# Contents



# Appendicies

# 1 Introduction

## Purpose of this Document

**1.1** Cheshire East is preparing a Local Plan for the Borough. The Local Plan will form the development plan that will be the policy consideration in the determination of planning applications. It will cover the period up to 2030. This document serves as a discussion paper on how sustainable minerals development in Cheshire East should be achieved. It is intended to provide a starting point for any organisation or individual to offer their views on strategic minerals planning issues as part of the Local Plan process.

**1.2** The discussion paper performs the following roles:

- Provides a general background to minerals in Cheshire East; the types found, where and how they are extracted, and what they are used for;
- Identifies key existing and emerging national planning policy and guidance and other sources of information relevant to minerals planning;
- Identifies the most recent evidence available on minerals and mineral operations in Cheshire East; and
- Identifies the key strategic issues for minerals development planning in Cheshire East and asks how best the Local Plan should address them.

## Consultation Aims

**1.3** This discussion paper follows on from the Core Strategy Issues & Options Consultation and Rural Issues Consultation which identified the importance of mineral extraction in the Borough. Minerals planning is strategic by nature and will need to be addressed by policies in Cheshire East's Local Plan.

**1.4** Through consultation on this discussion paper, organisations and individuals with an interest in minerals planning in Cheshire East will have the opportunity to offer their views on **how the Local Plan should approach key strategic minerals planning issues.** There will also be opportunity to provide additional information on possible sites/areas for future mineral working and areas for mineral safeguarding.

**1.5** Please note that due to the nature of the subject matter, the use of technical descriptions and language has, in part, been unavoidable. A list of abbreviations and glossary of terms has therefore been included in the Appendices of this paper.

## Planning Policy Context

**1.6** This paper has been written within the the context of a changing planning policy framework. The draft National Planning Policy Framework (NPPF) was published in July 2011 and has since undergone its initial consultation stage. Upon completion it will replace all existing national planning policy and guidance, including minerals policy and guidance to provide a single source of national planning policy guidance that local authorities will have to take into account when preparing their Local Plans and performing their development management functions.

## Minerals Issues Consultation

**1.7** If you would like to contribute please send us your views by **2nd April 2012**. Comments can be submitted in one of the following ways:

**Online** via the Consultation Portal accessed from: www.cheshireeast.gov.uk/ldf

**By e-mail** to: ldfconsultation@cheshireeast.gov.uk

**By post** to: Spatial Planning, Cheshire East Council, Westfields, Middlewich Road, Sandbach, CW11 1HZ.

**1.8** This document will also be made available in Cheshire East libraries and Cheshire East Customer Service Centres.

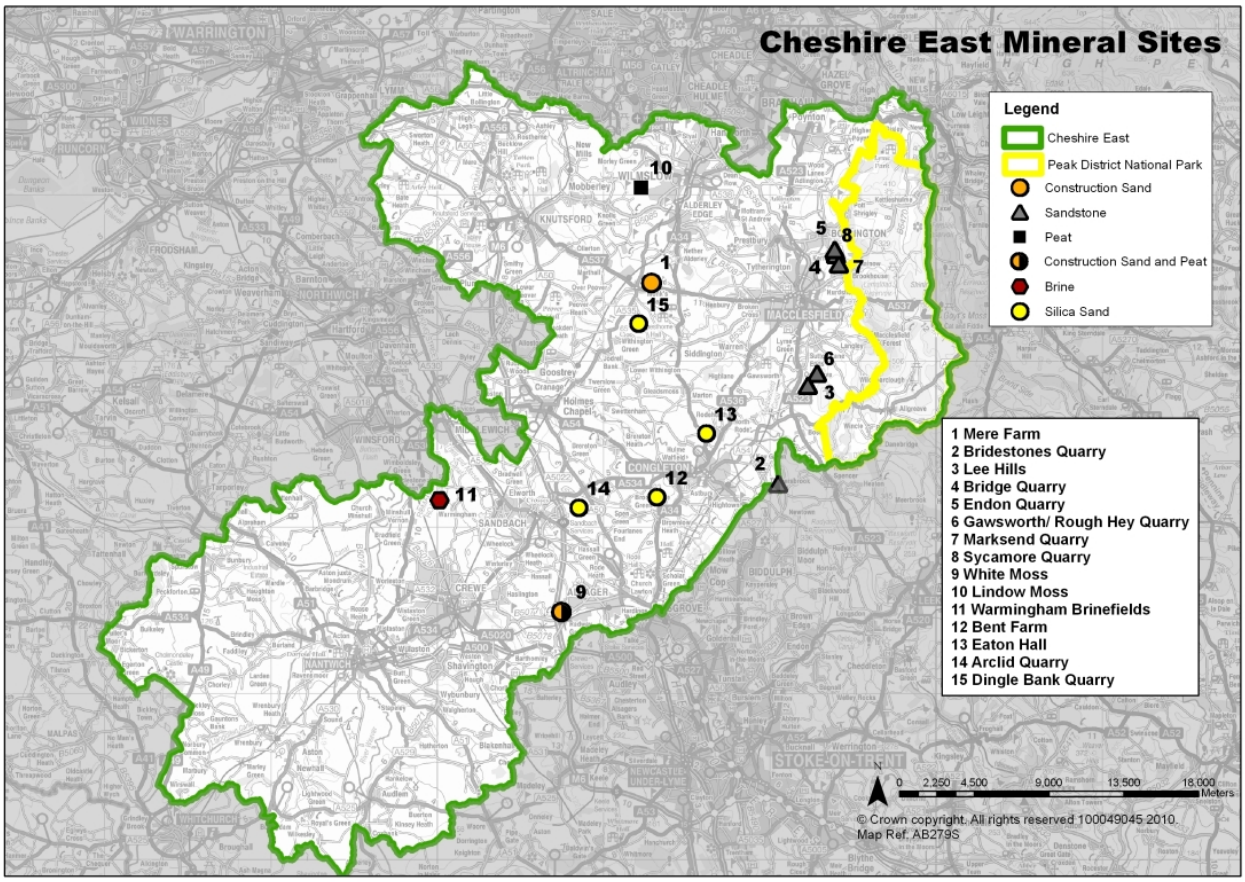
**1.9** The Spatial Planning Team can be contacted using the details above or by telephone on 01270 685893.

# 2 Backgound

## Mineral Resources in Cheshire East

**2.1** The geology underlying Cheshire East provides a diverse range of mineral resources. Silica (or industrial) sand, construction sand and gravel, sandstone, salt and peat are extracted from a number of sites located across the Borough (see Map 2.1). Clay and coal resources can also be found but they are no longer commercially worked. The geological extent of Cheshire East's mineral resources are detailed on maps in Appendix G.

**2.2** The mineral resources found and worked in Cheshire East are of local, regional and national economic importance. They have an extensive range of end uses and provide the essential raw materials to industries such as construction, manufacturing and chemicals. As sites are predominantly rural in their location, the transportation of minerals to end users is almost entirely road based. A full list of permitted mineral sites located in the Borough is provided in Appendix C.




**Picture 2.1 Mineral sites in Cheshire East**

## Silica Sand

**2.3** The silica (or industrial) sand resources found in Cheshire East are broadly located in a triangular area between Sandbach, Congleton and Chelford. High quality silica sands are relatively scarce and the Cheshire resource is identified as one of the most important in the country[1].

**2.4** Silica sand is the essential raw material in a range of industrial applications, most notably glass manufacture and foundry casting. It also has horticultural and leisure uses such as sport pitch enhancement as well as numerous other applications. Silica sand produced in Cheshire East is supplied to end users nationwide.

**2.5** Four active quarries currently extract and process silica sand within the Borough (see Map 2.1). Extraction is carried out by surface quarrying. Depending on water table levels, this can be done by 'dry working' (digging) or 'wet working' (suction dredging on a lake or lagoon). The processing of silica sand can be complex, depending on the sand's end uses and specialist plant facilities are required at or close to quarries for this purpose.

**2.6** Maintaining a supply of silica sand is a national issue. As well as the investment made in extracting, processing and testing the sand, there are few locations in the UK where silica sand occurs in enough quantities to be economically viable to extract.

## Construction Sand and Gravel

**2.7** Sand and gravel resources can be found across Cheshire East. They are extracted principally for construction purposes. This can be for a fine aggregate in concrete, mortar and asphalt or as a fill material.

**2.8** There are currently two active quarries producing construction sand in the Borough (see Map 2.1). Extraction is carried out by dry or wet working, depending on the level of the water table at the site. Silica sand quarries can also produce varying quantities of sand and gravel suitable for aggregate purposes as an ancillary product, depending on the nature of reserves at the site.

