

# North Lincolnshire Local Plan (2020 to 2038)

## Minerals Safeguarding – Technical Paper



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NORTH LINCOLNSHIRE COUNCIL  
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## 1. INTRODUCTION

- 1.1 Minerals play a vital role in society. Aggregates and other types of construction minerals are needed to build homes, factories, offices and transport infrastructure. Other minerals are used in industry, food production and agriculture. Energy minerals like oil and gas provide the country with power and heating. It is therefore important for development and for our quality of life as well as creation of sustainable communities that we plan appropriately for minerals. Mineral planning ensures that the need for minerals by society and the economy, and the impacts of extraction and processing on communities and the environment, are managed in an integrated way.
- 1.2 It needs to be remembered that minerals are finite resource. This means that once they are used, they cannot be replaced. Given this, the council needs to take into consideration where the areas' minerals are found and how important they are now and are likely to be the future. With this in mind, it is important a formal process is put in place to avoid valuable mineral resources from being sterilised by other forms of development. These resources need to be used sustainably, and where appropriate, safeguarded for the future. Mineral safeguarding means that it is possible to give minerals some protection against sterilisation from other forms of development.
- 1.3 North Lincolnshire Council (NLC) is the mineral planning authority (MPA) for its area. This means it is responsible for creating a planning policy framework for minerals, including safeguarding, and making decisions on proposals for minerals development. NLC is preparing a new Local Plan, covering the period 2017 to 2036, that will replace the existing documents that make up the Local Development Framework and the saved policies of the North Lincolnshire Local Plan (May 2003). The new plan will include up to date planning policies for minerals.
- 1.4 In safeguarding minerals for the future, it is important to consider what the best approach is. This paper sets out the background and context for minerals safeguarding as well as a methodology/approach for identifying and implementing MSAs. It also includes details of those minerals which are considered to be economically important and could be proposed for safeguarded.
- 1.5 This paper will form part of the evidence base to support the approach to mineral safeguarding that will be taken forward in the North Lincolnshire Local Plan (2020 to 2038).

### What is Mineral Safeguarding?

- 1.6 The British Geological Survey (BGS) describes Mineral Safeguarding Areas (MSAs) as areas of known mineral resources that are of sufficient economic or conservation value to warrant protection for generations to come. Their purpose is to ensure that mineral resources are adequately protected and effectively considered in land-use planning decisions, so like other finite resources, they are not needlessly sterilised. In effect, MSAs will make relevant parties aware of the presence of mineral resources. They will alert prospective applicants seeking planning permission to the existence of valuable mineral resources and indicate where specific safeguarding policies may apply.
- 1.7 **It is important to note that a Minerals Safeguarding Area is not a proposed area of extraction and does not mean that proposals will be permitted within the area.** The main purpose of the MSA is to protect a mineral resource from potential sterilisation for the long term for future generations – potentially well beyond the Local Plan period. Also, it should be borne in mind that just because there may be no economic need for the minerals now that this may not be the case in the future.

### Policy Context

- 1.8 The national policy context for minerals safeguarding is set out in the [National Planning Policy Framework \(NPPF\)](#) and the on-line [Planning Practice Guidance \(PPG\)](#), with further technical guidance provided by the British Geological Survey (BGS) in their [Mineral Safeguarding in England: Good Practice Advice](#) published in 2011. On safeguarding the NPPF (paragraph 203) states that in preparing Local Plans, local planning authorities should:

- define Mineral Safeguarding Areas (MSAs) and adopt appropriate policies in order that known locations of specific minerals resources of local and national importance are not needlessly sterilised by non-mineral development, whilst not creating a presumption that resources defined will be worked; and define Mineral Consultation Areas (MCAs) based on these MSAs (this tends to be in two tier areas)<sup>1</sup>.
  - safeguard existing, planned and potential rail heads, wharfage and associated storage, handling and processing facilities for the bulk transport by rail, sea or inland waterways of minerals, including recycled, secondary and marine-dredged materials;
  - safeguard existing, planned and potential sites including rail and water-served, for concrete batching, the manufacture of coated materials, other concrete products and the handling, processing and distribution of substitute, recycled and secondary aggregate material.
- 1.7 The Planning Practice Guidance states *“Since minerals are a non-renewable resource, minerals safeguarding is the process of ensuring that non-minerals development does not needlessly prevent the future extraction of mineral resources, of local and national importance.”*
- 1.8 At the local level, the existing planning policy consists of the documents of the North Lincolnshire Local Development Framework and the saved policies of the North Lincolnshire Local Plan (May 2003). The existing Local Plan (2003) sets out provisions for safeguard areas for the extraction of sand and gravel, silica sand, clay and ironstone, as well as safeguarding transportation and processing facilities.
- 1.9 The Local Development Framework (LDF) Core Strategy Development Plan Document (DPD), which was adopted in June 2011, provides the strategic planning policy context for minerals. This identifies the fact that Mineral Safeguarding Areas will be defined in a separate Minerals & Waste DPD. The new North Lincolnshire Local Plan (2020 to 2038) which will include policies for minerals including safeguarding will replace this existing planning policy framework.

## 2 NORTH LINCOLNSHIRE’S GEOLOGY

- 2.1 North Lincolnshire’s mineral resources are a reflection of its geological, economic and social history. The solid geology of North Lincolnshire is relatively simple consisting almost entirely of Jurassic and Cretaceous rocks that dip regularly eastwards in continuous belts from north to south. The topography presents a correspondingly simple and regular arrangement, the limestone and chalk standing out as the west facing escarpments of the Lincolnshire Wolds and the Lincoln Edge, separated by valleys underlain by Jurassic clays.
- 2.2 Exposures of the solid geology in the area occur mainly in the upland areas of the Lincolnshire Wolds and around the Scunthorpe area. The remainder of the area is overlain extensively with drift deposits consisting mainly of alluvium, peat, blown sands and boulder clay. Chalk of the Upper Cretaceous period underlies much of the area to the east and outcrops of Jurassic limestone occur to the south of Scunthorpe. To the north are outcrops of the Frodingham Ironstone. Further west in the Trent Valley layers of Quaternary deposits are underlain by Mercia Mudstone. Blown sands are found in the areas around Messingham and Manton.
- 2.3 Much of the solid rock of North Lincolnshire is however overlain by glacial deposits of boulder clays, sands and gravels that add complexity to the overall picture and contribute local variation in landscape character. Extensive deposits of sands and gravels, so called coversands, which derive from Bunter Sandstones further west beyond the Trent, have been blown in an easterly direction across the landscape to build up against the west facing escarpments and the area of Mercia Mudstones that forms the Isle of Axholme. To the north, the Humber has cut through the Cretaceous and Jurassic rock and has overlain the estuarine landscape with alluvial deposits.

