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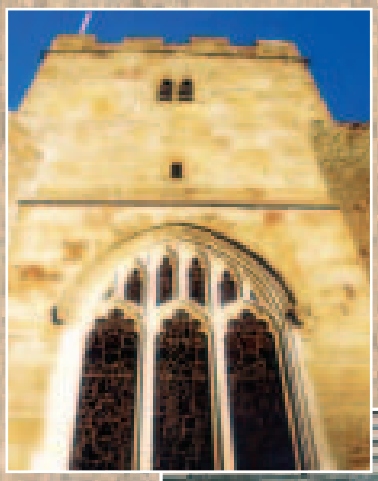


Planning for the Supply of Natural Building and Roofing Stone in England and Wales

A Summary

The variety of indigenous stone available to architects and builders in England and Wales has been considerably reduced over the last 50 years by the closure of many traditional building and roofing stone quarries. This has reflected a combination of falling demand over much of that period and, in recent years, a growing burden of planning restrictions and environmental legislation. The last decade has seen a renewed growth in demand for natural stone, but a rapidly growing proportion of this has been met by imports, rather than from indigenous sources.

Problems have been created by the sterilisation of old quarries and potential resources by other forms of development and, in some cases, by new environmental designations. Information is needed on the current nature of demand, and on the location and importance of both quarries and resources, so that the need for new supplies and the significance of resource protection can be balanced against these other pressures.

Examples of the use of natural stone products in historical buildings (Oxford, above); new development in keeping with local vernacular style (Corfe village, Dorset, below); and contemporary urban design (Richmond, N. Yorks, left)

THIS LEAFLET SUMMARISES THE FINDINGS OF A REPORT BY SYMONDS GROUP LIMITED TO THE OFFICE OF THE DEPUTY PRIME MINISTER, WHICH AIMS TO ADDRESS THESE ISSUES.

The report considers the demand for natural stone products in the following three main subdivisions of the market:

- ***Repair and maintenance to historic buildings and structures using materials from original or compatible sources;***
- ***Maintaining vernacular styles in new construction, using materials that are compatible with traditional local building practices; and***
- ***Contemporary design requirements for new buildings and structures, including internal and external decoration.***

The first of these represents a relatively small but very important sector of the market, where demand usually relates to specific types of stone, often from specific quarries.

The second is a larger and expanding sector of the market, driven by a growing recognition among planners of the importance of maintaining distinctive vernacular styles and a 'sense of place' in the built environment. Here again, stones of a specific type are important, but there is much greater flexibility in the use of stone with similar appearance and characteristics from alternative sources.

The third market sector is by far the most important in terms of volume, but is less constrained than the others with regard to specific types of stone, being driven instead by such things as technical specifications, the aesthetic requirements of individual architects, and the marketing prowess of natural stone producers and importers.

This study has identified 335 active and intermittently active quarries that were producing building stone and/or roofing stone within England and Wales at some time during the period from 1999 to 2001. These had a combined annual output during that period of **292,210m³** (approximately **713,909 tonnes**).

The study has highlighted the overwhelming importance of two major geological groups: the various ***Jurassic limestones***, which together have 77 active or intermittently active quarries and a combined annual production of 109,494m³; and the various ***Carboniferous sandstones***, which, collectively, have 119 quarries and a combined output of 116,329m³.

The third most important supply sector is that of ***Slate***, comprising Cambrian, Ordovician and Silurian slates, mainly from North Wales and the Lake District; and younger Devonian Slate from Southwest England.

Some example of active building stone quarries in England:

Relatively large-scale blockstone extraction from thickly-bedded Namurian (Carboniferous Millstone Grit Series) sandstone on Stanton Moor in the Peak District (above):

Similarly large-scale blockstone extraction from the Middle Jurassic (Bathonian) limestone in the Cotswolds (right); and

Relatively small-scale extraction of more thinly-bedded Upper Jurassic limestone on the Isle of Purbeck, in Dorset (below).

