

JOINT LANCASHIRE MINERALS AND WASTE DEVELOPMENT FRAMEWORK

Strategic Minerals Issues



November 2007

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1. INTRODUCTION

- 1.1 This background paper presents technical and other data in support of the preparation of the Joint Lancashire Minerals and Waste Development Framework. In particular, it presents an overview of more strategic considerations as part of the evidence base to the Core Strategy. It is also intended, in part, to signpost to other relevant documents published regionally and nationally that have been relied on in preparing the Core Strategy.

2. NATIONAL AND REGIONAL POLICY FRAMEWORK

NATIONAL POLICY

- 2.1 National policy for minerals extraction is contained in a series of specific guidance and policy statements. These Mineral Planning Guidance (MPG) notes or Mineral Policy Statements (MPS) provide more detailed advice, although Planning Policy Guidance (PPG) notes or Planning Policy Statements (PPS) are also applicable. This chapter highlights several of the more relevant MPGs and MPSs.

Mineral Planning Statement (MPS) 1: Planning and Minerals

- 2.2 MPS1 is the overarching planning policy document for all minerals development in England. It provides advice and guidance to planning authorities and the minerals industry. It also aims to ensure that the needs of society and the economy for minerals is managed in an integrated way against its impact on the environment and communities. Its annexes provide more detailed guidance in relation to aggregates, brick clay, natural building and roofing stone, and on-shore oil and gas and underground storage of natural gas. It is accompanied by a practice guide that sets out how the policies in the statement might best be implemented.
- 2.3 MPS1 replaces Minerals Planning Guidance (MPG1) Note 1: General Considerations and the Development Plan System (published in 1996) and completes the replacement of Minerals Planning Guidance (MPG6) Note 6: Guidelines for Aggregates Provision in England (published in 1994)

Mineral Planning Statement (MPS) 2: Controlling and Mitigating the Environmental Effects of Mineral Extraction in England

- 2.4 Published in its final form in March 2005, MPS2 sets out the policies and considerations in relation to the environmental effects of minerals extraction that the Government expects Mineral Planning Authorities to consider when preparing Development Plan Documents.

Minerals Planning Guidance (MPG) Note 3: Coal Mining and Colliery Spoil Disposal

- 2.5 MPG3 provides a policy framework for mineral planning authorities (MPAs) and the coal industry in England to ensure that the extraction of coal and disposal of colliery spoil only takes place at the best balance of community, social, environmental and economic interests, consistent with the principles of sustainable development.

Minerals Planning Guidance (MPG) Note 5: Stability in Surface Mineral Workings and Tips

- 2.6 PPG 14 sets out the broad planning and technical issues in respect of development on unstable land and PPG 14 Annex 1 develops these with particular reference to the problems caused by landslides and unstable slopes.

- 2.7 MPG 5 aims to apply that guidance with particular reference to stability in quarries, surface mines and associated tips and related structures and should be read in conjunction with it. The problems are reviewed and the responsibilities of the different parties are briefly examined.

Minerals Planning Guidance (MPG) Note 7: The Reclamation of Mineral Workings

- 2.8 This MPG deals with policies, consultations and conditions which are relevant to achieving effective reclamation of mineral workings. It should be read in conjunction with the general guidance in other guidance notes/statements.
- 2.9 MPG 7 sets out the contribution which reclaimed mineral sites can make to the Government's policies for sustainable development and mineral working, and for land use and other policies in the wider countryside. It advises on the scope of information which should be provided with applications for new mineral developments, to enable relevant planning conditions to be drawn up and resulting site reclamation to be achieved. It provides advice on preparation of schemes of conditions for restoration, aftercare and after-use that owners/operators of older mineral sites may need to draw up for future reviews of such sites. It emphasises the importance of the roles played by the management of site activities by mineral operators and by development control monitoring and enforcement by local authorities, in achieving successful site reclamation; advises on financial provision in relation to securing restoration of mineral workings; contains more detailed advice, in Annexes, on soils, reclamation, aftercare and after-use.

Minerals Planning Guidance (MPG) Note 10: Provision of Raw Material for the Cement Industry

- 2.10 MPG10 provides advice to mineral planning authorities (MPAs) on the exercise of planning control over the provision of raw material for the cement industry. They indicate the national policy considerations which need to be taken into account in drawing up minerals policies for the industry in their development plans and some of the other factors that need to be taken into account when determining applications for planning permission.

Minerals Planning Guidance (MPG) Note 13: Guidelines for Peat Provision in England, Including the Place of Alternative Materials

- 2.11 MPG13 provides advice to mineral planning authorities and the peat extractive industry on the exercise of planning control over the extraction of peat. It sets out the national picture on peat production, permitted reserves and consumption for horticultural purposes; and on the current amounts, sources and likely trends in usage of alternatives to peat. The guidance sets out the national policy considerations to be taken into account when drawing up policies for peatlands in development plans and advises local authorities on the identification and protection of important peatland habitats and archaeological sites. It sets out criteria for selection and identification in plans of acceptable new sites for peat extraction, and outlines factors which need to be considered when determining applications for planning permission.
- 2.12 It also provides a framework for updating old permissions for peat extraction, with particular emphasis on the rehabilitation of sites to enhance nature conservation and provides guidelines for the rehabilitation of damaged peat bogs.

Minerals Planning Guidance (MPG) Note 15: Provision of Silica Sand in England

- 2.13 Silica sand is an essential raw material for many industrial processes, including the manufacture of glass, production of foundry castings and ceramics. Silica sand is geologically and geographically sparsely distributed and consequently, the mineral is a valuable resource of recognised national importance. As with other minerals, silica sand extraction has an impact on the environment which must be carefully balanced against the needs of the community. MPG 15 provides guidance to the mineral planning authorities and industry on the extraction of silica sand. The guidance encourages efforts to recycle to reduce the impact of silica sand extraction on the environment.

REGIONAL POLICY

- 2.14 The Regional Spatial Strategy¹ states that North West plans and strategies should make provision for a steady and adequate supply for a range of minerals to meet the region's apportionments of land-won aggregates and requirements of national planning guidance. This must include criteria-based policies to indicate the circumstances under which extraction might or might not be permitted, opportunities for the transportation of minerals by pipeline, rail or water, including the maintenance of existing wharves and railhead facilities, the provision of new ones, and of facilities for on-shore processing and distribution of hydrocarbons.
- 2.15 Plans and strategies must also include provision for safeguarding mineral resources from other forms of development and, where appropriate, reserve highest quality minerals for applications that require such grades, identify and protect sources of building stone for use in repairing and maintaining historic buildings and public realm improvements. LPAs must also ensure sensitive environmental restoration and aftercare of sites including improved public access where they are of amenity value.

¹ Regional Spatial Strategy for the North West (RPG13), GONW. This strategy was being reviewed at the time of writing, however, the policy considerations summarised here are applicable to the emerging strategy.

3. LANCASHIRE'S MINERALS

- 3.1 The Joint Plan area contains extensive mineral resources, some of national importance and others of significance regionally, or locally.

AGGREGATE AND OTHER CONSTRUCTION MINERALS

- 3.2 The largest extractive operations are now based around construction materials – limestone and gritstone for crushed rock aggregates, sand and gravel, and materials for the manufacture of bricks and cement serving mainly local markets.

Sand and Gravel

- 3.3 Sand and gravel are formed by the past erosion of existing rock and the subsequent transportation and deposition of the resultant sediment either by the sea, or by water, or ice in old, or existing riverbeds and floodplains.
- 3.4 In the Joint Plan area, sand and gravel for aggregate use has usually been obtained from two distinct types of deposit: glacial sands and fluvial/fluvio-glacial sand and gravel. Glacial deposits occur in lowland areas and are often covered with a variable thickness of clay. The variability of these parameters makes glacial deposits difficult to locate, access and work. They yield soft building sands, asphalt sands and fine concrete sands after processing.
- 3.5 Fluvial and fluvio-glacial deposits are associated with major rivers or former glacial drainage channels respectively. They yield high quality sand but variable quality gravel. In addition to these sources, beach sand is extracted on a small scale for aggregate use at St. Annes Foreshore.

Limestone

- 3.6 Carboniferous limestone outcrops suitable for extraction are limited in the area, with quarrying operations confined to two locations. Three quarries are located in a compact area east of Carnforth. East of Clitheroe there is a complex of limestone quarries, where limestone is extracted for crushed rock aggregate, and also for cement production.

Sandstone

- 3.7 The gritstone worked in the Plan Area occurs in carboniferous rocks of either the Millstone Grit Series or the Lower Coal Measures, comprising alternate beds of mudstone, shales and gritstones. They occur over a wide area of southern Lancashire and in the Forest of Bowland area.
- 3.8 Sandstone/gritstone is extracted for use as both aggregates and dimension stone, depending on the characteristics and thickness of the gritstone horizon and the extent of the folding and faulting. Output comprises mostly dry road stone and construction fill. Gritstone production in the area has historically shown considerable fluctuation.

Clays and Mudstones

- 3.9 The Joint Plan area's brick industry uses local carboniferous mudstones (shales) and fireclay. Beds of high quality Accrington mudstone are found in northeast Lancashire and west Lancashire.
- 3.10 Shales are also extracted in the area in conjunction with landfill operations for engineering works, or are waste products from other quarrying activities and are used as low-grade constructional fill.

Building Stone

- 3.11 There are currently six quarries in the area producing building stone, although all aggregate quarries are theoretically capable of producing dimension stone. They quarry carboniferous gritstone of either the millstone grit series or lower coal measure. In the Plan area building stone is extracted from surface quarries, often along naturally occurring faults, using drilling, iron wedges and hammer and chisel. Whether a rock is used for building stone depends on a number of factors or technical considerations:
- Commercial – bed thickness, size of slab that can be produced
 - Technical – mineralogy
 - Aesthetic – colour, grain size, texture
- 3.12 This stone is used in various applications: to maintain vernacular styles in new buildings, architectural cladding, and the restoration of old buildings. The latter consumes the smallest amount of building stone but requires a specific stone, often from a specific quarry.

ENERGY MINERALS

- 3.13 Some 40km west off the coast of Blackpool, the North and South Morecambe gas fields are the source of the largest offshore natural gas reserves outside the North Sea with recoverable reserves of 179bn cubic metres. Discovered in 1974 the fields have been developed by the British Gas subsidiary Hydrocarbon Resources Limited and are capable of supplying 15% of Britain's daily peak gas demand. As well as the rigs, the operation has an onshore support base at the port of Heysham which provides administrative and logistical support for the field operation.
- 3.14 The Joint Plan area was formerly an important coalmining area. Its coalfield has two geographically separate areas: Burnley Coalfield and Wigan Basin. Both of these seams have been extensively worked in the past by underground methods. Opencast coal mining has never played a large part in the Plan area's coal industry, but as investigations throughout the UK have concluded any new deep mining operations would be unlikely in favour of working by surface mining methods.
- 3.15 There are few viable potential extraction schemes in the Plan Area. This is principally due to the limited available coal resource, but also to the legacy of previous workings, thick surface (overburden) deposits, a restricted local market and urban encroachment. Currently there are two permitted coal mining operations in the Plan Area.

OTHER MINERALS

- 3.16 In addition to aggregate and other construction minerals, and energy minerals, Lancashire has a number of other mineral types. In terms of current output and future potential, these minerals are of a minor nature. However, their characteristics give rise to planning issues which may necessitate policy guidance on future applications should they arise.
- 3.17 Various industrial minerals such as brine and silica sand, together with limited deposits of metalliferous minerals have been worked in the past but are not currently of economic significance. There are several small-scale peat extraction operations in west Lancashire producing peat or peat-soil blends for horticulture.

Peat

- 3.18 There are two fundamental types of peatland in Britain: fens and bogs. Fens occur in waterlogged situations where they receive nutrients in water from the surrounding catchments as well as from rainfall. Bogs occur in areas where they are largely dependent on precipitation for supply of water. There are two main types of acid bog peatlands in Britain. Raised bogs are characteristic of an almost or completely flat underlying topography and so are mainly found on low plains or broad valley floors. Blanket bogs occur in areas which are sufficiently cool and constantly wet to allow the accumulation of peat on all, but the most steeply sloping ground. Peatlands can provide important ecological habitats and can be the source of archaeological remains.
- 3.19 A considerable area of western lowland Lancashire is known as "Mossland". For the most part these areas of the West Lancashire Plain and Over Wyre have been "reclaimed" to agriculture from raised peat bog and from extensive areas of grade 1 and 2 agricultural land. Lancashire also has considerable areas of blanket bogs with peat related deposits. A number of operators have attempted to work them, but have had no lasting commercial success.
- 3.20 In the past, peat was used for fuel and animal bedding. Now however, the extraction and use of peat in the UK is almost entirely related to horticulture, either as a growing medium or as a soil improver. The demand for peat for horticultural uses in the early 1990s was estimated to be 2.55 million cubic metres a year, 58% by the amateur gardening sector and 39% by the professional horticultural industry. About 60% of the peat consumed is produced in sites in the UK. The remainder comes from imports, mainly from Ireland. In England, commercial peat extraction takes place in raised bogs. It is thought that at present, there is no commercial peat extraction from blanket bogs in England.

Silica Sand

- 3.21 Silica sand has been extracted in the past in southwest Lancashire, around Skelmersdale and Bickerstaffe. Extensive areas have been subject to planning permission and extraction has been completed and the land reinstated. Where other deposits have been exploited in the Holmeswood-Mere Brow-Rufford area permanent lagoons were formed due to a high water table.