<sup>1</sup> A Minerals Consultation Area (MCA) is a geographical area, based on a Mineral Safeguarding Area, where a district or borough council should consult the Mineral Planning Authority (the county council) for any proposals for non-minerals development within it. In North Lincolnshire, MCAs will not be required as the Council is both the Local Planning Authority and the Minerals Planning Authority.

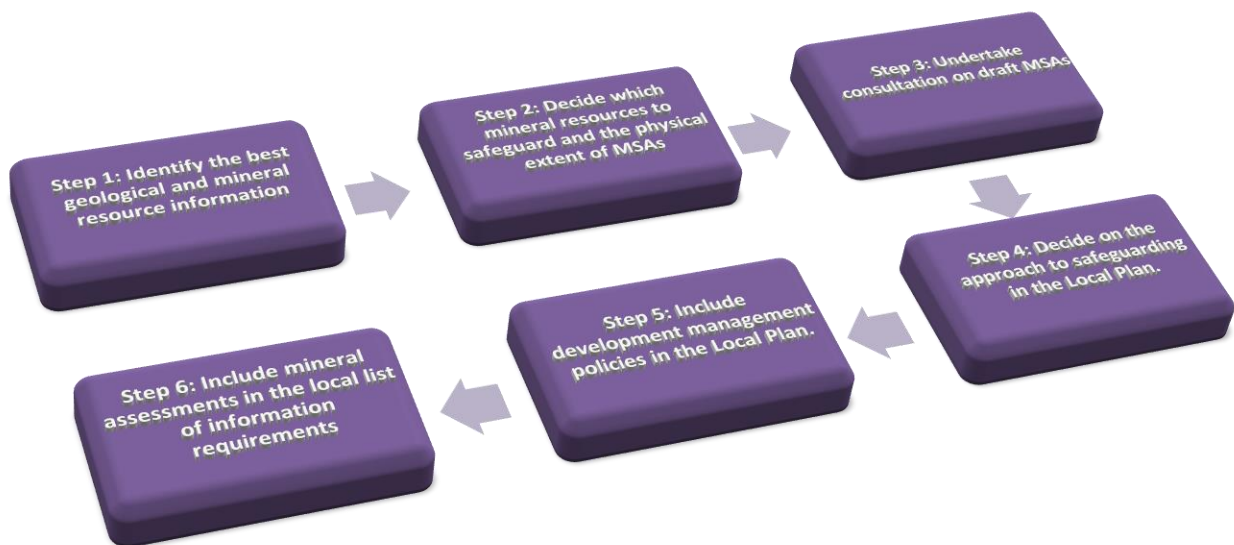
### 3 NORTH LINCOLNSHIRE’S MINERAL RESOURCES

- 3.1 As the description of North Lincolnshire’s geology outlined above states, the area has a number of mineral resources. These play an important role in meeting national, regional and local supply requirements.
- 3.2 The BGS advises mineral planning authorities to consider which of the mineral deposits in their areas are or may become of economic importance in the foreseeable future. Based on BGS information, it is considered that North Lincolnshire contains the following range of economically important minerals:
- Jurassic Limestone
  - Chalk
  - Brick Clay
  - Sand & Gravel
  - Silica Sand
  - Ironstone
- 3.3 Hydrocarbons (oil and gas) as well as deep coal and large area of peat deposits are also found in the area. These are not strategically important.

### 4 IDENTIFYING MINERAL SAFEGUARDING AREAS - METHODOLOGY

- 4.1 To identify Mineral Safeguarding Areas (MSAs), it is necessary to have a step by step methodology. The British Geological Survey (BGS) provides useful methodology which mineral planning authorities can use to create an appropriate and effective system for safeguarding minerals. This has been modified to reflect North Lincolnshire’s status as a unitary authority, and is outlined in Figure 1 (below)<sup>2</sup>. Steps 1 to 3 are covered in this document and will inform the policy approach of the Local Plan (Steps 4 & 5).