**2.9** The quantity of construction sand and gravel produced in Cheshire East contributes to the provision of Cheshire's overall sub-regional 'aggregate apportionment' (see Issue 1 - Securing Steady and Adequate Supply). In 2009, 870,000 tonnes of construction sand and gravel was produced across the Cheshire sub-region (Cheshire East and Cheshire West and Chester), marking a continual decline since 2007[2].

**2.10** At the end of 2009, the sand and gravel landbank (collective stock of permitted reserves) across Cheshire was the equivalent to 6.48 years production based on expected provision levels[3].

**2.11** The majority of sand and gravel produced in Cheshire supplies the North West market although quantities are exported further afield[4].

1 CLG/BGS (2009) 'Mineral Planning Factsheet - Silica Sand'
2 NWRAWP (2011) 'Annual Monitoring Report 2010' p.37
3 NWRAWP (2011) 'Annual Monitoring Report 2010' p.23
4 NWRAWP (2011) 'Annual Monitoring Report 2010' p.39

## Hard Rock

**2.12** Within Cheshire East, 'hard rock' resources refer chiefly to sandstone (including gritstone). Resources are predominantly found to the east of the Borough lying roughly along the Pennine Fringe. Sandstone is principally used as a building material although quantities are also crushed to produce an aggregate, depending on the nature of the reserves and operations at each site.

**2.13** There are currently eight permitted hard rock quarries located in the Borough (see Map 2.1). Quarrying is typically carried out using a mechanical digger. The stone is then either crushed and screened or cut and dressed to the specification of the end user.

**2.14** In 2009, only 1,000 tonnes of crushed rock aggregate was produced, a significant decline on previous years[5]. At the end of 2009, the crushed rock landbank was the equivalent of 34 years production based on expected provision levels [6].

**2.15** Hard rock quarries in Cheshire East are relatively small scale operations serving primarily local markets. The quantities of aggregate material they produce are shown to stay within the region[7].

## Salt

**2.16** Cheshire East, along with neighbouring Cheshire West and Chester, contains some of the most significant underground salt resources in the country[8]. Salt has a wide range of uses, particularly as the essential feedstock in chemical manufacturing. Salt (in the form of brine) produced from brinefields near Warmingham directly supply the British Salt works at Cledford Lane, Middlewich. The salt products produced here supply end users nationwide.

**2.17** In Cheshire East, salt is extracted using modern underground solution mining techniques to maintain surface stability. Cavities are created beneath the surface by injecting water into the salt beds and pumping out the saturated salt solution (brine). In recent years, underground cavities have been specifically converted and created for the purposes of natural gas storage following brine extraction.

## Peat

**2.18** Peat deposits can be found in areas across Cheshire East. It is used primarily in the horticultural industry either as a growing medium or soil improver. Over recent years the use of alternatives to peat has significantly increased due to the environmental, nature conservation, geodiversity, archaeological and climate change issues relating to its extraction. There are two sites of long standing located in the Borough that currently extract peat although their production is relatively small in scale (see Map 2.1).

5 NWRAWP (2011) 'Annual Monitoring Report 2010' p.37
6 NWRAWP (2011) 'Annual Monitoring Report 2010' p.23
7 NWRAWP (2011) 'Annual Monitoring Report 2010' p.39
8 ODPM/BGS (2006) 'Mineral Planning Factsheet - Salt'

**2.19** Proximity to the water table means that peat areas in Cheshire East are often wet. Drainage ditches are usually cut at regular intervals throughout the site, allowing the top layer of peat to drain. Extraction then takes place using light agricultural machinery. The peat is cut and piled in low mounds known as windrows to allow it to dry before being processed or dispatched.

### Coal and Hydrocarbons

**2.20** Coal and forms of hydrocarbons such as natural gas and oil are important national energy resources. There is coal beneath much of Cheshire East, but it is mostly buried at great depths beneath younger geological layers. National coal production has declined significantly since the last century although demand remains particularly from the power/electricity generation market. There are currently no active coal workings in the Borough although there is a history of mining around Poynton and Mow Cop where coal seams come closer to the surface.

**2.21** Associated with coal seams are 'unconventional' gas resources such as Coal Bed Methane (CBM) - a natural gas and energy source. This is extracted at significant depths via borehole and processed on the surface. In 2008, Petroleum Exploration and Development Licences (PEDLs) were awarded to energy companies covering parts of Cheshire East (see Appendix G, Map A4). A PEDL allows companies to pursue a range of oil and gas exploration activities, including the exploration and development of unconventional onshore gas, subject to the necessary drilling/development consents and planning permission[(9)].

**2.22** Exploratory onshore hydrocarbon activity has previously taken place in Cheshire although this has been temporary in nature. To date, no planning applications relating to unconventional gas development in the PEDL Areas covering parts of Cheshire East have come forward.

### Clay

**2.23** Boulder clay covers large areas of Cheshire East although it varies considerably in thickness and quality. It has historically been extracted for varying purposes including soil improvement and supply to the brick making industry. More recent uses are as an engineering material in the capping of waste landfill sites. Permission exists at Maw Green near Crewe for this purpose. It may not be possible to predict areas of commercially viable extraction without investigating specific sites.

#### Question 1

**Have all workable and viable mineral resources that occur within Cheshire East been included and is this information accurate?**

9 DECC (2010) 'The Unconventional Hydrocarbon Resources of Britain's Onshore Basin - Coalbed Methane (CBM)'

# 3 Key Policy Drivers and Guidance

**3.1** In the preparation of strategic minerals planning polices for Cheshire East, consideration will need to be given to the key policy drivers and guidance set out below.

| Policy/Guidance | Summary |
|---|---|
| **Minerals Policy Statement 1 (MPS1): Planning and Minerals and Practice Guide (2006)** | Sets out the Government's overarching planning policies and principles concerning minerals. Outlines key objectives to achieve sustainable development in minerals planning and details policies which must be taken into account when preparing plans. Key considerations are:<br>• Ensuring prudent, efficient and sustainable use of minerals and encouraging the recycling of suitable materials;<br>• Securing an adequate and steady supply of minerals sustainably and set within environmental limits;<br>• Identifying sites, preferred areas and/or areas of search for sustainable mineral working and maintenance of mineral landbanks;<br>• Safeguarding mineral resources and associated infrastructure;<br>• Reducing impacts on the environment and human health;<br>• Enhancing environmental quality following extraction;<br>• Promoting the sustainable transport of minerals; and<br>• Considering policies for underground natural gas storage. |
| **Minerals Planning Guidance 15 (MPG15): Provision of silica sand in England (1996)** | Provides the Government's advice on planning for the provision of an adequate and steady supply of silica sand while ensuring extraction is consistent with social, economic and environmental sustainability. Key considerations are:<br>• Recognising the material scarcity of silica sand and aiming to make provision for an appropriate level of production through the identification of specific sites and through inclusion of preferred areas or areas of search;<br>• Aiming to maintain landbanks of silica sand permissions, as far as possible and realistic, provided that the industry comes forward with suitable applications. |
| **Draft National Planning Policy Framework (2011)** | Sets out the Government's economic, environmental and social planning policies for England as part of its reforms to make the planning system less complex and more accessible, and to promote sustainable growth. It identifies the provision of minerals infrastructure as a **strategic priority** and as such, strategic policies in the Local Plan should deliver this. Key considerations for minerals policy are:<br>• Securing an adequate and steady supply of indigenous minerals;<br>• Encouraging the recycling of suitable materials to minimise the requirement for new primary extraction;<br>• Taking into account proposed aggregates apportionments;<br>• Ensuring planned quantitative allocations of minerals reflect ability for requirements to be met from sustainable sources including recycling; |

| Policy/Guidance | Summary |
|---|---|
| | • Ensuring security of supply of industrial minerals;<br>• Allocating sufficient land to maintain landbanks;<br>• Defining Minerals Safeguarding Areas;<br>• Ensuring no unacceptable adverse impacts on the natural and historic environment or human health;<br>• Provide for restoration to be carried out to high environmental standards;<br>• Facilitate sustainable use of energy minerals; and<br>• Encourage underground gas storage where local geological circumstances indicate its feasibility. |
| **National and regional guidelines for aggregates provision in England: 2005-2020 (2009)** | Sets out national and regional production figures for the provision of aggregate minerals in England over the period 2005 to 2020 inclusive. Figures are taken into account at regional level and 'apportioned' between Mineral Planning Authorities at a sub-regional level (See Appendix D). |
| **BGS Mineral Safeguarding in England: good practice advise (2011)** | Complementary policy guidance on how to implement national policy concerning the safeguarding and the prior extraction of minerals. Provides practical advice on how to define Minerals Safeguarding Areas and frame policy. |
| **The North West of England Plan - Regional Spatial Strategy to 2021 (2008)(1)** | Translates national minerals policy to a regional level. Provides context and evidence base for minerals planning policy in the North West. |

