East Riding of Yorkshire and Kingston upon Hull

Joint Minerals Local Plan

2016 - 2033

Adopted - November 2019

EAST RIDING
OF YORKSHIRE COUNCIL

Hull
City Council

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1. Introduction

The Joint Minerals Local Plan (JMLP)

1.1 The Joint Minerals Local Plan (JMLP) for East Riding of Yorkshire and Kingston upon Hull has been prepared jointly by the two councils in their role as Mineral Planning Authorities (MPA). It sets out the vision, objectives, spatial approach, planning policies and allocations for mineral development within the Plan Area.

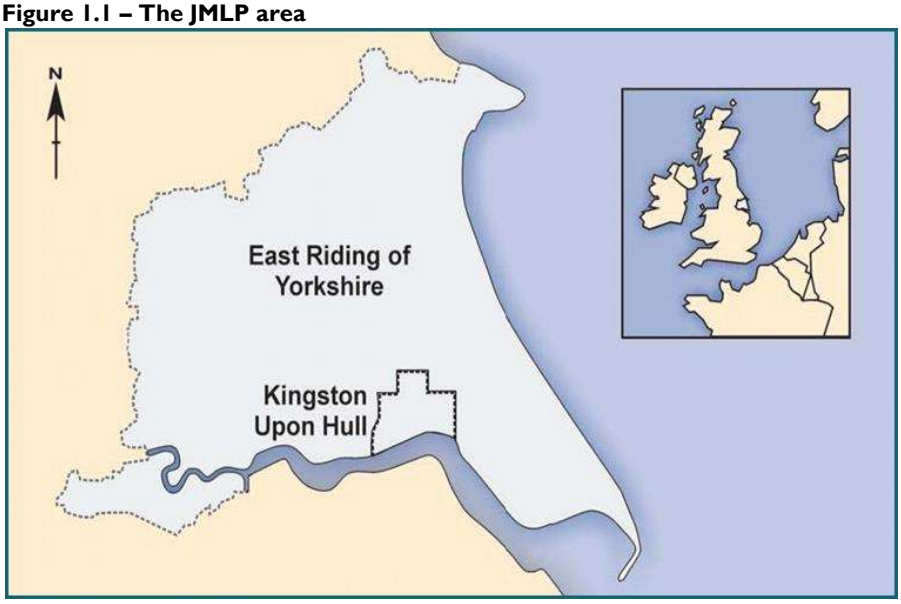
1.2 The JMLP addresses minerals specific issues, such as aggregates provision and oil and gas development. It aims to reconcile the objectives of safeguarding the environment and the amenity of local communities while meeting the need for minerals. Minerals must be worked in a planned way over time, in order to make optimum use of a finite resource.

1.3 At the time the Plan was prepared the prevailing national policy was contained in the National Planning Policy Framework (NPPF) issued in March 2012. In the same month as submitting the Plan for independent examination (in July 2018) a revised NPPF was published. Paragraph 214 of the revised NPPF clarified, however, that the policies in the previous Framework would apply for the purpose of examining this Plan. In addition the National Planning Practice Guidance, as existing at the time of the 2012 NPPF, has been the relevant guidance for the purpose of examining the Plan.

1.4 'Mineral development' applies to any development primarily involving the extraction, processing, storage, transportation or manufacture of minerals. Restoration and aftercare are also important stages of mineral development, whether phased over time or taking place on completion of extraction. The term 'mineral working' or 'mineral extraction' refers to the winning and working of minerals and ancillary development; for example processing plants, site offices and weighbridges. Mineral infrastructure, such as rail and wharf facilities for transporting minerals and concrete and asphalt plants, is also addressed.

1.5 The two MPAs will be referred to as 'the MPAs'. The area covered by the JMLP is shown in Figure 1.1 and will be referred to as the 'Plan area' throughout this document. The end date for the plan is 2033. The base date for minerals survey data is January 2017, this represents the start date of the plan.