3.22 The silica sand is also constrained due to the depth of overburden and the high worth of the West Lancashire Plain as fertile agricultural land. It is used for glass manufacture, with Lancashire in the past exporting the St. Helens. There is currently a large national landbank, adversely affecting the desirability of the Plan area's silica sand resource.

Salt

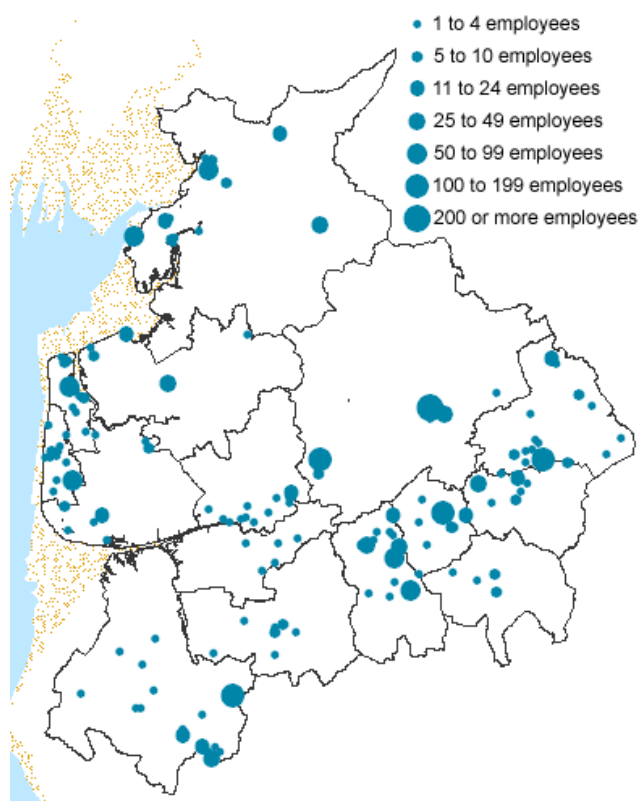
3.23 Salt can be found in the form of rock salt and brine, and is used in the chemical industry or as rock salt. Brine extraction ceased in the Plan area in 1993. There appears to be little prospect at the present time of operations re-commencing due to the abandonment of the industry that utilises it. However, there are limited areas of unworked salt deposits in the Preesall area of Wyre. Extraction does occur in Cheshire and North Yorkshire. It should be noted that there has been demand for the void space resulting from rock salt and brine extraction for the storage of gas (as the UK is now a net importer of natural gas) or waste.

4. MINERAL EXTRACTION IN AN ECONOMIC CONTEXT

- 4.1 Minerals are an important element in the national economy and that of the Joint Plan area. Their exploitation can make a significant contribution to economic prosperity and quality of life. Mining and quarrying has historically played an important role in economic development but nationally, the sector has experienced severe job losses over the past couple of decades. This has been mainly due to the curtailing of the deep coal mining industry together with substantial gains in productivity through increased mechanisation and automation. The reduction was only partly offset by increased activity in oil and natural gas extraction.
- 4.2 In the non-energy sector, with the closure of old workings, ever increasing mechanisation and productivity gains, employment has fallen steadily for decades though the pattern has been fairly stable over more recent years. Employment within the industry today is dominated by skilled driver/plant operatives involving the use of complex tractor type equipment and crushing, washing and grading machinery. Generally, jobs in transport-related operations account for about half the job potential unless there are also secondary activities such as concrete product manufacture.
- 4.3 At present, the Plan area has an employee workforce of about 2,300, or approximately 2.2% of the manufacturing workforce (compared to 3.5% in Great Britain overall)². Given these modest employment levels there are no significant local concentrations though nearly a third of the industry's jobs are based in the Ribble Valley with a further 42% divided fairly equally between Blackburn, Lancaster, Pendle and West Lancashire. Typical of manufacturing industry in general, 82% of the non-metallics workforce is male and 95% of all employees are engaged on a full-time basis. A further 2,100 people are employed in the wholesale distribution of building materials.
- 4.4 The diversity of products contained in the industry is mirrored in the diversity of companies involved. These range from plants which are parts of major national and international groups to small family-owned businesses with a handful of employees. In total there are about 150 business units classified to the non-metallics sector in Lancashire. Statistically the "average" company employs just 15 people. About 88% of companies employ fewer than 25 people and 65% employ less than 5 people. The handful of larger firms that employ more than 100 people provide for about 42% of the industry's total job count. Larger local employers include Castle Cement in Clitheroe producing about 1.4m tonnes of cement each year; Hepworth Building Products in Padiham manufacturing and supplying clay and plastic drainage products; Jones Stroud Insulations of Longridge suppliers of insulation materials; Lancaster Fibre Technology producers of mineral, glass and metal fibres; and Marshalls Clay Products Accrington-based manufacturers of bricks and clay products. The international glass company Pilkingtons has its major European Technology Centre in Lathom, near Ormskirk though this facility concentrates on research and development into glass manufacturing processes and product design and is not itself directly involved in manufacturing.

² Annual Business Inquiry, ONS, 2005.

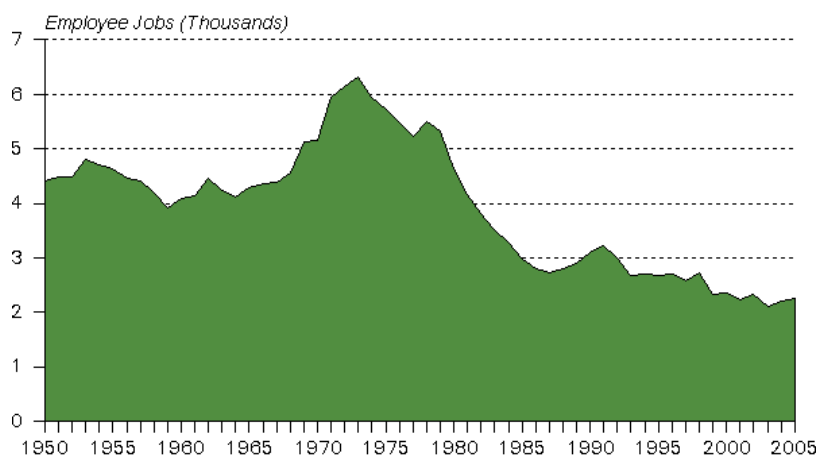
Figure 1: MINERAL PRODUCTS ESTABLISHMENTS, 2005



Source: ONS – Annual Business Inquiry, 2005

4.5 The industry's peak level of employment within the County was achieved in the early 1970s when it had an employee workforce of 6,300 people (Figure 2). Employment subsequently fell steadily year-on-year with only modest cyclical up-turns, notably over the second half of the 1980s linked to the buoyancy of the economy at this time. Since its last peak in 1991 the local industry has shed a further 1,000 jobs (-30%), the major and unprecedented up-turn in construction activity across the County over recent years apparently having only a minor impact on job numbers in the Non metallic Minerals sector locally.

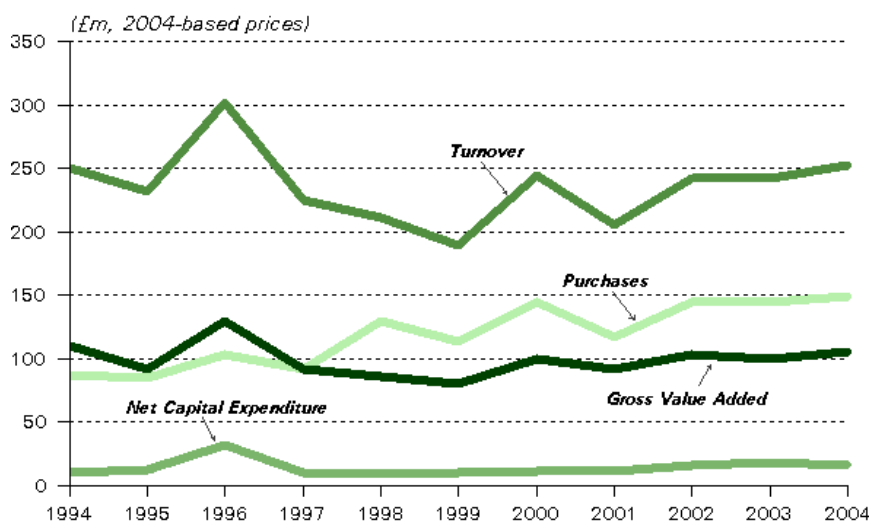
Figure 2: MINERAL PRODUCTS INDUSTRY, NUMBERS EMPLOYED IN THE PLAN AREA, 1950-2005



Source: ONS – Ministry of Labour/ONS – ERII Employment Records

- 4.6 This employment downsizing was roughly on a par with the Lancashire manufacturing average, though trends were distorted to a degree due to major structural changes stemming from merger and acquisition activity. This subsequently led to some reclassification of companies because of changes in the focus of some of their principal manufacturing operations. Within the broad industry group employment trends 1991-2005 suggested some local net growth in jobs in the production of glass fibres, in the processing of flat glass, ready-mix concrete and in the "other" non-metallic products category but elsewhere all sub-groups experienced some degree of job reduction. Numerically the largest losses were in other glass products, ceramic goods, concrete construction products, cement, lime and plaster and in brick manufacture.
- 4.7 Nationally, the industry comprises some 4,930 separate enterprises, employing about 115,000 people and has an annual turnover of over £12.6bn, generating £5.3bn in gross value added. These activities are reckoned to account for about a third of all products used in the construction industry (others being wood, metal, plastic, etc., products).
- 4.8 In Lancashire the industry had a turnover of £253 million in 2004, down from earlier peak levels in the mid-1990s though still higher than a decade earlier and the pattern must also be seen against the backdrop of a much reduced workforce (Figure 3). Trends have been volatile mainly because of the local industry's relatively small size but it is also a fairly cyclical sector because such a large proportion of its sales are linked closely to activity in the construction industry. Overall, construction typically accounts for between a half and two-thirds of the consumption of non-metallic mineral products. Many of the products of the group (with the main exception of flat glass and tableware) are major bulky items of relatively low value, often based on local raw materials and sold primarily to local markets. Transportation costs are always a major consideration and have often deterred competition from distant sources. The sector has a relatively high reliance on energy and is a major user of fossil fuels and thus heavily involved in environmental issues regarding energy usage and atmospheric pollution. Nationally, it is reckoned that the industry spends approximately 1.5% of its turnover on environmental protection measures, a rate double that for manufacturing overall. Some sectors such as glass are also heavily engaged in materials recycling.

Figure 3: MINERAL PRODUCTION TRENDS IN THE PLAN AREA, 1994-2004



Source: ONS – Annual Business Inquiry

- 4.9 Whilst turnover of the local industry has fluctuated over recent years, the value of its production has held up better. In 2004 the minerals industry generated gross value added close to £106m (equivalent to 2.1% of the Lancashire manufacturing total), a figure that was about the same in real terms to a decade earlier in 1994.
- 4.10 Despite the very traditional nature of many of its products and "old economy" image, the local minerals industry is to a large part technologically advanced in its production processes, control systems and quality, paying above-average manufacturing wages to its employees and is fairly capital intensive. Investment per head, though erratic year-on-year because of the lumpy nature of capital expenditure and the small size of the local industry, has averaged nearly 50% above the County manufacturing average over the decade to 2004 and has been nearly a fifth higher than that achieved in the UK industry. This has been rewarded with a level of labour productivity (gross value added per head) in 2004 that at £47,800 was higher than that being achieved in the industry nationally.

5. PRODUCTION AND CONSUMPTION OF AGGREGATE MINERALS

- 5.1 Production and Sales data for aggregate minerals is collected on an annual basis, through an aggregate survey undertaken on behalf of the Regional Aggregates Working Party (RAWP). Annually published RAWP reports present annual data on production and reserves for the Plan area back to the early 1990s. The most recent report published in 2006 presented data for 2005. Its data is presented in Table 1.

Table 1: PRODUCTION OF AGGREGATE MINERALS IN THE PLAN AREA, 1992-2005

Year	(million tonnes)				
	Limestone	Sandstone	Total Crushed Rock	Sand and Gravel	Total Land-won Aggregate Production
1992	3.8	1.6	5.4	0.8	6.2
1992	3.7	2.3	6.0	0.8	6.8
1994	4.3	2.7	7.0	0.77	7.77
1995	3.5	2.8	6.3	0.8	7.1
1996	2.9	2.63	5.53	0.8	6.33
1997	3.0	2.17	5.17	0.91	6.08
1998	2.7	2.1	4.8	0.66	5.46
1999	2.6	1.8	4.4	0.48	4.88
2000	2.7	1.7	4.4	0.34	4.74
2001	2.6	1.9	4.5	0.47	4.97
2002	2.7	2.2	4.9	0.5	5.4
2003	2.6	1.6	4.2	0.46	4.66
2004	2.7	1.3	4.0	0.44	4.44
2005	2.5	1.2	3.7	0.38	4.08

- 5.2 The comparison that follows of production and likely consumption of aggregate minerals in the Plan area relies on data published in 2001, as part of the national 4-yearly survey. This 4-yearly survey includes analysis of the movements (imports and exports) of aggregate minerals³.
- 5.3 In 2001, the North West was the third largest consuming region of primary aggregates. Production/Sales of Primary Aggregates in the North West was approximately 13.6mt in 2001, with consumption reported at 22.1mt.

³ The most recent survey for 2005 was not available at the time of writing.