**Table 3.1 Summary of key minerals policy drivers and guidance**

1. N.B. Despite the Government's intention to revoke RSSs they remain, to date, a material planning consideration.

# 4 Evidence

**4.1** The following evidence provides the latest and best available data and information on minerals in Cheshire East and will be used to inform the preparation of minerals planning policies.

| Evidence | Details |
|---|---|
| **North West Regional Aggregates Working Party (NWRAWP) - Annual Monitoring Report 2010 (2011)** | Provides annual figures and information on the sales, reserves and landbanks of aggregate minerals across the North West. Details revised aggregate apportionments for the North West (see Appendix D). |
| **CLG/BGS - 2009 Aggregate Minerals Survey for England and Wales (2011)** | Four yearly aggregate minerals survey providing in-depth and up to date information on national and regional sales, inter-regional flows, consumption and permitted reserves of aggregates. |
| **British Geological Survey (BGS) Mineral Resource Information in Support of National, Regional and Local Planning (Cheshire)** | Detailed mapped information identifying the geological distribution of mineral resources across Cheshire. Licence has been obtained from the BGS to use this information in a digital data format (see Appendix G). |
| **CLG/BGS Mineral Planning Factsheets** | Provide information on the distribution of mineral resources, supply, demand, uses and planning considerations. |
| **Cheshire County Council: Hard Rock Sites Current Position – January 2009** | Desk based study establishing a baseline position on hard rock producing sites in Cheshire site. Includes information on planning consents and reserves. |
| **The Future of Sub-Regional Apportionment in the Cheshire Sub-Region (2011)** | Paper setting out a recommended methodology for splitting the single sand and gravel aggregate apportionment figure for the former county area into two separate apportionments for Cheshire East and Cheshire West and Chester following consultation with mineral operators. |
| **Cheshire East Local Plan - Annual Monitoring Report 2010/11 (and Mineral and Waste Technical Annex)** | Assesses aggregate production against apportionment, current landbank levels, new mineral permissions and the performance of existing mineral policies. |
| **Cheshire Replacement Minerals Local Plan 1999 (CRMLP)** | The current adopted development plan for minerals in both Cheshire East and Cheshire West and Chester Boroughs which has guided minerals development in Cheshire for over 10 years. Contains a suite of policies for minerals planning and management seeking to achieve the correct balance between the release of sufficient minerals and the protection of environmental |

| Evidence | Details |
|---|---|
| | resources. Proposes that future working of salt, silica sand and sand and gravel should come from limited identified areas (see Appendix F). Contains detailed policies to minimise the impact of mineral working enabling rigorous monitoring of site operations and ensuring positive site restoration on set timescales for both phasing and completion. |
| **Cheshire Minerals Development Framework - Core Strategy and Site Specific Policies and Allocations Issues and Options Reports (September 2007)** | Reports detailing the work carried out by Cheshire County Council as part of preparation for its Minerals Development Framework (MDF). Identifies issues and options in relation to strategic and site specific minerals matters in Cheshire. |
| **Cheshire Minerals Development Framework - Mineral Factsheets** | A number of factsheets produced as part of preparation for the Cheshire Minerals Development Framework to aid understanding of the issues that surround minerals planning, minerals extraction and quarrying in Cheshire. |

**Table 4.1 Summary of key minerals evidence**

# 5 Key Issues

**5.1** Through consideration of the key policy drivers and initial analysis of the evidence available, the following key strategic minerals issues have been identified. These will need to be addressed by policies in the Local Plan.

- Securing Steady and Adequate Supply
- Ensuring Prudent, Efficient and Sustainable Use of Mineral Resources
- Safeguarding Mineral Resources
- Ensuring High Quality Restoration and Aftercare
- Sustainable Transport of Minerals
- Underground Gas Storage Following Mineral Extraction

**5.2** The table below sets out how the key minerals issues identified relate to the proposed objectives as set out in the Core Strategy Issues and Options Report.

| Core Strategy Objective | Issue |
|---|---|
| **Reducing the Borough's impact on climate change by establishing sustainable patterns of development, and by prudently managing natural resources, promoting renewable energy and energy efficiency** | • Ensuring Prudent, Efficient and Sustainable Use of Mineral Resources<br>• Safeguarding Mineral Resources<br>• Sustainable Transport of Minerals<br>• Underground Gas Storage Following Mineral Extraction |
| **Promoting economic prosperity by creating conditions for business growth** | • Securing Steady and Adequate Supply |
| **Conserving and enhancing the natural and built heritage** | • Ensuring High Quality Restoration and Aftercare |

**Table 5.1 Core Strategy objectives and key minerals issues**

## Issue 1 - Securing Steady and Adequate Supply

**5.3** Cheshire East contains significant mineral resources of wider economic importance. Existing and draft national planning policy require plans to ensure that an adequate and steady supply of minerals is secured to meet the needs of society and the economy and support sustainable growth. This issue concerns how the Local Plan should approach identifying where future mineral working should take place to secure future supply.

### Key Considerations

**5.4** National planning policy requires the identification of sites, preferred areas and/or areas of search, having taken account of environmental considerations, to provide a greater certainty of where future sustainable mineral working may take place. Table 5.2 summarises possible approaches for identifying future mineral extraction and their outcomes.

| Approach | Outcomes |
|---|---|
| **Identify specific sites for mineral extraction (including extensions to existing sites)** | Would provide a high degree of certainty for the industry and local community as to where mineral extraction might take place but would offer little flexibility. Extensions to existing sites can have benefits over new sites such as reduced environmental disturbance and more efficient use of resources including full recovery of minerals. |
| **Identify 'Preferred Areas' for mineral extraction** | Could provide more certainty for the industry and the local communities as to where mineral extraction might take place. The minerals industry generally knows where viable minerals reserves are present. |
| **Identify an 'Area of Search' for possible mineral extraction** | Provides flexibility but give less certainty as to the possible locations for mineral extraction as they are based on weaker geological information. |
| **Criteria based** | Mineral planning applications would be determined on a case by case basis in accordance with identified criteria should they come forward. Provides less certainty as to where new sites would be developed, but provides the greatest flexibility. |

**Table 5.2 Possible approaches for identifying future mineral extraction**

**5.5** The current Cheshire Replacement Minerals Local Plan 1999 (CRMLP) identifies Preferred Areas for future workings of silica sand, sand and gravel, and salt; an Area of Search for sand and gravel; and sets criteria for future working clay, coal, hydrocarbons and peat (see Appendix G). This approach has guided the location of mineral extraction across Cheshire for over 10 years.

**5.6** In 2007, Cheshire County Council produced a Site Specific Policies and Allocations Issues & Options Report as part of preparation for its Minerals Development Framework (MDF). Following consultation with minerals operators, stakeholders and landowners a number of new sites for possible inclusion in the MDF where brought forward. This included possible sites, Preferred Areas and Areas of Search. No decisions were made on the suitability of these locations and work on the preparation of the MDF was not progressed following Local Government Re-organisation in Cheshire in 2009.

**5.7** The contribution that substitute or recycled materials can make towards overall mineral supply, particularly aggregates, must be taken into account in order to minimise the requirement for primary extraction (see Issue 2 - Ensuring Prudent, Efficient and Sustainable Use of Mineral Resources).

**5.8** The ability of the environment to accept any future mineral extraction must also be considered and assessed through sustainability appraisal. Environmental criteria will need to be set out in policies to assess any impacts on both the natural and historic environment and human health.

**5.9** National policy recognises that minerals can only be worked where they are found and that their extraction is a temporary activity. As such, mineral extraction need not be inappropriate development in the Green Belt, provided that high environmental standards are maintained and that the site is well restored (see Issue 4 - Ensuring High Quality Restoration and Aftercare).

### Aggregate Apportionment and Landbank Requirements

**5.10** Cheshire East must plan to meet its 'sub-regional aggregate apportionment' - a provision of aggregate minerals to the North West region over a set period . This will involve planning for a sufficient provision of construction sand and gravel and crushed rock . Further information on sub-regional aggregate apportionment is contained in Appendix D.

**5.11** For certain mineral resources, national planning policy requires the maintenance of landbanks to secure longer term supply and indicate when new permissions are likely to be needed. For aggregates, the landbank indicator is at least 7 years supply of sand and gravel and at least 10 years supply crushed rock (based on the collective stock of permitted reserves at sites across the Borough). For silica sand, at least 10 years worth of supply should be maintained at individual sites, or longer where significant investment at existing or new sites is needed. Details of mineral landbanks for Cheshire East are contained Appendix E.

### Peat

**5.12** The Government has recently publicised its intentions to phase out peat production in the UK by 2030[(10)]. Draft national planning policy has indicated that no sites or extensions to existing sites for peat extraction should be identified.