Figure 1.1 – The JMLP area



The Plan-Making Process

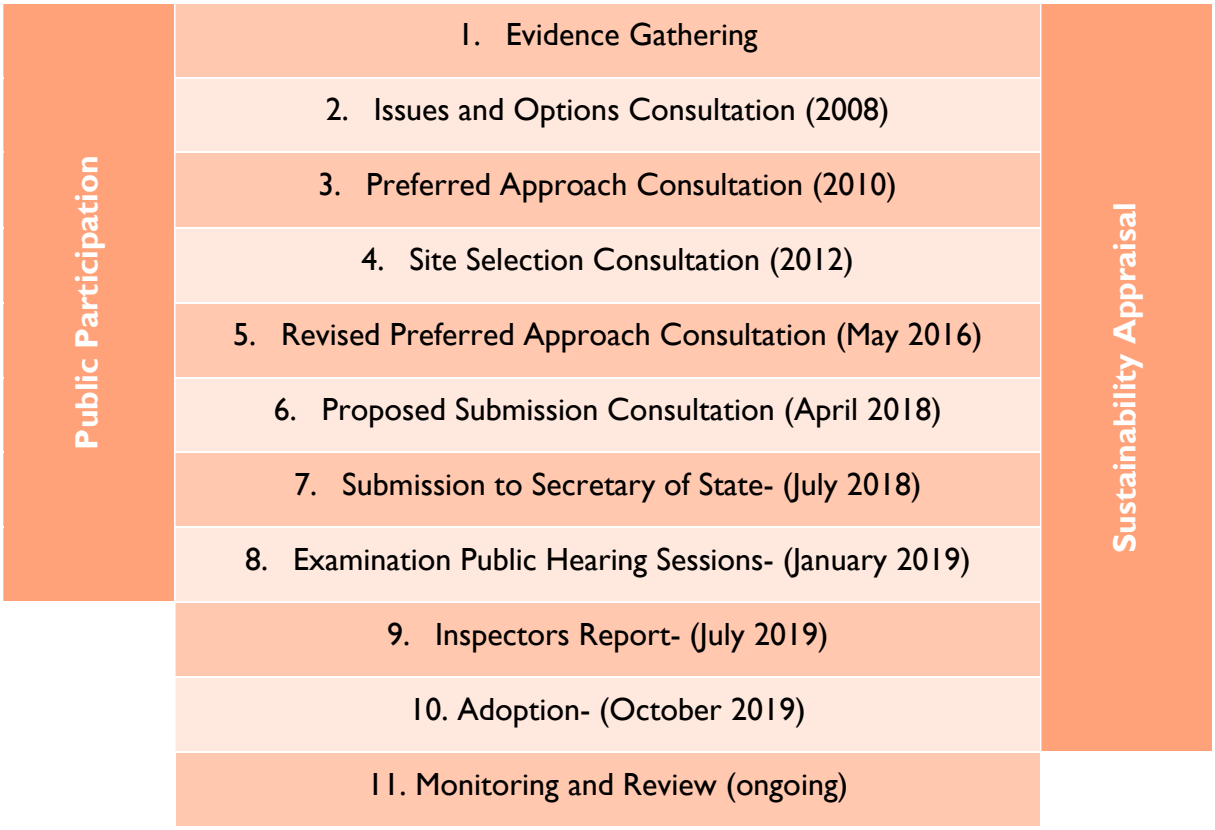
1.6 The plan making process has involved consultations with the local community, key stakeholders, minerals industry operators, and local partners at the different stages in its preparation. These consultation have been carried out in accordance with the MPAs' respective Statements of Community Involvement (SCI).