Table 2: SALES AND CONSUMPTION OF PRIMARY AGGREGATES 2001

Aggregate Mineral	(000's tonnes)			
	Total North West Sales in 2001	Sales within Region	Imports	Total Aggregate Consumption
Land won Sand & Gravel	3,097	2,667 ¹	901	3,568 ²
Marine Dredged Sand & Gravel	447	425		425
Total Sand & Gravel	3,544	3,092		3,993
Crushed Rock	10,034	8,917	9,141	18,058
Total Aggregate Sales	13,578	12,009	10,042	22,051

¹ BGS reports this figure as 2,754. Figures given above are based on disaggregated regional sales, imports and exports.

² BGS figure reported as 3,656. Figures are based on disaggregated sales, imports and exports.

BREAKDOWN OF FIGURES FOR SAND AND GRAVEL

5.4 In 2001, the leading exporters of sand and gravel in the UK were the East of England (3.8mt), East Midlands (2.7mt) and South East (2mt). The North West (3.1mt), along with the North East (1.2mt) and South Wales (0.12), produced the smallest amount of land-won sand and gravel, presumably explaining small export levels.

5.5 The North West imported 0.9mt of sand and gravel in 2001, primarily from North Wales and the East Midlands. The region exported around half this amount (0.4mt), with the key recipients being West Midlands, Yorkshire and Humber, North East and North Wales.

Table 3: MOVEMENTS OF SAND AND GRAVEL TO AND FROM THE NORTH WEST REGION, 2001

Sub-region	Imports to North West (000 tonnes)	Exports from North West (000 tonnes)
South West		15
East of England		6
East Midlands	4	23
West Midlands	338	88
Yorkshire and Humber	36	80
North East	13	97
South West		25
North Wales	510	86*
Scotland		34
Total	901	454

* (Figure made up of 24,000t marine dredged and 62,000 land won)

BREAKDOWN OF FIGURES FOR CRUSHED ROCK

- 5.6 Inter-regional flows of crushed rock are significantly larger than for sand and gravel because of the overall larger demand for crushed rock, particularly for roadstone.
- 5.7 In 2001, there was a high demand for crushed rock in the North West and the region was a net importer of crushed rock, primarily from North Wales and the East Midlands. The region exported around 1.1mt, with the key recipients being Yorkshire and Humber and the North East.

Table 4: MOVEMENTS OF CRUSHED ROCK TO AND FROM THE NORTH WEST REGION, 2001

Sub-region	Imports to North West (000 tonnes)	Exports from North West (000 tonnes)
South West	3	
East Midlands	4,896	1
West Midlands	293	2
Yorkshire and Humber	1,446	961
North East	19	142
South West	137	
North Wales	2,347	3
Scotland		8
Total	9,144	1,117

NORTH WEST POPULATION AND CONSUMPTION ESTIMATES

Table 5: ESTIMATED CONSUMPTION OF AGGREGATE MINERALS WITHIN THE NORTH WEST REGION 2001

	Population (‘000s)	Percentage of Regional Total (%)	Estimated Consumption (million tonnes)	
			Sand & Gravel	Crushed Rock
Halton UA	121	1	0.1	0.3
Warrington UA	191	3	0.1	0.5
Cheshire	673	10	0.4	1.8
Cumbria	491	7	0.3	1.3
Greater Manchester	2,586	38	1.5	6.8
Lancashire	1,430	21	0.8	3.7
Merseyside	1,403	20	0.8	3.6
NORTH WEST TOTAL	6,895	100	4.0	18.0

Summary of North West Estimates 2001

Sand and Gravel

- 5.8 For land-won sand and gravel, approximately 2.7mt of the 3.1mt extracted (‘production/sales’) was used within the region, suggesting exports of approximately 0.4mt⁴. A further 0.9mt was imported for use within the region. For marine dredged sand and gravel, of 0.44mt landed in the North West, 0.42mt was used within the region. No further supplies of marine dredged sand and gravel were imported.

Crushed Rock

- 5.9 For crushed rock, production for the region stood at approximately 10mt. Of this figure, 8.9mt was used within the region, with 1.1mt exported. A further 9.1mt was imported into the region, bringing total consumption to 18,058.

Estimate of Net Sand and Gravel Consumption (Joint Authority Area)

- 5.10 There was a net consumption of sand and gravel (land won and marine-dredged) in the North West region of approximately 4.0 million tonnes in 2001.
- 5.11 On the basis that the Joint Authorities make up approximately 21% of the population of the North West region, applying this as a proxy for consumption would suggest that net sand and gravel consumption by the Joint Authorities stood at around 840,000 tonnes in 2001.
- 5.12 Compared to production/sales in 2001 of 470,000 (land-won) suggests that the Plan Area is a net importer of sand and gravel and relies on imports for as much as 40% of

⁴ This figure is slightly lower than reported in the ‘Collation of the Results of the 2001 Aggregate Minerals Survey for England And Wales’, BGS, 2002.

its consumption. Since 2002, production/sales of sand and gravel in the Plan Area has fallen steadily, suggesting an increasing reliance on imports.

Estimate of Net Crushed Rock Consumption (Joint Authority Area)

- 5.13 The figures above suggest that net consumption of crushed rock in the North West region was approximately 18 million tonnes in 2001.
- 5.14 Applying the same population estimates (21%) as a proxy for consumption, would mean that net crushed rock consumption across the Joint Authorities in 2001 would be approximately 3.8 million tonnes.
- 5.15 Comparing this to production/sales in the Plan Area in 2001 of 4.5 million tonnes, suggests that the Plan Area was able to meet its own needs and was a net exporter of crushed rock, of at least 15% of its production. Since 2002, production/sales in the plan area have fallen year on year, with 3.7mt produced in 2005. This would suggest that the Plan Area is more recently producing at a level which meets its own needs in net terms.

6. FUTURE DEMAND FOR AGGREGATE MINERALS

- 6.1 The Government publishes national and regional guidelines for aggregate production in England⁵. These figures are then broken down to Mineral Planning Authority areas by the Regional Aggregates Working Party (RAWP). The latest guidelines cover the 16-year period 2001-2016 inclusive.
- 6.2 The sub-regional apportionment of the aggregate guidelines for the Plan area is 72.9 million tonnes of crushed rock and 8.2 million tonnes of sand and gravel, a yearly average of 4.56 million tonnes and 0.5 million tonnes respectively. A comparison with the production figures presented in Table 1 shows that annual production of crushed rock and sand and gravel has been marginally lower than the annualised apportionment.
- 6.3 At the end of 2005, the landbank in the Plan area for limestone and sandstone, the two rock types in the Plan area that supply crushed rock, stood at 25 years, based on a combined permitted reserve of almost 115 million tonnes. For sand and gravel, the landbank stood at almost nine years, based on a reported permitted reserve of 4.4 million tonnes⁶.
- 6.4 Table 6 compares the sub-regional apportionments to these levels of permitted reserves to calculate what additional requirements for extraction of these minerals will arise in the Plan period. Two assumptions are applied:
- that requirements after 2016 continue at the same annual average rate to 2021;
 - that the supply of sandstone and limestone contribute at the same relative proportions (40% and 60% respectively) to recent production rates.

⁵ National and Regional Guidelines for Aggregate Provision in England, DCLG, 2003.

⁶ Annual Report for 2005, North West Regional Aggregates Working Party, 2006.

Table 6: CALCULATING AGGREGATE MINERAL REQUIREMENTS, 2006-2021

	Million Tonnes
Limestone	
Apportionment 2001-2016	44
To maintain a land bank beyond to 2021 ¹	+13.8
Total requirement 2001-2021	57.8
Less production 2001-2005	-13.1
To be produced 2006-2021	44.7
Permitted reserves at end of 2005	-50.3
Additional to be released to 2021	0 (5.6 surplus)
Sandstone	
Apportionment 2001-2016	29
To maintain a land bank beyond to 2021 ¹	+9.1
Total requirement 2001-2021	38.1
Less production 2001-2005	-8.2
To be produced 2006-2021	29.9
Permitted reserves at end of 2005	-64.5
Additional to be released to 2021	0 (34.6 surplus)
Sand and Gravel	
Apportionment 2001-2016	8.2
To maintain a land bank beyond to 2021 ¹	+2.6
Total requirement to 2021	10.8
Less production 2001-2005	-2.3
To be produced 2006-2016	8.5
Permitted reserves at end of 2005	-4.4
Additional to be released to 2021	4.1

¹ The end of the Plan period for the Minerals and Waste Development Framework

7. ALTERNATIVE SOURCES OF AGGREGATE MINERALS

- 7.1 Recycled and secondary aggregates (RSA) have the opportunity to play a much larger role in replacing the use of primary aggregate than at present. National and regional policy provides for an increased amount of aggregate supply to be met by RSA. This is also encouraged in the Government's policy statements PPS10 and MPS1 which will necessitate much closer monitoring of the usage of such materials.
- 7.2 The principle aim of encouraging the increased use of recycled and secondary aggregates is expressed in Government policy (MPS)⁷, that is, "to promote recycling of suitable materials, thereby minimising the net requirement for new primary extraction".
- 7.3 The UK is the leading user of RSA in Europe, although it is predominantly used as low-grade fill at the present time, rather than the more desirable higher end uses that replace virgin aggregates.
- 7.4 In 2003 some 250 million tonnes of aggregate were used by the construction industry. Of this, as much as 45 million tonnes, or 18%⁸, was provided by recycled aggregates (coming from C&D waste)⁹, an increase on earlier reported figures¹⁰.
- 7.5 Previous Government guidance¹¹ on this matter implied the use of 55 million tonnes of RSA¹² annually by 2006. The Government's revised mineral apportionments (issued in 2003) look to improve on attempts to increase the contribution from RSA. The draft Regional Spatial Strategy presents the regional implications of these revised guidelines, that 101 million tonnes – or 26% – of the 377 million tonnes of aggregates required in the region between 2001-2016 will come from RSA.
- 7.6 No apportionment is made of these amounts to sub-regional areas. Applying the Plan area's broad share of new development growth proposed under the draft RSS would suggest that the Plan area will accommodate some 20% of the region's new housing and employment provision.
- 7.7 Applying this to the tonnages above would suggest that 20 million tonnes of RSA, predominantly recycled aggregate, must contribute to an overall requirement for some 75 million tonnes of aggregates in the Plan area for the period 2001-2016. This would be the equivalent of a requirement for 1.25 million tonnes of recycled aggregate each year for construction activity in the Plan area.

⁷ DCLG (2005) MPS 1: Planning and Minerals

⁸ BGS (2004) Mineral Matters 6: Recycling our Minerals

⁹ BGS (2004) UK Minerals Yearbook

¹⁰ ODPM Mineral Planning Guidance 6: Guidelines for Aggregate Provision in England (which reported 10% in 1989)

¹¹ ODPM, Minerals Planning Guidance Note 6: Guidelines for aggregate provision in England

¹² JAC JLMWDF Core Strategy Topic Paper M3

7.8 Supporting the national targets for RSA use, the draft Regional Spatial Strategy includes a target of 20% of construction aggregates to be from secondary or recycled sources by 2010 and 25% by 2021. Recent performance at the regional level has been suggested at around 14%, although this is believed to be an underestimate of the true use of recycled aggregates currently.

CHARACTERISTICS OF RECYCLED AND SECONDARY AGGREGATES¹³

- 7.9 Recycled Aggregates are derived from reprocessing materials previously used in construction. Examples include recycled concrete from construction and demolition (C&D) waste material, road planings and railway ballast. Recycled aggregates currently account for the majority (around 80%) of RSA.
- 7.10 Recycling aggregates can occur in-situ as the waste arises or off-site in a centralised facility. Typically the waste will be crushed and screened. The various grades of product produced will be blended to ensure specifications are met. Construction and demolition waste may be contaminated with plastic, wood, metal etc., which may need to be manually segregated. A waste is deemed to be an RSA when it has been treated and sold to a specific specification, for graded material used for sub-bases and capping, paving sand etc.
- 7.11 Secondary Aggregates are usually by-products of other industrial processes not previously used in construction. Secondary Aggregates can be further sub-divided into manufactured and natural, depending on their source. Examples of manufactured secondary aggregates are pulverised fuel ash (PFA), foundry sands and metallurgical slags. Natural secondary aggregates include china clay sand, colliery spoil and slate aggregate.
- 7.12 Slags produced by the iron and steel industry are already widely used as good quality aggregates and cementitious materials. Pulverised fuel ash is used as a cement substitute and for block-making and has potential for bulk fill. The decline in coal-fired power stations is, however, reducing the volume of available material. Colliery spoil includes minestones, siltstones, shales, earths, sandstones and limestones. It is employed mainly as fill, its quality usually precluding other uses. China clay sands are used to a limited extent in some parts of the country as mortar and concreting sands but also have potential as bulk fill.
- 7.13 The European Standards for aggregates came into force in June 2004. Their introduction has meant that RSA can be used across a broad range of applications, as the Standards cover 'aggregates from natural, recycled and manufactured materials', focusing on fitness for purpose and not discriminating between different resources. Furthermore, changes have been introduced to the equivalent British Standards, some of which have been withdrawn or partially substituted. All RSA for use in construction must comply with the requirements of British Standards¹⁴.

¹³ All info on RSA from Aggregain site

¹⁴ http://www.aggregain.org.uk/quality/aggregates_standards/index.html. A waste is deemed to be an RSA when it has been treated and sold to a specific specification, i.e. Type 1 or Type 2 MOT, 6F2, 6F3, paving sand etc.

