working areas. Such an access would have the added benefit of helping to remove quarry vehicles away from the housing area of Platt and from the primary school;

* screening by bunding and landscaping to protect residential areas to the north, south and west;

* retention of the local fishing amenity;

* safeguarding nature conservation interests at Botany Wood. This is an area of semi-natural broadleaved woodland which also supports ponds. The wood is reasonably diverse and forms part of a wider complex of habitats of some local value. A management agreement will be sought to formalise safeguarding of the nature conservation interests;

* progressive restoration of the working areas;

* safeguarding water resource interests, in particular the major Lower Greensand aquifers which underlie the clay.

10.61 The area of land identified in Policy CC7 includes the area of the existing planning permission for clay working, and that part from south of the M26 of an application for clay working which was refused planning permission in 1954 (see Map 6.2). The area which was refused permission is related to the local geology, and on the western boundary to an existing tree belt. Accordingly:-

Policy CC7 THE PLANNING AUTHORITY WILL GRANT PERMISSION FOR A WESTWARD EXTENSION OF THE EXISTING CLAY QUARRY AT PARK FARM, WROTHAM FOR CLAY WORKING, SUBJECT TO:-

(i) THE SECURING OF A NEW ACCESS EASTWARDS TO THE A25 AND CLOSURE OF THE EXISTING ACCESS VIA PLATT INDUSTRIAL ESTATE.
(ii) SAFEGUARDING OF THE FIREMANSHAW WOODS TPO AND ADVANCE SCREENING BY BUNDING AND LANDSCAPING ON THE NORTHERN, WESTERN AND SOUTHERN BOUNDARIES AND THE REPLACEMENT OF ANY WOODLAND TO PROVIDE ADEQUATE SCREENING TO MINIMISE IMPACT ON THE ADJACENT AREA OF OUTSTANDING NATURAL BEAUTY.

(iii) PRIOR RELOCATION OF THE FISHING LAKES IN THE EXISTING QUARRY.

(iv) SAFEGUARDING NATURE CONSERVATION INTERESTS AT BOTANY WOOD.

(v) PROGRESSIVE RESTORATION OF THE WORKING AREAS.

(vi) SAFEGUARDING WATER RESOURCE INTERESTS.

10.62 In order to be able to ensure the continued operation of Northfleet cement works during the Plan period, a secure source for slurry preparation is required. Slurry at present comes to Northfleet works by pipeline from the washmills in Eastern Quarry. There is also a pipeline connection to the washmills from the clay source in Essex.

10.63 The washmills operate with the benefit of a temporary planning permission which runs to 1998. At the time the permission was given this was the expected date of exhaustion of the adjoining chalk quarries.

10.64 The washmills are sited relatively unobtrusively against the southern face of the quarry in a location which enjoys good access to the primary road network. For these reasons, although currently within the Green Belt, it would be appropriate for the washmills to remain here for the Plan period. Regard will also need to be had to the development plans for Eastern Quarry as set out in paragraph 10.47-10.49 above. Accordingly:-

Policy

CC8 SUBJECT TO THE LONG TERM DEVELOPMENT PLANS FOR EASTERN QUARRY, SWANSCOMBE THE PLANNING AUTHORITY WILL GRANT PERMISSION FOR THE RETENTION OF THE WASHMILLS IN EASTERN QUARRY, SWANSCOMBE FOR THE PLAN PERIOD.
AN APPLICATION TO RETAIN THE WASHMILLS ON A TEMPORARY BASIS SHALL INCLUDE PROPOSALS FOR PLANT CLEARANCE AND RESTORATION.

10.65 Any application to retain the washmills beyond 1998 should include a restoration scheme to include such matters as the removal of plant and machinery, and landscaping and planting on the southern boundary of the area covered by Policy CC8. The scheme should also take into account any specific development proposals for the area which may come forward in due course as part of the Thames Gateway Initiative.

Cement Wharves

10.66 The Planning Authority supports the government’s wish not to discourage any opportunities that may arise for the export of cement. Accordingly existing wharves at Northfleet and Rochester are safeguarded.

Policy

CC9 EXISTING WHARVES ADJACENT TO NORTHFLEET AND ROCHESTER CEMENT WORKS WILL BE SAFEGUARDED AGAINST ANY DEVELOPMENT WHICH WOULD PREJUDICE THEIR BEING USED FOR THE EXPORT OF CEMENT.

10.67 This policy will not operate to preclude other users of the wharves. It is expected that they will be available for any appropriate river borne traffic.

10.68 Any proposals for new wharves will be required to minimise wildlife damage and environmental impact. In this regard the existing hard surfaces for wharfage adjacent to Rochester Cement Works fall within the River Medway and Marshes Site of Nature Conservation Interest. Any proposals to create additional wharfage here beyond the existing surfaces will need to be supported by full details of the development and by a survey of water related wildlife interest.

Manufacturing Industry

10.69 The principal Kent manufacturer of whiting for the paper industry (see paragraphs 8.11 to 8.13 and 8.24 to 8.26) seeks at the end of the Plan period a new dedicated plant to use the permitted chalk reserves at Cliffe. This could most appropriately be located on land to the south-west of the quarry, identified in the Medway Towns Local Plan as an ‘Established Employment Site’. The prospective operators advise that two plant areas will be required, one in the quarry for initial processing, and one on the proposals site for final processing, storage and ‘load out’. In order to avoid traffic movements across the intervening road, the chalk will be expected to be transported to the plant by pipe, conveyor or similar means. Accordingly:-
Policy

CC10 THE PLANNING AUTHORITY WILL GRANT PERMISSION FOR NEW PLANT TO MANUFACTURE CHALK WHITING AT CLIFFE, SUBJECT TO THE CHALK REQUIRED COMING ONLY FROM THE ADJOINING CLIFFE QUARRY, AND TO ITS BEING CONVEYED TO THE PLANT BY A MEANS WHICH AVOIDS ITS HAVING TO USE THE PUBLIC HIGHWAY.

10.70 When assessing any planning application at Cliffe the Planning Authority will have regard to the relevant policies and proposals in the Medway Towns Local Plan, and will also ensure that the adjoining SPA is safeguarded.

SAFEGUARDING

Mineral Consultation Areas

10.71 For the success of the Plan’s strategy it is important for the Mineral Planning Authority to be consulted on any non-mineral related proposals for development which might prejudice the implementation of the proposals in this Plan. Mineral Consultation Areas are therefore defined. These are the areas identified on Inset Maps A to D of the Plan’s Proposals Map. The areas represent Minerals Local Plan proposals as set down in Policies CC5, CC6, CC7, CC8, CC9 and CC10. District Councils are asked to consult the Mineral Planning Authority on any proposals within these areas which fall to them to determine.

CC10A IT WILL BE AN OBJECTIVE OF THE PLANNING AUTHORITIES TO SAFEGUARD MINERAL RESOURCES AND PROPOSED MINERAL RELATED DEVELOPMENTS. WHEN CONSIDERING APPLICATIONS FOR DEVELOPMENT WITHIN THE MINERAL CONSULTATION AREAS, ACCOUNT WILL BE TAKEN OF THE EXTENT TO WHICH THE MINERAL LOCAL PLAN’S OBJECTIVES MAY BE PREJUDICED.
CHAPTER 11
OPERATIONAL CRITERIA AND POLICIES
FOR THE ASSESSMENT OF PLANNING APPLICATIONS
GENERAL CONSIDERATIONS

11.1 An important objective of local plans is to provide a detailed framework for the control of development (PPG12). Government advice is that policies should be included:-

(i) on the development control criteria which will be applied to planning applications;
(ii) for restoration and aftercare.

11.2 In order to be able to determine a planning application, a full view needs to be formed of the impacts which the proposal is likely to have. Accordingly the Plan sets out the nature of information to be included in planning applications. For example:-

* the type and amount of mineral to be worked, and the methods to be used
* access to the site
* the timescale of operations.

11.3 The Planning Authority accepts that protection must be provided to mitigate the impact that mineral working, its handling and processing can have on the local environment. This issue is given explicit policy expression in the Structure Plan, which looks to improve the quality of living and standard of environment in Kent.

11.4 Accordingly the purpose of this chapter is to set down a detailed framework for the control of development, to be able firstly to assess the impact of applications, and secondly to secure planning and operational control for areas which would be affected by such developments. Consultation with the appropriate District and Parish/Town Councils will be undertaken as part of this process.

11.5 This part of the Plan also identifies, for both the local community and industry, the standards expected in Kent from mineral and mineral related developments. It seeks to ensure that developments operate without having what is judged by the Planning Authority to be an unacceptable impact either on Kent’s natural resources or on its environment, including that of the local community and the economy. Mineral working can provide positive opportunities for future land uses and regard will need to be had to such possibilities. Any permission granted will include conditions to secure that operations are carried out, and the site restored, in compliance with the following policies. In some cases Section 106 Agreements will be appropriate. The Planning Authority will seek to ensure that planning conditions are complied with, using its enforcement powers where appropriate.
11.6 The Government’s view is that the cost of meeting acceptable environmental standards falls on industry in line with the ‘polluter pays’ principle. Whilst conflicts of interest will not be eliminated, a rational framework for decisions is established such that measures to minimise environmental impact, including any necessary transport measures, are an integral part of any proposal.

11.7 Accordingly the industry will wish to build into new projects the costs of meeting the environmental standards set out in this Plan. The Planning Authority will require by condition detailed schemes of working, restoration and landscaping to be approved before any substantive operations commence on site and will require such schemes to be submitted as part of the application where that is considered to be necessary. Where mitigation or safeguarding of features of scientific or landscape importance is considered to be necessary the Planning Authority will require by condition or by a S106 Agreement, a scheme which addresses to its satisfaction their future management. Where existing workings have inadequate reclamation conditions the government looks to a partnership, by way of the Review of Mineral Sites, between industry and the Planning Authority to put them in good order.

11.8 As a general principle the Planning Authority looks to industry to acknowledge its responsibility for both maintaining high standards of environmental performance and for improving upon those standards. A clear requirement is seen for the industry to develop further public confidence and trust. Good site management is a major factor in mineral and mineral related operations. High standards can be achieved and maintained only with careful and sustained attention to on-site management practices. Operators are a part of the local community and are encouraged to develop close links with it. An annual report (or audit) from the operator to the local community on the way operations have been conducted is commended as good practice (see Appendix 3).

11.9 For its part the Planning Authority will assist any local training initiatives to improve and maintain environmental standards. It also encourages, and would be pleased to assist with, the establishment by operators of environmental management guidelines as an integral part of their operations in Kent. The guidelines would specify, and set out to maintain and improve, objectives and standards which make clear an operator’s wider responsibilities and achievements. The Planning Authority expects that achievement of British Standards 5750 for Quality Assurance (which is awarded by a body accredited by the National Accreditation Council for Certification Bodies) and 7750 for Environmental Management Systems will now be a major objective for the mineral and mineral related industry in Kent.
11.10 In 1988 the government implemented the requirements of an EU Directive (85/337/EEC) on the assessment of environmental effects. The objective was to ensure that permission for certain types of development likely to have significant effects on the environment was not granted until environmental information had first been assessed and taken into account.

11.11 The requirements, and guidance on preparation of the necessary information, are set out in Appendix 7. Developers are encouraged to submit their details in accordance with the guidance, and with that contained in the Department of the Environment’s booklet ‘Environmental Assessment, A Guide to the Procedures’.

11.12 Paragraph 4 of Appendix 7 lists mineral working and minerals related proposals which may require an EA (known as ‘Schedule 2’ proposals).

11.13 Some types of development that would not automatically require an environmental statement can be progressed more smoothly with the preparation of such statements. Government’s advice in DoE Circular 15/88 is that only those developments which fall within Schedule 2 of the Regulations which are likely to have significant environmental impacts will require an EA. Developing this advice the following guidelines were adopted by the Planning Authority in 1988 to help determine whether an EA would be required for mineral and mineral related proposals:-

(i) mineral applications in an AONB will normally require an EA unless they are an extension of less than 20 hectares;

(ii) chalk and clay applications of more than 50ha will normally require an EA; smaller sites affecting sensitive locations may require an EA;

(iii) a surface installation for the manufacture of cement, ie. a new cement factory, will normally require an EA.

11.14 Sensitive locations would include:-

- locations within an AONB, SSSI and conservation wetlands
- in or adjoining NNRs, LNRs
- directly affecting or adjoining an Ancient Monument or a site of major archaeological significance, Conservation Area or sites with a high concentration of listed buildings.
Declared Special Areas of Conservation (SACs) need to be added to the framework of paragraph 11.13 AND 11.14 in anticipation of their being brought into effect during the life of the Plan. As well as declared sites, proposed SPAs, Ramsar sites and SACs also need to be included.

11.15 If the Planning Authority decide that an EA is necessary, it may request an Environmental Statement and a planning application will not be considered without it. But the decision to request a Statement is subject to an appeal procedure.

11.16 The criteria and policies which follow incorporate the Planning Authority’s requirements for the detailed control of mineral and mineral related operations. Where proposals cannot comply with these requirements, such that they would have an unacceptable impact on the quality of life, permission will not be given.

11.17 Advice on the content of planning applications is set out in Appendices 3, 4 and 5.
THE IMPACT OF PROPOSALS

Proximity to Other Development

11.18 In a densely settled County like Kent mineral and mineral processing sites which are remote from any built development, particularly housing, are rare. During their working life, even those undertakings operating at the highest standards of management, are likely to be unpopular with people living or working close them.