**Figure 1: Approach to Identifying Mineral Safeguarding Areas**



#### STEP 1: IDENTIFY THE BEST GEOLOGICAL AND MINERAL RESOURCE INFORMATION

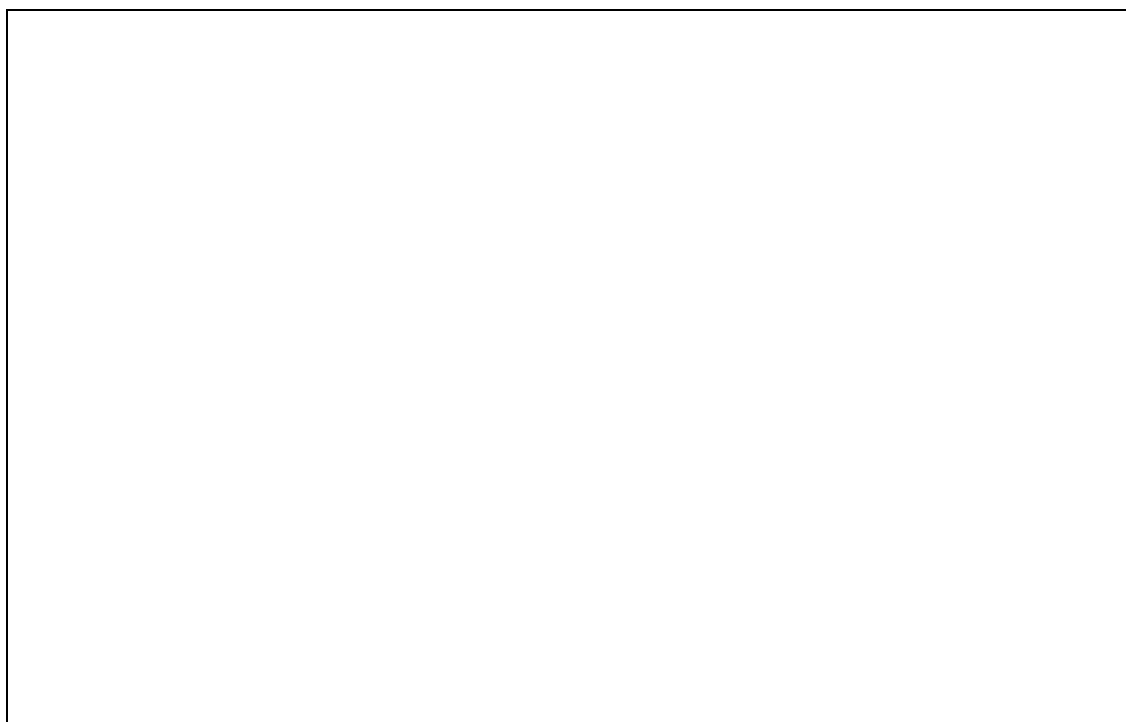
- 4.2 Geological and mineral resource information can come from a variety of sources. The starting point is the mineral resource information produced by the British Geological Survey (BGS). These have been produced on a county-wide basis for England as well as for parts of Wales and Central Scotland, and are

<sup>2</sup> The BGS methodology is made of seven stages. Step 6 seeks the inclusion of mineral safeguarding in District council plans in the form of Mineral Consultation Areas (MCAs), and only relates to those areas with two tier Local Government arrangements. As North Lincolnshire Council is a unitary authority step 6 does not apply here. However, MSAs will be included on the Policies Map

designed to specifically support the planning system. These maps show those mineral deposits that the BGS consider to be potential resources.

- 4.3 North Lincolnshire is featured on the map covering the former county of Humberside<sup>3</sup>. It shows that North Lincolnshire has a range of minerals resources as described in section 3, above. The council has used this mapping (together with any updates) and the accompanying report as the starting point for identifying resources.
- 4.4 The minerals industry is also a key source of information. They are best placed to advise which mineral resources are likely to be of economic potential and where the best locations for their extraction are. They may also possess information not held by the BGS such as exploration data including shallow borehole information and trial pit investigations. If minerals operations occur in areas not identified as resources by the BGS, discussions with industry could assist in determining whether or not the minerals being extracted are important to North Lincolnshire, and the extent of the resource to be safeguarded. The industry will be involved throughout the process of identifying Mineral Safeguarding Areas and developing the North Lincolnshire Local Plan (2020 to 2038).
- 4.5 As highlighted in section 3, the BGS mapping shows that much of North Lincolnshire is underlain by a range of minerals resources. These include sand and gravel, silica sand, limestone, chalk, brick clay and peat. There are also deposits of ironstone and hydrocarbons. Appendix 1 provides a detailed overview of each mineral.

**Figure 2: Mineral Resources in North Lincolnshire**



## **STEP 2: DECIDE WHICH MINERAL RESOURCES TO SAFEGUARD AND THE PHYSICAL EXTENT OF MSAS**

- 4.6 The information gathered during stage 1 will provide the basis for any decisions about which minerals should be safeguarded. This will be used to put together resource maps for North Lincolnshire. Best practice is for entire resources to be included within MSAs. Ideally these resources should not be affected by other planning considerations. In some cases, it may not be practical to identify all mineral reserves/resources as MSAs. For example the identified resource may be too small to justify extraction

<sup>3</sup> [Mineral Resources Information in Support of National, Regional & Local Planning – Humberside \(comprising East Riding of Yorkshire, North Lincolnshire, North East Lincolnshire and City of Kingston upon Hull\), Commissioned Report CR/04/227N, BGS & ODPM \(2005\)](#)

or it may not be of economic importance. In addition, the resource may already be sterilised by development.

- 4.7 The BGS advises mineral planning authorities to consider which of the mineral deposits in their areas are or may become of economic importance in the foreseeable future. Having identified those minerals which are economically important to North Lincolnshire, the BGS advises authorities to identify the extent the resource area to be safeguarded. The extent of any such area will depend on the extent and configuration of the mineral deposit. It will also depend how it is refined through discussion with the minerals industry and key stakeholders as the Local Plan develops, as they often have the best local knowledge about the quality and viability of working local geological formations.
- 4.8 The second stage in the process of defining MSAs and their extent is to examine those issues and constraints that could affect them. It is suggested that the following also be taken into account in determining which resources to safeguard and the extent of MSAs:
- settlements
  - appropriate safeguarding buffer zones
  - transport and processing infrastructure
  - new allocation proposals for other land uses such as housing and employment
  - sensitive environmental areas; and
  - previously worked areas and current operations and planning permissions.

#### **Defining Settlements**

- 4.9 The Government's Planning Practice guidance highlights that it mineral safeguard should extend to designated areas and urban areas, where it is necessary to do so. This it is considered can allow for the suitable use of minerals underlying regeneration projects on previously developed land and land stabilisation to take place (where needed) before non-mineral development occurs. This is known as prior extraction. It is likely that this would only apply to larger sites or those where it is economically viable for prior extraction to occur. Therefore, it is important identify the locations of development and built up areas.
- 4.10 The latest Ordnance Mapping base mapping will be use as part of this process, whilst the extent of key development areas and settlements will be defined using the emerging site allocations and settlement development limits. This means that all the full extent of mineral resources will be safeguard, irrespective of any existing development being present.
- 4.11 The Local Plan will set out a policy approach to mineral safeguarding including giving consideration as to how minerals could be extracted before non-minerals development can take place. These relate the necessity of undertaking prior extraction and ability to extract the mineral without impacting on the wider environment. Under the policy it is proposed that domestic, small scale or temporary development would be exempt.