OPPORTUNITIES TO USE RECYCLED AND SECONDARY AGGREGATES

7.14 RSA can be used in a range of construction materials:

Concrete

7.15 RSA is permitted for use in the production of certain grades of concrete. The process involves use of recycled aggregate (RA) or recycled concrete aggregate (RCA) to form all or part of the coarse aggregate, and these and other RSA to form the fine aggregate¹⁵. RCA is derived from existing concrete, whilst RA can be from many materials previously used in construction. Use of RSA in concrete production is ultimately dependent on the grade of the concrete to be produced.

Bituminous Material

7.16 Bituminous material is principally composed of coarse aggregate and fine aggregate filler; aggregates typically contribute 90-95% of the mass of bituminous material. These aggregates are bound together by bitumen, a black, sticky mix of hydrocarbons, to produce what is collectively termed bituminous bound material or 'asphalt'.

7.17 Bituminous material is principally used in road construction. It is generally more efficient and cost effective to use RSA lower down in road pavement construction; where they are used in the surface course, considerable processing and control procedures may be necessary to ensure standards are maintained, unless RSA amounts to only a small percentage by mass of the total material. However, for base courses there are no such associated difficulties with the use of RSA. Road construction permits the use of a wide range of industrial by-products, and reclaimed materials through in-situ and ex-situ recycling processes.

7.18 There are two principle methods of using RSA in bituminous material, dependent on the application¹⁶. The first is to use RSA from a range of sources as the aggregate constituent of bituminous bound material (for example recycled glass). The other method is to recycle bituminous bound material itself, and re-use it in road construction (for example recycled asphalt from road planings). This latter method in particular is well-established, and widely used. The use of recycled materials can be economically beneficial, due to reduced material purchasing and transport costs, and reduced waste disposal costs.

Hydraulically Bound Materials

7.19 Hydraulically bound materials (HBM) are mixtures that set and harden by hydraulic reaction. They include Cement Bound Material (CBM) (i.e. mixtures based on the fast setting and hardening characteristics of cement). They also include hydraulically bound mixtures based on slow setting and hardening binders made from industrial by-products such as PFA (Fly ash bound material) and blastfurnace slag (Slag bound materials).

¹⁵ Aggregain: http://www.aggregain.org.uk/opportunities/materials/concrete/rsa.html#anchorlink_1

¹⁶ <http://www.aggregain.org.uk/specifier/index.html>

Unbound Materials

- 7.20 Unbound materials collectively comprise a vast array of different materials, which may range in size from fine grains less than a millimetre in diameter up to stony material several centimetres in diameter.
- 7.21 Unbound materials are used in embankments, as fill materials, as capping, and to form the sub-base of paved areas. All RSA can potentially be used as the constituents of unbound materials used in construction, and often form 100% of such material.
- 7.22 The unbound material could be produced on site, using material from the construction site recycled in-situ, or may be purchased from external suppliers.
- 7.23 RSA that might be used in this range of construction materials are listed below:
- Recycled aggregate (RA)
 - Recycled concrete aggregate (RCA)
 - Recycled asphalt
 - Recycled tyres
 - China clay sand and Stent
 - Unburnt colliery spoil and burnt colliery spoil
 - Foundry sand
 - Furnace and incinerator bottom ash
 - Conditioned fuel ash (CFA) and Pulverized-fuel ash (PFA)
 - Slate aggregate
 - Spent oil shale
 - Steel slag
 - Recycled glass
 - Slate aggregate

8. OTHER CONSTRUCTION MINERALS

CEMENT MAKING

- 8.1 Cement is a manufactured product consisting of a mixture of calcium silicate and calcium aluminate. These compounds react with water and in doing so cause the cement to set. The requirement for calcium is supplied by limestone or chalk and clay/shale is the source of most of the silica and alumina. Cement is produced by firing a carefully controlled mixture of limestone (80-90%) and clay raw material (10-15%) at a sufficiently high temperature, then finely grinding the resulting 'cement clinker' and adding gypsum/anhydrite.
- 8.2 In Lancashire, the raw materials for cement are sourced from two quarries, the Lanehead/Bold Venture quarry combined site, and Bellman quarry. In these quarries the limestone and clay raw materials occur naturally together in the same geological formations.
- 8.3 In the Joint Plan Area cement is manufactured at one site, Castle Cement's Ribblesdale Cement works near Clitheroe in the Ribble Valley. This is the second largest plant in the UK (and the only one in the North West) and produces 1.4 million tonnes of cement per year (9% of UK production), contributing £12 million per year to the local economy and employing 420 people. It requires approximately 2 million tonnes of raw materials each year, all of which is transported by private road. 90% of sales from Ribblesdale are transported by road, with little scope for transferring more to rail.
- 8.4 Cement from Ribblesdale has been used in several major architectural projects in recent years:
- Manchester International Airport
 - Heysham Nuclear Power Station
 - Manchester Magistrates Court
 - Manchester United football stadium
 - Liverpool's Roman Catholic cathedral
- 8.5 Ribblesdale's output is used in large parts of the north of England and Scotland. About 80% is supplied in bulk tankers and the remainder is distributed as a bagged product. The most popular product produced in Ribblesdale is Castle Ordinary Portland Cement.

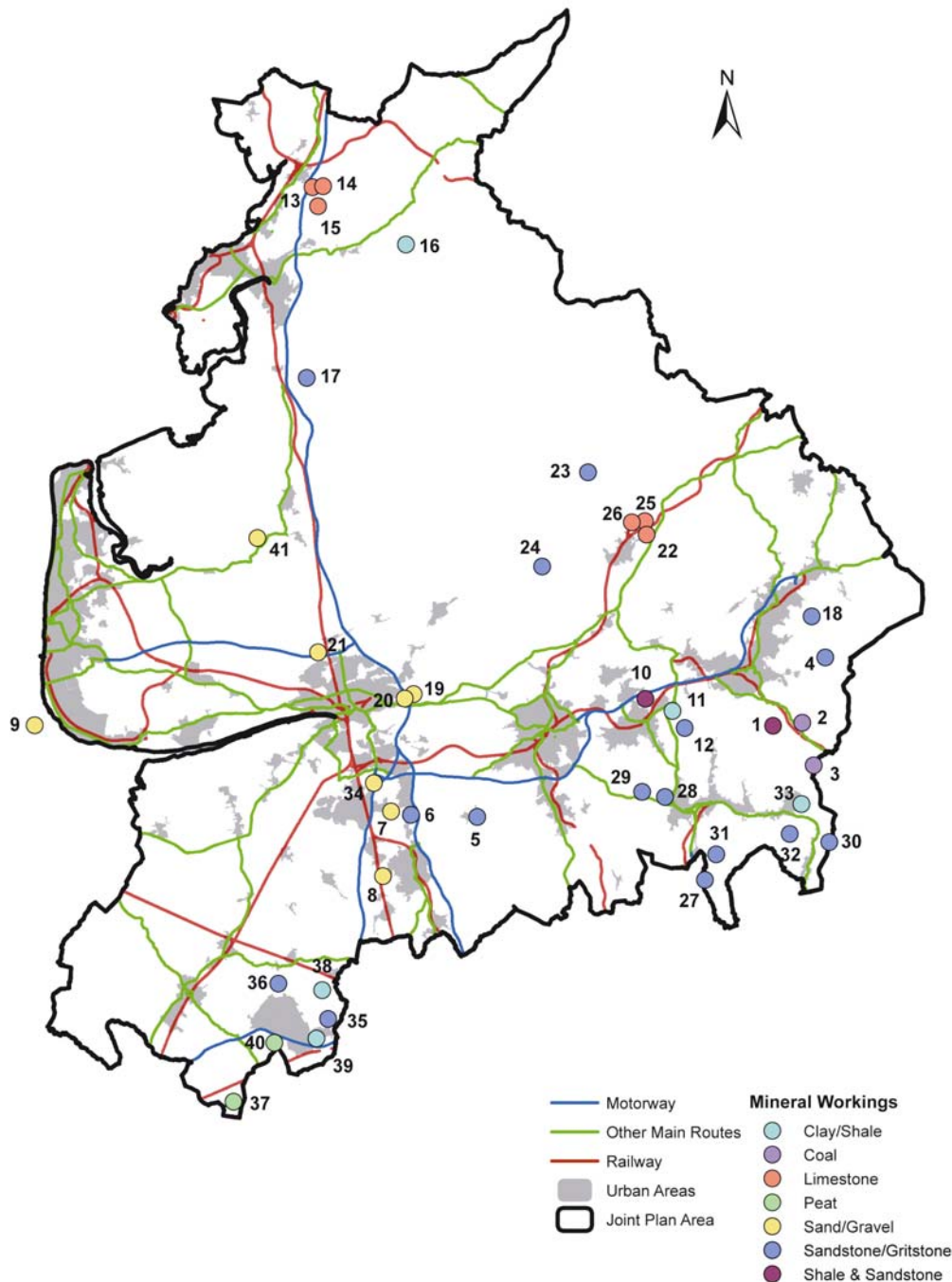
BRICK MAKING

- 8.7 2.7 billion bricks were produced in the UK in 2004, continuing a general decline in brick production over the last 50 years. This is primarily due to the increased use of concrete blocks in interior walls. However, the UK is still the largest market in Europe for facing bricks and the industry is worth an estimated 550 million pounds per year to the UK economy. This market is relatively stable but as with all construction materials, is closely linked to the economy.
- 8.8 There are five active quarries in the Plan Area supplying three brickworks with approximately 370,000 tonnes of minerals each year.

9. TRANSPORTATION OF MINERALS IN THE PLAN AREA

- 9.1 The Plan area currently produces some 4 million tonnes of minerals and almost 5 million tonnes of waste each year, practically all of which is transported by road to markets or for disposal both within and outside the county. In addition, the County also imports and exports significant quantities of minerals and waste material which are also transported by road. The potential for alternative methods of transport exists to varying degrees. The county has quarries and mineral product plants which have or have the potential for rail connections but these are not currently utilised. Waste has previously been imported into the County by rail, most recently to a site just inside the Plan area, although that disposal operation has now ceased. The County has port facilities at Heysham, Fleetwood and Glasson. Heysham is used for the importation of marine dredged sands, though the amounts are relatively small. The port of Heysham is connected to the rail network, whereas Fleetwood and Glasson are not. The County's canals are unlikely to have any potential for commercial transportation of waste or minerals, as the network is inadequate for the capacity now required.
- 9.2 Transportation of minerals and waste by road involves the movement of many heavy commercial vehicles (HCVs). This has the potential to be environmentally disruptive. A number of existing quarries and disposal sites are located in areas which are not well serviced by roads of an appropriate standard and vehicle movements are often limited as a result. The volume and character of the traffic generated by these sites could potentially give rise to:
- Loss of amenity to occupiers of property along transportation routes, due to vibration, noise, dust, dirt and other pollution
 - Road safety hazards
 - Disruption of traffic flows
- 9.3 These problems are more severe when large and heavy lorries use minor roads that are unsuitable for the type of vehicle, particularly where they pass through residential areas or at junctions.
- 9.4 As well as the local environmental disturbance generated by road transportation, issues of broader environmental concern arise. Transport, in particular that undertaken by road going vehicles, is a major source of carbon dioxide, one of the main gases associated with climate change. Minimising the emissions of such gases is an environmental aim of global importance. Continuing growth in road transport and the consequent environmental impacts therefore present a major challenge to the objective of sustainable development. To meet these concerns would require a preference for more energy efficient modes of transport such as rail or water. However, the scope for this in Lancashire is limited in a practical sense since many existing or potential quarrying areas are remote from the rail network, and are often limited too in an operational sense in cases where sources or markets are fairly local.

Figure 4: PERMITTED MINERAL SITES, 2006



0 5 10 15 Km

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Sources: Lancashire County Council, Ordnance Survey

Table 7: LIST OF PERMITTED MINERAL SITES, 2006

No.	Site	District	Working
1	Deerplay Quarry	Burnley	Shale & Sandstone
2	Green Clough Colliery	Burnley	Coal
3	Hill Top Colliery	Burnley	Coal
4	Twist Hill & Delf Hill Quarry	Burnley	Sandstone/Gritstone
5	Brinscall Quarry	Chorley	Sandstone/Gritstone
6	Whittle Hill Quarry	Chorley	Sandstone/Gritstone
7	Clayton Hall	Chorley	Sand/Gravel
8	German Lane	Chorley	Sand/Gravel
9	St Annes Foreshore	Fylde	Sand/Gravel
10	Whinney Hill Quarry	Hyndburn	Shale & Sandstone
11	Rakehead	Hyndburn	Clay/Shale
12	Mitchell's House Quarry	Hyndburn	Sandstone/Gritstone
13	Back Lane Quarry	Lancaster	Limestone
14	Leapers Wood Quarry	Lancaster	Limestone
15	Dunald Mill Quarry	Lancaster	Limestone
16	Cloughton Moor	Lancaster	Clay/Shale
17	Ellel Crag Quarry	Lancaster	Sandstone/Gritstone
18	Catlow Quarry	Pendle	Sandstone/Gritstone
19	Higher Brockholes Quarry	Preston	Sand/Gravel
20	Lower Brockholes Quarry	Preston	Sand/Gravel
21	Lightfoot Green Lane (Bradley's Sand Pit)	Preston	Sand/Gravel
22	Bankfield Quarry	Ribble Valley	Limestone
23	Waddington Fell Quarry	Ribble Valley	Sandstone/Gritstone
24	Leeming Quarry	Ribble Valley	Sandstone/Gritstone
25	Bellman Quarry	Ribble Valley	Limestone
26	Lanehead Quarry (Ribblesdale Cement Works)	Ribble Valley	Limestone
27	Fletcher Bank Quarry	Rossendale	Sandstone/Gritstone
28	Hutch Bank Quarry	Rossendale	Sandstone/Gritstone
29	Jamestone Quarry	Rossendale	Sandstone/Gritstone
30	Middle Hill Quarry	Rossendale	Sandstone/Gritstone
31	Scout Moor Quarry	Rossendale	Sandstone/Gritstone
32	Whitworth Quarry	Rossendale	Sandstone/Gritstone
33	Tong Farm	Rossendale	Clay/Shale
34	Lydiate Lane Quarry	South Ribble	Sand/Gravel
35	Hardrock Quarry	West Lancashire	Sandstone/Gritstone
36	Round O Quarry	West Lancashire	Sandstone/Gritstone
37	Simonswood Moss	West Lancashire	Peat
38	Dalton Quarry	West Lancashire	Clay/Shale
39	Ravenhead Quarry	West Lancashire	Clay/Shale
40	Nipe Lane	West Lancashire	Peat
41	Sharples Quarry	Wyre	Sand/Gravel

BURNLEY

1. DEERPLAY QUARRY (FORD)

Location: Burnley – Deerplay Quarry is located on the north western side of the A671, Bacup Road, approximately 3 miles from Burnley town centre and 4 miles from Bacup. The quarry is situated on a hillside with an area of open pasture land.