### Resources Not Currently Worked

**5.13** Mineral resources that are found but not currently worked in Cheshire East include clay, coal and hydrocarbons. The potential for the extraction of these resources should also be considered

**5.14** There has been no recent history of clay extraction in Cheshire East. Recent proposals involving the extraction of clay have been associated with waste landfilling. Clay extraction is not considered to be a likely issue during the plan period i.e. up to 2030.

**5.15** There has been no recent history of coal extraction in Cheshire East. The areas where coal comes closest to the surface are around Poynton and Mow Cop, however the geology is heavily faulted and complex (see Appendix G, Map A4). The information available does not allow an accurate assessment of the likely locations of exploitable coal reserves.

**5.16** To date there have been no planning applications relating to unconventional gas exploration/appraisal in the PEDL areas covering parts of the Borough. As such, the likelihood of future extraction in Cheshire East is at this stage not known.

10 DEFRA (2011) Natural Environment White Paper 'The natural choice: securing the value of nature'

### Question 2

**What approach do you think should be taken to ensure that a steady and adequate supply of minerals is secured?**

**Please specify what approach you think is most suitable for the mineral type(s) you have an interest in.**

**If you feel a criteria approach is most suitable please give details.**

## Issue 2 - Ensuring Prudent, Efficient and Sustainable Use of Mineral Resources

**5.17** Mineral resources are finite in nature. This issue concerns how and to what extent the Core Strategy should ensure the prudent, efficient and sustainable use of Cheshire East's primary minerals and how to encourage the recycling of materials to minimise primary extraction.

### Key Considerations

**5.18** Current policies in the CRMLP encourage the use of secondary aggregates or substitute aggregate materials, particularly recycled waste materials whilst not permitting applications for the winning and working of minerals where it would involve the use of high quality minerals for low grade purposes.

**5.19** Encouraging and enabling the provision of suitable recycled materials will require close integration with policy concerning the provision of waste management facilities in Cheshire East. Recycled construction and demolition wastes can be used as an aggregate material offering a suitable alternative to land-won minerals depending on the specifications needed. In addition, policy concerning sustainable construction can contribute to minimising the requirement for new primary extraction.

**5.20** Silica sands have a wide range of uses from industrial applications such as glass making and foundry casting to leisure based such as sport pitch enhancement. As Cheshire East's silica sand resource is a scarce, high quality material, consideration will need to be given to ensuring its appropriate end use. Silica sand and products manufactured from it, such as certain types of glass, can be re-used and recycled together with some newly dug sand.

**5.21** The extraction of salt resources in Cheshire East has become closely associated with underground gas storage. The need for energy infrastructure including gas storage has become an increasingly important national planning issue (see Issue 5 - Underground Gas Storage Following Mineral Extraction). The salt (in brine) currently extracted in Cheshire East is pipelined to nearby plant facilities where it is processed for a wide range of end uses.

Current national planning guidance indicates that where salt extraction is incidental to the main purpose of the gas storage work, the mineral may be discharged into a nearby estuary or sea[11].

### Question 3

**Should criteria be set for any new primary extraction to ensure the prudent, efficient and sustainable use of the mineral resource? If so what should this include?**

**Please specify for the mineral type(s) you have an interest in.**

### Question 4

**How should policy encourage the provision of suitable recycled materials to minimise new extraction of primary minerals?**

## Issue 3 - Safeguarding Mineral Resources

**5.22** Minerals can only be worked where they naturally occur. With increased pressure on land use, the Local Plan must ensure that proven resources are not needlessly sterilised by other forms of surface development and safeguarded for future generations to meet their own needs.

**5.23** Existing and draft national planning policy requires the definition of 'Mineral Safeguarding Areas' (MSAs) to alert the presence of mineral resources. This raises the concern of which of Cheshire East's mineral resources should be safeguarded and to what extent. Maps detailing the geological distribution of mineral resources in are included in Appendix G.

### Key Considerations

**5.24** Current policy in the CRMLP seeks to safeguard mineral resources through the Mineral Consultation Areas (MCA) process. To prevent permanent sterilisation of proven mineral resources, policy supports the prior extraction of proven mineral resources in advance of development subject to acceptable timescales and without compromising the subsequent development.

**5.25** The purpose of MSAs is to alert developers and planners to the existence of proven mineral deposits which are, or may become, of economic importance in the future. It should be clarified that **they are not necessarily areas where future extraction is considered acceptable.** There is no presumption that resources in a MSA will be worked nor will other forms of development be precluded.

11 CLG (2006) 'Planning and Minerals: Practice Guide'

**5.26** Following national guidance, the first stages of the safeguarding process requires identification of the best geological/mineral resource information available and then deciding which mineral resources to safeguard and to what extent.

**5.27** Cheshire East has obtained mineral resource digital data on licence from the BGS as a starting point. Maps have been produced illustrating those mineral deposits that the BGS considers are, or may become, of economic importance (see Appendix G, Maps A2, A3, A4). Resources identified in Cheshire East include: sand and gravel (including silica sand), sandstone, peat, clay (brick and fire), salt and coal (shallow and deep).

**5.28** National safeguarding guidance concentrates on surface-won minerals given that they are most vulnerable to sterilisation from surface development. However, consideration may need to be given to safeguarding any surface infrastructure associated with deep mined resources along with any surface effects of underground working.

**5.29** National guidance also states that MSAs should cover the full extent of the resource and not be curtailed by other planning considerations such as environmental designations and urban areas unless otherwise justified. Defining MSAs alongside other designations will ensure the impact of any proposed development on the mineral resource is taken into account in planning decisions.

**5.30** In urban areas MSA's can highlight potential opportunity for valuable prior mineral extraction, for example on brownfield or regeneration sites. However, MSA's covering existing urban areas may not be acceptable when resources occur widely elsewhere within the plan area or where working methods are likely to be unacceptable.

**5.31** Any definition of MSAs will be accompanied by supporting development management policies containing detailing criteria against which development in MSAs will be considered. This will include details of exclusions and the requirements for prior extraction of the resource where practicable.

**5.32** Mineral resources lie across authority boundaries and as such a joined up approach will be necessary with neighbouring Mineral Planning Authorities (MPAs) to ensure that development in one MPA does not needlessly sterilise resources in an adjacent MPA area.

**5.33** It may be necessary to define 'buffer zones' around safeguarded areas depending on the mineral being safeguarded. This would alert to the potential of mineral resources being sterilised by incompatible neighbouring development taking place in close proximity to the resource.

**5.34** In addition to natural mineral resources, mineral related infrastructure should be considered for safeguarding. This includes existing, planned and potential locations for the sustainable transportation, storage, handling and processing of minerals (including recycled, secondary and marine-dredged materials); and potential sites for concrete batching, the manufacture of coated materials, other concrete products and the handling, processing and distribution of substitute, recycled and secondary aggregate material. The safeguarding of potential sites will require close integration with policy concerning the provision of waste management facilities in Cheshire East (e.g. aggregate recycling).

**5.35** Mineral operators may hold more detailed local geological information that can be used to modify the extent of resource information currently held. The delineation of MSAs will be subject to future technical consultation with the industry.

### Question 5

**Which mineral resources in Cheshire East do you consider warrant safeguarding?**

**Please specify.**

### Question 6

**Should Minerals Safeguarding Areas cover existing urban areas?**

**Yes/No. Please explain.**

### Question 7

**Should any distinction be made between different mineral resources and any buffer distance applied around them?**

### Question 8

**Which minerals related infrastructure in Cheshire East should be considered for safeguarding?**

## Issue 4 - Ensuring High Quality Restoration and Aftercare

**5.36** The Local Plan should seek to enhance the overall quality of the environment once extraction has ceased through high standards of restoration and aftercare. This issue concerns determining what beneficial after uses should be prioritised following mineral working.

### Key Considerations

**5.37** Current policy in the CRMLP sets criteria to ensure that the highest practicable standard for reclamation is achieved and requires a programme of aftercare management for a period of up to five years following the completion of restoration.

**5.38** Mineral extraction can have adverse impacts on the environment, some of which may be long-term. These can be mitigated through careful location and management of sites and high quality restoration of land to beneficial subsequent uses.

**5.39** Unlike many other forms of development, mineral extraction is a temporary use of land, although it may be long-term. Land from which minerals have been extracted can be restored to its former condition or to a number of beneficial new uses.

**5.40** Opportunities for enhancing the overall quality of the environment of restored sites can include nature and geological conservation, creation of wildlife habitats and native woodland recreation/increased public accessibility and agriculture. Restoration of former mineral workings also can contribute to the delivery of green infrastructure. This in turn contribute to wider objectives such as climate change adaptation[(12)].

