



Nottinghamshire
County Council

Nottinghamshire Minerals Local Plan

Adopted December 2005



Nottinghamshire



County Council

NOTTINGHAMSHIRE

MINERALS LOCAL PLAN

**Adopted
December 2005**

**Peter Webster
Director of Environment
Nottinghamshire County Council
Trent Bridge House
Fox Road
West Bridgford
Nottingham
NG2 6BJ**

Foreword

The Adopted Minerals Local Plan sets out the County Council's approach towards future mineral extraction in Nottinghamshire. It replaces the previous Minerals Local Plan adopted in 1997.

The purpose of the plan is to balance society's needs for minerals, which are essential to our economy and way of life, against the environmental harm and disruption that mineral extraction can cause. The plan aims to achieve this by meeting demand for minerals by both allocating suitable areas of land for mineral extraction and promoting the use of waste materials to reduce demand for natural resources. The plan also contains a comprehensive set of policies designed to minimise environmental impact, for example by protecting important wildlife areas, controlling traffic movements and ensuring sites are properly reclaimed. Indeed, reclamation schemes can result in environmental gains by creating valuable new habitats and recreational areas, and these are also promoted where possible through the plan. Achieving the right balance is critical to making minerals extraction compatible with the concept of sustainable development.

Councillor Stella Smedley
Cabinet Member for Environment
and Sustainability



Preface

Nottinghamshire County Council adopted this Minerals Local Plan on 5 December 2005 in accordance with the requirements of the Town and Country Planning Act 1990 (as amended by the Planning and Compensation Act 1991) and the Town and Country Planning (Development Plan) (England) Regulations 1999.

The plan sets out the comprehensive policy framework for minerals planning in Nottinghamshire and is produced within the strategic context of the Nottinghamshire Structure Plan Review 1996.

Contents

	Page
Glossary of Terms and Abbreviations	xi
PART 1 GENERAL	
Chapter 1 Introduction	
Need for the Plan	2
Plan's Aims	2
Nottinghamshire – its Geology and Mineral Resources	7
The County Council's Role in Minerals Planning	7
Recent Changes to the Planning System	7
Policy Context	8
Content, Format and Timescale of the Plan	9
Monitoring and Review	9
Chapter 2 Sustainable Development	
Introduction	12
Sustainability Appraisal	13
Protection of Mineral Resources	14
Mineral Consultation Areas	15
Aggregates Levy Sustainability Fund	15
Chapter 3 Environmental Protection	
Introduction	18
Information in Support of Planning Applications	18
Environmental Impact Assessment	20
Planning Conditions and Obligations	20
Visual Intrusion	21
Environmental Pollution	23
Associated Industrial Development	32
Transport	32
The Countryside	35

	Page
Biodiversity	37
Designated Sites	39
The Countryside Appraisal – Landscape Character	43
The Historic Environment	45
Public Access	47
The Cumulative Effects of Workings	47
 Chapter 4 Reclamation	
Introduction	50
Phasing	50
Soil Conservation and Use of Soil Making Materials	51
Landscape Treatment	52
Reclamation with Fill	52
Reclamation without Fill	54
Interim and Alternative Reclamation	55
Reclamation Proposals for Existing Sites	56
Aftercare	56
After-use	57
Minerals Review	61
 Chapter 5 Mineral Exploration	
Introduction	66
Geophysical Surveys	66
Shallow Boreholes and Trial Pits	67
Deep Boreholes	67
 PART 2 PRODUCTION OF MINERALS	
 Chapter 6 Sand and Gravel	
Introduction	72
Geology	72
Method of Working and Environmental Impact	75
The Archaeological Resource at South Muskham	75
Reclamation and After-use	76
Supply and Demand	76
Future Provision	79

	Page
Site by Site Analysis	87
Attenborough	87
East Leake	88
Holme Pierrepont	89
Hoveringham	89
Gunthorpe	90
Cromwell	92
Langford Lowfields	93
Besthorpe	93
Girton	94
Rampton	94
Sturton le Steeple	95
Sutton and Lound	96
Scrooby	98
Misson	99
Misson Grey Sand	101
Chapter 7 Sherwood Sandstone	
Introduction	104
Geology	104
Method of Working and Environmental Impact	107
Reclamation and After-use	107
Supply and Demand	108
Future Provision	110
Site by Site Analysis	114
Burntstump	114
Bestwood 2	114
Ratcher Hill	114
Rufford Colliery Sand Quarry	115
Warsop (Oakfield Lane) Quarry	116
Scrooby Top Quarry	116
Carlton Forest and Carlton in Lindrick (Red Barn) Quarries	117
Serlby Quarry	118
Mattersey Quarry	118
Styrrup Quarry	118
Silica Sand	119

	Page
Chapter 8 Limestone	
Introduction	122
Geology	122
Method of Working and Environmental Impact	125
Reclamation and After-use	125
Supply and Demand	125
Aggregate Limestone – Future Provision	126
Non-aggregate Limestone – Future Provision	127
 Chapter 9 Secondary and Recycled Aggregates	
Introduction	130
Secondary Aggregates	130
Recycled Aggregates	132
 Chapter 10 Gypsum	
Introduction	136
Geology	136
Method of Working and Environmental Impact	136
Reclamation and After-use	140
Supply and Demand	140
Future Provision	142
Mill and Cement Grade Gypsum (Costock Safeguarding Area)	142
Special or First Grade Gypsum (Bantymock Allocation)	142
 Chapter 11 Clay	
Introduction	146
Geology	146
Method of Working and Environmental Impact	146
Reclamation and After-use	149
Supply and Demand	149
Future Provision	150
Kilton	150
Dorket Head	151
New Brickworks and Clay Pits	152

	Page
Chapter 12 Coal	
Introduction	156
Geology	156
Future Requirements	156
Deep Mined Coal	159
Colliery Spoil Disposal	161
Reworking of Colliery Spoil Tips	164
Opencast Coal	165
New Opencast Coal Mining Techniques	168
Opencast Coal Incidental Extraction of Fireclays and other Minerals	168
Chapter 13 Oil, Coalbed Methane and Mine Gas	
Introduction	172
Future Requirements	172
Oil	175
Coalbed Methane	177
Mine Gas – Recovery	178
Impact of Boreholes upon other Mineral Resources	179
Reclamation and After-use	180
Chapter 14 Incidental Mineral Extraction	
Introduction	182
Development involving Incidental Mineral Extraction	182
Irrigation Lagoons	183
Borrow Pits	184
APPENDICES	
1. Index of Policies	187
2. Index of relevant National and Regional Planning Guidance	191
PROPOSALS MAP	
County Map	
Proposals Map. Key to insets	
Insets 1 – 15	

Glossary of Terms & Abbreviations

<u>Abbreviations</u>		Main Ref. in Plan (where defined further)	Page
BS	British Standard		
dB	Decibels	Panel 3.1	25
DSG	Desulphogypsum	Panel 10.1	141
DTI	Department of Trade and Industry	Para 13.8	175
EIA	Environmental Impact Assessment	Para 3.6	20
EMWPA	East Midlands Working Party on Aggregates	Para 6.16	76
FBA	Furnace Bottom Ash	Para 9.10	131
FGD	Flue Gas Desulphurisation	Panel 10.1	141
IDO	Interim Development Order	Para 4.57	61
L _{Aeq} T	The Equivalent Continuous Sound Level	Panel 3.1	25
LBAP	Local Biodiversity Action Plan	Para 3.67	38
LNR	Local Nature Reserve	Para 3.76	41
LPA	Local Planning Authority		
MLA	Mature Landscape Area	Para 3.86	43
MPA	Minerals Planning Authority	Para 1.10	7
MPG	Minerals Planning Guidance Note	Para 1.14	8
NNR	National Nature Reserve	Para 3.74	40
PEDL	Petroleum Exploration and Development Licence	Para 13.9	175
PPG	Planning Policy Guidance Note	Para 1.14	8
PFA	Pulverised Fuel Ash	Para 9.10	131
RIG	Regionally Important Geological/Geomorphological Site	Para 3.78	41
RPG	Regional Planning Guidance Note	Para 1.15	8
RSS	Regional Spatial Strategy	Para 1.16	8

<u>Abbreviation</u>		Main Ref. In Plan (where further defined)	Page
SAC	Special Area of Conservation	Para 3.73	40
SAM	Scheduled Ancient Monument	Para 12.45	167
SINC	Site of Importance for Nature Conservation	Para 3.77	41
SSSI	Site of Special Scientific Interest	Para 3.75	41

Terms

Ancient Woodland	Para 3.64	37
Best and Most Versatile Land	Panel 3.3	36
Biodiversity	Para 3.65	37
Planning Obligation	Para 3.13	21
Planning Condition	Para 3.12	20

Weights and Measures

Hectare - 1 hectare = 10,000 square metres or 2.471 acres

Tonne - 1000 kg or 2204 lbs (0.984 tons)

PART 1 - GENERAL

Chapter 1

Introduction



Minerals extracted in Nottinghamshire provide essential raw materials for both local and national industries. Starting from top left and moving clockwise. Ratcliffe on Soar Power Station fuelled by coal; Gypsum processing at Jericho Works; new housing development at Lowdham and duelling of the A46 between Newark and Lincoln.

Need for the Plan

- 1.1 The exploitation of minerals is essential to the nation's social and economic progress, providing materials for the construction and building industry, for fuels, for manufacturing and for other industries. Extraction can be beneficial to an area in bringing employment, clearing areas of dereliction, dealing with instability and allowing redevelopment to proceed. However mineral workings can have a severe environmental impact destroying landscapes and wildlife habitats, disrupting agriculture and causing disturbance such as noise, dust and traffic.
- 1.2 Minerals can only be worked where they are found, and a satisfactory balance must be sought between the need for minerals, safeguarding resources and protecting the environment. Policies in the Minerals Local Plan provide the detailed framework to control and direct mineral exploitation and take account of national, regional and other relevant local planning guidance. In addition the Plan identifies areas for future exploitation and working of reserves so that the minerals industry is able to plan operations and invest in new plant and machinery confident that their investment will be justified. The Plan process also provides an opportunity for public consultation for mineral extraction in the county as a whole.
- 1.3 The Minerals Local Plan represents the primary guidance, and the starting point for the assessment and determination of minerals planning applications. All mineral development proposals must be determined in accordance with this Plan, unless material considerations indicate otherwise. Material considerations may, for example, include future changes in Government guidance, or exceptional circumstances which individual policies in the Plan could not reasonably have allowed for. This approach is in accordance with the Government's Planning Policy Statement 1: Sustainable Development (PPS1) and current legislation.

Plan's Aims

- 1.4 The County Council's Strategic Plan 2001-05, sets out the future strategy for the next four years. Our vision is:

We want Nottinghamshire to be safe, healthy, prosperous and attractive. Nottinghamshire should be somewhere in which everyone can succeed, with fair access to opportunities and support to live a full and enjoyable life. We want Nottinghamshire people to be proud of their community and their County. We want Nottinghamshire County Council to be one of the top 20 councils in the UK, providing top quality, democratically accountable services have a crucial role in realising this vision.
- 1.5 The Strategic Plan has six priorities, the Minerals Local Plan will contribute to four of these through its policies and provide a sustainable approach to minerals development, as follows:

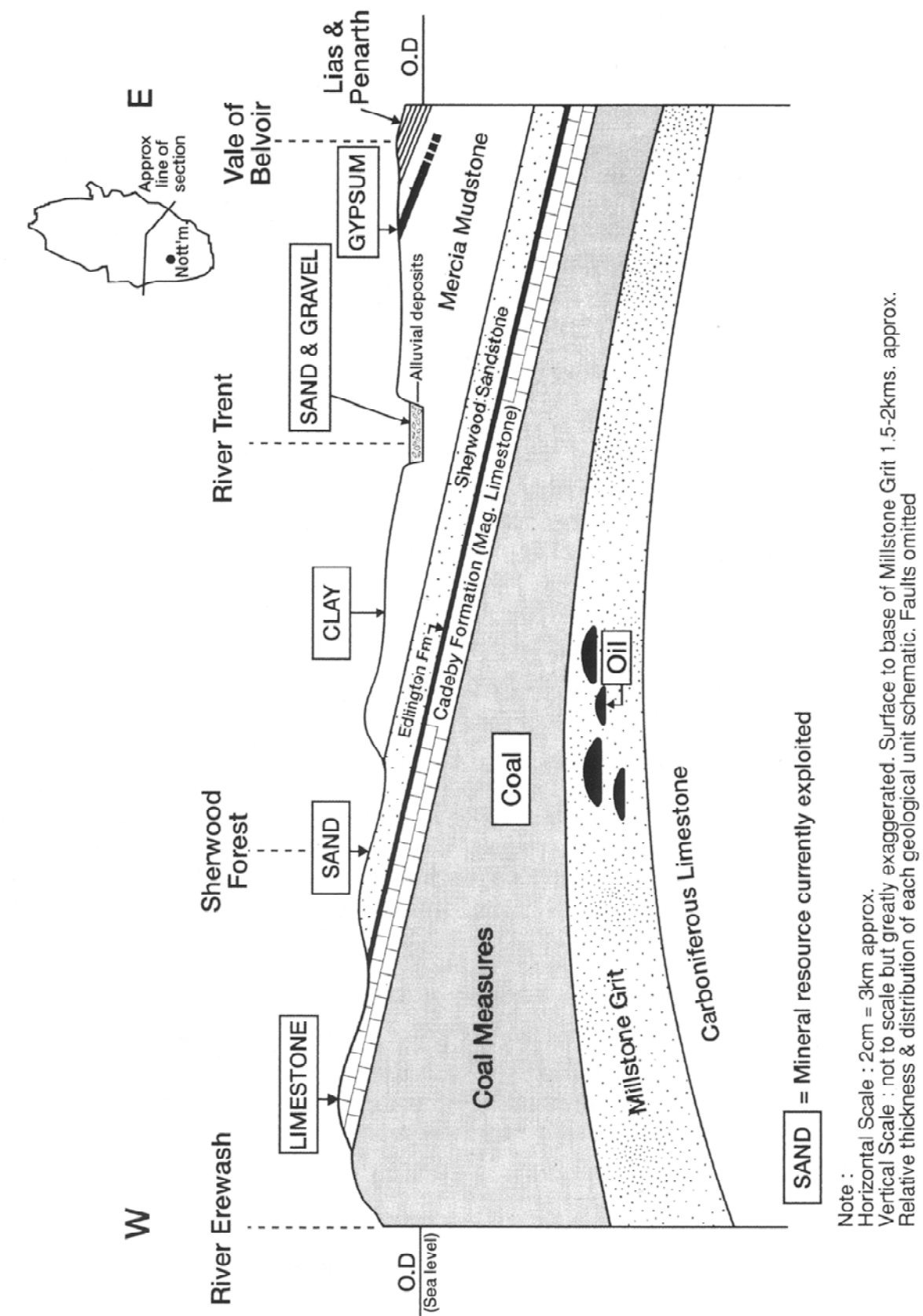
- (a) **Culture** – which seeks to ensure that everyone has the chance to enjoy our libraries and archives, the arts, sport, parks, countryside recreation, the natural environment and our historic towns and buildings. Here, the Minerals Local Plan will contribute to the Strategic Plan by protecting and enhancing local amenity; by appropriate restoration and after-use; and by recognising the importance of the historic environment.
- (b) **Regeneration** – by recognising the benefit generated by minerals development to the local, regional and national economy in addition to the contribution it can make to regeneration.
- (c) **Environment** – this is the main contribution the Minerals Local Plan can make to this Strategic Plan priority. This will be by:
 - Aiming to achieve no net loss to the environment by minimising impacts, mitigating those which are unavoidable and compensating for any remaining effects;
 - Minimising the disturbance and impact on local communities;
 - Encouraging waste minimisation, and the reuse and recycling of other materials;
 - Promoting sustainable modes of transport;
 - Protecting and enhancing areas of landscape and cultural heritage, including countryside character and local distinctiveness;
 - Promoting biodiversity;
 - Protecting the water environment;
 - Protecting the best and most versatile agricultural land;
 - Ensuring that mineral sites are progressively restored to a beneficial after use.
- (d) **Community** – in seeking to keep the local community informed and engaged, the Plan will go through wide ranging consultative processes. The County Council will continue to encourage the process of setting up local liaison groups whereby site operators meet with representatives of the local community to discuss operational matters and opportunities to take advantage of the Aggregates Levy Sustainability Fund.

Other aims of the Minerals Local Plan are:

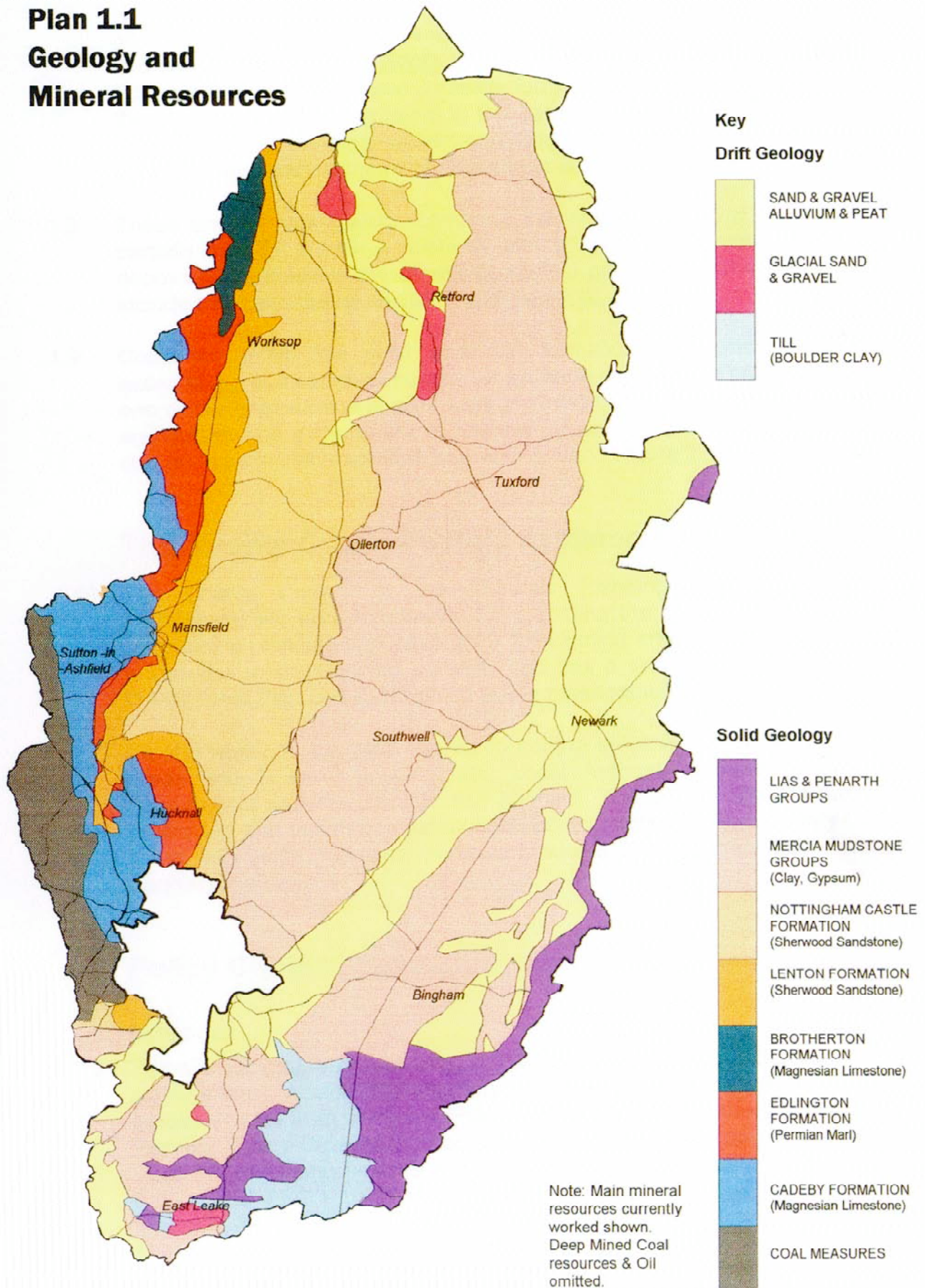
- (e) **Minerals Provision** – securing the provision of sufficient minerals to meet reasonable needs.
- (f) **Optimum use of Minerals** – encouraging the optimum use of minerals from primary and secondary sources.
- (g) **Minerals Sterilisation** – preventing mineral resources from being sterilised by development.

1.6 These aims have been developed using current national, regional and local guidance.

Fig 1.1 – A Representative Geological Section through Nottinghamshire



Plan 1.1 Geology and Mineral Resources



Nottinghamshire – Its Geology and Mineral Resources

- 1.7 Nottinghamshire lies within a broad belt of sedimentary rocks, which dip gently eastwards, from the Pennine axis of Derbyshire towards Lincolnshire and the North Sea basin. Rocks ranging in age from the Upper Carboniferous Coal Measures to the Lower Jurassic, form a series of north-south belts with the youngest rocks being found in the east. Outcrops of the Permo-Triassic rocks are by far the most widespread extending across three-quarters of the county. Clays, sandstones and limestones are the predominant rock types.
- 1.8 These ancient rocks, which comprise the ‘solid’ geology of the county are partially buried beneath a relatively thin veneer of unconsolidated or ‘drift’ deposits, laid down in the recent geological past by ice and rivers. These include sand and gravel, alluvium and glacial till.
- 1.9 Contained within the solid and drift formations is a rich and diverse assemblage of mineral resources, which have enabled the county to become one of the largest mineral producers in Great Britain. Deposits of coal, sand and gravel, and gypsum are of national importance. Deposits of limestone, clay and oil are also exploited (see Plan 1.1 and Figure 1.1).

The County Council’s Role in Minerals Planning

- 1.10 The County Council is the Minerals Planning Authority (MPA) for Nottinghamshire and responsible for preparing the Minerals Local Plan and determining planning applications for the winning and working of minerals. It is also the waste planning authority and has a similar role in preparing the Waste Local Plan and determining waste management proposals.
- 1.11 Mineral workings are also subject to control by other agencies such as the Mines and Quarries Inspectorate, Local Authority Environmental Health Departments and the Environment Agency. These agencies are principally concerned with health and safety and pollution controls. The County Council liaises with these agencies, particularly where these matters have land-use planning implications.

Recent Changes to the Planning System

- 1.12 Major reforms to the planning system were introduced on 28th September 2004 under the Planning and Compulsory Purchase Act 2004. All existing minerals and waste local plans will be gradually phased out and replaced by a ‘Minerals and Waste Development Framework’ which will comprise a range of new Development Plan and other documents. Structure plans will similarly disappear to be replaced by Regional Spatial Strategies. In parallel with these reforms, the Government is also revising its current system of national planning and minerals planning policy guidance.

- 1.13 This Plan has been prepared under the previous planning system with transitional arrangements applying since the new reforms came into effect. Where practical, the Plan has been updated to refer to the new planning system and guidance but a complete update will only be possible when the Plan is replaced by new mineral development plan documents prepared under the new Minerals and Waste Development Framework arrangements.

Policy Context

National

- 1.14 There is no comprehensive national plan setting out policies to govern mineral exploitation. Advice on statutory provisions and Government policy is available in the form of Mineral Planning Guidance Notes (MPGs) and general Planning Policy Guidance Notes (PPGs). This advice provides an important basis in formulating policies and in making planning decisions. The current MPG's and PPG's used in preparing this Plan are listed in Appendix 2, although these are in the process of being replaced by Mineral Policy Statements and Planning Policy Statements.

Regional

- 1.15 Replacement Regional Planning Guidance Note 8 (RPG8) for the East Midlands was published by the Government in 2002. The primary purpose of RPG8 was to provide the framework for the preparation of structure plans. These in turn set the context for the preparation of local plans, and it is within the policy context provided by these plans that day to day development control decisions are made.
- 1.16 In March 2005, RPG8 was replaced by the Regional Spatial Strategy for the East Midlands (RSS8).

Local

- 1.17 Proposals must conform with the Nottinghamshire Structure Plan Review, (1996). A review of the Structure Plan is at an advanced stage with adoption of a Structure Plan Review (Nottinghamshire and Nottingham Joint Structure Plan) expected by late 2005. Once adopted, the Joint Structure Plan is expected to remain in force for three years or until replaced by the next Regional Spatial Strategy. The Nottinghamshire Waste Local Plan (2002), as well as a number of non-statutory plans that the County Council contributes to, will also have a significant bearing on framing policies for future minerals development.
- 1.18 District wide local plans, which are the responsibility of the seven district councils in Nottinghamshire, have either been adopted or are in the course of preparation. All contain policies about their local environment and some have addressed local mineral issues. Where appropriate, these will be taken into account in determining mineral planning applications.

- 1.19 This Deposit Draft does not include the City of Nottingham which became a unitary authority in 1998. There are no active or proposed mineral workings within the city, although mineral development is addressed within the deposit draft of their development plan.

Content, Format and Timescale of the Plan

- 1.20 The Plan comprises a Written Statement and a Proposals Map with Insets and is divided into two parts.
- 1.21 Part 1 sets out general principles and policies applicable to all mineral development within the county. Part 2 considers each mineral on a chapter by chapter basis. The location and occurrence of each mineral is described together with the rate and scale of extraction, markets, uses and the planning issues raised.
- 1.22 The replacement Plan period extends to 31 December 2014. Normally only those developments which realistically are expected to commence during the plan period, should be formulated as proposals. However, in view of the special circumstances of mineral working, particularly where heavy capital investment is needed, the Plan will, where appropriate, look beyond this timescale.

Monitoring and Review

- 1.23 The Minerals Local Plan has been prepared on the basis of the best information available at the present time. Some of this information is imprecise. For example, there is often little knowledge of the exact location, quality and quantity of workable minerals. One of the biggest problems of planning ahead is future uncertainty. It is difficult to forecast with any precision when certain developments will take place or when schemes will be completed. Changing economic conditions and Government guidance will have an important bearing on rates of mineral extraction.
- 1.24 Planning Policy Guidance Note 12 (PPG 12) 'Development Plans' recommends that development plans should be regularly monitored and reviewed in order to ascertain whether policies are being implemented as envisaged and to assess future needs. The first monitoring and review of the adopted plan was completed in December 2000 which established the need for a replacement Minerals Local Plan. Monitoring is now required to be carried out annually with a full review expected well before the end of the plan period, probably by around 2009. The key issues that would require monitoring include:
- Landbank provision;
 - assessing provision policies, in particular the take up of allocations and assumptions made on future demand;
 - assessing whether mineral production/demand is in line with the Plan's forecasts;

- new Government legislation/guidance affecting the Plan's objectives and policies;
- ensuring that environmental protection and enhancement policies are adequate and realistic and that reclamation schemes provide long term environmental benefits;
- for coal proposals, that the policies limit proposals to environmentally acceptable schemes and, where appropriate, promote local and community benefits; and
- ensuring that mineral resources are not unnecessarily sterilised.

1.25 This approach should help ensure that the Plan is kept up to date in terms of making adequate provision of minerals, taking account of new Government and other guidance and changes to the industry. The monitoring report will also provide a summary of recent planning decisions, the latest statistics on minerals production and any significant changes to the industry in Nottinghamshire. Under the new planning system, the monitoring of this Plan by the County Council will form part of an overall annual monitoring of all new planning documents prepared under the emerging new Local Development Framework arrangements.

Chapter 2

Sustainable Development



Earth – Sustainable development is about ensuring a better quality of life for everyone, now and for generations to come.

Introduction

- 2.1 Sustainable development is about ensuring a better quality of life for everyone, now and for generations to come. It means recognising that our economy, environment and social well-being are interdependent. It means protecting and, where possible, enhancing the environment and ensuring we satisfy people's basic needs.
- 2.2 In 1992, nearly 180 countries met at the 'Earth Summit' in Rio de Janeiro to discuss how to achieve sustainable development. They agreed a plan of action, *Agenda 21*, and recommended that all countries should produce national and sustainable development strategies. The United Kingdom was one of the first to do so with, 'Sustainable Development: The UK Strategy', published in 1994.
- 2.3 A replacement strategy, 'A better quality of life, a strategy for sustainable development in the UK', was published in 1999. This strategy builds on the achievements of the 1994 strategy, but emphasises the social dimension of sustainable development alongside economic issues, the environment and resource use. The strategy is based on four broad objectives:
 - (i) Maintenance of high and stable levels of economic growth and employment;
 - (ii) Social progress which recognises the needs of everyone;
 - (iii) Effective protection of the environment; and
 - (iv) Prudent use of natural resources.
- 2.4 PPG 12 states that the planning system, and development plans in particular, can make a major contribution to the achievements of the Government's objectives for sustainable development.
- 2.5 The Plan seeks to promote the objectives of sustainable development by incorporating and where appropriate expanding on the criteria in Mineral Planning Guidance Note 1 (MPG1) 'General Considerations and the Development Plan System'. For minerals these are:
 - (i) to conserve minerals as far as possible, to minimise the production of waste during mineral working and to encourage the efficient use of minerals, including appropriate use of high quality materials and recycling of wastes, whilst ensuring an adequate supply to meet society's needs;
 - (ii) to ensure that the environmental impacts caused by mineral operations and the transport of minerals are kept to an acceptable minimum, and that all efforts will be made to ensure that methods other than road haulage are used whenever possible;
 - (iii) to encourage sensitive working, restoration and aftercare practices so as to preserve and enhance the overall quality of the environment once extraction has ceased with the creation of valuable new habitats and features;

- (iv) to protect areas of designated landscape or nature conservation value from development, other than in exceptional circumstances and where it has been demonstrated that development is in the public interest (see PPS7 paragraph 22 and PPG9 Annex C);
- (v) to give appropriate protection to areas and features of cultural heritage; and
- (vi) to prevent the unnecessary sterilisation of mineral resources.

POLICY M2.1 SUSTAINABLE DEVELOPMENT OBJECTIVES

Planning permission for minerals development will only be granted where it has been demonstrated that the Plan's sustainable development objectives have, where appropriate, been fully addressed.

- 2.6 Policy M2.1 requires developers to take account of all relevant objectives for sustainable development listed in Paragraph 2.5. This applies to both new proposals and amendments to existing schemes. All proposals will be expected to show that they address the principle of sustainable development, albeit that not all the criteria listed in Paragraph 2.5 will be relevant in every case.

Sustainability Appraisal

- 2.7 A 'Sustainability Appraisal' of the Minerals Local Plan has been carried out in accordance with PPG 12 and forms a separate report. This appraisal provides the means of ensuring that the policies and objectives of the Plan conform with the principles of sustainable development and that the best options have been taken.
- 2.8 The Appraisal comprises two main parts. Firstly, all sites put forward by the industry for allocation have been assessed against a wide ranging set of sustainability criteria in order to identify the sites best suited to maintaining mineral supplies in areas of shortfall. Secondly, all policies in the Plan were similarly assessed against the sustainability criteria. This identified certain policy weaknesses which were addressed, thereby making the Plan's approach to sustainability stronger.
- 2.9 The fact that the Plan is subject to a sustainability appraisal does not take away the requirements for an environmental impact assessment of individual development proposals where this is required by legislation.
- 2.10 Sustainability issues are covered where applicable in the remaining chapters, except for protection and conservation of mineral resources which are set out below.

Protection of Mineral Resources

- 2.11 The County Council wishes to avoid the unnecessary sterilisation of important mineral resources. Mineral extraction, however, may be just one of various competing claims for the use of land. To achieve a balanced assessment between such claims, it is essential to establish the particular importance of the mineral resource and the implications of its potential extraction or sterilisation. Therefore mineral exploration initiatives will normally be supported, subject to satisfactory environmental safeguards, (see Chapter 5).
- 2.12 The degree of importance will be influenced by a number of factors: relative scarcity, including the geological extent of the deposit, permitted reserve levels, need, quality, 'special' qualities and suitability for extraction.
- 2.13 In Nottinghamshire relative scarcity and/ or high demand levels apply to sand and gravel, gypsum and opencast coal. For these minerals sterilisation is likely to be an issue across most of the known resource, except where absolute planning and other constraints apply. In contrast, for Sherwood Sandstone and clay, where the geological resource is vast, sterilisation is only likely to be a justifiable constraint adjacent to existing permitted or allocated areas where further extensions are possible.
- 2.14 Where sterilisation is an issue, the feasibility of extracting the mineral in advance of other development should be explored.

POLICY M2.2 MINERALS STERILISATION

Development which would result in the sterilisation of mineral resources will not be permitted except where one or more of the following criteria are met:

- (a) the mineral deposit appears to have no existing or future potential commercial value or;**
 - (b) it is unlikely that the mineral will be worked due to environmental constraints or;**
 - (c) the deposit comprises Sherwood Sandstone or clay and is unlikely to form an extension or replacement to an existing quarry or;**
 - (d) the development cannot be reasonably located elsewhere and it is not practicable to extract the mineral in advance.**
-

Mineral Consultation Areas

- 2.15 The district councils have a duty to consult County Planning Authorities over any proposal for the development of land, in any area where notification has been given that it may affect, or be affected by, the winning and working of minerals (other than coal). Consultation with the Coal Authority for non-mineral development within coalfield areas is covered by separate legislation.
- 2.16 The County Council endorses the concept of such Mineral Consultation Areas and draft plans have been issued to the district councils. Mineral Consultation Areas do not in themselves constitute a land use policy; there is no presumption for or against development in the notified areas.

Aggregates Levy Sustainability Fund

- 2.17 The Aggregates Levy was introduced under the Finance Act 2001 in order to address the environmental costs associated with aggregate extraction, such as noise, dust, visual intrusion, loss of amenity and damage to biodiversity. It is also hoped that the levy will reduce the use of freshly won aggregates and encourage a greater use of recycled aggregates. The levy presently charges a tax of £1.60 on every tonne of aggregate quarried in the UK.
- 2.18 Part of the money raised has been directed to the Aggregates Levy Sustainability Fund, some of which is available for projects which deliver landscape, community, ecological, biodiversity and heritage benefits in areas affected by aggregate extraction. This allocation is to be distributed by English Nature, English Heritage and the Countryside Agency in consultation with local authorities, interest groups and the aggregates industry so that a benefit can be returned to the local community.

Chapter 3

Environmental Protection



Starting from top left and moving clockwise. Screening of the haul road at Dorket Head Clay Pit; access at Nether Langwith Quarry and Trent Washlands Landscape Character near Shelford.

Introduction

- 3.1 Mineral extraction by its very nature can destroy the existing fabric of the land. Agriculture, woodland, wildlife habitats and archaeological features can all be affected. Even when reclamation is rapid and progressive, this rarely compensates for the loss of features such as woodland, wildlife habitats and mature landscapes which have taken many years to evolve. Beyond site boundaries the amenity of the surrounding areas can be affected by visual intrusion, noise and dust from both extraction and associated plant. Transport of minerals, especially by road, can have implications many miles away from the site. Nevertheless, mineral extraction can bring environmental benefits and contribute to a sustainable environment. For example, derelict or degraded land can be reclaimed, and reclamation to nature conservation can help replace the loss of habitats and biodiversity that has resulted from modern agricultural practices and drainage improvements.
- 3.2 The Structure Plan Review (Chapter 3) sets out the broad/ strategic policies which protect the environment from the harmful effects of all forms of development. Mineral extraction, however, differs from other development in that minerals can only be worked where they occur, thus increasing the potential for conflict. Whilst the environmental impact of mineral extraction can never be totally eliminated, careful planning can ensure that adverse effects are minimised.
- 3.3 This Chapter addresses the main environmental issues associated with mineral working proposals, with the exception of reclamation which is considered separately in Chapter 4.

Information in Support of Planning Applications

- 3.4 Applicants are advised to discuss their proposals with the County Council, prior to the submission of an application. Such pre-application consultations can enable early identification of potential constraints and are encouraged in Government mineral planning guidance, MPG 2 'Applications, Permissions and Conditions'.
- 3.5 Applications for minerals development should provide sufficient information to allow a balanced assessment to be made between the possible advantages of the proposed development (including, where appropriate, the need for the mineral) and the environmental disruption which may arise. A detailed list of the information that may be required is set out in Policy M3.1 below.

POLICY M3.1 INFORMATION IN SUPPORT OF PLANNING APPLICATIONS

Planning permission for minerals development will not be granted unless sufficient information is provided to enable a balanced assessment of all relevant factors. Such information should include as appropriate details of:

- (a) present use of the site;**
 - (b) geology;**
 - (c) estimated mineral content, output and life of workings;**
 - (d) quality of material;**
 - (e) need for the mineral;**
 - (f) measures taken to maximise the potential for re-use and recycling of materials on site;**
 - (g) method of extraction with depth, direction and phasing of working;**
 - (h) surface drainage and hydrogeology;**
 - (i) layout and design of buildings and operational areas (including haul roads);**
 - (j) soil survey and soil conservation measures;**
 - (k) transport arrangements (including access, traffic generation and routeing);**
 - (l) hours of operation;**
 - (m) employment;**
 - (n) measures to minimise pollution and environmental disturbance;**
 - (o) impact on existing and adjacent land uses;**
 - (p) an assessment of the landscape and ecological value of the area and the potential impact of the development;**
 - (q) an assessment of archaeological remains and historic features and measures for their preservation and recording;**
 - (r) impact on public rights of way;**
 - (s) an overall scheme of restoration;**
 - (t) landscaping measures and boundary treatment of the site;**
 - (u) integrated working and reclamation scheme;**
 - (v) aftercare;**
 - (w) after-use;**
 - (x) long term management provisions.**
-

Environmental Impact Assessment

- 3.6 Environmental Impact Assessment (EIA) is an important procedure for ensuring that the likely effects of major new development on the environment are fully understood and taken into account before the development is allowed to go ahead.
- 3.7 The current EIA regulations, The Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999, specify two categories of development. These are Schedule 1 projects, for which an EIA is required in every case, and Schedule 2 projects, for which an EIA is required only if the particular project in question is judged, by the MPA, likely to give rise to significant environmental effects.
- 3.8 For mineral extraction, Schedule 1 projects include quarries and opencast mining where the surface of the site exceeds 25 hectares.
- 3.9 For Schedule 2 projects the need for an EIA will rely on the likelihood of significant effects. This will tend to depend on the scale and duration of the works and the likely consequent impact of noise, dust, discharges to water and visual intrusion. All new opencast and underground mines will generally require an EIA. For clay, sand & gravel, and limestone quarries, an EIA is more likely to be required where they cover more than 15 hectares or involve the extraction of more than 30,000 tonnes per annum.
- 3.10 Where there is a possibility that a proposed mineral development will require an EIA, developers are advised to consult the County Council well in advance of a planning application, and formally request an opinion on whether an EIA is required. This procedure ensures that developers can obtain a clear ruling on the need for an EIA well before they reach the stage of lodging a planning application.

Planning Conditions and Obligations

- 3.11 When planning permission is granted, a comprehensive set of conditions is normally attached to ensure the satisfactory working and reclamation of the site. The information required under Policy M3.1 forms an important basis for considering what detailed conditions and other controls are required. Further guidance is provided in the text and policies of this Plan.

Planning Conditions

- 3.12 Planning conditions are used to control how a development takes place, and normally most matters can be adequately covered. Broadly, conditions can only relate to the use of land and are imposed in order to allow development where it would otherwise be refused. General guidance on the use of conditions is contained within Circular 11/95, PPG 1 and MPG 2. The MPA can exercise powers to enforce compliance with planning conditions where appropriate.

Planning Obligations

3.13 The County Council may also wish to control certain matters which lie beyond the legal scope of planning conditions. Planning obligations would normally cover such matters and can often secure a more sustainable form of development. These comprise either a legal agreement between the County Council, the applicant and any relevant third party, or unilateral undertakings made by the applicant. Circumstances where planning obligations may be sought include:

- the provision of off-site works such as highway improvements (see paras 3.48-53), landscape treatment and planting;
- where funding is required, such as to facilitate the preservation by record of archaeological remains;
- to secure the delivery of Local Biodiversity Action Plan targets where relevant to the site;
- where third parties are involved, such as in long-term management provisions;
- where financial guarantees are exceptionally required.

POLICY M3.2 PLANNING OBLIGATIONS

The County Council will seek to negotiate planning obligations as measures for controlling mineral operations and securing sustainable development objectives which cannot be achieved by the use of planning conditions.

Visual Intrusion

3.14 The Structure Plan Review recognises that certain forms of development, including mineral extraction, are appropriate in the countryside providing they do not have an unacceptable impact on the environment. Visual impact is often a major consideration.

3.15 The effects of mineral working can be to:

- destroy or change some of the existing landscape, or landscape character, eg. a hill, or distant view, or skyline; this may be addressed as part of a restoration plan;
- introduce an alien feature into the landscape, e.g. quarry faces, overburden mounds, machinery, lighting and screening fences;
- screen from view some of the landscape that is otherwise unaffected, e.g. by an overburden mound or plant/ equipment.

POLICY M3.3 VISUAL INTRUSION

Planning permission for minerals development will only be granted where any adverse visual impact can be kept to an acceptable level. Where appropriate, conditions will be imposed to ensure that plant, structures, buildings and storage areas are:

- (a) located in such a position as to minimise impact on adjacent land;**
- (b) kept as low as practicable to minimise visual intrusion;**
- (c) of appropriate colour, cladding or suitably treated to reduce their visual impact;**
- (d) satisfactorily maintained to preserve their external appearance;**
- (e) removed upon cessation of extraction and the site restored to an acceptable level.**

In addition, measure should be taken by sympathetic design and/or screening to avoid unacceptable light intrusion caused by extraneous light from the development.

- 3.16 Subject to specified limitations on their height, among other things, ancillary plant and buildings may also be erected at mineral extraction sites under permitted development rights granted by the General Permitted Development Order. Control over such developments by the County Council is limited. Provisions exist for these rights to be withdrawn, either by the issue of a direction under Article 4 of the Order, or alternatively by a condition imposed on a planning permission for a particular development. Permitted development rights are designed to be applicable in the great majority of cases. Circular 11/95 and MPG's 2 and 5 advise that their withdrawal should only be considered in exceptional cases and where there are compelling planning reasons for doing so.

Screening

- 3.17 Suitable landscape treatment, including tree planting and earth mounding, can help reduce visual impact. Planting carried out several years in advance of the development increases the effectiveness of these measures. The incorporation of physical screening barriers such as wall or fences may also need to be considered.

POLICY M3.4 SCREENING

Where planning permission for minerals development is granted, conditions will be imposed to ensure that screening and landscape proposals reduce visual impact. Such conditions should, where appropriate, include:

- (a) measures to retain, enhance, protect and manage existing features of interest and value for screening and their contribution to the reclamation of the site;
- (b) measures to screen the site by the use of walls, fences, earth mounding and/ or tree & shrub planting;
- (c) details of the method of working, and phasing to cause least visual intrusion;
- (d) details of the location, form, number, species, size, method of planting, site preparation and any necessary measures for replacing plant material which fails following initial planting.

Where appropriate, screening proposals should maximise the potential to enhance the landscape and wildlife potential through appropriate planting.

- 3.18 The above measures should also be considered in relation to the reclamation and long-term use of the site.

Environmental Pollution

- 3.19 The main environmental pollution impacts in connection with mineral working are:
- The various effects of road traffic, particularly where this is the primary means of transport;
 - The effects of blasting, noise and dust, the level of which will vary according to the type of mineral and type and amount of overburden;
 - The effects on the water environment, including contamination of surface water discharges by solids or oil and its derivatives and reduction of flow to wells and streams and occasionally settlement.
- 3.20 Legislation controlling these matters is contained within various Acts, notably:
- the Control of Pollution Act 1974;
 - the Water Resources Act 1991;
 - the Environmental Protection Act 1990;
 - the Pollution Prevention and Control (England and Wales) Regulations 2000.

3.21 Planning guidance is contained within:

- Mineral Policy Statement 2, Controlling and Mitigating the Environmental Effects of Mineral Extraction in England (2005);
- Planning Policy Statement 23 – Planning and Pollution Control (2004).

3.22 MPS2 looks at the general environmental effects of mineral workings with specific environmental effects considered in individual annexes. These annexes will cover dust, noise, traffic, blasting, visual intrusion, landscape effects, mineral wastes and effects on the water environment. The first two annexes on dust and noise were published with MPS2 with further annexes to be published as soon as practicable.

3.23 Local Planning Authorities (LPAs) should not duplicate controls which are the statutory responsibility of other bodies. Policies M3.5 to M3.9 complement the pollution control regime and are designed to prevent harm to interests of acknowledged importance, such as amenity (including residential amenity) and highway safety.

3.24 The main categories of pollution, their cause and ameliorative measures are considered below:

Noise

3.25 The potential effects of noise from the mineral operations beyond the site boundary are to:

- Distract or annoy – a noise does not have to be loud to be intrusive. It may be different in character and identified as coming from an unwelcome source;
- Mask desirable ‘noises’, e.g. wildlife/ birds, and disturb tranquil places;
- Prevent or disturb sleep;
- Disturb animals and birds, particularly when sudden noises are involved.

3.26 Technical details of how noise is measured and guidance on acceptable noise levels are set out in Panel 3.1. MPS2 (Annex 2) advises that the minerals industry should keep noise emissions to levels that reflect the highest environmental standards and to work for continuous improvements.

Panel 3.1 How Noise is Measured and Government Guidance on Acceptable Levels

Noise is measured in decibels (dB)

dB(A) – decibels measured on a sound level meter incorporating a frequency weighting, 'A weighting', to correspond to how noise is perceived by the human ear. Measurements in dB(A) broadly agree with an individual's assessment of loudness. A change of 3 dB(A) is the minimum perceptible under normal conditions and a change of 10 dB(A) corresponds roughly to a doubling or halving of typical background noise.

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

Free-field – measurement taken at least 3.5m away from any façade that might reflect noise from the source.

What does the Government recommend to be an acceptable level of noise?

MPS2 advises that existing background noise levels should not normally be exceeded by more than 10 dB(A) subject to a maximum of 55dB(A) L_{Aeq} (free field). It is recognised that this may be more difficult to achieve in exceptionally quiet areas and the 55dB(A) L_{Aeq} 1hr (free field) limit should be used in such cases. Night time limits at noise sensitive properties should not exceed 42dB(A) L_{Aeq} 1hr (free field).

Increased temporary day time noise limits of up to 70 dB(A) L_{Aeq} 1hr (free field) for periods of up to 8 weeks in a year at specified noise-sensitive properties should be considered for activities such as soil stripping, the construction and removal of baffle mounds, soil storage mounds and spoil heaps, construction of new permanent landforms and aspects of road construction and maintenance.

3.27 When submitting a planning application operators may be required to provide a scheme for the control, mitigation, reduction or removal of noise emissions from a site. To do this, they will need to:

- provide a description of the main characteristics of the production process, and an assessment of measures and proposals to minimise, mitigate or remove noise emissions at source;
- carry out a survey of background noise to determine the existing noise level in the area, including that at nearby properties and open spaces affected by the noise which would arise from the development, and its effects on these areas.

POLICY M3.5 NOISE

Planning permission for minerals development will only be granted where noise emissions outside the boundary of the mineral workings do not exceed acceptable levels. Where appropriate conditions will be imposed to:

- (a) restrict hours of operation;**
 - (b) require the use of conveyors instead of dumptrucks;**
 - (c) sound-proof fixed and mobile plant;**
 - (d) set maximum noise levels at sensitive locations;**
 - (e) impose stand off distances between operations and noise sensitive locations;**
 - (f) require the use of acoustic screening such as baffle mounds or fencing.**
-

- 3.28 Operators should take into account the Framework of Good Practice, detailed in Annex 2 of MPS2.

Blasting

- 3.29 When published, an annex of MPS2 will provide guidance on blasting. This will be based on research by Vibrock Ltd on 'The Environmental Effects of Production Blasting from Surface Mineral Workings' (TSO 1998). This guidance considers the impact of blasting and the factors affecting them, the statutory regime for controlling them, and provides advice on good practice in controlling and mitigating these effects. Technical details of how blasting is measured are set out below, (see Panel 3.2).
- 3.30 Blasting at mineral workings can give rise to the following effects:
- Vibration – the levels of vibration generated by mineral workings should be well below those required to cause structural damage to properties. However, vibration is transmitted through the ground and pressure waves through the air ('over pressure') can shake buildings and people, may cause nuisance, and can disturb wildlife habitats.
 - Audible noise – this forms part of the pressure wave and may be augmented by the rattling of windows.
 - Flyrock – fragments of rock propelled into the air by the explosion. This is clearly potentially dangerous to people and property both inside and outside the site.
 - Dust.

Panel 3.2 How blasting is measured

Vibration from a blast is transmitted through the ground and through the air as pressure waves, (air overpressure). In order to ensure that blasting is kept within acceptable limits, specific monitors can be placed to measure both ground vibration and air overpressure.

When defining damage to residential type structures the following classifications are used:

Cosmetic/ Threshold Damage – the formation of hairline cracks or the growth of existing cracks in plaster on drywall surfaces or mortar joints.

Minor Damage – the formation of large cracks or loosening and following of plaster on drywall surfaces, or cracks through bricks/ concrete blocks.

Major Damage – damage to structural elements of the building.

Ground Vibration

Ground vibration from blasting events is measured in terms of particle velocity with the maximum or peak values of this motion are measured in 3 directions at any one location. This is called peak particle velocity and is measured in millimetres per second, (mms^{-1}).

Blast vibration frequency is a significant factor in determining magnification levels of both human and structural response to vibration. The more competent or solid the transmission medium, then the more the high frequency motions tend to be attenuated over shorter distances. Hence high vibration levels are more likely with blasting of softer rocks, such as opencast coal, compared to more solid rocks, such as limestone.

BS7835 1993, gives guide values with respect to all 3 damage classifications for residential structures. Cosmetic damage can be expected at vibration levels between 15 mms^{-1} and 50 mms^{-1} . To put this into perspective a door slam measured over a doorway ranges between 12 and 35 mms^{-1} .

Air Overpressure

Air overpressure is energy transmitted from the blast site within the atmosphere in the form of pressure waves. The maximum excess pressure in this wave is known as the peak air overpressure, generally measured in decibels linear (dB).

Human reaction to a blast will be in response to the resulting effects of both ground and airborne vibration and in particular the combined effects that these exhibit within a property.

Routine blasting operation regularly generate air overpressure levels at the closest of adjacent property of around 120dB.

Research by the United States Bureau of Mines (USBM) has found that poorly mounted windows that are prestressed might crack at around 150dB with most cracking at around 170dB. Structural damage would not be expected at levels below 180dB.