#### **Minerals Safeguarding Area - Buffers**

- 4.12 In many cases, development immediately adjacent or on the edge of an MSA could result in the potential to sterilise a resource. In addition, there may be geological anomalies that need to be considered. To address this, best practice has been to define proximal buffers around MSAs. Discussions with the minerals industry and key stakeholders, highlighted that this is accepted as standard practice, but is one that needs to be clearly explained to wider community. Therefore, it is proposed that the proximal buffer zones will be applied to MSAs in North Lincolnshire:
- Sand & Gravel: 250m
  - Crushed Rock (Chalk & Limestone): 500m

#### **Building Stone**

- 4.13 Another consideration that needs to be taken into account when examining the issue of safeguarding mineral resources is building and roofing stone. The National Planning Policy Framework requires MPAs

to consider of small scale building and roofing stone sources, including their need for the repair of heritage assets. Historically, North Lincolnshire has produced a variety of building stone for local use, although many of the historic buildings in the area from stones imported for adjacent areas.

- 4.14 The oldest rock used for this purpose is the grey/green to orange/brown, shelly, ooidal ironstones of the Frodingham Ironstone Member (Lower Jurassic) used in the Scunthorpe area. Dating from the Middle Jurassic period, the buff coloured, oolitic and shelly limestones of the Lincolnshire Limestone Formation have been used locally with quarries located between Winteringham, Hibaldstow and Kirton in Lindsey. Upper Cretaceous Chalk has also been used across its outcrop, particularly in the Horkstow and Thornton Curtis areas.
- 4.15 Historic England's (previously English Heritage) Strategic Stone Study (2004) identified five quarries in North Lincolnshire that have previously supplied stone to maintain and repair historic buildings within the area. Of the five quarries, only one remains in operation. They are:
- Bonby Lodge Stone Pit - this former quarry previously produced Welton chalk for use in the local area. The site appears to have regenerated to a mixture of rough grassland and trees.
  - Manor Farm Stone Pit – this former quarry previously produced Welton chalk for use in the local area. It is now used for agriculture.
  - Worlaby – this former quarry previously produced Welton chalk for use in the local area and is now part of a farm complex
  - Hibaldstow – is a former limestone adjacent to the village of Hibaldstow. It now consists of agricultural land.
  - Slate House – is an operational limestone quarry located to the south west of Hibaldstow. It was disused for a number of years prior to be re-opened in 2008/2009. It currently produces all grades of both Yellow and Blue limestone as well as other products such as walling stone and Gabion basket stone. It has produced recycled aggregates.
- 4.16 Information is not available to determine the planning history of the four disused stone quarries, suggest that they pre-date the planning system. At this stage, it is not proposed to identify them on the Local Plan policies/minerals safeguarding mapping. Slate House Quarry will be identified on the Policies Map as an existing site. Should further information come to light regarding the planning status on the disused sites, they will be considered for addition to the Policies Map.

### Minerals Infrastructure

- 4.17 In addition to safeguarding mineral resources, national policy (NPPF, paragraph 143) seeks requires Local Plans to safeguard existing or potential infrastructure support facilities used for transport, storage, handling and processing of minerals. This could include canal or river wharves, railway sidings, concrete batching plants, coating plants, facilities for processing aggregates.
- 4.18 North Lincolnshire has a number of port and wharf facilities; however none of these are known to handle aggregates. Similarly, there are a number of rail sidings associated with the Humber Ports and Scunthorpe steelworks as well as the former marshalling yard in Scunthorpe. None are known to handle any aggregates.
- 4.19 Minerals infrastructure in North Lincolnshire consists of:
- Asphalt Plant (Tarmac), Dawes Lane, Santon
  - Concrete Plant (Cemex), East Common Lane, Scunthorpe
  - Concrete Plant (Breedon Group), The Flarepath, Elsham Wold Industrial Estate
  - Concrete Plant (Tarmac Ltd), Warren Road, Scunthorpe
  - Processing/Manufacturing Plant (Cemex), Cement Works, Sluice Road, South Ferriby



- Processing/Manufacturing Plant (Singleton Birch), Lime Works, Melton Ross
- Ready Mix Concrete Plant (Lincs Minimix), Woodhouse Road, Scunthorpe
- Recycled Aggregate Processing Plant (Brianplant), Manton Quarry
- Recycled Aggregate Processing Plant (R&E Aggregates), Colin Road, Scunthorpe
- Recycled Aggregate Processing Plant (SPB Ltd), Hoylake Road, Scunthorpe
- Recycled Aggregate Processing Plant (Stoneledge [Southbank] Ltd), Elsham Wold
- Recycled Aggregate Processing Plant (Welton Aggregates), Hibaldstow Quarry
- Recycled Aggregate Processing Plant (Welton Aggregates), Kirton Quarry

4.20 Some of these form part of existing extraction sites (Manton, Hibaldstow and Kirton), whilst the Lime works at Melton Ross is immediate adjacent to the Melton Ross quarry complex. Existing mineral workings will be identified on the Policies Map, therefore it is proposed not to identify them separately. All other infrastructure, listed above, will be identified on the Policies Map.

**STEP 3: UNDERTAKE CONSULTATION ON DRAFT MSAS**

4.21 Consultation and community/stakeholder involvement is a cornerstone of the planning system. In relation to minerals safeguarding, the minerals that the council is proposing to safeguard and the draft Mineral Safeguarding Areas themselves need to be subject to specialist consultation. Of particular importance is the need to involve the minerals industry alongside other key stakeholders such as Historic England, Natural England, the Environment Agency, British Geological Survey and adjoining mineral planning authorities. Consultation on proposed MSAs will take place through the Preferred Options version of the emerging Local Plan.

4.22 The profiles in Appendix 1 sets those factors that have been considered in determining which mineral resources will be safeguarded in the Local Plan. MSAs will be shown on the Local Plan Policies Map.