**5.41** Silica and construction sand working in Cheshire East often involves working below the water table. As such restoration can involve the creation of water bodies or wetland habitats attractive to birds. These may be a hazard to aircraft at sites close to aerodromes potentially causing 'bird strike'. Aviation safety will need to be taken into account when considering appropriateness of restoration schemes.

**5.42** Some mineral sites in Cheshire East lie within designated Green Belt land. Whilst minerals extraction need not be inappropriate development, nor conflict with the purposes of designating Green Belts, the after-use of restored sites will need to be consistent with Green Belt objectives.

### Question 9

**What do you consider are appropriate end uses for minerals sites following extraction? Please specify.**

### Question 10

**Should priority be given to certain end uses over others?**

## Issue 5 - Sustainable Transport of Minerals

**5.43** National policy seeks to promote the sustainable transportation of minerals by methods other than road based. This issue concerns how the Local Plan can achieve this objective.

### Key Considerations

**5.44** Current policy in the CRMLP states that where practicable, the Council will encourage the distribution of minerals by alternative methods other than road, for example by rail, water, pipeline and conveyor.

12 See: Mersey Dee Alliance (2011) 'Green Infrastructure Framework for North East Wales, Cheshire and Wirral'

**5.45** Promoting the bulk movement of mineral resources by methods such as rail, sea or inland waterway can reduce the environmental impacts of their transportation and help to reduce carbon emissions. However, whilst rail and water based transportation can offer a safer, efficient and more environmentally friendly method, HGVs are more economically viable for transporting over short distances.

**5.46** The transportation of minerals extracted from sites in Cheshire East is currently almost entirely road based. This is principally due the location of quarries within the Borough allied to the fact that minerals can only be worked where they are found. Few sites lie near railways or waterways and many factors influence the ability of sites to export minerals by rail or water – these include cost, access to alternative networks and physical constraints.

**5.47** Ensuring local supplies of minerals can minimise the impacts of long distance road transportation and help in the reduction carbon emissions (see Issue 1 - Securing Steady and Adequate Supply).

**5.48** The safeguarding of minerals related infrastructure such as rail heads and wharves can help to ensure that opportunities for rail or water based methods of transportation remain available (see Issue 4 - Safeguarding Mineral Resources).

### Question 11

**How can the sustainable transportation of minerals be best achieved in Cheshire East?**

### Question 12

**Should minerals operators be required to demonstrate the suitability of sustainable alternatives to road based transport?**

## Issue 6 - Underground Gas Storage Following Mineral Extraction

**5.49** Geological circumstances in Cheshire East have been found suitable for underground gas storage following mineral extraction. As such, the Local Plan will need to consider future need for this purpose taking into account the wider policy context of securing energy supply in the UK. This issue concerns what approach the Local Plan should take towards future gas storage infrastructure associated with salt (brine) extraction.

### Key Considerations

**5.50** Possible policy approaches to gas storage infrastructure in Cheshire East following salt extraction are detailed in Table 5.3 for consideration.

| Policy Approach | Outcomes |
|---|---|
| **Pro-active** | Would identify areas where underground gas storage in salt cavities would be acceptable subject to specific criteria. Would require sound justification based on geological information. Would require integration with policy concerning areas for future mineral extraction (see Issue 1 - Securing Steady and Adequate Supply). |
| **Re-active** | Would take underground gas storage proposals on case by case basis subject to specific criteria. Would require integration with policy concerning prudent use of resources (see Issue 2 - Ensuring Prudent, Efficient and Sustainable Use of Mineral Resources). |
| **Other** | Please specify |

**Table 5.3 Policy approaches to underground gas storage following mineral extraction**

**5.51** The Government has outlined the need for more gas storage capacity as part of the wider objective of securing national energy supplies[13]. The requirement for increased gas storage infrastructure has been identified in the Government's National Policy Statement for new energy infrastructure in order to provide a close-to-market 'swing supply' helping meet peak demand[14].

**5.52** Underground gas storage operations have been permitted in Cheshire East at the Hole House Farm Gas Storage and Processing Facility near Warmingham. This facility has developed over the past 15 years using the void capacity created by brine extraction for the storage of natural gas. The storage cavities are to take gas from the National Transmission System in periods of low consumer demand and store it until periods of high demand when it is returned. Brine extraction and gas storage operations have also been permitted at the Holford Brinefield in Cheshire West and Chester adjacent to the Cheshire East boundary.

**5.53** It should be noted that under the Planning Act 2008, underground gas storage facility applications meeting set thresholds would be determined by the Secretary of State for Energy and Climate Change having considered recommendation from the Major Infrastructure Planning Unit (MIPU). In addition to obtaining any planning consent, underground gas storage development is subject to stringent controls under the appropriate regulatory regimes.

### Question 13

**What approach should be taken to future underground gas storage following salt extraction in Cheshire East?**

13 DECC (2010) 'Annual Energy Statement 2010'
14 DECC (2011) 'Overarching National Policy Statement for Energy (EN-1)'

# 6 Questions for Minerals Industry

**6.1** The following questions are intended for representatives of the minerals industry to assist in the production of planning policies relating to minerals in Cheshire East. Please note any sites or areas identified will remain confidential at this stage and will be subject to future selection process.

### Question 14

**Do you have any sites or areas you would wish to see allocated in the Local Plan for future mineral extraction?**

### Question 15

**Do you have any local information on mineral resources that could be used to assist in the definition of Mineral Safeguarding Areas?**

### Question 16

**Do you know of any minerals related infrastructure in Cheshire East that should be considered for safeguarding?**

# Appendix A - List of Abbreviations

| | |
|---|---|
| **AWP** | Aggregate Working Party (see NWRAWP) |
| **BGS** | British Geological Survey |
| **CBM** | Coal Bed Methane |
| **CLG** | Communities and Local Government (Department for) |
| **CRMLP** | Cheshire Replacement Minerals Local Plan 1999 |
| **DECC** | Department of Energy and Climate Change |
| **DEFRA** | Department for Environment, Food and Rural Affairs |
| **HGV** | Heavy Goods Vehicle |
| **MDF** | Minerals Development Framework |
| **MIPU** | Major Infrastructure Planning Unit |
| **MPA** | Mineral Planning Authority |
| **MPG** | Minerals Policy Guidance |
| **MPS** | Minerals Planning Statement |
| **MSA** | Mineral Safeguarding Area |
| **Mt** | Million Tonnes |
| **NPPF** | National Planning Policy Framework |
| **NWRAWP** | North West Regional Aggregate Working Party |
| **PEDL** | Petroleum Exploration and Development Licence |

**Table A1 List of abbreviations**

# Appendix B - Glossary of Terms

| | |
|---|---|
| **Aggregates** | Sand, gravel, crushed rock and other bulk materials used for construction purposes such as the making of concrete, mortar, asphalt, or for road stone, drainage and bulk filling materials. |
| **Aggregate Apportionment** | A specified amount of aggregates to supplied over a set period on a sub-regional basis. This contributes to the total regional supply. The Cheshire sub-region consists of the Borough of Cheshire East and Borough of Cheshire West and Chester. |
| **Aggregate Working Party** | Working parties set up in the 1970s as a forum for data collection and discussion, linking the industry, MPAs and relevant Government Departments. In the North West this refers to the North West Aggregates Working Party. Previously known as the 'Regional Aggregate Working Party' (RAWP). |
| **Area of Search** | A technique used to identify areas of land which are considered to contain mineral resources and which are generally free from major mappable constraints. They are broader areas where knowledge of mineral resources may be less certain than in Preferred Areas, but within which planning applications could be granted to meet any shortfall in supply if acceptable applications are made (see 'Preferred Areas'). |
| **Buffer Zone** | An area of land separating certain types of development from adjoining sensitive land uses. Often used in relation to minerals and/or waste development. |
| **Coal Bed Methane** | Natural gas and energy source contained in coal-seams (see 'Unconventional Gas'). |
| **Core Strategy** | Part of the Local Plan setting out the vision, objectives and overarching strategic policies (see 'Local Plan'). |
| **Draft National Planning Policy Framework** | The new policy framework that will, upon completion, set out the national planning policies to guide the preparation of local plans, and help determine planning applications. It is designed to consolidate all existing policy statements, circulars and guidance documents into a single framework. |
| **Green Infrastructure** | The network of natural environmental components and green and blue spaces that lies within and between cities, towns and villages which provides multiple social, economic and environmental benefits. |
| **Landbank** | The quantity of mineral remaining to be worked at sites with planning permission usually expressed as the number of years that permitted reserves will last at the indicated level of supply and given rate of extraction. Landbanks include reserves with planning permissions at all sites including those currently dormant or inactive. |