Almost all building and roofing stone quarries are small by comparison with most hard rock aggregate quarries, both in terms of physical size and, especially, in terms of output. Ninety percent of all active and intermittent building stone quarries are very small, with an output of less than 2,000m³ and often less than 100m³per year. The remaining 10% of quarries are larger, with variable output levels ranging up to more than 20,000m³ (approx. 50,000 tonnes) per annum. Together, these account for almost 70% of total output, whilst half of all production is derived from just 15 individual sites.

Within each individual geological formation, the strata suitable for use as building or roofing stone may be very limited in thickness and/or geographical extent. This has several important implications that are of direct relevance to mineral planning:

- ***potential building stone resources are relatively scarce*** and difficult to find.
- ***individual types of building stone often have very distinctive characteristics*** that cannot easily be matched by stone from alternative sources.
- ***the extraction and processing of building stone is a relatively slow process*** (compared to other forms of quarrying) and requires the use of many traditional, specialised techniques.
- ***building stone production necessarily involves a relatively high proportion of 'waste'.***

Above and right: Blockstone extraction at Appleton Quarry, using traditional 'plug & feather' techniques to split the stone and mechanical excavators to lift the blocks:

Below: sawing of blocks from several quarries into slabs for further processing (Moorfield or Crosland Hill Quarry).

Simple walling stone and naturally 'riven' paving or roofing stones need little processing other than splitting along natural bedding planes, breaking into suitably sized rectangular pieces and dressing, usually by hand.

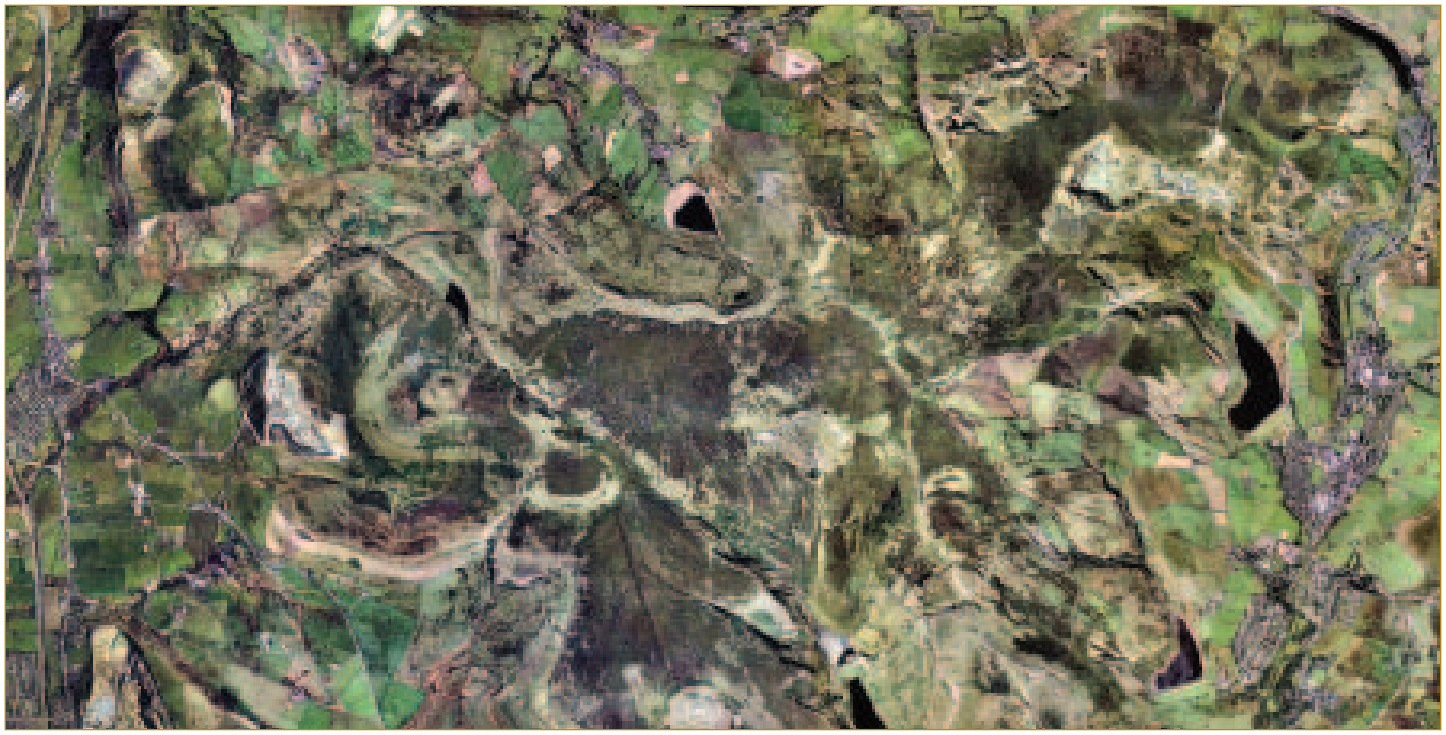
True dimensional stone, which is sawn on four or all six sides, for use as masonry, cladding or paving, requires more specialised equipment, including frame saws and rotary blades.