1.7 Earlier stages of preparing the JMLP are illustrated in Figure 1.2 and include:

- Issues and Options Consultation (June 2008) - This was the initial stage in the preparation of the plan and presented a number of issues and alternative options for consideration on future minerals supply and safeguarding.
- Preferred Approach Consultation (May 2010) - This document put forward draft policies and identified possible sites for future mineral extraction.
- Site Selection Consultation (January 2012) - This assessed the sites in the Preferred Approach together with further candidate sites that had been nominated for mineral extraction.
- Revised Preferred Approach Consultation (May 2016) - Following changes to the planning system for minerals development, this took into account; the introduction of Local Aggregates Assessments (LAA); the role of the Yorkshire and Humber Aggregates Working Party; joint working between the four Humber MPAs (including North and North East Lincolnshire Councils) and other organisations; and further candidate sites that had been nominated for mineral extraction.

1.8 The JMLP replaces the existing 'saved' Joint Minerals Local Plan policies, which were adopted in April 2004. Please note that the previous JMLP is referred to as 'JMLP 2004' throughout this document.

Figure 1.2 – Plan Preparation Process for the JMLP



National and Local Planning Context

1.9 The preparation of the JMLP has been undertaken in accordance with the following:

- **The National Planning Policy Framework** (2012) (NPPF) sets out a range of economic, environmental and social planning policies for England. These identify what sustainable development means in practice and how the planning system can contribute to its achievement. It is supported by a web based suite of national Planning Practice Guidance (PPG). The JMLP seeks to support sustainable development that will help meet the future needs of the Plan area in accordance with policies in the NPPF. This includes the requirement to prepare a Local Aggregates Assessment which is updated on an annual basis.

- The **Duty to Cooperate** - places a legal duty on local planning authorities, county councils in England and public bodies to engage constructively, actively and on an ongoing basis to maximise the effectiveness of Local and Marine Plan preparation in the context of strategic cross boundary matters. The MPAs have a relationship with a number of local authorities, public, voluntary and private

sector organisations. These bodies have been actively engaged throughout the preparation of the JMLP. It has included active engagement with the Yorkshire and Humber Aggregate Working Party, participation in the Annual Monitoring (AM) aggregate surveys, and commissioning a Marine Aggregates Study (January 2014). The Humber Area Local Aggregates Assessment and Aggregates Apportionment: Background paper for the Plan area has been produced jointly between the four Humber MPAs, which also include North and North East Lincolnshire Councils. These documents are available on East Riding of Yorkshire Council's website.

- The JMLP needs to have regard to the **Sustainable Community Strategies for both Kingston upon Hull and East Riding of Yorkshire**.

  The East Riding 2020 Partnership brings together organisations from across the public sector in the East Riding. The key objective is to improve the quality of life in the area and it works closely with other organisations, including the voluntary and community sector. In April 2016, it agreed a new five year Community Plan 2016-21 that focused on the following shared ambitions for the area:

  - Children and young people are happy, healthy, confident, safe and resilient, to reach their full potential
  - Older people enjoy a healthy, independent lifestyle
  - Communities are healthy, thriving, prosperous and safe
  - Regeneration transforms deprived areas and reduces health and other inequalities
  - We value and care for the diverse character of the area
  - The built and natural environment is protected through sustainable development and economic growth

  Within Hull, the private sector led City Leadership Board was launched in 2013. It works to develop and implement a City Plan by involving a wide range of partners from the public, private and voluntary and community sectors.

  The priorities of the City Plan are to make Hull:

  - A UK Energy City, making use of Hull's location on the Humber energy estuary to become a UK hub for new and emerging industries with a focus on renewable energy. Green Port Hull, including the development by Siemens of Europe's largest wind turbine manufacturing plant at Alexandra Dock is just the first step.

- A World Class Visitor Destination, as the city is a gateway to Yorkshire, the UK and to Europe. As UK City of Culture 2017 and through the wider Destination Hull capital programme of major cultural and transport infrastructure projects.

- A place of community & opportunity. As a place where everyone matters and where everyone is supported to achieve their very best. Including by ensuring people get the services they need; providing practical help and advice at times of hardship; and safeguarding the most vulnerable, by offering extra support where needed.