**STEP 4: DECIDE ON THE APPROACH TO SAFEGUARDING IN THE LOCAL PLAN**

4.23 The North Lincolnshire Local Plan (2020 to 2038) will set the planning policy framework for the definition of Mineral Safeguarding Areas. The approach will be developed by working closely with the minerals industry and through consultation. It will set out those mineral resources which will be safeguarded and the circumstances under which development in MSAs will be allowed (see Step 5, below).

**STEP 5: INCLUDE DEVELOPMENT MANAGEMENT POLICIES IN THE LOCAL PLAN**

4.24 Defining MSAs will not by themselves safeguard mineral resources. To ensure that the safeguarding process is effective is also relies on developing criteria against which proposals for development in MSAs can be considered.

4.25 For example, such policies could set out the circumstances under which non-mineral development will be allowed to take place within MSAs, where it would not lead to sterilisation of a mineral resource. They could include exemption criteria. This could be useful in reducing the number of planning applications that need to be considered in urban areas where most are small scale householder applications. All identified MSAs will be defined on the Policies Map as part of the development of the North Lincolnshire Local Plan (2020 to 2038). They will be linked to policies within the Local Plan.

**STEP 6: INCLUDE MINERAL ASSESSMENTS IN THE LOCAL LIST OF INFORMATION REQUIREMENTS**

4.26 It is important that mineral planning authorities, like North Lincolnshire, have the relevant information about mineral resources in their areas in order to assess planning applications in MSAs for non-minerals development. It is suggested that the need for a developer to provide a Minerals Assessment is included as part of the local list of information required with a planning application. This could speed up the process of determining the application. The BGS guidance provides a useful table setting the principles and criteria for the preparation of local information requirement lists and links this to mineral safeguarding issues.

4.27 It is proposed to set out in the Local Plan, the information required for a mineral resource assessment to accompany relevant planning application in Mineral Safeguarding Areas.

## 5 NEXT STEPS

- 5.1 This paper forms a starting point in the process of identifying and safeguarding those mineral resources that are or may be economically important in the North Lincolnshire Local Plan (2020 to 2038). It will be used as basis for engagement with the minerals industry and other key stakeholders, for example the Environment Agency, neighbouring mineral planning authorities and the British Geological Survey (BGS) as part of the evidence base for the Local Plan.
- 5.2 It is a “live” document that will be updated as the plan moves through the different stages of production and the approach to mineral safeguarding takes shape. In the end it will be used provide evidence to support and explain the policy approach set out in the Local Plan.

## 6 MORE INFORMATION

- 6.1 For more information about this paper, or the North Lincolnshire Local Plan (2020 to 2038) in general, please contact:

Place Planning & Housing	Tel: 01724 297573
Economy & Growth	
Business Development	E-mail: <a href="mailto:localplan@northlincs.gov.uk">localplan@northlincs.gov.uk</a>
North Lincolnshire Council	
Church Square House	
30 to 40 High Street	
Scunthorpe	
DN15 6NL	

## 7 USEFUL READING

- 7.1 The following documents and information sources have been used to inform the preparation of this paper:
- [Mineral Resources Information in Support of National, Regional & Local Planning – Humberside \(comprising East Riding of Yorkshire, North Lincolnshire, North East Lincolnshire and City of Kingston upon Hull\) \(2005\), BGS & ODPM](#)
  - [Mineral Safeguarding in England: Good Practice Advice \(2011\), BGS](#)
  - [National Planning Policy Framework \(July 2018\), MHCLG](#)
  - [Planning Practice Guidance \(March 2014 onwards\), MHCLG](#)
  - [Strategic Stone Study – A Building Stone Atlas of East Yorkshire and North & North East Lincolnshire \(2012\), BGS & Historic England](#)

## APPENDIX 1: MINERAL PROFILES

Mineral	Sand & Gravel
<p><b>Geology</b></p>	<p>Sands and gravels are defined on the basis of particle size rather than composition. In current commercial practice, following the introduction of new European standards from 1 January 2004, the term ‘gravel’ (or more correctly coarse aggregate) is used for general and concrete applications to define particles between 4 and 80 mm, and the term ‘sand’ for material that is finer than 4 mm, but coarser than 0.063 mm. For use in asphalt 2 mm is now the break point between coarse and fine aggregate. Most commercial sand and gravel is composed of particles that are rich in silica (quartz, quartzite and flint).</p> <p>Sands and gravel deposits in North Lincolnshire occur in lower lying areas mainly along the valleys of the River Trent and River Ancholme. Deposits are also present in parts of the Isle of Axholme, again following the paths of a number of rivers that can be altered to provide drainage for this area. It is also in the Winterton/Winteringham area and in patches to east of the Lincolnshire Wolds, mainly along the course of Skitter Beck.</p> <p>In North Lincolnshire these can be sub-divided into:</p> <ul style="list-style-type: none"> <li>• River Sand &amp; Gravel (Terrace &amp; Sub-alluvial deposits)</li> <li>• Glaciofluvial deposits</li> <li>• Glaciolacustrine deposits</li> <li>• Blown sand</li> </ul> <p><b>River Sand &amp; Gravel</b> deposits occur in both raised river terrace sequences flanking the modern-day floodplains and in flood plain terrace deposits associated with, and underlying, present day alluvium. The sequence is best developed in North Lincolnshire along the Rivers Trent, Ancholme and Eau. River terrace deposits are located to the upper reaches of the River Eau (south of Scunthorpe). The terrace deposits to the east of the Trent comprising mainly sand with a few scattered pebbles although some gravel is present at depth.</p> <p>Sub-alluvial gravels are encountered beneath the alluvium of the major valleys in the area, although the extent of the alluvium has been modified as a result of land management practices. The deposits rest on an irregular channeled surface. As such they are of varying thickness. 20m thick deposits are present in the area, particularly in the Trent and Ouse valleys, but on the whole tend to be thinner (generally less than 4m) and occur beneath thick overburden.</p> <p><b>Glaciofluvial</b> deposits are found in a dispersed pattern across North Lincolnshire. Between Winteringham and Winterton, glaciofluvial deposits form elongate ridges and mound on top of till and up to 7m of well sorted gravel, composed mainly of chalk with minor flint and sandstone pebbles. Other deposits can be found in the Isle of Axholme near Wroot, in the Ancholme Valley (south of Brigg), in the Barnetby and Wrawby areas and along the course of Skitter Beck.</p> <p>Glaciofluvial deposits, and terrace and sub-alluvial deposits are known to yield mainly sharp sand and gravel, and building sand suitable for a wide range of uses.</p> <p><b>Glaciolacustrine</b> deposits occur immediately to the west of the Lincolnshire Wolds running from the Humber Estuary towards the Barnetby and Brigg areas, and the boundary with Lincolnshire. Other deposits lies to the west of the River Ancholme near Hibaldstow and Redbourne, as well as in the Howsham area. These deposits were originally termed the “25 foot drift” as they lie at an average height of 25 foot drift above sea level, fill and conceal the former valleys and landscape. The deposits, which are found in part of the 22 foot drift, consist in most places of sand, fine grained (soft) and commonly silty and clayey. Thicknesses up to 10m are recorded but generally they are no more than 5m thick.</p>
<p><b>Use &amp; Present Workings</b></p>	<p>The sand and gravel extracted in North Lincolnshire is primarily used for the construction sector and is sold into the local market. Blown sand deposits (see below) have important industrial uses. Sand and gravel extraction takes place in two locations</p>