11.19 The issue of protection for adjoining development will be examined in each case. There are wide variations in working practices and scales of operation for different types of quarry; there are local variations in topography and screening, and in the direction and strength of the prevailing wind. These factors and the safeguarding limits inherent in the Plan’s policies to protect against visual intrusion, noise and dust, will all be taken into account when determining the appropriate distance from built development.

Protecting the Environment/The Control of Operations

Noise and Vibration

11.20 Noise can be an important factor in determining the acceptability or otherwise of mineral and mineral related activities. The main impacts are likely to be from vehicle movements and from plant/machinery operating on site. If a proposal is likely to affect existing or committed noise sensitive development then it will need to be supported by a noise and vibration impact study to demonstrate that the operations proposed will not lead to an unacceptable loss of local amenity. The study will include details of sources, background levels, and measures proposed to reduce noise and vibration levels. Wherever necessary, suppression or insulation measures will be required and maximum permissible noise levels will be set.

11.21 The planning system cannot control all aspects of noise generation. Some fall to other systems (eg. environmental health legislation). However, within the limits of the planning system, noise control measures sought will include, as necessary:

(i) acoustic screening, by earth mounding, planting or fencing;

(ii) siting of plant, access and working areas away from existing or committed noise sensitive developments;

(iii) control of working practices (including hours of working), insulation, enclosure and cladding of plant;

(iv) leaving unworked margins;
(v) use of quiet plant and its regular maintenance (control at source).

11.22 These measures would be such as to ensure that specified noise levels are not exceeded. The figures set out in Appendix 3 will be used as a guide to set appropriate levels. They relate to the working day and to the most exposed point of the nearest noise sensitive use. In some cases however it may be more appropriate to relate levels to buildings or to site boundaries.

11.23 Kent’s standards reflect those generally adopted nationally, although the position will continue to be reviewed in the light of fresh advice.

Dust

11.24 The potential impact from dust can be a source of concern to the local community. The Planning Authority will need to be satisfied that dust will not cause an unacceptable nuisance locally. For example, dust can have a significant effect on agricultural/horticultural crops, particularly on salad crops where the visual appearance can affect the quality assessment, and thus marketability/value. Accordingly:-

Policy

CC12 BEFORE GRANTING A PLANNING PERMISSION THE PLANNING AUTHORITY WILL REQUIRE TO BE SATISFIED AS TO THE MEANS OF CONTROL OF NOISE, VIBRATION AND DUST, PARTICULARLY IN RESPECT OF ITS POTENTIAL IMPACT ON NEIGHBOURING LAND USES AND AMENITY.

DUST CONTROL MEASURES WILL INCLUDE, AS NECESSARY:-

(i) THE USE OF CONVEYORS RATHER THAN VEHICLES FOR INTERNAL HAULAGE;

(ii) HARD SURFACING TO AN APPROVED STANDARD AROUND PLANT AND ALONG ACCESS ROADS, AND ITS REGULAR (VACUUM) SWEEPING;

(iii) THE SEEDING DOWN OF ALL EXPOSED EARTH SURFACES;

(iv) THE WATERING OF HARD AND EXPOSED SURFACES IN DRY WEATHER;

(v) SCREENING AND TREE PLANTING;
(vi) THE CLADDING OF FIXED PLANT AND THE USE OF INTERNAL DUST FILTRATION SYSTEMS;

(vii) THE SHEETING OF LORRIES.

IF SATISFACTORY PROPOSALS FOR CONTROL CANNOT BE DEMONSTRATED, THEN PERMISSION WILL BE REFUSED.

Water Resources

11.25 In Kent 85% of water supplies are derived from potable groundwaters, particularly the chalk aquifer. If pollution of an aquifer occurs, it can persist for a long time. It is clearly preferable to prevent the risk of pollution rather than to have to deal with its consequences. The EA considers it neither practical nor economic to contemplate abandoning groundwater sources to accommodate development.

Groundwater

11.16 The EA’s Policy and Practice for the Protection of Groundwater introduces the concept of ‘groundwater vulnerability’ and defines resource and source protection zones. Details of the zones and of the EA’s protection policies are set out in the former National Rivers Authority’s Policy and Practice document, including the Regional Appendix. For example, source protection zones are identified where special precautions will be necessary to ensure the protection of groundwaters.

11.27 This document can be inspected at the Planning Authority and also at local offices of the EA.

11.28 Pursuant to Policies NR3 and NR4 in the Structure Plan, it is essential that water resources, both underground and on the surface, are not polluted.

11.29 The EA’s Groundwater Protection Policies are also accepted by the Planning Authority and will be used in implementing Policies CC13 and CC14.

Policy

CC13 BEFORE GRANTING PERMISSION THE PLANNING AUTHORITY WILL REQUIRE TO BE SATISFIED THAT THE QUALITY AND QUANTITY OF SURFACE AND GROUND WATER RESOURCES WILL BE PROTECTED.

Land Drainage and Flood Control

11.30 The land drainage and flood control requirements of the appropriate authorities will need to be identified and included as part of part of any proposal. The EA advise that within areas at risk to tidal flooding, no works should be undertaken that are detrimental to the integrity of any defence or would restrict access to and along the defences for maintenance/improvement works. Development which raises land within river floodplains could exacerbate flood conditions
to third parties by obstructing flows and reducing flood storage. Such effects would therefore need to be avoided or offset.

11.31 The EA needs to ensure that no works are undertaken that would restrict its access to and along its byelaw widths adjacent to both main rivers and tidal defences, in order to undertake maintenance/improvement works.

Unstable Land

11.32 In accordance with advice in Planning Policy Guidance Note 14, when determining applications the Planning Authority will take into account the possibility of ground instability. Where this is suspected applications will be required to be accompanied by a stability report, describing and analysing the relevant issues and demonstrating how they would be dealt with.

Policy

CC14 PROPOSALS WILL NOT BE APPROVED BY THE PLANNING AUTHORITY EXCEPT IN ACCORDANCE WITH SCHEMES WHICH PROVIDE WHERE APPROPRIATE FOR:-

(i) THE SAFEGUARDING OF LAND DRAINAGE AND FLOOD CONTROL;

(ii) LAND STABILITY.

Nature Conservation

11.33 Mineral working and mineral related developments can have an adverse impact on nature conservation interests. In seeking to provide for the community’s development requirements, such interests will be respected and measures will be required to minimise damage or harm. National policy and guidance is set out in PPG9 (see Appendix 1, paragraph 1.27).

11.34 Proposals which affect proposed or declared Ramsar Sites, SPAs and SACs and in NNRs, SSSIs, Local Nature Reserves (LNR) and Sites of Nature Conservation Interest (SNCI) will be assessed against the general policies in Chapter 10. In addition, Structure Plan Policy ENV6 seeks to protect, maintain and enhance trees and woodland.

11.35 Where appropriate (eg, where undeveloped land is involved) a proposal will be required to identify all nature conservation interests and to set out any steps proposed for their safeguarding, retention and enhancement. An application will need to establish:-

(a) the potential ecological sensitivity of the site in question and the extent to which the development may directly or indirectly affect nature conservation interests within the site or in its surroundings. This will involve the identification of important
wildlife features and habitats, particularly including unimproved grasslands, heathlands, wetlands (including ponds), river corridors, woodland (especially ancient woodland) and hedgerows as well as protected, rare or endangered species.

(b) the geological or geomorphological interest of the site and extent to which the development may affect its integrity and accessibility for scientific study.

(c) whether the loss of or damage to such habitats, features or geological or geomorphological interest is significant in a local, county, regional or national context, and indeed whether there may be adjustments to the proposal which would enable these impacts to be removed or minimised. Mitigation measures may be appropriate, and safeguarding could be by condition or by S106 Agreement where features of significance are involved. In such cases the agreement may need to address the future management of these features or mitigation measures.

This being said, on many sites there may well be little of such earth science interest or importance for wildlife. In these instances it will be particularly important to maximise benefits to wildlife in any landscaping and aftercare scheme.

11.36 In deciding whether there is a justification for loss of or damage to earth science features, habitats and wildlife features or species of wildlife importance regard will be had to:-

(i) their scientific and ecological importance in local, county, national and international context;

(ii) the implications of damage or loss on the representation of earth science features or on the viability of the overall species populations or the habitat in a wider context;

(iii) whether the species populations are recoverable and the habitats are part of an irreplaceable natural asset. The scientific interest of some sites is very dependent upon extended periods of consistent management (eg. unimproved grasslands) or permanence (eg. ancient woodlands), but in limited circumstances and as a last resort, some features can be moved or recreated. Accordingly:-

Policy

CC15 BEFORE GRANTING PERMISSION FOR A CHALK OR CLAY WORKING OR A RELATED PROPOSAL THE PLANNING AUTHORITY WILL NEED TO BE SATISFIED THAT THE EARTH SCIENCE AND ECOLOGICAL INTERESTS OF THE SITE AND ITS SURROUNDINGS,
INCLUDING THOSE SET OUT IN PARAGRAPH 11.23 HAVE BEEN ESTABLISHED, AND PROVISIONS MADE FOR THE SAFEGUARDING OF IRREPLACEABLE AND OTHER IMPORTANT GEOLOGICAL AND GEOMORPHOLOGICAL FEATURES, HABITATS, OR SPECIES OF WILDLIFE IMPORTANCE. WHERE AN OVERRIDING CASE OF NEED FOR ADDITIONAL CHALK OR CLAY RESOURCES OR A RELATED PROPOSAL REQUIRES SOME DIRECT LOSS OR INDIRECT HARM TO SUCH FEATURES, HABITATS OR SPECIES, WHERE PRACTICABLE SUITABLE COMPENSATORY MITIGATION MEASURES SHOULD BE PROVIDED. THE PROVISIONS FOR SAFEGUARDING AND MITIGATION WILL BE SECURED BY CONDITION OR BY A S106 AGREEMENT AS APPROPRIATE.

Plant and Buildings

11.37 The erection of plant and buildings can be permitted development. Under Part 19 of the General Development Order, development is permitted for purposes in connection with the winning and working, treatment, storage and removal of minerals provided that specified height and size dimensions are not exceeded and that the external appearance of the site is not materially affected. In accordance with the principles set out in Appendix 3, when dealing with proposals to site plant and buildings within an operational area the Planning Authority will take into account Structure Plan Policies ENV15 and RS1 in seeking to minimise visual intrusion. For these reasons, where the external appearance of an operation is concerned:

Policy

CC16 WHERE THE EXTERNAL APPEARANCE OF THE SITE WOULD BE MATERIALLY AFFECTED, THE PLANNING AUTHORITY WILL, WITH PROPOSALS FOR NEW PLANT AND BUILDINGS, REQUIRE THE SUBMISSION OF DETAILS AND THEIR PRIOR APPROVAL FOR THE SITING, DESIGN AND EXTERNAL APPEARANCE OF PLANT, HARD SURFACES, BUILDINGS, LIGHTING AND ANY PERIMETER SECURITY FENCING.

WHEN CONSIDERING SUCH DETAILS THE PLANNING AUTHORITY WILL REQUIRE THAT:

(i) FACILITIES ARE GROUPED TO PREVENT SPRAWL AND THE SPREADING OF EFFECTS, AND TO ASSIST SCREENING.

(ii) ADVANTAGE IS TAKEN OF TOPOGRAPHY AND NATURAL COVER
(iii) DESIGNS AND MEANS OF OPERATION MINIMISE VISUAL, NOISE AND LIGHT INTRUSION.

(iv) APPROPRIATE COLOUR TREATMENT IS PROVIDED, TO REDUCE THEIR IMPACT AND TO ASSIST THEIR INTEGRATION INTO THE LOCAL LANDSCAPE.

11.38 When considering proposals pursuant to CC16, the Planning Authority will have regard to Structure Plan Policy ENV19, and seek to minimise the effects of illumination.

Ancillary Operations

11.39 Under Part 19B of Schedule 2 of the GDO, development is permitted as ancillary to a working for the treatment or preparation of minerals. Such development includes value added processing eg. block and brick making works. The MPA can control the siting, design and external appearance of the proposed building, plant or machinery if the amenity of the neighbourhood would be injured.

11.40 As a general principle, and so far as it is within the powers of the MPA to control, mineral working should be combined with secondary ancillary processing operations, where the major portion of all the raw materials required for such operations is won from the site. This reflects sound traffic movement reasons for carrying out such preparation near to the main source of raw materials. Accordingly:-

Policy

CC18 AT ACTIVE WORKINGS THE PLANNING AUTHORITY WILL PERMIT PLANT ADDITIONAL TO THAT REQUIRED TO WORK AND PROCESS THE MINERAL BEING DUG ONLY WHERE:-

(i) THE MAJOR PORTION OF THE RAW MATERIALS REQUIRED FOR SUCH PLANT IS WORKED FROM THE SITE

(ii) THE SITE IS WELL RELATED TO THE PRIMARY OR SECONDARY ROUTE NETWORK

The ‘major portion’ means more than half by volume.

11.41 In respect of any temporary permissions granted, the Planning Authority will require the removal of plant, buildings and haul routes as soon as they are no longer needed for operations or reclamation.

Hours of Working

11.42 The Planning Authority recognises that in general the minerals industry needs to operate over the whole of the ‘traditional’ working week and so will normally give permission for operations between 7am and 6pm Monday to Friday and 7am to 1pm on Saturday. Working on
Saturday afternoons, Sundays and Bank Holidays will normally be prohibited. These hours of operation have been used in Kent for a great many years. They are identified in the Adopted Brickearth Plan (1986). Permissions for both mineral working and waste management operations use the ‘7am to 6pm’ framework. These hours have not themselves been the subject of appeal. In the opinion of the Planning Authority they constitute a now widely known local ‘benchmark’. However, in the light of an objection to this policy, and of advice in current government guidance, the extent of working hours will be reassessed and consulted upon when the Kent Minerals Local Plan is reviewed.