- 3.31 Over the years, standard maximum vibration levels have been established to avoid property damage and general disturbance. Techniques such as delayed detonation of multiple charges and burying detonation cables can do much to reduce maximum vibration and air over pressure levels. Restricting the hours when blasting can take place may also be appropriate in sensitive areas.
-

POLICY M3.6 BLASTING

Planning permission for minerals development will only be granted if blasting levels can be kept within acceptable limits. Where appropriate conditions will be imposed to:

- (a) set a maximum vibration limit;**
 - (b) restrict the hours when blasting can occur;**
 - (c) limit air overpressure levels by the adoption of best practice blast design;**
 - (d) require the operator to monitor blast vibration levels in sensitive locations and to provide reports of blast levels on a regular basis to the County Council.**
-

Dust

- 3.32 Residents can potentially be affected by site dust up to 1km from a mineral working, although continual or severe concerns about dust are most likely to be experienced where the dust source is within 100 metres.
- 3.33 The main potential affects of dust are:
- Visual – dust plumes, reduced visibility, coating and soiling of surfaces leading to annoyance, loss of amenity and a need to clean surfaces.
 - Physical and/ or chemical contamination and corrosion of artefacts.
 - Coating of vegetation and contamination of soils leading to changes in vegetation, growth rates, possibly reduced value of agricultural products, as well as coating of grass that may adversely affect grazing livestock.
 - Contamination of water courses.
 - Health effects – particulate air pollution is associated with a range of effects on health.
- 3.34 Many mineral operations are prone to generating dust especially when conditions are dry and windy. Processing areas, stockpiles, haul roads and the stripping and replacement of soil and overburden are likely to be amongst the worst offenders. Infilling operations can also present dust hazards. Accordingly, where potential dust nuisances are identified, these should be kept away from sensitive areas.

- 3.35 MPS2 recommends that a dust assessment study be undertaken for proposed development. The type and scale of workings and proximity of sensitive land uses in surrounding areas will influence the degree of assessment.
- 3.36 There are 4 key stages that a dust assessment should take into account. These are:
- (i) Establishing existing baseline conditions
 - (ii) Identifying site activities that could lead to dust emissions
 - (iii) Identifying site parameters which may increase potentials impacts
 - (iv) Recommending mitigation and site design modifications.

POLICY M3.7 DUST

Planning permission for minerals development will only be granted where dust generation will not lead to an unacceptable impact. Where appropriate conditions will be imposed to suppress dust generation. Such conditions may relate to the:

- (a) layout of the site, design of stockpiles;**
 - (b) containment of conveyors and processing plant and dust collection equipment;**
 - (c) use of bowzers, sprays, and vapour masts on haul roads, stockpiles, transfer points;**
 - (d) design of material – handling systems, drop heights, wind guards, loading points;**
 - (e) use of binders on haul roads and stockpiles;**
 - (f) limiting on-site vehicle speed;**
 - (g) soil handling strategies;**
 - (h) limiting levels of dust measured in a specific way; provision of monitoring facilities.**
-

Water Environment

- 3.37 Rivers, lakes, ponds and flood meadows provide valuable wildlife habitats, areas of recreation and natural beauty. However, over the years drainage improvements, flood defences, intensive agriculture, industry and built development have significantly degraded the value of many of these features. Mineral workings can affect both the surface and ground water regime in a number of ways, ranging from physically removing the watercourse to chemical pollution, but also provide an important opportunity to recreate many of the above lost habitats through reclamation schemes.

- 3.38 MPS2 covers the environmental effects of mineral extraction in England. The main potential effects of mineral workings on the surface water regime are to:
- Alter the surface over which water flows,
 - Reduce surface water flow due to lack of recharge from groundwater or seepage from the stream bed or decreased catchment,
 - Increase surface water flow because of discharge or increased catchment which may increase scour or inundate points of limited capacity downstream (i.e. affecting floodplain storage capacity),
 - Change the quantity, and physical and chemical quality of these flows.
- 3.39 The potential effects on the groundwater regime are to:
- Alter the quality of the infiltration water recharging the aquifer,
 - Alter the timing and relative rates of aquifer recharge and surface water flows,
 - Change the supply of water to abstraction and spring fed surface water courses,
 - Settlement of ground surface, buildings, etc.
 - Change the quality of the water before discharging it,
 - Cause physical and chemical contamination.
- 3.40 The Environment Agency has a duty to protect all water resources under the Water Act 2003 and the EU Water Framework Directive which came into force in December 2000. The Agency's approach is set out in its "Policy Practice for the protection of Groundwater" 1992. This provides a technical framework to influence decisions which can affect the protection of groundwater. The Agency's policies, recommendations and requirements will be taken into account when making planning decisions. In addition to planning controls, Waste Management Licences, issued by the Environment Agency, normally impose conditions to prevent water pollution.
-

POLICY M3.8 WATER ENVIRONMENT

Planning permission for minerals development will only be granted where:

- (a) surface water flows are not detrimentally altered;**
- (b) groundwater levels, where critical, are not affected;**
- (c) there are no risks of polluting ground or surface waters.**

Unless engineering measures and/ or operational management systems can adequately mitigate such risks.

Flood Defences

- 3.41 Mineral extraction within floodplains can reduce storage capacity, impede flows and thus increase the risk of flooding elsewhere. Potential obstructions include soil and overburden mounds and fixed plant. Storage mounds parallel to flood flows and ensuring reclamation does not exceed original ground levels are likely requirements in critical areas. Reclamation schemes which return the land below original levels, including water areas, may result in an increased flood storage capacity. Operators shall undertake a full risk assessment of the proposed development, in accordance with PPG 25 'Development and Flood Risk', 2001. Such assessment should take account of the:
- area liable to flooding;
 - probability of it occurring, both now and over time;
 - extent and standard of existing flood defences and their effectiveness over time;
 - likely depth of flooding;
 - rates of flow likely to be involved;
 - likelihood of impacts to other areas, properties and habitats;
 - potential effects of climate change; and
 - nature and currently expected lifetime of the development proposed and the extent to which it is designed to deal with flood risk.
- 3.42 Mineral extraction can also disrupt local drainage systems by breaching or removing watercourses. Where small watercourses are to be removed, either temporarily or permanently, adequate diversions will need to be installed. For larger rivers and watercourses, where it is essential that the channel remains intact, adequate safety margins must be preserved between the mineral working, watercourse and/ or any related floodbanks. The Environment Agency and Internal Drainage Boards provide guidance on what flood defence measures are required.

POLICY M3.9 FLOODING

Planning permission for minerals development will not be granted where there is an unacceptable impact on flood flows and flood storage capacity, or on the integrity or function of flood defences and local land drainage systems, unless conditions can be imposed to protect flood defences from both the temporary and permanent adverse effects of the development.

Associated Industrial Development

- 3.43 The General Permitted Development Order (GPDO) allows certain types of industrial development to be located within or adjacent to mineral workings, without the need for a specific permission, although approval for details may still be required by the County Council. Broadly, these comprise industrial processes which largely depend on the mineral worked from the related mine or quarry, such as ready mixed concrete plants associated with sand and gravel quarries. Various criteria relating to height, appearance and other restrictions apply. All other industrial development associated with the mine and quarry requires planning permission in the normal way.
- 3.44 Proposals for industrial development that fall outside the scope of the GPDO will only be permitted where it can be shown that there are clear overall environmental advantages in a close link between the industrial and extractive operations. Particular regard will be given to environmental and transport effects, and the likely duration of working.
-

POLICY M3.10 ASSOCIATED INDUSTRIAL DEVELOPMENT

Proposals for associated industrial development on or adjacent to mineral extraction sites will only be permitted where there are no significant environmental, transport or other disadvantages.

- 3.45 The continued use of such industrial development following exhaustion of the mineral reserve means it will become dependent upon the import of raw materials. This usually involves significant movements of heavy goods vehicles and will therefore normally be resisted.
-

POLICY M3.11 REMOVAL OF ASSOCIATED INDUSTRIAL DEVELOPMENT

When granting planning permission for industrial development associated with minerals extraction, the County Council will impose conditions to ensure its subsequent removal and reclamation of the site upon cessation of mineral extraction unless there are overriding environmental advantages in retaining that industrial development.

Transport

- 3.46 The movement of minerals and/ or the importing of waste to infill mineral workings, can generate large volumes of traffic. Options include rail, road, water, pipeline or conveyor.

- 3.47 Coal used to supply power stations is ideally suited to rail transport where large quantities of mineral need to be conveyed between fixed points. Other minerals, such as sand and gravel, usually require the greater flexibility offered by road transport since markets are more local and scattered. However some sand and gravel operations in the Trent Valley are able to make use of barges to carry material to markets in Yorkshire and Humberside. Pipelines or conveyors may convey waste materials, such as colliery spoil and power station ash.

Road Traffic

- 3.48 The Highways Agency oversees the trunk road network and gives policy advice on other transport issues concerning their function, including the consideration of planning applications.
- 3.49 The potential off-site effects of traffic are:
- to add to the number and size of vehicles on the road. This may cause congestion, accidents, difficulties for pedestrians, particularly in rural areas near quarry sites, where the road network may not be suitable for concentrated movements of Heavy Goods Vehicles (HGVs),
 - damage to roads and verges,
 - spillage onto roads causing mud and dust,
 - to create visual intrusion, air pollution, dust, noise and vibration in areas adjacent to the roads,
 - damage to property, particularly historic buildings from vibration and spray eroding stone work.
- 3.50 On-site, the potential effects are largely noise and dust in neighbouring areas.
- 3.51 Detailed guidance on land use and transportation is provided in District Local Plans. In addition to development plan policies, there are two Local Transport Plans, one covering Greater Nottingham and the other the rest of the County. These are prepared by the highway authorities (i.e. the County Council and Nottingham City Council) and cover the co-ordination and improvement of all forms of transport, setting out proposals for future investment and the implementation of specific measures.
- 3.52 For mineral development, measures to limit adverse effects include:
- Sheeting of lorries;
 - Installation of wheel cleaning facilities;
 - Highway improvements and maintenance;
 - Hours of working.
- 3.53 These can be achieved by the use of conditions, or where appropriate, planning obligations. Under the Highways Act (1980) the MPA can also claim additional costs due to damage caused by heavy traffic.

POLICY M3.12 HIGHWAYS SAFETY AND PROTECTION

Planning permission for minerals development will only be granted where measures are in place to the County Council's satisfaction that prevents damage to the highway and also prevents mud and other deleterious material contaminating public highways. Such measures may include:

- (a) wheel cleaning facilities;**
 - (b) sheeting of lorries;**
 - (c) metalling haul roads near their point of access to the public highway.**
-

3.54 Lorry routeing can also be a major consideration in assessing the acceptability of a mineral development proposal. Whilst a reasonable route may exist, which the mineral operator may well be willing to use, planning controls cannot be used to provide sufficient assurance that any given route will be adhered to. This is because planning conditions can do no more than simply require the mineral operator to post site notices or issue instructions to drivers to avoid certain routes. Planning obligations are not an option because, whilst they can secure highway improvements, they cannot restrict right of passage over public highways. Mineral operators can however give an undertaking to impose sanctions such as refusing to load those vehicles that do not comply with a particular agreed route.

3.55 An alternative remedy is possible, at least where there is agreement in principle between the mineral operator and the County Council over routeing. The mineral operator can offer to provide adequate legally binding assurances by entering into an agreement under Section 111 of the 'Local Government (Miscellaneous Provisions) Act', 1972.

POLICY M3.13 VEHICULAR MOVEMENTS

Planning permission for minerals development will only be granted where the highway network can satisfactorily accommodate the vehicle movements likely to be generated and would not cause unacceptable impact upon the environment and disturbance to local amenity.

POLICY M3.14 VEHICULAR ROUTEING

In granting planning permission for minerals development the County Council will as appropriate;

- (a) impose conditions requiring the posting of site notices and/ or the issuing of instructions to lorry drivers detailing any routes to be avoided;
 - (b) seek to negotiate planning obligations in order to secure highway improvements;
 - (c) seek to negotiate agreements under Section 111 of the Local Government (Miscellaneous Provisions) Act 1972 in order to specify agreed vehicular routes.
-

Bulk Movement

- 3.56 Bulk movement of minerals by rail or water can help to reduce environmental impacts and improve the sustainability of minerals operations. They include the effect on the amenity of settlements along possible routes and reduced fuel consumption. The River Trent already plays an important role with barge transportation of sand and gravel from a number of quarries and has the capacity to be able to handle more. Facilities such as wharfs, which would make its use even more viable, should be encouraged. Where large amounts of material are involved, and the flexibility of road transport is not essential, alternative more sustainable means of transport will normally be preferred.
-

POLICY M3.15 BULK TRANSPORT OF MINERALS

The bulk transport of minerals or minerals waste/ fill by rail, barge, pipeline or conveyor will be permitted, where this will result in an overall environmental benefit. Where major proposals rely on road transport, planning permission will not be granted until it has been demonstrated that more sustainable forms of transport are not viable.

The Countryside

- 3.57 Mineral extraction usually occurs in rural areas and therefore has a major impact on the countryside. In particular the following issues will need to be considered.

Green Belt

- 3.58 The Nottinghamshire Green Belt Local Plan (1988) defined a broad belt of countryside around the Greater Nottingham conurbation where great restraint was placed on development. This has subsequently been redefined and incorporated into the District Local Plans covering the county.

- 3.59 General guidance on development in the Green Belt is set out in the Structure Plan Review adopted in 1996. In accordance with PPG2, most forms of development are severely restricted within this belt, although mineral extraction is one of the few exceptions. The main requirement is that proposals do not adversely affect the Green Belt, in particular its open character. Accordingly, industrial development associated with the mineral extraction is likely to be unacceptable (see Policy M3.11) unless, if the development is judged to be inappropriate, there are very special circumstances which would justify approving it.

Agriculture

- 3.60 Agricultural land accounts for about three-quarters of the total area of the County and most mineral working proposals affect agricultural land.
- 3.61 PPS7: Sustainable Development in Rural Areas, requires the presence of best and most versatile agricultural land to be taken into account alongside other sustainability factors when determining planning applications. Our aim is the better protection of the environment and countryside as a whole.

Panel 3.3 Definition of best and most versatile agricultural land

The best and most versatile agricultural land falls into grades 1, 2 and 3a. This land ranges from excellent (grade 1) to good quality (grade 3a) and is the most flexible, productive and efficient in response to inputs.

Other grades comprise 3b, 4 and 5. This ranges from moderate (3b), poor quality (4) to very poor quality (5).

- 3.62 Where development of agricultural land is unavoidable, the County Council will seek to use areas of poorer quality land in preference to that of higher quality, except where other sustainability considerations suggest otherwise. These might include, for example, its importance for biodiversity, the quality and character of the landscape, its amenity value or heritage interest, accessibility to infrastructure, workforce and markets, and the protection of natural resources. Some of these qualities may be recognised by a statutory wildlife, landscape, historic or archaeological designation.

POLICY M3.16 PROTECTION OF BEST AND MOST VERSATILE AGRICULTURAL LAND

Planning permission for minerals development will only be granted in the best and most versatile agricultural land (grades 1, 2, and 3a) where it can be demonstrated that:

- (a) proposals will not affect the long term agricultural potential of the land; or**
- (b) there is no available alternative and the need for development outweighs the agricultural interest; or**
- (c) available land of lower value has sustainability considerations which outweigh the agricultural land quality.**

Where alternative options are limited to varying grades of best and most versatile land, the development should be located within the lowest grade.

Woodland

- 3.63 Woodlands are environmentally and commercially important and are becoming increasingly significant for recreation and tourism. Existing trees and woodlands can also be valuable in screening mineral operations.
- 3.64 Guidance on the protection of woodlands is provided in the Structure Plan Review. Ancient woodlands comprise areas of continuous woodland since at least 1600, other than underwood clearing and timber production. These represent an irreplaceable resource. Nearly all of these have been designated as being of either national or local importance and are therefore protected from mineral extraction by policies M3.18 – M3.20 below. Other woodlands, which may not be designated, will be important for biodiversity, providing habitats for protected species and form an essential part of the landscape character. Policies M3.21 – M3.23 covering these issues will protect woodlands with this value. Where it is acceptable to lose woodland to mineral extraction, the mitigation measures required by these policies will normally require woodland of at least an equivalent area to be re-instated.

Biodiversity

- 3.65 Biodiversity is the variety of life around us: our wild animals and plants, and the habitats such as woodland or heathland which support them. Conserving biodiversity is not just about rare and threatened plants and animals, but encompasses the whole of the natural world, from the commonplace to the critically endangered. Biodiversity is a key test of sustainability, passing a healthy and diverse environment on to future generations.
- 3.66 In 1992 the UK Government signed the UN Convention on Biological Diversity at the 'Earth Summit' in Rio. This committed the UK to producing a national plan, published in 1994, for biodiversity conservation, 'Biodiversity: The UK Action Plan'.

- 3.67 In order to implement the UK Biodiversity Action Plan (UKBAP) the Government has assigned lead responsibility for producing and implementing Local Biodiversity Action Plans (LBAPs) to local authorities. The Nottinghamshire LBAP was published in 1998 by a partnership of organisations including the County Council and Nottingham City Council.
- 3.68 Whilst designated sites continue to be important, Biodiversity Action Plans shift the emphasis towards action within the environment as a whole, both to protect the current resource and to restore past losses. This is in accordance with PPG9, 'Nature Conservation' (1994), which states that development plans should be concerned not only with designated sites, but also with other land of conservation value and possible provision of new habitats. This includes linear features such as riverbanks and hedgerows or stepping-stones such as ponds, which enable the migration and dispersal of wildlife and maintenance of viable populations. The priority habitats set out in the Nottinghamshire LBAP are listed below in Table 3.1.
- 3.69 Whilst minerals development can harm wildlife, mineral reclamation schemes can provide important opportunities for promoting biodiversity, by re-creating habitats such as woodland, wetland and heathland. For example, a new wildfowl reserve at Langford Lowfields sand and gravel quarry is being designed to attract the Bittern. Indeed many of the priority habitats in Table 3.1 occupy former mineral workings.

Table 3.1 – Priority Habitats	
Wet broadleaved woodland	Lowland dry acid grassland
Oak-birch woodland	Lowland calcareous grassland
Mixed ash-dominated woodland	Reedbed
Lowland wood pasture and parkland	Fen
Lowland heathland	Marsh
Ancient and/ or species rich hedgerows	Pond and lakes
Ditches (species rich)	Rivers and streams
Cereal field margins	Canals
Lowland wet grassland	Saline lagoons
Unimproved neutral grassland	Urban and post-industrial habitats

POLICY M3.17 BIODIVERSITY

Planning permission will not be granted for minerals development which will adversely affect the integrity or continuity of habitats or features identified as priorities in the UK and/ or Nottinghamshire Local Biodiversity Action Plan, unless an overriding need for development is demonstrated which outweighs the nature conservation importance of the feature. If the loss of the habitat or feature cannot be avoided, provision will be made, where practicable, for the creation of an equivalent habitat or feature, either on the development site or under the terms of a voluntary agreement on a suitable alternative location within the county.

Designated Sites

- 3.70 In order to halt the decline in our biodiversity and restore past losses, it is essential to maintain our most important wildlife sites as reservoirs from which habitats and species can be restored to the wider environment. Certain habitats and species, such as heathland and green winged orchid, have declined to such critical levels in Nottinghamshire that they are now rarely found outside sites which have been protected by designation. The Nottinghamshire LBAP recommends that if these habitats and species are to survive in the long term, then key sites must be safeguarded and action taken to link and extend them in order to restore these habitats and species to areas from which they have been lost.
- 3.71 The nature conservation site designations in Table 3.2 below apply in Nottinghamshire.

TABLE 3.2 NATURE CONSERVATION DESIGNATIONS IN NOTTINGHAMSHIRE		
IMPORTANCE	DESIGNATION	DESIGNATED BY
Internationally Important	Special Area of Conservation (SAC) Designated under EC Habitats Directive 1992	European Commission
Nationally Important	National Nature Reserve (NNR) declared under S19 of the National Parks and Access to the Countryside Act 1949 or S35 of the Wildlife and Countryside Act 1981	English Nature
	Site of Special Scientific Interest (SSSI) Designated under S28 of the Wildlife and Countryside Act 1981	
Regionally/ County Important	Local Nature Reserve (LNR) Designated under S21 of the National Parks and Access to the Countryside Act 1949	Local Authorities in consultation with English Nature
	Site of Importance for Nature Conservation (SINC) Designated under criteria set by an expert local panel (non-statutory)	Nottinghamshire SINC panel

- 3.72 Sites of geological value include SSSIs, SINCs and those defined under the Regionally Important Geological Sites (RIGS) scheme.

International Sites

Special Areas of Conservation (SAC)

- 3.73 Development which would detrimentally affect a SAC or candidate SAC (cSAC) is prohibited under The Habitats Regulations 1994, unless it can be proven that there will be no adverse effect, or there are considerations of overriding public interest and there is no other possible location. Where the site concerned hosts a priority habitat or species, the development will also not be permitted unless it is necessary for reasons of human health or public safety and it can bring benefits of primary importance to the environment. All SACs are also designated as an SSSI. At present the only SAC in the County is the Birklands and Bilbough cSAC within Sherwood Forest.

POLICY M3.18 SPECIAL AREAS OF CONSERVATION

Planning permission will not be granted for minerals development which would destroy or significantly adversely affect a Special Area of Conservation or a candidate Special Area of Conservation unless:

- (a) there is no alternative solution; and**
- (b) there are imperative reasons of overriding public interest;**

and, if the site hosts a priority habitat or species:

- (c) there are overriding reasons of human health and public safety; and**
- (d) there are beneficial consequences of primary importance for the environment.**

The assessment of any adverse impact will take account of the scope for mitigation and/ or compensatory measures to replace the loss.

National Sites

National Nature Reserves (NNRs)

- 3.74 NNRs are areas of national, and sometimes international, importance which are owned or leased by English Nature or bodies approved by them, or are managed in accordance with Nature Reserve Agreements with landowners and occupiers. The essential characteristic of NNRs is that they are primarily used for nature conservation. At present the County has one NNR at Sherwood Forest, Edwinstowe. NNRs warrant the same level of protection as SSSIs, provided in Policy M3.19 below.

Sites of Special Scientific Interest (SSSIs)

- 3.75 The procedures for dealing with SSSIs are outlined in PPG 9. There is a strong presumption against development unless overriding need can be demonstrated, not just for the mineral but for the mineral in that location, or conditions imposed to prevent damage. Permission for development which would destroy or detrimentally affect an SSSI will not be granted. There are over 66 SSSIs covering 3061 hectares in Nottinghamshire.
-

POLICY M3.19 SITES OF SPECIAL SCIENTIFIC INTEREST

Planning permission will not be granted for minerals development which would have an adverse effect, directly or indirectly, on the special interest of an SSSI or a candidate SSSI unless the reasons for the development outweigh the nature conservation considerations. The assessment of any adverse impact will take account of the scope for mitigation and/or compensatory measures to replace the loss.

Regional and Local Sites

Local Nature Reserves (LNRs)

- 3.76 LNRs are habitats of local significance that can make a useful contribution both to nature conservation and to the opportunities for the public to see, learn about and enjoy wildlife. There are currently 12 LNRs in the County.

Sites of Importance for Nature Conservation (SINCs)

- 3.77 Sites that do not have statutory designation but are important for biodiversity and geology are known as SINCs. In Nottinghamshire over 1200 SINCs, have been identified by the Nottinghamshire Biological and Geological Records Centre, at Wollaton Hall. The importance of SINCs is emphasised by the Government in PPG9. While SINCs are locally designated, their interest can be of a regional or national level.

Regionally Important Geological/Geomorphological Sites (RIGs)

- 3.78 Sites that are of regional geological or geomorphological interest and are worthy of protection for their education, research, historical or aesthetic importance are known as RIGS. There are presently around 130 RIGS in the county.
- 3.79 Permission for the development of local or regional registered sites will not be granted unless the developer can prove that the importance of the development outweighs the value of the site. In practice this means that the development must be of at least county or regional importance, depending on the site affected.

POLICY M3.20 REGIONAL AND LOCAL DESIGNATED SITES

Planning permission for minerals development in areas which are regional or local designated sites will only be granted where it can be demonstrated that the importance of the development outweighs the regional or local value of the site, taking into account measures to mitigate/compensate against any adverse impact.

Protected Species

- 3.80 Certain species are protected under the 1981 Wildlife and Countryside Act because of their vulnerability. Although not all are rare, these species are under threat in some way, and would be likely to become rare if protection was not in place.
- 3.81 In addition, the EU 'Directive on the Conservation of Natural Habitats and Wild Fauna and Flora' (The Habitats Directive) and the corresponding UK Conservation (Natural Habitats, &c.) Regulations 1994, (the Habitats Regulations) identify priority species and habitats which are afforded protection at the material level.
- 3.82 The presence of a protected species is a material consideration when assessing a development proposal which would be likely to result in harm to the species. For this reason it is essential that surveys are carried out and submitted with an application prior to determination. PPG 9 advises on the use of planning conditions and/ or obligations under which steps would be taken to secure the protection of the species. Such conditions or obligations could also secure their protection beyond the normal 5-year aftercare period where appropriate, due to the requirements of the protected species. This may include ameliorative measures to facilitate the survival of individual members of the species reducing disturbance to a minimum and, if necessary, the provision of alternative habitats.
-

POLICY M3.21 PROTECTED SPECIES

Planning permission for minerals development likely to cause harm to protected species or their habitats will only be permitted if the protection and conservation of species can be secured by condition or planning obligations, or if there is an overriding need for the development. Planning permission for mineral development will not be granted until a full survey of the affected species has been carried out.

The Countryside Appraisal – Landscape Character

- 3.83 Nottinghamshire contains a number of distinct landscapes reflecting variations in its underlying geology and land-use. As part of the Countryside Appraisal, Nottinghamshire Landscape Guidelines were published in 1998 following a landscape assessment of the County. This document identifies 10 'regional character areas' and their component 'landscape types'. It examines the features that contribute to local distinctiveness and provides management guidelines in order to strengthen the character of the Nottinghamshire countryside.
- 3.84 In order to ensure that the mineral development and associated landscape proposals are firmly linked to the recommendations within the Nottinghamshire Landscape Guidelines, the structure and character of the existing landscape should be understood. The best way of meeting this is by a local landscape character assessment which identifies the potential landscape and visual impacts of the mineral development on the surrounding area.
- 3.85 Landscape proposals for the restoration of the site, such as earthworks, after-use and planting, should reflect the landscape type and regional character area within which the site lies.
-

POLICY M3.22 LANDSCAPE CHARACTER

Operators must demonstrate that landscape character and local distinctiveness are fully taken into consideration within development proposals. Planning permission will not be granted for minerals development which is likely to adversely impact upon the character and distinctiveness of the landscape unless there are reasons of overriding public interest or where ameliorative measures can reduce the impact to an acceptable level.

Countryside Appraisal – Mature Landscape Areas

- 3.86 Mature Landscape Areas (MLAs) are a local countryside designation which seeks to identify and protect those parts of Nottinghamshire which have least been affected by adverse change.
- 3.87 MLAs were first identified in 1992, following a detailed countywide landscape assessment, as the first part of Nottinghamshire County Council's Appraisal project. This was carried out because, as elsewhere in the UK, over the last 50 years there has been a period of rapid change leading to the loss of many of the landscape features that give the Nottinghamshire countryside its character.
- 3.88 MLAs are areas of the countryside which have a strong landscape character, with a distinct sense of place and that have remained relatively unchanged over time when compared to the wider landscape and are often ecologically

important. They are areas, which have largely escaped the adverse effects of urbanisation, intensive farming, commercial forestry and mineral extraction having many of the characteristic features which are found within that particular landscape type as well as a definite sense of place.

- 3.89 The purpose of MLAs is to protect these valuable and vulnerable landscapes from harmful development which could damage, degrade, destroy or detract from the characteristic features for which the MLA was protected. Most MLAs defined are small, varying between 2.8ha and 423ha with areas of between 50 and 150ha being usual. The 8656ha Sherwood Forest/ Dukeries MLA is part of Sherwood Forest and is also afforded protection as a Special Landscape and Heritage Area in the Structure Plan Review. The total area of the county covered by MLAs is 9.5%, a figure which excludes the Sherwood Forest/Dukeries area.

POLICY M3.23 MATURE LANDSCAPE AREAS

Planning permission will not be granted for minerals development which is likely to cause harm to a Mature Landscape Area unless there are reasons of overriding public interest or where ameliorative measures and opportunities for enhancement can reduce the impact to an acceptable level.

Historic Landscape Character

- 3.90 Landscape is an integral part of the historic environment along with archaeological and historic sites, monuments, and historic buildings. This environment embraces all the physical elements from the past that exist in our surroundings.
- 3.91 Traditionally, the conservation of the historic environment has been based upon the preservation and management of individual sites, buildings or specially designated areas, such as Conservation Areas or Areas of Natural Beauty. However, this is partial and selective, based upon judgements of importance, with the inevitable consequence that many aspects of the historic environment are not considered in the making of policies and decisions.
- 3.92 Historic Landscape Characterisation is a relatively new approach to the description of parts of the historic environment. Based upon the Landscape Assessment techniques put forward by the Countryside Commission (1993), and developed by English Heritage, it gives expression to the varying degrees of historical depth which are visible in today's landscapes.
- 3.93 The Nottinghamshire Historic Landscape Characterisation project was completed in 1999 by the County Council in partnership with English Heritage. The Historic Landscape Character Map and report, extends and compliments the Countryside Appraisal work by presenting the historic dimension of today's landscape in Nottinghamshire in a compatible form.

- 3.94 The project has shown that if the character of many localities is to be maintained, means of conserving their historic landscapes, and the elements that define these, must be found. The Historic Landscape Character Map provides a basis for this and establishes a benchmark against which further change can be monitored.

The Historic Environment

- 3.95 The historic environment of Nottinghamshire is vast and ranges from major historic and nationally important buildings and grounds to the many thousands of archaeological sites that lie buried under the ground. The historic environment by its very nature is an irreplaceable resource and Government guidance in the form of PPG 15 'Planning and the Historic Environment' and PPG 16 'Archaeology and Planning' requires protection of the resource, whilst recognising the need for development.

Archaeology

- 3.96 There are over 8500 archaeological sites and historic features in Nottinghamshire currently registered on the County Sites and Monuments Record. Archaeological sites or remains also include ancient river channels (palaeochannels) and alluvial (river borne) or colluvial (surface wash, downhill slope movement) deposits. The preserved organic remains and geomorphological structures within these deposits provide critical evidence about the context and effects of post-human settlement and landuse. It is unlikely that the known archaeological resource will be the limit and there is a high probability that proposals for mineral extraction will affect known archaeological sites or areas of archaeological potential.
- 3.97 PPG 16, sets out the national approach to archaeology. The first part of this is to preserve Scheduled Ancient Monuments and their settings. Mineral extraction will not normally be permitted at such sites. In addition the CBI's revised Code of Practice for mineral operators on archaeological investigations provides advice on how mineral operators should consult archaeological interests in formulating planning applications.
- 3.98 The need for preservation in situ of other sites and remains will be assessed upon their importance and the impact that their loss would have upon the overall archaeological resource in the County. Although preservation of archaeological sites is a primary objective, it is clearly impracticable to preserve them all. Equally sites should not be destroyed without careful consideration and treatment. The second part of this approach is to ensure that, where preservation in-situ is not feasible, sites are surveyed, excavated or otherwise appropriately recorded. These provisions can only be assessed after the archaeological characteristics of proposed sites have been evaluated. An appropriate scheme of treatment must then be agreed, with the County Council.
- 3.99 It follows that archaeological constraints must be identified and addressed at the earliest possible opportunity, and ideally well before the planning application stage, if delays are to be avoided. With full prior discussion, a scheme of treatment covering all issues can be submitted as part of a

planning application to be secured through simple conditions and/ or a legal agreement with the minimum of delay. Arrangements for funding may need to be incorporated into planning obligations.

POLICY M3.24 ARCHAEOLOGY

Planning permission will not be granted for minerals development which would destroy or degrade nationally important archaeological remains and their settings, whether scheduled or not. Planning permission will only be granted for development which would affect archaeological remains of less than national importance where it can be demonstrated that the importance of the development outweighs the regional or local significance of the remains and where appropriate provision is made for the excavation and recording of the remains.

Listed Buildings and Conservation Areas

- 3.100 The historic environment also consists of a large number of Listed Buildings and Conservation Areas registered on the County Council Historic Buildings Record. Nottinghamshire also has a number of parks which are listed on the 'Register of Park and Gardens of Special Historic Interest in England, 1985' produced by English Heritage covering some 3,800 hectares of the County. Others are also registered on the County Sites and Monuments Record. PPG 15 provides for the protection and enhancement of the historic character of the County. Proposals for mineral development will often affect open land and may affect the setting of Listed Buildings, Conservation Areas, historic battlefields and the open countryside.
- 3.101 Although the harm caused by the extraction phase may be temporary, changes to the landscape once the site is reclaimed could result in permanent harm to the setting of historic environments. A further area of concern is the impact that lorry movements can have upon buildings in terms of vibration to foundations and spray from vehicles eroding stone work. It may therefore be necessary in some circumstances to secure vehicle routeing agreements to avoid areas of conservation interest (see Policy M3.14).
- 3.102 With the use of careful design and stand off distances, it may be possible to accommodate mineral development in the vicinity of such features.
-

POLICY M3.25 LISTED BUILDINGS, CONSERVATION AREAS, HISTORIC BATTLEFIELDS, AND HISTORIC PARKS AND GARDENS

Planning permission will not be granted for minerals development which would cause an unacceptable level of harm to the character, appearance, condition or setting of conservation areas, listed buildings, historic battlefields and historic parks and gardens.

Public Access

- 3.103 The County Council's aim is to ensure the existing network of public rights of way are maintained, which is achieved through a close working relationship with landowners, occupiers and other organisations representing users. Where development results in the temporary or permanent loss of any public right of way, an appropriate alternative route of at least equivalent interest and quality should be agreed with all parties and then provided. Mineral operators should be encouraged, where possible, to enhance the public rights of way network through their development.
-

POLICY M3.26 PUBLIC ACCESS

Where planning permission is granted for minerals development which would temporarily or permanently disrupt a public right of way, an alternative route should be chosen which aims to offer equivalent interest and quality, having regard to the length of time during which disruption would take place.

- 3.104 Consultation with the County Council on any public right of way affected by a proposed minerals development should take place at the earliest possible stage and well before an application is made to divert or extinguish a path. This is because the statutory process involved is separate from the application for planning permission. A delay or failure to secure the required amendments could therefore prejudice the implementation of any mineral development.

The Cumulative Effects of Workings

- 3.105 In some areas the extent of the mineral resource may result in a succession of applications for extraction. The impact, both real and perceived, of a concentration of workings close to, or even surrounding a community can be especially damaging to the general quality of life. It may also irrevocably and adversely alter the existing landscape character.
- 3.106 The stage may therefore be reached where it is the cumulative rather than the individual impact of a proposal that renders it environmentally unacceptable. This may also apply to the disposal of mineral waste, and reclamation schemes, which are unable to reclaim land back to its original condition or use.
- 3.107 Cumulative impact has been used as a constraint in defining the limits of allocated areas for mineral extraction. Cumulative impact is not perceived as a problem within allocated areas, otherwise they would not have been proposed.

POLICY M3.27 CUMULATIVE IMPACT

Planning permission will not be granted for minerals development which would result cumulatively in a significant adverse impact on the environment and/ or the amenity of local communities.

Chapter 4

Reclamation



Restored sand and gravel workings at Hoveringham.

Introduction

- 4.1 It is essential that mineral extraction and reclamation are properly designed at the planning application stage to ensure that both are technically and economically feasible, and that the impact can be fully assessed. Current standards and expectations are set out in MPG 7, 'The Reclamation of Mineral Workings', 1996, which emphasises the importance of reclamation in its own right and the need for a high level of commitment by all parties concerned. Regardless of what after-use is proposed there are a number of key factors that are common to most reclamation schemes and these are considered below.

Phasing

- 4.2 Whenever practical, reclamation should be phased to minimise the area of land taken out of beneficial use at any one time, and to ensure reclamation is achieved as quickly as possible.

POLICY M4.1 PHASING

Mineral extraction proposals should be designed to allow a phased sequence of extraction, reclamation and implementation of the planned after-use.

- 4.3 For small schemes it will normally be appropriate to submit full reclamation details at the planning application stage. For larger phased schemes, this approach may not always be practical, a common problem being the difficulty in precisely quantifying overburden and mineral volumes in advance of extraction. For example, where sand and gravel workings are to be reclaimed to a water area the exact contouring and lake shaping may vary from that predicted. Where such problems exist, it will normally be acceptable to submit an overall concept plan, followed by phased submissions of the detailed scheme as extraction progresses. It is essential that the concept plan is shown to be feasible and that illustrative examples of detailed treatments of the site, such as landscaping, are included. Phased submissions of detailed schemes must be approved before extraction commences within the phases affected.

POLICY M4.2 PHASING – DETAILS REQUIRED

Where it is impractical to submit full reclamation details at the planning application stage it will be acceptable for proposals to:

- (a) Include an overall concept plan with sufficient detail to demonstrate that the scheme is feasible;**
- (b) Include illustrative details of contouring, landscaping and any other relevant information as appropriate.**

In granting permission for reclamation schemes of this nature full details will be submitted on a phased basis, prior to the commencement of any operation in that phase.

Soil Conservation and Use of Soil Making Materials

- 4.4 Soils are an important and valuable reclamation material and their proper handling and conservation is essential. The whole soil profile is not just important for agricultural reclamation. It can also be important for other uses, such as sports pitches and nature conservation. Mismanagement of the soil resource is likely to seriously prejudice the standard of reclamation.
- 4.5 For most sites a detailed soil survey will be required to identify soil types, profiles and depths. Where different soils are recorded, separate stripping, storage and replacement may be required to allow reinstatement of the original or suitable alternative soil profiles.
- 4.6 The progress from soil stripping to reinstatement can follow two main paths. In the first direct replacement is used. This involves immediate soiling of previously worked areas following stripping in advance of the working face. As soils are only handled once this will usually result in less damage. Where it is not possible to use direct replacement, schemes must make adequate provision for soil storage which may need to take account of washland restrictions for sites located in river valleys. Phased schemes which use direct replacement of soils will therefore normally be favoured whenever this is practical.
- 4.7 Where soils are absent or insufficient, it may be possible to create adequate soil-making materials from fill or overburden, treated with ameliorants such as sewage sludge or waste derived compost. In addition soils can be concentrated within areas where they are most needed, with soil-making materials being used in areas which do not require a high fertility, for example wildlife habitats.
-

POLICY M4.3 SOIL CONSERVATION AND USE OF SOIL MAKING MATERIALS

Where planning permission involves the reclamation of mineral workings, schemes should include measures to ensure the proper identification of all soil resources and their characteristics, together with other potential horizons within the mineral deposit that may be suitable for creating a soil profile, in addition to stripping, storage and placement methods which ensure that the soils are safeguarded for their intended after-use. Where soils are absent or deficient, schemes should include measures to ensure that available vegetation cover can be established to achieve the required after use. Such measures may include:

- (a) concentrating soils within areas where they will provide most benefit;**

- (b) utilising on-site, or imported soil-making materials which with suitable treatment are capable of supporting plant growth.
 - (c) volumetric estimates of the soil profile showing the amounts of topsoils, subsoils and overburden stripped, stored and respread in conjunction with the proposed extraction and restoration plan.
-

Landscape Treatment

- 4.8 Landscape proposals for reclamation should include a descriptive outline of the design concept behind the scheme (a landscape brief). The brief should demonstrate that the land will be assimilated back into the surrounding landscape and that it is compatible with the proposed after-use. Measures should be taken to ensure that landscape treatment does not have an impact upon the overall character of the area. Regard should be taken to the historic setting of certain areas.
 - 4.9 Screening and landscaping measures designed to reduce visual impact during the operational stages of the site can also help contribute to the final reclamation scheme.
 - 4.10 Landscape proposals should aim to promote and increase strategic landscape features, as well as aim to meet Local Biodiversity Action Plan (LBAP) targets with appropriate planting utilising where practicable stock of local origin.
-

POLICY M4.4 LANDSCAPE TREATMENT

Where planning permission involves the reclamation of mineral workings landscaping proposals will be required that include:

- (a) an overall landscape concept or brief;
 - (b) details of the final landform which should harmonise with the existing landscape character and aim to promote strategic landscape features;
 - (c) the location, form, numbers, species, size, and method of planting;
 - (d) details of establishment, maintenance and longer term management proposals, including measures for replacing failed planting;
-

Reclamation with Fill

- 4.11 Waste disposal is often associated with mineral extraction for two main reasons. First, for many mineral workings, especially deep pits and those which breach the water table, infilling with waste may be the only practical means of reclamation. This is particularly the case where an agricultural after-use is sought and where water based after-uses are considered

unsuitable. Secondly, mineral workings can provide valuable void capacity for accommodating waste.

- 4.12 Historically the main sources of waste used for reclamation in mineral workings have been pulverised fuel ash (PFA) and domestic, industrial & commercial waste. The use of these wastes for reclamation has declined over recent years. At present only three quarries in Nottinghamshire use PFA and tighter pollution controls have restricted the number of sites allowed to take domestic, commercial & industrial wastes. Furthermore, with efforts to recycle waste materials, in particular the use of inert fill for secondary aggregates, the volumes of suitable waste available for fill are likely to continue to decline.
- 4.13 The primary guidance for schemes involving waste disposal is provided in the Nottinghamshire and Nottingham Waste Local Plan, adopted in January 2002. The overall strategy of the Waste Local Plan is to reduce dependence on landfill, by limiting the release of further disposal capacity to sites which will meet recognised shortfalls and which are close to the main sources of waste. The aim of this strategy is to promote more sustainable forms of waste management, such as recycling and composting.
- 4.14 In most circumstances mineral extraction proposals which include landfill will therefore need to conform to policies in the Waste Local Plan. There are, however, two main circumstances where the Waste Local Plan may not provide appropriate guidance in terms of justifying the need for the proposed landfill. First, it is possible that a mineral extraction proposal may involve waste disposal, which will extend well beyond the timescale being considered in the Waste Local Plan. Whilst such proposals still need to demonstrate that they are likely to attract waste in the long term, consideration of this will fall outside the remit of the Waste Local Plan.

POLICY M4.5 RECLAMATION WITH FILL – LONG TERM SCHEMES

Mineral extraction proposals which rely on the long term importation of waste for reclamation, must include satisfactory evidence that the waste will be available in the categories and quantities assumed, and that it is not practical to re-use or recycle the waste.

- 4.15 Secondly, there may be reclamation proposals that only require the importation of low volumes of inert waste, possibly just a few thousand tonnes a year. Where this represents the optimum reclamation solution such proposals may be acceptable even where no shortfalls have been identified in the Waste Local Plan so long as the amount of waste does not significantly affect established waste disposal schemes.
- 4.16 In accordance with the principles of sustainable development, such proposals need to demonstrate that they are not accepting inert waste that is more suitable for use as a secondary aggregate. If that cannot be demonstrated,

then the proposal is unlikely to be in accordance with the Waste Local Plan, Policy W2.1, the Waste Hierarchy.

POLICY M4.6 RECLAMATION WITH INERT FILL – SMALL SCHEMES

Mineral reclamation proposals reliant on the importation of a small quantity of inert waste will be permitted where they:

- (a) provide the optimum reclamation solution and there are no unacceptable environmental impacts;**
 - (b) it is not practical to use the waste as a secondary aggregate.**
-

Reclamation without Fill

- 4.17 There are many instances where satisfactory reclamation can be achieved without the need to import fill. Indeed this method offers a number of advantages. In particular, the uncertainties and environmental issues associated with importing waste are all avoided and better phasing and more rapid reclamation are also more likely. The main situations where land can be reclaimed without fill are considered below:

Reclamation Using On-site Overburden

- 4.18 Where the ratio of overburden to mineral volume is high, there may be sufficient on-site mineral to backfill and reclaim most, if not all, of the void. This situation generally applies to both opencast coal and gypsum extraction.
- 4.19 Modern backfilling methods result in a much higher degree of compaction and thus a residual void is more likely, particularly where some doming to assist drainage is necessary. The greater compaction does reduce the risk of localised subsidence and poor drainage that were frequent problems associated with historic reclamation methods.

Low-level Reclamation

- 4.20 For workings which do not breach the water table, reclamation may be possible by respreading soils and overburden across the graded quarry floor. Such opportunities are most likely to be successful for shallow workings, where the reduction in land levels can more easily be absorbed into the surrounding landscape. In Nottinghamshire, the most notable example of this method is found in shallow sand and gravel workings at Misson.
- 4.21 Where the water table is breached, low-level reclamation is technically feasible with a permanent pumping scheme. Such schemes may be appropriate where large areas of high quality agricultural land are proposed to be worked, and where no suitable fill is available. Perpetual pumping is

technically possible but to date has rarely proved viable. No such schemes have yet been permitted in Nottinghamshire.

Reclamation to Water

- 4.22 In Nottinghamshire this method of reclamation has been most extensively used in sand and gravel workings. The high water table level and lack of suitable fill means that for most sand and gravel workings a water based after-use is often the only feasible option.
- 4.23 If properly planned most water areas have the potential to create new habitats, promote biodiversity and/ or provide recreational and other amenities. RSS8 – the Regional Spatial Strategy for the East Midlands, encourages development plan policies to protect and enhance the natural and cultural assets of the strategic river corridors. The OnTrent initiative, a partnership which draws together a wide range of organisations from public, private and voluntary sectors, aims to enhance and develop the whole of the Trent Valley whilst conserving its heritage and wildlife. The Vision Statement for the initiative was endorsed by the County Council in September 2002.
- 4.24 The potential problems largely concern the potential loss of the best and most versatile agricultural land and the cumulative impact caused by major changes to existing landscape character. This particularly applies to parts of the Trent and Idle Valleys, which have been worked extensively for sand and gravel. This issue is considered further in Chapter 6.

Interim and Alternative Reclamation

- 4.25 In exceptional circumstances reclamation to the planned after-use may be subject to unavoidable delays. This is most likely to occur where filling is the only appropriate or viable means of reclamation and where availability of material is restricted. Where this is the case interim reclamation measures will normally be required, in order to reduce the environmental impact and uncertainty as to the future of the site.
- 4.26 These measures should include ameliorative works to ensure the site remains in an acceptable state, whilst not prejudicing the ultimate after-use. The early establishment of as much 'final' landscaping as possible will be especially beneficial.

POLICY M4.7 INTERIM RECLAMATION MEASURES

Where a proposal involves reclamation which is likely to be subject to unavoidable delays, details should include interim reclamation measures.

- 4.27 In other circumstances, mineral extraction or tipping may cease prematurely, and this can seriously prejudice approved reclamation schemes. Furthermore unless conditions are imposed to define cessation of extraction, and to require the implementation of an alternative reclamation scheme, such sites could quite legitimately be left derelict. Accordingly, for most mineral development proposals, the potential problems created by premature cessation of activity need to be considered. Further problems can arise with the temporary closure of sites. The County Council therefore normally attaches conditions requiring alternative reclamation if a site is closed for longer than 6 months.

Reclamation Proposals for Existing Sites

- 4.28 A number of mineral workings are controlled by old planning permissions which may have inappropriate and impractical conditions. Although this is a diminishing problem (due to the Environment Act 1995 which requires MPAs to review old mineral planning permissions - see Para 4.55), some sites exist where reclamation requirements have not been, or cannot be, met. These sites obviously give rise for concern. Under such circumstances the County Council will normally encourage and support initiatives which assist in the reclamation of areas damaged by former mineral workings.

POLICY M4.8 RECLAMATION PROPOSALS FOR EXISTING SITES

Alternative reclamation proposals will be granted which would result in the satisfactory reclamation and after-use of mineral workings where:

- (a) current use and/ or appearance is unsatisfactory;**
 - (b) the existing provisions for reclamation are unsatisfactory, inappropriate or absent;**
 - (c) the proposals result in an improved environmental and/ or amenity after-use.**
-

Aftercare

- 4.29 Schedule 5 to the 1990 Act empowers MPAs to place aftercare conditions on mineral planning permissions where reclamation is to agriculture, forestry or amenity (in this context amenity includes recreation and nature conservation). The purpose of aftercare is to help ensure that newly restored land is properly cultivated, planted and managed during the first few crucial years. For example, soils which inevitably suffer damage during handling, require careful husbandry to aid recovery; tree planting schemes need weed control and replacement of failures until established. The aftercare condition can either specify the steps to be taken following restoration, or the steps to be taken in accordance with a scheme to be approved by the County Council.

- 4.30 In most cases the aftercare condition will cover a maximum period of 5 years from compliance with the restoration condition. Whilst this period can be varied, aftercare conditions cannot be used to secure the long term management of land – where appropriate such requirements have to be controlled by legal agreements.
- 4.31 The County Council has produced guidance notes and a model programme for mineral operators. This programme sets out the information required to support an acceptable aftercare scheme, and covers all aspects of cultivation and management on an annual basis. The keeping of detailed records forms an essential part of the aftercare regime. Regular meetings and inspections are also required to monitor progress and amend the programme as necessary. After 5 years the County Council can issue a certificate affirming that the land has been reclaimed to a satisfactory standard. Through time these programmes should provide a valuable record of the most effective approach to aftercare.
-

POLICY 4.9 AFTERCARE

The County Council will attach aftercare conditions to all mineral planning permissions where reclamation is to agriculture, forestry or amenity.

After-use

- 4.32 After-use options include agriculture, forestry, nature conservation, recreation, and industrial or built development. At some sites more than one after-use may be possible. It is therefore essential that a Masterplan setting out how the after-use will be achieved is presented at the planning application stage for the following main reasons.
- 4.33 First, each after-use will have its own physical requirements which must be assessed before extraction commences. Secondly, in addition to the detailed guidance provided in this Plan, the after-use should accord with the policies of the Structure Plan Review and other relevant Local Plans. Informal Plans such as, “The Sherwood Initiative”, “The Strategic Plan for Greenwood”, “Local Biodiversity Action Plan”, “The Heathland Strategy for Nottinghamshire” and guidance in the “Countryside Appraisal” should also be taken into account. Finally, there must be clear evidence that the proposed after-use will be properly implemented and managed in the long term.
- 4.34 Once a site is reclaimed, any subsequent development or changes in after-use requiring planning permission will normally be for the district council to determine.
- 4.35 MPG7 recognises the importance of the equal commitment of all interested parties if high standards of implementation are to be achieved. Every effort to eliminate potential conflicts should be made by means of discussion and

negotiation prior to the granting of planning permission. In addition, the long term funding and management of sites will need to be considered, and potential income generation from possible after-use options should be explored.

POLICY M4.10 AFTER-USE – DETAILS REQUIRED AND OBJECTIVES

Where planning permission involves the reclamation of mineral workings, schemes should include full details of the proposed after-use and be designed to maximise opportunities to enhance the environment, biodiversity and amenity of the local community.

POLICY 4.11 AFTER-USE – MANAGEMENT AND OTHER AGREEMENTS

Where it is considered that long term management and monitoring provisions are necessary for the successful implementation of an after-use then, prior to the grant of planning permission, the County Council will, seek to negotiate the incorporation of such provisions within a planning obligation.