The JMLP has a role to play in implementing these Sustainable Community Strategies by providing for the necessary raw materials allowing for both housing and economic development, including supporting regeneration, cultural, and transport infrastructure and activities. At the same time, it needs to protect the built and natural environment.

Sustainability Appraisal and Habitats Regulations Assessment

1.10 Sustainability Appraisal (SA) and Habitats Regulations Assessment (HRA) screening took place at all relevant stages during plan preparation. This has ensured the plan is based on the most appropriate strategy having gone through an objective process of assessing impacts and alternative approaches. It also incorporates Strategic Environment Assessment (SEA). SA takes a long term view on the potential effects of the JMLP, accounting for the full range of environmental, social and economic effects, to promote positive outcomes and minimise any negative impacts.

1.11 Preparation of the SA Report involves several stages. It is a cyclical process, with outcomes from each stage being fed back into the various iterations of the JMLP.

1.12 A HRA Screening Report considers whether a project or plan is likely to have a significant effect on a European site of nature conservation interest. Should it find that there are likely significant effects on a European site, either alone or in combination; the project or plan must be subject to a full HRA under the Habitats Regulations, which will set out appropriate mitigation measures. A HRA Screening Report has been produced for the JMLP.

Humber Area LAA

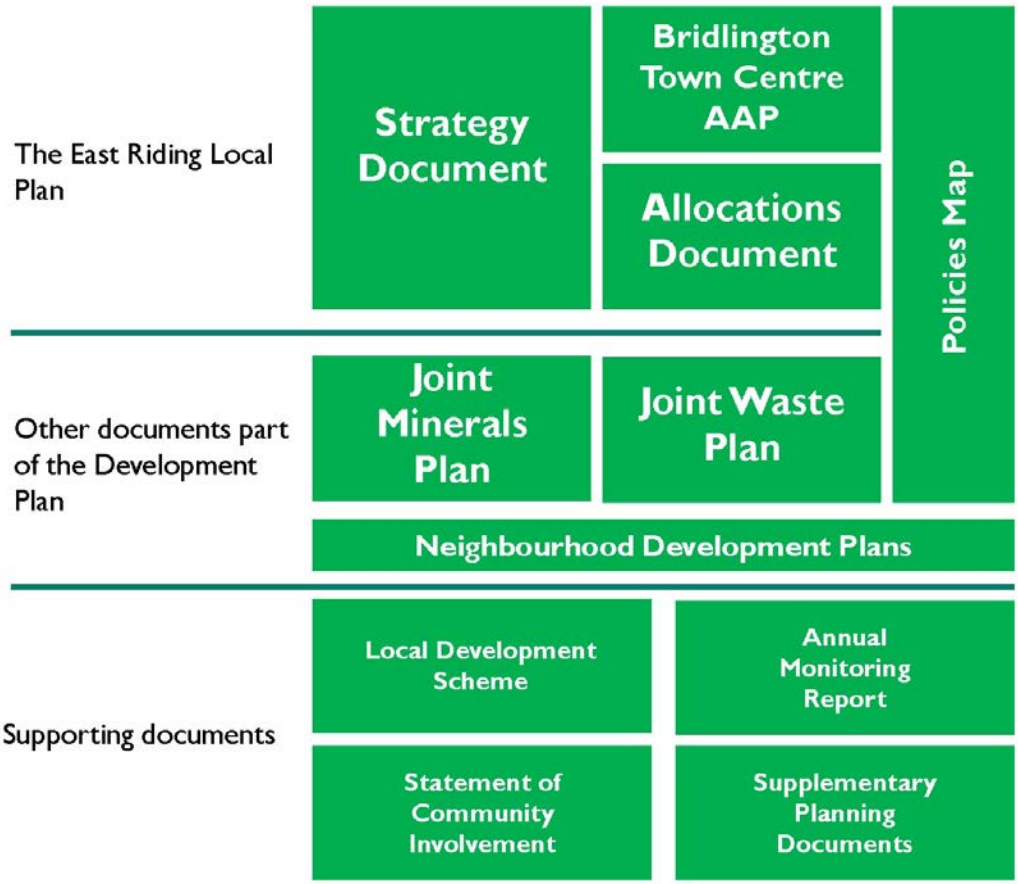
1.13 An LAA with 2015 data has been prepared providing an assessment of the demand for and supply of aggregates within Humber area. Its findings, alongside joint working between the four Humber Authorities to produce the Aggregates Apportionment: Background Paper (Update), are used to determine the quantity of aggregates to provide for within the Plan area.