11.43 It has until now been the usual practice for the Planning Authority to allow maintenance work on Saturday afternoons and for a limited period on Sundays. With more advanced machinery it is considered that the need for lengthy periods of maintenance is less pressing. Also in an increasingly busy world the standard hours of working are designed to give a pause in the week, for a measurable period of reduced activity. This pause should be interrupted only for specific and justifiable activities which cannot be met during standard hours. For these reasons when giving permissions for mineral working and its supply the Planning Authority will not normally make provision for maintenance work outside the traditional working week.

11.44 In recognition of the fact that exceptional situations may arise which necessitate some work out of normal hours, conditions on any planning permission will be framed to allow for the approval of certain activities outside of normal hours particularly for maintenance and safety testing if the exceptional circumstances are considered to warrant it.

11.45 Also, where operational factors obtain, greater flexibility is needed (eg. to meet railway timetables, tides, special or urgent contracts).

11.46 The Planning Authority recognises that in order to remain efficient cement and brick kilns, when they are up and running, need to run continuously 24 hours a day, seven days a week, and for cement kilns to be supplied with slurry from their washmills on the same basis. This does not necessarily mean a need for continuous quarrying as materials can be stockpiled for use in the period outside the ‘traditional’ working week.

11.47 In each case hours of operation will be considered on their merits. However, because of the densely populated nature of Kent, special justification for operating outside of the traditional working week will normally be required.
Policy

CC19 THE PLANNING AUTHORITY WILL BY CONDITION PERMIT OPERATIONS BETWEEN THE HOURS 0700 TO 1800 MONDAY TO FRIDAY AND 0700 TO 1300 ON SATURDAY, EXCLUDING BANK HOLIDAYS. ANY PROPOSALS TO WORK OUTSIDE OF THESE HOURS WILL BE CONSIDERED AGAINST THE PLANNING AUTHORITY’S ACCEPTANCE THAT IN THE FOLLOWING CIRCUMSTANCES EXTENDED WORKING HOURS MAY BE JUSTIFIABLE:-

(i) FOR MAINTENANCE WORK AND SAFETY TESTING

(ii) FOR OPERATIONAL REASONS.

Public Rights of Way

11.48 Structure Plan Policy SR4 states that Kent’s rights of way network will be protected and enhanced. The Planning Authority will take account, as a material planning consideration, of the interests of footpath and bridleway users (eg. walkers and horse riders) when determining proposals for the working or supply of minerals. The use of primarily pedestrian rights of way to gain vehicular access to a site will normally be resisted. Accordingly:-

Policy

CC20 WHEN DETERMINING AN APPLICATION WHERE PROPOSALS COULD ADVERSELY AFFECT A PUBLIC RIGHT OF WAY, THE PLANNING AUTHORITY WILL PROTECT THE RIGHTS OF THE USERS OF THE PUBLIC RIGHT OF WAY. THE USE OF PRIMARILY PEDESTRIAN RIGHTS OF WAY TO GAIN VEHICULAR ACCESS TO A PROPOSAL WILL BE RESISTED.

11.49 There is a requirement under separate legislation for a right of way to be stopped up or diverted before it is obstructed.

11.50 If permission is granted the Planning Authority will draw the attention of the applicant to this requirement. On restoration of the site, reversion to the original line of the right of way will be sought wherever, and as soon as, that is practical.

Archaeology

11.51 It is an important objective for this Plan to provide an ordered framework to secure the marrying of archaeological interests with the community’s requirements for minerals. Both known and potential archaeological interests need to be safeguarded.

Government Advice

PPG16

11.52 Government policy on archaeology, is set out in PPG16: Archaeology and Planning (November 1990). The Government recognises that the desirability of preserving an ancient monument and its setting is a material consideration in determining planning
applications, whether that monument is scheduled or unscheduled. Where nationally important archaeological remains, whether scheduled or not, and their settings, are affected by proposed development, government policy is that there should be a presumption in favour of their physical preservation.

11.53 The government also recognises the importance of allowing the opportunity for proper archaeological excavation in advance of development.

Structure Plan

11.54 The Kent Structure Plan recognises that Kent has a particularly rich heritage of archaeological sites and ancient monuments. It is strategic policy to preserve them. Accordingly important archaeological sites and ancient monuments, whether scheduled ancient monuments or not, and their settings, will be protected and enhanced. Where development would lead to the destruction or sterilisation of an archaeological site or ancient monument, appropriate arrangements will be required for investigation and recording by a recognised archaeological team. Relevant Structure Plan Policy ENV17 is set out in Appendix 2.

11.55 In deciding whether there is any special justification for relaxing protection of an archaeological site or ancient monument, regard will be had to:-

(i) its archaeological, historic, amenity and tourism importance;

(ii) the extent of destruction;

(iii) whether satisfactory arrangements can be made for prior investigation;

(iv) the case of need for the mineral working.

Applicants may be invited to furnish evidence of any justification.

CBI Code of Practice

11.56 Regard also needs to be had to the procedures set out in the Confederation of British Industry’s ‘Archaeological Investigations Code of Practice for Mineral Operators’. This is available for inspection at the offices of the Mineral Planning Authority.

The Basic Approach

11.57 For the purposes of considering proposals to work minerals, three levels of archaeological interest are identified:-

(a) where the site, or part of it, is considered to be of such importance that the remains should be preserved in situ
(b) where preservation in situ cannot be justified, but excavations are considered to be necessary prior to working

(c) where excavation cannot be justified but a watching brief is considered to be necessary, to record finds of interest

11.58 A fourth level indicates no archaeological interest:—

(d) where no archaeological response is required.

11.59 A three phase approach will be followed. The first step will be to establish whether there is any archaeological interest. The County Sites and Monuments Record should be checked to establish whether a Site of Archaeological Interest (as defined in the Town and Country Planning, General Development, Order 1988) would be affected. However, there may be other areas, not identified on the Record, where horizons of potential archaeological importance are buried beneath recent alluvial deposits. Accordingly, the earliest possible consultation with the County Archaeological Officer is strongly advised.

**Assessment**

11.60 The second step will be to ascertain the nature and importance of the archaeological interest. When assessing importance, regard will be had to the Secretary of State’s criteria for the scheduling of ancient monuments (PPG16, Annex 14). On those sites or parts of sites where an archaeological interest of potential importance has been identified to its satisfaction, the Planning Authority will require further assessment in order to ascertain its nature and importance. The assessment may involve excavation and/or geophysical or other field survey to a specification approved by the Planning Authority. Such work will be the responsibility of the operator and will ensure that all the relevant information is available to enable the archaeological interest to be properly identified before any proposal to work minerals is determined.

**Preservation in situ**

11.61 The third step will be to secure appropriate safeguards for the archaeological interest. Policy CC2 identifies the existence of an important archaeological site or ancient monument and its setting as a primary planning constraint against mineral working. So, where archaeological remains of importance have been identified which justify preservation in situ permission is unlikely to be given on all or part of the site.

**Excavation**

11.62 Where archaeological excavation is considered to be necessary prior to mineral working, a detailed scheme of working will be required, to a programme and specification and by an archaeological body to be approved by the Planning Authority.
On many sites there will be no known, or little potential, archaeological interest. Even so, it is an important planning objective to ensure that any archaeological evidence is not destroyed without the opportunity being provided for it to be recorded. Accordingly, mineral operators may be required to afford a watching brief and to make available to archaeologists facilities of access to watch and if necessary to record any finds, whilst critical earth moving operations are taking place.

A planning application should show clearly how it is proposed to deal with the archaeological interest.

The applicant will need to have regard to this framework, to Policy CC2 and to the following policies:

**Policy**

**Policy**

ON THOSE PARTS OF PROPOSED MINERAL WORKINGS, OR OF PROPOSED SITES FOR THE MANUFACTURE OF CEMENT, WHERE THE PLANNING AUTHORITY CONSIDERS THAT ARCHAEOLOGICAL REMAINS OF IMPORTANCE MAY EXIST, AN ARCHAEOLOGICAL ASSESSMENT WILL BE REQUIRED TO A SPECIFICATION AND BY AN ARCHAEOLOGIST OR AN ARCHAEOLOGICAL ORGANISATION APPROVED BY THE PLANNING AUTHORITY BEFORE ANY APPLICATION IS DETERMINED.

ON SITES WHERE REMAINS OF ARCHAEOLOGICAL IMPORTANCE HAVE BEEN IDENTIFIED BUT WHERE PERMANENT PRESERVATION IS NOT CONSIDERED BY THE LOCAL PLANNING AUTHORITY TO BE WARRANTED, A SCHEME OF WORKING WILL BE REQUIRED TO INCLUDE PROVISION FOR ARCHAEOLOGICAL RECORDING IN ADVANCE OF MINERAL EXTRACTION.

WHEN GRANTING PLANNING PERMISSION FOR A MINERAL WORKING, THE PLANNING AUTHORITY MAY REQUIRE BY CONDITION OPERATORS TO AFFORD ACCESS AT ALL REASONABLE TIMES TO AN APPROPRIATE ARCHAEOLOGICAL ORGANISATION, AND TO ALLOW THAT ORGANISATION TO OBSERVE OPERATIONS AND TO RECORD ITEMS OF INTEREST AND FINDS.

The road traffic associated with mineral working and mineral related developments can have a significant environmental impact, and
will be a material consideration in determining applications. Daily heavy goods vehicle movements from a site can run into three figures, and with comparatively small outputs to a scattered market, the prospects for rail or water transport are limited. Whilst movement by rail or water is encouraged, it has to be accepted that local movements will normally be by road. There is some flexibility in the location of depots and wharves to receive imported cement and so they can be well related to the primary road network.

11.67 An access consistent with the principles of Structure Plan Policies T18 to T20 will be sought, if necessary by requiring the prior completion of any highway improvements considered to be needed (such as visibility splays and off site improvements). These will be secured at the development’s expense. Regard will also be had to the environmental impact of the necessary improvements themselves, and in this respect Structure Plan Policy ENV13 is relevant. The Structure Plan recognises that Kent possesses a rich heritage of ancient lanes which date back to medieval, Saxon and even pre-historic times. This network of lanes not only has historic value, but also contributes to nature conservation and to the distinctive landscape character of the countryside. Consideration is given in the Structure Plan to conserving the character and integrity of Kent’s most important rural lanes, particularly those which are already experiencing significant pressures. Policy ENV13 therefore provides for lanes which are recognised as being of importance to be protected from adverse physical change, and for the promotion of nature conservation, landscape and amenity enhancement.

11.68 In order to assess the impact of road traffic, the Planning Authority will consider each proposal on its merits and will require details of the expected volume and duration of traffic, its routeing, the size of vehicles and any marked seasonal variations. Regard will also be had to:-

(i) proximity to existing and committed developments;

(ii) existing and possible future overall traffic levels (including pedestrians);

(iii) the capacity and structure of the roads.

11.69 Permission will be refused if there is considered to be an unacceptably adverse effect on the highway network (either in terms of traffic and/or environmental capacity). Accordingly:-
**Policy CC24** WHEN CONSIDERING APPLICATIONS THE PLANNING AUTHORITY WILL:

(i) REFUSE PERMISSION IF IT IS CONSIDERED THAT THE PROPOSED ACCESS, OR NECESSARY HIGHWAY IMPROVEMENTS, OR THE EFFECTS OF VEHICLES TRAVELLING TO AND FROM THE SITE, WOULD AFFECT IN A MATERIALLY ADVERSE WAY (a) THE SAFETY (OR WOULD EXCEED THE CAPACITY) OF THE HIGHWAY NETWORK AND/OR (b) THE CHARACTER OF RURAL LANES AND/OR (c) THE LOCAL ENVIRONMENT, INCLUDING DWELLINGS, CONSERVATION AREAS AND LISTED BUILDINGS.

(ii) ENSURE THAT ANY OFF-SITE HIGHWAY IMPROVEMENTS CONSIDERED TO BE NECESSARY TO SECURE ACCEPTABLE ACCESS ARE COMPLETED, IF NECESSARY IN STAGES RELATED TO THE DEVELOPMENT OF THE SITE, BEFORE SPECIFIED OPERATIONS ON SITE COMMENCE, AND ARE PROVIDED AT THE DEVELOPMENT’S EXPENSE.

(iii) SUBJECT TO OTHER PLANNING CONSIDERATIONS, PERMIT DEVELOPMENT PROPOSALS WHICH WILL ENABLE THE TRANSFER OF FREIGHT TRAFFIC FROM ROAD TO RAIL.

11.70 If access to the public road network from the proposed site is considered to be unacceptable then the construction of a private road or conveyor to an appropriate point on the highway network would be considered.

11.71 Any access should be designed to avoid vehicles queuing at the site entrance.

11.72 Mud and debris such as chalk lumps and slurry deposited on the public highway is illegal and unsightly, and can cause a traffic hazard. For this reason operations must be carried out in such a way as to ensure that vehicles only leave the site after any such potentially loose material has been removed from them. Accordingly:-

**Policy CC25** THE PLANNING AUTHORITY WILL REQUIRE BY CONDITION MEASURES TO BE TAKEN AND MAINTAINED BY THE OPERATOR TO PREVENT MUD, DUST AND DEBRIS BEING DEPOSITED ON THE PUBLIC HIGHWAY.
11.73 These measures will include, as necessary:

(i) provision for cleaning lorry wheels and bodywork (This might include, as appropriate, a wheel splash, and/or wheel spinners and washers, and/or a high pressure hose);

(ii) the hard surfacing of access roads;

(iii) keeping access roads and hardstanding free from dust and mud;

(iv) the sheeting or covering of loaded lorries.