Site Area: 16.2 hectares

Grid Reference: 856 285

Site Operator: Waste Recycling Group Ltd

Mineral(s) Extracted: Shale and Sandstone

Date Extraction Began: Extraction of minerals began in 1947.

Current Operation Involves: Mineral extraction was established at the site by the granting of an Interim Development order in 1947 when the site operated as a brickworks. The brickworks closed and the associated buildings were demolished in the late 1970s. Planning permission was granted in 1981 to reopen the quarry and to allow the disposal of waste in 1996. The quarry undertakes the excavation of sandstone rock and brick shale, with the voids that are created being filled with imported waste. The sandstone is excavated and crushed on site some is exported and some retained on site for use in the construction of the waste cells, the same process occurs for shale with it been used for the lining of the waste cells. There has been planning permission granted for the erection of a gas flare stack and leachate treatment plant. The landfill gas is to be turned into electricity until its cessation on 31 December 2020.

Extraction Planned to End in/Permission Expires in: The planning permission for the extraction of minerals ceased on 31 December 2006 and disposal of landfill was to cease on 31 December 2006. Planning permission has been applied for to extend time limit for the disposal of waste.

Any Waste Disposal: Waste disposal can occur on this site but the site is currently closed until planning permission is granted for time extension.

Type of Restoration Planned: The quarry is being in filled with landfill waste; this landfill will then be capped and landscaped. The area will be replanted after capping of the site has finished.

2. GREEN CLOUGH COLLIERY

Location: Burnley - Green Clough Colliery is located on the northern side of the Cliviger valley approximately 5km south east of Burnley. The site is situated on the side of a small wooded clough running perpendicular to the Cliviger Gorge and consists of a small surface compound together with an underground mining area to the west.

Site Area: 2 hectares

Grid Reference: 880 287

Site Operator: Cliviger Coal Company

Mineral Extracted: Coal extraction by drift mining

Date Extraction Began: Extraction of coal began in 1989.

Current Operation Involves: In January 1989 planning permission was granted for the extraction of coal by drift mining, including the construction of a surface compound area and access track. The permission allowed for the extraction of 60,000 tonnes of coal over a maximum period of ten years. In January 2001 a further planning permission was granted for the renewal of mining at Green Clough, to enable a further 7,500 tonnes to be extracted, again over a maximum period of ten years. The mine employs up to ten workers with coal sold direct to local merchants and the public.

Extraction Planned to End in/Permission Expires in: Coal extraction is to cease by the 28 February 2011.

Any Waste Disposal: There is no waste disposal on this site.

Type of Restoration Planned: The restoration plans for the site is to restore the land to agricultural use and amenity area it is also considering the planting of woodland, as a clough woodland is located next to the site.

3. HILL TOP COLLIERY

Location: Burnley – Hill Top Colliery sits astride the county boundary with Calderdale Metropolitan Borough Council high in the Pennine hills, 4km north of Bacup and 7km south of Burnley.

Site Area: 1.3 hectares (9 hectares underground)

Grid Reference: 890 256

Site Operator: Grimebridge Colliery Co

Mineral Extracted: Coal extraction by drift mining.

Date Extraction Began: Coal extraction began in 1989.

Current Operation Involves: Planning permission was granted in August 1989 for the sinking of two drifts for coal. However the commencement of the development was delayed and an application for renewal of the planning permission for the site was granted in 1997. Resources at the site were thought to be in the order of 170,000 tonnes in 1994, the majority of material to be sold to the power generation industry and to the public via local merchants. In 2005 planning permission was granted for a time extension for a further seven years at the site.

Extraction Planned to End in/Permission Expires in: Coal extraction is to cease by 2 August 2011.

Any Waste Disposal: There is no waste disposal at this site.

Type of Restoration Planned: The removal of all plant and equipment, buildings, shelters, stockpiles of coal, vehicles and other items from the site. The mine entrances has to be closed. There is to be removal of the site compound and internal haul roads from the main access track. The site is to be seeding and landscaping, including the spreading of soils stockpiled on the site. The restoration plan indicates the area is to be restored to grassland and some areas are to be tree planted.

4. TWIST HILL AND DELF HILL QUARRY

Location: Burnley - Twist Hill and Delf Hill Quarry is located within the parish of Briercliffe, 4 miles east of Burnley and 3 miles north east of Worsthorne. The quarry is situated half a mile east of the Swinden Reservoirs.

Site Area: 1.18 hectares

Grid Reference: 895 335

Site Operator: Cliviger Stone Merchants

Mineral(s) Extracted: Sandstone and Gritstone

Date Extraction Began: Mineral extraction began in 1981.

Current Operation Involves: The site has planning permission granted on appeal in 1981. The County Council imposed modern conditions in March 2000 as part of the Minerals Review under the requirements of the Environment Act 1995. The planning permission and recent review of planning conditions provide for the low-key operation of the 1.18 hectare site and limit heavy goods vehicles to two vehicle trips per-day from the site. The laminated sandstone is extracted by hand for the production of dressed rectangular flags, walling stone for building and landscape gardening uses, and crazy paving. No power tools or machinery are used on site other than a mechanical loading shovel for the removal, stocking and replacement of overburden, and an industrial saw to cut the sandstone.

Extraction Planned to End in/Permission Expires in: Mineral extraction is to cease by 30 November 2009.

Any Waste Disposal: There is no waste disposal at this site.

Type of Restoration Planned: The proposed restoration plan for the quarry is to restore it to moorland, with potential for biodiversity through the creation of habitats, thereby encouraging wild breeding birds to colonise the site.

CHORLEY

5. BRINSCALL QUARRY

Location: Chorley – Brinscall Quarry is located on the northern scarp of Withnell Moor overlooking the villages of Withnell and Brinscall, in the district of Chorley.

Site Area: 14.5 hectares

Grid Reference: 632 217

Site Operator: Hanson Aggregates

Mineral Extracted: Gritstone

Date Extraction Began: Mineral extraction began in 1947.

Current Operation Involves: The quarry was left unmanaged following its closure in the early 1970s, leaving areas to become overgrown with birch regeneration. The site was reopened in 1994 to provide aggregate materials for the M65 motorway link. Recently the quarry has ceased blasting operations and now supplies architectural dimension stone to the construction industry. In 1998 planning permission was granted for the extension of time limit to February 2042.

Extraction Planned to End in/Permission Expires in: The extraction of gritstone is to cease by 21 February 2042.

Any Waste Disposal: There is no waste disposal at this site.

Type of Restoration Planned: When the quarry closed during the 1970s the regeneration of trees occurred. The quarry is surrounded by heathland it is planned to return the quarry into this use when it is restored.

6. WHITTLE HILL QUARRY

Location: Chorley - Whittle Hill Quarry is located within Whittle-le-Woods, approximately 2 miles north of Chorley.

Site Area: 6.5 hectares

Grid Reference: 585 217

Site Operator: P & R Investment Ltd

Mineral(s) Extracted: Sandstone and Gritstone

Date Extraction Began: Extraction of minerals began in 1951.

Current Operation Involves: The site has been worked for stone since the beginning of the last century. Planning permission was granted in 1951 for the extraction of sandstone in an area comprising 3.28 hectares at Whittle Hill Quarry. A further application was granted permission in 1957 covering an area of 1.76 hectares to the west of the main working area relating to the removal of quarry waste. The County Council imposed modern conditions in October 1997 as part of the Minerals Review under the requirements of the Environment Act 1995. Mineral extraction and the removal of quarry waste are scheduled to cease at the site not later than 21 February 2042 with final restoration by 21 February 2043. The quarry has been worked to a depth of around 40 metres and became dormant. With the suspension of extraction operations, the site has become flooded. Mineral extraction has now ceased and the area is now been landfilled to fill the voids of the quarry this is part of the restoration process.

Extraction Planned to End in/Permission Expires in: Mineral extraction and landfill should cease by 21 February 2042.

Any Waste Disposal: There is waste disposal at this quarry.

Type of Restoration Planned: The removal of all plant and equipment, buildings, shelters, stockpiles of coal, vehicles and other items from the site. The site is to be seeding and landscaping, including the spreading of soils stockpiled on the site.

7. CLAYTON HALL

Location: Chorley – Whittle Hill Quarry is located off the B5248 some 5km to the north west of Chorley at Whittle-le-Woods, in the Borough of Chorley.

Site Area: 28.3 hectares

Grid Reference: 568 220

Site Operator: Neales Waste Management

Mineral Extracted: Sand

Date Extraction Began: Sand extraction began in 1949.

Current Operation Involves: The quarry presently produces building sand for the local construction industry. The site has also been used for landfill since the early 1950s providing a disposal facility for industrial and commercial waste. A waste baling and recycling centre was constructed in 1992, to enable the baling and recycling of incoming waste. Waste not suitable for recycling is baled and deposited in the landfill.

Extraction Planned to End in/Permission Expires in: Extraction of minerals and waste disposal is to cease by 6 April 2028.

Any Waste Disposal: There is currently disposal of waste in the site to fill the voids of the quarry.

Type of Restoration Planned: The planned restoration for the site is to provide grazing and amenity land, with substantial areas of woodland and planting. This will provide a diverse range of habitat for wildlife.

8. GERMAN LANE

Location: Chorley – German Lane is located in Charnock Richard in Chorley.

Grid Reference: 560 171

Site Operator: Corry Environmental

Mineral(s) Extracted: Sand and Gravel

Date Extraction Began: Sand extraction began in 1970.

Current Operation Involves: Planning permission was granted in 1963 for sand working and plant, the extraction of sand and gravel began in 1970. In 1993 planning permission was granted for time extension of the quarry. In 1998 further permission was granted for change to time limit to 2042.

Extraction Planned to End in/Permission Expires in: Extraction of minerals is to cease by 2042.

Any Waste Disposal: There is no waste disposal at this site.

Type of Restoration Planned: The site is to be seeding and landscaping, including the spreading of soils stockpiled on the site. The area is to be restored to agricultural use.

FYLDE

9. FORESHORES ST ANNES

Location: Fylde - The site is located to the north west of St. Annes Pier. The nearest boundary of the extraction area is some 750 metres seaward of the sand dunes.

Site Area: 175 hectares

Grid Reference: 310 285

Site Operator: William Rainford (Holdings) Ltd

Mineral Extracted: Sand

Date Extraction Began: Sand extraction began in 1980.

Current Operation Involves: Sand extraction operations first commenced in 1980. On average 300m³ of sand are extracted per day, which equates to approximately 78,000m³ per annum. Sand is extracted from banks of varying depth but the sand depth is no more than 0.4 metres with blade mud below. Temporary planning permission for sand extraction was granted by Fylde Borough Council under the Town and Country Planning General Regulations 1976 and has subsequently been extended, with the site being operated by William Rainford (Holdings) Ltd. on behalf of the Borough Council. The most recent planning permission was granted by the Borough Council in 1989 and expires in 2049.

Extraction Planned to End in/Permission Expires in: Extraction of minerals is to cease by 2049.

Any Waste Disposal: There is no waste disposal at this quarry.

Type of Restoration Planned: The removal of all plant and equipment, buildings, shelters, stockpiles of coal, vehicles and other items from the site. The site is to be seeding and landscaping, including the spreading of soils stockpiled on the site. A restoration plan for the site has not been submitted yet.

HYNDBURN

10. WHINNEY HILL QUARRY

Location: Hyndburn - Whinney Hill Quarry and landfill site is located approximately 2km north of Accrington on the edge of the conurbation, 1km south east of Clayton-le-Moors in Hyndburn Borough.

Site Area: 83 hectares

Grid Reference: 753 302

Site Operator: Marshalls plc, Brown Bros., Park Royal Haulage and SITA

Mineral(s) Extracted: Shale & Sandstone

Date Extraction Began: Mineral extraction began in 1947.

Current Operation Involves: The Whinney Hill complex comprises of the two existing quarry and landfill sites of Whinney Hill and Enfield. At Whinney Hill sandstone is quarried to provide crushed rock for aggregates and mudstone that is extracted for the adjacent brickworks. The site is also being progressively restored by backfilling with biodegradable, including municipal, and inert wastes, at a rate of around 300,000 tonnes a year. The site is co-owned by three companies, Marshalls Clay Products, Brown Brothers and SITA. These three companies all operate the site, along with Park Royal Haulage. Brick making shale is extracted for use in adjacent brickworks. This brickworks is one of the largest in the North of England and one of the largest manufacturing businesses in Hyndburn. The works produces approximately one million bricks a week.