Agricultural After-use

- 4.36 Most mineral workings coincide with agricultural land. In general where the best and most versatile land is taken for mineral extraction, it is imperative that the potential for land to be restored to an agricultural after-use be maintained through appropriate landform and soil profiles. This does not necessarily mean that land should be restored to agriculture - for example woodland could be appropriate.
- 4.37 Agricultural after-use schemes present important opportunities to redress the widespread environmental damage caused by modern agricultural practices. Where possible, such schemes should reintroduce features associated with the 'traditional' enclosure landscape, such as hedgerows and small copses. These typically characterise the mature landscape areas identified in the 'Countryside Appraisal', (see Policy M3.23) and which will also promote the Local Biodiversity Action Plan (LBAP) (see Paras 3.65-69). Such measures need to be compatible with agricultural production and the long term aspirations of the landowner. In this respect Policy M4.12 is of particular importance.
-

POLICY M4.12 AGRICULTURE AFTER-USE

Where planning permission involves the reclamation of mineral workings to agriculture the County Council will encourage such proposals to take full account of the Countryside Appraisal and Local Biodiversity Action Plan.

Nature Conservation After-use

- 4.38 Many existing nature conservation sites have their origins in abandoned mineral workings where natural regeneration has occurred. Despite the success of some sites, this unplanned approach suffers from many shortcomings. These include slow reclamation, poor visual amenity, lack of controlled public access and facilities, and little or no security regarding long term protection, management and funding. Conflicts with other uses, such as recreation, may also be a problem. Proper planning is needed to develop the full potential of sites, and adequate funding is essential for their subsequent management. Reclamation schemes involving the creation of wildlife habitats in line with the species, habitats and targets of the Local Biodiversity Action Plan will have an increasing role to play in the future.
- 4.39 Proposals should include a Masterplan to show how the site will be established and managed, and the extent of public access. It should refer to the phasing of reclamation works and specify particular habitats. There should also be a descriptive statement and a qualified ecologist should be directly involved in the design and implementation stage. English Nature, Nottinghamshire Wildlife Trust and the Royal Society for the Protection of Birds are amongst organisations which can provide land management and other advice.
- 4.40 Funding is essential to the success of a nature conservation after-use which is rarely self-supporting, and thus Policy M4.11 will normally apply. Long term management, ecological monitoring, provision of interpretative facilities and appointment of wardens all require financial backing.
- 4.41 Ideally, the site should be given formal recognition as a nature reserve so that its status cannot be challenged at a later date. The long term management should be provided by a management committee, and an agreed management plan.

Woodland After-use

- 4.42 Where woodland has been lost to mineral extraction, reclamation to woodland will normally be required. In other cases, woodland will be favoured where it would enhance the environment.
- 4.43 More specifically, woodland planting is encouraged in the Sherwood Forest area and within the Greenwood Community Forest. Where existing reclamation schemes lack adequate tree planting measures, additional planting may be eligible for Forestry Commission Woodland Grants.

Wet Broadleaved Woodlands

- 4.44 Wet broadleaved woodlands are generally characterised by a canopy of alder and willow, with a wide variety of plant species making up the ground flora. They support a high diversity of invertebrates including, in Nottinghamshire, a number of scarce moth species. Many of the priority species of conservation concern as listed in the LBAP for Nottinghamshire, including the otter and blue tit, depend on wet broadleaved woodlands for a plentiful source of food and shelter.

- 4.45 As with woodland after-use, where wet woodland has been lost to mineral extraction, reclamation to similar structured woodland would normally be required.

Heathland/ Acid Grassland After-use

- 4.46 Mineral workings, notably Sherwood Sandstone quarries and colliery tips, can provide opportunities to create matrix areas of lowland heathland and acid grassland, which have become very scarce throughout Great Britain. The LBAP establishes a target for the creation of 200 hectares of heathland by 2005. Reclamation schemes provide a prime opportunity for this.
-

POLICY M4.13 HEATHLAND AND ACID GRASSLAND AFTER-USE

In order to meet Local Biodiversity Action Plan targets the County Council will permit the restoration of Sherwood Sandstone quarries and colliery spoil tips to heathland and acid grassland. Operators are encouraged to seek to maximise the use of plant material of local genetic stock.

- 4.47 Heathlands may be particularly suitable, where soils are poor or absent and agriculture is not a feasible option. However, they can only establish and survive in the long term with careful management. Adequate funding and other provisions must therefore accompany proposals as set out in Policy M4.11 and described for nature conservation after-uses.

Geological Sites of Interest

- 4.48 Nottinghamshire has very few natural rock exposures and many of the existing geological SINC's and one of the County's four geological SSSI's owe their existence to quarrying. Reclamation schemes can provide valuable opportunities to create new sites of geological interest by leaving parts of the working face exposed. Where this is proposed, public access, safety and the possible long-term management of the site are likely to be the main factors to consider.
-

POLICY M4.14 RECLAMATION SCHEMES AND GEOLOGICAL SITES

Reclamation proposals, which include the creation of new geological sites of interest, will be permitted subject to appropriate measures concerning public access, safety and management of the site.

Recreational After-use

- 4.49 Most recreational after-uses of former mineral workings are associated with water areas, and wet sand and gravel pits have provided many important opportunities, most notably the National Water Sports Centre at Holme Pierrepont.

- 4.50 The Structure Plan Review recognises that, whilst there is demand for extra water recreational facilities, this demand is very difficult to quantify. It therefore emphasises the need for a flexible approach capable of dealing readily with changing patterns of demand. After-uses likely to generate a high volume of visitors should however be accessible to the main population centres, whereas more specialist uses need not be so constrained.
- 4.51 Recreational options for dry sites can include country parks, public open spaces, golf courses, dry ski slopes and motor sports. Colliery tips, which are often close to settlements, may be particularly suited for this purpose. Where appropriate, such schemes must have adequate long term management provisions.
- 4.52 Recreation schemes must demonstrate that they are able to meet the physical requirements of the proposed activity. Lake depths, shape and size are likely to be important criteria. Access, parking and other facilities need to be considered, along with other factors such as traffic generation and noise.

Built Development

- 4.53 Mineral workings can occasionally be reclaimed to a condition suitable for built development. These opportunities are only likely to arise in urban or urban fringe situations, where such development is compatible with other planning policies in the area.
- 4.54 Any proposals for built development upon infilled land must provide evidence that compaction, ground stability, contamination and methane production issues can be overcome, in accordance with the Waste Local Plan, Policy W4.15.

Minerals Review

- 4.55 Unlike most other forms of development, mineral planning permissions often have a long life span during which environmental concerns and expectations are likely to change. Most old permissions have planning conditions that by modern standards are seriously deficient.
- 4.56 Although planning authorities have always had powers to modify and revoke planning permissions, compensation liabilities have normally precluded this as a feasible option. Since 1981, however, the Government began to rectify this situation by bringing in new legislation that allows mineral planning permissions to be updated and even revoked without necessarily attracting a full compensation liability.

Interim Development Order Sites

- 4.57 The initial measures brought in by the Minerals Act 1981 proved to be too limited to have much effect, but subsequent legislation has provided a much more comprehensive and effective means for dealing with this problem. The Planning and Compensation Act 1991 tackled the oldest and most problematic sites, namely those sites permitted under the Interim Development Order (IDO) between 21 July 1943 and 1 July 1948. Unlike all subsequent planning permissions, IDO consents were never registered and

the existence and extent of many was in doubt. IDO planning conditions were also generally very poor or non-existent.

- 4.58 All IDO permissions had to be registered by 25 March 1992, or they would lapse. Unless the site was dormant, a further application was then required for determination of a set of conditions to which the permission would then become subject. For dormant sites, an application must be submitted for determination of new conditions before the site is developed. Relevant guidance is provided in MPG9 'Planning and Compensation Act 1991: Interim Development Order Permissions (IDOs) – Conditions'. All registered IDO planning permissions lapse on 21 February 2042.
- 4.59 All active IDO sites have since had their planning conditions updated. These will then be subject to further possible reviews under the same procedures that apply to all other planning permissions (see below). Two dormant sites still remain, which cannot be implemented, until the County Council has approved a new set of planning conditions.

Initial Review and Later Sites

- 4.60 Review procedures extending to mineral planning permissions granted after 1 July 1948 were introduced by Section 96 of the Environment Act 1995. This included an 'initial review' and registration of all planning permissions granted before 22 February 1982. Most active sites falling within the initial review period have now had new schemes of planning conditions approved. Planning permissions granted before 22 February 1982, that have been implemented, but have not been active to any substantial degree between the above date and 6 June 1995 must secure approval of a new scheme of conditions before extraction commences.
- 4.61 All later planning permissions are to be reviewed at intervals of not less than 15 years. These reviews commence with the County Council serving notice on the mineral operator requiring a new set of proposed conditions to be submitted within 12 months. Former IDO and the 'initial review' sites will ultimately be included in this process.

Planning Issues

- 4.62 The main purpose of the review procedure is to update older mineral planning permissions to modern standards. This means that, as far as practical, proposals for new schemes of planning conditions need to address the main environmental issues and satisfy the policies contained in Chapters 3 and 4. The overall aim is to ensure that the site is worked and reclaimed using the best available techniques to minimise environmental impact.
- 4.63 Conditions can be imposed, such as restrictions on hours of working, and the protection of environmentally sensitive areas, without necessarily attracting compensation. The latter may involve excluding areas from extraction or by implementing mitigation measures. End-dates on extraction and reclamation including alternative reclamation schemes if the site closes prematurely can also be imposed. This helps to add certainty to the duration of the scheme and reduces the likelihood of sites going dormant and being left derelict without any effective means to redress the situation.

- 4.64 Whilst there are rights to appeal against conditions, there are nonetheless limits as to what can be imposed before a compensation liability arises. If the new conditions threaten the economic viability or asset value of the mineral operation, then compensation may be payable. This means that environmental protection measures have to be weighed up against their impact on the economic viability or asset value of the mineral working rather than 'need' for the mineral as would generally apply for new proposals. This factor can therefore limit what in practice is achievable, when compared to determining a planning application for new mineral development.
-

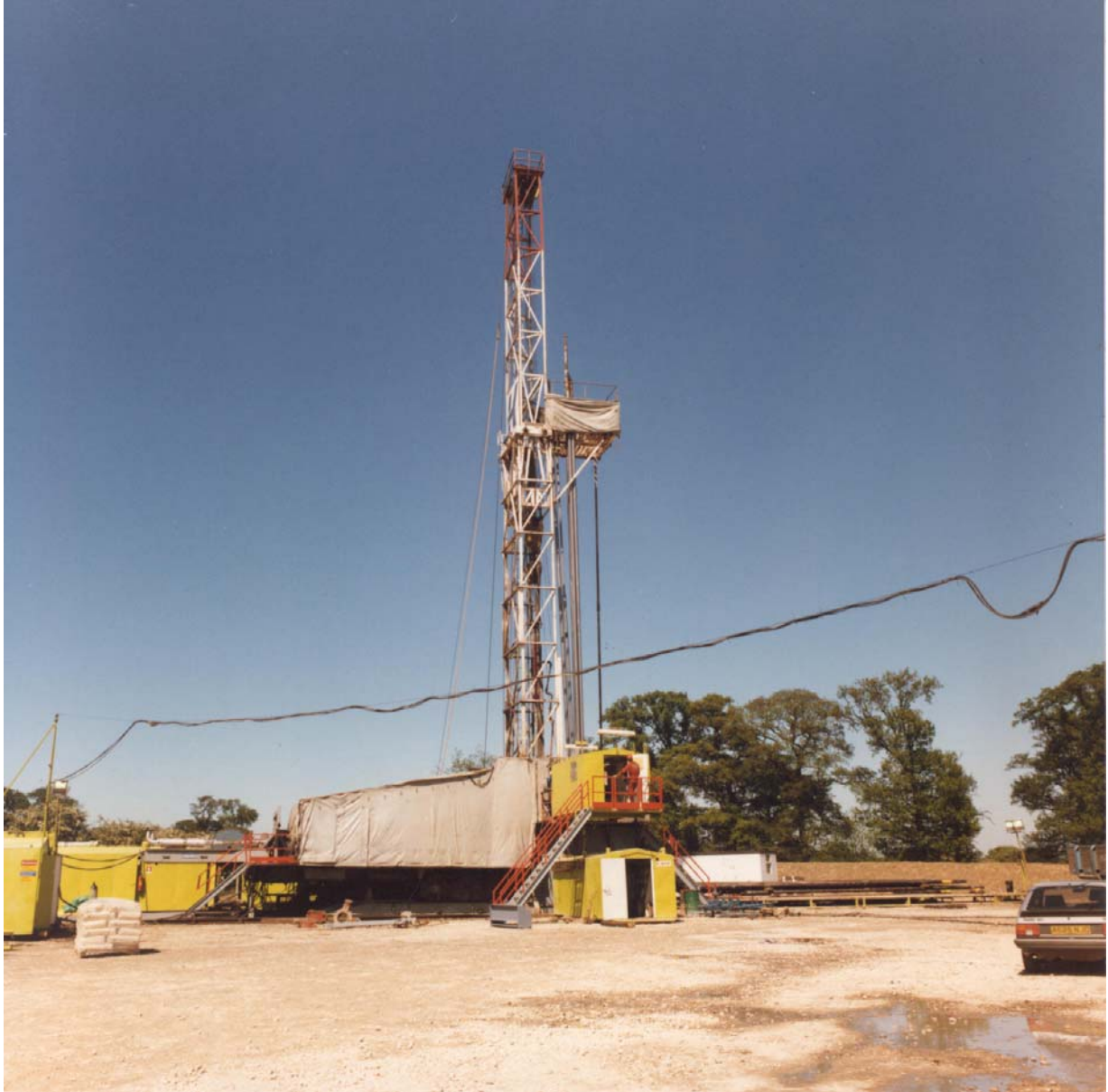
POLICY M4.15 MINERALS REVIEW - SUBMISSION OF PROPOSALS

Proposals to update planning permissions in accordance with the minerals review procedure must demonstrate that they are based on the best available technique in terms of minimising the environmental impact of extraction and in achieving the proposed reclamation scheme. Where appropriate conditions will be imposed which:

- (a) update all working and reclamation practices to minimise pollution risks and other environmental impacts;**
 - (b) exclude environmentally sensitive areas from extraction and/or provide mitigation measures to minimise the impact and loss of any features;**
 - (c) include an end-date for mineral extraction and reclamation;**
 - (d) provide for an alternative reclamation scheme in the event that the mineral extraction ceases prematurely and the approved scheme can no longer be implemented.**
-

Chapter 5

Mineral Exploration



Borehole exploration for oil

Introduction

- 5.1 Exploration is essential to prove the existence and extent of mineral resources. Prior to development, it is necessary to ensure that a resource is economically viable and to determine how it can be worked. Although exploration is a temporary activity, safeguards may still be needed to minimise its environmental impact.
- 5.2 There are three main methods of mineral exploration – geophysical surveys, trial pits and boreholes:

Geophysical Surveys

- 5.3 Seismic surveys are the most common type of geophysical survey, especially in the exploration of coal and oil. Whilst these surveys can provide useful information about the underlying geological structure, they do not prove the existence of mineral resources.
- 5.4 In summary the procedure is to initiate a shock wave in the ground, the pulse from which is detected by instruments called seismometers. The resulting signals are then translated into a seismograph which can be interpreted to reveal rock structures.
- 5.5 Seismic surveys are carried out using various methods, such as ‘vibroseis’ (using vehicles with vibrator pads) and shot hole surveys (using small charges of dynamite in shallow boreholes). Other devices such as land airguns and hydraulic rams can also be used.
- 5.6 Most seismic surveys have little environmental impact. However noise and vibration can raise concerns when carried out in sensitive areas. This is especially the case when explosives are used and/ or where surveys are carried out over a prolonged period. A particular concern is the interference to archaeological remains and operators are encouraged to contact the County Council’s archaeologists prior to undertaking a survey.
- 5.7 Although most seismic surveys have permitted development rights, there are several exceptions relating to sensitive areas, proximity to buildings, and size of explosive charge and duration of operation. In these cases planning permission is needed. Operators are, in any event, encouraged to notify local residents at an early stage to allay concerns and unnecessary fears. It also allows time for steps to be taken to protect various interests.

Shallow Boreholes and Trial Pits

- 5.8 Shallow boreholes and trial pits are methods of surface mineral exploration which obtain data on the depth, extent and quality of the mineral, the make up of overburden, and hydrological data. Shallow boreholes use small rigs that are capable of sinking a number of boreholes in a day. Trial pits are mostly used in assessing shallow deposits, in particular sand and gravel. After the information is recorded the pits are backfilled and reinstated. Again concerns are raised by the impact that digging shallow pits may have on the archaeology. However, these pits also provide an ideal opportunity to evaluate the site's archaeology at an early stage and operators are encouraged to involve archaeologists during this exploration phase.
- 5.9 Due to the short duration of these operations only rarely does the MPA have to be notified, or planning permission be obtained. Exceptions include operations in close proximity to buildings and operations in environmentally sensitive areas. There are also limits on intensity of drilling, the use of explosives and heights of rigs. Consultation with the County Council is advised where there are doubts over the planning situation.

Deep Boreholes

- 5.10 In Nottinghamshire deep boreholes, which may be sunk to depths of over 1000 metres, are used mainly in the exploration of coal and oil. A typical exploration site covers half a hectare and rigs can be 40 metres high. Drilling may occur 24 hours a day for several months. A hard base, normally comprising crushed limestone, is required for the drilling rig and associated equipment. Supporting equipment includes mud pits, pipe racks, pumps and cabins. The environmental implications of deep borehole drilling are therefore much greater than those for the other exploration methods noted above.

POLICY M5.1 MINERAL EXPLORATION

Proposals for mineral exploration will be permitted, subject to satisfactory environmental, amenity and reclamation safeguards.

- 5.11 The main planning issues associated with deep boreholes are as follows:

Visual Impact

- 5.12 Although sites can be very visible, this rarely causes conflict since activities are temporary. Spot lighting make sites more visible at night than in the day, and may inadvertently light up nearby buildings. Locating sites next to housing should therefore be avoided.

Noise

- 5.13 Where drilling rigs are close to property, noise is likely to be the most significant environmental concern, especially at night. The rig is the main source of noise which usually comprises a low frequency hum from the generator and intermittent high frequency sounds from the brake and handling of casing. Noise generated from traffic servicing the site at night can also cause disturbance.
- 5.14 Borehole sites should therefore be located away from sensitive areas. Where this is not possible the noise control measures given in Policy M3.5 are applicable. Although rigs often necessarily operate 24 hours a day, it may be possible to restrict the number of vehicles entering and leaving the site during the night. Cladding around the generator is effective since this is the main noise source. Different rigs emit varying levels of noise. In sensitive areas only the quieter rigs may be acceptable.
- 5.15 Accurate noise prediction is essential since boreholes are normally temporary, and measures to rectify inaccuracies may take longer than the duration of the development. 'Noise footprints' are available for most rigs, and are particularly useful for predicting the noise impact on nearby properties.

Access

- 5.16 Although short lived, traffic generation is substantial. It is likely to include 2-300 lorry loads of hardcore, up to 30 loads of construction equipment, and 35-40 articulated lorry loads of drilling rig. This traffic can place severe constraints on site selection in rural areas served only by narrow roads. The potential impact can be minimised by appropriate management measures such as agreements on lorry routeing and temporary signposting. The parish council can have an important role in advising on these measures.

Water Pollution

- 5.17 During drilling, fluid termed 'drilling mud' is circulated to support the borehole, cool and lubricate the drilling bit, and remove rock cuttings from the borehole. The sinking of a 1,500 metre borehole can require the use of up to 500,000 litres of drilling mud. Care must be taken to protect both surface and groundwater vulnerability from contamination and to avoid damage to aquifers. This can be achieved by keeping a reasonable distance from drinking water abstraction points and underground springs, and ensuring careful control of operations. Developers are advised to contact the Environment Agency who hold groundwater maps showing Source Protection Zones, which protect groundwater sources which are known to be particularly at risk from contamination. The Environment Agency can also advise on other requirements such as the need to comply with Groundwater Regulations and Waste Disposal Regulations. Where artesian discharges of water occur, boreholes must be sealed on completion of survey.

Directional Drilling

- 5.18 Ideally most boreholes are sunk vertically for speed and economy. However, where the optimum borehole location coincides with an environmentally sensitive area, directional drilling can be used to reach the same target from a different location. Within this context, 'environmentally sensitive areas' include features such as SSSIs or archaeological sites which could be damaged by mineral exploration, and residential and other buildings where drilling would create an unacceptable level of disturbance. This method is particularly relevant for oil, where production wells are likely to be developed on the same exploration sites thus giving rise to long term implications. This aspect is covered further in Chapter 13.
-

POLICY M5.2 DEEP BOREHOLES IN SENSITIVE AREAS

Planning permission for exploratory deep boreholes located in environmentally sensitive areas will only be granted where there is satisfactory evidence that exploration could not be achieved from more acceptable sites.

Reclamation

- 5.19 Reclamation involves the removal of the hardcore foundation, and the respreading of soils. Normally this is carried out quickly and effectively with little visible sign of the activity remaining. Whilst farmers are often keen to retain sections of haul road or hard standing, the County Council does not normally wish to allow unnecessary evidence of mineral exploration in the countryside.
-

POLICY M5.3 RETENTION OF HAUL ROADS AND HARD STANDING

Proposals to retain sections of haul road and hard standing following exploratory drilling will not be permitted except where they provide clear agricultural or other benefits.

PART 2- PRODUCTION OF MINERALS

Chapter 6

Sand and Gravel



Sand and Gravel Processing at Besthorpe Quarry

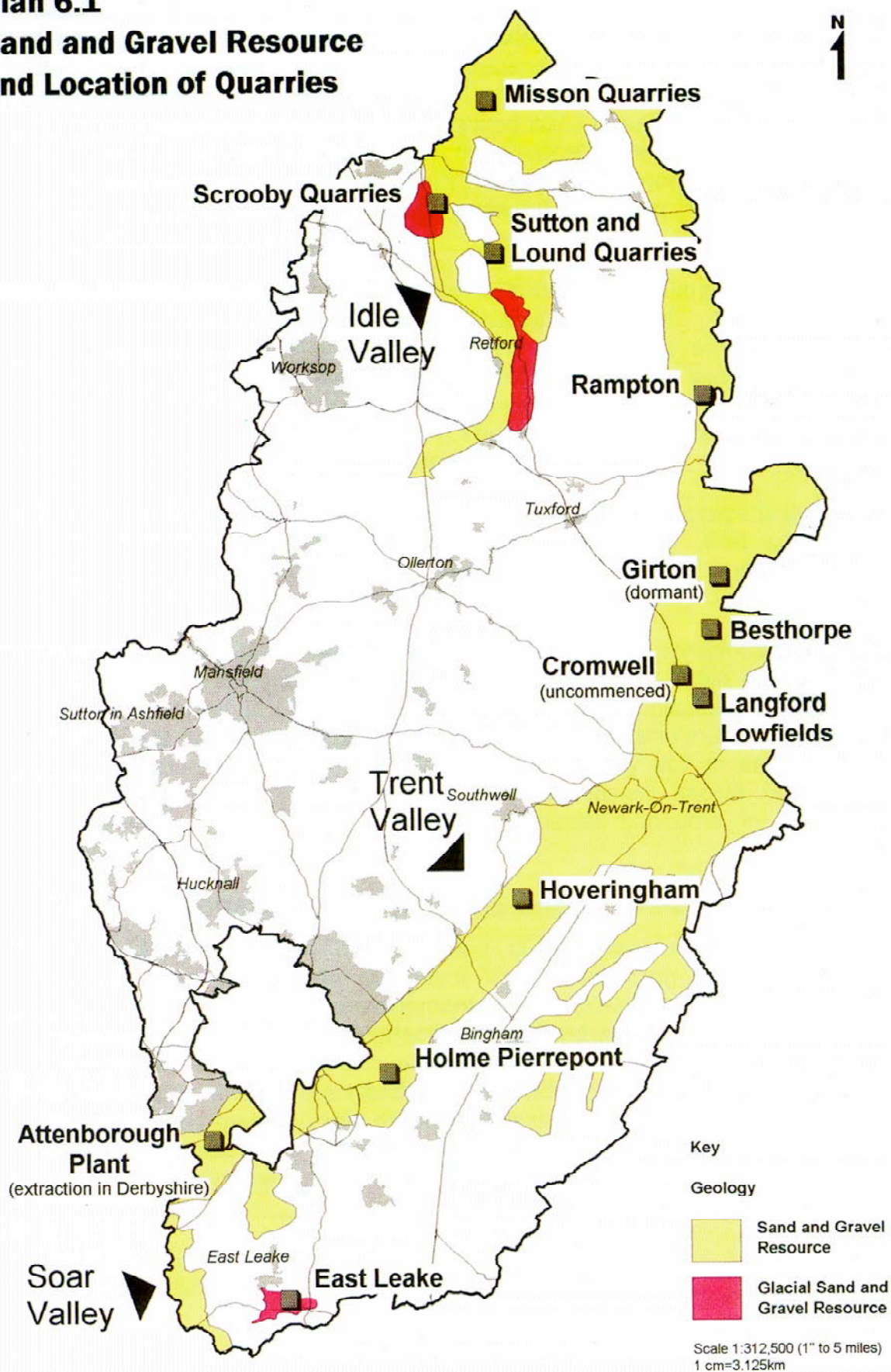
Introduction

- 6.1 The production of aggregate minerals, which include sand and gravel and crushed rock, is now the largest extractive industry in Great Britain with over 200 million tonnes being extracted every year. Sand and gravel, which accounts for about 90 million tonnes (40%) of national aggregate production, is used primarily in the production of concrete, building and asphaltting sand.
- 6.2 Nottinghamshire is the largest producer of sand and gravel in the East Midlands and one of the largest in Great Britain. Sand and gravel is worked from alluvial resources in the Trent and Idle Valleys and also from the Sherwood Sandstone. Although there is some geographical and end-use overlap, the two minerals are very distinct and are treated as separate minerals for the purposes of this Plan. This Chapter considers sand and gravel, and Sherwood Sandstone is considered in Chapter 7.

Geology

- 6.3 In addition to the main deposits found in the Trent and Idle Valleys, sand and gravel also occurs in the Soar Valley, other minor tributaries and in isolated glacial deposits scattered across the County.
- 6.4 The gravel component is normally a quartzitic, high strength material capable of meeting most specifications for concrete. This factor can give Nottinghamshire's deposits a premium above those found elsewhere which may contain gravels made up of weaker sandstone pebbles.
- 6.5 The richest and most extensive deposits occur in the Trent Valley, where yields can exceed 100,000 tonnes per hectare, although 60-80,000 tonnes is more typical. In the Idle Valley yields generally range from 30-40,000 tonnes per hectare in the Sutton and Lound area, to just 20-30,000 tonnes at Misson. The ratio of sand to gravel also varies, from near equal proportions in the Trent Valley upstream of Garton to a third gravel or less elsewhere. In general high gravel yields are normally more economically attractive. Yields from glacial deposits are much more variable.
- 6.6 The above assumptions on yields and mineral content are broad generalisations. Alluvial deposits are very unpredictable, in both quality and quantity. The thickness of mineral and overburden, along with the proportions of sand and gravel can vary dramatically over very short distances. Buried river channels, clay beds, excessive silt content, coal and peat contamination can all take their toll on the quality, and therefore on the viability of a deposit, or the range and proportion of aggregates that can be produced. Predictions about yields and quality must be treated with caution.

Plan 6.1 Sand and Gravel Resource and Location of Quarries



Method of Working and Environmental Impact

- 6.7 After stripping soils and overburden, the exposed mineral can easily be excavated by dragline or hydraulic excavators, which either load direct onto dumptrucks or feed conveyors for transporting the raw mineral to the processing plant. At the plant a series of screening and washing operations grade and sort the mineral into the required sizes of sand and gravel. Waste 'fines' (i.e. fine sand, silt, clay) which on average make up between 5-10% of the deposit are pumped into silt ponds. Silt ponds are normally allowed to dry out to permit reclamation, although once full they can be re-excavated to provide extra capacity.
- 6.8 Where a conveyor system and electric submersible pumps are used the working itself can be relatively unobtrusive and quiet. Noise and dust problems are most likely to be at their worst during soil stripping and replacement operations, which often involve the intensive use of excavators, dumper trucks and other heavy mobile plant. Fortunately these activities are intermittent and of short duration. The large fixed processing plant and stockpile areas can be visually intrusive and noisy.
- 6.9 The high water table level at most sand and gravel quarries means that active workings have to be pumped, to enable dry extraction. Wet extraction is possible, but is less efficient and rarely practised. Once pumping ceases following extraction, the void soon floods to form a lagoon.
- 6.10 In terms of land take, sand and gravel extraction is voracious and is the largest surface mineral working in the County. All the main environmental issues discussed in Chapter 3 are therefore very applicable, including the problems of cumulative impact. Visual impact, noise and traffic are the most common concerns. The river valleys are also very rich in archaeological remains, and few areas escape having significant known or potential archaeological constraints. There are special concerns in the South Muskham area, which are considered below.

The Archaeological Resource at South Muskham

- 6.11 South Muskham parish contains one of the densest areas of known archaeological remains in the Trent Valley, reflecting a long history of settlement and landscape development. Whilst this area is of major local and regional importance, it is imperfectly understood at present. A 5 year field walking programme has been undertaken but until the whole resource has been properly studied, the effect of losing individual sites or features cannot be adequately gauged, and decisions about any necessary treatment are likely to be premature and flawed. Consequently, there will be a presumption against mineral extraction within this area for the duration of the Plan period.

POLICY M6.1 ARCHAEOLOGICAL RESOURCE AREA – SOUTH MUSKHAM

Planning permission will not be granted for sand and gravel extraction within the major archaeological resource area near South Muskham.

Reclamation and After-use

- 6.12 In Nottinghamshire about 50 hectares a year are worked for sand and gravel, a significant proportion of which goes back to wetland. The high water table level and lack of suitable fill means that for most sand and gravel workings a water after-use is the only feasible option. Perpetual pumping may be technically possible, but to date has rarely proved viable. Well designed water areas can be very beneficial by creating valuable new habitats that can promote biodiversity. Sports and other amenity facilities can also be developed.
- 6.13 Historically, many sand and gravel quarries were restored back to original level by infilling with PFA. However, the availability of PFA has decreased dramatically in recent years and therefore restoration to water is often the only available option. Tighter pollution controls means that other materials, such as commercial, domestic and industrial waste, cannot be used for infilling sand and gravel quarries. Inert waste is suitable, but targets to re-use or recycle construction wastes to provide secondary aggregate also means that less of this waste is available.
- 6.14 If properly planned, future water areas can have a positive impact. However, with so many existing and permitted water areas there is a limit to what extent these can be accommodated without causing an unacceptable degree of change to the landscape character of the Trent and Idle Valleys. Some areas have already seen substantial changes with villages being encircled by water to varying degrees. In these areas cumulative impact is becoming a major issue and further development is unlikely to be acceptable.
- 6.15 A further impact of reclamation to water is the permanent loss of large areas of agricultural land, including the best and most versatile land. For sites of this land quality, agricultural reclamation is likely to be the preferred option.

Supply and Demand

Sources of Information

- 6.16 National and county figures for sand and gravel production are published annually by Government sources. This data details end-uses but does not distinguish between alluvial sand and gravels and the Sherwood Sandstone. This split is only identified by the East Midlands Working Party on Aggregates (EMWPA) which was established in 1973 to carry out surveys of production, permitted reserves, end-uses and distribution. Where possible, the EMWPA data is used, which refers specifically to minerals extracted in Nottinghamshire, and not necessarily where they are processed.

Recent Production History and Trends

- 6.17 National sand and gravel production reached a peak of 131 million tonnes in 1989 before rapidly falling back to between 80 – 90 million tonnes by the late 1990s, levels which have not been seen since the early 1960s. Sand and gravel production in Nottinghamshire has generally mirrored national trends with production peaking at 3.6 million tonnes in 1988, falling back to an average of 2.7 million tonnes between 1997 and 2001. The reasons for these trends are not entirely clear, but may reflect a decline in road and other construction activity, a greater use of secondary aggregates and a long-term national trend that has seen a shift away from sand and gravel to crushed rock.

Markets

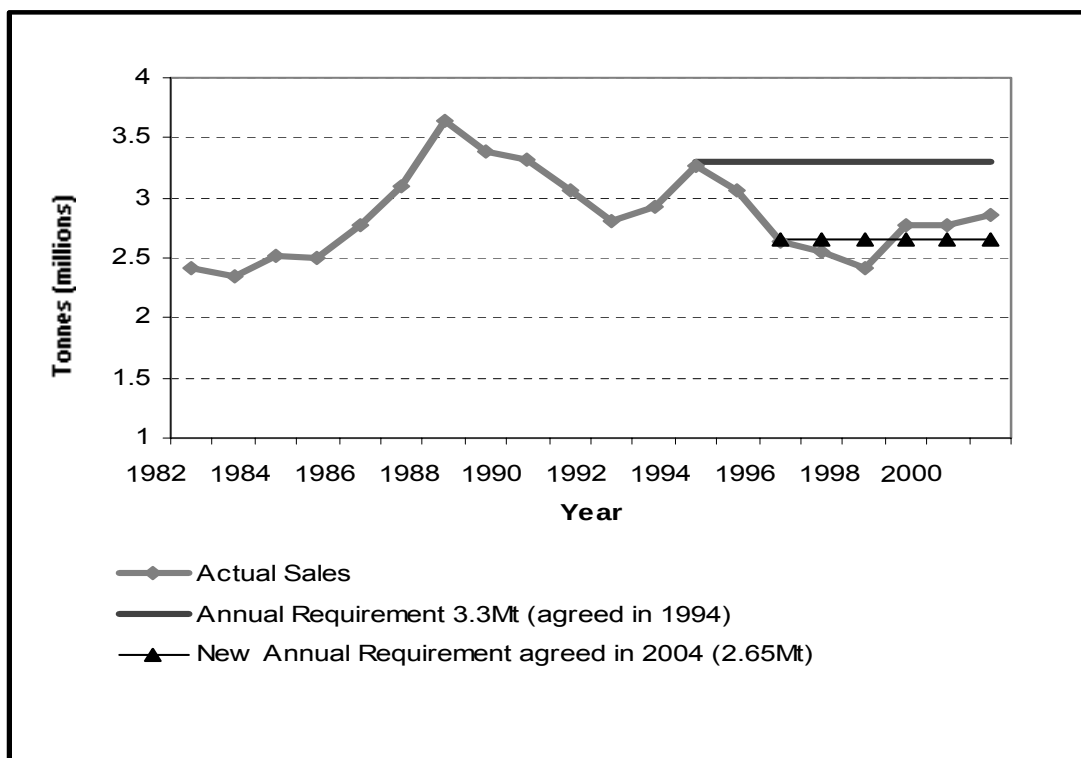
- 6.18 Sand and gravel is a low cost bulk mineral and, because aggregates have a widespread geographical occurrence, transport costs usually concentrate sales within a 30-40km radius. Long distance haulage is normally only economic where large tonnages can be sent by rail or water to areas where demand exceeds local sources of supply.
- 6.19 Of all the sand and gravel produced in Nottinghamshire just under a third is used within the County. Nearly half the production goes to Yorkshire and Humberside with the remainder mostly exported to other East Midland counties.
- 6.20 A significant element of these ‘exports’ represents no more than local cross boundary sales. In particular, quarries in the north of the county are very accessible to the major conurbations in South Yorkshire and Humberside.
- 6.21 Whilst most sand and gravel is transported by road, three Trent Valley quarries can barge large quantities of mineral to receiving wharves in Yorkshire and Humberside. The recently opened Europort at Wakefield is expected to result in an increase in production and barge movements from these quarries.

Consideration of Future Demand

- 6.22 National guidance on aggregates provision is contained in Mineral Planning Guidance Note 6 (MPG6) ‘Provision of Aggregates in England’ published in 1994. MPG6 estimated how much aggregate each region needed to be able to provide between 1992 and 2006, split between sand and gravel and crushed rock. It was then up to each region to decide how to apportion its requirements down to a local MPA level. For the East Midlands, agreement was reached via the Regional Forum in October 1994, using data provided by the EMWPA. Nottinghamshire’s regional share of sand and gravel production was set at 3.3 million tonnes per annum. (NB. this excluded the share to be met from the Sherwood Sandstone – see Chapter 7).

- 6.23 Since 1994, national and local demand for sand and gravel has, however, fallen well below what MPG6 predicted. As noted earlier annual sales in Nottinghamshire averaged just 2.7 million tonnes between 1997 and 2001 well over half a million tonnes less than that predicted, see Figure 6.1 below. The current guidance is demonstrably out of date and can no longer provide an appropriate basis for quantifying future provision in this Plan.

Figure 6.1 Nottinghamshire Sand and Gravel Production – 1982-2001



- 6.24 The Government intends to produce revised guidance and published a Key Issues Paper in October 2000. The Key Issues paper recognises that the current and past forecasts have proved unreliable and suggests possible new approaches towards forecasting and making future provision of aggregates in mineral local plans.
- 6.25 The Key Issues Paper also confirms the Government's wish to see the dependence on primary aggregates reduced in favour of secondary aggregates and promoting greater efficiency of use. Fiscal measures to promote this strategy commenced in 1996 with the introduction of the landfill tax. This promotes the recycling of construction and demolition waste by making landfilling more expensive. In April 2002, a new aggregates levy was introduced which taxes primary aggregates. This should help make secondary aggregates more competitive and reduce wastage. The success of these measures has yet to be assessed, although in Nottinghamshire they may have prompted the development of a number of secondary aggregate plants. However, the impact these have had on reducing demand for primary aggregates has not been quantified.
- 6.26 New guidelines on aggregate provision in England were published by the Government in June 2003. These guidelines consider demand for aggregates over the 16-year period 2001-2016. The national forecast figure of 212.5

million tonnes per annum has been apportioned down to each region and category of aggregate e.g. sand and gravel, crushed rock, alternative sources etc. For the East Midlands, annual sand and gravel extraction is assumed to average 10.313 million tonnes per annum. Using the same approach as adopted in the previous Plan, this means that Nottinghamshire will need to be able to produce 2.65 million tonnes per annum between 2002-2016 (see Figure 6.1 and Table 6.1 for details). This figure is almost identical to recent average production of 2.7 million tonnes per annum. These guidelines only replace the relevant parts of MPG6. A full revision of MPG6 is expected to be included in a new 'Minerals Policy Statement' (see Paragraph 1.14).

Table 6.1 Nottinghamshire's Share of Regional Sand and Gravel Production (based on approach approved by East Midlands Forum in February 2004) (excludes Sherwood Sandstone – see Table 7.1)			
	E. Midlands X 1000 tonnes	Nottinghamshire	
		X 1000 Tonnes	% Regional Share
1997	11,315	2,560	22.63
1998	9,995	2,409	24.09
1999	10,369	2,767	26.68
2000	9,939	2,778	27.95
2001	10,149	2,861	28.39
Average 1997-2001	10,353	2,675	25.84
Forecast Provision 2001-2016	10,313*	2,665 (2.65Mt rounded)	25.84*

* Notts' recent regional share of 25.84% assumed to apply for forecast period.

- 6.27 The 2.65 million tonnes is not a target, but provides a context on which to assess future requirements. Future sales of aggregate are unlikely to follow a uniform trend, especially at a county level. In addition to any underlying trends, local supply is prone to being affected by the frequent changes to the Industry that has generally seen aggregate production controlled by fewer but larger companies with a national presence. The inevitable rationalisations this causes can significantly affect local supply. For example sales may be transferred from one quarry to another and not necessarily in the same county - the recent mothballing of Girton quarry being one such example (see Para. 6.84).

Future Provision

Landbanks

- 6.28 MPG6 recommends that for sand and gravel, a landbank of permitted reserves should be maintained at a minimum level of 7 years. Although the Key Issues Paper questions the role and use of landbanks, in the absence of any firm indications to the contrary, this Plan will continue to assume that a

minimum landbank of 7 years will apply. This corresponds to 18.6 million tonnes (i.e. 7 years at the annual requirement of 2.65 million tonnes).

POLICY M6.2 SAND AND GRAVEL LANDBANK

The County Council will endeavour to maintain a landbank of permitted reserves of sand and gravel sufficient for at least 7 years extraction and also an adequate production capacity in order that Nottinghamshire will meet its reasonable share of regional provision of aggregates throughout the plan period.

Estimating Future Requirements

- 6.29 In accordance with MPG6, the Minerals Local Plan must demonstrate that suitable resources exist which can sustain a 7 year landbank. In this respect MPG6 advises that, whilst sufficient resources must be identified to sustain production throughout the plan period, it is not intended that plans should make full provision for maintaining a landbank beyond the end of the plan period. Nevertheless local plans should ensure that such resources could be brought forward if necessary. This approach provides flexibility by allowing more long-term shortfalls to be more properly assessed against future reviews of MPG6 and the Minerals Local Plan.
- 6.30 At the start of 2002, permitted reserves of sand and gravel stood at 28.8 million tonnes equivalent to a landbank of 11 years, sufficient until 2013. To maintain a 7 year landbank throughout the plan period up to 2021 will require a total of 53 million tonnes, giving a shortfall of 24.2 million tonnes (see Table 6.2 below).

Table 6.2 – Total requirements for maintaining a 7 year landbank of sand and gravel reserves throughout the Plan period (i.e. 2002-2014 + 7 years = 20 years)	
	Tonnage (in millions)
Total 20 year requirement	53
Current permitted reserves/ landbank	28.8
Shortfall	24.2

- 6.31 Current reserves are very unevenly distributed between individual quarries. Hence, although the overall countywide landbank is sufficient until 2012, significant shortfalls will arise well before then. These shortfalls are concentrated in two main areas, namely the Trent Valley between Nottingham and Newark and the Idle Valley. In the Trent Valley north of Newark reserve levels are generally higher and shortfalls, where they exist, are mostly less significant.

- 6.32 For sand and gravel it is considered appropriate to meet future requirements by identifying suitable resources as site specific allocations. The criteria for selecting allocations are set out below.

Selecting Allocations

- 6.33 For allocations to be effective, it is important that there is satisfactory evidence that they contain economic deposits of mineral, which are likely to become available to the minerals industry within the Plan period. In this respect, the industry and other interested parties were asked to provide information on sites that they wished to see included in the Plan.
- 6.34 A total of 25 sites containing over 100 million tonnes were put forward by the industry and landowners (these sites included the remaining allocations in the previous plan). This is far in excess of what is required, but has provided a good range of options that have been compared against each other.
- 6.35 Each potential allocation has been assessed as part of the Sustainability Appraisal of the Plan (see Para 2.6). Allocations that had yet to be taken up in the previous plan were also included to make sure that they remained appropriate. The initial exercise was to assess the main sustainability impacts associated with each site, both in terms of extracting the mineral and reclamation and after-use options. As noted above, the creation of more water areas is a particular concern, especially in those parts of the County where significant water areas already exist.
- 6.36 Potential allocations were then assessed in terms of their ability to meet the shortfalls noted above. In accordance with advice in MPG6 (Para 69), the initial preference was to consider possible extensions, as this approach will generally reduce the level of environmental disturbance. However, where suitable extensions did not exist, replacement capacity capable of serving similar market areas has been considered. Protecting the commercial interests of individual companies has not been a factor in site selection.
- 6.37 Account has also been taken of the lower levels of production assumed in this Plan when compared to the previous plan. Whilst due regard must be given to maintaining a reasonable geographic spread of sites to meet local markets, there is clearly no need to replace all capacity that is lost. Fewer sites should mean less overall environmental impact and some loss of capacity is therefore desirable in environmental terms.

List of Allocations

- 6.38 The outcome of the above assessment has been to allocate a total of approximately 730 hectares containing an estimated 23.22 million tonnes. This has been distributed at 7 sites creating 2 new quarries and 5 extensions (see Table 6.3). There will however be a net reduction in the number of quarries and production during the Plan period.

Table 6.3 Sand And Gravel Extraction – Summary Of Proposed Allocations

Allocation	Hectares	Million Tonnes
Gunthorpe	150	6.8
Bleasby	7	0.12
Rampton	20	0.35
Sturton le Steeple	313	11.25
Lound East	119	2
Misson – Finningley	64	1.2
Newington South	57	1.5
Totals	730	23.22

- 6.39 This provision almost meets the theoretical shortfall of 24.6 million tonnes in full and will provide a 7 year landbank throughout most of the Plan period. As noted in Para. 6.29 the Plan is not required to make full provision beyond the Plan period, hence the small deficit is not critical.

Allocations - Strategy for Meeting Shortfalls

- 6.40 The overall strategy behind these allocations, in terms of meeting the main shortfalls and providing an even spread of reserves is described, and illustrated in Figure 6.2 and Table 6.4 (see pages 85 and 86). For convenience the County's resource is split into three areas, working along the Trent Valley from south to north and then the Idle Valley. Although the boundary between each area is to some extent arbitrary it does put the main shortfalls in context. The planning and environmental issues relating to each quarry and allocation (including the individual allocation policies) are set out at the end of this Chapter.

(a) The Trent Valley - Nottingham to Newark

- 6.41 Major shortfalls will arise due to the exhaustion of Holme Pierrepont and Hoveringham quarries in 2004 and 2007 respectively. These quarries have a combined planned output of at least 750,000 tonnes per annum. It is proposed to meet this shortfall by the allocation of a new quarry at Gunthorpe (this comprises an enlarged area to that allocated in the previous Plan). This will have a potential capacity of around 450,000 tonnes per annum. An existing small allocation at Bleasby is retained as a minor extension to Hoveringham, but its overall impact on future supply is marginal.
- 6.42 It is also assumed that East Leake Quarry and a new permitted quarry at Cromwell (if developed) are well located to serve markets previously met by Hoveringham and Holme Pierrepont.

(b) The Trent Valley north of Newark

- 6.43 This section of the Trent Valley does not show any signs of shortage of sand and gravel as borne out by Girton Quarry, which has been inactive since 2000 but may re-open in 2004, and the delayed commencement of a new quarry at Cromwell permitted in 1998. Over 8 million tonnes of reserves with a planned

rate of extraction of around 500,000 tonnes per annum are locked up in these two sites. Significant shortfalls are limited to Rampton which will be exhausted in 2003. Besthorpe will not be exhausted until 2013 and in view of the long term nature of the shortfall it is proposed to defer consideration until the next review of the Plan. Langford Lowfields has sufficient reserves for the Plan period and no further provision is made.

- 6.44 An existing allocation to extend Rampton is retained, but this will only provide reserves until 2005.
- 6.45 The dormant capacity at Girton and Cromwell would be sufficient to meet these shortfalls and those arising in the Trent Valley between Nottingham and Newark. However, as noted below, much larger shortfalls will arise in the Idle Valley and it is principally because of this that a new replacement quarry is proposed at Sturton le Steeple.

(c) The Idle Valley

- 6.46 If no further reserves are permitted then all 4 main quarries at Sutton & Lound, and Misson will be exhausted by 2007. These currently produce over 1 million tonnes per annum. In the Idle Valley, resource depletion is a major problem. This factor when combined with environmental constraints affecting what little remains, severely limits options beyond re-allocating land east of the River Idle.
- 6.47 The Plan proposes to meet the shortfalls from Misson by the allocation of two small extensions; one at Finningley that will provide an extra 3 years of reserves and one at Newington that will provide reserves for an additional 10 years. These extensions represent the limit to sand and gravel extraction in the Misson area. The main shortfalls from Sutton & Lound are to be met by the allocation at Sturton le Steeple.
- 6.48 Reserves at Scrooby Quarry will be sufficient throughout the Plan period, although production is minimal.

Allocation Strategy – Conclusions

- 6.49 Sand and gravel extraction in Nottinghamshire will see major changes during the plan period. As predicted in the previous Plan the Idle Valley will be rapidly heading towards exhaustion and is likely to be providing only a very small contribution by 2014. The Trent Valley will therefore be required to meet nearly all the County's requirements. Whilst the Plan has demonstrated this is feasible for this plan period, looking ahead to 2020 most of the existing and proposed reserves in the Trent Valley will probably be exhausted. Although resource depletion will not be a problem, finding sufficient environmentally acceptable sites to continue production at current levels much beyond the plan period is likely to be a fundamental issue for the future. This can only reinforce the need for significant long-term reductions in dependence on sand and gravel for meeting demand for aggregates.

Figure 6.2 Sand and Gravel Estimated Reserve Life of Current Permitted Workings and Allocations.

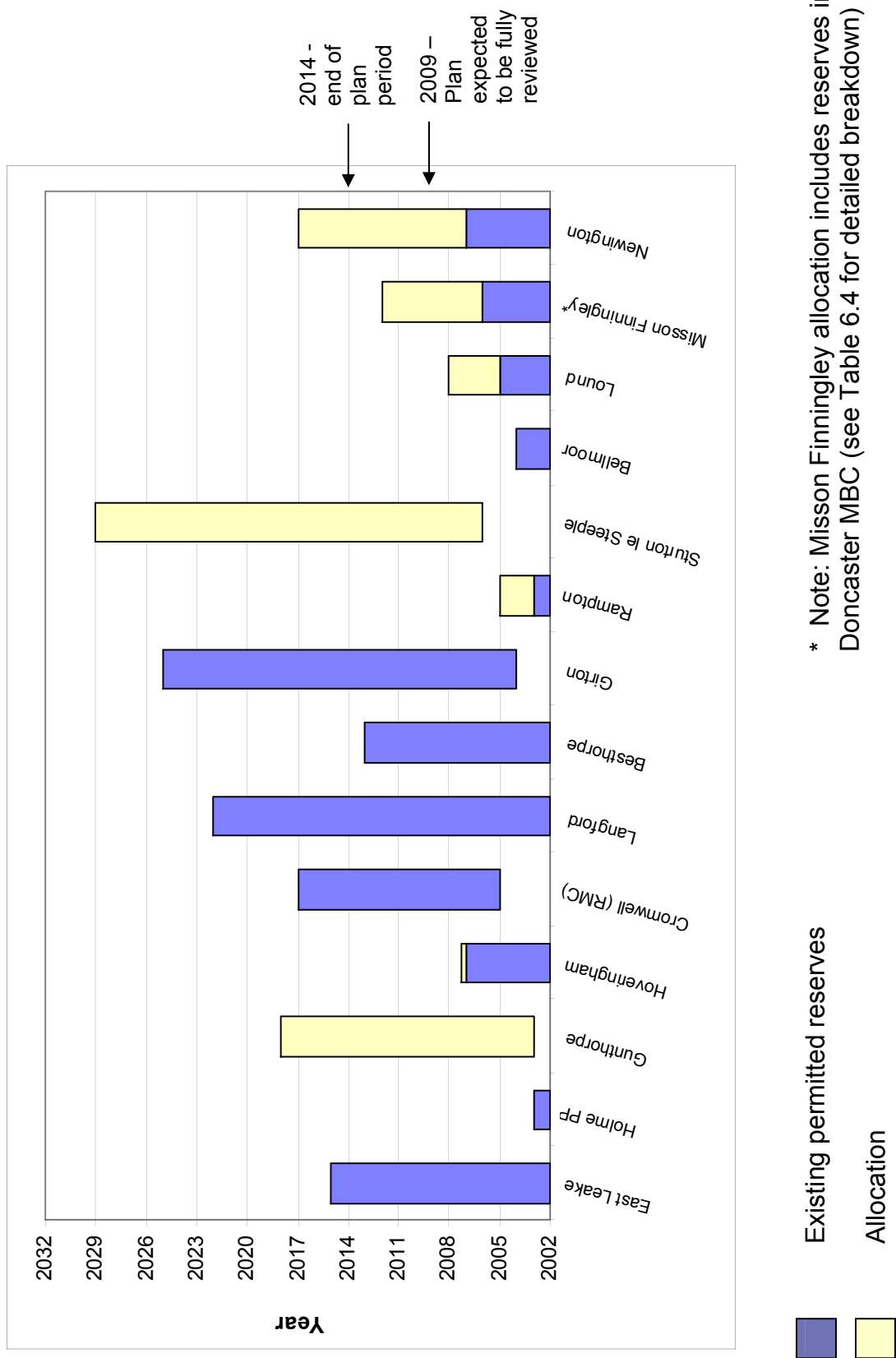


Table 6.4 Nottinghamshire – role of allocations in sustaining projected demand of 2.65 million tonnes per annum. Values x 1000 tonnes.														
Site	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	End date
East Leake	180	180	180	180	180	180	180	180	180	180	180	180	180	2016
Holme Pierrepont	225	225	Closed											2003
Gunthorpe			250	250	250	250	450	450	450	450	450	450	450	2019
Hoveringham	550	550	550	550	550	550	closed							2007
Cromwell	Uncomm	Uncomm	Uncomm	200	200	200	200	200	200	200	200	200	200	2017
Langford Lowfields	300	300	300	300	300	300	300	300	300	300	300	300	300	2021
Besthorpe	400	400	400	400	400	400	400	400	400	400	400	Future extn?	Future extn?	2012
Girton	Dormant	Dormant	250	250	250	250	250	250	250	250	250	250	250	2025
Rampton	150	150	150	150	Closed									2005
Sturton le Steeple					250	250	500	500	500	500	500	500	500	2029
Sutton (Bellmoor)	250	250	Closed											2003
Lound	480	480	480	480	480	480	480	closed						2008
Scrooby	40	40	40	40	40	40	40	40	40	40	40	40	40	2016
Misson – Finningley	400	400	400	400	400	(400)	(400)	400	400	400	(400)	Closed		2012
Newington	100	100	100	100	100	100	150	150	150	150	150	150	150	2017
Total	3075	3075	3100	3300	3400	3400	3350	2870	2870	2870	2870	2070	2070	

Notes:

1. This table shows the expected relationships between the allocations and existing permitted capacity. Production values are based on planned outputs and are approximate. Planned output does not correspond to production capacity, which may at some quarries be significantly higher. Actual production rates will in overall terms be less if production averages 2.65 million tonnes per annum.
2. Figures in shaded panels relate to allocations. Misson italic figures in brackets in shaded panels relate to adjacent reserves in Doncaster MBC.
3. Table assumes that: Cromwell commences in 2005; Girton re-opens in 2004 to replace Sutton (Bellmoor); Sturton le Steeple replaces Rampton and Lound.