**Landscaping and Restoration**

**Visual Impact**

11.74 Mineral working inevitably has a visual impact and the general policies in Chapter 10 seek to avoid the best of Kent’s landscape resources. Where mineral working is permitted the Planning Authority will require steps to be taken to ensure that an operation intrudes as little as possible into its surroundings.

11.75 It is almost impossible to conceal a working entirely. If a quarry is open to public view, and little restoration has been undertaken, an impression of despoliation may be gained. The excavation, stockpiles, plant, buildings and road access points are all potential sources of visual impact. At long established quarries remedial work is usually limited to measures such as tree planting, screening by earth mounds, and undertaking progressive restoration. In the development of new quarries the minimisation of visual intrusion and of effect upon areas of nature conservation value must be considered from the outset. Such consideration would take account of the selection of the site, the choice of direction and method of working, the siting, grouping and detailed design of plant and buildings, the location of vehicular access points and screening and integration into the local landscape by earth modelling and planting, and/or the retention of existing landscape features.

11.76 Landscaping, restoration and afteruse should be designed to ensure that the site becomes fully integrated into the local environment. Measures to lessen the degree of visual impact will include, as necessary:

(1) retention of existing site features that are of interest and significance to the locality.

(2) making best use of site topography - the use of natural ground contours to assist in site screening.
(3) perimeter screening through earth sculpturing, tree planting (with native species), landscaped embankments, with advance landscaping where necessary.

(4) design of site access and its tidy maintenance. The appearance of the site entrance is a major influence on how the facility is perceived by the public at large.

(5) where appropriate the progression of phased restoration, so that the site becomes an integral part of its surroundings.

(6) the organisation of operations, plant, buildings (including their height), hard surfaces and machinery and general site management.

**Landscaping**

11.77 Landscaping has two important planning objectives. Firstly to screen operations from outside views and from nearby uses, particularly from dwellings; secondly in the longer term to assist the merging back of the site into the surrounding landscape. If possible and appropriate the restored area should become a landscape feature in its own right. Accordingly, and pursuant to SP Policy ENV6 relating to tree cover and the hedgerow network:

**Policy**

CC26 BEFORE DEVELOPMENT COMMENCES THE PLANNING AUTHORITY WILL REQUIRE TO BE SATISFIED THAT AN APPROPRIATE LANDSCAPING SCHEME IS AN INTEGRAL PART OF THE DEVELOPMENT.

The principles which the Planning Authority would wish to see addressed in any scheme of landscaping are set out in Appendix 4.

**Working and Reclamation**

11.78 The Planning Authority accepts the reclamation principles set out in the Government’s Guidance Note MPG7. It is essential that land used for mineral working and related processes is reclaimed so as to be capable of a sustainable and approved afteruse as soon as possible. MAFF will be consulted on applications for mineral extraction in accordance with established consultation arrangements. Where there is an overriding need to work the best and most versatile agricultural land there will be a presumption that the land will be restored to an agricultural afteruse. The standard of restoration for such land will be in accordance with paragraph 3 (1) of Schedule 5 to the Town and Country Planning Act 1990 (as amended) which states that the “land is brought to the required standard when its physical characteristics are restored, so far as it is practicable to do so to what they were when it was last used for agriculture”. MAFF will advise as appropriate.
11.79 It is also an important principle that extensive mineral bearing areas are worked and reclaimed progressively, without a proliferation in the number of pits open at any one time.

11.80 It will be expected that the intended afteruse of the site is identified at the outset so that operations can be directed towards achieving that use. Planning conditions will be framed with the intended afteruse in mind.

11.81 Reclamation and afteruse requirements as identified in Appendix 5 will be progressive and will be secured by conditions attached to a grant of planning permission.

11.82 If there is serious doubt as to whether satisfactory reclamation can be achieved, this will be a material factor in considering whether planning permission for mineral working should be given.

**Aftercare**

11.83 Aftercare will be applicable on sites where the proposed afteruse is agricultural, forestry, amenity or nature conservation. To assist in establishing the afteruse of a site the Planning Authority will seek a period of aftercare, incorporating a regime of management/maintenance work. A period of aftercare will be sought commencing after the completion of site restoration. The specific steps which the Planning Authority requires to see addressed in an aftercare scheme are set out in Appendix 5.

**Policy**

CC27 BEFORE ANY EXTRACTION OR SUPPLY COMMENCES THE PLANNING AUTHORITY WILL REQUIRE TO BE SATISFIED THAT SATISFACTORY WORKING AND RECLAMATION SCHEMES ARE AN INTEGRAL PART OF THE PROPOSAL. WHEREVER APPROPRIATE THE SCHEMES WILL BE DESIGNED TO RETURN THE LAND TO A PLANNED AFTERUSE AT THE HIGHEST STANDARD RELEVANT TO THAT USE AND AS QUICKLY AS POSSIBLE.

11.84 The principles which the Planning Authority requires to see addressed in any scheme of working and reclamation are set out in Appendices 3 and 5.

11.85 As a general principle, where reclamation of part of a site is not to be agriculture, forestry or for a built development, the Planning Authority will seek to maximise any opportunities for nature conservation by encouraging the creation and enhancement of wildlife habitats and other conservation interests; these may be water areas.
Safeguarding

11.86 The County is subject to the Channel Tunnel Rail Link (CTRL) Safeguarding Directions issued on 8 February 1996 by the Secretary of State for Transport. Safeguarding for the CTRL is shown indicatively on the Proposals Map and on the appropriate Insets.

11.87 The Directions form part of the planning framework for the Kent Minerals Local Plan and individual planning applications affecting lands subject to the Directions are referred by the County or local planning authorities for formal consultation prior to determination.

11.88 Further guidance in respect of safeguarding may be obtained from Union Railways Limited, who have been identified by the Secretary of State for Transport as the appropriate consultee.
CHAPTER 12
MAINTAINING THE PLAN
12.1 The Structure Plan accepts that improvement of the environment will entail the removal of eyesores and dereliction.

THE ENFORCEMENT OF PLANNING CONTROL

12.2 Careful planning of minerals and mineral related development needs to be backed by application of the powers enabling all activities to be brought within planning control. Otherwise the value of the planning will be much reduced, and the environment will continue to suffer. Where planning permissions do exist there is the need for the planning conditions to be complied with, and so monitored. When problems of nuisance are identified, they will be addressed speedily.

12.3 These principles can be extended to ensuring that whenever unauthorised and uncontrolled developments do take place, steps will be taken to secure the repair of any damage done to the environment.

12.4 The Planning Authority is already responding to the situation, in the interests of safeguarding amenity and resources, with rigorous use of its enforcement powers.

RECLAMATION OF FORMER MINERAL WORKINGS

12.5 The adverse view of the minerals industry by many members of the public results in part from their knowledge of past workings, either left derelict with abandoned plant and machinery, or only inadequately reclaimed. This legacy fuels the public’s lack of confidence in the industry’s ability and willingness to secure a high standard of reclamation.

12.6 Whilst sites worked since 1948 are subject to planning permission, early permissions may have no, or no adequate, reclamation conditions. There are also areas of dereliction resulting from workings which pre-dated planning controls. In such cases where reclamation has not been achieved the Planning Authority will look to the industry to undertake the reclamation of derelict and despoiled workings still in their ownership. The Planning Authority will encourage the reclamation of land under Section 1 of the Derelict Land Act 1982 which provides for grant aid for private companies and other bodies for reclamation works. It will also, where possible and practical, pursue reclamation under the provisions of the Town and Country Planning (Minerals) Act 1981. The effectiveness of any action will to a large extent depend upon the co-operation of the industry.
12.7 The review of mineral sites as required by the 1981 Act commenced in Kent on 1 August 1986. All sites which the Minerals Planning Authority has a duty to review (some 80 in total) were looked at along with some 50 sites which, although they had not been worked in recent times, had permitted reserves remaining (known as "dormant" sites). After consideration of the Survey, the Planning Authority determined a first round of priorities. A programme of action was authorised concentrating attention on those dormant sites where it was considered that for planning reasons a resumption of mineral working would be undesirable. This action uses new powers made available to the MPA under the 1981 Act. Priority is directed to those sites where cessation of working could be secured through the making of Prohibition Orders - to prohibit the resumption of working.

12.8 Action pursuant to the 1981 Minerals Act review was taken, and a total of nine Prohibition Orders have to date been made. The programme was temporarily suspended by MPA in February 1994 following consideration of particular legal circumstances which had arisen in respect of Prohibition Orders. This remains the case today.

New Powers

12.9 The powers to review mineral sites given to MPAs under the 1981 Act have now been replaced. The Planning and Compensation Act 1991 deals with planning consents issued up to 1948 (see Appendix 1, paragraph 1.8).

12.10 The Environment Act 1995 deals with mineral development permissions issued in the period 1948 to 1982. This requires the Minerals Planning Authority (MPA) to identify all relevant active and dormant sites, as a precursor to the operator submitting, to a specified timetable, an application for approval of new conditions. No working can lawfully take place at dormant sites until a new scheme of conditions has been approved by the MPA. Dormant sites are defined as those where no mineral development, including the deposit of mineral waste has taken place to any substantial extent between 22 February 1982 and 6 June 1995.

12.11 The Environment Act gives the MPA the power to secure improvements at sites in terms of their impact on local communities. The review will take some years to complete but is particularly relevant to the clay quarry at Paddlesworth (see paragraph 6.6). Here the MPA will expect any future working to retain the existing screening along the eastern boundary, as a ‘buffer zone’ and to ensure that the lake which adjoins the built up area of Snodland is retained as a local recreational facility.
12.12 The power to make prohibition orders has been retained, but any resumption of a programme of making such Orders will be considered only when the above mentioned legal issues have been resolved. The new review powers contained in the 1991 and 1995 Acts in relation to dormant sites in any case work to reduce the need to consider prohibition.

CCOGA1297
APPENDICES (CHALK AND CLAY)
APPENDICES

1. NATIONAL AND REGIONAL POLICY CONSIDERATIONS
2. THE DEVELOPMENT PLAN FRAMEWORK
3. PRINCIPLES OF OPERATION AND WORKING
4. PRINCIPLES OF LANDSCAPING
5. PRINCIPLES OF RECLAMATION
6. THE CEMENT MANUFACTURING PROCESS
7. ENVIRONMENTAL ASSESSMENT

* The Appendices do not form part of the Plan:-

- Appendices 1 and 2, which identify relevant ‘higher level’ advice, and Appendix 6 (the cement process), are factual.
- Appendices 3, 4, 5 and 7 are Supplementary Planning Guidance. Appendices 3, 4 and 5 are suggestive only of working and restoration etc techniques; other techniques may be appropriate in particular circumstances, subject to agreement with the Planning Authority.
APPENDIX 1

NATIONAL AND REGIONAL POLICY CONSIDERATIONS

NATIONAL POLICY

1.1 The practical implications of the UK Strategy on Sustainable Development are:-

- **During extraction**: operations should be managed to high standards. Sensitive working practices are required to reduce the environmental impacts of quarrying and to avoid wastage, so as to conserve minerals as far as possible. Recovery of reserves from a given working area should be maximised, consistent with environmental constraints, to avoid future sterilisation of unworked material.

- **In restoration**: land taken for minerals should be reclaimed at the earliest opportunity, and should be capable of an acceptable use after working has come to an end. Restoration and aftercare should preserve or enhance the long-term quality of land worked for minerals, so that there is no net loss of land for use by future generations and the community is provided with an asset of equal or added value. The long-term potential of best quality agricultural land worked for minerals should be preserved or enhanced.

- **In use of minerals**: steps should be taken to encourage appropriate use of high quality minerals, and to prevent them being used for less demanding applications. Over-specification and wastage of materials in use should be avoided and recycled/waste materials should be used where environmentally and economically advantageous.

- **Avoidance of sterilisation**: adequate protection should be provided in order to prevent mineral resources from being sterilised by other forms of development. Efforts should be made to extract minerals in advance of development.

**Government Action** 1.2 Towards these ends the Government will:-

- continue its programme of revising and expanding Minerals Planning Guidance Notes to reflect the principles of sustainable development;

- continue research on the availability of mineral resources and the environmental costs and benefits of using different sources;
encourage sound environmental practice including the restoration of sites;

promote more efficient use of mineral resources in general, for example encouraging recycling of materials and substitution of alternative materials where appropriate.

1.3 Minerals Planning Guidance (MPG1) gives general guidance for minerals planning in relation to the Development Plan System. It describes the appropriate content for minerals local plans and the national policy considerations to which regard should be paid.

Supply

1.4 Policies should recognise that the local, regional and national requirements for minerals need to be met. They should provide for a landbank in the form of a rolling programme of permitted reserves.

Identification of Areas

1.5 Plans should indicate in appropriate detail those areas within which there will be normally a presumption for or against mineral working, and in this have regard to national policies for agricultural land, Areas of Outstanding Natural Beauty, and areas of nature conservation importance.

Safeguarding

1.6 Care must be taken to safeguard those deposits which are of economic importance against other types of development which would sterilise the deposits.

Reclamation

1.7 Plans should include policies to ensure that quarried land is reclaimed for a beneficial afteruse. (There is specific Minerals Planning Guidance (MPG7) on the reclamation of mineral workings).

1.8 MPG9 (Interim Development Order Permissions) gives advice relating to the need for holders of such permissions to apply for determination of the conditions to which the permission is to be subject. A distinction will need to be drawn between:-

* ‘dormant’ permissions where full modern conditions will generally be appropriate; and

* ‘active’ permissions where it is necessary to distinguish between conditions which deal with the environmental and amenity aspects of working the site and conditions which would fundamentally affect the economic structure of the operation.