Relationship with Other Planning Documents

1.14 When adopted, the JMLP will form part of the Statutory Development Plan for the area. The Statutory Development Plan is the collection of development plan documents (DPDs) produced by the two local planning authorities. Both East Riding of Yorkshire Council and Hull City Council have adopted Local Plans that cover other planning matters within their areas. Proposals for minerals development will need to consider relevant policies within these plans also.

1.15 The documents which comprise the development plan in East Riding of Yorkshire are illustrated in Figure 1.3, and in Hull in Figure 1.4.

Figure 1.3- The East Riding Development Plan Structure



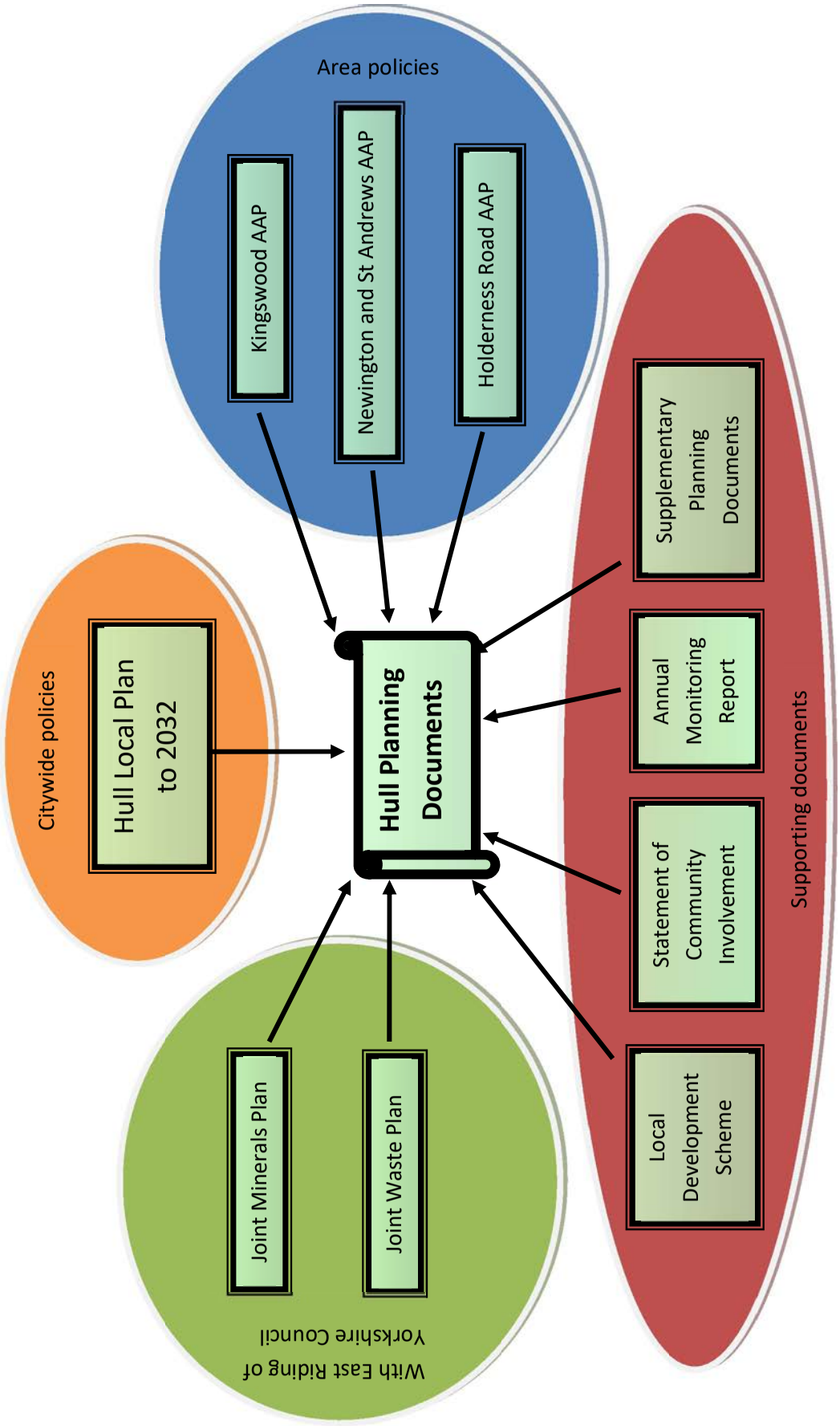


Figure 1.4–Hull City Council Development Plan Structure

1.16 A Joint Waste Local Plan being prepared by Hull City Council is addressing provision for recycled aggregates as part of its consideration of construction and demolition waste. The JMLP acknowledges the important contribution that recycled aggregates makes to the total supply of aggregates and to sustainable development, and addresses provision for recycling of aggregates on mineral sites.

Format and Content of this Document

1.17 Chapter 2 sets out the background and context of the Plan area, providing an overview of existing mineral resources and activities in the area as well as future need for mineral working.

1.18 Chapter 3 sets out the proposed Vision for Minerals within the Plan area, together with a set of objectives. It also promotes sustainable development in line with the NPPF and provides a description of the approach to mineral safeguarding, planning for the supply of minerals and minimising the impact of mineral development.

1.19 Chapter 4 (Aggregate Minerals) contains the proposed approach to safeguarding aggregate resources and securing provision for the future supply of aggregates.