Proposals in Allocated Areas

- 6.50 In order that each allocation is put into context, every existing or permitted quarry is reviewed below in a south – north traverse of the County. Figure 6.2 and Table 6.4 show each existing and permitted quarry, and how the proposed allocations are expected to maintain an adequate landbank and production capacity. Site specific information on production and reserves is stated, although confidentiality restriction prevents complete disclosure of this data.
- 6.51 Planning permission to extract mineral from within each allocation is subject to the submission of satisfactory working and reclamation schemes in accordance with Chapters 3 and 4. The main planning and environmental issues concerning each allocation are considered in order to help guide what type of proposal would be acceptable within each allocation.

Proposals in Unallocated Areas

- 6.52 Proposals for sand and gravel extraction in unallocated areas will not normally be permitted. This is because sufficient provision exists, either in existing permitted reserves or as Plan allocations. Only where there is clear evidence that an adequate landbank cannot be sustained would it be acceptable to permit proposals outside allocated areas. Such circumstances could arise if, for example, it became apparent that some allocations were unlikely to come forward or they contained far less mineral than assumed. Minor temporary proposals for sand and gravel extraction in unallocated areas may be acceptable where they meet the criteria of incidental mineral extraction (see Policies M14.1 & M14.2).

POLICY M6.3 SAND AND GRAVEL EXTRACTION IN UNALLOCATED LAND

Proposals for sand and gravel extraction falling outside allocated areas will not be permitted unless it is evident that existing permitted reserves and the remaining allocations cannot sustain an adequate landbank and processing capacity as provided for in Policy M6.2.

Site by Site Analysis

ATTENBOROUGH

Background

- 6.53 This is the oldest active sand and gravel quarry in the County, dating back to at least the 1920's. Extraction in Nottinghamshire largely ceased in the early 1970's but has since continued in Derbyshire. However, the mineral is still brought by barge for processing at the original Nottinghamshire plant site at Long Lane, Attenborough. (NB. Production from this quarry is allocated to Derbyshire in the EMWPA surveys on which the local apportionment is based). The 190 hectares of workings in Nottinghamshire have been allowed to regenerate naturally and the area now forms an important Local Nature Reserve and SSSI.

Future assessment and planning issues

- 6.54 Current permitted reserves in Derbyshire are estimated to last until 2010 – 11. The Derby and Derbyshire Minerals Local Plan (adopted in 2000) allocates a further 1.6 million tonnes of reserves near Long Eaton that should, if permitted, provide a further seven to ten years of reserves. In resource terms there are no implications for Nottinghamshire during the current plan period.
- 6.55 The Long Lane Plant does, however, give rise to two main environmental concerns. First the plant site is very poorly located, being in a residential area where it causes noise and dust pollution. Access is also poor. Secondly, the nature reserve is contaminated by polluted water from the River Erewash, which enters the reserve through a wide breach needed to allow barges to reach the plant site from Derbyshire.
- 6.56 The Derbyshire Minerals Local Plan assumes that the Attenborough Plant will continue to be relied upon to process mineral from these allocations. Relocating the plant site is not ruled out, but the Derbyshire Plan does not actively promote this option. Instead it simply requires the existing plant site to be improved to an unspecified standard. Whilst the plant site can be improved, it is in such a poor location that such improvements can at best reduce the impact to a less unacceptable level. The preferred option must be to secure a more suitable location.
- 6.57 Planning permission to use the barge route extends to 31 December 2004. However the validity of retaining it beyond then may be contested and therefore the issues may not be resolved until after that date. If planning permission does lapse, then the current plant site may not be able to process mineral brought in from Derbyshire. It is not the County Council's policy to permit unacceptable minerals development or to prolong existing unacceptable situations where this is not necessary. Accordingly, no further extension of time for use of the barge route or to supply the plant by other routes will be permitted, unless there is adequate evidence to demonstrate that a more suitable plant site is not available. In addition, all other options for alternative processing of the minerals must be fully considered.

- 6.58 If the plant can continue to be lawfully operated after 2004, or there are no other feasible options, then the only option left is to secure environmental improvements to the Plant, if and when land allocated in the Derbyshire Plan is permitted. Such improvements will need to represent the best available techniques for reducing environmental impact. These would most probably be secured under a planning obligation, tied to the grant of any planning permission for extraction, which would require the agreement of both County Councils and the mineral operator. With regards to pollution of the nature reserve, the Derbyshire Plan makes adequate requirements for this to be resolved before any further reserves are permitted.
-

POLICY M6.4 ATTENBOROUGH PLANT – ENVIRONMENTAL IMPROVEMENTS

The County Council will not permit proposals which would prolong the use of the Attenborough Plant, unless there is adequate evidence to demonstrate that a more environmentally suitable alternative plant site is not available.

Where the County Council is satisfied that there is no alternative but to use the Attenborough plant, then the County Council will seek to negotiate substantial environmental improvements to the Attenborough plant site via a planning obligation and/or other such means as appropriate as part of any future proposal to process minerals extracted from land allocated in the adopted Derbyshire Minerals Local Plan.

Such environmental improvements should include:

- (a) A reduction in the noise and visual impact of plant and machinery on residential amenity;**
 - (b) measures to reduce the impact of dust nuisance caused by the sand stockpiles;**
 - (c) the enclosure of all conveyors and, where appropriate, conveyor motors to reduce noise impact;**
 - (d) use of water bowzers to reduce dust impact of quarry traffic;**
 - (e) metalling of internal roads beyond storage areas to reduce mud and dust impact;**
 - (f) sheeting of lorries to reduce mud and dust impact on public highways;**
 - (g) such additional landscaping, as appropriate, in order to reduce visual impact.**
-

EAST LEAKE

Background

- 6.59 Planning permission for this 41 hectare quarry was granted in 1991. The site is located within one of the few significant glacial sand and gravel deposits in the County. Reclamation is to be to agriculture and a nature conservation lake. The original purpose of this quarry was to supplement the company's Attenborough Quarry at a time of much higher demand expectations.

However, perhaps in response to the subsequent decline in demand during the 1990s, extraction did not commence until 2000.

Future assessment

- 6.60 The 2.8 million tonnes of reserves are expected to last until around 2016, based on the company's projected annual output of 180,000 tonnes. No further provision is therefore necessary for the current plan period. In view of the quarry's relative proximity to Nottingham it could act as a partial replacement to shortfalls arising in the Trent Valley downstream of Nottingham as considered below.

HOLME PIERREPONT

Background

- 6.61 Holme Pierrepont has been quarried for sand and gravel since the late 1940s. Over 350 hectares of land have been permitted most of which have been reclaimed back to water areas, including the lakes that now form the National Water Sports Centre. The quarry was closed for most of the 1990's due to exhaustion of reserves, but re-opened in 1999 following the granting of planning permission to extend the quarry. This was within land allocated in the previous Minerals Local Plan.

Future assessment

- 6.62 Reserves are expected to last until late 2003. Further extensions to Holme Pierrepont are limited to the land east of Sandy Lane as far as the railway embankment. The previous Plan identified strong environmental objections to working this area, because of the cumulative impact of encroachment around Holme Pierrepont village and unsatisfactory reclamation options. A new replacement quarry at Gunthorpe was allocated (see Para 6.68). This remains the stance for this replacement Plan.

HOVERINGHAM

Background

- 6.63 Hoveringham is the largest sand and gravel quarry in Nottinghamshire producing over half a million tonnes per annum. The quarry dates back to the 1940s and over 500 hectares have now been permitted. Reclamation has been both to agriculture and water. Agricultural reclamation was possible because for over 30 years PFA from Staythorpe Power Station was pumped into the worked out lagoons until the station closed in 1994. Water reclamation schemes include a large sailing lake near the riverside in addition to areas of nature conservation interest. The current workings west of the plant are exploiting land allocated in the previous plan. These will be reclaimed to a water based amenity area.

Future assessment

- 6.64 Existing permitted reserves are expected to last until 2007. Substantial reserves for extending the quarry exist principally north of the railway line and west of existing workings. The previous Plan concluded that further extensions would be environmentally unacceptable. Constraints include loss of attractive mature landscape areas and high quality agricultural land. Cumulative impact and encirclement of Hoveringham village is also a major

concern, not just with respect to the mineral extraction but also because it would create further water areas. Unlike Holme Pierrepont the current Plan did not make any provision to replace Hoveringham.

- 6.65 The previous plan also allocated a small extension near Bleasby, which represented a small rounding off of existing workings. It was expected to have a very limited environmental impact and would provide an opportunity to improve the reclamation of the adjacent workings to the west, which were subject to old planning conditions. In the event, the adjacent workings have since been satisfactorily reclaimed, so this advantage no longer exists. Estimated reserves have also been revised downwards from 500,000 to 200,000 tonnes which represents a reserve life of about 4 months. Although the significance of this allocation is very limited, it does provide an opportunity to recover mineral from a suitable area whilst the Hoveringham plant is still there to process it. It therefore remains appropriate to retain this allocation. Reclamation will be to a water area.
- 6.66 The main planning issues, which need to be taken into account, are:
- (a) The western boundary comprises a ridge that forms an ancient Parish boundary. This should either be preserved in-situ or preserved by record and re-instated when the site is reclaimed.
 - (b) A wooded field boundary within the site should be protected as far as practical.
 - (c) A public right of way along the northern boundary of the site provides an important link between Bleasby and Thurgarton. Measures will need to be taken to maintain this link during and following mineral extraction.
 - (d) The reclamation scheme should help meet biodiversity objectives set out in Policy M3.17 and be appropriate to the river meadowlands landscape type of the Trent Washlands.
 - (e) All extracted mineral must be transferred to the plant site by internal haul route.

POLICY M6.5 HOVERINGHAM (BLEASBY) ALLOCATION

7 hectares of land are allocated at Bleasby for sand and gravel extraction.

- 6.67 The Plan proposes to replace Hoveringham by allocating a new quarry at Gunthorpe (see below). Other existing and permitted quarries are also assumed to have some capacity to replace markets currently served by Hoveringham.

GUNTHORPE

Background

- 6.68 Gunthorpe is proposed as a replacement for Holme Pierrepont and Hoveringham quarries which, as noted above, are expected to close in 2004

and 2007 respectively. Gunthorpe was allocated in the previous Plan but has yet to been taken up. This was because the need for Gunthorpe was delayed due to the temporary closure of Holme Pierrepont Quarry throughout most of the 1990s.

- 6.69 This allocation lies adjacent to former sand and gravel workings, which were exhausted in 1978 and have only been partly restored. Although parts of the quarry have been filled with inert waste and PFA, most of the workings have been left as water areas, some of which have not received any remedial treatment. They have nevertheless developed a nature conservation interest and part of the site has since been designated as a SINC. Filling and agricultural reclamation conditions exist, but planning controls are ineffective and the landowner, Severn Trent Water, has also indicated a wish to develop the area for purposes including water recreation. The proposed allocation, along with an extensive tract of land to the west, is also owned by Severn Trent Water who use the area for sewage sludge disposal from their Stoke Bardolph treatment works. The extension of the Nitrogen Vulnerable Zones in England (implementing the EU Nitrate Directive) will reduce sludge application rates and restrict the timing of nitrogen fertiliser (i.e. sludge) application. The practice of sludge disposal onto agricultural land on the Stoke Bardolph Estate will remain for the foreseeable future.

Future assessment

- 6.70 The land allocated in the previous Plan contained an estimated 3-4 million tonnes sufficient for 12 – 16 years as a replacement to Holme Pierrepont.
- 6.71 Whilst Gunthorpe remains a suitable site for replacing Holme Pierrepont, it also represents the only acceptable local option for replacing Hoveringham, at least in terms of serving markets in the Nottingham area. Gunthorpe therefore has a key long-term role in maintaining local supplies of sand and gravel for the Nottingham area.
- 6.72 The mineral operator has indicated that Gunthorpe could initially serve as a replacement to Holme Pierrepont in 2004, where it would produce about 250,000 tonnes per annum. In 2007 production could then be increased to around 450,000 tonnes per annum to help replace Hoveringham. Although significantly less than the 750,000 tonnes per annum currently produced by both quarries, this is unlikely to cause any supply problems for a number of reasons. First, some reduction in overall capacity and number of quarries is desirable in order to match more closely lower levels of demand. Secondly, as noted earlier, a new quarry at East Leake has recently come on stream, which, if necessary, could help supply the Nottingham area. There is also surplus capacity north of Newark, which could serve markets to the north and east of Hoveringham. These comprise an uncommenced quarry at Cromwell and a mothballed quarry at Gorton (see Paras 6.76 and 6.84 for details).
- 6.73 If production follows the above predictions, reserves at Gunthorpe within the existing allocation will be exhausted by 2014. In view of the site's key role, additional reserves to the west are also allocated. This area contains an estimated 2.5 million tonnes, sufficient for a further 5 years. This larger area probably represents the ultimate acceptable limits of this proposed quarry, the

main constraint being that any further extensions would inevitably begin to encroach towards residential areas.

- 6.74 The mineral operator has indicated that part of the allocation could be filled with inert waste. This may principally comprise construction and demolition waste that is not suitable for use as a secondary aggregate. The Waste Local Plan has indicated that a shortfall in disposal capacity for construction and demolition exists in the Greater Nottingham area and Gunthorpe is identified as a possible local option to help meet this shortfall. Partial backfilling will allow a more flexible approach to reclamation and avoid excessive water areas being created.
- 6.75 The main planning issues, which need to be taken into account, are:
- (a) A new access will need to be constructed linking to the A6097, north of Gunthorpe village.
 - (b) The plant site should be sensitively located to minimise visual impact.
 - (c) Screening along the western and southern boundaries will be necessary to protect distant views from Bulcote and Shelford. Advance planting should be pursued to maximise effectiveness.
 - (d) Hedgerows along internal roads should be conserved and maintained, (except where needed for crossing points).
 - (e) Significant archaeological remains will need to be treated in accordance with Policy M3.24.
 - (f) Any proposal must include a comprehensive reclamation scheme covering the existing workings, where, as noted above, after-use issues remain to be resolved. In principle a water recreational and/or conservation after-use for both the existing workings and allocated areas appear to be acceptable. The existing SINC should be protected and where possible enhanced.
 - (g) The reclamation proposal should include agricultural reclamation based on a significant part of the site being reclaimed to original ground levels by filling with inert waste. This is to avoid the creation of excessive water areas.
 - (h) The viability of using barge transportation, for a proportion of the mineral output and waste input, should be demonstrated in accordance with Policy M3.15.

POLICY M6.6 GUNTHORPE ALLOCATION

150 hectares of land are allocated at Gunthorpe for sand and gravel extraction.

CROMWELL

Background

- 6.76 Cromwell Quarry was permitted in 1998, following its allocation in the previous plan. This planning permission has not been commenced, perhaps because local demand is insufficient to justify a new quarry. Cromwell Quarry

effectively replaces an adjacent worked out quarry, which now imports and processes river dredgings for secondary aggregates as part of the reclamation scheme (see Chapter 9 for details on the use of river dredgings as a secondary aggregate).

Future assessment

- 6.77 Reserves are estimated at 2.5 million tonnes and have a planned annual extraction rate of 200,000 tonnes. This means that even if the quarry was developed in the near future, reserves should be sufficient until at least 2017. No further provision is necessary for the current plan period.
- 6.78 If developed, Cromwell could help supply some of the markets currently met by Hoveringham Quarry and quarries in the Idle Valley once those sites close.

LANGFORD LOWFIELDS

Background

- 6.79 Langford Lowfields Quarry opened in 1990 in order to replace production from a worked out quarry at Newark. The quarry is being reclaimed in phases to a major wildfowl reserve. A quarter of the site has been fully restored and is managed by the RSPB who will take over the whole of the site once completed.

Future assessment

- 6.80 Reserves at Langford are estimated to last until 2017 based on annual production of 400,000 tonnes. No further provision is necessary for the current plan period.

BESTHORPE

Background

- 6.81 Extraction at Besthorpe goes back to at least the early 1940s, and the current permitted area now totals over 330 hectares. Large areas of land have been reclaimed to agriculture by infilling with PFA which, since the 1960s, has been imported by pipeline from High Marnham Power Station, until its closure in May 2003. A number of water areas, mostly of nature conservation value, including 'The Heronry' have also been created. A new wharf has been built which transports sand and gravel by barge to a new Europort at Wakefield and as a result annual production may increase from 250,000 to 400,000 tonnes.
- 6.82 The current extraction area is within a major planning permission granted in 1995 that saw the relocation of the plant and access. These workings are to be progressively reclaimed back to a nature reserve to be managed by the Nottinghamshire Wildlife Trust.

Future assessment

- 6.83 Current permitted reserves should be sufficient until 2013, based on annual production of 400,000 tonnes. Further extensions at Besthorpe are possible, but as the Plan is expected to be fully reviewed by 2009 it is considered more appropriate to assess the need for allocating further reserves at that time.

GIRTON

Background

- 6.84 Girton Quarry opened in the early 1950s and the permitted area extends to around 300 hectares. However, the quarry was 'mothballed' in late 2000 as a result of company reorganisation. This has meant that Girton Quarry is no longer required to supply markets in Humberside. These markets are now being supplied from reserves outside Nottinghamshire and the mineral operators consider there is insufficient local demand to justify keeping Girton open.
- 6.85 Girton, like Besthorpe, has used barge transport as well as road. Land allocated in the previous Plan was permitted in 1999 and when worked, will be reclaimed back to agriculture and wetland conservation.

Future assessment

- 6.86 The 1999 planning permission contained a resource of 4.9 million tonnes, which had a planned rate of extraction of 275,000 tonnes per annum. Prior to the quarry being mothballed this would have been sufficient until around 2016. In practice reserves should last much longer as the operator has indicated that Girton is only likely to re-open when needed to help replace demand met by the closure of other quarries, such as Hoveringham and Lound. This suggests that Girton will remain closed until at least 2004 and therefore will have sufficient reserves for the plan period.

RAMPTON

Background

- 6.87 Although planning permission was originally granted in 1966, extraction at Rampton did not commence until the early 1980s. Current reserves are expected to last until mid-2003. The quarry is unique in having barge-only access for mineral sales. Reclamation will be to agriculture by pumping in PFA from Cottam Power Station.

Future assessment

- 6.88 The current Plan allocated two areas at Rampton that amounted to 24 hectares of land. The small allocation has been permitted, but the main allocation east of the quarry has not been taken up. This is now expected to provide reserves of 350,000 tonnes that is anticipated to extend the life of the quarry to 2005.
- 6.89 Few on-site constraints exist, apart from the Cottam Wetlands SINC to the east of the site, and the remote location and barge-only access has made it a very suitable location for mineral extraction. Furthermore, Rampton has a supply of PFA, from the adjacent Cottam Power Station, which should allow reclamation back to original ground levels. This allocation is retained for the next Plan period.
- 6.90 Subject to a satisfactory working and reclamation scheme, which should aim to enhance the area's biodiversity and the value of the SINC, no new issues are raised by this allocation.

POLICY M6.7 RAMPTON ALLOCATION

20 hectares of land are allocated at Rampton for sand and gravel extraction.

- 6.91 No further extensions are possible for geological reasons. In the short term the mineral operator has indicated that markets can be met by barge operations at Besthorpe. Thereafter, once reserves at Misson are exhausted, Sturton le Steeple will become available.

STURTON LE STEEPLE

Background

- 6.92 Sturton le Steeple is allocated as a partial replacement site to Rampton and quarries at Misson and Lound in the Idle Valley, where shortfalls are expected to arise in 2005 and 2007/8 respectively. Although the site is further from the main Yorkshire markets served by the Idle Valley it represents the closest available economic reserve of the required size.

Future assessment

- 6.93 The total allocation of 313 hectares contains an estimated 10 million tonnes of sand and gravel, with 1.25 million tonnes of mortar sand. Mineral extraction is limited to 123 hectares within the centre of the allocation, the remaining area being needed to accommodate the Plant site, potential wharf site, stockpiles overburden and soil heaps. The mineral operator has indicated that production of sand and gravel will start at around 250,000 tonnes per annum, when its main role will be to replace Rampton, but will increase to 500,000 tonnes per annum to replace shortfalls in the Idle Valley providing a reserve life of 22 years. This compares to the 650 – 700,000 tonnes per annum produced from the existing three quarries. Although a net loss in replacement production capacity, other sites in the Trent Valley north of Newark, including a dormant quarry at Girton (see Paragraphs 6.84-6.86) have the capacity to supply similar markets.
- 6.94 Sturton le Steeple is a relatively remote site with few on-site constraints. The main planning issues, which need to be taken into account, are
- (a) the impact on the local highway network, which will require legal agreements to control traffic movements to avoid Sturton le Steeple and Retford;
 - (b) the plant site should be sensitively located to minimise visual impact;
 - (c) a new access will need to be constructed to the north of Sturton le Steeple. Advanced screening should be undertaken along the line of the proposed access to protect views from Sturton le Steeple. Access through the Power station may be possible and could offer an acceptable alternative option;
 - (d) the viability of using barge transportation for at least a proportion of production should be demonstrated in accordance with Policy M3.15;

- (e) impact on footpaths and bridleways and need for suitable alternative routes;
 - (f) archaeological remains are also likely to exist and will require further investigation;
 - (g) the restoration will involve significant water areas. These should be used for significant nature conservation that will promote new habitats and species in line with the LBAP;
 - (h) 31% of the site is grade 3a agricultural land, as much of this should be returned to equivalent standards;
 - (i) important land drains cross the site. Drainage provisions should be retained during and after mineral extraction, in accordance with Policy M3.8.
- 6.95 It is possible that at least part of the workings could be filled with ash from Cottam and/or West Burton Power Stations. In principal, this may provide another acceptable reclamation option as it would enable a much greater area of the quarry to be returned to agriculture and would minimise the degree of landscape change. An important environmental consideration would be how the ash would be taken to the quarry, with a pipeline and/or internal haul routes likely to be the only acceptable options. The disposal of ash would also need to conform to policies in the adopted Waste Local Plan.

POLICY M6.8 STURTON LE STEEPLE ALLOCATION

313 hectares of land are allocated at Sturton le Steeple for sand and gravel extraction.

SUTTON AND LOUND

Background

- 6.96 This area has a complex planning and extraction history, which goes back to at least the 1940s. Extraction is from two quarries which with a combined annual output of 6-700,000 tonnes per annum are the most important source of sand and gravel in the Idle Valley.
- 6.97 A third small quarry at Chainbridge Lane, Lound ceased in 2001. This supplied a plant at Auckley, South Yorkshire. There were no options to extend this quarry and the operating company has since replaced it with a site at Misson (see para 6.111).
- 6.98 Sutton and Lound used to be the site of the largest PFA infilling scheme in the County, the ash being pumped by pipeline from Cottam Power Station. Filling began in the 1970s but ended in the early 1990s due to a major pipeline failure. PFA reclamation includes high-level lagoons, which visually have not proved to be a success. Extensive water areas also exist. Recent emphasis has been placed on developing a 'wildlife corridor' along the River Idle by preserving some existing water areas and allowing new areas to be developed. An area of exhausted, unrestored workings has been designated as a SINC and is currently being considered for SSSI status.

- 6.99 Lound Quarry is currently working land at Blaco Hill, which was allocated in the previous Plan. The Bellmoor plant is being supplied with mineral worked at Tiln. The reclamation schemes for both current extraction areas include a significant proportion of water, although some agricultural reclamation is possible by backfilling with overburden and deepening the quarry floor and using the material excavated to reclaim other areas back to previous levels.
- 6.100 Access to Lound quarry, which goes through the middle of the village, is not ideal and was raised as an issue in the previous Plan. However, a new access did not prove viable when Blaco Hill was permitted, and is unlikely to be so now. Even if a new access is possible, a significant quantity of sand and gravel will still pass through the village to reach the concrete block making plant at Chainbridge Lane. This mineral currently goes direct to the plant from the quarry so avoids passing through the village.

Future assessment

- 6.101 Reserves at Blaco Hill and Tiln are likely to be worked out by 2004/5.
- 6.102 An existing allocation east of the River Idle, which contains an estimated 2 million tonnes of sand and gravel, remains to be taken up. The previous plan noted that this could supply either plant and whilst both plants could process the sand and gravel, the Lound Plant is much easier to reach by conveyor and avoids disturbance to the wildlife area. Using Lound Plant would secure reserves at Lound until 2008. The mineral operator has indicated that production from Bellmoor/Tiln will be transferred to Girton quarry (see Paragraph 6.86).
- 6.103 The previous Plan assumed that most of this allocation would be reclaimed back to agriculture with ash from Cottam Power Station. Some water areas adjacent to the river could be included as part of the development of a 'wildlife corridor'. However closure of the ash pipeline effectively rules out agricultural reclamation. Apart from the issue of creating more large water areas, the presence of high quality agricultural land is a significant constraint.
- 6.104 The main planning issues, which need to be taken into account, are:
- (a) The reclamation scheme should continue to promote the concept of a wildlife corridor along the River Idle.
 - (b) Impacts on biodiversity and the opportunities for enhancing biodiversity through habitat creation and management.
 - (c) 60% of the site is classified as best and most versatile agricultural land, and much of this should be returned to equivalent standards.
 - (d) Full details on the archaeology of the site should be submitted and may require further works to be carried out. Some areas may require preservation in-situ.
 - (e) The retention of the ecologically valuable areas of Tiln Holt with at least an equivalent amount of woodland being replanted to replace those areas lost, using species that meet LBAP targets which are in accordance with the Countryside Appraisal. Ancient and species rich hedgerows should be retained due to their habitat importance.

- (f) Advanced screening measures should be implemented at an early stage to mitigate any impact upon Tiln Hamlet.
-

POLICY M6.9 LOUND ALLOCATION

119 hectares of land are allocated at Lound east of the River Idle for sand and gravel extraction.

- 6.105 This allocation is believed to represent the limits of the economic sand and gravel resource east of the Idle. Further resources, totalling 3 million tonnes, have been identified to the west of the Great North Road and south of Barnby Moor. Whilst this land could follow on from the allocation east of the Idle, this land is not without significant environmental constraints. These include the impact on residential amenity on Barnby Moor, archaeology and the Chesterfield Canal SINC. There is also the significant issue of cumulative impact within an area that has seen very extensive mineral extraction and changes to landscape character. These factors suggest that alternative replacement quarries, in the Trent Valley north of Newark, offer more environmentally acceptable solutions. In addition to the re-opening of Girton quarry noted above, a major new quarry at Sturton le Steeple is allocated for this purpose.

SCROOBY

Background

- 6.106 Sand and gravel has been worked in the Scrooby area since the 1930s when Rotherham Sand and Gravel Ltd opened up a quarry at Scrooby Top. This quarry originally worked glacial sand and gravel but then continued down into the Sherwood Sandstone (see Chapter 7, Para.7.50). The company has since supplied sand and gravel to the Scrooby Top plant from a number of small alluvial workings at Scrooby and Ranskill. Reclamation has included both water based and agricultural after-uses. Current workings are within two quarries known as Scrooby North and Scrooby South, which will also be reclaimed to a mixture of water and agricultural after-uses. A dormant planning permission exists east of the railway line.

Future assessment

- 6.107 Sand and gravel extraction has normally been very small scale and erratic, the main product at Scrooby being sand derived from Scrooby Top. In view of the uncertainty of future requirements and limited environmental impact, the previous plan adopted an Area of Search approach. This allowed further reserves to be permitted, which would maintain historic levels of production subject to environmentally acceptable schemes.
- 6.108 The life span of the sand and gravel reserves at the Scrooby North and South quarries remains uncertain, but is likely to be sufficient for the Plan period based on recent production. Further extensions are possible, but in view of the long term nature of the shortfall, it is proposed to defer consideration until the next review of the Plan.

MISSON

Background

- 6.109 Sand and gravel extraction at Misson goes back to at least the 1930s where a patchwork of quarries totalling over 600 hectares have been permitted. The thin deposits and low water table level have generally allowed sites to be rapidly worked and reclaimed back to agriculture at a lower level. Water areas have generally been limited to small sumps needed to assist drainage. There are currently two main quarries at Misson both of which supply processing plants in South Yorkshire. Grey sand is also produced on a small scale, which is considered separately below (see para 6.119).
- 6.110 **Misson (Finningley) Quarry**, produces around 300,000 tonnes per annum, and is the larger of the two quarries. The mineral is taken by internal haul road to a plant on adjacent land in South Yorkshire. The remoteness of this quarry from residential areas and rapid reclamation means that the workings have had little environmental impact.
- 6.111 **Newington North Quarry** produces approximately 100,000 tonnes per annum and serves as a replacement for a related quarry at Lound which closed in 2001. The mineral is taken by road for processing off-site at Auckley, South Yorkshire.

Future assessment

- 6.112 Misson (Finningley Quarry) is expected to increase output to 400,000 tonnes per annum which means that reserves will run out in 2006. Newington North has reserves until 2007.
- 6.113 The previous Plan relied on an 'Area of Search' approach at Misson, because the lack of reliable geological information on this extensive, but unpredictable, resource precluded the allocation of specific sites. A number of planning permissions were subsequently granted under that approach. However, recent geological investigations and environmental concerns suggest that environmentally acceptable options are limited to extensions to both existing sites, as considered below.
- 6.114 A 64 hectare northern extension to Misson (Finningley) Quarry contains an estimated 1.2 million tonnes which would provide reserves until 2009. This land represents a logical extension, which, subject to a satisfactory working and reclamation scheme, raises no new environmental issues.
- 6.115 A further northern extension, which would extend the life of this quarry to around 2012, exists in South Yorkshire. This is believed to represent the ultimate limits of this quarry and does not appear to be any more environmentally constrained than the allocated area. Any planning proposals affecting this land would be the responsibility of Doncaster Metropolitan Borough Council to determine and thus fall outside the scope of this Plan. _

POLICY M6.10 MISSON (FINNINGLEY) ALLOCATION

64 hectares of land are allocated at Misson (Finningley) Quarry for sand and gravel extraction.

- 6.116 57 hectares of land adjacent to Newington North Quarry contain an estimated 1.5 million tonnes which should provide reserves for an additional 10 years, until 2017. Again, the extracted mineral would be transported to the operator's processing plant in South Yorkshire. If the site is not worked as an extension to the operator's existing quarry, this resource is likely to become sterilised due to it being far less economically viable to work.
- 6.117 The site is adjacent to the River Idle Washlands SSSI which covers an area of approximately 10 hectares. The SSSI also once covered the southern extension before being reduced in size when this land was drained for agricultural purposes. Careful working of the southern extension, coupled with a sensitive restoration scheme, provides an opportunity to reinstate the ecological value of the area which has been lost.
- 6.118 The main planning issues, that need to be taken into account, are:
- (a) The reclamation scheme provides an opportunity to substantially contribute to local Biodiversity Action Plan targets for lowland wet grassland habitats (see Table 3.1) and also provide important wintering sites for bird communities;
 - (b) HGVs should not travel to and from the quarry through the village of Misson;
 - (c) The levels of HGVs entering and leaving the site should not result in an unacceptable environmental impact on residents in Newington;
 - (d) Important archaeological remains at the site should be fully recorded in accordance with an agreed scheme prior to extraction.

POLICY M6.11 NEWINGTON ALLOCATION

57 hectares of land are allocated at Newington, south of Slaynes Lane, for sand and gravel extraction.

MISSON GREY SAND

- 6.119 Deposits of grey building sand occur erratically at Misson, sometimes below the sand and gravel and sometimes at the surface. Historically, this sand has been worked on a relatively small scale, often in association with sand and gravel extraction. This sand is used as grey mortar sand, which has a premium value, because most local mortar sands are red or yellow being derived from the Sherwood Sandstone.
- 6.120 The sand is currently worked at three sites comprising Misson West (as noted above), Misson Grange and Misson Bawtry Road.
- 6.121 Although counted as sand and gravel in planning and landbank terms, it would be inappropriate to treat it as normal sand and gravel resource when assessing 'need'. This is because the grey sand serves a particular niche which alluvial sand and gravel cannot meet. It is therefore reasonable to allow the continued production of this sand, irrespective of the prevailing countywide sand and gravel landbank, providing it can be worked in an environmentally acceptable way and on a similar scale to historic levels.
- 6.122 The main local environmental issues concern the protection of the residential amenity of Misson and Newington villages, as well as the presence of significant archaeological remains.
-

POLICY M6.12 MISSON GREY SAND – AREA OF SEARCH

Proposals at Misson to extract grey sand will be permitted providing that:

- (a) they have no significant adverse environmental impact, in particular on the amenity of Misson and Newington, and**
 - (b) the proposal will maintain recent historic levels of grey sand production in the Misson area.**
-

Chapter 7 Sherwood Sandstone



Sherwood Sandstone Extraction at Bestwood 2 Quarry

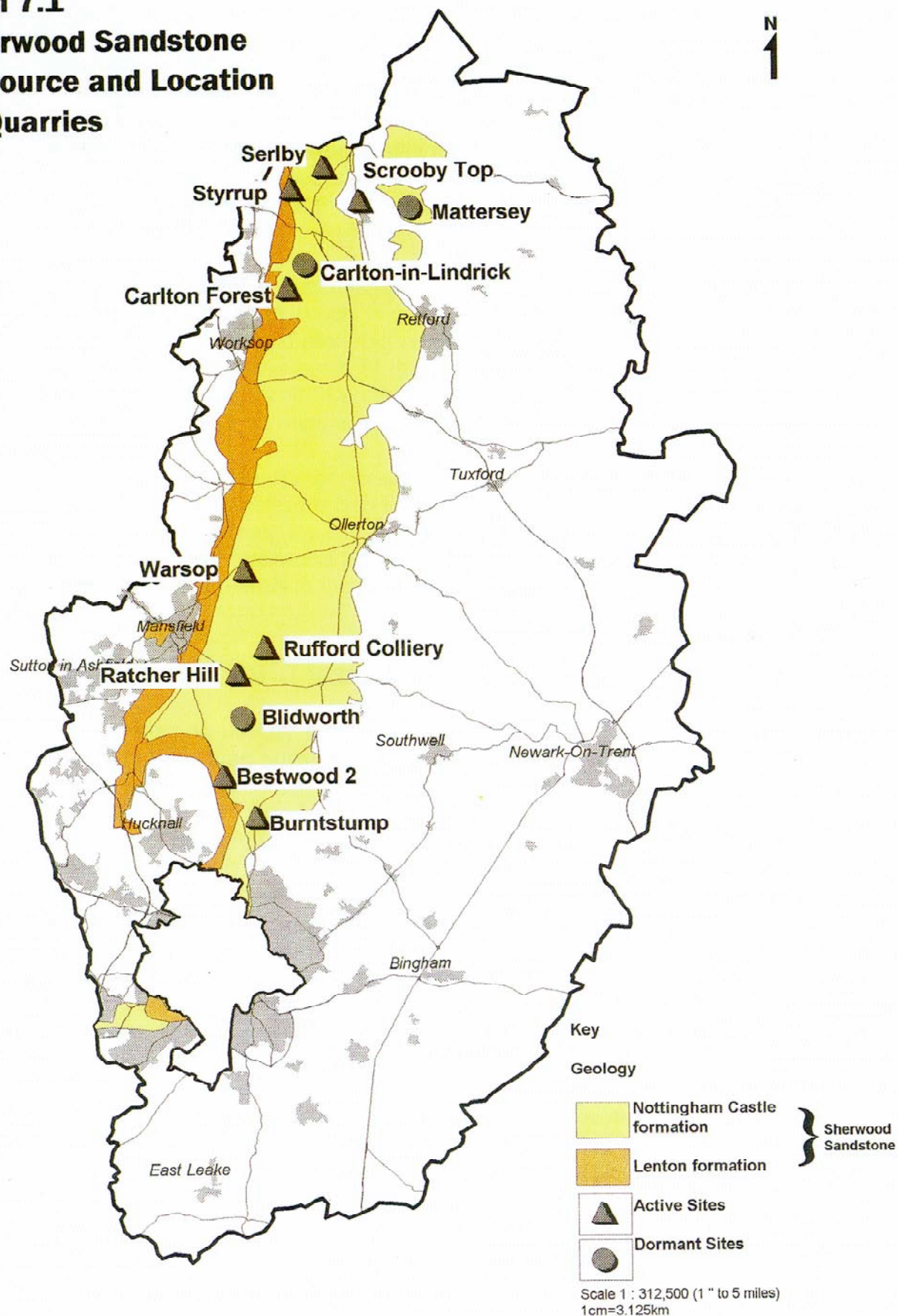
Introduction

- 7.1 Sherwood Sandstone is an important aggregate mineral and source of soft building sand accounting for a third of the County's sand and gravel production. In addition to producing sand for asphalt and mortars, it is also used for more specialist aggregate and non-aggregate (silica sand) uses.
- 7.2 Silica sand (also known as 'industrial sand') is sand which contains a high proportion of silica in the form of quartz and is marketed for purposes other than for direct use in the construction industry. Major uses include the glass and foundry casting industries. Extraction and processing of silica sand differ considerably from aggregate sand and gravel production, and different planning guidance also applies. Silica sand production and provision is considered separately at the end of this Chapter.

Geology

- 7.3 The Sherwood Sandstone outcrop covers nearly a quarter of the County, occurring as a broad belt between Nottingham and South Yorkshire, and gives rise to the attractive landscape of Sherwood Forest (see Plan 7.1). The deposit thickens northwards from 100 metres near Nottingham to 300 metres east of Worksop and thus the potential resource is vast. The sandstone is also a major aquifer, and serves as an important water supply for a wide area.
- 7.4 The deposit comprises 2 distinct horizons. The lowest 20-50 metres consist of fine soft red sandstones with up to 10% clay, which have been worked as naturally bonded moulding sands. These comprise the 'Lenton Formation' and are overlain by 80-250 metres of clean coarse-grained sandstones which are the main source of aggregate sand.
- 7.5 There are few geological guidelines to identify where particular grades of sand are likely to be found. Natural variations occur, but these can to some extent be corrected by processing. The end-use seems to be as much a function of what is required than any special characteristic of the original deposit. However for small sites, where only limited processing may be economic, this could restrict end-use options. There may also be some preference for particular colours in mortar production.
- 7.6 Asphalting plants are set up to deal with a particular sand within the basic specification and they cannot just switch to another source, at least not without modifications and expensive tests. Some sands are 'natural' asphalting sands, others may meet the coarse or fine element and can be blended at the plant.

Plan 7.1 **Sherwood Sandstone** **Resource and Location** **of Quarries**



Method of Working and Environmental Impact

- 7.7 After stripping a normally thin cover of soil and overburden, the sandstone can be readily broken down to sand and removed by scrapers or hydraulic excavators. At some sites only minimal processing is required and a small mobile dry screen may be adequate. At others, a large fixed washing plant is needed to 'hydraulically classify' the sand. The latter has the advantage of being able to process lower quality mineral and/ or to produce a wider range of products with a degree of quality control. Washing plants need silt ponds which greatly increase the operational area above that required for dry screening processes.
- 7.8 Despite the potential thickness of the deposit, excavations rarely exceed 30 metres, and are often much less. Geological and hydrological constraints, quarrying logistics, and planning controls are frequent limiting factors. A few sites, especially in the north of the County breach the water table, but most are worked dry. This often enables the plant and stockpile area to be located on the quarry floor so minimising visual and noise impact.
- 7.9 Agricultural land quality generally falls outside the best and most versatile categories and is therefore less likely to be a significant constraint. In contrast, recent evidence has indicated that important archaeological remains are widespread. The Sherwood Sandstone also contains the largest concentration of surviving heathlands in the County, (see Chapter 4, Para 4.46).

Reclamation and After-use

- 7.10 Sand extraction usually leaves a moderately deep dry void with little on-site material, other than soils, for use in reclamation. Whilst reclamation to a low level is usually technically possible, its success will largely depend on how the sandpit can be blended into the surrounding landscape. In some circumstances partial or total infilling with waste may provide a better reclamation option in terms of landform and after-use. The main constraint to waste disposal is the fact that the Sherwood Sandstone is a major aquifer, which normally limits infilling to inert construction and demolition material. In the past household commercial and industrial waste has been permitted at some sites, but new restrictions brought in by the Environment Agency may preclude this option across most if not all of the Sherwood Sandstone resource. Any proposals involving waste disposal would need to take account of relevant policies in the Waste Local Plan and Chapter 4.
- 7.11 Although reclamation to agriculture may be possible, the thin sandy soils are not naturally suited to protecting high quality agricultural land. Satisfactory yields normally require intensive irrigation and nutrient additions. The latter can itself represent a potential threat to the aquifer.
- 7.12 In contrast, reclamation to native oak and birch woodland, or the recreation of indigenous heathland, can take place even where soils are poor or absent, thus helping to conserve and enhance the natural landscape character of the Sherwood Forest area. This accords with a number of County strategies,

including the Nottinghamshire Local Biodiversity Action Plan (LBAP), the Sherwood Initiative, Countryside Appraisal, and the Structure Plan Review. Amenity woodland and nature conservation is usually a preferred after-use within the Sherwood Forest area, as indicated in Policy M4.13.

- 7.13 Reclamation of sites to other after-uses, such as built development or open space, may be appropriate, particularly in urban areas where constraints such as access or proximity to housing preclude filling. Under such circumstances, or where existing arrangements for reclamation are unsatisfactory, alternative proposals for reclamation will be considered.

Supply and Demand

Sources of Information

- 7.14 Information on countywide sales, reserves and distribution of Sherwood Sandstone is collected by the East Midlands Working Party on Aggregates (EMWPA) as described in Chapter 6, Para 6.16.

Recent Production History and Trends

- 7.15 The overall trend for Sherwood Sandstone production during the previous Plan period has been downwards, in line with national and local trends for sand and gravel production.
- 7.16 In Nottinghamshire production of Sherwood Sandstone reached a peak of 1.15 million tonnes in 1992 only to fall back to an average of 0.7 million tonnes from the late 1990s, see Figure 7.1 below. This excludes production of silica sand which has averaged 0.15 million tonnes between 1997 and 2001.

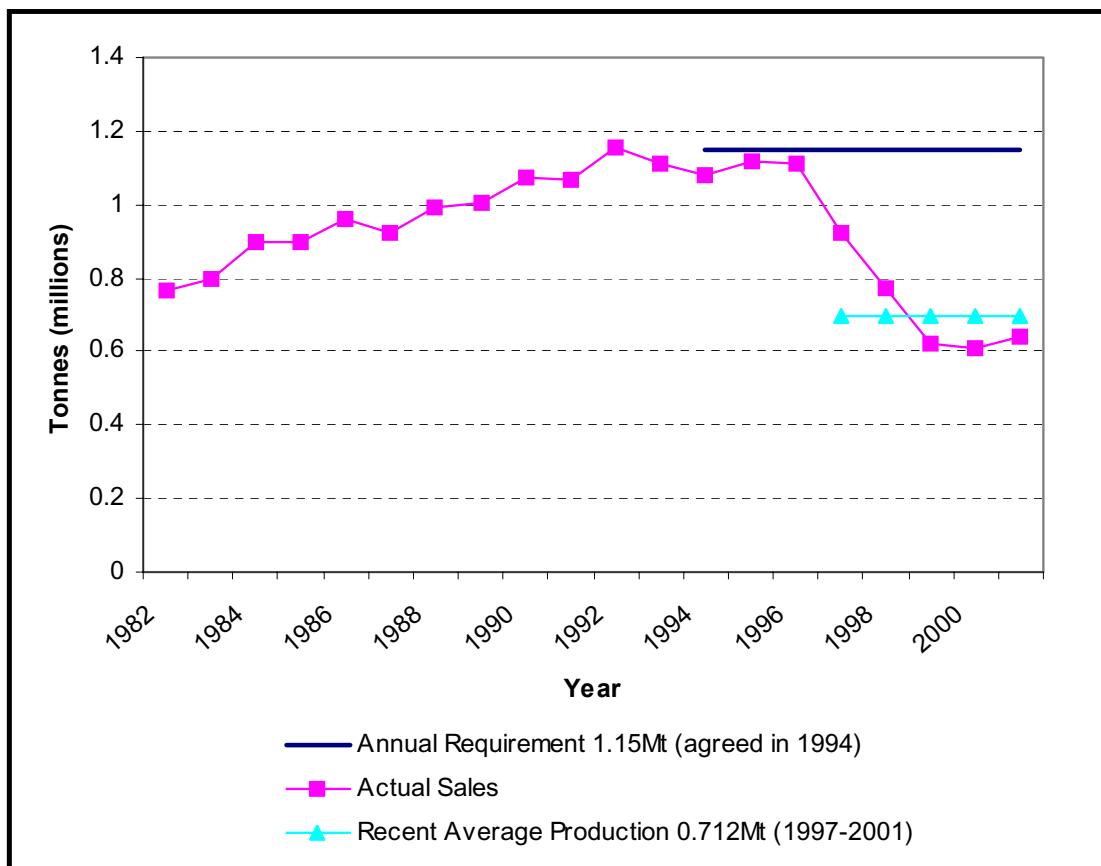
Markets

- 7.17 The quarries have a wide geographical spread across the Sandstone outcrop, from Burntstump in the south to Serlby in the north. The main concentration of large sites is found between Nottingham and Mansfield. The size and nature of each quarry is very variable ranging from large units producing well over 100,000 tonnes per annum to small units producing a fraction of this output.
- 7.18 Less than half the County's production is used within Nottinghamshire. The biggest exports are to Derbyshire and Leicestershire. Large coating plants in rock quarries in Derbyshire and Leicestershire are probably the main consumers of this sand. Unlike sand and gravel relatively little sand goes to Yorkshire and Humberside.
- 7.19 At Mansfield, Sherwood Sandstone is also worked for non-aggregate silica sands and is discussed later.
- 7.20 Sales of non-aggregate sand and the more specialist aggregate sands have very different markets that can extend across a wide area and include exports outside the UK.

Consideration of future demand

- 7.21 Sherwood Sandstone is subject to the same demand forecast and criteria as specified in MPG 6. Details are set out in Chapter 6, Paras 6.22 – 6.27 which should be referred to in conjunction with the text below. Particular attention is drawn to the revision to MPG6 and new guidelines on future demand for aggregates.
- 7.22 Using the approach approved by the East Midlands Regional Assmely in February 2004, this Plan will base future provision on an annual production rate of 0.7 million tonnes. This compares very closely to recent average production levels which have been well below the previous apportionment figure of 1.1 million tonnes per annum agreed in 1994 (see Figure 7.1 and Table 7.1).
- 7.23 The 0.7 million tonnes per annum level of provision is not a target, but it does provide a context on which to assess future requirements. Future sales of Sherwood Sandstone are unlikely to follow a uniform trend. As noted for sand and gravel, in addition to any underlying demand trends, changes to the industry can have a significant impact on local sales.

Figure 7.1 Nottinghamshire Sherwood Sandstone Production – 1982-2001



**Table 7.1 Nottinghamshire's Share Of Regional Sherwood Sandstone Production (based on approach approved by East Midlands Forum in February 2004)
(excludes Sand and gravel – see Table 6.1)**

	E. Midlands X 1000 tonnes	Nottinghamshire	
		X 1000 Tonnes	% Regional Share
1997	11,315	922	8.15
1998	9,995	772	7.72
1999	10,369	621	5.99
2000	9,939	606	6.09
2001	10,149	641	6.32
Average 1997-2001	10,353	712	6.88
Forecast Provision 2001-2016	10,313*	709 (0.7Mt rounded)	6.88**

*Values exclude silica sand production.

** Notts' recent regional share of 6.88% assumed to apply for forecast period.

Future Provision

Landbanks

- 7.24 MPG6 recommends that for sand and gravel a landbank of permitted reserves should be maintained at a minimum level of 7 years. Although the Government is reviewing the landbank concept in its proposed review of MPG6, until the outcome of this is known this Plan will assume that the above landbank requirement will apply. This corresponds to 4.9 million tonnes (i.e. 7 years at an annual requirement of 0.7 million tonnes).

POLICY M7.1 SHERWOOD SANDSTONE LANDBANK

The County Council will endeavour to maintain a landbank of permitted reserves of Sherwood Sandstone sufficient for at least 7 years extraction and also an adequate production capacity in order that Nottinghamshire will meet its reasonable share of regional provision of aggregates throughout the plan period.

