

**Sandstone**  
The sandstones of the Millstone Grit are a source of building stone for walling and paving, including cut and sawn stone. The Ashover Grit near Darky Dale and Whittardale is particularly valued, but other sandstones offer potential and are worked on a small scale. At Birch Vale, near New Mills, sandstones within the Lower Coal Measures are worked as a source of crushed stone for fill.

**'Vein' minerals**  
The Southern Pennine Orefield, which lies principally within the Peak District National Park, has traditionally been the major source of fluorspar in Britain. A small, although highly mineralised, part of the orefield in the Matlock-Bonsall-Wirksworth area is in Derbyshire and supports a number of open-pit workings. The F-Ba-Pb mineralisation occurs in veins and replacement deposits in limestone. Only the major veins are shown on the map. Ore produced is currently treated at the Cavendish Mill, near Stony Middleton for the production of acid-grade fluorspar, with barytes (BaSO<sub>4</sub>) and galena (PbS) as by-products. Over the years there have been a number of attempts to establish fluorspar processing plants in the southern part of the orefield, although none have proved to be successful. A small plant near Ashover produces metallurgical grade fluorspar from locally produced ore.

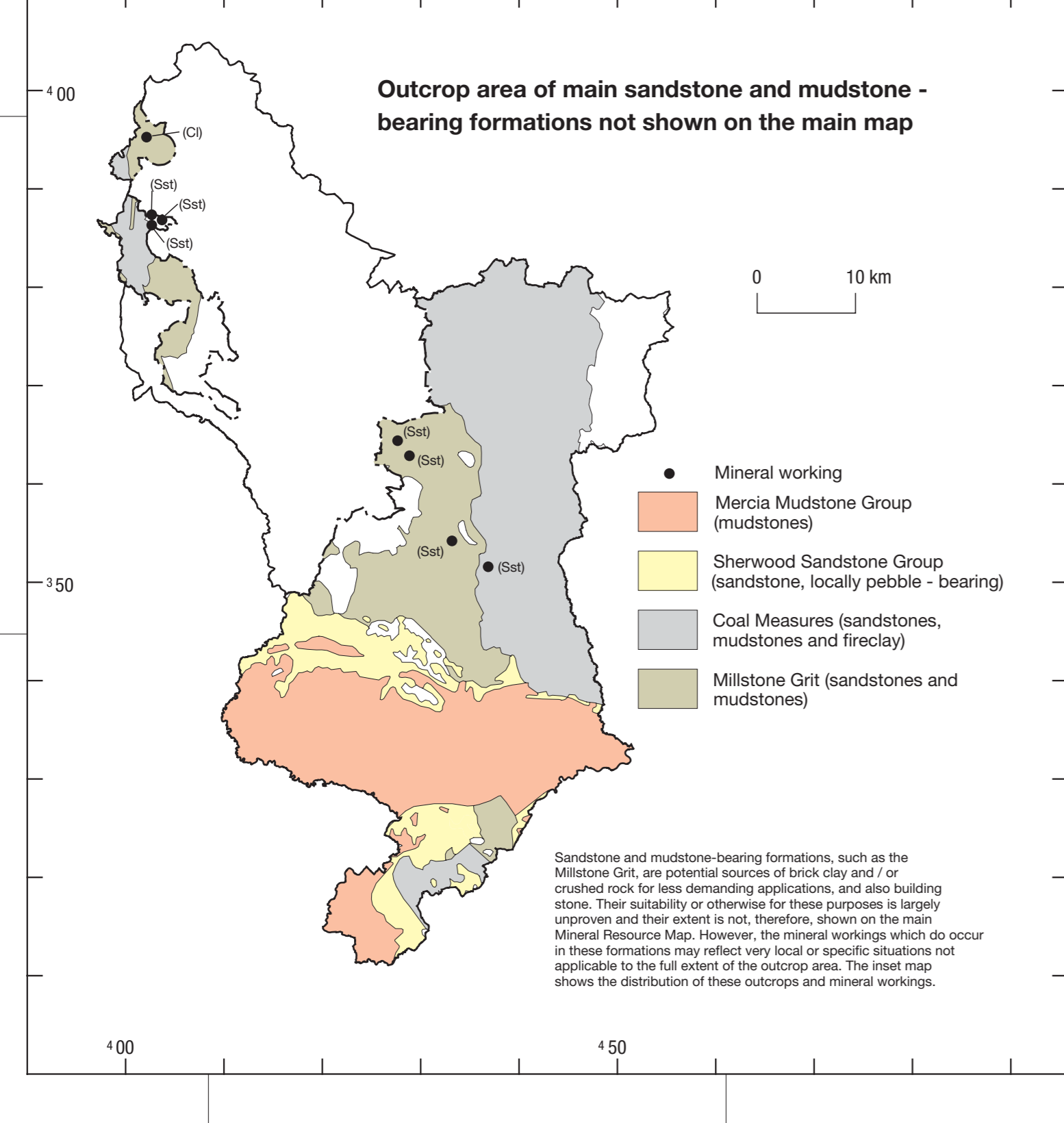
**Sand and gravel**  
The map shows the likely distribution of sand and gravel resources and principally those that are gravel-bearing. Two categories are shown: i) Superficial deposits, subdivided into River gravels and Glacial sand and gravels; ii) Bedrock deposits represented by conglomerates within the Sherwood Sandstone Group. These divisions reflect the different form, extent, grading and value of the deposits as aggregate resources.