1.20 Chapter 5 (Non Aggregate Minerals) sets out the proposed approach to safeguarding of non-aggregate mineral resources and the approach to the future supply of non-aggregate minerals.

1.21 Chapter 6 (Energy Minerals) sets out the proposed approach to managing Energy Minerals related developments.

1.22 Chapter 7 presents the proposed overarching Development Management (DM) Policies that will shape future minerals development in the Plan area. The DM policies address sustainability issues, and the impacts from development proposals. They will be relevant to applicants in the preparation of planning applications and to decision-makers in the consideration of such applications.

1.23 Chapter 8 sets out the Monitoring and Implementation strategy which outlines how the JMLP will be monitored and reviewed to ensure that its objectives are met.

2. Background

2.1 This section provides a spatial picture of the Plan area, its emerging development needs, geology and the current pattern of minerals working and supply. This forms the context for the spatial approach that will shape the future of mineral working and supply within the Plan area over the period to 2033.

A spatial portrait

2.2 The Plan area covers approximately 2,500km^2. The East Riding of Yorkshire is one of the largest Local Authority areas in England and has a varied topography. Much of the western area lies within the Vale of York and is flat and gently undulating in nature. The south-west corner, around Goole, forms the northern parts of the Ouse and Trent Levels, where the topography is regarded as extraordinarily flat. A central spine to the area is formed from the Yorkshire Wolds, which rise as a locally prominent escarpment. East of the Wolds, the land falls within the catchments of the River Hull and across to the coast. This broad shallow basin of Holderness is low-lying and undulating. The Humber Estuary forms the majority of the southern boundary to the area.