Estimating Future Requirements

- 7.25 In accordance with MPG6, the Minerals Local Plan must demonstrate that suitable resources exist which can sustain a 7 year landbank. In this respect MPG6 advises that, whilst sufficient resources must be identified to sustain production throughout the plan period, it is not intended that plans should make full provision for maintaining a landbank beyond the end of the plan period. Nevertheless local plans should ensure that such resources could be brought forward if necessary. This approach provides flexibility by allowing more long-term shortfalls to be more properly assessed against future reviews of MPG6 and the Minerals Local Plan.
- 7.26 At the end of 2001 permitted reserves of Sherwood Sandstone stood at 12.6 million tonnes. This figure includes reserves which will most probably be used for silica sand purposes. Whilst no published figure for this component exists, it is reasonable to assume that a significant proportion of reserves at Ratcher Hill Quarry (see paras 7.41 – 7.45) will be used for silica sand. This suggests that permitted reserves of aggregate sand are more likely to be around 10 million tonnes. This corresponds to a landbank of nearly 18 years and thus sufficient until 2019. In order to maintain a 7 year landbank at the end of the plan period a further 1.4 million tonnes would be required. However, as noted above, MPG6 does not suggest that Local Plans must make full provision for this period.
- 7.27 Whilst the Countywide landbank is high, the reserves are very unevenly distributed between individual quarries and some sites will run out of reserves well before the end of the plan period. If the County is to maintain an adequate production capacity then further reserves will need to be released. The Countywide landbank also does not take account of the fact that, unlike sand and gravel, the individual quarries do not generally produce the same products. Some quarries produce mainly asphalt sand, others mortar sand where differences in colour may be important. This factor will be taken into account in assessing need and adequacy of production capacity in Policy M7.1.
- 7.28 It is considered appropriate to meet these shortfalls by identifying suitable resources as site specific allocations. The criteria for selecting allocations are set out below.

Dormant Sites

- 7.29 In the previous Plan period the landbank of permitted reserves was much higher which was in part due to the presence of a significant number of dormant sites reflecting a large over-capacity. Policies in the previous plan were effective in seeing most of these dormant planning permissions revoked as a condition for new reserves being permitted in more suitable locations. Although some dormant sites remain this is not now such an issue and, where appropriate, is dealt with on a site-specific basis below.

Selecting Allocations

- 7.30 The general approach to selecting allocations is as described for sand and gravel (see Chapter 6, Para 6.33 for details). In summary information on potential sites provided by the industry and landowners has been subject to a

'Sustainability Appraisal' in order to assess which options were the most suitable in sustainability terms and which were also capable of meeting a specific shortfall. In accordance with advice on MPG6 (Para 69), the initial preference was to consider extensions, as this approach generally results in less environmental impact, but where appropriate, extensions have been compared against potential new greenfield capacity. Protecting the commercial interests of individual companies has not been a factor in site selection. Account has also been taken of the lower level of provision which suggests that not every site that runs out of reserves necessarily needs to be replaced.

List of Allocations

- 7.31 A total of 5 sites containing an estimated 5.6 million tonnes were put forward for consideration. The outcome of the above assessment has been to allocate a total of 28.7 hectares containing an estimated 2.6 million tonnes. This has been distributed as extensions to 3 sites. No new greenfield capacity has been favoured, (see Table 7.2).

Table 7.2 Sherwood Sandstone Extraction – Summary Of Proposed Allocations		
Allocation	Hectares	Million Tonnes
Rufford	7.5	0.7
Scrooby Top	9.2	1.1
Carlton Forest	12	0.8
Totals	28.7	2.6

Proposals in Allocated Areas

- 7.32 In order that each allocation is put into context, every existing or permitted quarry is reviewed below in a south – north traverse of the County. Figure 7.2 below shows the expected reserve life of each permitted site, and how the allocations will meet shortfalls during the Plan period. Site specific information on production and reserves is stated, although confidentiality restriction prevents complete disclosure of this data.
- 7.33 Planning permission to extract mineral from within each allocation is subject to the submission of satisfactory working and reclamation schemes in accordance with Chapters 3 and 4. The main planning and environmental issues concerning each allocation are considered in order to help guide what type of proposal would be acceptable within each allocation.

Proposals in Unallocated Areas

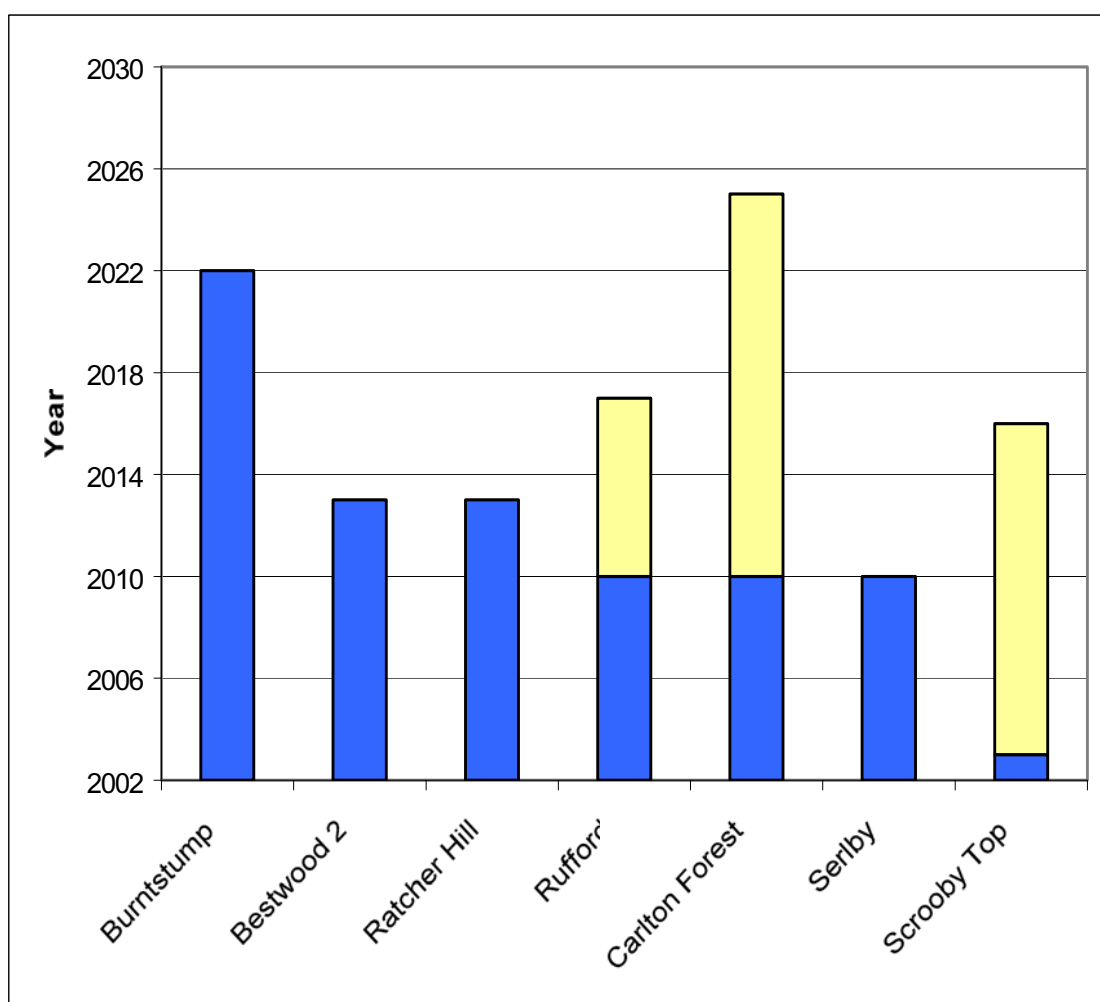
- 7.34 Proposals for sand and gravel extraction in unallocated areas will not normally be permitted. This is because sufficient provision exists, either in existing permitted reserves or as Plan allocations. Only where there is clear evidence that this is no longer the case would it be acceptable to permit proposals outside allocated areas. Such circumstances could arise if, for example, it became apparent that some allocations were unlikely to come forward or they contained far less mineral than assumed. Minor temporary proposals for sand

extraction in unallocated areas may be acceptable where they meet the criteria of incidental mineral extraction (see Policy M14.1).

POLICY M7.2 SHERWOOD SANDSTONE EXTRACTION IN UNALLOCATED LAND

Proposals for Sherwood Sandstone extraction falling outside allocated areas will not be permitted unless it is evident that existing permitted reserves and the remaining allocations cannot sustain an adequate landbank and processing capacity as provided for in Policy M7.1.

Figure 7.2 Sherwood Sandstone Estimated Reserve Life of Current Permitted Workings and Allocations.



 - Existing permitted reserves

 - Allocation

Note: Above figure excludes information of small dormant sites in North Nottinghamshire, whose future role is uncertain, but likely to have only a minimal impact.

Site by Site Analysis

BURNTSTUMP

Background

- 7.35 Quarrying began in the early 1980's, the main objective then being to extract sand to increase tipping capacity for the main domestic refuse disposal site for Greater Nottingham. Burntstump effectively replaced Bestwood 1 Quarry, where production was suspended. The sand is dry screened on site and is mainly used as a yellow mortar sand supplying local markets.
- 7.36 In 2001 a major southern extension was permitted. Unlike the previous workings this extension will not be landfilled, but instead will be reclaimed to agriculture and woodland at a lower level. As part of the granting of this planning permission, the company agreed to revoke their rights to work the remaining reserves at Bestwood 1 and an adjacent dormant quarry at Bestwood Northern Drive. This conformed to the policy of the previous Minerals Local Plan, which sought to reduce the number of old dormant planning permissions to work Sherwood Sandstone.

Future assessment

- 7.37 The recent extension contained 2.7 million tonnes, which will be sufficient until at least 2021. No further provision is necessary for the current plan period.

BESTWOOD 2

- 7.38 Sand extraction at Bestwood 2 quarry dates back to at least the 1940's, but it has only been a major producer of Sherwood Sandstone since it changed ownership in the early 1980s. Like Burntstump it also served as a partial replacement to Bestwood 1 (hence its name), but instead it produces red building sand, which was also present at Bestwood 1. The red sand is used in asphalt mortars where it supplies a ready mixed mortar plant on site. It is also used in horticulture.
- 7.39 In 2001 an eastern extension was permitted within the woodland that was designated as a SINC. The loss of a part of this SINC was accepted because the reclamation scheme will create a new area of nature conservation interest. This will comprise mixed heathland and woodland, which, in the long term, should increase the biodiversity of this area.

Future assessment

- 7.40 The recent planning permission will provide a further 2.7 million tonnes, which should be sufficient until 2013. Further extensions may be possible, but as the Plan is expected to be fully reviewed by 2009 it is considered more appropriate to assess the need for allocating further reserves of aggregate sand at that time.

RATCHER HILL

- 7.41 Ratcher Hill is the only sand quarry in Nottinghamshire that produces both aggregate and non-aggregate (silica) sand. Apart from producing the normal

range of building sands for use in asphalt and mortars, it also manufactures a wide range of specialist aggregate sands, for example, sports surfaces, and pipe bedding.

- 7.42 The wide range of aggregate and silica sand products is only possible because of the specialised plant which allows the sand to be 'hydraulically classified' to very precise standards. A coating plant is also present.
- 7.43 The County Council has recently resolved to permit a major extension to Ratcher Hill that includes the progressive reclamation of the whole quarry back to a mixed heathland/woodland after-use at a lower level.
- 7.44 As a condition of planning permission being granted, the company has indicated it will revoke a dormant planning permission at Cross Lane, Blidworth, containing an estimated 750,000 tonnes of reserves.

Future assessment

- 7.45 The new extension contains 3 million tonnes of sand, which extends the life of the quarry by 10 years to 2013. No further extensions are considered possible. The need to allocate any replacement capacity is likely to be linked to future silica sand provision, where very different landbank criteria apply (see Para 7.69 for details).

RUFFORD COLLIERY SAND QUARRY

Background

- 7.46 Planning permission for extraction of sand at Rufford Colliery was originally granted in 1987 as a 'windfall site' in order to create extra void capacity for colliery tipping. The void capacity was never required due to the closure of the colliery in 1993. Production levels have averaged 100,000 tonnes per annum, the main end-use being an asphalt. The quarry will be restored to heathland.

Future assessment

- 7.47 Permitted reserves are expected to last until 2010. Although the original justification for this quarry no longer exists, it has nevertheless succeeded in providing around 10% of the County's sand production. One significant advantage of the site is its remoteness from sensitive areas and negligible environmental impact. A further extension to the east of the current quarry would provide 0.75 million tonnes sufficient for a further 7 years. This probably represents the ultimate limits of this quarry. Subject to a suitable working and reclamation scheme that continues to promote heathland being submitted it is unlikely to raise any significant new planning issues.

POLICY M7.3 RUFFORD COLLIERY SAND QUARRY ALLOCATION

7.5 hectares of land are allocated at Rufford for sand extraction

WARSOP (Oakfield Lane) QUARRY

Background

- 7.48 Mineral extraction at Oakfield Lane, Warsop resumed in late 2001, over 30 years after the site was last worked to any significant degree. The site is being worked intermittently as the planning conditions only allow extraction to occur for 8 weeks per annum. Annual production is thus limited to approximately 5000 to 6000 tonnes. These restrictions are to accommodate the poor access, and were imposed when the original planning permission was reviewed. The quarry will be reclaimed back to heathland at a lower level. The sand is taken off site for processing at Ratcher Hill.

Future assessment

- 7.49 The life of this quarry is unclear but may be quite long term. In any event, in view of its long period of dormancy and small scale production, there appears to be no basis for making any further provision either as an extension or replacement site.

SCROOBY TOP QUARRY

Background

- 7.50 Scrooby Top Quarry opened in the 1930s, when it extracted sand and gravel from a glacial deposit before extending down into the underlying Sherwood Sandstone. The quarry produces building sand, which in part supplies a ready mixed mortar plant. The main product is a buff coloured mortar sand known as 'Scrooby Grey' which is used to match York building stone and other material where this product is required. Red sand is also extracted.
- 7.51 The plant at Scrooby Top is also supplied with aggregate from a number of small satellite sand and gravel quarries which are considered in Chapter 6, (see Para 6.106). There is also a secondary aggregate plant.
- 7.52 Scrooby Top Quarry will be reclaimed to predominantly water with a small area back to agriculture at a lower level. Parts of the quarry faces are of geological importance and have been designated as an SSSI.

Future assessment

- 7.53 Current permitted reserves are expected to last until 2003. A small western extension containing 1.1 million tonnes could be worked without any significant additional environmental impact. This would provide sufficient reserves until 2016. This is sufficient for the current plan period.
- 7.54 The main planning issues, which need to be taken into account, are:
- (a) The reclamation scheme should protect the geological value of this site. This may comprise the protection of existing faces and/ or the creation of new faces within the new extraction area (see Policy M4.14).
 - (b) Archaeological constraints exist and measures will need to be taken for the proper recording of these.

POLICY M7.4 SCROOBY TOP ALLOCATION

9.2 hectares of land at Scooby are allocated for sand extraction.

CARLTON FOREST and CARLTON IN LINDRICK (Red Barn) QUARRIES

Background

- 7.55 Sand extraction at Carlton Forest dates back to the 1990's. This small red sand quarry produces building sand, which is dry screened on site. The quarry is being progressively filled with mostly inert waste.
- 7.56 Carlton in Lindrick is a dormant sand quarry that has not been worked for many years. The site is registered as a dormant site under the minerals review procedure (see Chapter 4, Para 4.55 for details of review). The site was left derelict but has since become very overgrown, and has been designated as a SINC and is on the Heathland Register.
- 7.57 Both quarries are under the control of the same company and Carlton in Lindrick has presumably remained dormant because either Carlton Forest can meet demand on its own or the sand is of inferior quality.

Future assessment

- 7.58 Reserves at Carlton Forest are anticipated to run out by 2010/11. Land to the north-west of the quarry forms a logical extension. The main planning issue concerns the reclamation options. These could comprise a continuation of the current waste disposal operation or, if suitable fill is not available, a low level scheme should be possible
- 7.59 An extension to Carlton Forest Quarry also provides an opportunity to resolve the planning situation at Carlton in Lindrick, which is presumed to be surplus to requirements. If further reserves were to be released at Carlton Forest, then revoking this planning permission would be a reasonable pre-condition.
- 7.60 The main planning issues, which need to be taken into account, are:
- (a) Any proposal to landfill with inert waste must represent the best reclamation option in accordance with policies in the Waste Local Plan.
 - (b) The need for creating additional waste disposal capacity will need to take account of Policy M4.5 because the timescale will extend beyond that currently considered in the Waste Local Plan.
 - (c) The planning permission at the dormant Carlton in Lindrick Quarry should be revoked and any outstanding reclamation issues resolved.
-

POLICY M7.5 CARLTON FOREST SAND QUARRY ALLOCATION

12 hectares of land at Carlton Forest are allocated for sand extraction.

SERLBY QUARRY

Background

- 7.61 Serlby Quarry has been active since the 1940's. Production was very small scale until the land ownership changed in 1990. Following a major extension in 1993 extraction has increased to around 80,000 tonnes per annum. The quarry produces asphalt, building and mortar sand.
- 7.62 Although the site has planning permission to landfill with construction and demolition waste it has failed to attract waste in the quantities envisaged when planning permission was granted. As a result, the phased reclamation scheme is proceeding very slowly.

Future assessment

- 7.63 Reserves are anticipated to run out by 2010/11. Due to physical and environmental constraints, the only possible extension to Serlby Quarry would be eastwards, although this would be highly visible from the A614 and is considered unsuitable, especially in view of the slow rates of infilling. The mineral operator has not put forward any proposals.
- 7.64 The loss of this production unit is unlikely to cause any supply problems in view of the lower levels of demand assumed in the Plan. Other quarries in Nottinghamshire should be able to replace the loss of this quarry. No new reserves are therefore allocated to sustain production from Serlby.

MATTERSEY QUARRY

Background

- 7.65 Mattersey sand quarry has not been worked since the 1970's. Extraction was small scale and most of the quarry has been worked out. The quarry has since become overgrown and is now designated as a SINC.

Future assessment

- 7.66 The likelihood of this quarry ever being re-opened is very uncertain. However, whatever timescales might apply, there does not appear to be any justification for allowing further extensions of replacement capacity should existing permitted reserves at this quarry be worked out during the plan period. In this event other quarries should be able to meet demand as they do at present.

STYRRUP QUARRY

Background

- 7.67 Extraction at this small quarry, has been mostly very small scale, with the quarry lying dormant between 1980 and 1992. The quarry has not been reclaimed but the faces are of geological interest. Sand is currently taken off site unprocessed.

Future assessment

- 7.68 The future requirements of this site are difficult to assess. However, for the same reasons that apply to Mattersey Quarry above, there is no justification for this Plan to make any future provision to sustain production at Styrrup.

Silica Sand

- 7.69 Due to the special features of the silica sand industry and the relatively small number of quarries producing the mineral, it is not possible to provide a landbank in the same way that occurs for other aggregate minerals, an issue that is acknowledged in MPG15 – Provision of Silica Sand in England.
- 7.70 Since 1999 silica sand has only been produced from one quarry in Nottinghamshire, namely Ratcher Hill. Prior to then naturally bonded moulding sand was produced at Berry Hill Quarry, before it was developed for housing. Demand for naturally bonded sand has declined in preference to synthetic sand, and no replacement capacity has been sought. As noted above in Para 7.43 the County Council has resolved to approve an extension to Ratcher Hill Quarry which will provide reserves of both aggregate and silica sand until 2013. The extension at Ratcher Hill probably represents the ultimate limits of the quarry, which suggests that a replacement quarry is the only option.
- 7.71 No potential replacement quarries have been identified by the industry, and neither is it clear if silica sand resources are restricted to certain defined areas within the Sherwood Sandstone resource. In view of the national importance of silica sand it is quite possible that a replacement quarry will be sought and justified before the end of the plan period. The only feasible approach for this therefore, is to allow such proposals to be assessed against the landbank criteria set out below.
-

POLICY M7.6 SILICA SAND LANDBANK

Planning permission will be granted for silica sand extraction that seeks to maintain an appropriate landbank of permitted reserves provided they do not have an unacceptable environmental or amenity impact.

- 7.72 Any new replacement quarry is likely to be large, involve a significant investment in processing plant and may also include aggregate sand extraction and processing. The number of options that are both geologically and environmentally suitable for this are probably very limited. Despite the national importance and scarcity of silica sand any proposal that satisfies Policy M7.6, must still demonstrate that it does not have any unacceptable environmental impacts. Where significant environmental impacts are evident regard will be given to the fact that silica sand quarries serve wide national markets. This means that, unlike aggregate sand, there is much less of a case that a replacement quarry should be near Mansfield or even in Nottinghamshire or the East Midlands. For proposals that would create significant environmental concerns, the 'need' for the sand will be assessed against the wider national supply situation.

Chapter 8

Limestone



Exposed Limestone Face at Nether Langwith Quarry

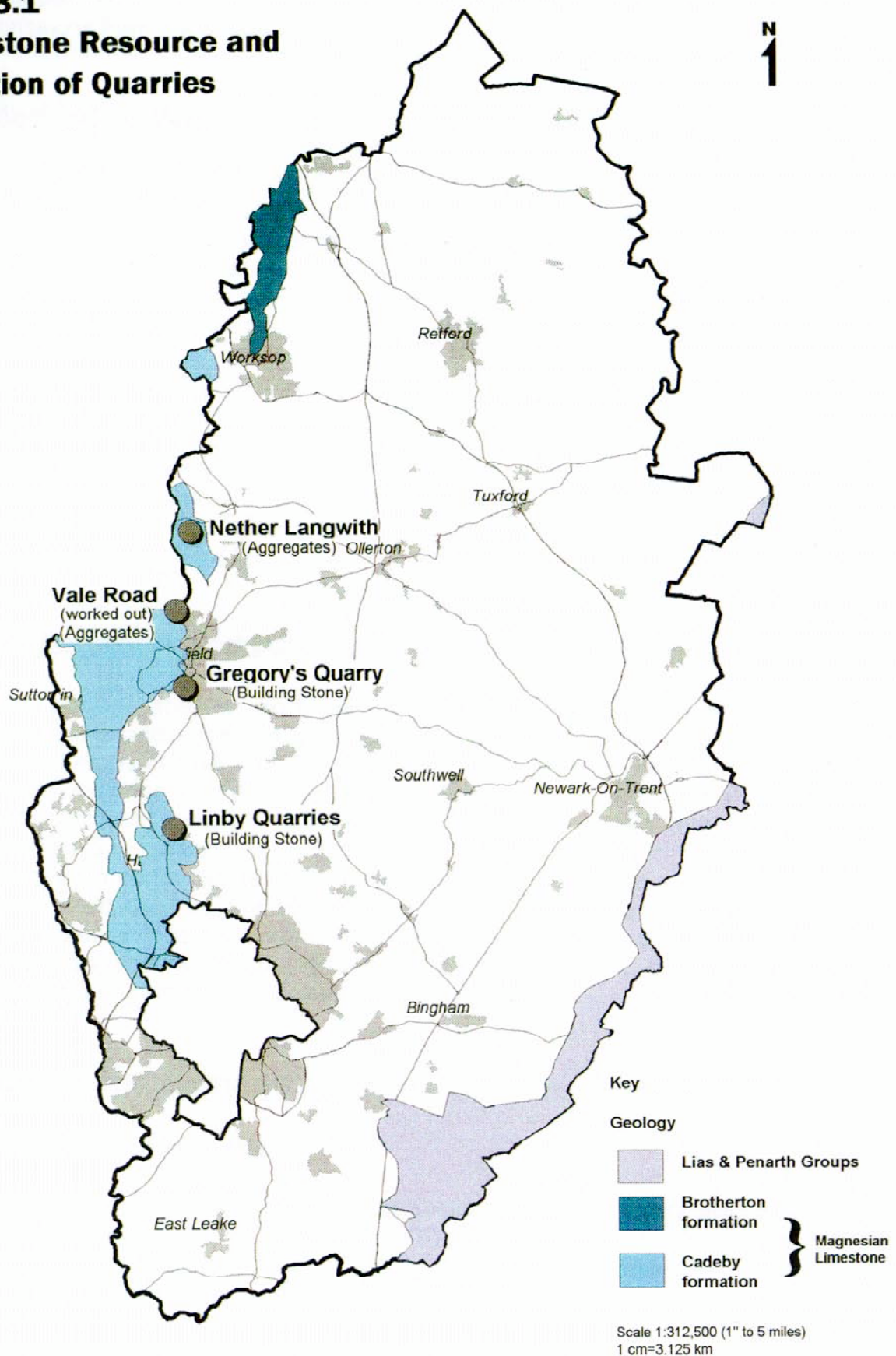
Introduction

- 8.1 Over 100 million tonnes of limestone are extracted in Great Britain every year making it the largest mineral extractive industry in the Country. About three-quarters is used as an aggregate, the remainder being used in the cement, chemical, glass, iron and steel industries, and agriculture. Limestone is also an important source of building and ornamental stone.
- 8.2 Although the East Midlands is one of the most important limestone producing areas, accounting for about a quarter of national production, Nottinghamshire's resources are relatively limited. Limestone is the only 'hard rock' of any economic interest to be found in the County, and by regional standards output is very low.

Geology

- 8.3 All recent limestone extraction has been derived from the Permian Lower Magnesian Limestone which is so named because the rock contains the magnesium rich mineral 'dolomite'. Prior to the mid 1970s, the Jurassic limestones of the Vale of Belvoir were also exploited, principally for cement manufacture at Barnstone. In the more distant past these limestones were also used as a poor quality, local building material. There seems little likelihood of any further exploitation of this resource, and the Jurassic limestones will not be considered further in this Plan.
- 8.4 Within Nottinghamshire the main Magnesian Limestone outcrop occurs between Mansfield Woodhouse and Bulwell. Further north the outcrop widens but falls largely within Derbyshire and South Yorkshire, (see Plan 8.1). The limestones have created some of the most dramatic landscape features in the County, where river action has produced a number of steep valleys and gorges, for example, at Creswell Crags and Pleasley Vale.
- 8.5 In Mansfield, the limestone is generally coarse grained and suitable as an aggregate, in particular as a granular sub-base in road construction. This relatively low grade end-use reflects its quality which falls between the very high grade Carboniferous limestones of Derbyshire, and the lower grade Jurassic limestones of Leicestershire and Lincolnshire. In the past limestone from the Mansfield area was widely used as a building material both locally and nationally. Notable examples of its use include Southwell Minster, Ely Cathedral and the lower courses of the Houses of Parliament.
- 8.6 In the Linby and Bulwell area the limestone takes on a very different character and is known locally as 'Bulwell Stone'. Here the rock is very impure, coarse grained and flaggy. It is too soft for most aggregate purposes, but serves as a good ornamental building and rockery stone. It was used extensively in the past as a local building stone, and many walls in the Nottingham area were built of this material.

Plan 8.1 Limestone Resource and Location of Quarries



- 8.7 It should be noted that Magnesian Limestone is not chemically suited for use in Flue Gas Desulphurisation Limestone/ Gypsum processing plants (see Chapter 10). These plants are used at power stations to remove sulphur emissions from the burning of coal.

Method of Working and Environmental Impact

- 8.8 Limestone is normally extracted by blasting, although where building and ornamental stone is sought, low grade explosives are used to dislodge rather than shatter the rock. Aggregate mineral is then crushed and screened to the required grades. Washing is not involved, so avoiding the need for settling ponds. Building and ornamental stone is dressed by hand or machinery, which may be done in on-site workshops depending on the range of products.
- 8.9 The Magnesian Limestone is classified by the Environment Agency as a major aquifer and workings can breach the water table. This can have important implications for reclamation, as considered below. The Magnesian Limestone frequently produces good soils, and most agricultural land above this resource falls within the best and most versatile category (see Chapter 3, paras 3.60-62 for details). It also supports some of the few calcareous grasslands in the County.

Reclamation and After-use

- 8.10 Most ancient shallow workings have been assimilated back into the surrounding landscape. In urban areas, quarry floors have often been built over, whereas in rural settings, natural regeneration may have occurred. A notable example of the latter is at Quarry Banks, Linby, where a whole complex of old quarries has developed into a woodland that has been accorded SSSI status. Although some old quarries have in the past been filled with imported waste, its aquifer status means that the range of wastes which could now be imported is very restricted, regardless of any other environmental considerations. A former large aggregate quarry at Vale Road, Mansfield Woodhouse is being partly filled with inert waste, but a new quarry at Nether Langwith will be reclaimed at a lower level.

Supply and Demand

Sources of Information

- 8.11 The surveys carried out by the East Midlands Working Party also include limestone (see Chapter 6, Para 6.16). Published data for limestone production in Nottinghamshire has generally been restricted because aggregate sales figures have largely related to one site. Although disclosures have been possible for certain years, confidentiality restrictions have meant that all data for Nottinghamshire has generally been amalgamated with Leicestershire.

Recent Production History and Trends

- 8.12 Derbyshire and the Peak District National Park dominate limestone production in the East Midlands, accounting for 80% of the region's output of around 25 million tonnes per annum. This is for both aggregate and non-aggregate limestone.
- 8.13 In comparison limestone production in Nottinghamshire has been very small scale and for most of the 1990's was negligible, following the closure of the County's only aggregate limestone quarry at Vale Road, Mansfield Woodhouse. However, aggregate limestone extraction resumed in 2001 when a new quarry opened at Nether Langwith. This quarry, which contains 4 million tonnes of reserves, is expected to provide 250,000 tonnes per annum until approximately 2017.

Markets

- 8.14 There is no published information analysing the distribution of sales of limestone aggregates from Nottinghamshire. The Nether Langwith Quarry is, however, the southernmost large Magnesian Limestone quarry in England and it is therefore quite probable that in addition to local markets around Mansfield it will supply markets to the east and southwards as far as Lincolnshire and East Anglia, where only low grade aggregate Jurassic limestones occur.
- 8.15 Current sales of building and ornamental stone are probably mostly local, although the relatively high value of this end-use does mean that transport costs are much less critical.

Aggregate Limestone - Future Provision

- 8.16 With most limestone being used as an aggregate, the relevant guidance for assessing future demand is contained in MPG 6. The demand forecasts and other criteria are broadly similar to those that apply for sand and gravel, as described in Chapter 6. The main distinction is that for limestone, landbanks in excess of 7 years may be appropriate. As set out in Chapter 6 (see paras 6.22 – 6.27) MPG 6 is out of date and the Government has issued revised guidelines on future provision for the 16 year period 2001-2016.
- 8.17 The previous guidelines required the East Midlands to provide 33.7 million tonnes of crushed rock (i.e. limestone, granite and sandstone) per annum between 1992 and 2006. Nottinghamshire's share was set at just 375,000 tonnes per annum, less than 2% of the regional total. Although this figure was arithmetically correct, it did not provide a meaningful interpretation of the County's future share of aggregate production, which, as noted above, had all but ceased by the early 1990's. In the previous Plan it was therefore interpreted as requiring the County to provide for one new limestone quarry, a requirement that was satisfied when a new quarry at Nether Langwith opened in 2001.

- 8.18 The new guidelines require the East Midlands to provide 32.7 million tonnes per annum, slightly less than the previous requirement. As Nottinghamshire has just one quarry, which was considered adequate for meeting the County's previous share, the only realistic option is to retain this approach for the new guidelines period. As noted in Paragraph 8.13, this gives a figure of 250,000 tonnes per annum. In February 2004, the East Midlands Regional Assembly approved the local apportionment based on this approach. The figure for Nottinghamshire was set at 263,000 tonnes per annum, which is very close to the planned output from Nether Langwith Quarry. As permitted reserves are expected to last until 2017 no provision needs to be made for the current Plan period.
-

POLICY M8.1 AGGREGATE LIMESTONE PROVISION

The County Council will endeavour to maintain an appropriate landbank of permitted reserves of limestone and an adequate production capacity in order that Nottinghamshire will meet its reasonable share of regional aggregate provision throughout the Plan period. No further proposals for the extraction of limestone for aggregate purposes will be granted unless it is demonstrated that an adequate production capacity and landbank will not be maintained.

Non-aggregate Limestone – Future Provision

- 8.19 A few small quarries at Linby and Mansfield have traditionally met demand for local building and ornamental stone. No comprehensive information on reserve levels is available, but existing workings are likely to be able to supply stone for some years to come. Although production of building and ornamental stone is very small scale, it has a very important role to play in helping to preserve and enhance the distinctiveness of local historic towns and villages. Local stone is needed to allow existing historic buildings to be properly repaired and it also means that new buildings in historic areas can blend in more effectively. Replacement sites may therefore be justified to maintain current production levels, subject to the provisions of Chapters 3 & 4.
-

POLICY M8.2 NON-AGGREGATE LIMESTONE PROVISION

Proposals to extract Limestone primarily for building and ornamental purposes will be permitted where it is demonstrated they:

- (a) are needed to maintain traditional, small scale levels of production;**
 - (b) the submitted scheme of working and reclamation is environmentally acceptable.**
-

Chapter 9

Secondary and Recycled Aggregates



Pile of crushed bricks at Tarmac's recycling facility at Colwick Industrial Estate

Introduction

- 9.1 In order to meet one of the main themes outlined in the UK Sustainable Strategy, 'Prudent Use of Natural Resources', there is a clear need to maximise the use of secondary and recycled materials. This reduces the amount of waste material going to landfill and helps conserve primary aggregates. The Government is keen to promote a much greater use of secondary and recycled aggregates and has backed this up with fiscal measures which now tax most waste materials going to landfill and also taxes primary aggregates (see Chapter 6, Para. 6.25 for details).
- 9.2 The terms 'recycled' and 'secondary' aggregate are often used interchangeably. The term 'recycled aggregates' refers to aggregates that have been used previously in construction. Recycled aggregates can comprise construction and demolition wastes, asphalt road planings and used railway ballast.
- 9.3 'Secondary aggregates' are by-products of other processes, and will not have been used previously as aggregates. They include colliery spoil, china clay waste, slate waste, power station ashes, blast furnace and steel slags, incinerator ashes and foundry sands.
- 9.4 The Government's good practice guide 'Controlling the Environmental Effects of Recycled and Secondary Aggregates Production' estimates that around 70 million tonnes of demolition and construction waste, and almost 100 million tonnes of mining and quarrying waste are generated each year. It is the aim of this guidance to reduce disposal requirements. Although there is considerable potential for using these wastes as aggregates, large quantities either remain on site or are landfilled. There is some overlap with the Waste Local Plan which contains specific policies for aggregate recycling centres and identifies preferred areas where permanent aggregate recycling centred will be permitted. This Chapter should therefore be read in conjunction with Chapter 5 of the Waste Local Plan.

Secondary Aggregates

Mineral Wastes - Colliery Spoil

- 9.5 At a national level, mineral wastes left from the extraction of china clay and slate exist as unsightly tips and have a huge potential as a source of aggregate. However, these materials are generally located in the south-west and North Wales, making them relatively distant from most potential markets.
- 9.6 On a local level, colliery spoil can make a significant contribution towards meeting aggregate needs, although generally restricted to lower grade uses, such as bulk fill. Colliery spoil for aggregate use can be obtained either by reworking spoil tips or by collecting the 'dry dirt' discard directly from the coal preparation plant. At some collieries the potential availability of spoil may be very limited because nearly all the dry dirt is needed to construct and cap slurry lagoons. Colliery spoil has not been used as bulk fill in Nottinghamshire for many years, but in the light of the new tax regimes on landfill and primary aggregates it may become more economically attractive.

- 9.7 Apart from the reduction in visual blight the main environmental impact of removing spoil directly from the coal preparation plant will be the HGV traffic taking the spoil to the construction project. Proposals for moving spoil off-site for use as aggregate will therefore need to take account of Policies M3.13-3.15.
- 9.8 In recent years there has been an increase in Nottinghamshire in the number colliery spoil tips reworked in order to recover coal. The principles and impact of such development are detailed in Chapter 12 (see Policy M12.6). Although in recent years no colliery tips in the County have been reworked for secondary aggregates, if any such proposals are submitted they will need to be in accordance with Policy M12.6.

Industrial Waste - Power Station Ash

- 9.9 Industrial by-products, which can be used as aggregate, include slag from the iron and steel industry and ash from coal fired power stations. There is no slag produced in Nottinghamshire but large quantities of ash are produced from the County's four coal fired power stations along the Trent Valley.
- 9.10 Power station ash comprises Furnace Bottom Ash (FBA) and Pulverised Fuel Ash (PFA). FBA is a coarse clinker and is used to manufacture lightweight building blocks where demand generally exceeds supply. PFA, which is finer and similar in consistency to sand, is used in cement, as a concrete aggregate and as a low-density bulk fill. Production of PFA has generally exceeded demand for these uses and the surplus is either pumped into sand and gravel lagoons (see Chapter 6) or disposed of onsite. Recent figures show that over a million tonnes of FBA and PFA are produced annually in Nottinghamshire. Of this FBA makes up approximately 15% of production with all being sold for building purposes. Figures for PFA sales are more uncertain but the current trend is towards more being sold rather than landfilled.

River Dredgings

- 9.11 Approximately 200,000 tonnes of sand, silt, marl and gravel are dredged from the River Trent by British Waterways every year in order to maintain a navigation channel. River dredgings can be used as an aggregate either as bulk fill or, if of suitable quality and processed, used in concrete. Dredgings that cannot be used are normally spread on land close to the riverbank, provided that this does not impact upon the floodplain, or disposed of in sand and gravel lagoons.
- 9.12 The use of river dredgings as a secondary aggregate usually occurs in two ways. First, dredgings may be stockpiled on the riverbank until there is sufficient material to justify processing through a mobile plant or through a plant at a nearby sand and gravel quarry. Alternatively, dredgings disposed of in lagoons may be periodically re-excavated. The latter may have the benefit of creating further disposal capacity, but may mean disturbing reclaimed land or land that has developed a significant nature conservation interest. One of the main planning issues concerns traffic implications, as many existing dredging sites have poor road access, which may make removal by barge the only acceptable option.

- 9.13 Spreading of dredgings, disposal to foreshore and surface tipping normally takes place as 'permitted development' in accordance with the provisions of the General Permitted Development Order. It is only where dredgings are disposed of in mineral workings that planning permission is usually required, along with a Waste Disposal Licence.
-

POLICY M9.1 STOCKPILING OF DREDGINGS

The County Council will permit proposals for the stocking of river dredgings prior to their use as aggregate subject to:

- (a) evidence of a justifiable operational need for stocking at the proposed location;**
 - (b) provision of satisfactory arrangements for the removal and transport of dredgings from the site;**
 - (c) the screening and landscaping of the site;**
 - (d) measures to protect the environment and local amenity from an unacceptable impact,**
 - (e) measures to protect the integrity of the floodplain.**
-

POLICY M9.2 RE-EXCAVATION OF TIPPED DREDGINGS

The County Council will permit the re-excavation of dredgings which:

- (a) fulfils a justifiable need for the creation of additional tipping capacity;**
 - (b) does not result in an unacceptable impact upon the environment or local amenity;**
 - (c) provides satisfactory arrangements for the removal and transport of the dredgings from the site.**
-

Recycled Aggregates

Construction and Demolition Waste

- 9.14 Targets set by Government for diverting waste away from landfill has resulted in the re-use of construction and demolition waste being encouraged more and more. Recycled construction and demolition waste is likely to play an increasingly prominent role as a source of aggregates in the future. Most construction and demolition waste can be recycled for use as an aggregate. Crushed bricks and rubble can be used on building sites for levelling purposes, or graded for use in road construction. For maximum use as a secondary aggregate, construction and demolition waste needs to be crushed, screened and graded. This can be done on-site by a temporary mobile plant, or the waste can be taken off-site to a permanent recycling plant. Permanent recycling plants need planning permission and are treated

as a waste management facility (see Waste Local Plan). Mobile plants normally only need planning permission if they are to remain in-situ for more than 28 days.

- 9.15 There are no reliable statistics on the production of secondary aggregates from construction and demolition waste. However, since 1996, when the landfill tax came into effect, the number of permanent aggregate recycling centres has increased in the County from one to six. This suggests that a much greater use is being made in response to these fiscal measures

Rail Ballast

- 9.16 Worn out rail ballast is taken by rail to recycling centres for crushing into aggregate. Being made of high quality limestone or granite it can be re-processed for high-grade uses. In Nottinghamshire there is just one railway ballast recycling centre, which is located at Toton. A planning permission granted in 2001 to expand the site will allow 100,000 tonnes of aggregate to be processed per annum. In planning terms these operations are equivalent to a secondary aggregate plant (see Waste Local Plan). The main difference is that whilst the used ballast comes in by rail, it is likely to leave the site by road in order to supply local markets.

Road Surfaces

- 9.17 Increased re-use is being made of surfacing, road planings and other materials lifted from roads in the course of maintenance. In the recent past road planings were just used as bulkfill but now they can be re-processed into blacktop. Operators are encouraged to recycle road planings rather than dispose of them at a landfill site.

Chapter 10

GYPSUM



Kilvington Quarry

Introduction

- 10.1 Nottinghamshire is a major producer of gypsum accounting for a significant proportion of the estimated 1.5 to 2 million tonnes extracted in the UK every year. About 75% of gypsum is used in plasters and plasterboard, and 20% in cement. The remainder, which comprises high quality gypsum, found only in Nottinghamshire, is put to a wide range of specialist uses including ceramics, paint, dentistry and food.

Geology

- 10.2 In Nottinghamshire gypsum is present throughout the Mercia Mudstone, (see Plan 10.1). Commercial interest is restricted to two distinct gypsum resources, found in the upper 40 metres of the Mudstone, known as the Newark and Tutbury gypsum deposits.
- 10.3 The Newark gypsum has a long narrow outcrop rarely more than 2 kilometres wide, extending from Newark to Cropwell Bishop via Kilvington and Orston, and is the source of the high purity gypsum. This outcrop comprises up to 7 commercially viable seams of no more than 1 metre thickness and thus opencast extraction is the only feasible method of working. The gypsum seams dip south-eastwards beneath younger cover rocks where opencast extraction remains feasible, providing the overburden to mineral ratio is within the prevailing technical and economic limits.
- 10.4 In contrast, the Tutbury gypsum normally comprises a single seam which is on average 3 metres thick. This seam is found to the south-west of the Newark deposit, and extends across much of Nottinghamshire east of the Soar Valley and south of Gotham and Bunny where it continues into Leicestershire. The Tutbury seam is of lower quality, 'Mill and Cement Grade', and is used mainly in plaster, plasterboard and cement. Shallow underground mining is the usual method of extraction, the mineral normally being within 60 metres of the surface.

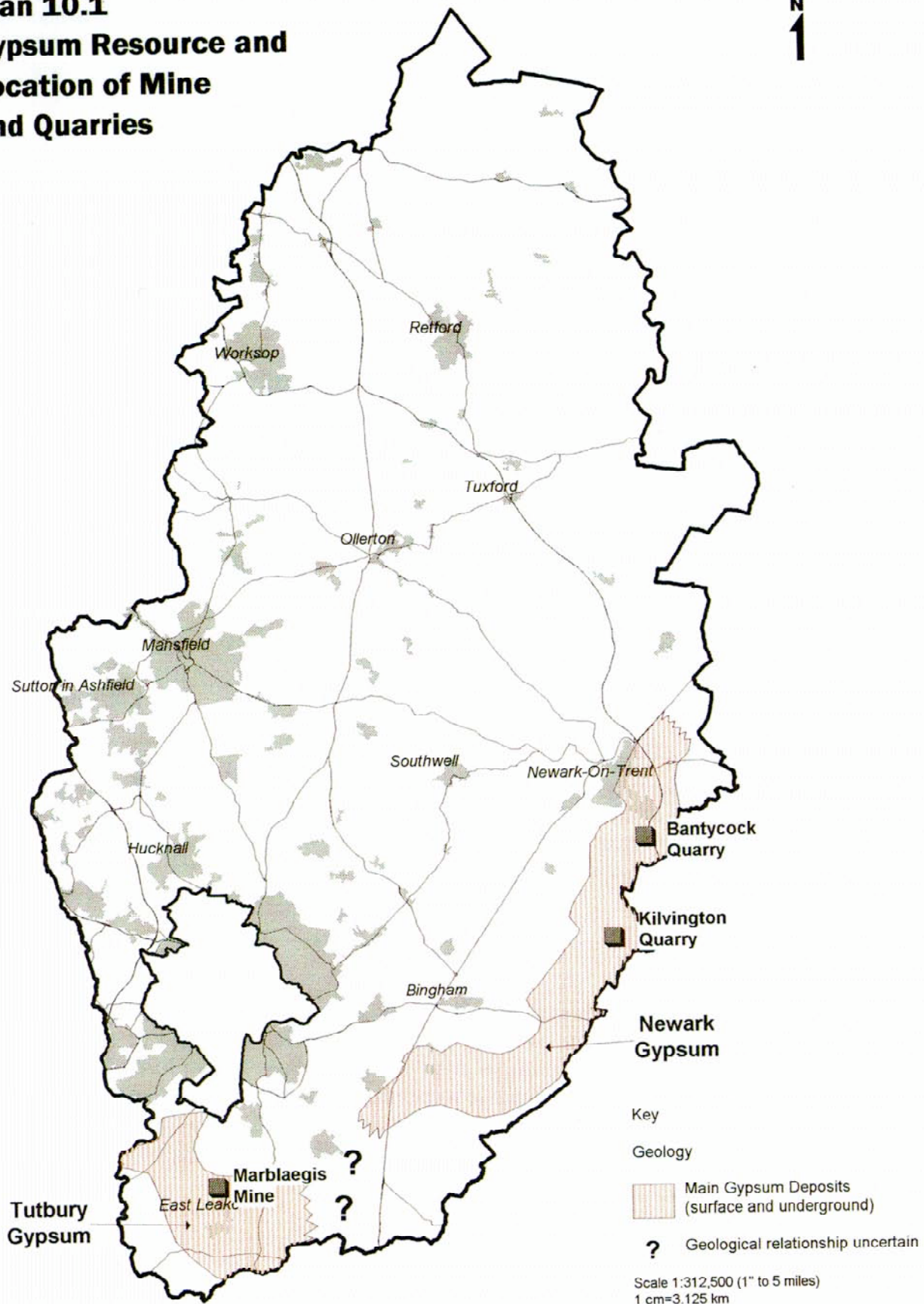
Method of Working and Environmental Impact

Opencast Extraction of the Newark Gypsum

- 10.5 Extraction begins with the creation of an initial cut which needs to provide adequate space to develop and work the quarry face. Large quantities of overburden and inter-seam mudstones from this cut have to be stored, normally for the duration of the life of the quarry. Subsequent cuts can then simply return the overburden and mudstones directly back to the quarry, enabling progressive infilling as the face advances. When extraction is completed, material from the initial cut goes into the final void. Successive seams of mineral are exposed to form benches, and excavations may exceed 40 metres. Low grade blasting breaks up the mineral which is extracted by draglines or hydraulic excavators. It is then loaded into dumptrucks for transporting to the crushing and processing plant.

Plan 10.1 **Gypsum Resource and** **Location of Mine** **and Quarries**

N
1



- 10.6 The flat topography and depth of working helps to lessen the visual impact and noise impact of the extractive operations, which are often well below ground level. The noisiest activities are most likely to be the removal and replacement of overburden and soils, along with the transport of mineral by dumptruck. Mud on roads can also be a localised problem. Blasting, night-time working, and lighting associated with continuous processing of material have also given rise to complaints.
- 10.7 Until quite recently the worst visual intrusion associated with quarrying was the large overburden storage heaps containing material from the initial cut. These were normally left as steep unvegetated mounds, with no regard for their visual impact. Although this problem has not been entirely resolved, changes in working practices and better planning controls should prevent this situation arising in future.

Underground Mining of the Tutbury Gypsum

- 10.8 The Tutbury Gypsum is worked by the 'pillar and stall' method, whereby 25% of the mineral is left in place as pillars to provide support. This technique is specifically designed to prevent subsidence and is essential for mine safety and to provide surface support. As an added precaution mining has not been permitted beneath settlements, and adequate support pillars have to be left beneath isolated properties.

POLICY M10.1 UNDERGROUND GYPSUM MINING – SURFACE SUPPORT

Where planning permission is granted for underground mining of gypsum, conditions will be imposed as appropriate to ensure adequate support pillars are left to protect isolated buildings and other surface features which could be adversely affected by subsidence. Planning permission for underground mining of gypsum will not be permitted from beneath settlements.

- 10.9 Gypsum mining normally creates little environmental impact, although because of the potential subsidence risk, mined areas are constrained from most forms of built development. Where extraction involves blasting, usually twice a day, recent planning permissions have imposed maximum limits on blast vibration levels affecting properties, (see, Chapter 3, Policy M3.6). New 'continuous mining' techniques now mean that in some areas blasting is not required.

Reclamation and After-use

- 10.10 The high ratio of overburden to mineral allows most of the worked out areas to be backfilled to original ground levels with the use of on-site material. However a significant residual void may occur in low lying areas where the site may need to be restored to above its original contours to assist drainage and allow for settlement. In appropriate circumstances, such voids may be suitable for the reception of certain types of controlled waste in accordance with the Waste Local Plan. The worked out Staple Quarry is being reclaimed with landfill. Where filling does not occur, and the water table is high, the void can be suitably contoured and allowed to flood, as has happened at Hawton Grange Quarry, and is proposed at Kilvington.
- 10.11 The general lack of trees and hedgerows along the gypsum outcrop near Newark means that there is scope for reclamation schemes to improve the environment, by including a greater level of planting than was present prior to extraction. All reclamation and after-use proposals should accord with the provisions of Chapter 4.
- 10.12 The pillar and stall method used for the underground mining of gypsum does not require reclamation measures.

Supply and Demand

Sources of Information

- 10.13 British Gypsum's monopoly of natural gypsum production in the UK has meant that national and local production figures have not been published for many years. The British Geological Survey, however, estimates that national production currently stands at between 1.5 – 2 million tonnes per annum. Statistics for Nottinghamshire are limited to the occasional disclosure of data in support of planning applications. In contrast to sand and gravel for example, the information base for gypsum is very sparse, and this has implications for assessing future needs for the mineral.

Recent Production History and Trends

- 10.14 Gypsum in Nottinghamshire is currently won from the Marblaegis Mine at East Leake and by opencast methods at Kilvington. Although there is no reliable data, it is likely that recent demand for gypsum, which depends on the fortunes of the construction industry, has been broadly flat, in line with aggregate production. Whilst British Gypsum has a monopoly on gypsum mines and quarries, demand for the natural mineral has been significantly reduced due to the availability of desulphogypsum (see Panel 10.1 for background). Gypsum is also imported.

Panel 10.1 - Desulphogypsum – impact on demand for natural gypsum

Desulphogypsum (DSG) is a by-product of Flue Gas Desulphurisation (FGD) plants, which have been installed at some coal fired power stations in order to reduce sulphur emissions, a major cause of 'acid rain'. In recent years DSG has begun to substitute natural gypsum. Although DSG cannot replace the high quality mineral in terms of range of end-uses, it has proved suitable for plasterboard manufacture accounting for about half of total demand. The first FGD plant in Nottinghamshire was installed at Ratcliffe on Soar Power Station. Production started in 1994, and has since averaged 260,000 tonnes per annum. A further FGD plant is being built at West Burton Power Station and another is proposed at Cottam Power Station.