| | |
|---|---|
| **Local Plan** | A folder of documents that will form the development plan for Cheshire East. It will set out the planning policies and land allocations used when determining planning applications. The Local Plan will comprise of a Core Strategy setting out the vision, objectives and overarching strategic policies; and a Site Allocations Document identifying sites and detailing development management policies. The Local Plan was previously referred to as the 'Local Development Framework' or 'LDF'. |
| **Minerals Development Framework** | Term for the Local Development Framework concerning minerals. Prior to Local Government Re-organisation in 2009, Cheshire County Council was the authority responsible for producing a Cheshire Minerals Development Framework (MDF). |
| **Mineral Planning Authority** | The term given to the local authority with responsibility for planning control over mineral working. Following Local Government Re-organisation in 2009, Cheshire East Council and Cheshire West and Chester Council became MPAs replacing Cheshire County Council. |
| **Mineral Reserve** | Part of a mineral resource to have been tested to establish the quality and quantity of the material and which could be economically extracted. |
| **Mineral Resource** | Natural concentrations of minerals in or on the Earth's crust that are, or may become, of economic interest in their present form. |
| **Minerals Safeguarding Areas** | Defined areas in the development planning documents to ensure that mineral resources which are, or may become of economic importance are not unnecessarily sterilised by surface development. |
| **Mineral Sterilisation** | The prevention of future mineral extraction by surface development above or adjacent to known mineral resources. |
| **Petroleum Exploration Development Licence** | Licence allowing an energy company to pursue a range of oil and gas exploration activities, subject to necessary drilling/development consents and planning permission. |
| **Preferred Area** | Areas of known mineral resources where planning permission might reasonably be anticipated providing proposals are environmentally acceptable. They are areas where there is reasonable evidence for the existence of commercially extractable minerals, which are largely unaffected by substantial planning constraints and which are adequate, collectively, to meet the anticipated need for the mineral. |
| **Primary Minerals** | Minerals that are extracted or won from where they naturally occur. |
| **Prior Extraction** | Practice of extracting and utilising minerals on a site before development takes place thus preventing sterilisation of the resource. |

| | |
|---|---|
| | Furthermore, the minerals could be used in the construction of the development itself. |
| **Regional Aggregate Working Party** | See 'Aggregate Working Party'. |
| **Restoration and Aftercare** | The process of restoring land to a usable state after mineral extraction or activity has taken place. Aftercare refers to its subsequent maintenance. |
| **Secondary and Recycled Aggregates** | Suitable aggregate materials produced from non-primary sources such as waste by-products or recycled (crushed) construction and demolition waste. |
| **Specific Sites** | Areas with viable mineral resources within which the landowners are willing to allow mineral development and in which granting of planning permission may be more likely to be acceptable in planning terms than in a Preferred Area. |
| **Site Allocations Document** | The part of the Local Plan containing land allocations and detailed policies and proposals to deliver and guide the future use of this land (see 'Local Plan'). |
| **Unconventional Gas** | Natural gas - predominantly methane. 'Unconventional' refers to its source, such as in shale or coal beds which have not traditionally been exploited for gas production. Unconventional gas extraction involves drilling a borehole into a particular geological formation (shale or coal seam) and extracting gas which is then used to generate electricity or for injecting into the national gas grid. |

**Table A2 Glossary of terms**

# Appendix C - Mineral Sites in Cheshire East

| Site Name | Operator | Location | Grid Ref. | Minerals Extracted | Status 2011 |
|---|---|---|---|---|---|
| Arclid Quarry | Bathgate Silica Sand Ltd. | Congleton Road, Sandbach | E: 378360 N: 361407 | Silica sand | Active |
| Bent Farm Quarry | Sibelco UK | Brownlow Farm, Wallhill Lane,Congleton | E: 383184 N: 361926 | Silica sand | Active |
| Bridestones Quarry | Bridestone Stone | Dial Lane, Congleton | E: 390600 N: 362200 | Sandstone | Active |
| Bridge Quarry | Multigrove Ltd. | Windmill Lane, Kerridge, Macclesfield | E: 393900 N: 376500 | Sandstone | Active |
| Dingle Bank Quarry | Sibelco UK | Lower Withington, Chelford | E: 380710 N: 371790 | Silica sand, construction sand and gravel | Active |
| Eaton Hall Quarry | Tarmac Ltd. | Manchester Road, Congleton | E: 386090 N: 365605 | Silica sand, construction sand | Active |
| Endon Quarry | Park Skip Hire | Windmill Lane, Kerridge, Macclesfield | E: 393987 N: 376357 | Sandstone | Active |
| Gawsworth Quarry | O'Gara Developments | A523, Gawsworth, Macclesfield | E: 392300 N: 368300 | Sandstone | Inactive |
| Lee Hills | Lee Hills Quarries | Croker Farm, Sutton, Macclesfield | E: 392800 N: 369100 | Sandstone | Active |
| Lindow Moss | Terraqueous Ltd. | Lindow Moss, Wilmslow | E: 382267 N: 380452 | Peat | Active |
| Marksend Quarry | A.M & D. Earl | Kerridge, Macclesfield | E: 394200 N: 375700 | Sandstone | Active |
| Mere Farm Quarry | Hanson Products Europe Ltd. | Knutsford Road, Nether Alderley | E: 382720 N: 374730 | Construction sand | Active |
| Rough Hey Quarry | O'Gara Developments | A523, Gawsworth, Macclesfield | E: 392300 N: 369051 | Sandstone | Inactive (yet to be worked) |

| Site Name | Operator | Location | Grid Ref. | Minerals Extracted | Status 2011 |
|---|---|---|---|---|---|
| Sycamore Quarry | A.M & D. Earl | Windmill Lane, Kerridge, Macclesfield | E: 393905 N: 376679 | Sandstone | Active |
| Warmingham Brinefield | British Salt Ltd. | Hilltop Farm, off School Lane, Warmingham | E: 370127 N: 361099 | Salt | Active |
| White Moss Quarry | Land Recovery Ltd. | Radway Green, Alsager | E: 377420 N: 354950 | Construction sand and peat | Active |

**Table A3 Permitted mineral sites in Cheshire East**

# Appendix D - Sub-Regional Aggregate Apportionment

For aggregate minerals, national policy requires a level of planned provision. National and regional supply figures are published periodically by central Government and then broken down or 'apportioned' at a sub-regional level through agreement with members of the Regional Aggregates Working Party (AWP)

**(15)**

. The contribution that each sub-region within the North West should plan to provide towards the overall regional total is detailed in the Table A4.

| Sub-Region[1] | Land-won Sand and Gravel | | Land-won Crushed Rock | |
|---|---|---|---|---|
| | Total apportionment 2005-2020 (Mt) | Annualised provision 2005-2020 (Mt per annum) | Total apportionment 2005-2020 (Mt) | Annualised provision 2005-2020 (Mt per annum) |
| Cheshire | 24.18 | 1.51 | 0.66 | 0.04 |
| Cumbria | 14.1 | 0.88 | 64.4 | 4.02 |
| Greater Manchester/ Merseyside/Warrington | 7.04 | 0.43 | 21.12 | 1.32 |
| Lancashire | 6.86 | 0.44 | 67.9 | 4.2 |
| **North West Total** | **52.18** | **3.26** | **154.08** | **9.62** |

**Table A4 North West sub-regional aggregate apportionment 2005-2020 (Source: NWRAWP Annual Monitoring report 2010)**

1. N.B. Sub-regional apportionments were agreed by the MPAs of Cheshire, Lancashire and Greater Manchester/ Merseyside/Warrington. Cumbria did not agree to the apportionment figures and were therefore taken forward with Cumbria's dissent

## Revising the Cheshire Sub-Regional Apportionment

Work has been undertaken to determine how best to revise the Cheshire sub-regional aggregate apportionment figures for the two new respective Mineral Planning Authorities of Cheshire East and Cheshire West and Chester. Following consultation with minerals operators across the two authorities, a recommendation has been made to split the Cheshire sand and gravel apportionment on a 47:53 Cheshire East to Cheshire West and Chester basis (see Table A5). A combined method of past sand and gravel sales, distribution of existing Areas of Search for construction sand and gravel and future growth projections has been used[16]. Given that all crushed rock producing sites are located within Cheshire East, the split only applies to the sand and gravel element.