Traditional skilled stonemasons are frequently employed in many processing yards to produce complex architectural designs, although many operators now use computer-controlled machines to create intricate mouldings and textures.

The word 'quarry' comes from the Latin *quadrare*, meaning 'to make square' and relates to the traditional methods, often still used with adaptations today, of producing 'squared' dimension stone for the construction of buildings.

Most sedimentary rocks (sandstones and limestones) are prised directly from the quarry face, taking advantage of the natural discontinuities within the rock. Diamond wire saws are increasingly used in major limestone quarries and stone mines to cut blocks from the bed, but traditional 'plug and feather' techniques are still commonly used to split larger blocks into manageable sizes.

Aggregate production, usually from overburden and/or from quarrying and processing 'waste' takes place, to one degree or another, in almost two thirds of active building stone quarries in England & Wales – 210 out of 335 sites. This makes beneficial use of material that has to be quarried in order to obtain the building stone and thereby helps to reduce the necessity for quarrying primary aggregates elsewhere and to increase the overall efficiency of resource utilisation.



On balance, it is probably true to say that most building stone quarries have much smaller potential impacts on the environment than do most aggregate quarries, especially with regard to traffic, noise and dust. The quarries also create opportunities for geological and biological conservation, however, and, in many areas (including National Parks) they have contributed greatly to, and are needed to maintain, the character of the historic landscape. Whilst all of this must be recognised, the impacts still need to be mitigated or avoided, especially where they could affect nationally- and internationally – designated nature conservation sites.