Extraction Planned to End in/Permission Expires in: Extraction of minerals is to cease by 2042 and disposal of waste is to cease by 21 February 2045.

Any Waste Disposal: Waste disposal is currently taking place on this site.

Type of Restoration Planned: The restoration process has begun of the quarry with the deposit of landfill waste. After landfill has ceased the site will be planted with native trees. The southern and western side of the valley is to be restored to woodland and grassland/meadows while the north is to be restored to agricultural grassland. The restoration is due to be complete five years after cessation of the site.

11. RAKEHEAD – HUNCOAT QUARRY

Location: Hyndburn - Huncoat Quarry is one of the two sites previously comprising the Huncoat Brickworks operation. The quarry itself lies immediately to the east of the A56, approximately 3km from Accrington town centre.

Site Area: 15 hectares

Grid Reference: 780 297

Site Operator: Ibstock Brick Ltd

Mineral(s) Extracted: Shale, Sandstone and Clay.

Date Extraction Began: The extraction of minerals began in 1947.

Current Operation Involves: The operating conditions at the site were reviewed in 1994 under the Planning & Compensation Act 1991. The quarry was separated at this stage in terms of operation from the brickworks, which has now been closed, and the land now contains houses. Minerals worked at the quarry were clay/shale and sandstone however sandstone extraction has now ceased. The extraction of shale occurs on a contract-by-contract basis.

Extraction Planned to End in/Permission Expires in: Mineral extraction is to cease by 2042.

Any Waste Disposal: There is no waste disposal at this site.

Type of Restoration Planned: Previous quarrying operations dating back before the Town & Country Planning Act 1947 have left highly visible spoil heaps on the skyline in the vicinity of the quarry and a major element in the review of conditions focussed on the re-shaping and restoration of these heaps. The site is to be restored to a woodland and grassland that will contain wildlife habitats.

12. MITCHELLS HOUSE QUARRY

Location: Hyndburn – Mitchells House Quarry is situated on the flanks of Hameldon Hill, approximately 3km east of Accrington and 6km north of Haslingden.

Site Area: 1 hectare

Grid Reference: 791 283

Site Operator: Stoneslate Craft Centre

Mineral Extracted: Sandstone

Date Extraction Began: Extraction of sandstone began in 1999.

Current Operation Involves: Planning permission was granted for the reopening of this site in 1998. The planning permission allows for the working of 6,000 tonnes of sandstone material for the production of stone roofing slates. The operation is permitted to continue over a period of 30 years. The quarrying operation commenced in July 1999 and the site is currently active.

Extraction Planned to End in/Permission Expires in: Extraction is to cease by 31 December 2027.

Any Waste Disposal: There is no waste disposal on this site.

Type of Restoration Planned: Restoration of the quarry is to fill the voids with quarry waste. The area is to be reseeded and restored to grassland.

LANCASTER

13. BACK LANE QUARRY

Location: Lancaster - Back Lane Quarry lies approximately 6km northeast of Lancaster to the north of Nether Kellet village. The site is approximately 4km from the Morecambe Bay coast and the topography rises from the coast up to the locally high ground (100m above sea level) around the quarry and then 150m above sea level further east. This block of higher ground is dissected by small stream valleys, which drain to the low valleys of the River Keer to the north and River Lune to the south. The site adjoins Leaper's Wood Quarry to the north.

Site Area: 65 hectares

Grid Reference: 507 693

Site Operator: Aggregate Industries UK Ltd

Mineral Extracted: Limestone

Date Extraction Began: The site began extraction in 1948.

Current Operation Involves: Operations at the site comprise of limestone extraction supplying aggregate, with a coating plant in quarry and block making plant in adjacent High Roads Quarry. Back Lane Quarry initially comprised two separate quarries, High Roads Quarry and Back Lane Quarry; in 1986 permission was granted for an extension to join the quarries together by extracting the central island. Access to the site for heavy goods traffic is off Back Lane, via a purpose built haul road, avoiding the village of Nether Kellet. Extensive tree planting has taken place around the perimeter of the site to block the view of the quarry. In 2003 planning permission was granted for the building of offices on the quarry site.

Extraction Planned to End in/Permission Expires in: Mineral extraction is to cease on 29 April 2049.

Any Waste Disposal: There is no waste disposal on this site.

Type of Restoration Planned: The site shares a joint scheme of working and restoration with Leaper's Wood Quarry. Further restoration proposals and a review of the operations were considered as part of the Review of Old Mining Permissions the Environment Act 1995 and was reviewed in 2003. The trimming of quarry benches and faces and the planting of trees are to occur. The lake on the site is to remain at the correct water level and if it has not reached this level this will have to be dealt with during the restoration process.

14. LEAPERS WOOD QUARRY

Location: Lancaster - Leaper's Wood Quarry lies approximately 6km northeast of Lancaster to the north of Nether Kellet village and is one of a series of limestone quarries found in the area. The site is approximately 4km from the Morecambe Bay coast and the topography rises from the coast up to the locally high ground (100m above sea level) around the quarry and then 150m above sea level further east. This block of higher ground is dissected by small stream valleys, which drain to the low valleys of the River Keer to the north and River Lune to the south. The site adjoins Back Lane Quarry to the south.

Site Area: 50 hectares

Grid Reference: 515 694

Site Operator: Tarmac Central Ltd

Mineral Extracted: Limestone

Date Extraction Began: Limestone was first extracted in 1964.

Current Operation Involves: Leapers Wood is an active limestone quarry supplying raw materials for the northwest of England. The site is large in scale and uses blasting techniques to free rock from the ground, it is one of the major sites for limestone aggregate production in Lancashire. Planning permission was granted for the extraction of limestone by virtue of permissions granted in 1964. Subsequently a further permission incorporating the existing operations and an extension to the site was granted in 1988, subject to a Section 52 Agreement requiring the implementation of a woodland management plan. Most of the surface area of the planning permission has been worked and therefore most future resources will be obtained by working at greater depth. Planning permission was granted in 1995 for the construction of western embankment.

Extraction Planned to End in/Permission Expires in: Mineral extraction is to cease by 19 September 2048.

Any Waste Disposal: There is no waste disposal at this site.

Type of Restoration Planned: The scope to achieve progressive restoration within the quarry is limited. Higher benches have naturally regenerated, whilst formal planting took place on lower benches in 2001. The site shares a joint scheme of working and restoration with Back Lane Quarry. For restoration to be complete there will be the treatment of quarry benches and faces and also there will be the promotion of plant growth. Deciduous woodland on the eastern and northern side is to be restored which is a Biological Heritage Site.

15. DUNALD MILL QUARRY

Location: Lancaster - Dunald Mill Quarry lies approximately 6km northeast of Lancaster to the east of Nether Kellet village. The site is approximately 4km from the Morecambe Bay coast and the topography rises from the coast up to the locally high ground (100m above sea level) around the quarry and then 150m above sea level further east. This block of higher ground is dissected by small stream valleys, which drain to the low valleys of the River Keer to the north and River Lune to the south.

Site Area: 40 hectares

Grid Reference: 515 678

Site Operator: Tarmac Central Ltd

Mineral Extracted: Limestone

Date Extraction Began: Extraction of limestone began in 1947.

Current Operation Involves: The site has had a long history of quarrying limestone, since 1947. The site has planning permission for the extraction of Carboniferous Limestone and deposit of mineral waste by virtue of a number of planning permissions granted in the 1950s and 60s. The quarry is split in two; the eastern quarry has now ceased production and now contains the processing plant, and the western quarry where limestone is still been extracted. Planning permission was granted in 2006 to vary the condition of time limit in the planning permission, which extended the extraction of minerals until 2016.

Extraction Planned to End in/Permission Expires in: Mineral extraction is to cease by 31 July 2016.

Any Waste Disposal: There is no landfill waste disposed of at this site.

Type of Restoration Planned: The eastern quarry will be restored to three wildlife meadows and the western quarry will be made into a lake with visitor viewing attractions.

16. CLAUGHTON MOOR

Location: Lancaster – Claughton Moor is situated in an area of elevated moorland above the village of Caton approximately 8km north east of Lancaster.

Site Area: 25 hectares

Grid Reference: 577 647

Site Operator: Hanson Brick Limited

Mineral(s) Extracted: Shale and Clay

Date Extraction Began: The extraction of minerals first began in 1979.

Current Operation Involves: Planning permission was granted in 1978 for the erection of a brick kiln and drying plant on the site currently occupied by the brickworks, with major developments including the construction of a major new building, erection of a 30 metre steel chimney, stockyard and internal haul road with landscaping in 1990. The shale quarried at the site is transported to the brick-making plant via an aerial ropeway system. Planning permission has been granted for the extension to the kiln building for storage. In 1998 the time limit condition for extraction of minerals was extended to 2018.

Extraction Planned to End in/Permission Expires in: Extraction of minerals at this site is to cease on the 31 December 2018.

Any Waste Disposal: There is no waste disposed of at this site.

Type of Restoration Planned: It is proposed to restore the quarry to a variety of habitats including heather moorland and heath, wet flushes and bogs, remnant cliff faces and small amounts of clough type woodland. Restoration is to take place within two years of cessation of the quarry.

17. ELLEL CRAG QUARRY

Location: Lancaster – Ellel Crag Quarry is approximately 7km south of Lancaster town centre. The settlements of Galgate and Dolphinholme are situated about 2km from the site.

Site Area: 14 hectares

Grid Reference: 504 548

Site Operator: J A Jackson Contractors (Preston) Ltd

Mineral(s) Extracted: Shale and Sandstone

Date Extraction Began: Extraction of minerals first began in 1963.

Current Operation Involves: Ellel Crag Quarry has a long history of sandstone and shale extraction. In 1986 a planning permission was granted for the continuation of mineral extraction with the backfilling of the resultant void with inert waste materials. In 1991 planning permission was granted to extend the area of the quarry. In 1992 the conditions of this permission were amended to allow the disposal of biodegradable materials. The disposal of inert waste has commenced in the northern area of the quarry. However, no biodegradable waste has been imported to the site. The plans to import waste to the site to infill the voids of the quarry have had problems as a landslip occurred in 1993/94 that had to be rectified before waste could be brought to the site. The operator applied to extend the quarry to stabilise the area of the landslip and to modify the conditions of the permission to allow more time to engineer and landfill the mineral working void. The County Council resolved to grant the planning permission, subject to the signing of a Section 106 agreement.

Extraction Planned to End in/Permission Expires in: The extraction of minerals and landfill will cease by 30 June 2013.

Any Waste Disposal: There is disposal of waste at the quarry.

Type of Restoration Planned: Landfill will be deposited on site to fill the voids from mineral extraction. It is proposed to restore the site to woodland and agricultural pasture.

PENDLE

18. CATLOW QUARRY

Location: Pendle – Catlow Quarry is located north of Crawshaw Lane, approximately 1/2km east of the Catlow hamlet and 2km south east of Nelson.

Site Area: 1.17 hectares

Grid Reference: 886 366

Site Operator: K Green

Mineral Extracted: Sandstone

Date Extraction Began: Extraction of Sandstone first began in 1965.

Current Operation Involves: The Catlow Quarries were originally worked prior to the introduction of planning system. Permission was granted in 1965 for the working of the spoil heaps and subsequently operated until 1978. The site then remained dormant until the mid 1990s when planning permission was granted in 1993 for the extraction of stone on a portion of the site. In 1995 an application was submitted for the extraction of 30,000m³ of sandstone over ten years. The quarry produces good quality Flag rock sandstones, which are cut on site to riven paving and wallstones. A smaller amount is used as stone slate and garden products such as rockery stone. The estimated rate of production is 10 tonnes per day and the maximum HGV movements are two vehicles per day.

Extraction Planned to End in/Permission Expires in: Extraction of minerals is to cease on the 31 December 2007.

Any Waste Disposal: There is no landfill waste deposited on this site.

Type of Restoration Planned: The quarry is to be restored to agricultural and amenity use.

PRESTON

19. HIGHER BROCKHOLES QUARRY

Location: Preston – The Higher Brockholes Quarry is located in a meander of the River Ribble approximately 4km east of Preston. Directly to the west of the site lies the M6 motorway, whilst to the south lies the A59 Preston-Clitheroe road.

Site Area: 99 hectares

Grid Reference: 585 305

Site Operator: Hanson Aggregates

Mineral(s) Extracted: Sand and Gravel

Date Extraction Began: The extraction of sand and gravel began in 1995.

Current Operation Involves: Planning permission was granted for the development of a sand and gravel quarry, by the Secretary of State, following an appeal held in June 1992. The development allows for the extraction of 3.1 million tonnes of sand and gravel over a period of 11 years. Mineral extraction operations commenced in 1995 following construction of the access roads over the River Ribble. Sand and gravel was extracted during the summer months and is then stockpiled near to the plant area to supply the plant throughout the remainder of the year.

Extraction Planned to End in/Permission Expires in: Extraction of minerals ceased in late 2005, with sales of stockpiles continuing into 2006 (planning permission expired in 2006).

Any Waste Disposal: There is no waste disposal at this quarry.

Type of Restoration Planned: The site has been restored progressively to a number of lake features designed to maximise their amenity and wildlife value, with some of the area turned into a country park.