‘Dormant’ permissions are those where no operations have been carried out to any substantial extent in the 2 year period ending with 1 May 1991.
1.9 **MPG14 (Environment Act 1995: Review of Mineral Planning Permissions)** provides for the review and updating of permissions granted in the 1950s, 60s and 70s, to protect the environment and amenity, and to provide equal treatment between sites and mineral operators. A distinction is made between “active” sites and “dormant” sites. New schemes of conditions must be submitted for all sites identified in the review; but for a "dormant" site full modern planning conditions need to be approved before working can be resumed.

1.10 **MPG10 (Provision of Raw Material for the Cement Industry)** expects development plans to try to assess the likely raw material needs of the industry in cement producing areas and to identify preferred areas of working which will meet the needs. Mineral planning authorities should discuss the choice of sites with the cement industry.

**Landbank**

1.11 Minerals planning authorities should normally aim to maintain cement plant with a stock of permitted reserves of at least 15 years. Where significant new investment in plant is agreed the reserve should be at least 25 years.

1.12 The choice of sites must take into account national policies on landscape and historic or nature conservation and on agricultural land. The plans should also safeguard mineral resources for future working.

**Agricultural Land**

1.13 The agricultural implications must be assessed when considering land for development. The best and most versatile agricultural land is a national resource for the future and considerable weight will be given to protecting such land against development, because of its special importance.

1.14 Proposed minerals development in Areas of Outstanding Natural Beauty, National Nature Reserves and Sites of Special Scientific Interest should be subject to the most rigorous examination. Full account should be taken of the nature conservation importance.

**Historic Sites**

1.15 Mineral planning authorities should have regard to the desirability of preserving historic buildings and landscapes, conservation areas, ancient monuments and their settings, and the importance of identifying as early as possible the likely presence and importance of any archaeological sites.

**Green Belt**

1.16 The extraction of minerals need not be incompatible with Green Belt objectives.
Control Criteria

1.17 The Plan should set out the development control criteria for mineral extraction; and the policies and proposals for landscaping, reclamation and afteruse of sites.

Wharves

1.18 The authorities should identify and safeguard suitable locations for wharves.

General Planning Considerations

Transport (PPG13)

1.19 By planning land use and transport together a significant contribution can be made to the environmental goals of the government’s Sustainable Development Strategy.

1.20 Movements by heavy freight vehicles are generally inappropriate to residential and central urban areas, villages and minor roads. Development which attracts significant movements of freight should be located away from congested central areas and residential areas, but with direct access to the secondary rather than the primary route network.

1.21 Wherever it can provide a viable alternative, the carriage of freight by rail or water rather than by road should be encouraged.

1.22 Minerals can only be worked where they are found and the transport of minerals and spoil can have significant environmental impacts. The Local Plan should seek to maximise the proportion of materials moved by rail or water (paragraphs 3.7-3.8).

Countryside (PPG7)

1.23 The guiding principle in the wider countryside is that development should benefit the rural economy and maintain or enhance the environment. The countryside should be safeguarded for its own sake.

Agriculture (PPG7)

1.24 The best and most versatile agricultural land (grades 1, 2 and 3a) is a national resource for the future. Because of its special importance considerable weight should be given to protecting such land against development.

AONB

1.25 The primary objective of designating Areas of Outstanding Natural Beauty is conservation of the natural beauty of the landscape. Policies should favour such conservation. It would normally be inconsistent with the aims of designation to permit the siting of major industrial or commercial development in these areas. Only proven national interest and lack of alternative sites can justify an exception. Accordingly minerals applications in AONBs should be subject to the most rigorous examination.
1.26 More detailed advice on mineral development in AONBs is set out in Countryside Commission document CCP356.

1.27 Government guidance on nature conservation is provided in PPG9. This specifically outlines local authorities’ role in nature conservation in the wider environment. It reminds that our wildlife heritage is not confined to the statutorily designated sites and that there is a continuous gradation of nature conservation interest throughout the countryside and in many urban areas. Some of the rare species protected by the Wildlife and Countryside Act (1981) occur outside SSSIs and NNRs.

1.28 The Guidance draws attention to the need to take steps to protect or minimise damage to valuable wildlife habitats or features. Authorities are advised to look to the use of conditions in planning applications where appropriate. It states that nature conservation must be taken into account in all activities which affect rural land use and in the planning process.

1.29 In respect of nature conservation issues, the signatories (which included Britain) to the Ramsar Convention on Wetlands of International Importance agreed to ‘formulate and implement their planning so as to promote .... as far as possible the wise use of wetlands’. Under the EC Directive on the Conservation of Wild Birds, the government is required to take special measures to conserve the habitat of all species of naturally occurring wild birds. In particular this means classifying the most suitable areas for these species as Special Protection Areas (SPAs). Government advice is that planning permission within these areas should be granted only where the authority, having taken into account the ecological, scientific and cultural requirements to ensure the survival and reproduction of specified birds, is satisfied either that the disturbance to the birds or damage to their habitats, will not be significant, or that any such disturbance or damage is outweighed by economic or recreational requirements. Also, when considering planning applications outside SPAs, the Planning Authority is asked to strive to avoid pollution or deterioration of wild bird habitats.

1.30 Before approving any development proposal affecting a site of international importance, it is imperative that the international conservation aspects are fully addressed.

1.31 The Habitats Regulations (1994) implemented in the United Kingdom the European Union Birds and Habitats Directives, and so embrace all issues relating to SPAs and SACs. Developments which would be likely to affect significantly a SPA or SAC should not normally be permitted unless the existence of an imperative reason of public interest can be proved, and there is an absence of alternative
solutions. Developments within a Ramsar site should be the subject of similar rigorous examination.

**SSSI (PPG7)**

1.32 Sites of Special Scientific Interest are identified on the basis of published scientific criteria and their designation is intended to protect the nature conservation, physiographic or geological interest of the site.

**Green Belt (PPG2)**

1.33 The fundamental aim of Green Belt policy is to prevent urban sprawl by keeping land permanently open (paragraph 1.4). There is a general presumption against inappropriate development within Green Belts. Such development should not be approved, except in very special circumstances (paragraph 3.1). Inappropriate development is, by definition, harmful to the Green Belt (paragraph 3.2).

1.34 Mineral extraction need not be inappropriate development; it need not conflict with the purposes of including land in Green Belts, provided that high environmental standards are maintained and the site is well restored (paragraph 3.11).

**Urban Fringe (PPG7)**

1.35 Despite the strict control of urban sprawl there are some areas of “urban fringe” where land use conflicts and environmental problems arise. Urban fringe is not a designation, though some urban fringe areas are found within Green Belts. The urban fringe often accommodates essential but unneighbourly functions such as waste disposal and sewage treatment and contains areas of derelict land and damaged landscape and under-used land whose viability for agricultural use has been affected by urban pressures. It requires a positive approach to planning and management, aimed at securing environmental improvement and beneficial use of land, and increased public access, to provide an amenity for the residents of urban areas.

**Coastal Planning (PPG20)**

1.36 In recognition of the special nature of coastal areas and the degree to which the coastline is already designated and protected for its landscape and nature conservation value, provision for development should be only in appropriate locations. Developments will be limited to those which genuinely need to be located there, and guided towards areas that are already largely developed.

**Archaeology (PPG16)**

1.37 Government advice is for Local Plans to include policies for the protection, enhancement and preservation of sites of archaeological interest and of their settings.

1.38 The government recognises that archaeological remains are part of our sense of national identity and are irreplaceable, a finite and non-renewable resource. Care must be taken to ensure that remains are not needlessly or thoughtlessly destroyed. There should be a presumption in favour of the preservation of important archaeological remains,
whether scheduled or not, and their settings; this recognises that not all remains meriting preservation will be scheduled.

1.39 If physical preservation in situ is not feasible, an archaeological excavation to preserve ‘by record’ may be acceptable as a second best option. In these circumstances it would be entirely reasonable for the planning authority to be satisfied, before granting permission, that appropriate and satisfactory provision had been made for excavation and recording before development commences. This could be with an agreement, or by a condition prohibiting commencement of the development before any necessary archaeological works had been carried out.

1.40 The Environment Agency (EA) has a National Policy and Practice for the protection of groundwater. This is an essential part of the Plan, forming an important starting point when considering possible locations for new waste facilities.

**REGIONAL CONTEXT**

1.41 Regional Planning Guidance for the South East (RPG9) expects plans to include policies for the working of all significant minerals in line with the guidance set out in MPG1.

1.42 The Guidance looks to increase the use of rail and water transport for freight generally, and particularly has regard to the River Thames and its wharves. The Guidance sees the River Thames as an important element in the transport infrastructure of the East Thames Corridor, with the potential to carry freight.

1.43 Government planning policies for minerals aim to ensure that there is an adequate supply having regard to the principles of sustainable development.

1.44 Planning authorities should provide for development proposals in such a way as to avoid unnecessary sterilisation of significant mineral resources, or where this may be unavoidable, allow for the prior extraction of the minerals.

1.45 In the AONBs and other statutory areas (eg. SSSIs, SPAs and NNRs) mineral development proposals, except those of a minor nature, should be subject to the most rigorous examination. They should demonstrate clearly that they are in the public interest.

1.46 Policies should be included which aim to encourage the use of secondary and waste materials, where there are environmental benefits to be gained.
1.47 So far as this section of the Minerals Local Plan is concerned, the **Thames Gateway Planning Framework** (Consultation Draft) looks inter alia for development plans to provide for sufficient space for the expansion of existing industry, and at the same time to set a new environmental standard.

1.48 The Framework recognises the **River Thames** as a working port, and as part of the transport structure of the area. The Framework adopts the principle of fostering the river and river front. Its aim is to avoid the loss of riverside sites for those uses which need a waterfront location.

1.49 **Eastern Quarry** is seen as a major development opportunity. Its release from the MGB would allow growth on Kent Thames-side to be fashioned to reflect the principles of sustainable development and provide for development important for the region. Development in Eastery Quarry is seen as a medium to long term prospect.

*NB. The Thames Gateway Framework is reflected in Structure Plan Policy NK1 (see Appendix 2).*
APPENDIX 2

THE DEVELOPMENT PLAN FRAMEWORK

THE KENT STRUCTURE PLAN (THIRD REVIEW)

THE STRATEGY

Sustainable Development and Energy Conservation

S1: Local planning authorities will seek to achieve a sustainable pattern and form of development which will reduce the need to travel, facilitate the conservation of energy and environmental resources, and minimise pollution.

Environment

S2: The quality of Kent’s environment, including the visual, aural, ecological, geological, historic, atmospheric, and water environments, will be conserved and enhanced, and measures will be taken to minimise, and where appropriate, mitigate, any adverse impacts arising from development and land use change.

Economic Development

S3: It is strategic policy to stimulate economic activity and employment in Kent by the growth of existing industry and commerce and the attraction of new firms, capitalising on the County’s particular relationship with mainland Europe. Provision for such development will be made in a manner which respects the environment and Green Belt constraints. Special attention will be afforded to East and North Kent.

S5: In Thames Gateway in Kent it is strategic policy to upgrade the quality of the environment, and to enhance the economic base of the area by the promotion of major new commercial development of high environmental quality, by the improvement of transport (including public transport) and other infrastructure, and by increasing the supply and range of housing, leisure and community facilities. This should be done in a manner which provides for the location of major new development selectively across the area, wherever appropriate using damaged land, and commensurate with new and improved transport infrastructure, including public transport and the transport potential of the rail network and the River Thames. Decisions affecting the environmental quality of the area should take into account the cumulative impact of the proposal in question, in the context of other development and proposals. Long term protection will be afforded to areas and sites of international, national or other strategic importance for nature conservation, landscape, agriculture, or heritage.
Locational Policy

NK1: At Dartford, Gravesend and Northfleet major economic development and housing opportunities will be comprehensively planned through the local plan process and phased in association with new transport infrastructure (including completion of the South Thameside Development Route and provision of new and improved public transport networks), leisure, recreation and community uses. Opportunities for enhancing the economic, leisure, amenity and transport potential of the River Thames should be exploited. The need to uplift the quality of the built and open environment should be addressed. This should include the adoption of high environmental standards and restraint upon, or careful location of, uses which would adversely affect the appearance and potential of the area. The strategic areas for new development:

(a) Land to the north of Dartford, to the west of the Dartford Tunnel intended for mixed use comprehensive development involving high quality business and science parks, a university campus, housing, leisure and recreation uses.

(b) Land at Crossways Business Park (including the Dartford International Ferry Terminal) to the east of the Dartford Tunnel for continued mixed use development including office, industrial and distribution uses, as well as support services.

(c) Western Quarry, for a regional shopping centre (Bluewater). Appropriate uses additional to retail development would, in strategic terms, be acceptable.

(d) Eastern Quarry for comprehensive mixed use development with emphasis on housing provision, together with open space, schools, community facilities, and employment land, to be developed in accordance with a Master Plan and integrated with an enhanced public transport and road network.

(e) Swanscombe Peninsula for major mixed use development, predominantly housing, taking full account of the area’s relationship with the River Thames and the proposed Channel Tunnel Rail Link, and integrated with an enhanced public transport and road network.

(f) Ebbsfleet Valley for the construction of a combined domestic and international passenger station on the Channel Tunnel Rail Link, in association with a new business centre. Development should reflect a high standard of civic design and landscaping and be integrated with new and improved transport networks including links to other parts of Thames Gateway.

(g) At Gravesend and Northfleet, the emphasis for new development will be on the re-use of redundant and derelict sites and premises, including
high quality development at the riverside for uses appropriate to a waterfront location.