15 See: CLG (2009) 'National and regional guidelines for aggregates provision in England: 2005-2020'
16 Methodology detailed in: CWAC (2011) 'The Future of Sub-Regional Apportionment in the Cheshire Sub-Region - A paper prepared for Cheshire West and Chester and Cheshire East Councils'

| | Land-won Sand and Gravel | | Land-won Crushed Rock[1] | |
|---|---|---|---|---|
| **Mineral Planning Authority** | **Total apportionment 2005-2020 (Mt)** | **Annual provision 2005-2020 (Mt per annum)** | **Total apportionment 2005-2020 (Mt)** | **Annual provision 2005-2020 (Mt per annum)** |
| Cheshire West and Chester | 12.8 [2] | 0.80 | 0 | 0 |
| Cheshire East | 11.36 [3] | 0.71 | 0.66 | 0.04 |

**Table A5 Revised sub-regional aggregate apportionment for the Cheshire authorities following recommended methodology**

1. All Crushed Rock producing sites are located in Cheshire East
2. 53% of total Sand and Gravel apportionment
3. 47% of total Sand and Gravel apportionment

# Appendix E - Mineral Landbanks

| Aggregate | Landbank at 31/12/2009[1] |
|---|---|
| Sand and Gravel | 6.48 years |
| Crushed Rock | 34 years[2] |

**Table A6 Primary aggregate landbanks for the Cheshire sub-region (Source: NWRAWP (2011) 'Annual Monitoring Report 2010')**

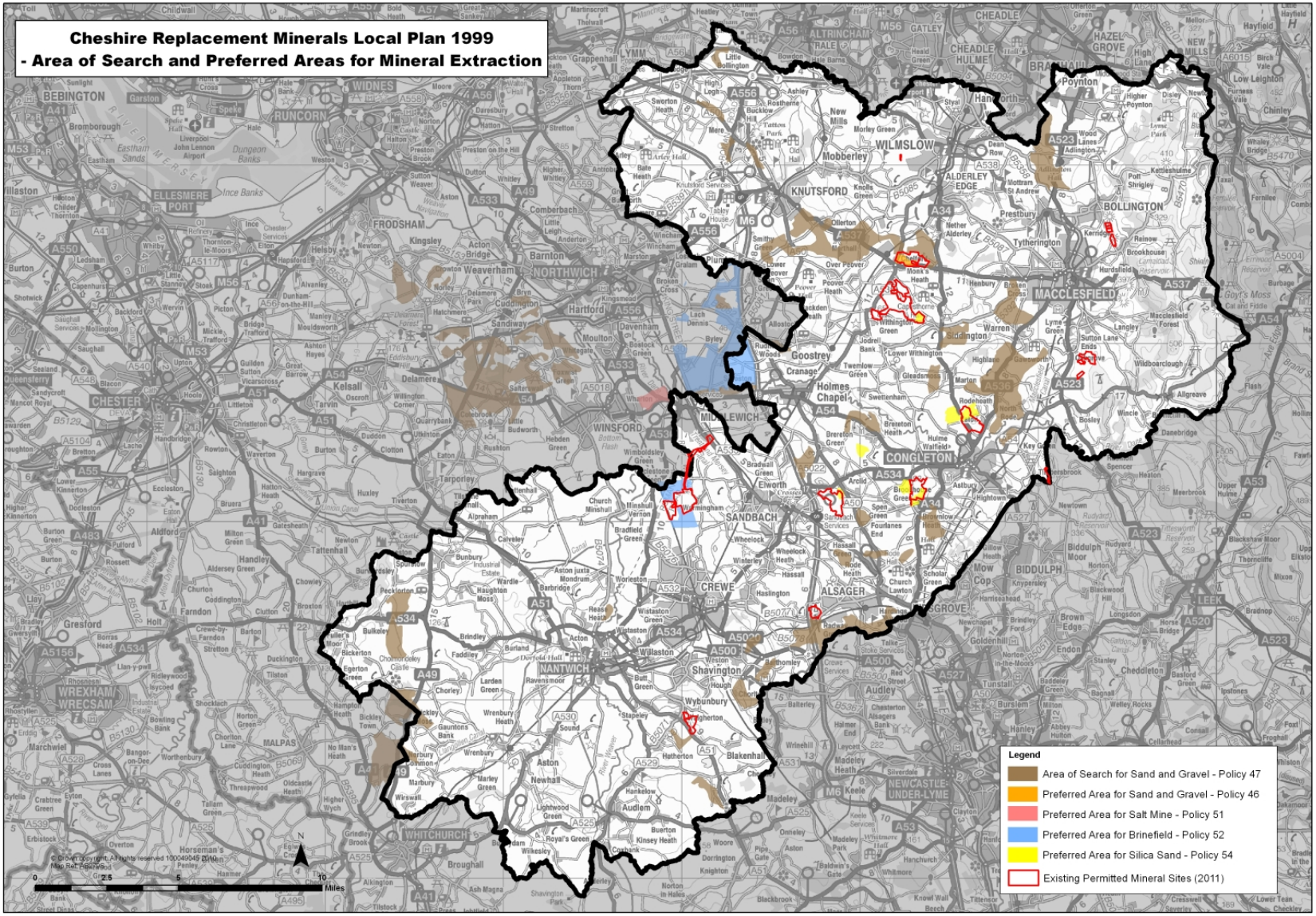
1. Method for calculating landbanks set out in: CLG (2006) 'Planning and Minerals - Practice Guide' para. 70
2. Proportion of reserve tied up in currently inactive sites

| No. of sites in Cheshire East | No. of sites in Cheshire East with landbank > 10 years |
|---|---|
| 4 | 1 [1] |

**Table A7 Landbanks at active silica sand sites in Cheshire East (Source: Cheshire East Development Management)**

1. N.B. An application to extract silica sand for approximately 15–18 years at an additional site has approval with planning permission pending subject to completion of section 106 agreement

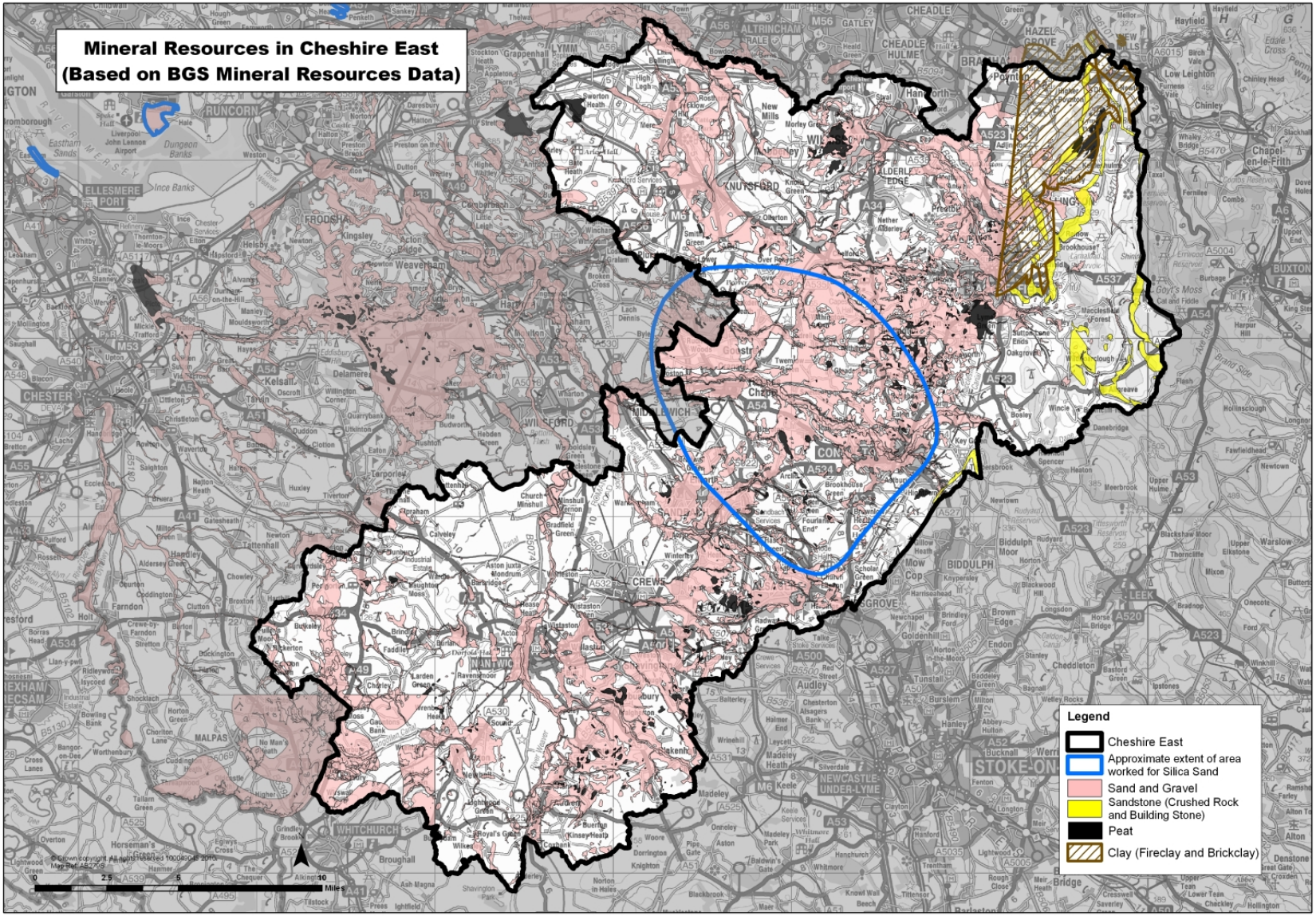
# Appendix F - CRMLP 1999 Area of Search and Preferred Areas for Mineral Extraction