Markets

- 10.15 The main manufacturing centres in Nottinghamshire comprise a plasterboard plant at East Leake and a specialist plaster and other products plant at the Jericho Works, Newark.
- 10.16 The main markets for plasterboard and plaster produced at East Leake and Jericho are southern England, East Anglia and the Midlands. At Jericho the industrial and specialist plasters are marketed throughout the UK, and some are exported.

Consideration of Future Demand

- 10.17 Unlike aggregates there is no national demand forecast, but if gypsum follows the same trends, then demand is likely to remain fairly constant throughout the next Plan period. The main factor will be the impact of further desulphogypsum produced from new plants at West Burton and Cottam, and elsewhere in the UK. If these supply the Nottinghamshire manufacturing plants, then they are likely to substantially reduce demand for natural mill and cement grade gypsum. There is, however, no guarantee that desulphogypsum will be produced at the quantities and qualities assumed. A switch away from coal fired power stations could, for example, mean that in the longer term supplies of desulphogypsum may dwindle. The future demand for natural gypsum remains uncertain.
- 10.18 Whilst demand for special or first grade gypsum should remain buoyant, the economics of recovery could also be adversely affected if the market for Mill and Cement grade mineral no longer exists. This is because large quantities of Mill and Cement grade mineral have to be extracted to reach the high quality seams. It could therefore become more economic to import high quality mineral from elsewhere, with possible sources being Spain and Morocco.

Future Provision

Mill and Cement Grade Gypsum – Future Provision

- 10.19 Most of the known Tutbury Gypsum resource in Nottinghamshire has either been worked or permitted. Current permitted reserves are believed to be adequate for the plan period. In the longer term future potential extensions appear to be limited to land to the west of Costock and land to the east in Leicestershire. Although it seems unlikely that these resources will be required during the current plan period, this assumes that desulphogypsum remains available which, as noted above, is by no means certain in the long term. In view of the national importance and scarcity of this resource and its proximity to the East Leake plasterboard plant, there are clear merits in safeguarding this land for future gypsum extraction. This will help prevent the mineral being sterilised by built development, an approach which accords with Policy M2.1. Any future planning permission will however need to demonstrate that the mineral is required within a reasonable timescale.

POLICY M10.2 GYPSUM MINING - SAFEGUARDED AREA AT COSTOCK

101 hectares of land at Costock are safeguarded for future gypsum extraction by underground methods. Planning permission will only be granted where it can be demonstrated that the mineral is required to meet expected demand. Planning permission for surface development, which would materially prejudice the exploitation of this mineral resource will be refused.

Special or First Grade Gypsum – Future Provision

- 10.20 Opencast gypsum extraction currently occurs at Kilvington Quarry which will be exhausted by around 2004. Production is then expected to transfer to Bantymock Quarry which has been dormant since 1991. British Gypsum state that high purity reserves at Bantymock will be sufficient for 11 years, following exhaustion of Kilvington, and therefore should last until 2015.
- 10.21 The previous Plan estimated that further reserves would be required at a much earlier date, i.e. 1999/ 2000, and therefore allocated a southern extension to Bantymock Quarry. That Plan recognised that Bantymock Quarry and the southern extension offered a number of important planning and economic advantages. These comprised the proximity to Jericho Works, which reduced traffic problems and haulage costs, a remoteness from settlements and an existing landscape which had little merit, the site having been previously used as an airfield. Whilst the circumstances have not generally altered, the eastern half of the original allocation is unlikely to be required for many years. Furthermore, it is constrained by Cowtham House which may limit how much mineral can be worked in this area. Accordingly

the original allocation is reduced to only include land that is most likely to be required in the foreseeable future and is least environmentally constrained.

10.22 The main planning issues, which need to be taken into account, are:

- (a) The timescale for release would need to take account of the prevailing estimates of future demand, and life of the remaining reserves;
- (b) The amenity of isolated properties will need to be taken into account;
- (c) The reclamation scheme must take into account the creation of any residual voids both in terms of location, size and after-use. If a void is necessary, any proposal to reclaim it by landfill must take account of Policy M4.5 and policies in the Waste Local Plan.
- (d) The Shire Dyke SINC which runs through part of the allocation and also forms part of the eastern and southern boundaries.

It is possible that there may be operational advantages in working the allocation as an integral part of the current planning permission. Providing this does not create any additional overall environmental impacts then such proposals will in principle be acceptable.

POLICY M10.3 BANTYCOCK ALLOCATION

98 hectares of land to the south of Bantymock Quarry are allocated for gypsum extraction.

Chapter 11

CLAY



Working Clay Stockpiles at Dorket Head Clay Pit

Introduction

- 11.1 Clay is predominantly used in the manufacture of bricks, other end uses being pipes and tiles. About 8 million tonnes of clay are worked annually in Great Britain. In comparison Nottinghamshire's production of an estimated 350-400,000 tonnes per annum is quite small but it still supports locally important brick manufacturing industries at Dorket Head, near Arnold and at Kirton.
- 11.2 In the past, specialist clays such as pottery and fire clays, were also worked on a small scale in the County, the latter being associated with opencast coal extraction (see Chapter 12).

Geology

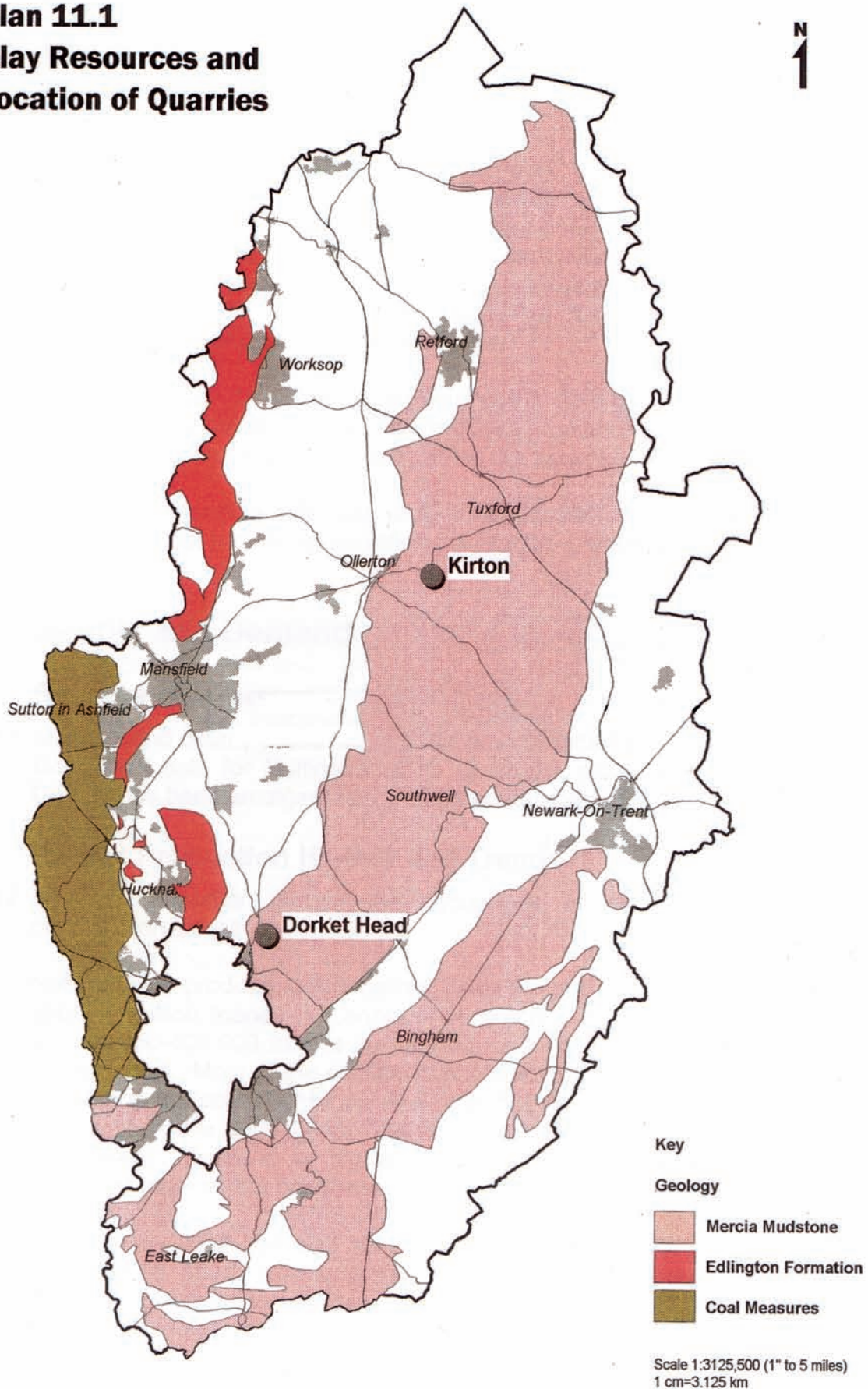
- 11.3 In Nottinghamshire, clay has been worked from the Coal Measures, the Edlington Formation and the Mercia Mudstone, (see Plan 11.1). Since the late 1970s only the Mercia Mudstone has been exploited. These mudstones which are up to 300 metres thick, outcrop over much of eastern and southern Nottinghamshire, and represent the largest potential mineral resource in the County. The mudstones also contain nationally important deposits of gypsum which are considered in Chapter 10.
- 11.4 There is no detailed assessment as to which parts of the Mercia Mudstone succession are best suited to manufacturing bricks, although locally, particular horizons appear to have been more attractive than others have. For example, in the Nottingham area most clay extraction has occurred in the 'Gunthorpe Formation'. Firing colour is very important, and does not necessarily correspond to the pink and green colours of the raw clay, which can fire to various shades from red to cream. Gypsum contamination, interbedded sandstones, and other impurities can also affect the suitability of the clay for brick manufacture.

Method of Working and Environmental Impact

- 11.5 After stripping soils, the clay can easily be removed by scrapers or hydraulic excavators, where it is taken by dumptruck or conveyor to the brickworks. Extraction may be carried out intermittently, perhaps just once a year, in order to create a large stockpile, which is then worked for the intervening period. Despite the thickness of the deposit, excavations do not normally exceed 30 metres, and are often much less. Geological and hydrological constraints, quarrying logistics and planning controls are frequent limiting factors.
- 11.6 Potentially the most intrusive aspects are the brickworks themselves, which more closely resemble industrial, rather than mineral processing operations. These may be located in rural areas where industry in general might be considered inappropriate. Fortunately the depth of working, and the normally dry working conditions can allow plant, buildings and machinery to be located on the quarry floor, so reducing visual impact and noise. Proposals to extend or build new brickworks will be judged against the provisions of Policies M3.10 and M3.11.

Plan 11.1 **Clay Resources and** **Location of Quarries**

N
1



Reclamation and After-use

- 11.7 There are two main options for reclamation of clay pits. The first is to landfill and reclaim back to original levels, and the second is to restore to a lower level.
- 11.8 The relatively impermeable nature of clay means that many pits are geologically well suited to receive domestic and other non-inert wastes. Providing other planning and environmental criteria are met, there will often be strong economic and planning incentives to use clay pits for landfill. This will be the case especially where ground configurations do not favour a low-level scheme. This was a factor at the Dorket Head claypit which is currently being filled with domestic and other waste.
- 11.9 Low level reclamation may be another option. The current workings at Kirton brickworks are being progressively restored back to their previous agricultural use, by reprofiling the hillside from which the clay has been extracted.
- 11.10 Whilst an agricultural after-use is normally possible, alternative options, such as woodland or nature conservation may be the preferred option.

Supply and Demand

Sources of Information

- 11.11 National and county production figures are published by Government sources. Consistent data for Nottinghamshire is limited, because in some years the County has been amalgamated with other counties.

Recent Production History and Trends

- 11.12 National production of clay, like aggregates, is largely dependent on the construction industry.
- 11.13 National clay production has halved since the mid-1970's and now stands at about 8 million tonnes per annum. In contrast Nottinghamshire's output of around 350-400,000 tonnes per annum has remained very stable over the same period. Most of the decline in national production is due to a reduction in demand for 'common' bricks that have been substituted by other products. Levels of house construction, the main user of bricks, have also generally been lower. Demand for higher quality 'facing and engineering' bricks has remained more stable and these form the bulk of Nottinghamshire's output.
- 11.14 The industry itself has also seen many structural changes resulting in brick manufacture being concentrated within a fewer but generally much larger units producing a much wider range of bricks. One consequence of this is that many brickworks now import some clay for blending in order to produce the required range of bricks. The very high quality clays such as those found in Staffordshire are particularly sought after.

Consideration of Future Demand

- 11.15 There is no national demand forecast for clay but it is reasonable to assume that demand will remain broadly similar to recent levels. A recent Government report, 'Brick Clay: Issues for Planning', 2001, reviews current and future issues in planning for the supply of brick clay. The report puts forward recommendations for future planning guidance on brick clay.
- 11.16 The report recommends that guidance should emphasise the need for an integrated long term approach involving a landbank of permitted reserves of at least 25 years in order to maintain a security of supply of brick clays. It recommends guidance on the objectives to be resolved over that time and stresses the need for flexibility of the long term approach. It supports regular short term adjustments (no longer than 5 years) to development plan policy to meet emerging circumstances. Whilst demand will be strongly influenced by the level of house construction activity, the commercial success and marketing strategy of each company may also be a significant factor in determining local levels of production. Any further rationalisation of the industry could also have a major impact.
- 11.17 Although these recommendations have yet to be endorsed in Government guidance, it is accepted that the large capital investment needed to build and maintain brickworks will generally favour a long-term approach. For a new brickworks and clay pit 25 years is probably a reasonable initial minimum landbank, but for subsequent extensions this may be less critical. In any event with only two brickworks in Nottinghamshire it is more relevant to consider the needs of each operation separately rather than as part of an overall countywide landbank.
- 11.18 The main strategy of the Plan will therefore be to maintain supplies of clay to both brickworks throughout the Plan period and where practical beyond.

Future Provision

Kirton

- 11.19 Kirton clay pit provides both red-firing and cream-firing clays, the former accounting for about 90% of demand. Reserves of cream clay are located in the south east of the pit within a separate working area. Reserves of cream clay should be sufficient until at least 2030.
- 11.20 Extraction of red clay has progressed steadily eastwards along the hillside that parallels the mineral railway line as far as Kirton Road. The pit is being progressively reclaimed back to agriculture by reprofiling the land. It is estimated that red clay reserves will be exhausted by 2009. Options to extend the clay pit are largely limited to land north of the railway line where economically workable red firing clays are known to exist. There are, however, two main environmental issues, which constrain the extent of mineral extraction in this area.

- 11.21 First, there is the proximity of Kirton village and the need to minimise the impact on residential amenity. In this respect a ridgeline to the east of the village, which effectively screens the existing workings, needs to remain intact in order to screen any workings north of the railway line and maintain the landscape character of the area.
- 11.22 Secondly, two mature landscape areas (MLAs) are also present. These comprise a block of land east of the village and a field south of Kirton Road.
- 11.23 In considering future mineral extraction proposals, the most logical next phase would be to extend into the land east of the farm access track that runs north - south between Kirton Road and the railway. This land is remote from the village, the main constraint being a field designated as an MLA. Providing this field is protected, then the environmental impact of clay extraction should be very limited. The extent of reserves in this area is uncertain, but may be sufficient for the plan period. This land is therefore allocated for mineral extraction.
- 11.24 The main planning issues are:
- (a) the MLA is protected from the affects of mineral extraction;
 - (b) advance screening along the northern boundary is carried out to minimise views into the site from Kirton Road;
 - (c) all extracted clay is transported to the brickworks by internal haul routes;
 - (d) reclamation should progressively restore the land back to an acceptable landform, by reprofiling the land using similar techniques to that used within the current red clay.
-

POLICY M11.1 KIRTON ALLOCATION

15 hectares of land to the north of Kirton Brickworks are allocated for clay extraction.

- 11.25 Once this area is worked out, the only remaining option north of the railway line is to continue west of the farm access road. However, the need to preserve the ridgeline and MLA which occupies the large field north of Primrose Lane may severely restrict what is environmentally acceptable. This option would therefore have to be compared against other possible options, which would be a matter for the next review of the Plan.
- 11.26 The red clay resource may extend east of Kirton Road, but its extent, quality and viability are unknown and it is much more remote from the brickworks. It may, however, be the only potential local option left to supply the brickworks once the northern extension is worked out.

Dorket Head, Arnold

- 11.27 Clay extraction at Dorket Head is progressing in advance of a major waste disposal scheme, which commenced in 1990. The brickworks are located in the original quarry and clay is conveyed to the works via a tunnel that goes

under a road separating the two sites. An extension to the clay pit was granted in 1998 that secures reserves until at least 2020.

- 11.28 Whilst a further eastern extension is geologically possible, environmental constraints, in particular the loss of a Mature Landscape Area which extends across the whole site, suggest that the present permitted area may represent the acceptable limit of clay extraction.
- 11.29 In the longer term importing clay from a remote site or a new replacement brickworks and clay pit may prove to be a more acceptable option. At present alternative potential resources have only been identified in the Bilsthorpe area, but it is unclear if these represent the most suitable options within the extensive Mercia Mudstone. Nevertheless, it is accepted that there are operational advantages to be gained from extending the Dorket Head clay pit in an easterly direction which have to be balanced against the impact on the environment which also includes the advantage of not needing to import clay from a remote site, should the brickworks remain.

POLICY M11.2 DORKET HEAD – FUTURE PROVISION

Proposals to extend Dorket Head clay pit should take into account the environmental constraints at the site, the operational benefits to be gained by phased working and restoration and the likelihood of alternative locations offering a lesser environmental impact. Proposals will be permitted elsewhere which either:

- (a) maintain supplies of clay to the Dorket Head brickworks; or**
- (b) provide a replacement brickworks and clay pit,**

providing such proposals are subject to a satisfactory working and reclamation scheme.

Proposals for a new brickworks and clay pit should, where practical, include the reclamation of the Dorket Head brickworks site. In granting planning permission the County Council will impose conditions to ensure that commencement of extraction is phased to replace the expected exhaustion of reserves at Dorket Head.

New Brickworks and Clay Pits

- 11.30 Because brickworks supply wide national markets the possibility of other companies wishing to develop a new brickworks and clay pit in Nottinghamshire cannot be ruled out. The most recent example of this was when permission was granted for a new brickworks and clay pit at Belle Eau Park, Bilsthorpe in 1992, although this permission subsequently lapsed without the development commencing.
- 11.31 Proposals for new sites must conform to Chapters 3 and 4, but, unlike extensions, there may be no persuasive 'need' arguments to counterbalance any environmental and other planning problems. Accordingly, proposals for greenfield sites are only likely to be acceptable which can satisfy the

environmental protection and reclamation policies as set out in Chapters 3 and 4. In weighing up the environmental impact, regard will be made to the economic, employment and any other benefits the proposal may make.

POLICY M11.3 NEW BRICKWORKS AND CLAY PITS

The County Council will only permit proposals to develop new clay workings and associated brickworks where the economic, employment and/ or other planning benefits significantly outweighs any environmental impact.

Chapter 12

COAL



Winding Towers at Clipstone Colliery

Introduction

- 12.1 Coal is an energy mineral of national importance, its main use being to supply power stations. Domestic coal production has seen a relentless decline in recent years. The severest decline occurred during the 1990's when national production halved to less than 40 million tonnes per annum by the end of the decade. Most of this decline was caused by the closure of large numbers of coal mines and, although Nottinghamshire remains one of the most important coal mining counties in the UK, it has not escaped this decline. Only 4 mines in Nottinghamshire remained open at the start of 2002 compared to 15 in 1990.
- 12.2 In contrast, national opencast coal extraction has remained relatively stable. Nottinghamshire has, however, been a relatively small player and there has been no opencast coal extraction since 1997.

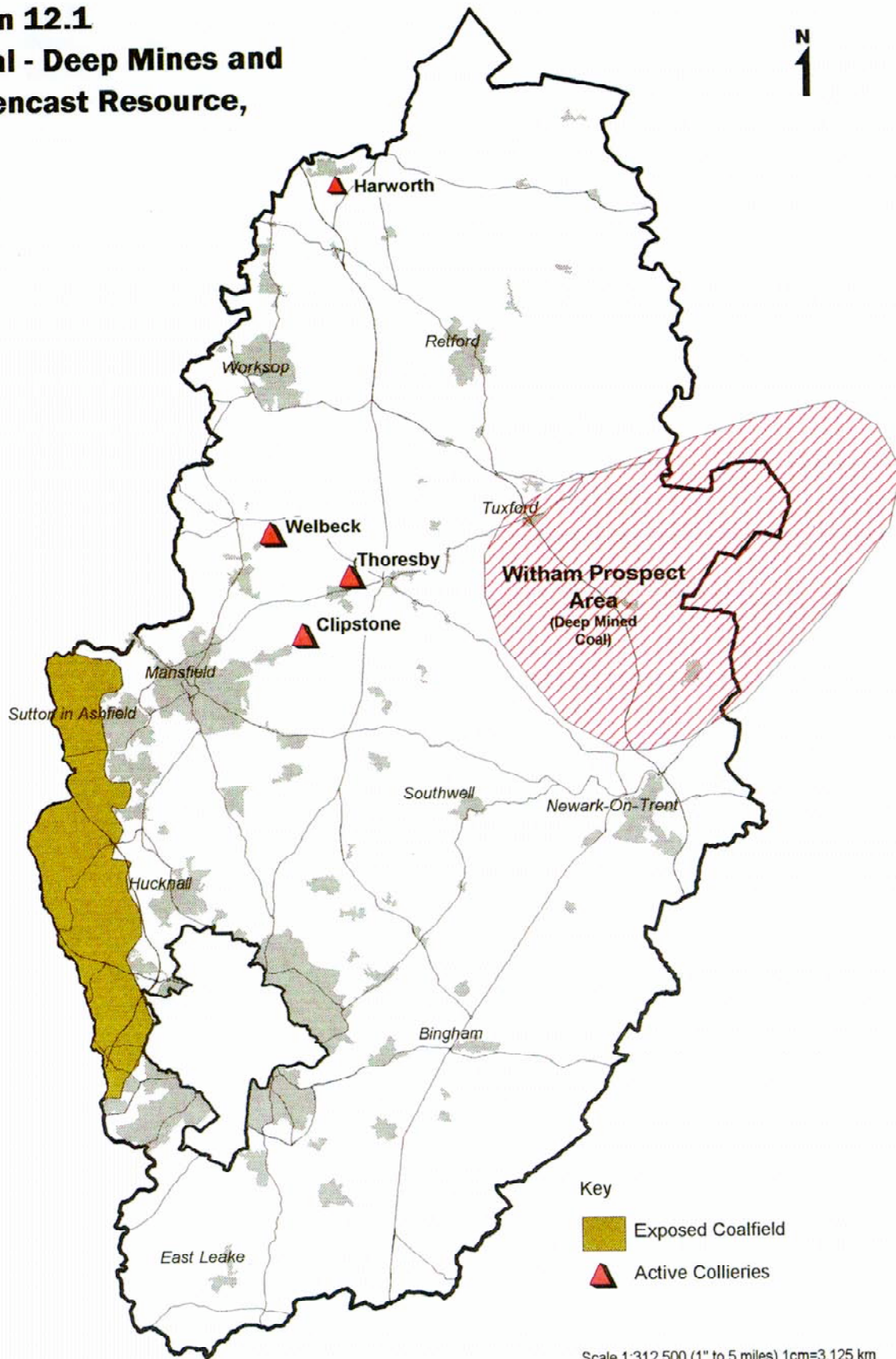
Geology

- 12.3 Nottinghamshire is located within the Yorkshire and East Midlands Coalfield, the largest and most productive in the UK. The coal measures dip gently eastwards and are relatively undisturbed and easy to mine. In the west, the coal measures outcrop and form the 'exposed coalfield' whereas in the east they become ever more deeply buried and the coalfield is said to be 'concealed', (see Plan 12.1). The exposed portion falls mainly in Derbyshire and South & West Yorkshire, but the southern extremities just impinge into Nottinghamshire along the Erewash Valley. It is only within the exposed coalfield where coal seams may be near to the surface that opencast extraction is possible. In the concealed coalfield, which underlies most of Nottinghamshire, deep mining is the only option.

Future Requirements

- 12.4 Mineral Planning Guidance Note 3 (MPG3) 'Coal Mining and Colliery Spoil Disposal', 1999, states that 'it is not for the planning system to seek to set limits on or targets for any particular source or level of energy supply; nor to predetermine the appropriate levels of coal to be produced by deep mine or opencast. It is for individual operators to determine the level of output they wish to aim for in the light of market conditions, and to determine the acceptability of individual projects'.
- 12.5 The extraction of coal, whether by deep mine, or opencast, differs from many other types of mineral working in terms of scale and impact on the environment and economy. Applications for all mineral development should have regard to the policies in Part 1 of the Plan, but for coal, further requirements should be met as identified below.

Plan 12.1
Coal - Deep Mines and
Opencast Resource,



- 12.6 MPG 3 sets out the criteria against which MPAs should assess future proposals for coal extraction. In applying the principles of sustainable development there should normally be a presumption against coal development, be it opencast, deep mine or spoil disposal, unless the proposal would meet the tests specified in MPG3. In translating these tests into policy, the overall approach must be to ensure that coal development is only permitted where the environmental impacts are outweighed by local and community benefits, such as the reclamation of derelict or degraded land, or maintaining local employment. The protection of designated and other environmentally important sites will be in accordance with the environmental protection policies in Chapters 3 and 4. These criteria are included as appropriate for Nottinghamshire in Policy M12.1.
-

POLICY M12.1 COAL DEVELOPMENT

Planning permission will not be granted for opencast or deep mine coal extraction, or colliery disposal unless the proposal:

- (a) is environmentally acceptable, or can be made so by planning conditions or obligations; or**
 - (b) where the proposal is not and cannot be made environmentally acceptable the local and community benefits that are provided clearly outweigh the likely impacts.**
 - (c) Where proposals occur within the green belt they will be tested against the highest environmental standards and, if planning permission is granted, stringent conditions will be imposed to ensure that the site is well operated and restored to the highest standards.**
-

- 12.7 The planning issues for deep mined coal, colliery spoil disposal and opencast coal are considered in turn below.

Deep Mined Coal

Method of Working and Environmental Impact

- 12.8 Deep mined coal from Nottinghamshire is extracted from depths generally ranging from between 400-900 metres below the surface. From the pithead on the surface a vertical shaft is sunk through overlying rock to the coal seams. Roadways are then driven along the seam to open up the face from which coal is extracted. Extraction and transportation of coal is highly mechanised, usually taking place by the longwall method. As the seam is worked, the void is allowed to progressively collapse behind the worked area, causing subsidence at the surface. The coal is transported away from the face by conveyor through screening, crushing and homogenising plants and then on to a coal preparation plant.
- 12.9 This method of extraction creates large volumes of waste, the disposal of which is one of the main environmental impacts of winning coal (see para

12.17). The other main environmental impacts include the surface development of the pithead, transport and subsidence.

- 12.10 The winning and processing of coal requires substantial surface development, notably winding towers, coal preparation plants and stocking areas all of which can have significant visual impact. Most pithead development falls under the 1995 General Permitted Development Order, which provides only very limited controls over siting and appearance.
- 12.11 Most major movements of coal, especially those supplying power stations occur by rail using 'merry-go-round' trains. Road transport, although significant, is avoided as far as possible due to environmental drawbacks and costs.
- 12.12 The most widespread impact of underground working is caused by subsidence at the surface. It is estimated that nearly half the County has either been affected by subsidence, or is within range of existing, or former mine-take areas.

Reclamation and After-use

- 12.13 Reclamation of former colliery sites normally involves the removal of plant, buildings and machinery followed by regrading and soiling, or other treatment to allow an appropriate after-use. Abandoned mine shafts can either be filled or capped. Some collieries may include buildings, equipment and other features of historic interest which may justify preservation. An existing example is the winding house at the former Bestwood Colliery.
- 12.14 The 1995 General Permitted Development Order reinforces the 1988 General Development Order, requiring any pithead development to be removed within two years of cessation of working, unless otherwise agreed by the MPA. Previously most pithead development had no reclamation requirements. Where there are no reclamation conditions, agreement is sought on the future use of sites with the relevant authorities under the Minerals Review procedure (see Para 4.55).
- 12.15 The proximity of many colliery sites to existing settlements and the potential for redevelopment can have substantial local land-use planning implications. In most cases proposals for the redevelopment of these sites is dealt with at a district level. There may also be the potential to collect mine gas from emissions from abandoned workings, (see Chapter 13, Paras. 13.26-28).

Future New Mines

- 12.16 Despite the decline in deep mined coal production, in 1996, RJB Mining (now UK Coal) indicated their interest in pursuing the 'Witham Prospect'. This prospect area straddles the Nottinghamshire – Lincolnshire border north of Newark. The development of any new mine would raise major land use and socio-economic planning issues, some of which, such as new housing, would need to be considered in the review of District Local Plans. Planning applications for new mines will require a rigorous examination, including an Environmental Impact Assessment (see Chapter 3, Paras. 3.6-3.10).

POLICY M12.2 NEW DEEP COAL MINES

Applications for new deep mined coal development should include details on the issues set out below:

- (a) effects upon existing nearby communities;**
 - (b) transport and safety implications;**
 - (c) visual impact of ancillary surface development;**
 - (d) noise and dust impact;**
 - (e) impact on biodiversity;**
 - (f) details of coal processing including washing and lagoons;**
 - (g) disposal of colliery spoil;**
 - (h) site restoration;**
 - (i) treatment and pumping of underground water;**
 - (j) monitoring and preventative measures for potential gas emissions, including the potential to capture gas for on-site energy;**
 - (k) potential effects of subsidence;**
 - (l) likely socio-economic effects.**
-

Colliery Spoil Disposal

Method of Working and Environmental Impact

- 12.17 Colliery spoil is the waste material that is extracted in the process of deep mining coal. In the past, mining methods produced relatively little waste above ground as coal excavation by hand was highly selective and most waste was separated and left underground. Nowadays, coal is won at the face by machine, and in doing so the dirt bands interspersed with the coal seams, together with parts of the seam floor and roof, are also extracted.
- 12.18 The majority of surface tipping of spoil give rise to spoil heaps immediately adjacent to the originating colliery. Individual heaps may exceed 100 hectares and rise to 50 metres above ground level. Whilst visual intrusion is the most obvious impact, noise, dust and water contamination may also occur. Spoil can also be disposed of at remote sites or also backstowed underground, but this is rarely a viable or practical option.
- 12.19 Many tipping areas began prior to planning legislation, when little if any attention was paid to the environment or reclamation. Furthermore, tips were often located close to residential areas and had a very detrimental effect on the amenity of whole communities. Fortunately, since the 1960s the worst examples have been reclaimed under a major derelict land clearance programme carried out by the County Council, funded by Central Government. In 1998, the County Council in collaboration with the Forest Enterprise reclaimed over 800 hectares of spoil tips at 8 closed collieries. This project, which was sponsored by the former British Coal, cost over £10

million. The scheme focussed on reclaiming the spoil heaps to commercial and amenity woodland with public access. Over 2 million trees have been planted.

- 12.20 Recent planning permissions for tipping have sought to minimise the environmental impact by ensuring that the reclaimed tip will blend into the surrounding landscape. Where possible, improvements to existing adjacent tipping areas, which may be subject to poor or non-existent planning conditions, have also been included.
- 12.21 One of the main constraints is the need to accommodate both 'dry' and 'wet' categories of spoil. Dry dirt (or coarse discard) is the easiest form of spoil to dispose of as it can simply be taken to the tip by conveyor or dumptruck and graded into the required landform. Once the desired contours are reached, soils can be immediately replaced and the site reclaimed. With proper advanced planning, tipping and reclamation can be tightly phased so that only a small active tipping area is needed at any one time. The early construction and reclamation of the most visible slopes to help screen active operations can further reduce the visual impact.
- 12.22 Wet dirt (or tailings) comprises the fine particles of clay washed out of coal, which at some collieries may represent nearly half the waste produced. Wet dirt is much more difficult to dispose of.
- 12.23 The simplest, cheapest and most widely practised disposal option is to pump the wet dirt as slurry into settling lagoons which are normally created out of dry dirt. An individual lagoon typically extends over 5-10 hectares (excluding bund walls) and takes several years to fill. Once full, it has to be left to dry out for 2 or more years, when it can then be capped with dry dirt to allow final reclamation. At most tips there will be one active slurry lagoon, one that is drying out and one that is under construction. As a result phasing opportunities are usually very limited leaving large parts of the site unreclaimed. Where wet:dry ratios are high it is also possible that nearly all dry dirt is needed just to keep pace with lagoon wall construction. There may also be insufficient dry dirt to cap lagoons and create the required final landform, particularly if a colliery closes early.
- 12.24 Insensitive design and lack of dry dirt has in the past resulted in slurry lagoons having very artificial shapes which, even when reclaimed, fit awkwardly into the landscape. Inaccurate dirt forecasts have necessitated amendments to approved schemes resulting in fewer larger, but more intrusive, lagoons which are more difficult to reclaim satisfactorily. Recent schemes have tried to redress these problems.

POLICY M12.3 COLLIERY SPOIL DISPOSAL

When planning permission for colliery tipping is granted the County Council will impose conditions to ensure that schemes are designed so that:

- (a) priority is given to the early construction and reclamation of the external, visible faces;**
 - (b) tipping profiles avoid ‘engineered’ or other alien landforms;**
 - (c) opportunities are taken to improve the appearance of existing adjacent tipping schemes;**
 - (d) reclamation is phased to minimise visual impact and problems of surface runoff;**
 - (e) opportunities are taken to reclaim sites to suitable local Biodiversity Action Plan priority habitats.**
-

- 12.25 The disadvantages of wet dirt can be eliminated by the use of filter presses. These mechanically squeeze out excess moisture to leave a filter cake which can be mixed with, and disposed of alongside, dry dirt. The main obstacle against filter presses is economics, as the process requires substantial buildings, equipment and extra operational costs. Such levels of investment are only likely to be justified at new collieries, or at existing collieries which have a long term future, and where large tipping extensions are sought. As a result their use in Nottinghamshire and elsewhere has been very limited. The future use of filter presses is therefore likely to be restricted to large schemes and where the avoidance of lagoons will result in significant environmental gains.
-

POLICY M12.4 COLLIERY SPOIL DISPOSAL – USE OF FILTER PRESSES

Major proposals for colliery tipping must use filter presses where this will result in significant environmental gains over the use of slurry lagoons unless it can be demonstrated that this is not a viable option.

Reclamation and After-use

- 12.26 Where recent tipping has extended over greenfield sites, soil conservation measures normally allow the tip to be reclaimed to its previous use, which, typically, will be agriculture and, less commonly, woodland.
- 12.27 However, the change in emphasis away from agricultural production means that opportunities to reclaim tips to uses other than agricultural may be more appropriate. In particular, reclaimed tips may provide suitable sites for increasing woodland and heathland cover in accordance with the Local Biodiversity Action Plan. Some tips, especially those close to settlements, may be suited to recreational after-uses.

- 12.28 The reclamation of older tips often presents far greater obstacles because of the absence of soil and poor grading. Colliery spoil provides very hostile acid conditions, and even when weathered is rarely able to support a viable grass sward. Without treatment, birch scrub may gradually establish, and after many decades a patchy cover of vegetation can develop.
- 12.29 The premature closure of collieries has often meant that existing reclamation schemes cannot be achieved. For example, slurry lagoons may be left partly filled and dry dirt tips may fall short of approved contours. Where collieries have closed and no reclamation provisions exist the County Council will seek alternative reclamation proposals in accordance with policies in Chapter 4.

Future Requirements of Spoil Disposal

- 12.30 The decline in coal production has meant that rates of spoil disposal have declined likewise. Nevertheless new disposal areas may be required and applications for spoil disposal schemes should be made in accordance with the national procedure, 'Procedural Manual Evaluative Framework: Assessment of Alternative Colliery Spoil Disposal Options' (HMSO, 1999). This framework is used to identify the various options available for individual spoil disposal schemes and to assess the economic and environmental effects of each, so that considered judgements can be made between the alternatives.

POLICY M12.5 COLLIERY SPOIL DISPOSAL – NATIONAL EVALUATIVE FRAMEWORK

Applications for spoil disposal schemes must be made in accordance with the national evaluative framework procedure.

Reworking of Colliery Spoil Tips

- 12.31 Past coal processing was generally very inefficient and substantial quantities of coal often remained in the spoil especially in slurry ponds. At some sites it may now be economic to recover this coal, which can amount to several hundred thousand tonnes in a single large tip. Such an operation would result in the recovery of coal which would otherwise be lost. Coal recovery involves the re-excavation of spoil which may require screening and/ or washing to remove the coal, before the spoil is re-deposited within the original tipping area. Occasionally, the spoil may contain sufficient coal to be saleable without treatment.
- 12.32 This activity can have a severe impact on the environment in terms of visual intrusion, traffic movements, noise and dust, and will destroy any existing reclamation. At closed collieries the reclamation and redevelopment of unreclaimed tips and pithead areas may be delayed, and blight adjacent areas, pending the outcome of proposals to recover coal. In some instances there may be environmental gains where derelict or poorly reclaimed tips can be reworked and reclaimed to a more satisfactory landform and after-use. Such opportunities are likely to be very few, especially where tips have become established landscape or wildlife features, even though the standard of reclamation may be poor. The potential exists at some tips to utilise the

existing colliery rail network to remove the spoil rather than relying on road transport.

- 12.33 Limited reworking may be possible under the provisions of the 1995 General Permitted Development Order, but where extensive reworking is proposed, planning permission is normally required. In determining proposals of this nature it is necessary to balance the potential level of disturbance to the environment and local communities, and the environmental benefits which may be gained.

POLICY M12.6 REWORKING OF COLLIERY SPOIL TIPS

Planning permission will only be granted for the reworking of a spoil tip if:

- (a) it has not become an established, attractive landscape or wildlife feature;**
 - (b) it will not cause an unacceptable environmental impact;**
 - (c) it will not cause an unacceptable impact to local communities;**
 - (d) It will result in a substantial environmental improvement of the site.**
-

- 12.34 As mentioned in Chapter 9, there is the potential for colliery spoil and dry dirt discard to be used as a secondary aggregate, particularly as a bulk fill. The above impacts of reworking spoil tips are applicable both to the recovery of coal as well as the use of spoil as a secondary aggregate. Policy M12.6 therefore also applies to secondary aggregates.

Opencast Coal

Method of Working and Environmental Impact

- 12.35 Modern technology allows extraction to reach depths in excess of 200 metres, although 80 metres is more commonplace. This compares to depths of just 10-15 metres when opencast extraction first began in the 1940s. Nationally the largest sites may be several hundred hectares in extent, although small private licensed sites of just a few hectares can still be economic.
- 12.36 The ratio of overburden to coal extracted on average is 17:1. Consequently, extraction involves massive earth moving operations in order to recover relatively small quantities of coal. Soils and overburden are stripped and stored in large mounds, which may serve as noise and visual screens. These mounds may be the most conspicuous features of the workings. Successive layers are then removed creating a series of working benches at coal horizons. Harder rock layers may require blasting to loosen them prior to removal. Once extracted, coal is normally taken by lorry to the nearest blending centre for processing. At large sites traffic generation can therefore be considerable.

- 12.37 Where possible, extraction is phased so that only part of the total site is opened up at any one time. When the last phase has been worked the remaining void is filled with overburden stored around the site, and the soils replaced. Although often referred to as a 'temporary activity', this whole process can take 10 years to complete, and many more for the reclaimed land to mature. Where other mineral deposits such as fire clays are extracted, there are additional implications for the operation of the site, (see para 12.51).

Reclamation and After-use

- 12.38 Most opencast coal sites can be reclaimed to their original or near original levels. This is because of the high overburden to coal ratio and the 'bulking-up' effect of returned material. The major earthmoving operations associated with extraction can provide substantial opportunities to modify the existing topography in order to suit the desired after-use. The high proportion of clay in the Coal Measures may also make a site geologically suited to receive a wide range of waste materials. Reclamation to agriculture is usually possible although other after-uses may be acceptable, or preferred in accordance with Government advice in diversifying the rural economy.
- 12.39 Opencast coal reclamation has had a very good track record in terms of agricultural production, although concerns regarding the long-term effects of reclamation, in particular losses in landscape quality, soil fertility and agricultural productivity remain.

Future Opencast Coal Sites

- 12.40 MPG 3 recommends the Minerals Local Plans should indicate any areas where coal extraction may be acceptable in principle and suggests three possible options. These are to indicate:
- broad areas of search; or,
 - the extent of the shallow coalfield and constraints within that area; or
 - a combination of the two.
- 12.41 In the absence of any clearly defined and justifiable local production target, it would be inappropriate to make any specific provisions for further releases of opencast coal during the Plan period. Uncertainty over the location of all potentially economic resources in the County also acts against identifying sites. Instead, proposals can only be assessed on their merits, with sustainable, rather than 'need' issues being the main controlling factor. Indeed previous arguments that opencast coal, low in chlorine, is required for blending with deep mined coal are accorded less weight, due to lack of evidence. Therefore, the Plan adopts the second of the alternative approaches identified in MPG 3, and indicates the extent of the shallow coalfield and defines the main areas of constraint, on the proposals map.

Opencast Coal Constraint Areas

- 12.42 Much of the opencast coal resource lies within the Erewash Valley. Built development, Mature Landscape Areas (MLAs), archaeological and ecologically important areas are particularly relevant constraints within the shallow coalfield. As part of the County Council's Countryside Appraisal a landscape character assessment of the County's landscape has been undertaken which forms the Nottinghamshire Landscape Guidelines. The Erewash Valley falls within the Nottinghamshire Coalfields Regional Character Area which is made up of the River Meadowlands and Coalfield Farmlands landscape types.
- 12.43 The Countryside Appraisal Project has made it possible to define those areas which need to be protected from opencast coal extraction with the MLAs being the best examples of these landscape types. These are areas strong on landscape character with a distinct sense of place and that have remained relatively unchanged over time when compared to the wider landscape.
- 12.44 The MLAs within the Nottinghamshire Coalfield contain some of the most ancient, small scale pastoral landscapes in the County. The more traditional, historic and higher quality landscapes correspond with ancient field patterns, permanent pastures, species rich hedgerows, ancient small scale woodlands, pockets of mature parkland and meadowlands fringing the River Erewash. A number of these woods have been recognised as ancient woodlands in English Nature's Ancient Woodland Inventory for the County.
- 12.45 In accordance with Policy M3.23, proposals for opencast coal extraction which would destroy or degrade these mature landscapes will be refused unless any harm that would be caused is outweighed by ameliorative reclamation measures. Other key designated sites in the coalfield include Sites of Special Scientific Interest (SSSI's), Scheduled Ancient Monuments (SAMs) and ancient woodland. These are also given a strong degree of protection in Chapter 3. (see Policies M3.19, M3.24 and Para 3.63). Many of these sites fall within the MLA areas.
- 12.46 A study of the Erewash Valley conducted in 1987 by the Nottinghamshire and Derbyshire Wildlife Trusts defined ecologically important stretches of the river and adjacent areas. Opencast coal proposals present a serious threat to this interest because they can involve the removal, diversion and reinstatement of the river along a new course. It is recognised that there is insufficient technical knowledge to date to ensure that the wildlife interest could be replaced. Accordingly, until such proven reclamation techniques exist, proposals that involve the removal of ecologically important stretches of the River Erewash will not normally be acceptable.
- 12.47 The above areas and features are considered to represent the most environmentally important sites in the coalfield which warrant specific protection from opencast coal extraction. These are not, however, the limit of environmentally sensitive and important areas and constraints within the opencast coal resource. Other factors such as access, traffic, residential amenity, local nature conservation sites and archaeology also need to be taken into account.

POLICY M12.7 OPENCAST COAL CONSTRAINT AREAS

Planning permission will not be granted for opencast coal extraction within areas defined as 'opencast constraint areas' on the proposals map, unless the proposal meets the requirements of Policy M12.1.

New Opencast Coal Mining Techniques

- 12.48 New techniques for opencast coal extraction have recently emerged that reduce the amount of land-take required for opencast coal, and which allows for additional coal to be taken that would not have been possible due to environmental constraints. The two main methods are known as 'augering' and 'highwall mining' and these are considered below:

Augering

- 12.49 Augering can be carried out from within the excavations of an opencast coal site and involves the boring of coal seams. Supporting pillars of coal are left within the seam to reduce the risk of subsidence. Although augering technology is not yet widely used in the UK, it is a well established method of coal recovery in the USA, having the advantage of recovering coal which may not otherwise be extracted.

Highwall Mining

- 12.50 Highwall mining follows the principle of augering except that it has a cutting face rather than a boring action and can thus extract greater quantities of coal. The advantages of this are that it is economical in its own right, without the need for an opencast coal site to be operated in conjunction. For the highwall mining machine to be able to access the coal a trench has to be excavated to the coal seam and this will therefore have some repercussions at surface level. However, the mining schemes are short-term, typically 12 months, and relatively small areas of land are required in comparison to opencast coal sites.

Opencast Coal - Incidental Extraction of Fireclays and other Minerals

- 12.51 MPG 3 recommends that policies should make provision for proposals where extraction of coal from a site would facilitate the efficient and economic working of other mineral deposits on that site in an environmentally acceptable way. This avoids economic minerals being sterilised, thus making opencast coal extraction more sustainable.

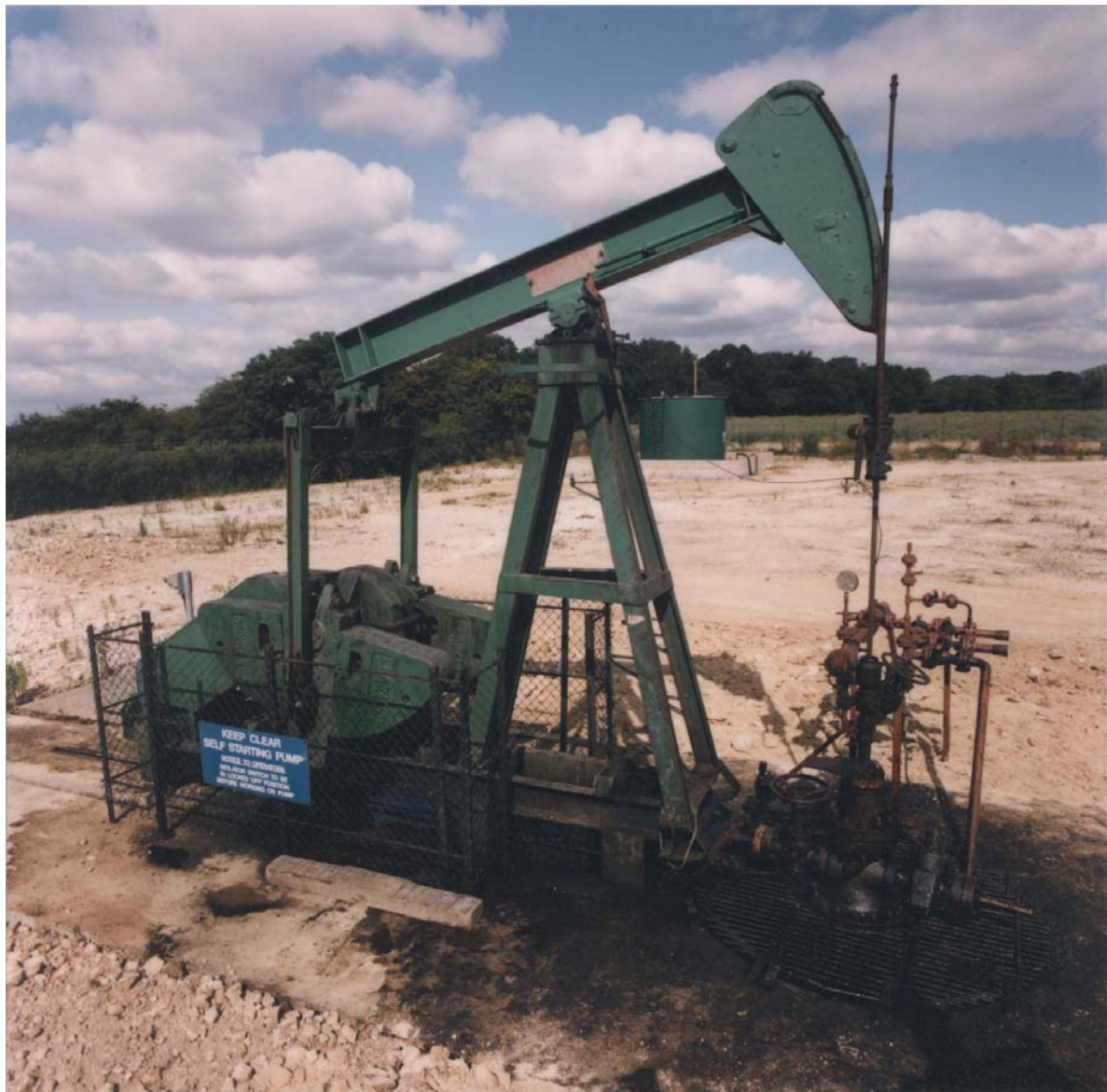
- 12.52 Opencast coal can be found in conjunction with other minerals, in particular fireclay and brick clay. Fireclays have a relatively restricted geological occurrence being found only below coal seams. They were originally used in the manufacture of refractory bricks, but more recently they have become more valued for their use in the manufacture of cream and buff coloured bricks. Although brick and fireclays have not been recovered from opencast coal workings in Nottinghamshire since the 1970s, it remains possible that economical quantities of such minerals could be present in any new opencast proposals. In such cases it is important that the opportunity to work these other minerals commercially is fully explored.
- 12.53 The main planning issues raised include possible delays to the reclamation of the site, access and traffic problems, and storage of clay, if it cannot be used at the rate it is recovered. Providing these issues can be satisfactorily resolved then the extraction of these minerals is in accordance with the principles of sustainable development.
-

POLICY M12.8 OPENCAST COAL - INCIDENTAL MINERAL EXTRACTION

Where proposals for opencast coal extraction are acceptable the recovery of fireclays and other incidental minerals will be granted where this does not result in any unacceptable environmental impact.