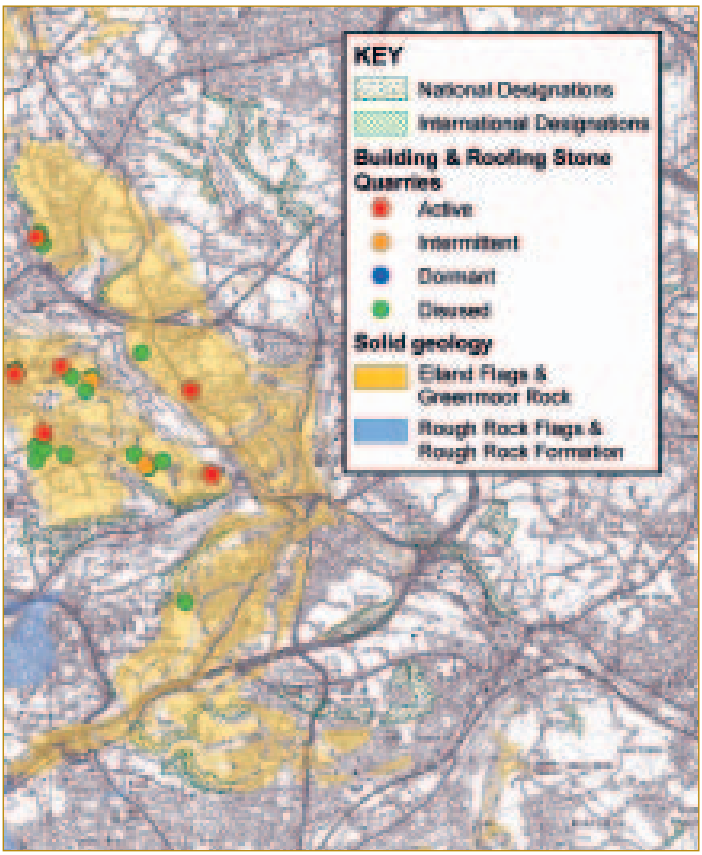
Just 3% of all active and intermittently working building stone quarries in England & Wales fall within, or within 100m of, European-designated conservation sites (SACs and SPAs). This figure rises to 37%, however, if all major national and international designations are included, and to 54% if the search radius around each quarry is increased to 500m to allow for adjoining reserves and resources. When combined with the limitations imposed by geological factors on the suitability of stone for specific purposes, and with the very real constraints imposed by land ownership, existing built development, local designations and Local Plan allocations, the unworked resources are often highly constrained and opportunities for the future production of building and roofing stone may therefore be very limited.

Best practice in environmental protection is not always implemented or adequately enforced, but standards are improving and opportunities are increasingly being realised for geological and biological conservation.

Since minerals, of any kind, can only be worked where they are found; and since building and roofing stones, in particular, depend so much for their appearance and importance on geological characteristics that vary considerably over short distances; the options for quarrying these materials in places that are convenient to other land use requirements and designations are often very limited.

Planning for the supply of these materials has to take this as a fundamental starting point. If it does not do so, then the future production of indigenous stone, whether for the upkeep of historic buildings; maintaining vernacular styles of architecture in our towns and villages; or maintaining a viable building stone industry that can compete with imports from overseas, will be increasingly jeopardised.

It is not simply a conflict between protecting areas of designated interest and value, on the one hand, and preventing the unnecessary sterilisation of resources on the other (though both of these are extremely important). It is also about the need for positive action to encourage both the continued operation of existing building stone quarries, and the opening of new quarries where appropriate, by ensuring that no unnecessary burdens are placed upon them by the planning system.



"*Planning for the Supply of Natural Building* and *Roofing Stones in England and Wales*" investigates all of these issues and sets out recommendations for changes that could be implemented to improve the current situation.

The recommendations focus primarily on modifications that could be introduced, within the context of the more general changes currently taking place within the planning system, in order to provide a more appropriate regime of **guidance**, **incentive** and **control** for the future quarrying of natural building and roofing stone in England and Wales. The recommendations relate, not only to minerals planning supply issues, but also to the promotion and use of natural stone within the context of building conservation and design.

The recommendations cover all levels of the emerging new planning system, from national **Planning Policy Statements** (PPS), **Minerals Policy Statements** (MPS), supporting guidance and information sources, through to **Regional Spatial Strategies** (RSS) and Local Planning, including **Local Development Frameworks** (LDFs), **Minerals & Waste Development Frameworks** (MWDFs), development control procedures and **Supplementary Planning Guidance** (SPG).

Copies of the full report, *Planning for the Supply of Natural Building and Roofing Stone in England and Wales* (ISBN: 1-851126-91-0 Price: £25), are available from:

ODPM Publications, PO Box 236, Wetherby, West Yorkshire, LS23 7NB, Tel: 0870 1226 236, Fax: 0870 1226 237, Textphone: 0870 1207 405, Email: odpm@twoten.press.net Or online via www.odpm.gov.uk

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