20. LOWER BROCKHOLES QUARRY

Location: Preston – The Lower Brockholes Quarry is located to the west of the Higher Brockholes quarry, on the western side of the M6 motorway in a meander of the River Ribble approximately 4km east of Preston. Directly to the east of the site lies the M6 motorway, whilst to the south lies the A59 Preston-Clitheroe road.

Site Area: 24 hectares

Grid Reference: 585 305

Site Operator: Hargreaves Ash Marketing

Mineral(s) Extracted: Sand and Gravel

Date Extraction Began: The extraction of sand and gravel has yet to begin.

Current Operation Involves: Planning permission was granted for the development of a sand and gravel quarry in 2006. To date, soil stripping has taken place and plant installed on-site. Planning permission allows for the extraction of 0.83 million tonnes of sand and gravel over a period of eight years and six months.

Extraction Planned to End in/Permission Expires in: Planning permission expires in eight years and six months from the commencement of extraction with six months after this time for restoration.

Any Waste Disposal: There is no waste disposal at this quarry.

Type of Restoration Planned: The area is to be restored to agriculture, lakes, wetland areas and gradients and levels of the restored surface. There has been a Section 106 Agreement requiring the management of wildlife habitats for a total period of ten years.

21. LIGHTFOOT GREEN LANE (BRADLEYS SAND PIT)

Location: Preston – The site is located just north of the M55 motorway about 1km west of the Broughton interchange.

Site Area: 42 hectares

Grid Reference: 509 339

Site Operator: J.A. Jackson Contractors (Preston) Ltd

Mineral Extracted: Sand

Date Extraction Began: Extraction of minerals began in 1973.

Current Operation Involves: Sand extraction operations first started in 1973, when the site was opened as a borrow pit to supply materials for the construction of the M55 Motorway. A consolidating planning application to allow for the continued extraction of sand, with subsequent backfilling with inert waste, was granted permission in 1985. Since then, the site has operated as a sand quarry and an inert landfill site with an overall 1,000,000m³ void. Planning permission was granted for waste transfer station building in 1988 a time extension to use the building was granted in 2001 for use until 2006, this has been further extended until 2011. Although sand extraction is virtually complete, permission was granted to extend the life of the landfill operation for a further 5 years until March 2006. In 2005 permission was granted for an extension to the existing sand and gravel quarry occupying 2.44 ha of land immediately north of M55 and with time limit extension granted until 2009.

Extraction Planned to End in/Permission Expires in: The extraction of minerals is to cease by 1 March 2009 and for restoration of the site to be complete by 1 September 2010.

Any Waste Disposal: There is no waste disposal at this quarry.

Type of Restoration Planned: The quarry is filled with inert waste.

RIBBLE VALLEY

22. BANKFIELD QUARRY

Location: Ribble Valley - Bankfield Quarry is located approximately 2km north east of Clitheroe in the Ribble Valley.

Site Area: 36 Hectares

Grid Reference: 755 437

Site Operator: Tarmac Central Ltd

Mineral Extracted: Limestone

Date Extraction Began: Extraction of minerals first began in 1947.

Current Operation Involves: It is an active limestone quarry, supplying a variety of dry stone and coated roadstone products. It produces a range of dry and coated aggregate products with the total output being in the region of 1 million tonnes per year. The quarry uses blasts to free the rock from the faces where it is transported to a plant for crushing and screening into different sizes. In 1988 planning permission was granted for the erection of asphalt plant and ancillary facilities. In 2002 planning permission was granted for the working and extension in depth of the quarry.

Extraction Planned to End in/Permission Expires in: The extraction of minerals is to cease in December 2018.

Any Waste Disposal: There is no waste disposal at this site.

Type of Restoration Planned: Following the completion of working the excavation the quarry will be flooded and areas above the water level are to be planted being restored to a variety of grassland and woodland habitats.

23. WADDINGTON FELL QUARRY

Location: Ribble Valley - The Waddington Fell Quarry is located 6km to the north of Clitheroe and 3.5km north of the village of Waddington at the summit of Waddington Fell.

Site Area: 23 hectares

Grid Reference: 718 478

Site Operator: Aggregate Industries Ltd

Mineral Extracted: Sandstone

Date Extraction Began: Extraction first began in 1966.

Current Operation Involves: The quarry extracts sandstone for the production of graded stone and washed concreting and building sand. In 1989 planning permission for the extension of the quarry was granted. In 1998 there was a further extension to the site 2.9 hectare on the western side of the quarry, to extract 1,750,000 tonnes of sandstone over a ten year period. In 2001 planning permission was granted for the importation of stone for sawing, the construction of new buildings to house stone sawing operations. This planning permission also extended the time limit of the quarry for excavation till December 2022.

Extraction Planned to End in/Permission Expires in: The extraction of minerals and disposal of waste is to cease in December 2022.

Any Waste Disposal: Currently there is waste disposal at this site.

Type of Restoration Planned: The scheme for restoration is to include the demolition of buildings, equipment, plant and structures that are no longer used and the planting of native trees to occur. The quarry is to be restored to broadleaved woodland.

24. LEEMING QUARRY

Location: Ribble Valley – Leeming Quarry is located on the southern flank of Longridge Fell off Old Clitheroe Road, between Longridge and Waddington. The site is located within the Forest of Bowland Area of Outstanding Natural Beauty.

Site Area: 4 hectares

Grid Reference: 683 406

Site Operator: Brown Brothers

Mineral Extracted: Sandstone

Date Extraction Began: Extraction of sandstone began in 1948.

Current Operation Involves: Leeming Quarry is an active sandstone quarry currently producing dressed stone. The site operates on a low key as the main production is dimension stone produced within a saw shed. Sandstone has been extracted from this quarry since 1948. In 1992 planning permission was granted for the extension of the sawmill. Under the Planning and Compensation Act 1991, a revised schedule of conditions was issued in 1995 allowing mineral extraction to continue until 2042.

Extraction Planned to End in/Permission Expires in: Mineral extraction is to cease by 21 February 2042.

Any Waste Disposal: There is no waste disposal at this site.

Type of Restoration Planned: The scheme for restoration is to include the demolition of buildings, equipment, plant and structures that are no longer in use and there is to be the planting of native trees.

25. BELLMAN QUARRY

Location: Ribble Valley – Bellman Quarry is located approximately 2km north east of Clitheroe.

Site Area: 63 hectares

Grid Reference: 760 430

Site Operator: Castle Cement Ltd

Mineral Extracted: Limestone

Date Extraction Began: Limestone extraction began in 1997.

Current Operation Involves: The quarry was abandoned in the 1960s. In 1997 planning permission for the reactivation and extension of Bellman Quarry was granted. The development was proposed by Castle Cement Ltd in order to provide a new source of high quality limestone for use in the nearby Ribblesdale Cement Works. The planning application provides for the working of 30 million tonnes of limestone over a thirty year period. Initially stone will be transported to the cement works by way of an existing private road. However, it is eventually proposed to form a tunnel between Bellman Quarry and Lanehead Quarry to the north.

Extraction Planned to End in/Permission Expires in: The extraction of minerals is to cease by 2027.

Any Waste Disposal: There is no waste disposal at this site.

Type of Restoration Planned: After completion of extraction the quarry will be allowed to flood with the areas above the water level being restored to agriculture and amenity uses. The proposals also provide for the translocation of existing areas of ecological interest in order to develop new areas of limestone grassland.

26. LANEHEAD QUARRY

Location: Ribble Valley – Lanehead Quarry (Ribblesdale Cement Works) is situated approximately 2km to the north east of Clitheroe in the Ribble Valley.

Site Area: 140 hectares

Grid Reference: 760 440

Site Operator: Castle Cement Ltd

Mineral(s) Extracted: Limestone and Shale

Date Extraction Began: Extraction of minerals began in 1947.

Current Operation Involves: The quarry has a current output of 1.4 million tonnes of cement per year; it supplies one of the largest cement works in the UK. The works has three cement kilns. Kilns 5 and 6 operate on the wet process where ground limestone is mixed with water prior to it being admitted to the kiln. Kiln 7 is a more modern, higher capacity kiln, built in 1980 that operates on the dry process where ground limestone is preheated in the kiln tower before being admitted to the kiln. A wet scrubbing plant was constructed in 1998 in order to clean the emissions from the dry kiln. All three kilns are fired using a mixture of coal and Cemfuel. In 2003 planning permission for the cement kiln dust waste management facility was granted.

Extraction Planned to End in/Permission Expires in: The extraction of minerals is to cease by 2027.

Any Waste Disposal: There is no waste disposal at this site.

Type of Restoration Planned: The excavation will be flooded. Areas above the water level would be restored to nature conservation uses with grasslands and woodland. There is a proposed twenty year aftercare programme for this site.

ROSSENDALE

27. FLETCHER BANK QUARRY

Location: Rossendale - Fletcher Bank Quarry is situated to the east of the A56 Manchester Road and is bordered to the east by the track up to Bury Old Road. The site is bisected north south by the administrative boundary between Bury and Rossendale/Lancashire.

Site Area: 72 hectares

Grid Reference: 801 174

Site Operator: Marshalls Mono

Mineral(s) Extracted: Sandstone and Shale

Date Extraction Began: Extraction of minerals began in 1948.

Current Operation Involves: There is planning permission at the site for a processing and block making facility, following the granting of planning permission by Greater Manchester Council. The block and processing plant, as well as access and local road network fall outside Lancashire but is within the Metropolitan Borough of Bury. There was a review of planning conditions considered at the site, by virtue of the Environment Act 1995, which is subject to an Environmental Impact Assessment. In 1998 permission was granted for the importation of waste. This application was subject to an Environmental Impact Assessment. Extension to the site was granted in 2006.

Extraction Planned to End in/Permission Expires in: Extraction of minerals and waste disposal is to cease by 31 December 2036.

Any Waste Disposal: There is waste disposal at this site.

Type of Restoration Planned: Restoration through importation and deposition of construction and excavation waste and the development of a waste recycling facility and composting operation occurring on the site. The restoration period of the quarry will take two years and will become a woodland and grassland area.

28. HUTCH BANK QUARRY

Location: Rossendale - Hutch Bank Quarry is located 1km to the west of Haslingden town centre and occupies an elevated site to the north of the A6177 Grane Road, overlooking the town and western part of the Rossendale valley.

Site Area: 32 hectares

Grid Reference: 777 233

Site Operator: Aggregate Industries Ltd

Mineral Extracted: Sandstone

Date Extraction Began: Sandstone was first extracted in 1947.

Current Operation Involves: The quarry has a longstanding history of sandstone extraction, but is currently dormant. Following the Review of former Interim Development Order permission a new schedule of conditions has been issued; the quarry is able to resume operations at any time. The quarry has ceased production since 1997 and will have to apply for planning permission to begin extraction of minerals again.

Extraction Planned to End in/Permission Expires in: The extraction of minerals is to cease by 21 February 2042. However, mineral rights are understood to have been surrendered in 1997 as part of an agreement over a revised restoration scheme.

Any Waste Disposal: There is no waste disposal at this site.

Type of Restoration Planned: There will also be the removal of buildings, machinery, plant, and structures that are no longer in use. The filling of voids caused by the extraction of sandstone and replanting is to occur on the site.

29. JAMESTONE QUARRY

Location: Rossendale - Jamestone Quarry is located approximately 3km from Haslingden town centre, immediately east of the A677 Grane Road and 0.5km to the south of the Clough Head Information Centre.

Site Area: 60 hectares

Grid Reference: 756 233

Site Operator: Aggregate Industries Ltd

Mineral Extracted: Sandstone

Date Extraction Began: Mineral extraction began in 1947.

Current Operation Involves: The site is a longstanding sandstone quarry benefiting from an Interim Development Order granted in 1947. A registered Interim Development Order to which modern working and restoration conditions were approved in 1997 for this quarry. In 2004 planning permission was granted for a variation of a condition to permit stockpiling of minerals to a maximum height of 285 metres. Planning permission was granted in 2005 to allow the importation of crushed glass to be mixed with the crushed stone.

Extraction Planned to End in/Permission Expires in: Mineral extraction is to cease by 21 February 2042.

Any Waste Disposal: Waste disposal ceased at this site in 1981.

Type of Restoration Planned: Restoration has begun in some of the historic extraction areas. There is to be the planting of native trees and the drainage of silt traps and lagoons. There will also be the removal of buildings, machinery, plant, and structures that are no longer in use.

30. MIDDLE HILL QUARRY

Location: Rossendale - The site is located at Middle Hill, Shawforth, Whitworth, it is approximately 2km North East of Whitworth on the boundary of Lancashire and Rochdale.

Site Area: 1 hectare

Grid Reference: 902 124

Site Operator: A S Taylor & Co

Mineral Extracted: Gritstone

Date Extraction Began: Extraction of minerals began at this site in 1949.

Current Operation Involves: The activities taking place on this site are the extraction of gritstone for the use as walling, paving and building works. The County boundary runs through the site and a separate planning permission for extraction exists on the Rochdale side of the boundary. The site is worked in different areas depending on the nature of the stone required. Continuance of sandstone extraction was granted in 2000 for a further ten years.

Extraction Planned to End in/Permission Expires in: Extraction of minerals is to cease by 6 July 2010.

Any Waste Disposal: There is no waste disposal at this site.

Type of Restoration Planned: On completion of extraction of minerals from the area the land is to be restored to open moorland.

31. SCOUT MOOR QUARRY

Location: Rossendale - The quarry is situated on Scout Moor to the east of Acre Nook Farm off Rochdale Road. The site lies approximately 17km southeast of Blackburn and 11km north of Rochdale.