Map A1 Cheshire Replacement Minerals Local Plan 1999 - Area of Search and Preferred Areas for minerals extraction

# Appendix F - CRMLP 1999 Area of Search and Preferred Areas for Mineral Extraction

# Appendix G - Mineral Resources in Cheshire East

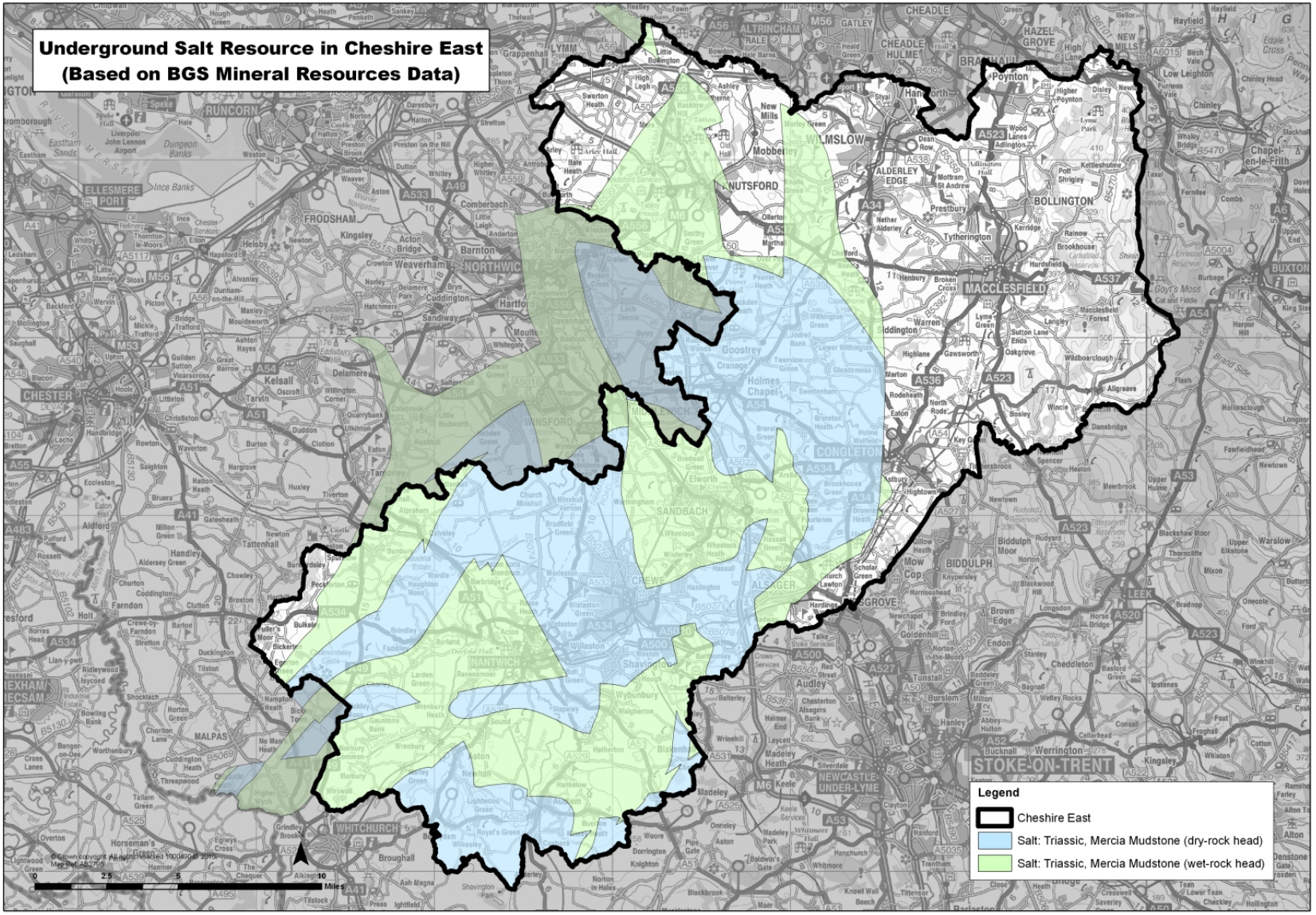



Map A2 Mineral resources in Cheshire East

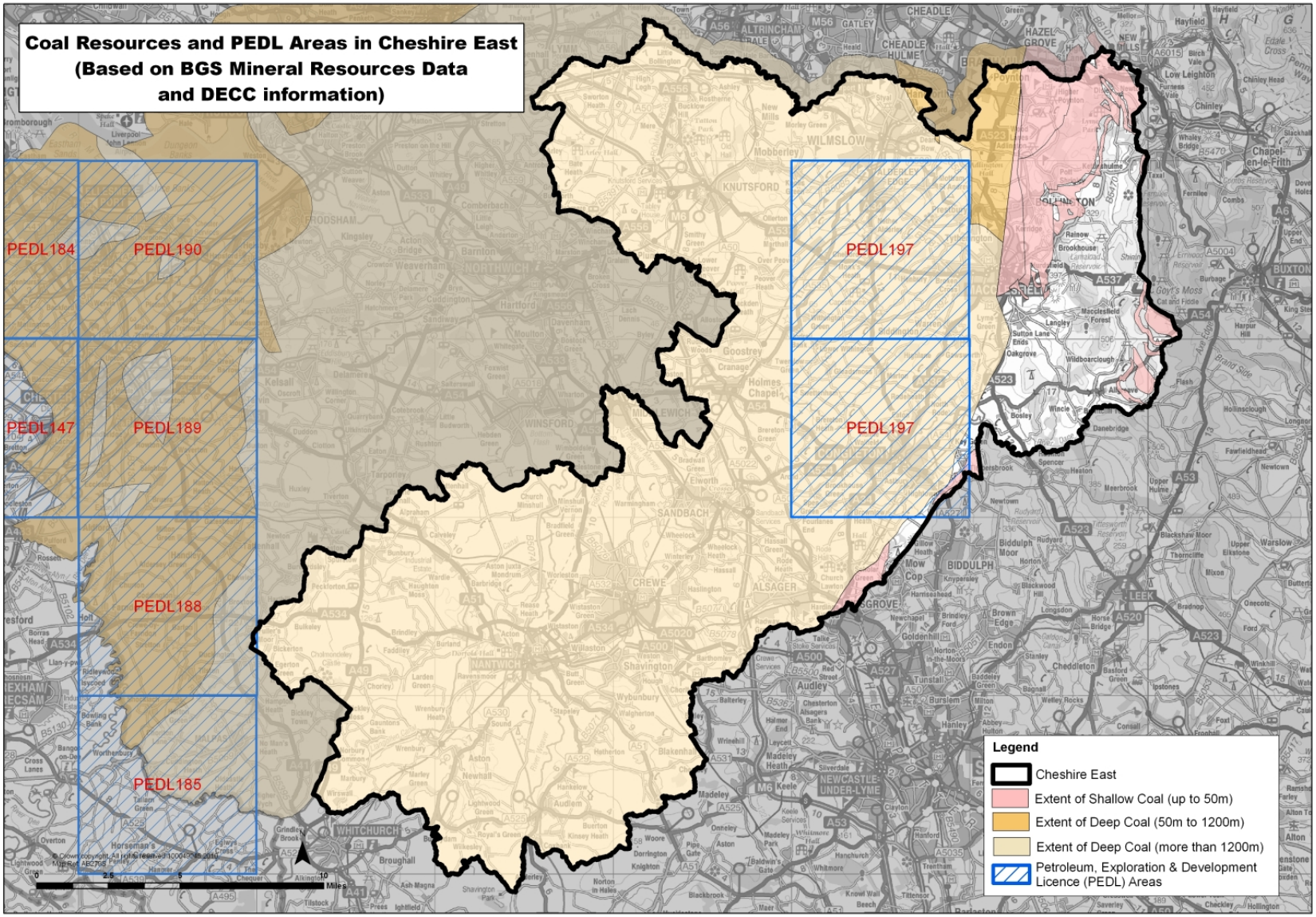


## Appendix G - Mineral Resources in Cheshire East

# Appendix G - Mineral Resources in Cheshire East




**Map A3 Underground salt resources in Cheshire East**




**Map A4 Coal resources and PEDL Areas in Cheshire East**



## Appendix G - Mineral Resources in Cheshire East