In addition, the suitability for development of land primarily for housing to the north east of Gravesend, and road accessibility to this sector of the town, will be examined through the local plan process. Long term protection will be afforded to areas of national, international or other strategic importance for nature conservation.

ENVIRONMENT

ENV1: The countryside will be protected for its own sake. Development in the countryside should seek to maintain or enhance it. Development which will adversely affect the countryside will not be permitted unless there is an overriding need for it which outweighs the requirement to protect the countryside.

ENV2: Kent’s landscape and wildlife (flora and fauna) habitats will be conserved and enhanced. Development will not be permitted if it would lead to the loss of features or habitats which are of landscape, historic, geological or wildlife importance, or are of an unspoilt quality free from urban intrusion, unless it can be demonstrated that there is a need for development which outweighs these countryside considerations.

ENV3: The Local Planning Authorities will provide long-term protection for the designated Kent Downs and High Weald Areas of Outstanding Natural Beauty. Priority will be given to the conservation and enhancement of natural beauty, including landscape, wildlife and geological features, over other planning considerations. Proposals for development which would be inconsistent with the conservation of natural beauty will be weighed in the light of their importance in securing the economic and social well-being of the area. The siting of major industrial or commercial development will not be permitted unless there is a proven national interest, and a lack of alternative sites.

ENV4: Special Landscape Areas are defined as follows:-

North Downs : including the scarp and crest
Greensand Ridge : from Westerham to Ightham
                  : south of Maidstone
High Weald
Eastern Low Weald
Old Romney Shoreline
North Kent Marshes
Sandwich Bay/Pegwell Bay
Dungeness
Blean Woods
The Local Planning Authorities will provide long-term protection for these areas through local plans and development control, and will give priority to the conservation and enhancement of natural beauty of the landscape over other planning considerations, whilst having due regard to the economic and social well-being of the area. The detailed boundaries of the SLAs will be defined through the local plan process.

**ENV5:**
Development which would materially harm the scientific or wildlife interests of Ramsar Sites, designated or potential Special Protection Areas and Special Areas of Conservation, National Nature Reserves, and Sites of Special Scientific Interest, will normally be refused.

**ENV6:**
Development which would materially harm the scientific or wildlife interests of Local Nature Reserves, or Sites of Nature Conservation Interest identified in local plans, will not be permitted unless there is a need which outweighs the local wildlife or habitat interest.

**ENV7:**
It is policy to maintain tree cover and the hedgerow network in the County, and enhance those where compatible with the character of the landscape. Local plans should include policies to protect, maintain and enhance tree cover and woodland.

**ENV9:**
Heritage Coast in Kent is defined as follows:

- Kingsdown to Dover
- Dover to Folkestone

The extent of Heritage Coast should be defined in detail in local plans. The natural beauty, heritage and wildlife habitats of these areas will be conserved and enhanced, and development which will harm these interests will not normally be permitted.

**ENV10:**
Undeveloped coast and estuaries, except where allocated for port development and associated infrastructure, will be conserved, and enhanced. Development in such areas and in adjoining countryside will not normally be permitted if it materially detracts from the scenic, heritage or scientific value of these areas.

**ENV11:**
It is policy to conserve and enhance the environment within river corridors, including the landscape, water environment and wildlife habitats, and where consistent with this, to encourage increased public access and water-related recreation opportunities.

**ENV13:**
Rural lanes which are of landscape, amenity, nature conservation, historic or archaeological importance will be protected from changes which would damage their character, and enhanced.

**ENV14:**
In local plans and development control, provision will be made for the improvement or reclamation of derelict land, or any potential for
redevelopment or the re-use of such land having regard to amenity, landscape and nature conservation considerations.

**ENV15:** The character, quality and functioning of Kent’s built environment will be conserved and enhanced. Development should be well designed and respect its setting. Development which would be incompatible with the conservation or enhancement of the character of a settlement, or detrimental to its amenity or functioning, will not normally be permitted. The character, setting and separation of towns and villages will be protected.

**ENV17:** The primary planning policy towards conservation areas is to preserve or enhance their special character and appearance (including buildings, related spaces, topography and vegetation). Development which would harm that special character will not normally be permitted.

**ENV18:** In the control of development and through policies and proposals in local plans:-

(i) the archaeological and historic integrity of scheduled ancient monuments and other important archaeological sites and historic landscapes, together with their settings, will be protected and, where possible, enhanced. Development which would adversely affect them will normally be refused.

(ii) Development may be permitted where this would provide the best reasonable means of conserving the character, appearance, fabric, integrity and setting of the ancient monument, archaeological site or historic landscape.

(iii) Where the case for development which would affect an archaeological site is accepted by the Local Planning Authority, preservation in situ of archaeological remains will normally be sought. Where this is not possible or not justified, appropriate provision for investigation and recording will be required.

(iv) Prospective developers will be requested to arrange for an archaeological field evaluation to be carried out in advance of determination of planning applications where it is indicated that important or potentially important archaeological remains may exist.

**ENV19:** In the control of development and through policies and proposals in local plans:-

(i) Listed buildings will be preserved and their architectural and historic integrity and the character of their settings will be protected and enhanced.
(ii) Changes of use will normally be permitted where these would provide the best reasonable means of conserving the character, appearance, fabric, integrity and setting of listed buildings.

(iii) In the case of demolition/substantial demolition (which will only be permitted exceptionally and where there is strong justification) or where alterations would lead to the destruction of part of the fabric of a listed building, appropriate arrangements may be required for investigation and recording by an approved building recorder or archaeologist.

ENV20: Development will be required to be planned and designed so as to avoid or minimise pollution impacts. Where such impacts cannot be reduced to an acceptable level, or, together with prevailing background pollution it would produce an unacceptable level, the proposed development will not be permitted.

NATURAL RESOURCES

NR1: Development will not be proposed in local plans unless the local authority is satisfied, after consulting with the EA and water and sewerage undertakers, that adequate provision for water supply and waste water treatment can be made, consistent with the long term management of water and waste water services. Local authorities will also consult and take full account of the advice of the EA and water and sewerage undertakers when considering proposals which are likely to have significant water or waste water implications.

NR2: The development or expansion of water supply or waste water facilities will normally be permitted, either where needed to serve existing or proposed development in accordance with the provisions of the Development Plan, or in the interests of long term water supply and waste water management, provided that the need for such facilities outweighs any adverse land use or environmental impact, and that any such adverse impact is minimised.

NR3: Development will not be permitted which would have an unacceptable effect on the quality or potential yield of groundwater resources.

NR4: Development which will lead to a material deterioration in the quality of surface water, will not normally be permitted.

NR5: Where development is proposed on land with particular drainage problems, or is at risk from river or tidal flooding, or would be likely to increase the risk of flooding elsewhere, the local planning authority will consult, and take into account the advice of, the Environment Agency. Residential development in such areas will not normally be permitted, unless the risk from flooding is alleviated to the satisfaction of the local planning authority after consultation with the EA.
NR6: Proposals for any mineral extraction or associated plant and buildings will normally be permitted where a need for the development is established, and there is no demonstrable harm to agricultural, landscape, conservation or environmental interests of acknowledged importance. Further, permission will only be granted if any physical constraints on the land have been properly taken into account and if there are adequate access proposals, measures to minimise disruption to the landscape and local environment, to landscape the site, to remove plant or buildings after workings have ceased and to restore the land to an appropriate afteruse, normally as working progresses. Wherever appropriate a period of aftercare will also be required.

NR7: Development proposals which would sterilise the future availability of strategic mineral reserves identified in the Minerals Local Plan will normally be refused.

NR12: Proposals for the extraction of chalk and clay at appropriate locations will normally be permitted pursuant to Policy NR6, which enable:-

(i) Kent’s cement industry to be maintained with up to 25 years’ reserves of chalk and clay;

(ii) clay brick industry to be maintained with at least 15 years’ reserves of clay;

(iii) reserves of agricultural chalk to be maintained with a 10 years’ supply;

(iv) engineering or other specific requirements for chalk and clay to be met.

NR14: In considering development proposals and in local plan preparation, local planning authorities will take into account as a prime consideration the extent to which they will contribute towards a relationship of land uses and transportation which minimises the demand for energy.

METROPOLITAN GREEN BELT

MGB3: Within the Green Belt there is a general presumption against inappropriate development. The construction of new buildings is inappropriate unless it is for the following purposes:-

- agriculture and forestry;
- essential facilities for outdoor sport and recreation, cemeteries and other uses of land which preserve the openness of the Green Belt and which do not conflict with the purposes of including land in it;
- limited extension, alteration or replacement of existing dwellings;
limited infilling in existing villages identified in the Development Plan as suitable for such development; and,

where provided for in local plans, limited affordable housing within existing settlements for local community needs; and,

where provided for in local plans, the limited infilling or redevelopment of major existing developed sites.

In addition:-

The re-use of buildings will not be inappropriate where the use does not prejudice the openness of the Green Belt and other planning considerations.

Proposals for mineral extraction need not be appropriate where they incorporate high quality environmental standards and restoration.

Any development approved within the Metropolitan Green Belt will be required to be designed and sited so as to maintain the open character of the area and should not conflict with the purposes of including land in the Green Belt.

ECONOMIC DEVELOPMENT

ED5: Development which will assist in supporting Kent’s agricultural and horticultural industry will normally be permitted, subject to transport, landscape and other planning considerations. Any such development should:-

(a) be part of, and primarily serve, an individual viable or potentially viable farm or horticultural unit, or

(b) be well-related to the primary or secondary route networks, and normally be in or adjoining a settlement or located on land identified in local plans for employment uses.

ED6: The long-term productive potential of agricultural land will normally be protected, unless there is an overriding need identified in the Development Plan. In particular, development which will cause a loss of the best and most versatile agricultural land (MAFF Grades 1, 2 and 3a) will not normally be permitted.

TRANSPORT

T16: Traffic, particularly goods vehicles, will be discouraged from travelling on minor roads by the use of traffic management and regulation measures such as signing, width and weight restrictions, parking restrictions, road closures, and through the control of development.
Development which generates significant increases in traffic, especially heavy goods vehicles, will normally be refused if it is not well related to the primary or secondary route network and, if appropriate, to the rail network.

Development will normally be refused which involves the construction of a new access onto the primary or secondary road network, or the increased use of an existing access directly onto that network, where an increased risk of accidents or significant traffic delays may result.

Before proposals for development are permitted, the Local Planning Authority will need to be satisfied that any necessary transport improvements, the need for which arises wholly or substantially from the development in question, are in place or are certain to be provided. Standards of road provision will take account of public transport that is or will be made available, provided road safety is not compromised.

Development proposals for the establishment or expansion of small ports and wharves will normally be permitted subject to adequate provision for access, including linkage to the rail network where practicable, and to other planning considerations, providing there is no overriding conflict with the Plan’s environment policies.

All development permitted at villages and small rural towns and in the open countryside should be well designed; appropriate in location, scale, density and appearance to its surroundings; acceptable in highway and infrastructure terms; have particular regard to the Plan’s environment policies; and preserve and, as far as possible, enhance the character, amenity and functioning of settlements and the countryside, and in the Green Belt will be subject to Policy MGB3.

Development will not normally be permitted in rural Kent other than at the villages and small rural towns unless:-

(i) it is demonstrated to be necessary to agriculture, forestry, the winning or import of minerals or other land use essentially demanding a rural location; or

(ii) it is the re-use or adaptation of an existing rural building, which is in keeping with its surroundings, where the change is acceptable on environmental, traffic and other planning grounds; or

(iii) it comprises the acceptable re-use or redevelopment of the existing built area of redundant institutional complexes; or
(iv) it relates to the acceptable rebuilding or modest extension of a dwelling currently in residential use in an appropriate location; or

(v) it is the provision of public or institutional uses for which the rural location is justified.

All such development will also be subject to Policy RS1.

SPORT AND RECREATION

SR3: In rural areas and at the coast, facilities for informal recreation, will normally be permitted where there is no material detriment to the environment and subject to traffic and highway considerations. The rights of way network will be protected and enhanced.
PRINCIPLES OF QUARRY OPERATION AND WORKING

Plant, Machinery and Buildings

1. The Key elements in operation and working are:-
   (a) fixed (eg. processing) plant and buildings, including lighting
   (b) mobile (eg. excavating) plant
   (c) internal transport arrangements
   (d) external transport arrangements

2. When considering these elements the main principles are to minimize overall impact and to ensure adequate protection for the local community from any adverse effects of the working itself and of noise and dust generation.

3. So far as plant and buildings are concerned this will mean:-
   (i) keeping the height as low as possible, including where necessary their placing below ground level
   (ii) grouping to facilitate screening and reduce sprawl
   (iii) siting to take advantage of topography and natural cover
   (iv) painting where practical to receive elevational treatment, or screening as appropriate to reduce obtrusiveness.

4. Government regulations give a general planning permission to certain types of development which are ancillary to mineral working (eg. the erection of plant and buildings). This is known as ‘permitted development’.

5. The impact on the locality of plant and buildings is normally such that when granting permission the County Council will withdraw permitted development rights, so as to be able to control siting, design and external appearance.

6. Plant and machinery will be removed from the site as soon as it is no longer required.

Transport

7. In respect of internal transport, the use of conveyors rather than wheeled transport is encouraged. Any haul route must be designed so as to minimize noise and dust nuisance; to this end haul routes will have an even surface and be well drained.

8. If access from the site to the secondary or primary route network is gained more appropriately by a specific route then the operator may be required to enter into a voluntary agreement to secure the desired routing. In some circumstances it may be appropriate to secure access and egress from different directions.