	<p>in the North Lincolnshire – Cove Farm (near Westwoodside) and Kettleby Parks Quarry (near Brigg). The Cove Farm site extracts blown sand, whilst Kettleby Parks extracts glaciolacustrine deposits.</p> <p>Silica sand is extracted at Eastfield Farm (near Winteringham) and Messingham for cement manufacturing and use in industrial applications.</p>
<b>Status/Importance</b>	<p>Ensuring a steady and adequate supply of aggregates and other minerals are essential for the national economy. Aggregates are essential for the construction industry in order to build the homes, offices, factories and infrastructure that are needed by society. This means that large quantities are required.</p> <p>A wide range of aggregate types, including sand and gravel, contribute to overall national supply. The exact requirements are dependent on demand and the broader economy.</p> <p>It needs to be noted that the distribution aggregate resources in the country is not evenly spread, due to geology, whilst the quality and properties of resources will affect potential end uses. This means that aggregates often need to be moved around the country to supply various markets.</p> <p>National planning policy on the provision of construction aggregates in England is set out in the National Planning Policy Framework, with additional guidance set out in the Planning Practice Guidance on minerals. The National and Regional Guidelines for Aggregates Provision in England 2005–2020 are also relevant. No indication is available as to whether they will be updated or not.</p> <p>River terrace and sub-alluvial river terrace deposits, as well as glaciofluvial deposits, have a limited history of working in the area, but nonetheless remain essential.</p> <p>It is noted that the most up to date BGS Mineral Resource Mapping no longer identifies glaciolacustrine deposits as being of regional importance. It must be noted one of North Lincolnshire’s two operational sand extraction sites – Kettleby Quarry, south east of Brigg – is located on this deposit. In addition, the site is also identified in Lincolnshire County Council’s Minerals and Waste Local Plan as a site allocation, for the portion within their area.</p> <p>These deposits may not necessarily be regionally important, however they do have some local significance, providing sand and gravel for the local market.</p>
<b>Safeguarding</b>	<p>It is proposed to safeguard all sand and gravel deposits defined on the BGS Mineral Resources mapping. This includes river terrace sub-alluvial, glaciofluvial and glaciolacustrine deposits.</p>

<b>Mineral</b>	<b>Blown Sand (Silica Sand)</b>
<b>Geology</b>	<p>Blown sand (Silica sand) contains a high proportion of silica in the form of quartz and relatively low levels of impurities compared with sands used as construction aggregates. It is used mainly as raw material for the glass and foundry casting industries but can have a wide range of other uses including ceramics and chemicals manufacture, firing and drying. Closely defined quality specifications are often required to meet particular end uses and relatively complex processing of the raw material may be required, with an associated high capital investment involved.</p>
<b>Use &amp; Present Workings</b>	<p>Silica sand production is based on the Blown Sands deposits dating from the Quaternary age around Messingham since the 1930’s mostly working the full thickness of sand of around 3.5m. However, current working removes the upper 2m of sand above the water table. The sand quarried in the Messingham area is mainly used for coloured glass manufacturing. It is also used for foundry sand. Other markets include horticultural sand and bagged sand for block paving.</p> <p>Blown sands have also been worked at Haxey for mortar sand production, in conjunction underlying river terrace deposits. Silica sand is also extracted near Winteringham, primarily for use in cement manufacture.</p>

<b>Status/Importance</b>	In the UK, silica sand deposits only occur in limited areas and quantities. This together with the specialist characteristic of its extraction, particularly processing costs, means that the industry is restricted to certain areas. Given its scarcity and uses, it is considered to be a mineral of national importance.
<b>Safeguarding</b>	It is proposed to safeguard blown sand (silica sand) resource as defined in the BGS Mineral Resource Mapping

Mineral	Limestone
<b>Geology</b>	Limestone is a sedimentary rock composed principally of calcium carbonate, occurring as the mineral calcite (CaCO <sub>3</sub> ). In North Lincolnshire, the limestone resource is the Lincolnshire Limestone Formation of Middle Jurassic age, which runs in a belt from East Yorkshire in the north to Northamptonshire in the south. Outcrops in the area occur particularly to the south and south east of Scunthorpe, running towards the boundary with Lincolnshire.
<b>Use &amp; Present Workings</b>	It is worked for crushed rock aggregate and building stone. Crushed Lincolnshire Limestone provides aggregates that are of relatively low strength and with poor resistance to frost damage. This lower quality has meant that it has generally been suitable for use as construction fill or as a sub base roadstone material. It is currently worked at three quarries within North Lincolnshire - Kirton Quarry, Manton Quarry and Slate House Farm (also known as Hibaldstow Quarry).
<b>Status/Importance</b>	North Lincolnshire's limestone deposits is an important element of the crushed rock aggregate supply. As highlighted above it is being extracted for range of uses including building stone.
<b>Safeguarding</b>	It is proposed to safeguard the full limestone resource as defined on the BGS Mineral Resource Mapping.