Chapter 13

Oil, Coalbed Methane and Mine Gas



A beam pump or 'Nodding Donkey' at Kirklington

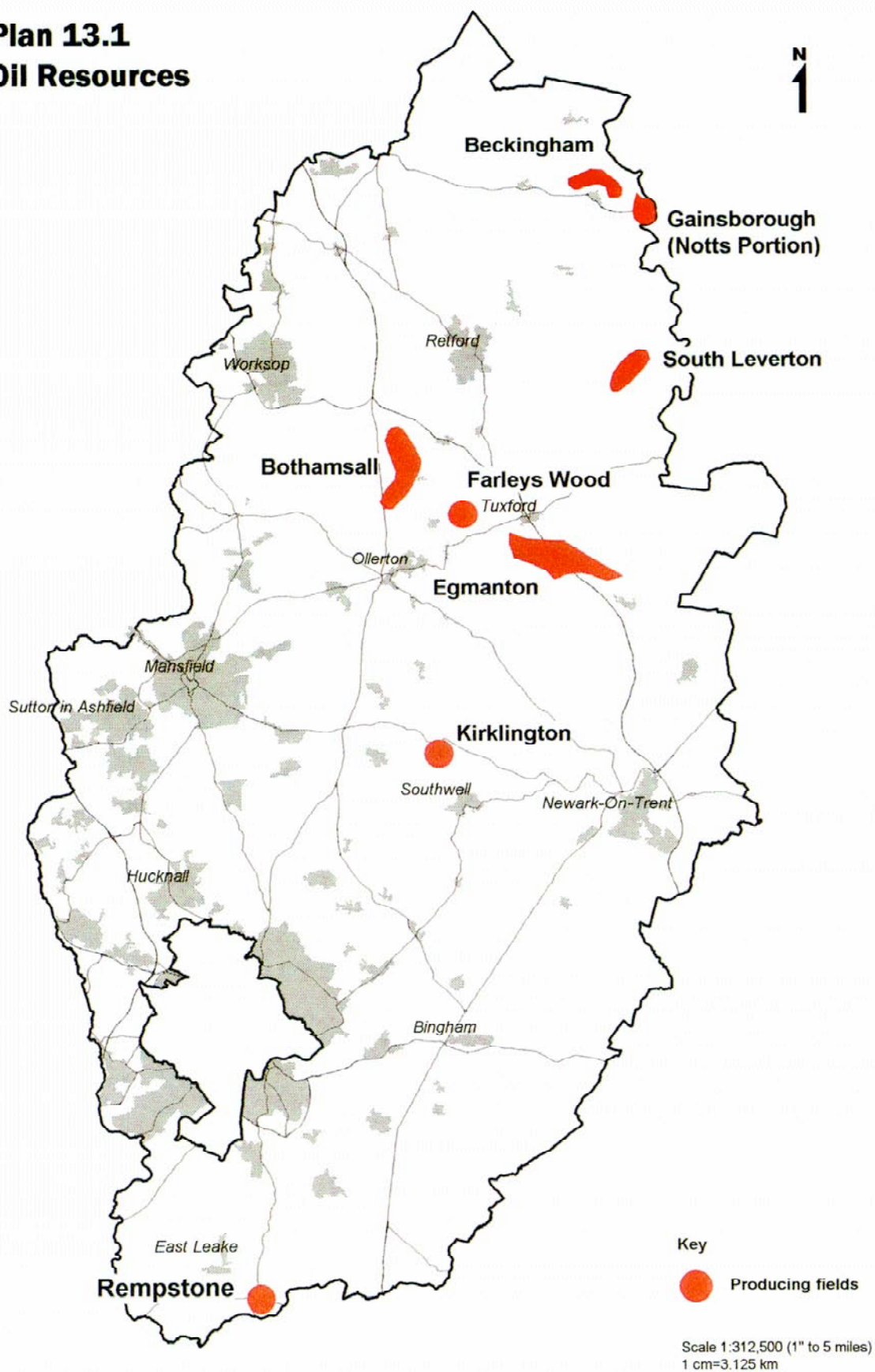
Introduction

- 13.1 Oil exploration in Nottinghamshire began prior to the Second World War when possible oil reservoirs in Carboniferous sandstones were identified. These sandstones occur at great depth and underlie much of Nottinghamshire. They are porous and permit the passage of oil and gas which, being lighter than water, tend to migrate upwards. Overlying impermeable rocks or some other geological feature such as a fault may act as a trap creating potential oil fields.
- 13.2 The oil recovered in Nottinghamshire is of high quality, and mainly used in the plastics and chemical industries, rather than as a fuel. Nottinghamshire's producing oil fields are shown on Plan 13.1. The majority of oil is taken by rail from the central collecting station at Gainsborough to refineries at Immingham, Humberside.
- 13.3 Although no economic quantities of natural gas have been discovered in Nottinghamshire, there has been an increasing interest in recovering methane gas from coal seams. To date proposals have been limited to the extraction of methane naturally seeping out of old mine shafts, but the technology to extract methane directly from undisturbed coal seams now exists.

Future Requirements

- 13.4 As stated in Chapter 12, it is not for the planning system to seek to set limits or targets for energy supply. As well as contributing to the local economy, the Government receives considerable revenues in the form of taxes and royalties from oil production. Despite the relative insignificance of onshore oil, it remains a cheap and economic resource to exploit when compared to its North Sea counterpart. As a result exploration in the pursuit of further oil resources in Nottinghamshire is likely to continue.
- 13.5 Extraction of coalbed methane and mine gas extraction is a relatively new venture in the UK. Reserves in Nottinghamshire are thought to be economically viable. It is anticipated that the number of schemes for this energy source will continue to grow. In addition Government policy is to ensure the maximum economic exploitation of oil and gas subject to measures to protect the environment.
- 13.6 Current Government guidance for the development of on-shore oil and gas resources is contained within Circular 2/85 which is to be replaced by a new minerals policy statement. A draft version of MPG 16 was published in 1999 which sets out the criteria against which County Councils should assess future proposals for oil and coalbed methane extraction. Final guidance is expected under the new minerals policy statement system.
- 13.7 The planning issues relating to oil and methane extraction are considered in turn below. Issues relating to boreholes in general and reclamation are considered at the end of the chapter.

Plan 13.1 Oil Resources



Oil

- 13.8 The exploration and production of oil is subject to the same planning controls applicable to any other mineral. However, oil companies must first obtain a licence issued by the Department of Trade and Industry, (DTI).
- 13.9 Since 1995, a single licence, the Petroleum Exploration and Development Licence (PEDL) has been issued to cover the three main stages of petroleum activity – exploration, appraisal and development.
1. Licences have an initial term of 6 years during which time a programme of exploration work agreed with DTI must be carried out;
 2. Licences can then be extended for a second term of 5 years to enable further activity of any kind to take place, including exploration subject to planning permission being obtained;
 3. The licence may be further extended for a third term of normally 20 years to allow for extraction.
- 13.10 Applications for licences are invited by the DTI in formal rounds for blocks based on 10 x 10km Ordnance Survey grid squares.

Method of Working and Environmental Impact

- 13.11 Before exercising any rights granted by their licence, the company must obtain the prior permission of owners and occupiers of any land they may wish to enter, and the prior approval of the County Council where necessary. Formal planning permission is required for the drilling of deep exploratory boreholes, but is not normally required for seismic surveys.

Exploration

- 13.12 The exploration phase of hydrocarbon operations encompasses both geological and seismic investigations, and the drilling of deep boreholes to assess prospects in more detail. These methods are discussed more fully in Chapter 5.
- 13.13 Whilst the mostly short-term impacts of exploration will need to be assessed against Policy M5.1, oil exploration boreholes also have long term implications. This is because, if oil is discovered, the same borehole site is likely to be used as the production well. It is therefore important that exploration proposals are also assessed against Policy M13.3 which considers oil production (see below). Identifying the most suitable location can be achieved by defining an 'area of search' within which boreholes can be drilled either vertically or directionally and still reach the subsurface targets, (see Policy M5.2).
- 13.14 Although substantially less costly than off-shore development, on-shore operations are still high cost and high risk ventures. Even when hydrocarbons are found, development will not necessarily follow. However, exploration is valuable in its own right as it extends the knowledge of the County's resource.

POLICY M13.1 OIL EXPLORATION

Where oil exploration boreholes are proposed in environmentally sensitive locations, the County Council will need to be satisfied that, within the 'area of search', the siting of the proposed development would have the least impact.

Appraisal

- 13.15 Should hydrocarbons be found as a result of drilling an exploration well, it will often be necessary to attempt to delineate the extent of the find by drilling further wells from other sites in the area. Until the extent of the oil field is known, it is difficult to evaluate the various options available and to assess the potential environmental effects of commercial exploitation.
-

POLICY M13.2 OIL APPRAISAL

Where oil is discovered, proposals to appraise, drill and test the resource will be permitted provided that:

- (a) such proposals are consistent with an overall scheme for the appraisal and delineation of the oil resource; and**
 - (b) they do not give rise to any unacceptable impacts on the environment and residential amenity.**
-

Production

- 13.16 In land-use terms, oil is very economical, and the environmental impacts are normally limited.
- 13.17 Oil wells comprise beam pumps known as 'nodding donkeys', which are 3-5 metres in height and are driven by small diesel or electric motors. A water injection system may be used to pump water into the reservoir to force oil from the rock. Where required, such development can normally be screened by soil mounds and tree planting. Once at the surface, oil is generally pumped to a small central collecting station and periodically removed from the site by road tanker.
- 13.18 Proposals for oil production need to demonstrate that they are consistent with an overall scheme that will enable the full development of the resource, taking account of any environmental issues which might constrain the development.

POLICY M13.3 OIL PRODUCTION

Proposals for the production, processing or transport of oil will be permitted provided that they are:

- (a) consistent with an overall scheme enabling the full development of the resources;**
 - (b) there are no unacceptable impacts on the environment and to residential amenity.**
-

Coalbed Methane

- 13.19 Most coal seams buried at depth will contain significant quantities of methane trapped within pores. The coalbed methane industry offers a means of extracting gas directly from coal seams that might otherwise not be exploited by conventional methods. The industry is still in its infancy and as yet there are no schemes for coalbed methane extraction within the County. There is also growing interest in related activities of extracting methane from disused mines and this is considered later in the chapter.
- 13.20 As with oil a PEDL is required for coalbed methane extraction. Furthermore those wishing to gain access to coal for the purpose of extracting methane will require permission from the owner of the coal. In the vast majority of cases the owner is likely to be the Coal Authority, who have produced maps indicating areas where a licence for coalbed methane extraction would normally be refused or granted.

Method of Working and Environmental Impact

- 13.21 Coalbed methane is obtained by drilling into a coal seam, lowering the local pressure and collecting the gas that is released as a result. The gas extraction process does not detrimentally affect the physical properties of the coal or prejudice it being worked at some later date by conventional mining methods. Methane can be extracted from coal seams that would be unsuitable or uneconomic to mine. Alternatively, it can be used to remove gas before mining, helping to reduce methane hazards associated with coal mining. Unlike underground coal mining, extraction of the gas does not cause subsidence of the land surface.
- 13.22 Coalbed methane extraction can be contemplated at depths of 200 – 1500 metres. Any shallower and the coal is likely to have lost its gas by natural leakage, whilst at depths greater than 1500 metres the yield is unlikely to cover the cost of drilling.

- 13.23 The equipment used in coalbed methane extraction is similar to that for conventional gas reservoirs. The main difference is that coalbed methane wells have generally much lower flow rates than conventional wells and take some 6-12 months to build up to full production. The production of commercial volumes of gas requires networks of boreholes with associated pipelines. The usual spacing is one borehole every 500-1000 metres. More densely drilled sites cause additional pressure reduction and increase the desorption rate, thus supplying more free gas.
- 13.24 The principal environmental considerations associated with the extraction of coalbed methane are the impacts associated with the exploration, development, operation and closure of a well field. These are very similar to oil, although the wells may be more numerous and closely spread.
- 13.25 A further significant environmental issue is the impact of water produced during well stimulation. The main type of water pollution during the extraction of coalbed methane is a high concentration of dissolved salts, causing high salinity. The scope for dilution into groundwater and watercourses and the sensitivity of aquatic organisms will determine the viability of surface discharge options and the degree of pre-treatment necessary. The Environment Agency can provide expert advice in this area.
-

POLICY M13.4 COALBED METHANE EXTRACTION

Proposals for the production and processing of gas from coal seams will be permitted provided that they are consistent with an overall scheme enabling the full development of the resources and there are no unacceptable impacts.

Mine Gas - Recovery

- 13.26 Coal seams exposed to the atmosphere during deep coal mining will usually start to release methane trapped within them. This methane, usually referred to as 'mine gas' is one of the main hazards during mining. If it is allowed to accumulate it can easily be ignited and explode. Once mining ceases and there is no longer any need to ventilate, methane may start to fill the mineshafts, other voids and escape to the surface. As a result of deep mine closures during the past 30 years there has been an increase, nationally, in the number of reported surface gas emissions. At best these are environmentally damaging, at their most serious they are a threat to health and safety in the locality.
- 13.27 The Coal Authority has installed strategically located mine vents to allow the mine gas to disperse to the atmosphere at known sites rather than build up pressure and be forced out of the ground at potentially dangerous points in the built environment.

- 13.28 In recent years technology has developed to recover this gas and use it as a fuel and convert it to electricity using on-site generators. The closure of so many mines has increased the opportunities for this type of development. At the start of 2002 three such schemes were operational in Nottinghamshire. This activity accords with the principles of sustainable development as it reduces the release of one of the most potent 'greenhouse gases' into the atmosphere and converts it into a useful fuel. This in turn reduces the demand for other finite fossil fuels.
-

POLICY M13.5 EXTRACTION OF MINE GAS

Proposals for the collection and processing of mine gas will be permitted provided that there are no unacceptable impacts on the environment and residential amenity.

Impact of Boreholes upon other Mineral Resources

- 13.29 Boreholes often pass through other underground mineral resources, which can give rise to a number of problems. For example, steel casing left in abandoned boreholes could damage mining equipment, and mining operations must avoid active production wells. The latter results in mineral sterilisation, and, more significantly, may involve costly alterations to the mine development.
- 13.30 It is important that these issues are addressed at the planning application stage. Possible solutions include the use of fibreglass casings instead of steel, or to sterilise a small amount of mineral around the borehole. Special safety precautions may also be required when wells are abandoned in mining areas.
-

POLICY M13.6 BOREHOLES – CONFLICTS WITH OTHER UNDERGROUND MINERAL RESOURCES

Where proposals for borehole exploration and production coincide with areas containing other underground mineral resources the County Council will need to be satisfied that their exploitation will not be unreasonably affected.

Reclamation and After-use

- 13.31 The County Council requires that sites be reinstated to their previous use at the earliest opportunity. In general the reclamation of abandoned exploration and production sites raises few issues. Once sites are no longer needed for exploration, appraisal or production it should normally be possible to rapidly reclaim the sites back to their previous state and use. This includes the removal of any temporary access and roadways, unless there are sufficient benefits for their retention for agricultural or other purposes.
-

POLICY M13.7 RECLAMATION OF OIL AND METHANE SITES

Where planning permission for oil and methane development is granted, conditions will be imposed requiring the site to be restored back to its original use as soon as practical once the development is no longer required.

Chapter 14

Incidental Mineral Extraction and Borrow Pits



Borrow Pit used to construct the Newark Relief Road in the late 1980s. The pit is to be filled with sugar beet washings from an adjacent factory.

Introduction

- 14.1 Most mineral extraction normally takes place in established mines and quarries in order to sustain traditional needs and markets. There are, however, two situations where this may not be the case. Firstly, minerals may be extracted as an incidental part of another development including the working of other minerals. Secondly, they can be worked within a borrow pit in order to meet the temporary needs of a major construction project. The planning issues raised by each of these activities are considered in turn below.

Development Involving Incidental Mineral Extraction

- 14.2 In principle recovering minerals as an incidental element of another development proposal promotes sustainable development by helping conserve mineral resources that might otherwise be lost.
- 14.3 District Councils should advise the County Council on proposals, such as ornamental lakes and major built development, which involve the excavation and removal of significant quantities of soils, overburden and mineral. Failure to do so may result in planning permission being granted without taking into account potential mineral planning issues. Developers submitting proposals to District Councils are likewise encouraged to consult the County Council at the pre-application stage where they expect incidental minerals extraction to be necessary.
- 14.4 In most cases the planning application for the main development will be determined by the District Council, and, except where quantities are very small, the mineral extraction will need to take the form of a separate planning application to be determined by the County Council. In order to ensure that both proposals are compatible, it is important to consider both planning applications at the same time. Proposals for mineral extraction will need to comply with the provisions of Chapters 3 and 4 as appropriate. In particular, interim reclamation proposals must be included in the event of the primary development being delayed, or failing to be implemented.
- 14.5 Incidental mineral extraction is not precisely defined in terms of quantity of mineral worked or duration. It does not, however, apply to minerals development simply because it is small scale and short term. If mineral extraction is a significant reason for justifying or promoting the development, the proposal will need to be assessed against the relevant policies applicable to the mineral being worked.

POLICY M14.1 INCIDENTAL MINERAL EXTRACTION

Planning permission for the extraction of minerals as a necessary element of other development proposals on the same site will be granted provided that:

- (a) there are no unacceptable environmental or other impacts resulting from mineral extraction;**
 - (b) there are adequate interim reclamation measures to allow for possible delays or non-implementation of the primary development;**
 - (c) the mineral extraction is of a limited nature and short duration.**
-

Irrigation Lagoons

- 14.6 Proposals to construct irrigation lagoons within agricultural land typically involve the extraction of around 30 - 50,000 tonnes of mineral in order to create a pond of about 1 hectare in extent. The mineral is usually taken off-site for processing at a nearby quarry. Whilst the development comprises little more than mineral extraction, providing there is evidence that there are genuine agricultural benefits then the mineral extraction can normally be regarded as incidental.
- 14.7 Sand and gravel deposits are technically very suited for this purpose because of the normally high water table level and relatively rapid recharge after the water is abstracted for irrigation. The cost of creating the lagoon is also likely to be offset by the value of the mineral. The main planning issues will generally comprise traffic during construction, the impact on archaeological sites, and the long term landscape impact of the lagoon. Wildlife impact is less likely to be an issue, as these lagoons tend to take place within arable fields.
- 14.8 Whilst the purpose of these lagoons is to provide irrigation, it is important that they are shaped and landscaped to blend in with and, where possible, enhance the landscape character of the area, including biodiversity. The standard rectangular reservoir should be avoided, as this will generally detract from the area.
-

POLICY M14.2 IRRIGATION LAGOONS

Proposals for mineral extraction to create irrigation lagoons will be permitted where:

- (a) there is satisfactory evidence that they will provide significant benefits to agricultural productivity;**
 - (b) they can be worked and reclaimed without any unacceptable environmental impacts;**
 - (c) the irrigation lagoon is landscaped and treated to maximise its potential for enhancing the landscape character and biodiversity.**
-

Borrow Pits

- 14.9 The term 'borrow pit' is applied to a temporary mineral working supplying material for use solely in a specific construction project, particularly roads. Borrow pits are typically located next to the construction site, and in the ideal situation are soon backfilled with waste materials, such as soft clay, that often have to be removed from the construction area – hence the material excavated is 'borrowed'. Normally, large quantities of material, mainly bulk fill, are required over a short time. For example, during construction of the Staythorpe 'C' Power Station, in 2000, over 72,000 tonnes of sand and gravel were supplied from two borrow pits.
- 14.10 With the exception of small borrow pits developed within the boundary of the highway construction sites, planning permission is required. Proposals for borrow pits will be treated in the same way as any other mineral extraction scheme. This means that borrow pits must be justified in terms of being the most suitable source of material to meet demand, and that appropriate environmental safeguards covering both working and reclamation are included (see Chapters 3 and 4).
- 14.11 Advance planning is essential to ensure that the borrow pit can be developed within the timescales required. For example, if archaeological remains are present these may require a full and lengthy investigation before any mineral can be extracted. Submitting proposals after contracts are let is unlikely to allow sufficient time to resolve such complications. Urgency of need cannot be an overriding factor in the treatment of archaeological remains and other similar environmental factors.
- 14.12 It is important to ensure that borrow pits only supply the construction project intended. Therefore in granting planning permission for borrow pits, the County Council will take appropriate measures to control access and routing, and permission will be time limited to the life of the construction project.
- 14.13 In considering 'need', the quantities and specifications of materials required for the construction project will be assessed in the context of the level and location of existing permitted reserves. Minerals won from borrow pits contribute to the County's aggregate requirements and may help to avoid the use of better quality reserves from established quarries.
- 14.14 In general, it should usually be possible to meet requirements from local established quarries or from waste materials and the use of secondary aggregates. In such circumstances borrow pits can normally only be justified where they offer clear environmental gains over alternative sources of supply. For example, where borrow pits are adjacent to construction sites the most obvious environmental benefits will be the avoidance of heavy traffic on public highways. There will also be significant economic and energy savings because of the reduced haulage costs.

- 14.15 These short term gains could be offset if the borrow pit is not properly reclaimed, or it is inappropriately located. For example, a water area adjacent to a major highway may have limited recreational potential because of access problems and/ or traffic noise. Reclamation proposals must therefore accord with the objectives of Chapter 4, and where possible infilling with waste material from the construction project will normally be the preferred option.
-

POLICY M14.3 BORROW PITS

The County Council will only permit borrow pits where:

- (a) there are overriding environmental or other planning benefits compared to obtaining materials from alternative sources;**
 - (b) alternative materials of the required specification are unavailable in sufficient quantities;**
 - (c) they are contiguous with or close to the projects they are intended to serve;**
 - (d) they are time-limited to the life of the project and material is to be used only for the specified project;**
 - (e) proposals include appropriate reclamation measures which make full use of surplus spoil from the project.**
-

APPENDIX 1 Index of Minerals Local Plan Policies

Page

Chapter 2 Sustainable Development

M2.1 Sustainable Development Objectives	13
M2.2 Minerals Sterilisation	14

Chapter 3 Environmental Protection

M3.1 Information in support of planning applications	19
M3.2 Planning obligations	21
M3.3 Visual intrusion	22
M3.4 Screening	23
M3.5 Noise	26
M3.6 Blasting	28
M3.7 Dust	29
M3.8 Water environment	30
M3.9 Flooding	31
M3.10 Associated industrial development	32
M3.11 Removal of associated industrial development	32
M3.12 Highways safety and protection	34
M3.13 Vehicular movements	34
M3.14 Vehicular routeing	35
M3.15 Bulk transport of minerals	35
M3.16 Protection of best and most versatile agricultural land	37
M3.17 Biodiversity	38
M3.18 Special Areas of Conservation	40
M3.19 Sites of Special Scientific Interest	41
M3.20 Regional and local designated sites	42
M3.21 Protected species	42
M3.22 Landscape character	43
M3.23 Mature landscape areas	44
M3.24 Archaeology	46
M3.25 Listed Buildings, Conservation Areas, Historic Battlefields and Historic Parks and Gardens	46
M3.26 Public access	47
M3.27 Cumulative Impact	48

Chapter 4 Reclamation

M4.1 Phasing	50
M4.2 Phasing – details required	50
M4.3 Soil conservation and use of soil making materials	51

M4.4 Landscape treatment.....	52
M4.5 Reclamation with fill – long term schemes	53
M4.6 Reclamation with inert fill – small schemes	54
M4.7 Interim reclamation measures	55
M4.8 Reclamation proposals for existing sites	56
M4.9 Aftercare.....	57
M4.10 After-use – details required and objectives	58
M4.11 After-use – management and other agreements	58
M4.12 Agricultural after-use	58
M4.13 Heathland and acid grassland after-use.....	60
M4.14 Reclamation schemes and geological sites.....	60
M4.15 Minerals review - submission of proposals.....	63

Chapter 5 Mineral Exploration

M5.1 Mineral exploration	67
M5.2 Deep boreholes in sensitive areas	69
M5.3 Retention of haul roads and hard standing.....	69

Chapter 6 Sand and Gravel

M6.1 Archaeological resource area - South Muskham.....	75
M6.2 Sand and gravel landbank.....	80
M6.3 Sand and gravel extraction in unallocated land	86
M6.4 Attenborough Plant - environmental improvements.....	88
M6.5 Hoveringham (Bleasby) allocation.....	90
M6.6 Gunthorpe allocation	92
M6.7 Rampton allocation.....	95
M6.8 Sturton le Steeple allocation.....	96
M6.9 Lound allocation	98
M6.10 Misson (Finningley) allocation	100
M6.11 Newington allocation.....	100
M6.12 Misson grey sand – area of search	101

Chapter 7 Sherwood Sandstone

M7.1 Sherwood Sandstone landbank.....	110
M7.2 Sherwood Sandstone extraction in unallocated land.....	113
M7.3 Rufford Colliery sand quarry allocation.....	115
M7.4 Scrooby Top allocation.....	117
M7.5 Carlton Forest sand quarry allocation.....	117
M7.6 Silica Sand landbank.....	119

Chapter 8 Limestone

M8.1 Aggregate limestone provision	127
M8.2 Non-aggregate limestone provision.....	127

Chapter 9 Secondary and Recycled Aggregates

M9.1 Stockpiling of dredgings	132
M9.2 Re-excavation of tipped dredgings.....	132

Chapter 10 Gypsum

M10.1 Underground gypsum mining – surface support.....	139
M10.2 Gypsum mining – safeguarded area at Costock.....	142
M10.3 Bantymock allocation.....	143

Chapter 11 Clay

M11.1 Kirton allocation.....	151
M11.2 Dorket Head – future provision.....	152
M11.3 New brickworks and clay pits	153

Chapter 12 Coal

M12.1 Coal development	159
M12.2 New deep coal mines	161
M12.3 Colliery spoil disposal.....	163
M12.4 Colliery spoil disposal - use of filter presses.....	163
M12.5 Colliery spoil disposal - national evaluative framework	164
M12.6 Reworking of colliery spoil tips	165
M12.7 Opencast coal constraint areas	168
M12.8 Opencast coal – incidental mineral extraction	169

Chapter 13 Oil Coalbed Methane and Mine Gas

M13.1 Oil exploration	176
M13.2 Oil appraisal	176
M13.3 Oil production	177
M13.4 Coalbed methane extraction	178
M13.5 Extraction of mine gas.....	179
M13.6 Boreholes – conflicts with other underground mineral resources	179
M13.7 Reclamation of oil and methane sites.....	180

Chapter 14 Incidental Mineral extraction and Borrow Pits

M14.1 Incidental mineral extraction.....	183
M14.2 Irrigation lagoons.....	183
M14.3 Borrow pits	185

APPENDIX 2

Policy Guidance

The following is a list of the policy guidance referred to in this Plan:

Planning Policy Guidance Notes (PPGs)

PPG2	Green Belts	1995
PPG9	Nature Conservation	1994
PPG12	Development Plans	1999
PPG13	Transport	1994
PPG15	Planning and the Historic Environment	1994
PPG16	Archaeology and Planning	1990
PPG24	Planning and Noise	1994
PPG25	Development and Flood Risk	2001

Planning Policy Statements (PPSs)

PPS1	Delivering Sustainable Development	2005
PPS7	Sustainable Development in Rural Areas	2004
PPS12	Local Development Frameworks	2004
PPS23	Planning and Pollution Control	2004

Mineral Planning Policy Guidance Notes (MPGs)

MPG1	General Considerations and the Development Plan System	1996
MPG2	Application, Permission & Conditions	1998
MPG3	Coal Mining and Colliery Spoil Disposal	1999
MPG5	The Review of Mineral Working Sites	1988
MPG6	Guidelines for Aggregates Provision in England (Consultation Draft for revised MPG6 published October 2000) (Revision of National and Regional Guidelines for Aggregates Provision in England, 2001-2016 published in June 2003)	1994
MPG7	The Reclamation of Mineral Workings	1996
MPG9	Planning & Compensation Act 1991: Interim Development Order Permission (IDO) - Condition	1993
MPG15	Silica Sand	1996
MPG16 (Draft)	Onshore Oil, Gas and Coalbed Methane Development	1999

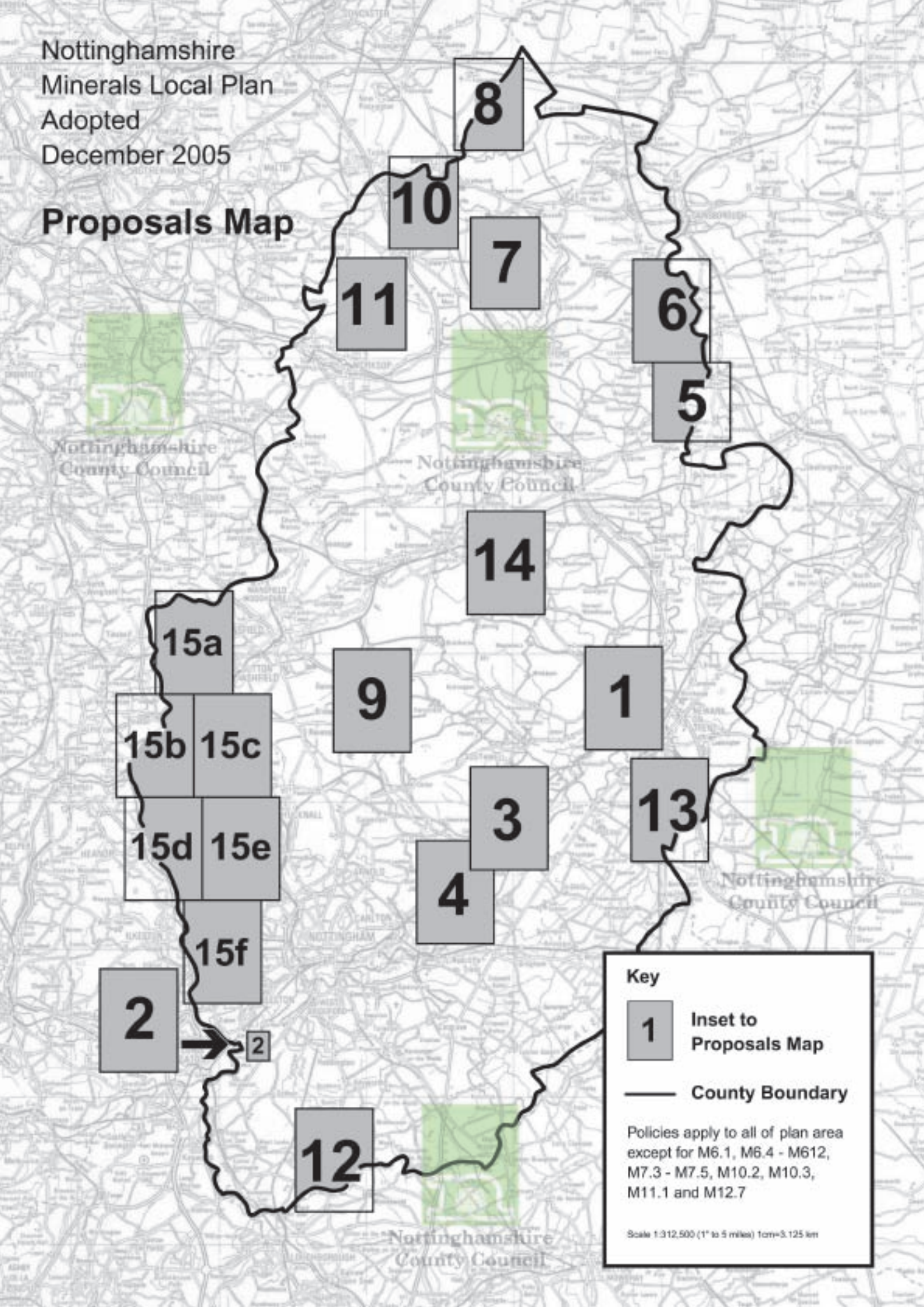
Minerals Policy Statements (MPSs)

MPS2	Controlling and Mitigating the Environmental Effects of Mineral Extraction in England	2005
------	---	------

Regional Guidance

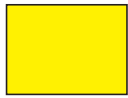
RSS8	Regional Spatial Strategy for the East Midlands	2005
------	---	------

Proposals Map



PROPOSALS MAP - KEY TO INSETS

Insets 1-14- Sand & Gravel, Sherwood Sandstone, Gypsum & Clay



Area of Archaeological Importance
[see Inset 1]



Proposed Area for Future Mineral Working



Land with Planning Permission to Extract Minerals*
(for information only except Inset 2 where only plant area shown)



Plant Site (Inset 4 & 6 - proposed)

Insets 15 (a-f) - Opencast Coal

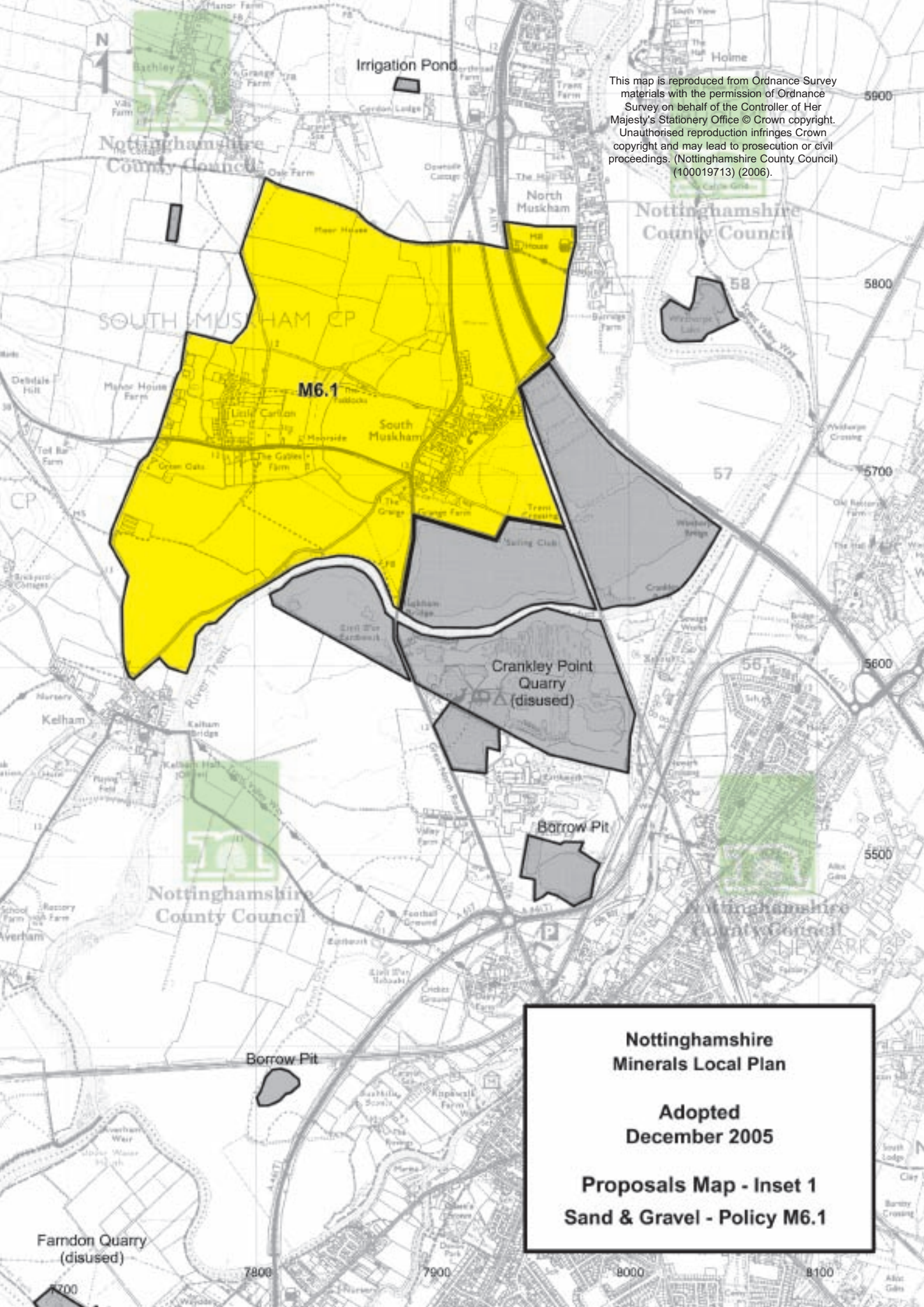


Constraint Areas comprising:
Mature Landscape Areas, Sites of Special Scientific Interest, Ancient
Woodland and Scheduled Ancient Monuments, Erewash River -
Ecologically Important Stretches.



Limit of Opencast Coal Resource

*For the purposes of these maps permitted areas also include worked out and reclaimed land where permission is no longer extant. Active and unreclaimed minerals permissions may therefore form only a relatively small proportion of the total permitted areas shown. Except where indicated, only permissions relevant to mineral being considered in each inset are shown.



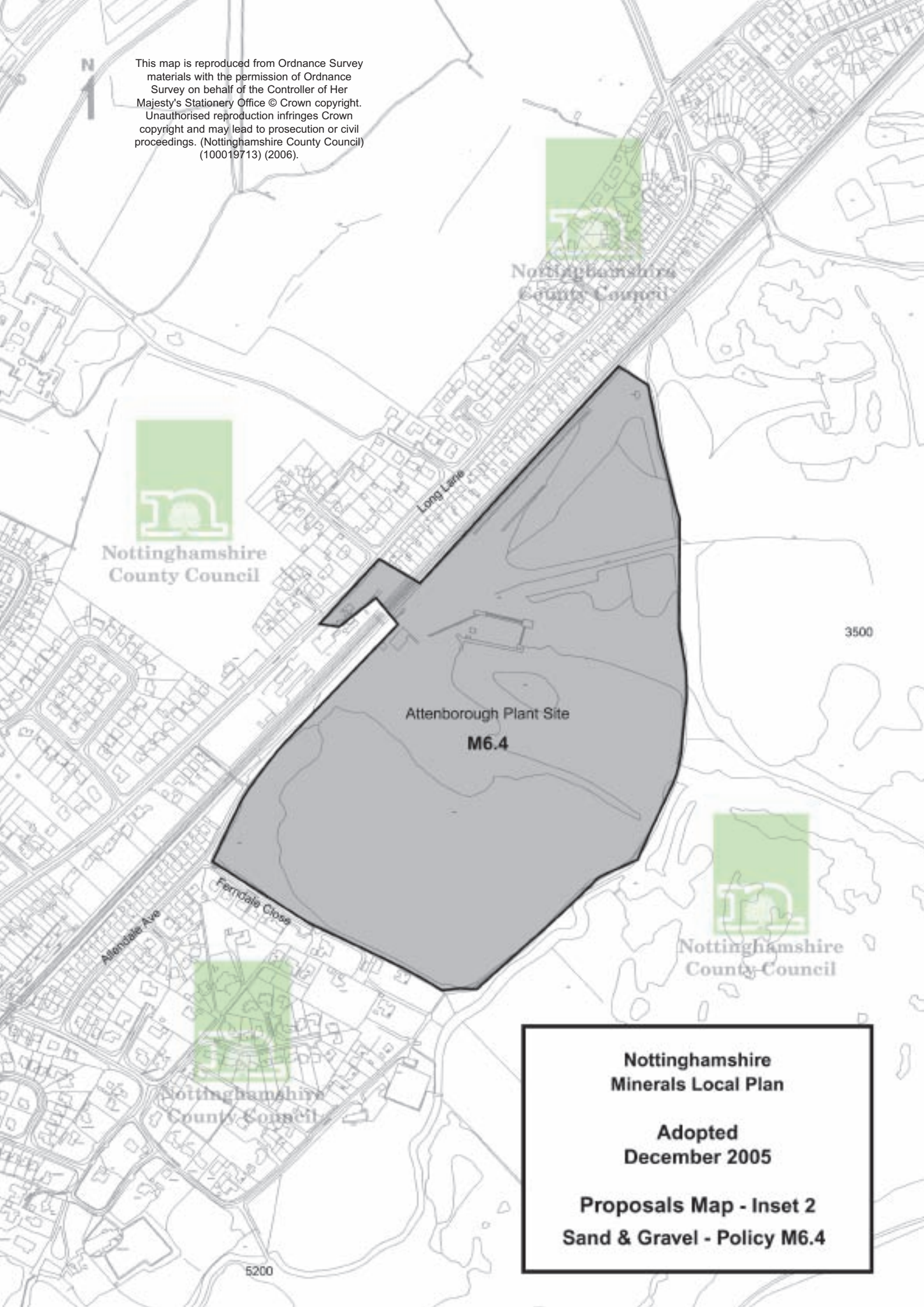
This map is reproduced from Ordnance Survey materials with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. (Nottinghamshire County Council) (100019713) (2006).

**Nottinghamshire
Minerals Local Plan**

**Adopted
December 2005**

**Proposals Map - Inset 1
Sand & Gravel - Policy M6.1**

This map is reproduced from Ordnance Survey materials with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. (Nottinghamshire County Council) (100019713) (2006).

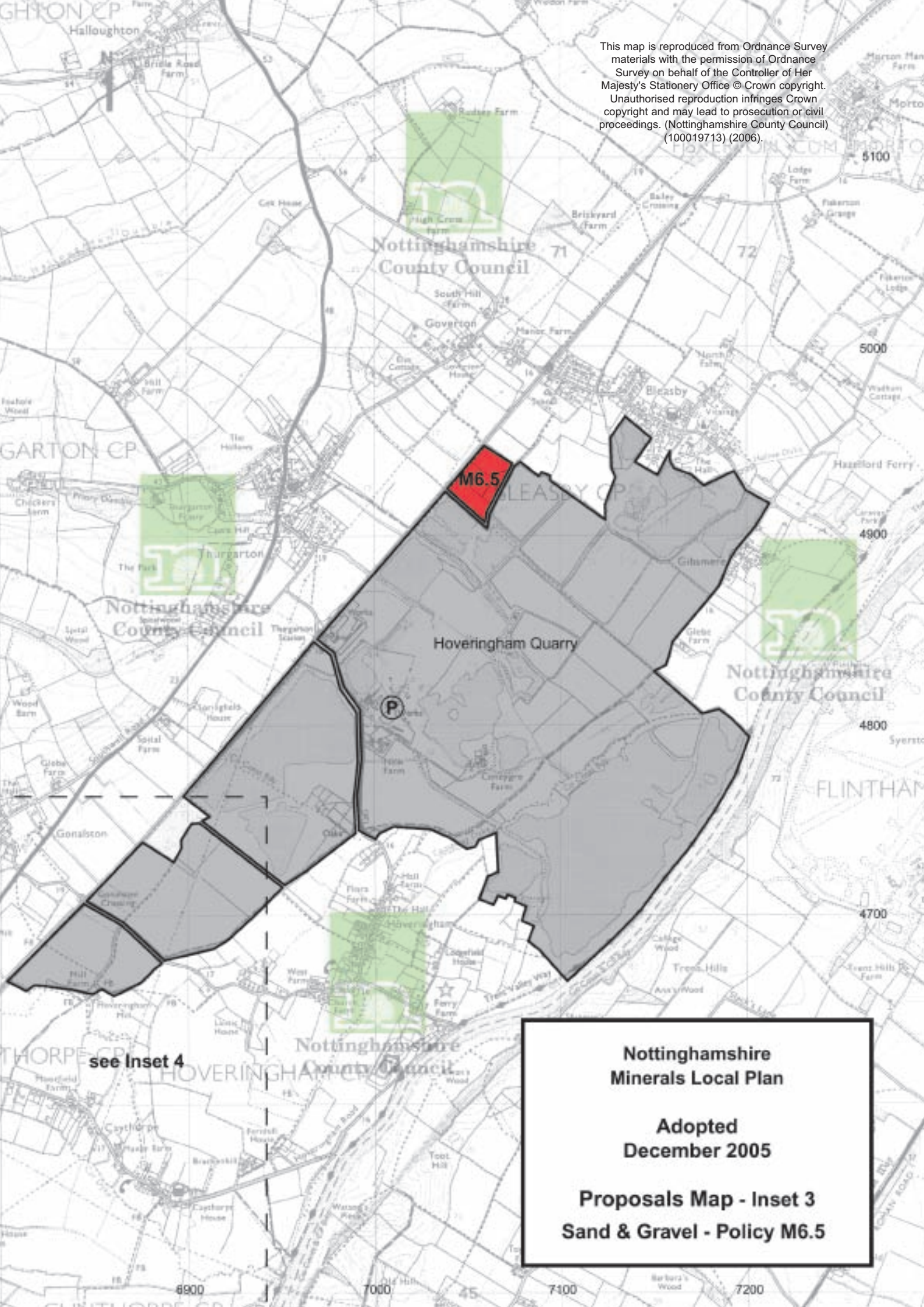


**Nottinghamshire
Minerals Local Plan**

**Adopted
December 2005**

**Proposals Map - Inset 2
Sand & Gravel - Policy M6.4**

This map is reproduced from Ordnance Survey materials with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. (Nottinghamshire County Council) (100019713) (2006).

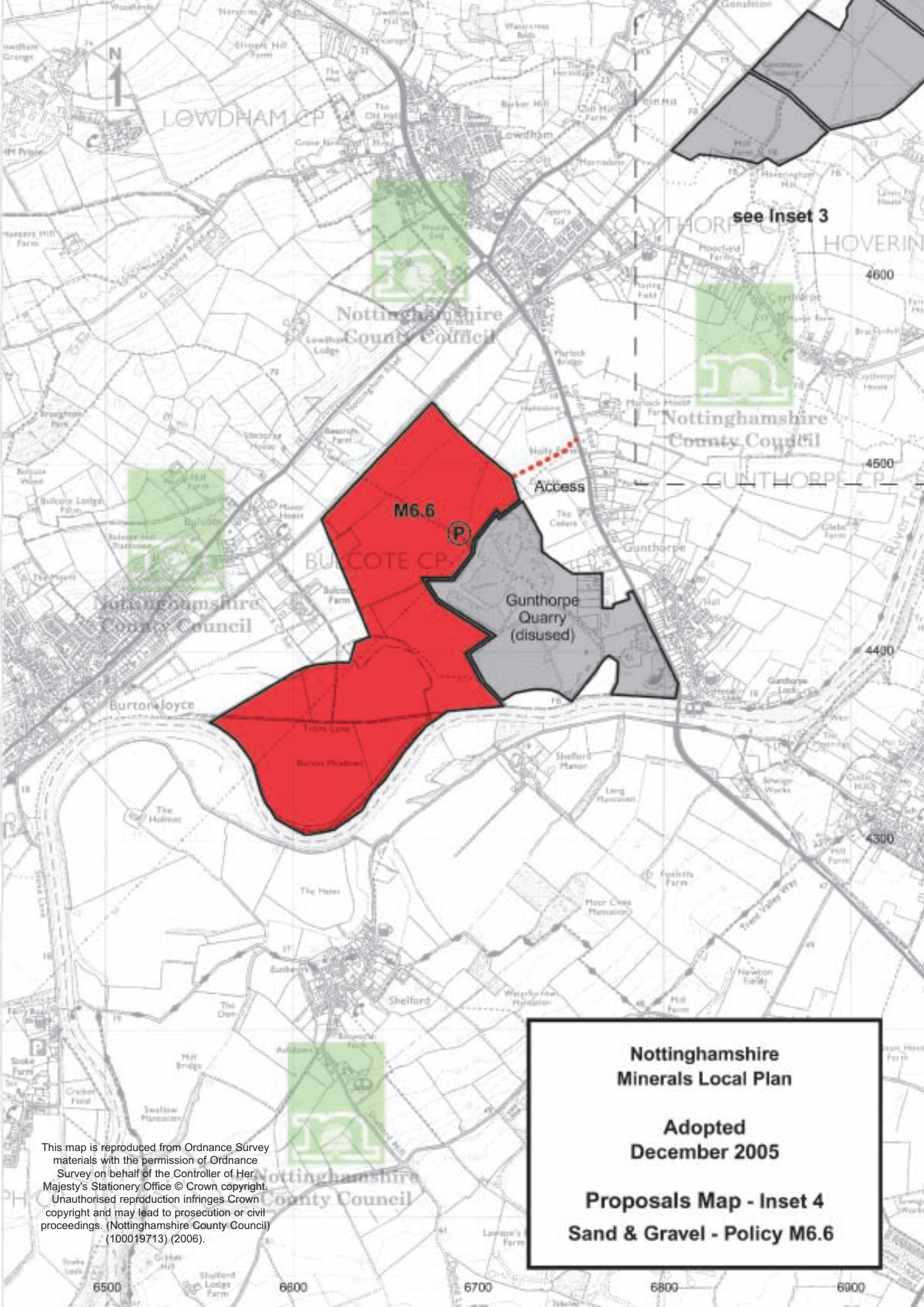


see Inset 4

Nottinghamshire Minerals Local Plan

Adopted
December 2005

Proposals Map - Inset 3
Sand & Gravel - Policy M6.5



see Inset 3

M6.6

P

Access

Gunthorpe
Quarry
(disused)

**Nottinghamshire
Minerals Local Plan**

**Adopted
December 2005**

**Proposals Map - Inset 4
Sand & Gravel - Policy M6.6**

This map is reproduced from Ordnance Survey materials with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. (Nottinghamshire County Council) (100019713) (2006).

This map is reproduced from Ordnance Survey materials with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. (Nottinghamshire County Council) (100019713) (2006).

LINCOLNSHIRE

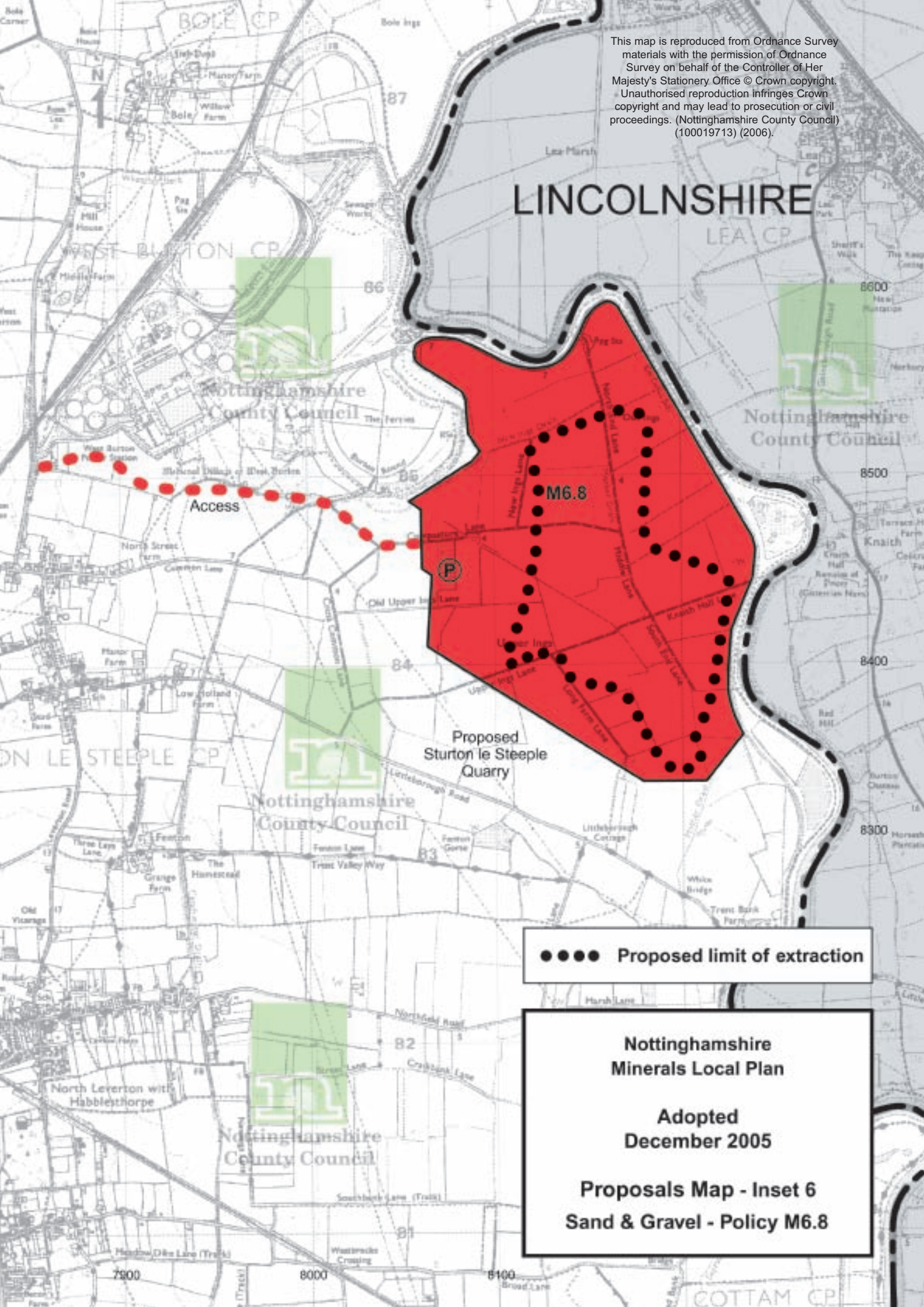
**Nottinghamshire
Minerals Local Plan**

**Adopted
December 2005**

**Proposals Map - Inset 5
Sand & Gravel - Policy M6.7**

This map is reproduced from Ordnance Survey materials with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. (Nottinghamshire County Council) (100019713) (2006).