Site Area: 102 hectares

Grid Reference: 815 190

Site Operator: Marshall's Mono Ltd

Mineral(s) Extracted: Coal and Shale

Date Extraction Began: Extraction of minerals began in 1948.

Current Operation Involves: The quarry has existed for many years and minerals were transported via a mineral railway and dismantled tramway until the 1950s. The quarry is subject to two principle-planning consents, which allow the working of stone and coal and an extension to the stone working area. Following refusal in 1999, an appeal over the extension of the quarry area was allowed and operations in the extension began in 2006.

Extraction Planned to End in/Permission Expires in: Mineral extraction is to cease by 21 February 2042.

Any Waste Disposal: There is no waste disposal at this site.

Type of Restoration Planned: The site is to be restored to grazing land and any buildings or machinery should be demolished.

32. WHITWORTH QUARRY

Location: Rossendale - The Whitworth Quarry lies between Bacup and Whitworth in Rossendale. The site is to the south of the A6066 and to the east of the A671, approximately two kilometres from the centre of Bacup and a similar distance from the centre of Whitworth.

Site Area: 190 hectares

Grid Reference: 877 197

Site Operator: Aggregate Industries Ltd

Mineral Extracted: Sandstone

Date Extraction Began: Extraction of minerals began in 1947.

Current Operation Involves: The quarry is comprised of three previously independent quarries Facit, Britannia and Lee. The Lee quarry is now been restored, the Facit quarry is at present dormant, and it is the Britannia quarry that is been worked. In 1995 planning permission was given for the extraction of minerals from the Britannia and Facit site until 2042. In 1998 partial restoration of the Lee quarry began that is been restored for a public amenity area.

Extraction Planned to End in/Permission Expires in: The extraction of minerals is to cease by 21 February 2042.

Any Waste Disposal: There is no waste deposal at this site.

Type of Restoration Planned: Partial restoration has already begun these parts of the quarry are been restored to public amenity areas.

33. TONG FARM

Location: Rossendale – Tong Farm Quarry is approximately 600 metres from Tong Farm, which is about 1km south east of the centre of Bacup.

Site Area: 5.2 hectares

Grid Reference: 879 227

Site Operator: Jim Laycock

Mineral Extracted: Fireclay for brick manufacturing and Clay for landfill

Date Extraction Began: The extraction of minerals began in 1960.

Current Operation Involves: The development involves the excavation of clay and fireclay. The clay is exported for use in the capping of landfill operations, whilst the fireclay is used for brick manufacture. In 1986 landfill disposal of demolition waste began at this site. In 1999 there was a change in the condition for time extension allowing mineral extraction to occur till 2042.

Extraction Planned to End in/Permission Expires in: Mineral extraction is to cease by 21 February 2042. It is understood that the quarry will have been worked to its permitted limit during 2007.

Any Waste Disposal: Waste disposal does not occur at this site.

Type of Restoration Planned: Inert waste is used to fill the voids left in the quarry and clay will be used for the capping of the landfill.

SOUTH RIBBLE

34. LYDIATE LANE QUARRY

Location: South Ribble – Lydiate Lane Quarry lies to the north of Farington, a village set in the countryside between Leyland and Preston. The site itself is located in the angle between the M6 to the south east and the A5083, Lydiate Lane.

Site Area: 28 hectares

Grid Reference: 555 240

Site Operator: Thomas Williams (Euxton) Ltd

Mineral(s) Extracted: Sand and Gravel

Date Extraction Began: Sand and Gravel was first extracted in 1991.

Current Operation Involves: In 1993 planning permission was granted for the extraction of sand and the restoration of the land by the importation of waste on 28 ha. of land. Sand and gravel is extracted and dry screened on site with the resulting voids reinstated by imported dry, inert, non-toxic, non-notifiable waste. In 1998 planning permission was granted for a time extension of five years to allow extraction of minerals until 2016 due to the delay in the commencement of operations.

Extraction Planned to End in/Permission Expires in: Mineral extraction and disposal of waste is to cease by 2 August 2016.

Any Waste Disposal: Disposal of inert waste is allowed as part of progressive restoration of the site.

Type of Restoration Planned: Restoration occurs continually with the use of waste been deposited into the vacant quarried areas.

WEST LANCASHIRE

35. HARDROCK QUARRY

Location: West Lancashire – Hardrock Quarry is located off Stoney Brow and College Road near Up Holland.

Site Area: 2.6 hectares

Grid Reference: 521 063

Site Operator: Hardrock Ltd

Mineral Extracted: Sandstone

Date Extraction Began: Mineral extraction began in 1947.

Current Operation Involves: Initially operated under an Interim Development Order (IDO), the subsequent registration of the IDO and Review of the Old Mining Permission allow the continuation of sandstone extraction and the reinstatement of the site using imported inert waste material. Planning permission in 2006 provided an extension to time limit for landfill but not for mineral extraction.

Extraction Planned to End in/Permission Expires in: Mineral extraction ceased in April 2007 and disposal of waste is to cease by April 2014.

Any Waste Disposal: Waste disposal occurs at this quarry.

Type of Restoration Planned: Upon completion of landfill the site is to be restored primarily for agricultural purposes.

36. ROUND 'O' QUARRY

Location: West Lancashire - The quarry is located approximately 5km north of Skelmersdale town centre and 2km from Newburgh and is accessed from Cobbs Brow Lane.

Site Area: 20 hectares

Grid Reference: 484 089

Site Operator: Inglenorth

Mineral Extracted: Sandstone

Date Extraction Began: Extraction of minerals began in 1952.

Current Operation Involves: Round "O" Quarry operates by virtue of a number of planning permissions granted for the winning and working of minerals between the 1960s and 1980s. The site has an extensive planning history including an application in the late 1990s to restore the site through the importation of domestic waste, which was dismissed at appeal. An aggregate recycling facility was granted planning permission in 2006 on this site.

Extraction Planned to End in/Permission Expires in: The extraction of sandstone ceased in 2006 and landfill and recycling of waste is to cease by 31 March 2010.

Any Waste Disposal: There is a recycling facility on this site that takes in the importation of waste and there is some landfill of waste that is not able to be recycled.

Type of Restoration Planned: Restoration of the quarry void is permitted through the importation of inert waste. The scheme for restoration includes the planting of native trees creating woodland and some of the site will become farmland.

37. SIMONSWOOD MOSS

Location: West Lancashire - The site is located to the north east of Knowsley Industrial Estate, on the eastern fringes of Kirkby, and south east of Spencer's House Farm.

Site Area: 124 hectares

Grid Reference: 345 400

Site Operator: White Moss Horticultural Limited

Mineral Extracted: Peat

Date Extraction Began: Peat extraction began in 1947.

Current Operation Involves: The peat is extracted using the surface milling method, as opposed to block cutting. This method involves clearing the whole working area of vegetation and installing a drainage system to allow the site to dry quickly in good weather. Harvesting of the peat can only take place in times of dry weather and is usually limited to the months of June, July and August (approximately 70 day per annum). This harvesting method results in a 5cm depth of peat being harvested from the entire site every year. The site was previously located within the boundary of Knowsley Metropolitan Borough Council but passed to Lancashire in April 1994. The County Council imposed modern conditions in February 1995 as part of the IDO Review under the requirements of the Planning and Compensation Act 1991. In October 1997 planning permission was granted for a variation of a condition to allow for the importation of soil waste to mix with peat and form a soil/peat product. In January 2000 planning permission was granted for the construction of a free standing lean-to for the storage of peat.

Extraction Planned to End in/Permission Expires in: Peat extraction is to cease by 21 February 2042.

Any Waste Disposal: There is no waste disposal at this site.

Type of Restoration Planned: The early restoration of a large area of the peat is to provide a reed bed habitat. No waste other than wood by-product, bark, soil, green waste and processed/recycled building aggregate shall be deposited at, or brought onto, the site.

38. DALTON QUARRY

Location: West Lancashire – Dalton Quarry is located on rising land on the southern flank of the Douglas Valley, immediately south of Lees Lane. The site is situated within partially wooded and open agricultural land. The woodland adjacent to the site has been designated as a County Biological Heritage Site.

Site Area: 12 hectares

Grid Reference: 503 049

Site Operator: Ibstock Brick Limited

Mineral(s) Extracted: Clay and Shale

Date Extraction Began: Mineral extraction began in 1948.

Current Operation Involves: Planning permission, for the extraction of shale was granted by the Minister of Town and Country Planning, in May 1948 for two adjacent areas of land, extending southwards from Lees Lane towards the crest of the Douglas Valley. By 1987 it became clear that a geological fault running across the quarry floor diminished the amount of shale available for extraction in the second area permitted in 1948. The operator submitted a planning application to extend the existing shale quarry, and to surrender permission for approximately half the area in exchange for an equivalent area to the east of the existing void. The area of the extension was well screened by established woodland and avoided the quarrying operations breaking through the skyline visible from close and intermediate viewpoints. In 1992 permission was granted for the opencast and underground extraction. Planning permission was granted in June 1994 with mineral extraction scheduled to cease at the site not later than 27 June 2019 with final restoration by 27 June 2020.

Extraction Planned to End in/Permission Expires in: Mineral extraction is to cease by 27 June 2019.

Any Waste Disposal: There is no waste disposal occurring at this site.

Type of Restoration Planned: A brick kiln and associated chimney-stack, operational at the site for over 40 years, were demolished in 1999. The woodland fronting Lees Lane and bounding the northern side of the quarry has been designated as a Biological Heritage Site. The site operator is currently tidying up the site, removing fly-tipped waste and demolition waste from the site of the old brick kiln, partially draining the lagoon and re-instating lifebelts and warning signs.

39. RAVENHEAD QUARRY

Location: West Lancashire – Ravenhead Quarry is located on the eastern fringes of Skelmersdale and it is west of Up Holland.

Site Area: 36.73 hectares

Grid Reference: 510 048

Site Operator: Ibstock Brick Limited

Mineral(s) Extracted: Shale and Clay

Date Extraction Began: Mineral extraction began in 1949.

Current Operation Involves: Planning permission was granted in 1949 for shale extraction at Ravenhead Quarry, with subsequent permissions over the last 50 years relating to developments at the associated brickworks. The site comprises an area for extraction of clay and shale covering 5.42 hectares along with an area designated for depositing mineral waste of 3.6 hectares. The remainder of the site comprises of agricultural/public open space and an area of land for the industrial buildings and brick-stocking yard. The quarry includes a Geological Site of Special Scientific Interest (SSSI). The SSSI covers two exposed rock faces that constitute examples of interesting geological strata within the quarry, located south and south east of the brickworks.

Extraction Planned to End in/Permission Expires in: The extraction of minerals is to cease by 22 February 2042.

Any Waste Disposal: There is no waste disposal at this quarry.

Type of Restoration Planned: Plans have been submitted for restoration the site that is to be restored to woodland.

40. NIPE LANE

Location: West Lancashire - The peat working is located in a rural area within the Green Belt, situated immediately north west of White Moss Lane, separated from Skelmersdale by the M58 motorway. A number of bungalows and other properties are located along White Moss Lane, on Holland Moss.

Site Area: 6.8 hectares

Grid Reference: 480 043

Site Operator: Peat Moss Supplies

Mineral Extracted: Peat extraction

Date Extraction Began: Mineral extraction began in 1981.

Current Operation Involves: The peat is cut by hand using shovels and no machinery is used on-site other than a rotovator to aerate the peat and a loading shovel for the stockpiling of the peat. The peat is harvested in long narrow strips and the blocks of peat are left to dry out prior to shredding. The harvested peat is shredded in the wooden mill located adjacent to the peat working. The site comprises a remnant lowland raised bog that supports mire vegetation. The manual extraction of peat at the site, has meant that typical mire species, such as common cotton grass, heather and purple moor-grass have been able to re-colonise worked areas. The existence of this plant community resulted in the site being designated as a County Biological Heritage Site (BHS) in 1993. The peat working has been operational on a low-key manual basis for approximately 50 years. Planning permission was granted in 1981 for the continuation of the manual extraction of peat from the site, to cease in 2001 with restoration by 1 March 2001. The operator submitted a planning application in 2001 for a time extension to the peat working. It was granted permission in 2003 the peat extraction has been extended to 2021.

Extraction Planned to End in/Permission Expires in: The extraction of peat is to cease by 2021.

Any Waste Disposal: There is no waste disposal at this site.

Type of Restoration Planned: The land is to be restored to lowland raised bog and the buildings at the site are to be removed.

WYRE

41. SHARPLES QUARRY

Location: Wyre – Sharples Quarry is located directly to the north of the A586 Garstang to Fleetwood Road, approximately equidistant between the villages of Churchtown and St. Michaels-on-Wyre. The northern side of the site is bounded by Sharples Lane, an unmade track that is also a public footpath.

Site Area: 56 hectares

Grid Reference: 468 426

Site Operator: Cemex Limited

Mineral(s) Extracted: Sand and Gravel

Date Extraction Began: Extraction has yet to begin.

Current Operation Involves: Planning permission was granted in 2005 for the extraction of 0.83 million tonnes of sand and gravel. To date work has yet to commence on site.

Extraction Planned to End in/Permission Expires in: Extraction (once it commences within the terms of the current planning permission) expires in 6 years 6 months after extraction begins and restoration should be completed six months after.

Any Waste Disposal: There is no waste disposal at this site.

Type of Restoration Planned: Restoration works will be ongoing following the working of each phase with four lakes been created. The lakes will be designed to new areas for wildlife habitats. The restoration proposals also provide for the planting of at least 650 metres of new hedgerow to replace those hedges that would be removed during the site development works. The area of the plant site is to be restored to agricultural land.