



## **Earth's physical resources: rocks for roads**

*Longterm sustainability of quarries*

### **Comm:**

Otterburn ranges is just 20 miles away and Divithill quarry is supplying them with all layers of the road surface

### **Comm:**

Contractors tend to favour local aggregates to keep costs down, particularly for the thicker capping and sub-base road layers. Aggregate for the wearing course has to meet higher specifications, so if a suitable rock is not available locally, it must be sourced from further a-field.

### **Dean:**

Normally under the road construction design the client will specify layer thicknesses that they need to achieve the strength of the road that they are constructing

### **Dean:**

The Otterburn Ranges contract we are currently supplying – the roads in that contract are going to be very heavily trafficked by large ministry of defence vehicles

### **Dean:**

That has dictated quite a thick road construction with a 40mm and a 28mm road base and a base course material, and being topped off with a very stable 14mm stone mastic asphalt to provide surface rigidity

### **Comm:**

Although the road-laying process looks rather rough-and-ready, it is a precision operation, with the thickness of each layer tightly controlled

### **Andrew Davies, Roads Manager, Mowlem:**

When we came to site the road was only 3 metres wide so what we've done is we've excavated along one side 600 mil down then you've got 3 layers of dry stone and 3 layers of coated material, your final road thickness is 200mm

### **Comm:**

The graded aggregate used in each layer packs down well to form a strong, stable roadbed

### **Comm:**

This contract is unusual because the client has requested that all layers use natural, indigenous material to match the local environment

### **Comm:**

But such materials can't be supplied indefinitely, and quarries like Thrislington are being forced to address this issue

### **Comm:**

When they applied for planning permission to expand they faced an enormous conservation challenge – preserving an endangered meadow

### **Graeme:**

In the early 80s we had an area of grassland that was in the centre of the quarry; we painstakingly picked that up by bucket and up and transplanted over in the far side of the quarry which is not going to be used

**Comm:**

This threatened natural habitat was moved just 800 metres from its original site. Rare grasses and orchids including the Dark Red Helleborine, and the Brown Argus butterfly were all preserved

**Comm:**

Since 2002, funds raised via the Aggregates Levy have been used for similar projects to improve the environment near quarry sites. The Levy itself was introduced to encourage recycling and use of waste materials instead of virgin aggregate

**Comm:**

Many quarries, including Thrislington, now run an on-site recycling plant

**Graeme:**

We fetch the materials in for recycling from house buildings, demolitions, road planings; any work that's going on around the area

**Comm:**

Various measures, including the Aggregates Levy, are encouraging recycling in the industry, and at the same time the market for recycled material is growing.

**Comm:**

But large or small, all quarries need to secure enough virgin resources to extend the lifetime of the operation.

**Dean:**

The most pressing concern is the long-term viability of quarries and the long-term reserves of rock that we have available to enable us to continue the operation of the quarries

**Dean:**

There are 2 ways that this can be tackled. One is to gain as much planning permission as possible and to gain as much land as possible to ensure the future, but also there are ways to minimise the amount of rock that we are extracting from existing reserves, by using recycled materials wherever possible

**Comm:**

In the modern world, quarries are not simply a matter of extracting and processing material. They must also consider their impact on their surroundings.

**Comm:**

And finally, after quarry operations cease, they must find another use for the site, or like these reclaimed fields, or return the land to nature