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9. Proposals should be accompanied by information on the prevailing background noise levels, together with an assessment of:-

   (i) maximum noise levels;
   (ii) variations during the day

10. Noise is more intrusive when background levels are low. This applies particularly to the early morning (and at night) and so particular attention will be paid to plant which is proposed to be used before the normal start time of 7am. There is no substitute for reducing noise at source. Noise can be reduced by cladding of plant or by using modern sound suppressed equipment and vehicles. Acoustic screens can be used in noise sensitive areas.

11. The assessment of the impact of noise from a proposal will follow the principles of DoE Guidance Note MPG11. The following guidelines will be used to set appropriate limits for noise sensitive properties (for glossary of terms see the footnote at the end of this Appendix):-

   (a) during construction and site preparation and, where appropriate, any final restoration (eg. building, bund construction and removal, soil stripping and spreading):

* maximum level of 70dB L_{Aeq,1hr} (free field) for periods of up to 8 weeks in a year.

   (b) during temporary operations (eg. extraction and restoration) the maximum level (L_{Aeq,1hr} (free field)) should be:

* 55dB L_{Aeq,1hr}
* existing background (L_{A90}) + 10dB(A)

   whichever is the lower - subject to a minimum 45dB L_{Aeq,1hr}*

   (c) for permanent plant, L_{Aeq,1hr} (free field) should not exceed:

* existing background (L_{A90}) + 5dB(A)

12. If plant or machinery has to operate during the night the nominal limit should be 42dB L_{Aeq,1hr} (free field) at noise sensitive dwellings. However, this may be varied with regard to the specific circumstances of any proposal. This may be a particular issue in quieter rural areas.
13. If noise from the site includes a distinguishable, discrete or continuous note (eg. whine, hiss, screech or hum), or if there are distinct impulses in the noise (eg. bangs, clicks, clatters or thumps), or if the noise is irregular enough to attract attention, 5dB(A) will be added to the specific noise to obtain the rating level.

14. Whenever Health and Safety legislation requires the use of audible reversing warning, then means of design and operation will be required to address in a positive manner the inevitable conflict between safety and amenity. If such noise is considered to be unacceptably intrusive in the surrounding areas then the applicant will be required to use an alternative reversing warning system. If this is not possible then permission will be refused.

**Dust**  
15. If the excavated material could be subject to windblow then the sheeting of loaded lorries will be required.

**Protection of Water Resources**  
16. Safeguards are needed to prevent water pollution from spillage of fuel, lubricating oil and sewage. Suitable collection and disposal arrangements will be required. To avoid suspended silt or similar material being carried into water courses, working areas must be completely segregated - provision for the discharge of water from any washmill may need to be agreed.

**Ground Instability**  
17. The Planning Authority will need to take into account any physical constraints on the land. Where the possibility of ground instability is suspected, applications will be required to be accompanied by a stability report, describing and analysing the relevant issues and demonstrating how they would be overcome. Further information is contained in PPG14 (Development on Unstable Land).

**Land Drainage**  
18. Adjoining land will need to be protected in order to safeguard land drainage interests. An unexcavated margin of at least 30 metres will normally be required alongside the banks of main rivers, and 15 metres alongside Internal Drainage Board watercourses. The face of workings adjacent to these margins will normally be required to be battered to a slope not steeper than 5 horizontally to 1 vertically, and maintained at that angle.

**Crime**  
19. When drawing up detailed proposals, operators will be expected to take account of the advice in DoE Circular 5/94 ‘Planning out Crime’.

**Site Management**  
20. The Planning Authority recognises that a high standard of site management is a major factor in securing and maintaining a minerals operation which minimises its environmental impact. The Planning Authority will look to the industry to achieve this standard. It means not only complying with planning requirements but also acting as a
good neighbour and a responsible member of the local community. Regular litter collection, maintenance of verges, advance warning to local residents of new operations, and ensuring that lorries do not wait for opening time either at the gate or in the immediate vicinity, are all examples of good practice.

21. Accordingly, as an integral part of the general scheme of site operations, the Planning Authority will expect to see the establishment of a system of Environmental Management. This could with advantage be submitted with the planning application and might include:-

* A corporate environmental statement, including both environmental and community management objectives. This would be a part of the operator’s general management policies and company objectives.

* Environmental site appraisal; this would include reference to specific planning and other licensing conditions, and to on-site standards sought.

* Regular monitoring of performance; this would include a clear monitoring programme which identifies the type, range and frequency of the information to be collected.

* Annual environmental audit/review; a record of performance and recommendations for future action. This would be made available to the local community.

22. In this way a regular appraisal would be made of the impact on the environment of the activities both within and around the site.

23. The environmental management (audit) system outlined in The Minerals Industry, Environmental Performance Study (HMSO, 1991) is commended as a general framework for establishing and maintaining good practice.

Local Liaison

24. As regards being a good neighbour in the local community the County Council supports the setting up of regular local liaison between representatives of local residents (normally the Parish or Town Council) and the operator.

25. For its part the Planning Authority will monitor operations to ensure that the requirements of the planning permission are met and will investigate claims of unauthorised activities. Town and Parish Councils can play a part in the monitoring process.
Footnote

Glossary of terms for noise measurement.

**A-weighting:** Normal hearing covers the frequency (pitch) range from about 20 Hz to 20,000 Hz but sensitivity is greatest between about 500 Hz and 5,000 Hz. The "A-weighting" is an electrical circuit built into noise meters to mimic this characteristic of human hearing.

**Background:** see $L_{A90,T^*}$

**Decibel (dB):** The logarithmic measure of sound level. 0dB is the threshold of normal hearing, 140 dB is the threshold of pain. A change of 1 dB is detectable only under laboratory conditions.

**dB(A):** decibels measured on a sound level meter incorporating a frequency weighting (A weighting) which differentiates between sounds of different frequency (pitch) in a similar way to the human ear. Measurements in dB(A) broadly agree with people’s assessments of loudness. A change of 3 dB(A) is the minimum perceptible under normal conditions, and a change of 10 dB(A) corresponds roughly to doubling or halving the loudness of a sound.

**$L_{A10,T^*}$:** The "A weighted" noise level exceeded for 10 per cent of the specified measurement period (T). It gives an indication of the upper limit of fluctuating noise.

**$L_{A90,T^*}$:** The "A weighted" noise level exceeded for 90 per cent of the specified measurement period (T). In BS 4142, used to define the background noise level.

**$L_{Aeq,T^*}$:** The equivalent continuous sound level - the sound level of a steady sound having the same energy as a fluctuating sound over a specified measuring period (T). Used to describe many types of noise, and can be measured directly with an integrating sound level meter.

**Tonality:** The degree to which a noise contains audible pure tones. Broad band noise is generally less annoying than noise with identifiable tones.
PRINCIPLES OF LANDSCAPING

1. When considering proposals for chalk and clay working, the Planning Authority will examine amongst other matters their impact on the local landscape and ecology. If, after having taken account of any proposed amelioration, it is concluded that the intrusion into the landscape, or effects on important habitats would be unacceptable, then permission will be refused.

2. Landscaping should be designed and implemented with the eventual afteruse and landform in mind. Professional advice should be sought.

Detailed Objectives

3. In circumstances where it is considered that in principle the impact on the landscape can be accepted, then when dealing with the details of landscaping the main objectives will be as detailed below:-

(i) To identify potential detrimental visual impact at an early stage in the design process and to incorporate appropriate mitigation measures.

(ii) To identify areas of ecological interest at an early stage in the design process and to incorporate appropriate protection and mitigation measures.

(iii) As many as possible of the existing landscape and ecological features should be retained, and where necessary physically protected from damage for example by fencing and/or a buffer zone. Features of landscape importance, which should normally be protected, include woodland, hedgerows, wetlands and land river corridors of particular historic, landscape or wildlife importance.

(iv) To identify the local landscape character and to reflect in the final design as much as possible elements of the local topography and vegetation patterns.

(v) To identify adjoining areas of landscape importance or ecological interest and ensure that appropriate measures are taken to mitigate any detrimental effects on them.

(vi) To restore the site to an acceptable and sustainable land use. Landform, soil covering, drainage patterns, fencing, planting and aftercare must all be considered for achieving this goal.
(vii) Where “nature conservation” is the proposed afteruse, to provide and develop, where appropriate by natural colonisation, a varied landscape to maximise the diversity and potential for wildlife.

(viii) To provide a phased restoration of the area, particularly on large sites.

4. A detailed landscaping scheme, including details of screening, will be approved before operations commence.

5. Although they have a useful role in the re-establishment of hedgerows (an important objective which is supported by Structure Plan Policy ENV6), as a general principle thin rows of trees and shrubs have a limited impact and may add to the artificial appearance of the new landscape. As a general principle blocks of planting are preferred. Where linear belts of planting are necessary for screening purposes, these must be at least 10 metres wide to be effective.

6. Screening and screen planting should normally be implemented in the first planting season following the grant of permission. In particular, important screening should be undertaken as advanced works to achieve a degree of establishment as soon as possible.

7. Temporary screening mounds formed from topsoil and overburden should be seeded at the first opportunity. A gentle gradient on the outward facing slope will reduce the artificial appearance. Care should be taken to ensure that the loss, dilution or mixing of valuable soil reserves needed for agricultural restoration does not occur due to this action. Planting of temporary screen mounds should be avoided.

8. Maintenance is a major consideration and the planning permission will require a detailed scheme of management for the life of the site and its aftercare period (currently a maximum of 5 years). A maintenance contract should be set up to ensure that the planting is protected from damage, kept weed free and where appropriate, fertilised and watered, and that losses are replaced promptly at the end of each growing season.
PRINCIPLES OF RECLAMATION

Reclamation is defined in the Government’s Minerals Planning Guidance Note 7 as:—

‘operations designed to return the area to an acceptable environmental condition’.

On this basis reclamation comprises:—

* operations which occur both before and during mineral extraction (eg. the stripping and protection of soils)
* restoration
* aftercare

1. Before granting a permission for mineral working the Planning Authority will need to be satisfied that the site can be reclaimed satisfactorily, including the need to protect water resource interests. The drawing up of practical proposals for reclamation will require a careful site investigation prior to the submission of an application. The investigation will identify any existing resources, defining the amount, type and characteristics of topsoil, subsoil, soil-making materials and overburden, drainage, original landforms and vegetation.

Working

2. The opening of a new quarry can be by far the most intrusive phase of the whole operation. Accordingly the starting point and the sequence of working are important considerations.

3. As a first principle progressive working will be sought. Not only does this minimize the amount of land open at any one time, but it also facilitates early and then progressive reclamation. An additional advantage is that if the quarry is worked to its full depth at one point then plant and machinery can be placed below surrounding ground levels. A method of working will be sought which minimizes the amount of land out of its normal use; this will form an integral part of any planning permission and will be controlled by conditions. A productive use will be expected to continue on land not yet worked, and to be re-established as soon as possible on restored land. Accordingly in active quarries a balance will be sought between rates of extraction and restoration.

4. Where restoration is to include filling, the intended final levels and contours should be specified at the outset and included in the restoration scheme. Unless specific drainage or landscape considerations need to be taken into account, the objective will be to create original ground levels. The main difficulty in achieving final
levels arises from settlement. All tipped material will settle, and allowance needs to be made for this by ‘surcharging’, i.e. filling above final contours to allow for subsequent settlement. Settlement is influenced by both physical and biochemical factors; the degree of compaction and the type of waste are also important elements. Data on rate and degree of settlement are not readily available. Research has suggested that total final settlement can vary from 10-25% of the overall depth of the filling. Good site management and practice are required to achieve agreed aims. The Planning Authority will seek the best available information on settlement rates and will regularly monitor the situation to ensure that agreed final levels are achieved. If sufficient fill is unavailable at any time, extraction will be delayed to allow the progression to be maintained.

Afteruse

5. A sustainable afteruse will be required, which becomes an integral part of the local scene. In some cases built development may be appropriate. Selection of the afteruse will entail attention to adjoining uses and to adjoining landscape features such as planting, landform and water. The government’s policy to encourage diversification of the rural economy does not mean a lessened commitment to high standards of reclamation. In certain circumstances nature conservation can be accepted as a justified and viable afteruse. In any event provision for some wildlife habitats will always be sought. The appropriate District Council will be consulted on restoration and afteruse proposals.

Water Areas

6. The creation of extensive new water areas will not be acceptable on the best and most versatile agricultural land, and elsewhere will be acceptable only if:

(i) a water feature is acceptable in the local landscape;

(ii) a realistic water based afteruse can be demonstrated and a need established. This could include the storage of water for its own sake.

7. All wet pits should be capable of supporting features of nature conservation value. The main elements in such a use are maintenance of high water quality, an irregular graduated shoreline, shallows and islands and recolonization by indigenous species of water plants, shrubs and trees.

Agriculture

8. Where an agricultural afteruse is proposed the Planning Authority will require restoration to the highest possible standard and as near as possible to the original grade. As a general principle an agricultural afteruse will be sought on the best and most versatile agricultural land (grades 1, 2 and 3A of the MAFF Agricultural Land Classification System as revised). Schemes of restoration and aftercare
will be sought to enable such land to retain its long term potential as an agricultural resource.

9. The key to good land restoration is the correct management of soil resources and in this respect regard should be had to MAFF ‘Guidelines for Contractors Undertaking Major Works affecting Agricultural Land’. Any existing topsoil and subsoil need to be stored and replaced in the correct sequence and in good condition so as to be able to carry the afteruse. Importing ‘alien’ substrata should be avoided. The planning permission will control the height, shape and location of soil storage heaps, as well as their management during storage, such as by seeding and weed control. The main principles are:-

(a) Topsoil has its own special characteristics of structure, organic matter, nutrient content and biological activity which, once lost, take many years and much effort to replace. Therefore topsoil, subsoil and other overburden should always be stripped separately and then either stored in separate mounds, or directly replaced in the correct sequence of defined thickness. Where possible, immediate replacement is better than intermediate storage (and also cheaper because double-handling is avoided). However, in the early stages, immediate replacement is impossible and it will have to be stored: often this same material can be used to advantage in creating temporary screen mounds.