Mineral	Chalk
<b>Geology</b>	Chalk, which is a relatively soft, fine-grained, white limestone, dating from the Upper Cretaceous age is found extensively in eastern and southern England. It is an important resource of "limestone raw materials". In North Lincolnshire chalk is found in the Lincolnshire Wolds, which run north to south through area from the Humber Estuary to the Barnetby and Kirmington areas. Outside the area, the Wolds continue through the county of Lincolnshire. North of the Humber Estuary, they continue as the Yorkshire Wolds towards the Vale of Pickering and Flamborough Head. Chalk is the dominant bedrock in the area, is harder, and contains less moisture than the chalk found in southern England. The majority of the chalk found in this area is of a higher purity (i.e. it consists of more than 97% calcium carbonate). As the chalk slopes to the east towards the Humber Estuary, it becomes concealed under superficial deposits of sand and gravel.
<b>Use &amp; Present Workings</b>	Chalk is extracted for a range of industrial purposes such as lime production, steel manufacture, cement manufacture, chalk whitening and for constructional purposes as well as agricultural use. Its properties ensure that it is of value as an aggregate, albeit for less demanding applications such as fill and sub-base roadstone. Large-scale extraction takes place at Melton Ross and South Ferriby (Middlegate Lane). Melton Ross quarry is located adjacent to the Singleton Birch lime plant, whilst the South Ferriby Quarry serves the nearby Cemex cement manufacturing plant.
<b>Status/Importance</b>	North Lincolnshire's chalk resource is essential in supporting the cement and lime manufacturing industries as well as contributing to the overall supply of crushed rock. Historically, some chalk was extracted for building stone from a number of long, disused quarries.

<b>Safeguarding</b>	It is proposed to safeguard those chalk resources that are not marked as concealed together with concealed areas of higher purity chalk as shown on the BGS Mineral Resources Map.
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<b>Mineral</b>	<b>Brick Clay</b>
<b>Geology</b>	<p>Clay is very fine grained sedimentary rock, often associated with other types of deposits such as shale and sandstone. Both bedrock and superficial deposits may be used for brick clay purposes. Clay extracted in North Lincolnshire is used mainly in the manufacture of bricks and tiles. The suitability of clay for its intended afteruse depends on its physical and chemical properties, which determine how it responds to firing and drying.</p> <p>There are two clay resources in North Lincolnshire in the Isle of Axholme and along the Humber Estuary. The major resource is the Triassic Mercia Mudstone Group which is present in the Isle of Axholme. Along the Humber Estuary between South Ferriby and East Halton Skitter, clay is present in the form of alluvium and tidal flat deposits. The BGS resources map shows this in the vicinity of worked deposits. A significant amount of Upper Jurassic Ancholme Clay is extracted alongside chalk at South Ferriby (Middlegate Lane) for cement making.</p>
<b>Use &amp; Present Workings</b>	<p>Clay has traditionally been used for the manufacture of bricks and roof tiles. In the Isle of Axholme, the clay resource has been exploited on a large scale for brick making near Epworth (Low Melwood). Until the early 2000's a brickworks operated in the Belton area. Following its closure, smaller amounts of clay was transported to another facility in the North East of England. The Low Melwood site has ceased production a number of years ago.</p> <p>Of the clay present along the Humber Estuary, much of this used in the manufacture of roof tiles. Tile works are situated in this area, with a number of working and redundant clay pits.</p> <p>Upper Jurassic Ancholme Clay is extracted alongside chalk at South Ferriby (Middlegate Lane) for cement making. BGS estimate that around 300,000 tonnes of clay is needed every year to be mixed with the chalk to form the raw feed for the cement kilns at the nearby Cemex plant.</p>
<b>Status/Importance</b>	The clay resources in North Lincolnshire, particularly in the vicinity of the Humber Estuary provide material for the roof tile industry centred on the remaining tileworks at Barton upon Humber.
<b>Safeguarding</b>	It is proposed to safeguard brick clay resources as shown on the BGS Mineral Resource mapping.

<b>Mineral</b>	<b>Ironstone</b>
<b>Geology</b>	<p>Ironstone is a fine grained, heavy sedimentary rock that traditionally formed the basis of iron and steel making. It has been extracted in a number of areas within the East Midlands, in particular Northamptonshire and Lincolnshire, as well as North Lincolnshire.</p> <p>In North Lincolnshire, Frodingham Ironstone of the Lower Jurassic age was extracted on large scale in the Scunthorpe – West Halton area. It mainly consists of an iron-rich fossiliferous, oolitic lime-mudstone, which is around 9m in thickness. The ironstone is low grade (averaging 25% iron).</p>

<b>Use &amp; Present Workings</b>	<p>The discovery of Frodingham Ironstone in the 19th century led to the establishment of the local iron and steel industry. Extraction began in 1859 and was by both surface and underground mining. Extraction ceased in the late 1980's. The legacy of Ironstone extraction is a series of large excavations to the north and east of Scunthorpe (known as the Ironstone Gulleys), some of which have been used for leisure/recreational, nature conservation and waste management (landfill) purposes. The steel industry now imports all its requirements for iron ore. However, there are still significant deposits around Scunthorpe.</p> <p>English Heritage's (now Historic England) Strategic Stone Study (2004) highlighted that Frodingham Ironstone had historically been used for building purposes in the Scunthorpe area.</p>
<b>Status/Importance</b>	<p>Technological and economic changes within the UK iron and steel industry have led to the demise of the sedimentary ironstones as a source of iron ore and it is unlikely that the ironstones of the region will have any future commercial value. However, it is noted that there is a need to maintain a reserve should it be required in future.</p>
<b>Safeguarding</b>	<p>It is proposed to safeguard the ironstone resource to east and north east of the Scunthorpe Steelworks complex.</p>