LINCOLNSHIRE



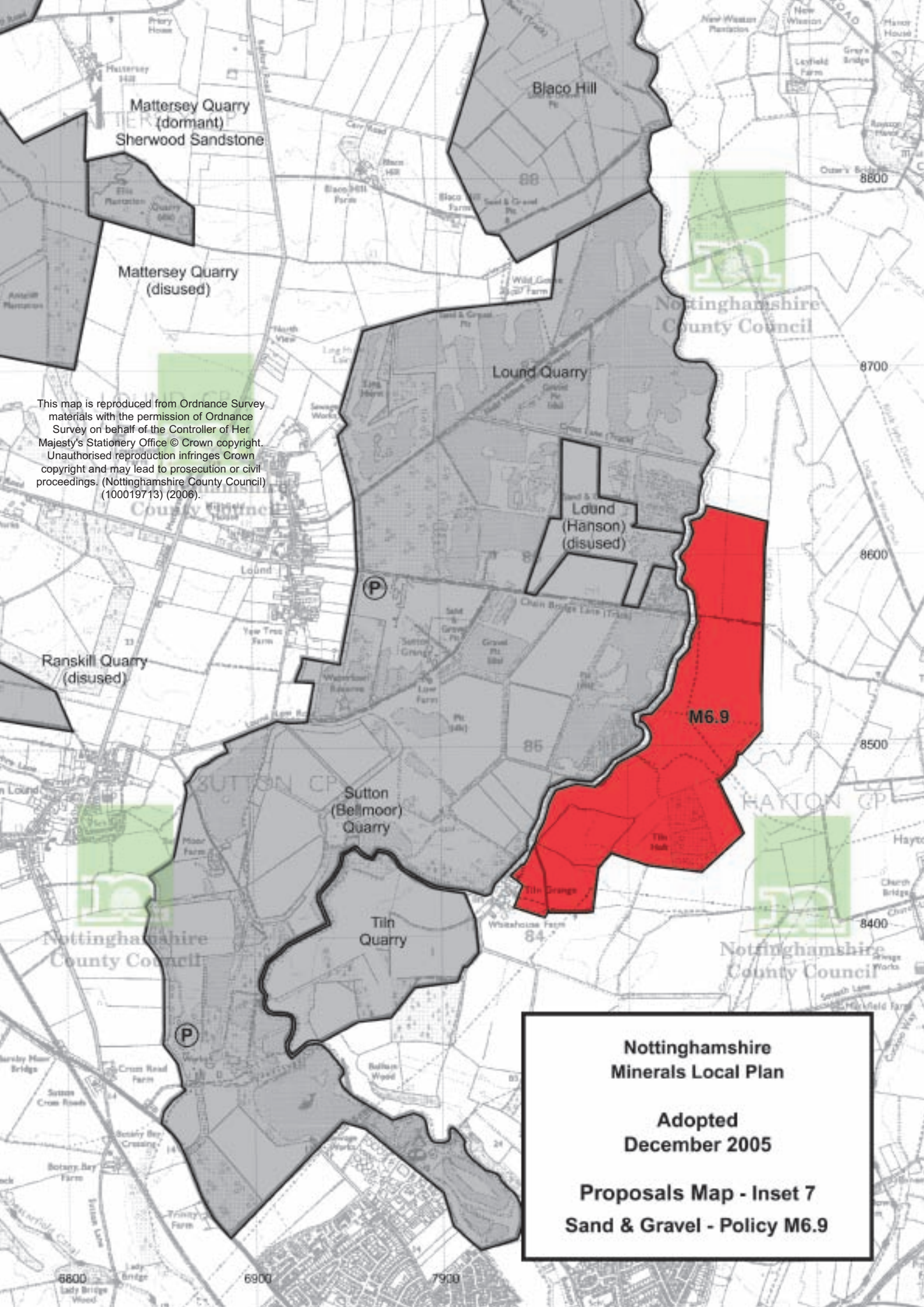
..... Proposed limit of extraction

**Nottinghamshire
Minerals Local Plan**

**Adopted
December 2005**

**Proposals Map - Inset 6
Sand & Gravel - Policy M6.8**

This map is reproduced from Ordnance Survey materials with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. (Nottinghamshire County Council) (100019713) (2006).



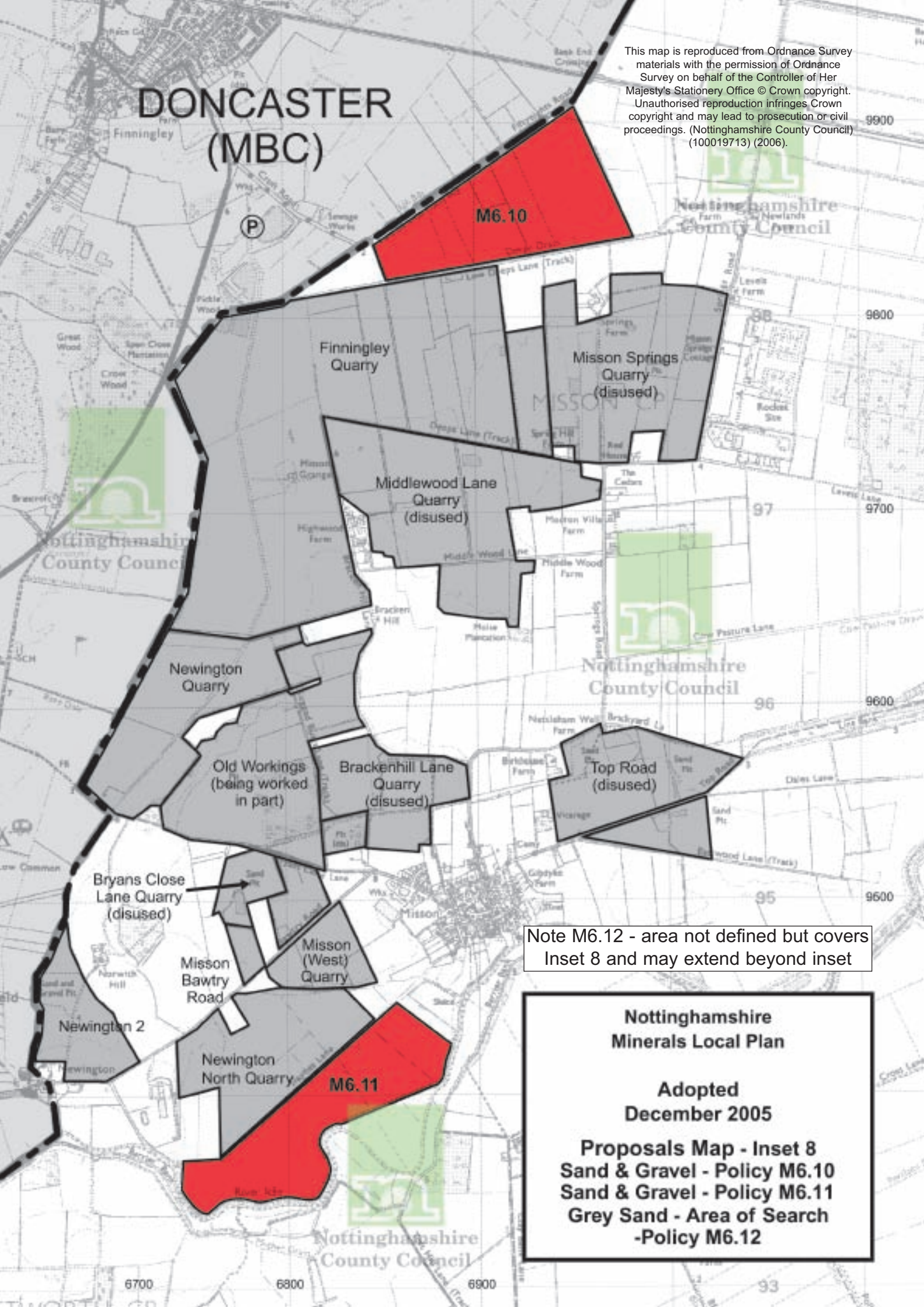
**Nottinghamshire
Minerals Local Plan**

**Adopted
December 2005**

**Proposals Map - Inset 7
Sand & Gravel - Policy M6.9**

DONCASTER (MBC)

This map is reproduced from Ordnance Survey materials with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationary Office © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. (Nottinghamshire County Council) (100019713) (2006).

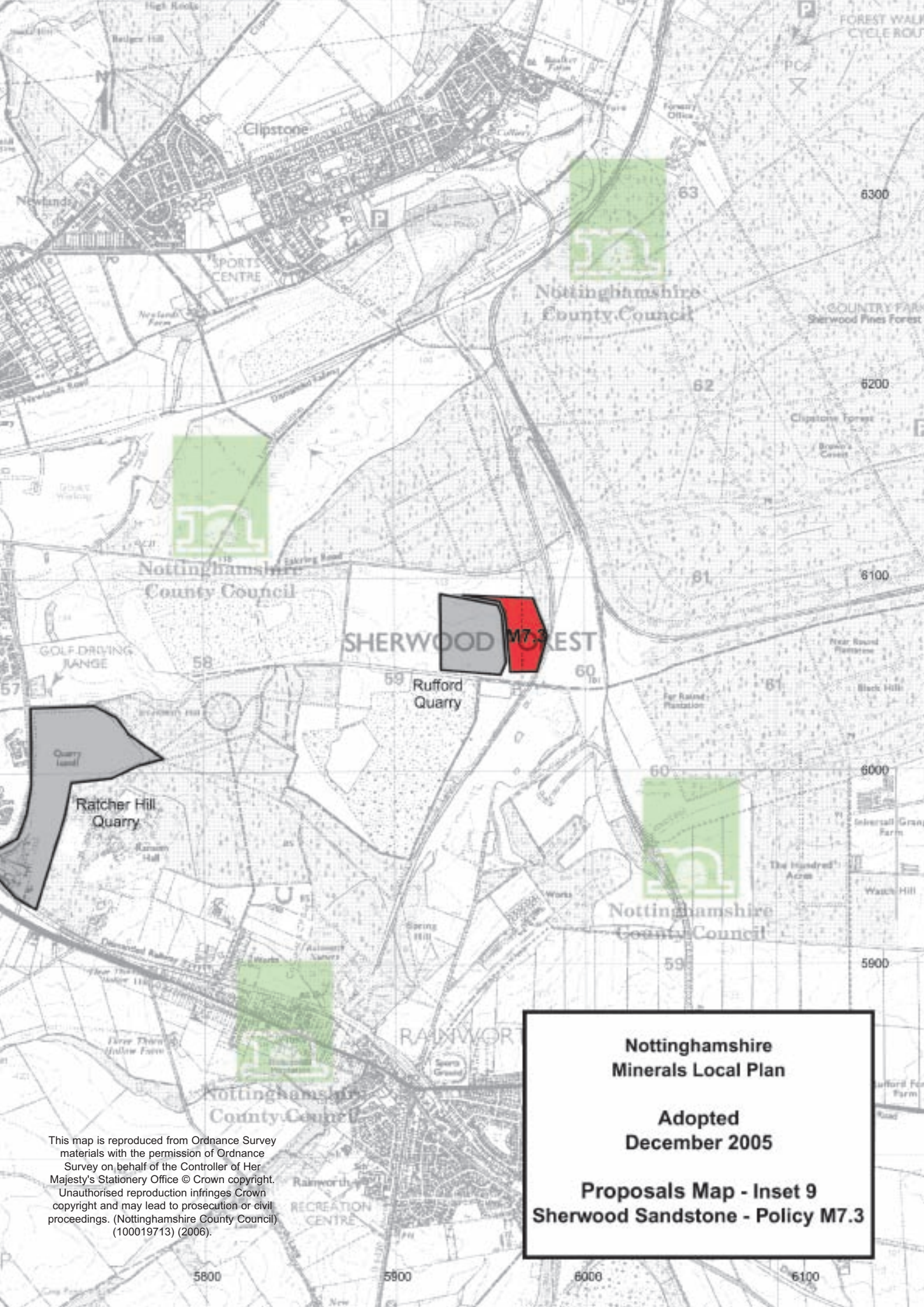


Note M6.12 - area not defined but covers Inset 8 and may extend beyond inset

Nottinghamshire Minerals Local Plan

Adopted
December 2005

Proposals Map - Inset 8
Sand & Gravel - Policy M6.10
Sand & Gravel - Policy M6.11
Grey Sand - Area of Search
-Policy M6.12



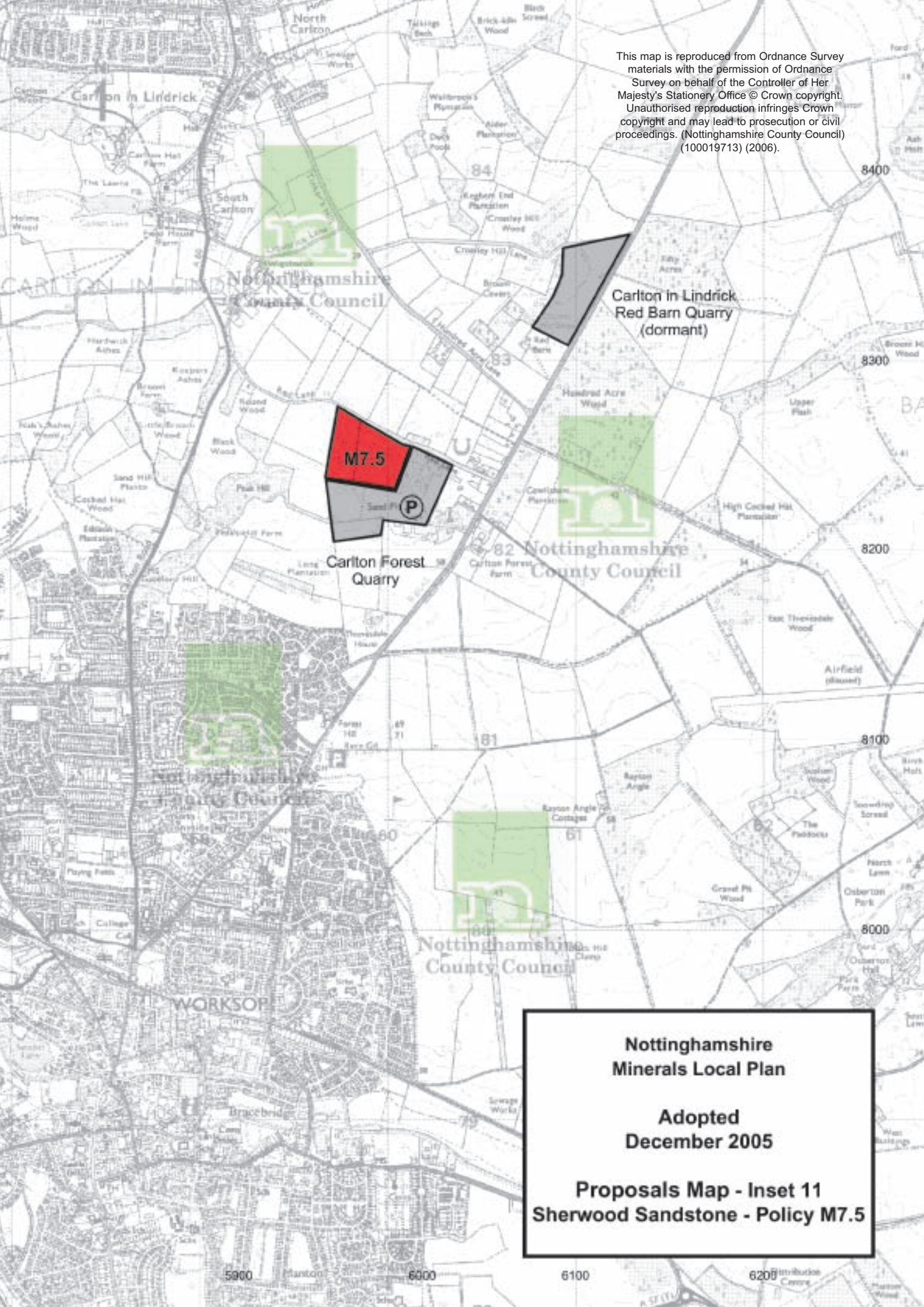
This map is reproduced from Ordnance Survey materials with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. (Nottinghamshire County Council) (100019713) (2006).

**Nottinghamshire
Minerals Local Plan**

**Adopted
December 2005**

**Proposals Map - Inset 9
Sherwood Sandstone - Policy M7.3**

This map is reproduced from Ordnance Survey materials with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. (Nottinghamshire County Council) (100019713) (2006).

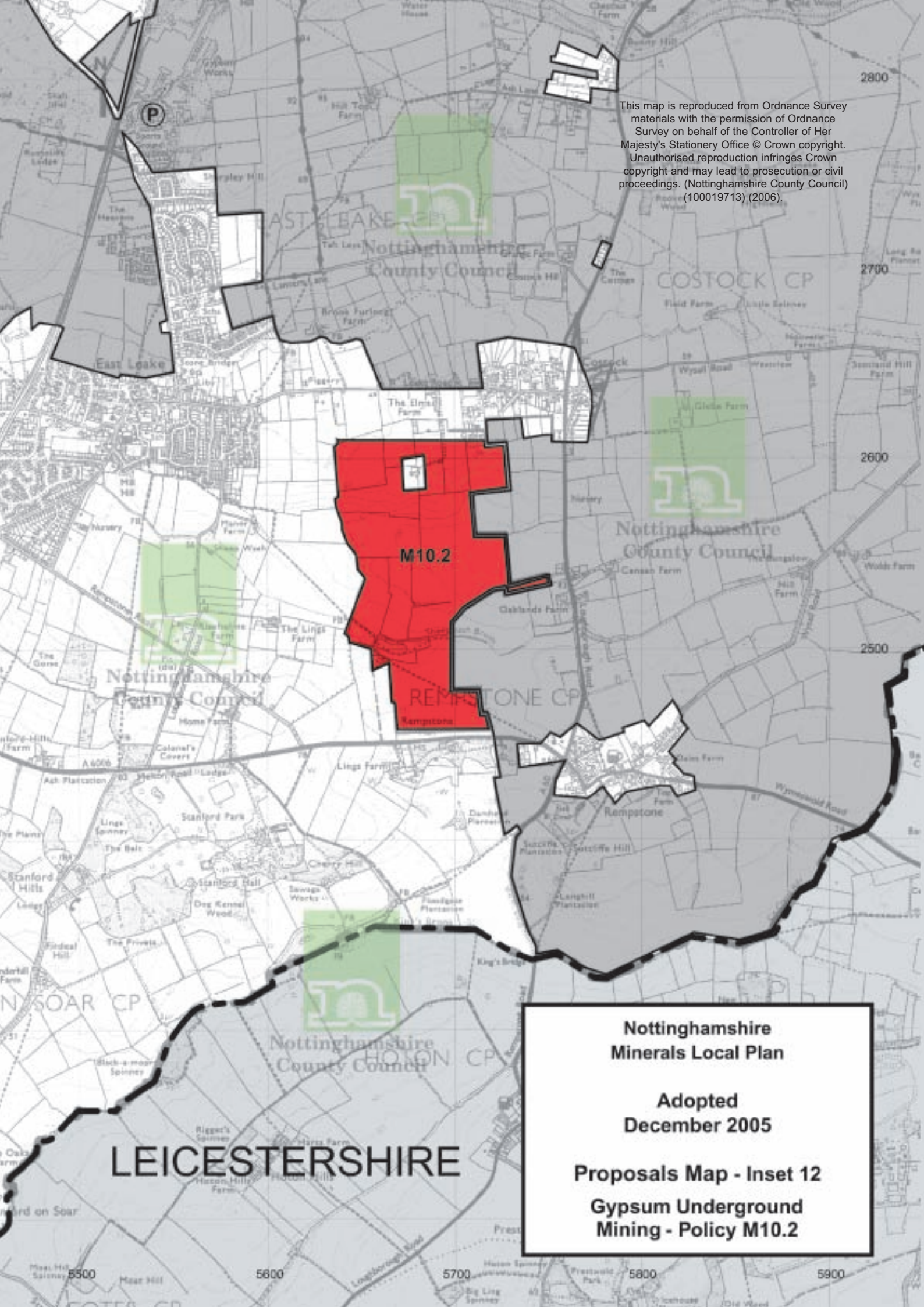


**Nottinghamshire
Minerals Local Plan**

**Adopted
December 2005**

**Proposals Map - Inset 11
Sherwood Sandstone - Policy M7.5**

This map is reproduced from Ordnance Survey materials with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. (Nottinghamshire County Council) (100019713) (2006).

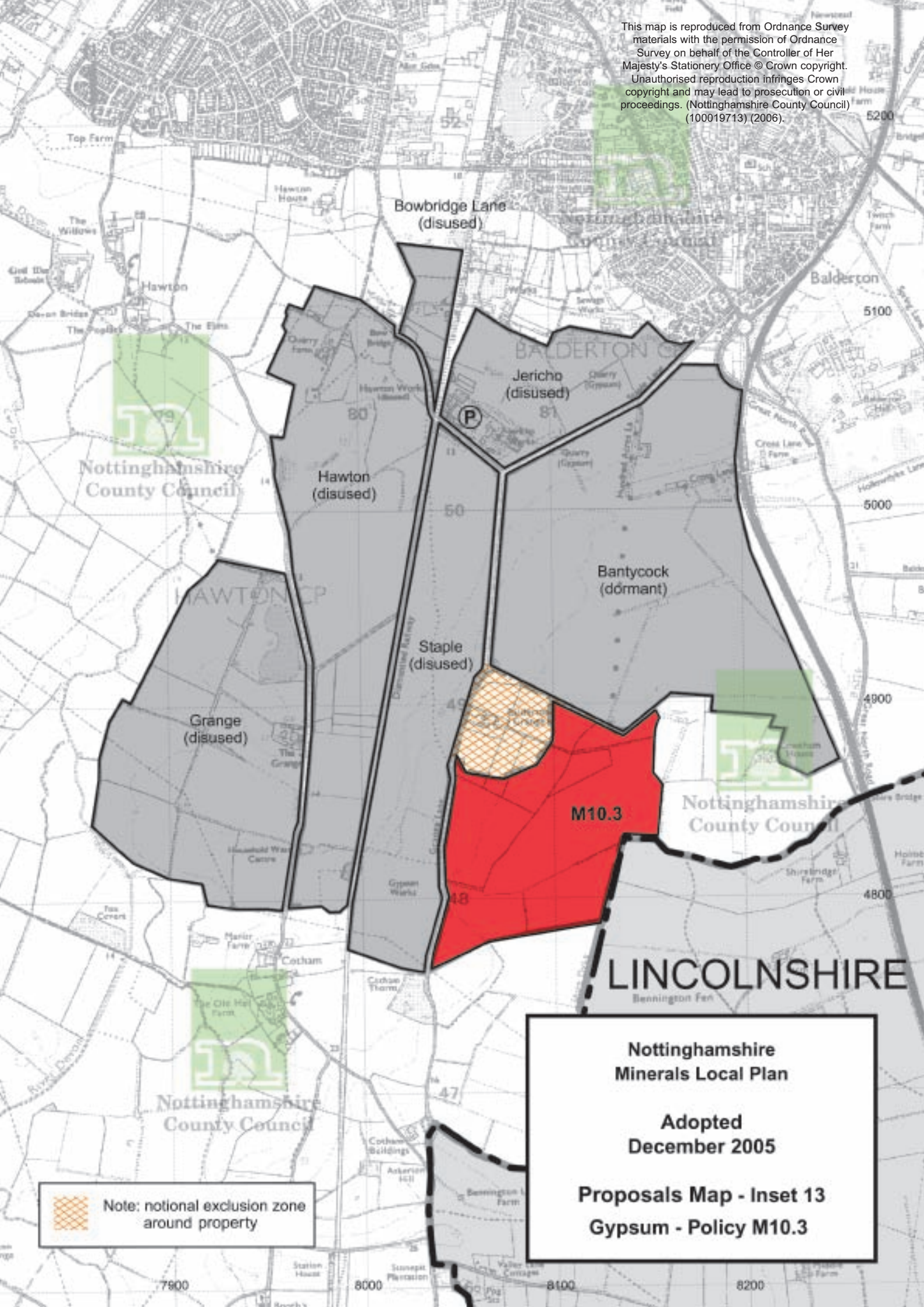


**Nottinghamshire
Minerals Local Plan**

**Adopted
December 2005**

Proposals Map - Inset 12

**Gypsum Underground
Mining - Policy M10.2**

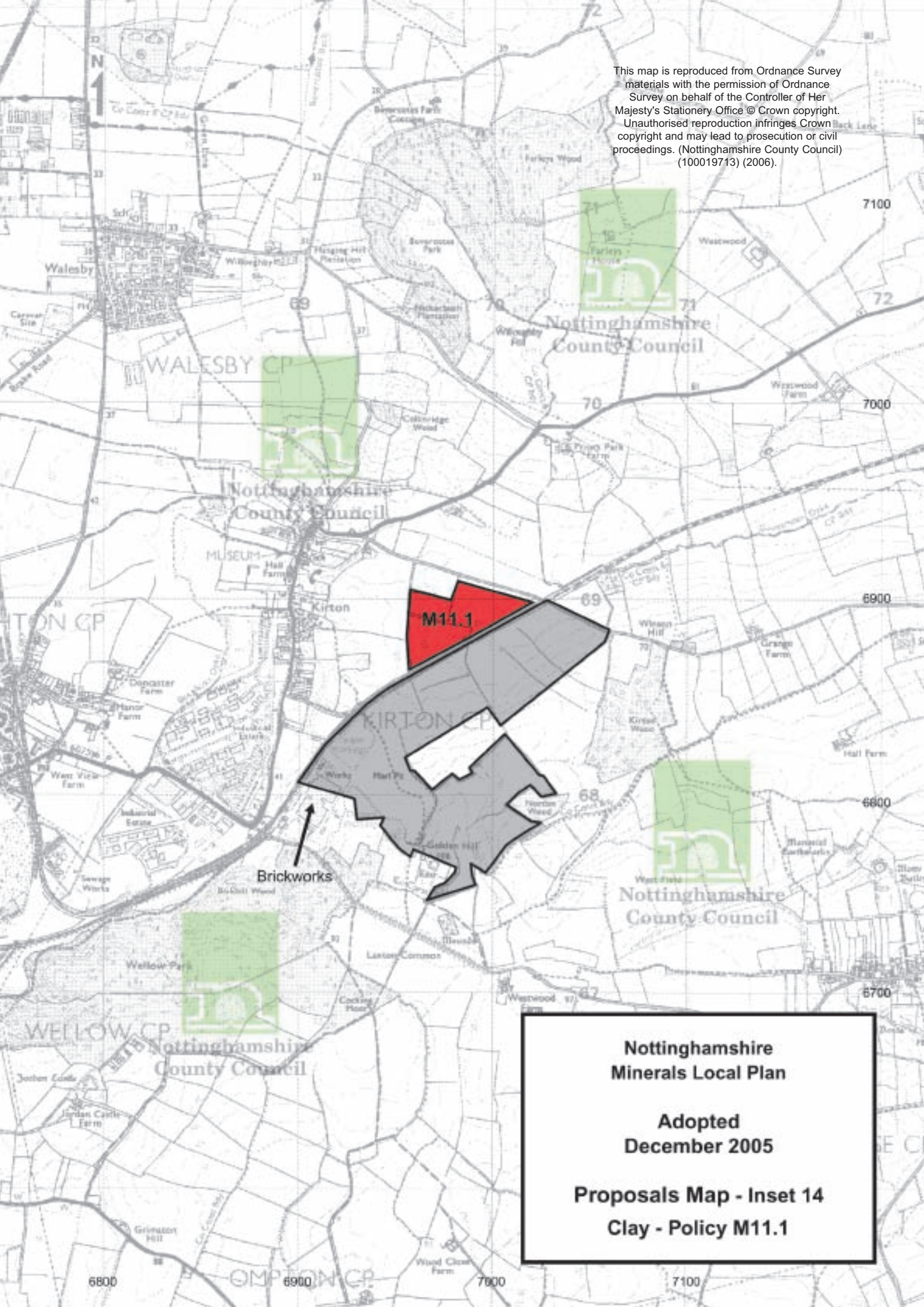


**Nottinghamshire
Minerals Local Plan**

**Adopted
December 2005**

**Proposals Map - Inset 13
Gypsum - Policy M10.3**

This map is reproduced from Ordnance Survey materials with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. (Nottinghamshire County Council) (100019713) (2006).



**Nottinghamshire
Minerals Local Plan**

**Adopted
December 2005**

**Proposals Map - Inset 14
Clay - Policy M11.1**

This map is reproduced from Ordnance Survey materials with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. (Nottinghamshire County Council) (100019713) (2006).



STANLEY

Nottinghamshire
County Council

TEVERSAL/SKEGBY
DAWGATES

Nottinghamshire
County Council

HUTHWAITE

Nottinghamshire
County Council

Kirkby Dumbles

Nottinghamshire
Minerals Local Plan

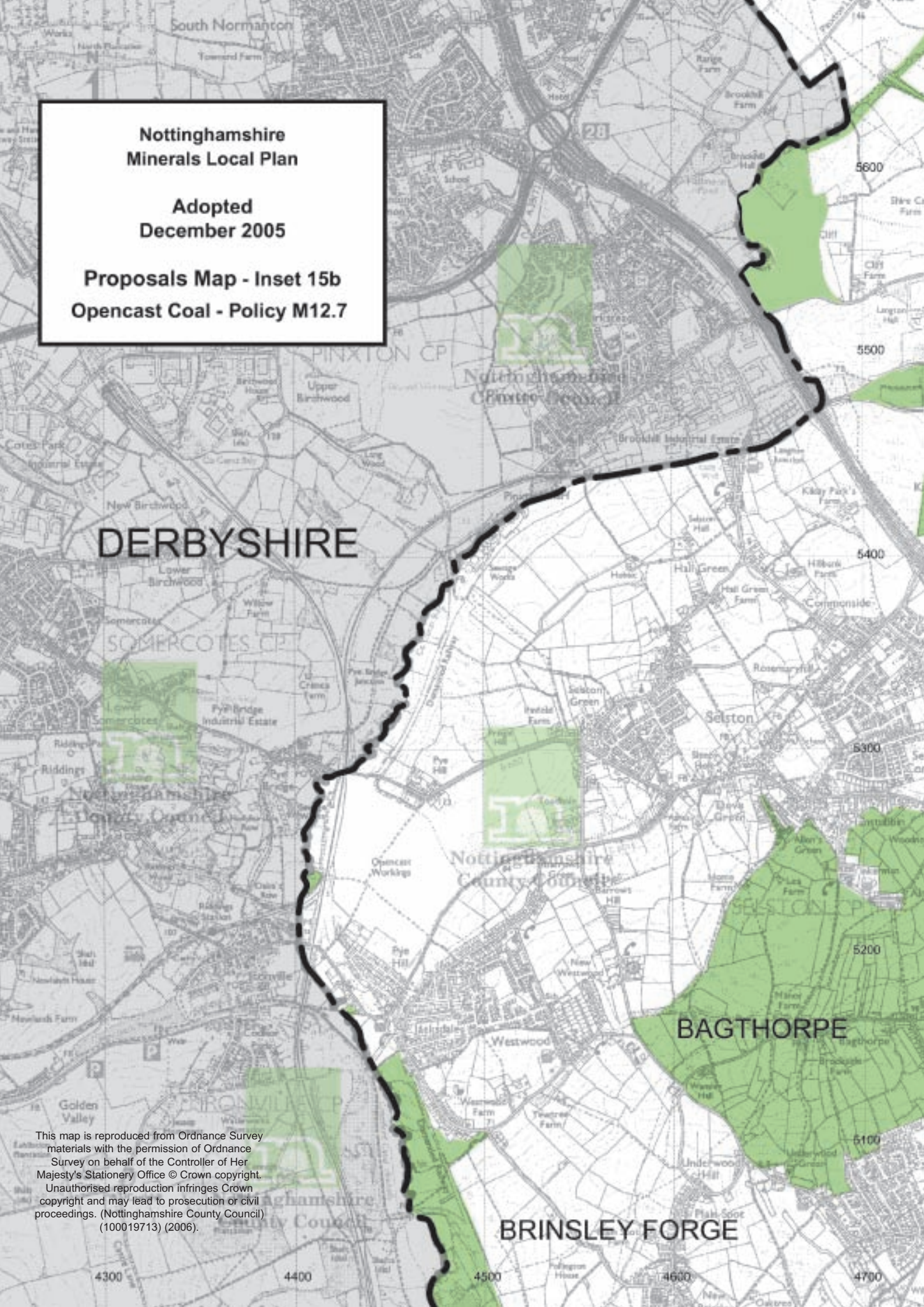
Adopted
December 2005

Proposals Map - Inset 15a
Opencast Coal - Policy M12.7

**Nottinghamshire
Minerals Local Plan**

**Adopted
December 2005**

**Proposals Map - Inset 15b
Opencast Coal - Policy M12.7**



DERBYSHIRE

BAGTHORPE

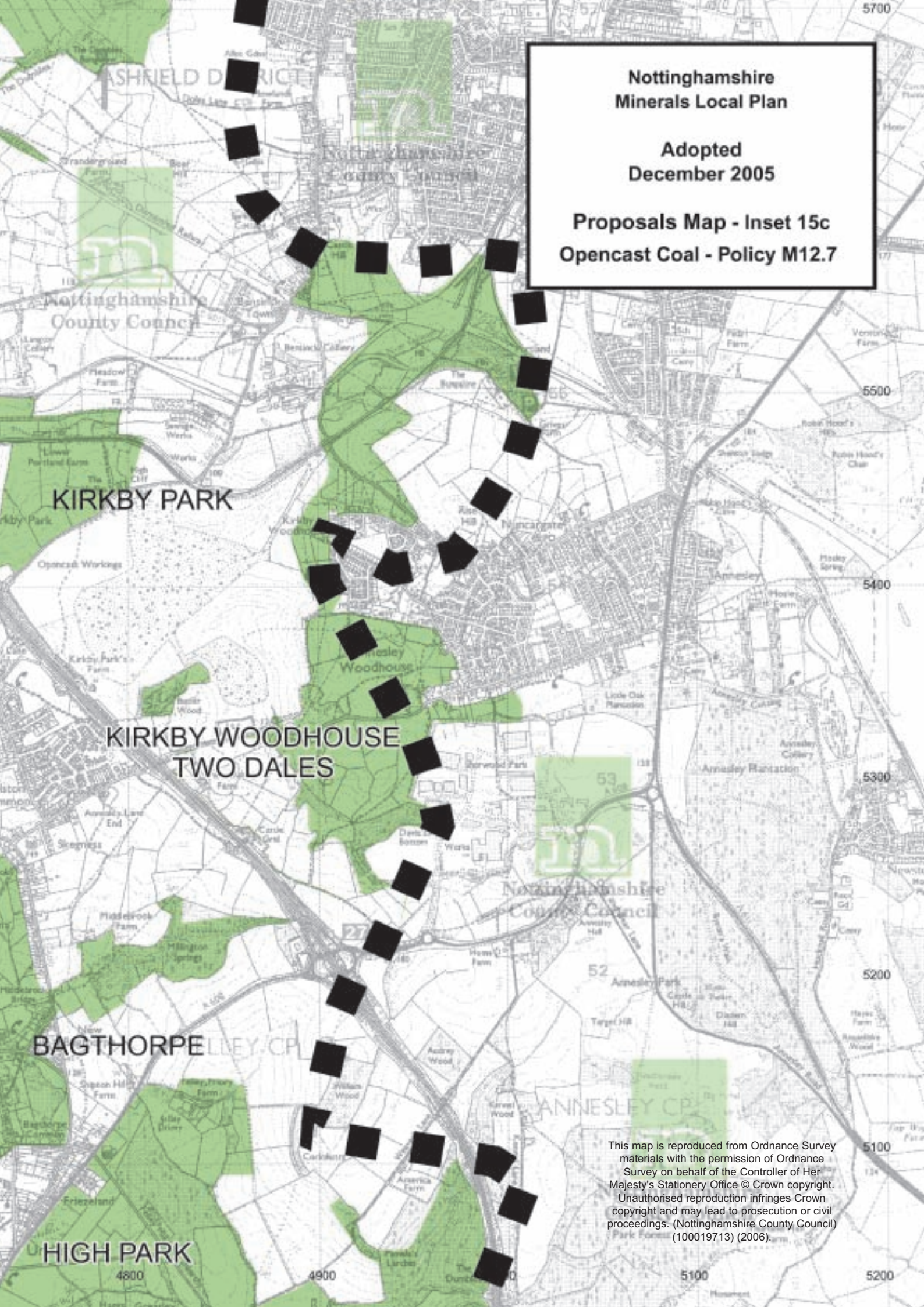
BRINSLEY FORGE

This map is reproduced from Ordnance Survey materials with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. (Nottinghamshire County Council) (100019713) (2006).

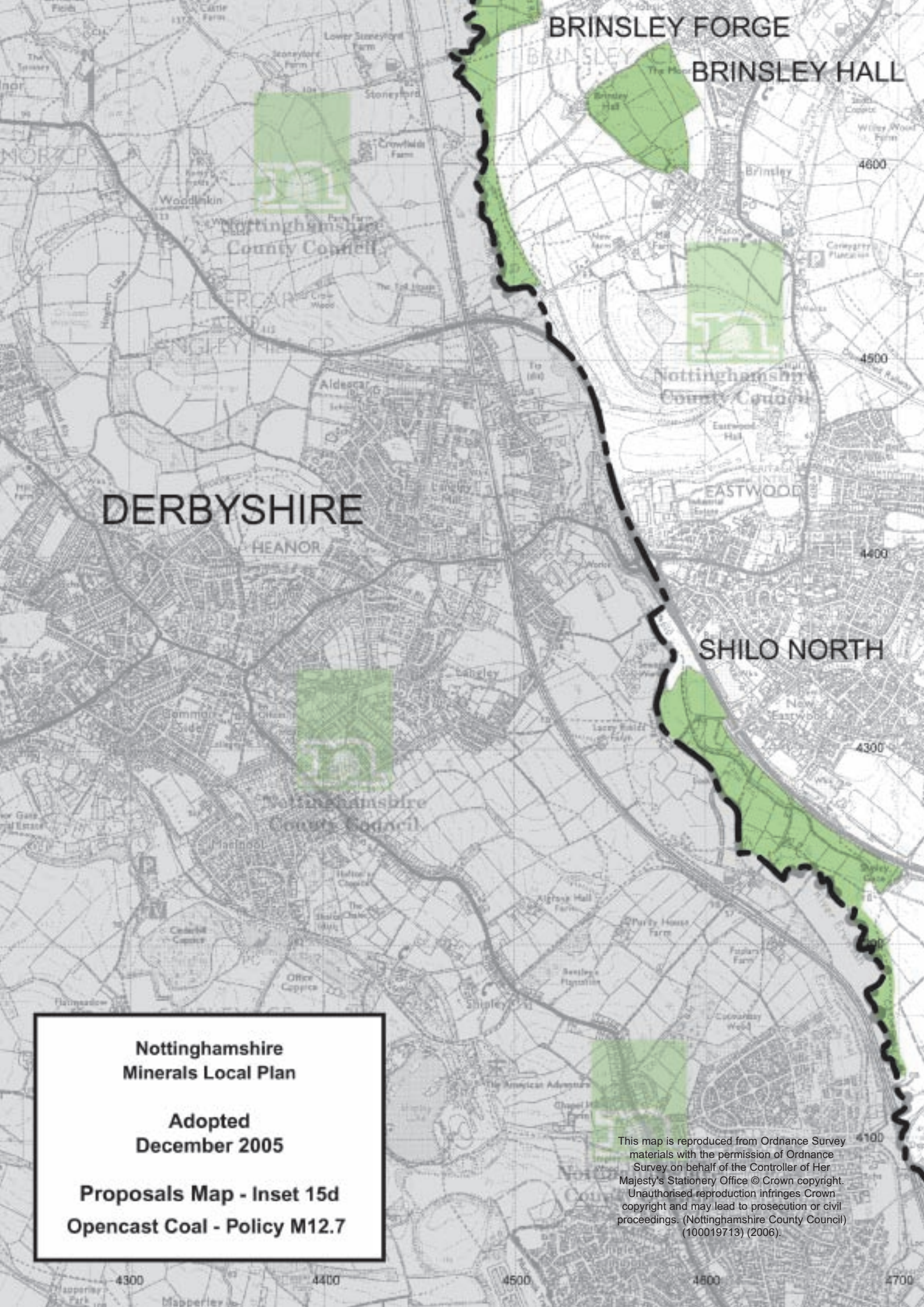
**Nottinghamshire
Minerals Local Plan**

**Adopted
December 2005**

**Proposals Map - Inset 15c
Opencast Coal - Policy M12.7**



This map is reproduced from Ordnance Survey materials with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. (Nottinghamshire County Council) (100019713) (2006).



BRINSLEY FORGE

BRINSLEY HALL

DERBYSHIRE

SHILO NORTH

**Nottinghamshire
Minerals Local Plan**

**Adopted
December 2005**

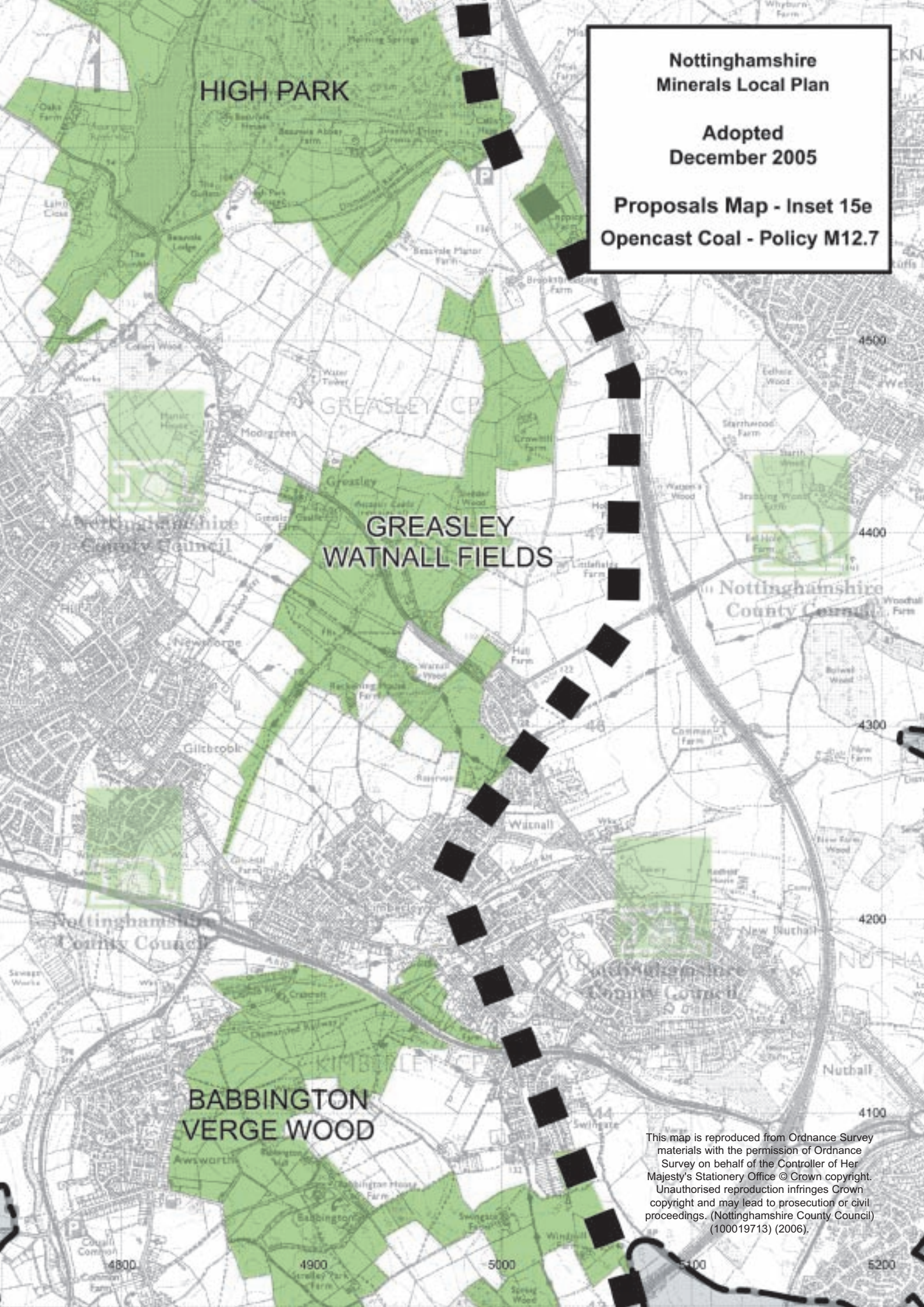
**Proposals Map - Inset 15d
Opencast Coal - Policy M12.7**

This map is reproduced from Ordnance Survey materials with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. (Nottinghamshire County Council) (100019713) (2006).

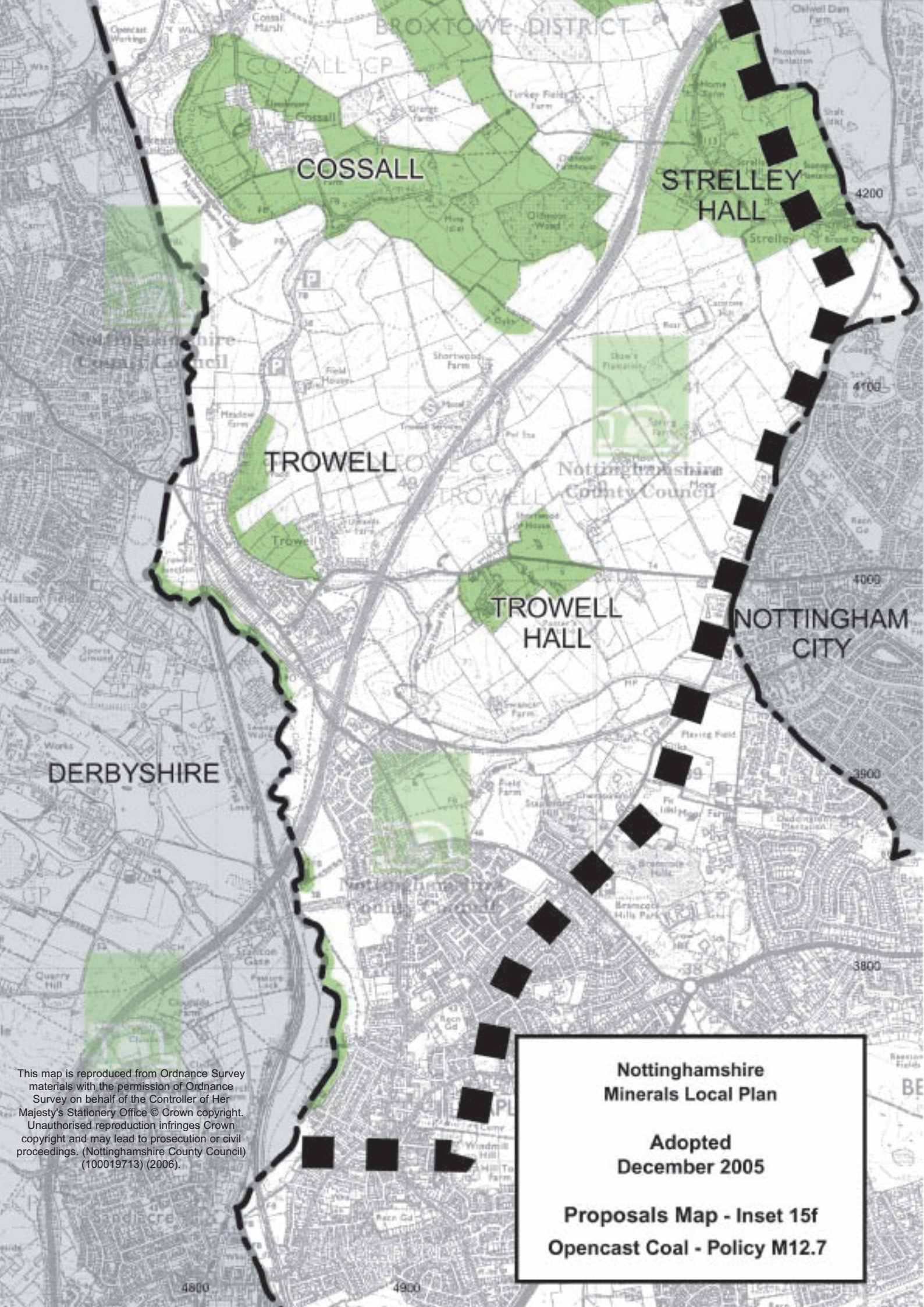
**Nottinghamshire
Minerals Local Plan**

**Adopted
December 2005**

**Proposals Map - Inset 15e
Opencast Coal - Policy M12.7**



This map is reproduced from Ordnance Survey materials with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. (Nottinghamshire County Council) (100019713) (2006).



This map is reproduced from Ordnance Survey materials with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. (Nottinghamshire County Council) (100019713) (2006).

**Nottinghamshire
Minerals Local Plan**

**Adopted
December 2005**

**Proposals Map - Inset 15f
Opencast Coal - Policy M12.7**



Contacting us

email **development.planning@nottscc.gov.uk**
phone **0115 977 2109**
fax **0115 977 2418**
post **Environment, Trent Bridge House, Fox Road,
West Bridgford, Nottingham, NG2 6BJ**
internet **www.nottinghamshire.gov.uk**
published **March 2006**

ENV/EP/03/06/00694/2006



INVESTOR IN PEOPLE