(b) Movement of soil must be such as to minimise loss of structure by compaction, smearing, etc. The delicate balance of soil, humus, water and air is easily destroyed by careless handling or use of inappropriate machinery. Some soils are more susceptible to damage than others, and therefore a prior soil survey is important in suggesting ways in which the particular soil should be handled. A corollary of this is that soil stripping machinery should as far as possible follow defined routes which avoid running over topsoil and subsoil. Mechanical subsoiling will be required if necessary to relieve compaction.

(c) Soil should only be moved when soil and weather conditions are suitable: this is because wet soils are more easily damaged by smearing and compaction when soil movements are taking place. Wetness is difficult both to define and predict in the variable English climate. However, soil operations should generally only be carried out between 1 May and 30 September. Outside this period, unless there is an exceptional dry spell, any apparent dryness is liable to be confined to the surface layers, or operations may have to be called off at short notice because of further rain. Even during the summer careful efforts of soil
handling and restoration generally will be vitiated by persisting
in soil movement during wet weather. Operators will be
expected to use the best techniques for the handling of soils.
Criteria for the control of soil movement need to be determined
for each site individually since soils differ so much in character.

(d) The timescale over which topsoil in particular is kept in storage
heaps should be minimised. When constructing soil stockpiles
excessive compaction can be reduced by creating low wide
mounds rather than tall narrow ones (3m maximum). It is
likely that soils will deteriorate during storage by becoming
anaerobic, and bacteriological activity in stored soils diminishes
with depth and earthworms will be absent. So, even low heaps
will deteriorate over long periods. This is linked to point (a)
about direct replacement where possible. There is evidence that
topsoil heaps can be maintained in better heart by promoting
grass growth on them. This is also desirable from an amenity
point of view.

10. Where protection of the water supply is important, special
consideration will need to be given to the materials used, to the method
of restoration and to the final gradient. Where infill may generate
harmful gases, special attention will be given, pursuant to DOE
Circular 17/89, to all such proposals and in particular to those which
are nearer than 250 metres to other development.

11. Where restoration to or near original levels is not sought,
graded side slopes will be required which maintain a relationship with
surrounding topography. This will mean appropriate variations in
gradient and as a general rule the maximum slope sought will be 18°;
this is also the limit for two-wheel drive tractors and for most forestry
machinery. 11° would facilitate an agricultural afteruse. 7° is the
maximum for high grade agricultural land and the limit for precision
seeding and harvesting equipment. However in floodplains, final
levels should be no higher than the original ground level.

12. When material is being replaced, careful ground preparation is
necessary. If the soil has become compacted, deep ripping may
improve drainage and root penetration. Early drainage is vital and
invariably a piped drainage system will be required.

13. Where nature conservation is the proposed afteruse, provision
should should be made for it to relate to and complement surrounding
wildlife corridors.

14. Any infilling will need to be consistent with nature
conservation requirements and in circumstances where a lower nutrient
status is preferred, the existing topsoil would not be reused.
15. Many mineral excavations can provide valuable wildlife habitats, especially where there is adjacent habitat to act as a source of colonisation and where substrata is exposed which allows the development of a range of species which tended to be ousted by competition from nutrient rich conditions.

16. Where nature conservation is the proposed afteruse, it may be appropriate to retain the exposures of strata. The interest may develop on the quarry floor or walls and so infill should be avoided or undertaken to a lower level to leave a “cliff effect”.

17. The key is to plan the site prior to excavation. All wet pits should be capable of supporting features of nature conservation value. The main elements in such use are maintenance of high water quality, an irregular graduated shoreline, shallows and islands and recolonisation by indigenous species of water plants, shrubs and trees. In dry quarries such as ragstone, a rough irregular surface with a variety of aspects will facilitate colonisation.

18. Where some restoration is undertaken, it may be better not to replace topsoil but to retain the lower fertility of the subsoil. Planting may not be necessary in all areas if there are sources of natural colonisation nearby.

19. Trees and shrubs should be used where planting is undertaken. Any seed mixes for grassland areas should be of native origin, avoiding vigorous hybrids. The use of herbicides and fertilisers should normally be avoided, particularly adjacent to watercourses and features, with only certain MAFF approved herbicides being used.

20. A long term programme of management and monitoring should be prepared and undertaken. Provision should be made to allow for the maintenance of any new nature conservation interests that becomes established during working and restoration. Management regimes of grass mowing etc. should be geared towards ecological objectives.

21. Where appropriate, access can be encouraged and environmental education facilities provided. This will help in creating an impression of a nature conservation afteruse as a positive initiative.

22. Aftercare needs to be seen as a long term commitment, and provision for it built into the initial planning of the overall scheme. Where the proposed afteruse is agriculture, forestry or amenity, the Planning Authority will require a five year period of aftercare (maintenance in the case of nature conservation) following completion of restoration. MAFF and the Forestry Commission will be consulted where appropriate. Specific steps will be required to treat the land to
bring it to an appropriate standard. The ultimate aim is that over time the reclaimed land does not have to have treatment very different from undisturbed land. However, the use of fertilisers and herbicides should be confined to proposed agricultural areas; they are normally detrimental to the creation or retention of nature conservation interest. Aftercare begins from compliance with the restoration conditions on particular parts of the site and can include steps such as planting, cultivating, fertilising, watering, draining and measures designed to control any leachate and landfill gas (as advised in Department of the Environment Circular 17/89).

23. Where the land is to be retained in grass during that period, aftercare will involve continuing maintenance including further soil testing, application of fertiliser, and possibly re-seeding as appropriate. Normally the best method of promoting good growth and preventing weed growth is to let out the land for controlled grazing. However, over-intensive grazing, or grazing in wet weather, particularly by horses or cattle, can be counter-productive resulting in "poaching" of the soil and killing off the grass. Sheep are often best. An alternative to grazing is to cut for a hay or silage crop. Failing this, mowing will be needed. In some cases arable cropping may be desirable during the aftercare period.

24. On steeper slopes of a former quarry margins, permanent retention of the land for grazing may be best; or forestry may be an alternative. There is an interplay here between quarry gradients, landscape impact, farming practice in the surrounding area, and commercial considerations of alternative afteruses, which requires careful planning at an early stage if the end result is to be successful in environmental and land management terms. On the flatter quarry floor, it may be possible after an initial period to consider arable cropping.

25. Further advice on the contents of an aftercare scheme is given in MPG7 (November 1996), paragraphs 56 to 74 and Annex A, paragraphs A59 to A86.

Machinery

26. The use of equipment will be required which minimises the impact on the local area. This will apply particularly to potentially noisy operations and to those relating to soil movement.

27. All plant and equipment will be required to be removed from the site as soon as it is no longer required. However, an exception may be justified if the items are of particular interest (eg. historic).
THE CEMENT MANUFACTURING PROCESS

1. Cement is used primarily to make concrete. Concrete, and mortars based on Portland cement, are essential materials for a wide range of building and engineering works. Associated materials like whiting have both a decorative and a protective function.

2. Several types of Portland cement have been developed, each with its own characteristics or properties, which are of value in particular applications. These include ordinary, rapid hardening, white and sulphate resisting Portland cements and oilwell cement. They all contain the same active minerals, but with the proportions varied, and with additives present in oilwell cement. Where other materials are introduced to the manufacturing process, notably at the stage when the clinker is being ground, a greater variety of cements is produced.

3. The most commonly used cement is Ordinary Portland Cement (OPC), with production amounting to about 90% of the total quantity of all cements produced. OPC is made by burning chalk or limestone with clay, or other suitable materials, to form clinker. Various blended OPC’s, with proportions of substitute materials such as granulated blast furnace slag (gbfs) and pulverised fuel ash (pfa), are available. With the addition of a relatively small proportion of gypsum, which controls the rate of setting, the clinker is ground to a fine powder (the cement). The process is shown in diagram A6.

4. A typical raw mix for the manufacture of OPC requires about 80% chalk or limestone and 20% clay (depending upon the calcium carbonate content of both). To produce each tonne of cement clinker in Kent, almost 2 tonnes of chalk is needed (see Appendix 7). At the present time chalk extraction accounts for the greatest quantity of any single mineral quarried in Kent, about 2 million tonnes a year, the majority of which is used to make cement. (Department of Trade and Industry: Business Statistics Office PA1007 “Business Monitor” 1991 Minerals, Table 7)

5. The setting of cement is the product of a chemical reaction, called hydration, between the cement and water. The reaction involves heat and is not reversible. Strength increases after hardening and may take several years to reach its ultimate value.

Substitutes

6. There are good environmental reasons for using substitute materials in the cement production process, both as kiln feed and as a filler to add to the clinker. Substitutes can reduce the amount of primary materials needed, the amount of energy consumption and
Diagram A.6 The Manufacture of Cement by the Semi-Wet Process

QUARRY & SLURRY PREPARATION

WASHMILL  CLAY SLURRY
WASHMILL

CLinker PRODUCTION

DUST PRECIPITATOR

CHIMNEY

FILTER PRESS

CLinker COOLER

CEMENT PRODUCTION & DESPATCH

CLinker STORAGE

GYPSUM

GRINDING MILLS

CEMENT SILO

BAG PACKING MACHINE

HOPPERS

BULK TANKERS
carbon dioxide production per tonne, and also the requirement for waste disposal.

Assumptions Used for Cement Making in Kent

7. To produce 1 tonne of cement clinker requires:-

    (a) between 1.75 and 1.95 tonnes of as-dug chalk
    (b) between 0.0 and 0.4 tonnes of clay.

8. The precise requirements are determined by the type of cement being produced, and principally by the type of chalk being used. For example the chalk marls excavated from underwater at Halling Quarry have proportions of the essential chemicals approaching those necessary for a Portland Cement raw mix, so the amount of clay needed for blending is very much lower.

9. Cement is produced by grinding clinker with about 4% to 8% of gypsum. So 1 tonne of clinker will produce 1.04 to 1.08 tonnes of cement.
ENVIRONMENTAL ASSESSMENT (EA)

1. The Town and Country Planning (Assessment of Environmental Effects) Regulations 1988 (S1 No. 1199) introduced a requirement for "the assessment of the effects on the environment" of certain developments which need planning permission.

2. For those developments that are considered likely to have significant effects on the environment by virtue of their nature, size or location, the Regulations prohibit the grant of planning permission until environmental information has first been assessed and taken into account.

3. There are three main stages in the process:-

   (a) the planning applications must be accompanied by an environmental statement

   (b) the statement is subject to consultation and publicity; comments and representations received, together with the statement itself, comprise the environmental information

   (c) before determining the planning application the environmental information is subject to an assessment.

4. Developments which may require an EA are listed in Schedule 2 of the Regulations. They include the following of possible relevance to this part of the Minerals Local Plan:-

   □ extracting minerals
   □ an installation for the manufacture of cement.

5. Guidance as to the nature and information content of an environmental statement is set out below. The emphasis is on the systematic analysis and presentation of information.

AN ENVIRONMENTAL STATEMENT

(A) This comprises a document or series of documents providing, for the purpose of assessing the likely impact upon the environment of the development proposed to be carried out, the following information:-

   (a) a description of the development proposed, comprising information about the site and the design and size or scale of the development;

   (b) the data necessary to identify and assess the main effects which that development is likely to have on the environment;
(c) a description of the likely significant effects, direct and indirect, on the environment of the development, explained by reference to its possible impact on: human beings; flora; fauna; soil; water (including aquifers and groundwater); air; climate; the landscape; the inter-action between any of the foregoing; material assets; and the cultural heritage;

(d) where significant adverse effects are identified with respect to any of the foregoing, a description of the measures envisaged in order to avoid, reduce or remedy those effects; and

(e) a summary in non-technical language of the information specified above.

(B) An environmental statement may include, by way of explanation or amplification of any specified information, further information on any of the following matters:-

(a) the physical characteristics of the proposed development, and the land use requirements during the construction and operational phases;

(b) the main characteristics of the production processes proposed, including the nature and quality of the materials to be used;

(c) the estimated type and quantity of expected residues and emissions (including pollutants of water, air or soil, noise, vibration, light, heat and radiation) resulting from the proposed development when in operation;

(d) (in outline) the main alternatives (if any) studied by the applicant, appellant or authority and an indication of the main reasons for choosing the development proposed, taking into account the environment effects;

(e) the likely significant direct and indirect effects on the environment of the development proposed which may result from:-

(i) the use of natural resources;
(ii) the emission of pollutants, the creation of nuisances, and the elimination of waste;

(f) the forecasting methods used to assess any effects on the environment about which information is given under sub-paragraph (e); and

(g) any difficulties, such as technical deficiencies or lack of know how, encountered in compiling any specified information.

In paragraph (e), "effects" includes secondary, cumulative, short, medium and long term, permanent, temporary, positive and negative effects.

Where this further information is included, a non-technical summary shall also be provided.
6. For further information reference should be made to:-

* Environmental Assessment, a Guide to Procedures (HMSO)
* Kent Environmental Assessment Handbook.

The latter explains the requirements and gives detailed advice on preparing an Environmental Statement.

When preparing an Environmental Statement an initial ‘scoping’ exercise, including early contact with consultees such as English Nature, can be of great advantage in identifying likely requirements.