<b>Mineral</b>	<b>Peat</b>
<b>Geology</b>	<p>Peat is an unconsolidated deposit of compressed plant remains formed in a water-saturated environment such as a bog or fen. Bogs occur in areas where inputs of water (almost exclusively from precipitation) have a low nutrient content and where rainfall is sufficient and drainage low enough to maintain the ground surface in a waterlogged condition.</p> <p>Many lowland raised bogs have been designated as sites of international and national conservation importance. 98% of peat in England is dug almost entirely for horticultural purposes, either as a growing medium, or as a soil improver.</p> <p>In North Lincolnshire, peat deposits occur in the Isle of Axholme and stretch into the Doncaster and East Riding of Yorkshire areas. Most working took place on Crowle Moors. This area is now a designated conservation area forming part of the Thorne Moor SPA &amp; SAC; Thorne Crowle and Goole Moors SSSI and Humberhead Peatlands NNR.</p>
<b>Use &amp; Present Workings</b>	<p>Peat extraction has now largely ceased with extraction only occurring as part of the restoration process. Natural England managed restoration programmes are now in place to return the land to its original raised bog status.</p> <p>Peat is a known geological resource which has been worked historically by hand by local people for fuel, and more recently by large companies for horticultural uses. Peat working has ceased in North Lincolnshire.</p>
<b>Status/Importance</b>	<p>These areas are now internationally protected as a 'biological reserve' so the extraction of peat is unlikely to be environmentally acceptable. As the site is afforded European protection for biodiversity the peat resource will likely remain unaffected by development.</p> <p>The working of peat is no longer ethically or environmentally acceptable. Paragraph 144 of the National Planning Policy Framework states local planning authorities should not grant planning permission for peat extraction. Thorne &amp; Hatfield Moors and Crowle Moors are being restored as active peat bogs and are internationally important sites for biodiversity.</p>
<b>Safeguarding</b>	<p>It is not proposed to safeguard peat resources in North Lincolnshire</p>

<b>Mineral</b>	<b>Coal</b>
<b>Geology</b>	<p>North Lincolnshire is underlain by coal deposits that extend eastwards from Doncaster area towards the Humber Estuary and North Sea. BGS mapping information shows that</p>

	these deposits lie between 1,500m below the surface in the west of the area gradually increasing in depth to around 2,100m below the surface in the east.
<b>Use &amp; Present Workings</b>	Coal was traditionally used in power generation and industry. However, its use has significantly declined. There is no history of deep coal mining in North Lincolnshire. The nearest mining activity was centred on the Doncaster, Selby and North Nottinghamshire areas. However, the last deep mines have now closed. Coal extraction needs to be in form of opencast mining.
<b>Status/Importance</b>	National policy as set out in the National Planning Policy Framework (NPPF) (paragraph 209), highlights that mineral planning authorities should indicate any areas where coal extraction and the disposal of colliery spoil may be acceptable. Support is also given for capturing and using methane from coal mines.  As mentioned above, despite being underlain by coal resources, there has been no history of coal mining in North Lincolnshire. As such, it is not considered a mineral of importance for the area.
<b>Safeguarding</b>	It is not proposed to safeguard coal resources in North Lincolnshire.

<b>Mineral</b>	<b>Hydrocarbons (Oil &amp; Gas)</b>
<b>Geology</b>	Oil and gas (also known as 'hydrocarbons') are primary sources of energy and have a vital role in the UK economy. Government policy is to ensure that the country has a secure and diverse supply of energy sources, including the use of indigenous hydrocarbons from conventional and unconventional sources. The majority of oil and gas in the UK originates off-shore, for example in the North Sea, however there some does come from on-shore extraction.  Conventional oil and gas are located in relatively porous rock formations such as limestone and sandstone. Unconventional oil and gas resources are found in fine-grained sedimentary rocks known as shales, and tend to be trapped at greater depths.  North Lincolnshire is located at the northern end of the East Midlands Oil Province, which has a long history on-shore oil extraction, in particular in Lincolnshire. Oil reserves have been found in the Scunthorpe, Broughton and Brigg areas.
<b>Use &amp; Present Workings</b>	Hydrocarbons (oil and gas) are central to the national economy as source of energy and underpinning many industries. The only area that has been worked is at Crosby Warren, where oil has been produced since the mid 1980's.  Other exploratory wells have been drilled since the mid 1940's, looking for conventional oil and gas as well as coalbed methane. These wells are now mostly plugged and abandoned. In the case of the coalbed methane wells, there has been no further activity since exploration took place.  Planning permission was granted at Lodge Farm near Wressle in June 2013 for a temporary well site for drilling an exploratory borehole and associated works. It is understood that these test were successful. However, subsequent applications to retain the well site for production have been refused.
<b>Status/Importance</b>	National energy policy is that oil and gas makes an essential contribution to the country's prosperity and quality of life. While renewable energy must form an increasing part of the national energy picture, oil and gas remain key elements of the energy system for years to come. There is also a commitment to maximising indigenous resources, subject to safety and environmental considerations.  This approach is carried through into planning policy. Hydrocarbons are identified as a mineral of local and national importance as they are required to meet society's needs. Paragraphs 209 of the National Planning Policy Framework identifies the provision of energy minerals is one of the strategic priorities, and requires planning authorities to plan positively for three stages involved in oil and gas development (exploration, appraisal and production).



	<p>Oil and gas extraction can only take place in areas covered by Petroleum, Exploration &amp; Development License (PEDL) areas. These are issued by the Oil &amp; Gas Authority (OGA), regulates the licensing of exploration and development of England’s onshore oil and gas resources. North Lincolnshire is covered/part covered by seven PEDLs.</p>
<p><b>Safeguarding</b></p>	<p>It is not proposed to safeguard hydrocarbons in North Lincolnshire. In line with national policy, the Local Plan will address the issues associated with oil and gas development via a criteria based policy or policies, including the three stages (exploration, appraisal and production). These will apply, along with other material considerations to proposals for conventional and unconventional oil and gas exploration, appraisal and development. PEDL areas and hydrocarbon extraction sites on the policies map. Proposals will be considered in licenced areas only.</p>