**River gravels**, including river terrace deposits and associated fluvio-glacial spreads, are unconsolidated and well sorted. They are likely to be relatively clean but beds of silt and clay may occur. Deposits rarely exceed 10 m in thickness, and are usually much thinner, but are likely to be relatively consistent in quality locally. Their composition will depend on the bedrock and glacial units being eroded within the river's catchment. Deposits of the Trent, Dove and Derwent consist largely of quartzite pebbles with smaller components of limestone and chert.

**Glacial sand and gravel** is predominantly locally derived. Deposits may show considerable lateral variation in thickness and grading with a high silt and clay content locally. Only small deposits in the south of the county are presently known and are associated with spreads of till (boulder clay) and may extend beneath or within it. Deposits are likely to be less than 10 m thick but greater thicknesses may occur infilling glacial channels and hollows.

**Bedrock sand and gravel** resources are confined to the conglomerates of the Sherwood Sandstone Group in the south of the county. Only deposits in the Hulland Ward and Mercaston areas appear to be sufficiently pebbly to be of economic potential. Here the conglomerates are poorly cemented and comprise well-rounded pebbles and cobbles of quartzite in a fine-grained sand matrix. Cemented beds, beds of pebble-free or sparingly pebbly sand, and mudstone are regarded as waste. Elsewhere the pebble content is too low, the conglomerates cemented or too fine, or the overburden to mineral ratios too large for the deposits to be worked.

**Clay**  
Clay and shale occur extensively in Derbyshire, the most important resources being of Carboniferous age and associated with the Millstone Grit and the Lower Coal Measures, the latter also being a potential source of fireclay. Fireclays and shales occur in association with opencast coal with which they may be worked, although this is only rarely the case.



The South Derbyshire and Leicestershire coalfields are separated by the southeasterly trending Ashby Anticline. In Derbyshire opencast working is confined to the South Derbyshire Coalfield and the resource area is defined by the exposed Coal Measures. The Swadincote area of the South Derbyshire Coalfield has also been an important source of fireclays. To the east, in the northern part of the Leicestershire Coalfield, the resource area has been defined by the crop of the Kibburn Coal, the lowest coal with opencast potential.

**Limestone and dolomite**  
**Carboniferous limestones**  
Limestones of Carboniferous age produce strong aggregates suitable for use in concrete and for roadstone. With moderate resistance to abrasion and a low polish resistance they are largely unsuitable for road surfacing. Extensive areas of Carboniferous limestone are of high chemical purity and with low impurity levels are used in a wide range of industrial applications. In addition to limestone quarrying, there is a large underground limestone mine at Middleton working very high purity limestone for industrial purposes. The dolomitised limestones in the Matlock - Brassington area are relatively weak and porous, and produce lower quality aggregates.

**Permian limestones**  
The Permian Quarried Limestone crops out in north-east Derbyshire. It is quarried for construction uses, and industrial and agricultural applications. It is inferior to Carboniferous limestones as a source of aggregate because of its variable character, and generally lower strength and higher porosity. Industrial-grade dolomite with sufficiently low impurities and consistency to be used, after calcination, as a refractory raw material and steelmaking flux is produced on a large scale at Whitwell.

**Coal**  
Coal resources are confined to the East Pennine Coalfield and the South Derbyshire Coalfield. Coal Measures exposed in the northwestern part of the county are unlikely to be of economic interest.

The East Pennine Coalfield of Derbyshire was formerly a major centre of deep-mine production but all the mines have now closed. The coalfield currently supports two licensed deep mines. The exposed coalfield has been intensively worked as a source of opencast coal and remains an important producing area. The opencast coal resource area has been defined by the crop of the lowest workable coal in the west and the county boundary or, where appropriate, the Permian outcrop in the east. In the south of the coalfield it is some years since coals below the Kibburn Coal have been worked but these remain of interest if economic and planning factors are favourable. The base of the opencast coal resource area has been drawn on the Belportain Coal, the lowest coal seam within the Coal Measures. North of Balper the resource had been defined by the overlying Alton Coal, but north of the village of Alton, north-east of Ashover, this coal thin and the base has been defined by the Mickley Thin Coal. However, the bulk of opencast activity in the north of the county has occurred at or above the Ashgate Coal. Areas worked for opencast coal do not imply that the coal resource has been exhausted. Some areas have been worked on more than one occasion and may be worked again in the future.

**SAND AND GRAVEL**

- Superficial deposits
  - River gravel resources
  - Glacial sand and gravel resources
- Bedrock Deposits
  - Exposed conglomerate resources
- LIMESTONE**
  - Limestone resources
  - Very high purity limestone (>98% CaCO<sub>3</sub>)
  - Dolomite and dolomitic limestones

**'VEIN' MINERALS**

- Major mineral veins

**IGNEOUS INTRUSIVE**

- Dolerite

**COAL**

- Areas of shallow coal
- Opencast coal: Worked area

**CLAY**

- Fireclay and shale

**MINERAL WORKINGS (as at 1.6.94)**

- Surface mineral working
- Underground mine
- Gasfield

**Mineral Commodity**

- Lst Limestone
- Dol Dolomite and dolomitic limestone
- Sg Sand and gravel
- Co Coal
- Ci Common clay and shale
- Ig Igneous rock
- Sst Sandstone
- F Fluorspar
- Ba Barytes
- Pt Peat
- Gas Natural Gas

**MINERAL PLANNING PERMISSIONS (as at 1.6.94)**

- Surface planning permission
- Underground planning permission

**ENVIRONMENTAL DESIGNATION**

- Site of Special Scientific Interest
- Scheduled Monument

**ADMINISTRATIVE AREAS**

- County
- District
- Peak District National Park