2.3 Physical features, such as rivers and the coast continue to have an important influence on how land is used. Significant parts of the area are low lying and vulnerable to tidal flooding from the Humber and/or from rivers and other watercourses. Parts of the Holderness coastline are the fastest eroding in Europe.

2.4 Over half a million people live in the Plan area and over 200,000 people work within it. The population is distributed across a wide range of settlements of various sizes. Over half live in Hull and the adjoining East Riding settlements of Anlaby/Willerby/Kirkella, Cottingham and Hessle. This represents the area's single largest urban area.

2.5 Almost a quarter of the population live in other larger towns in the East Riding, namely Beverley, Bridlington, Goole and Driffield. The rest is dispersed across a wide variety of smaller towns, villages and hamlets.

2.6 The Plan area's settlements vary considerably in character. Hull is one of the region's major cities with significant and varied residential, industrial and commercial areas. The historic core of the City reveals its strong maritime heritage. Towns such as Bridlington, Withernsea and Hornsea have a clear coastal influence, whilst the market town of Pocklington, Beverley and Driffield have a more rural association. Within and outside of these settlements there is a wealth of historic features, such as parks and gardens, manor house and farming estates, listed buildings, conservation areas, scheduled monuments and other sites of archaeological interest.

2.7 Road, rail and water links connect the area to the national motorway, rail and inland water networks. The Humber Estuary and Ports of Hull and Goole add an international dimension to these links. The Humber Bridge provides an important road link connecting the north and south banks of the Humber. However, it is notable that aggregate minerals are rarely transported across the Humber Bridge.

2.8 There are frequent public transport services on core routes within and between the main centres. In more remote and peripheral areas, reliance on private transport and community services increases. Traffic congestion within the City and in some of the larger towns at peak times is increasingly apparent.

2.9 Environmental diversity is evident through the area's range of natural features, wildlife and landscape. There are several internationally designated nature conservation areas, over 50 nationally designated Sites of Special Scientific Interest, three National Nature Reserves, and numerous locally designated sites. The Humber Estuary, Flamborough and Spurn coastline, Lower Derwent Valley, and Thorne and Hatfield Moors are particularly prominent in this respect.

2.10 A varied landscape character reflects the broad physical characteristics and features of the area, including the Yorkshire Wolds uplands, Holderness plain, Vale of York, Humberhead Levels, and Humber Estuary. Heritage Coasts reflect the contribution of the coast to the natural beauty of the area. Extensive areas of high quality agricultural land are important for food production. There are also important groundwater sources of water for public supply, industry and agriculture as well as sustaining the base flow of rivers.

Planned and Emerging Development Needs

2.11 The adopted Local Plans for the East Riding of Yorkshire and Hull set out the planning context for the Plan area. Most future development is focussed on Hull and the adjoining Major Haltemprice settlements[1] as well as in Principal Towns in the East Riding. Further development will take place in the smaller towns defined in Policy S3 of the East Riding Local Plan Strategy Document. Together, the authorities seek to provide around 2,000 net additional dwellings every year between 2012 and 2029. Further commercial and employment development is also planned to provide jobs and services for the area's economy.

2.12 Major transport infrastructure works that are proposed include:

- A grade separation improvement of the A63 Castle Street junction with Ferensway in Hull to improve access to the Port of Hull, relieve congestion and improve safety;

[1]Anlaby, Cottingham, Hessle, Kirk Ella, and Willerby

- Phases 2 and 3 of the Brough Relief road. Phase 3 will provide a connection between Phase 2 (bridging the railway) to the north and Saltgrounds Road/Skillings Lane.
- A164 Great Gutter Lane/Riplingham Road junction improvement. This involves the provision of two roundabouts to replace the Great Gutter Lane priority junctions with the A164 and Riplingham Road.
- A164/A1079 Jocks Lodge Interchange. Major redesign of the interchange at the early stages of planning with several options under consideration.

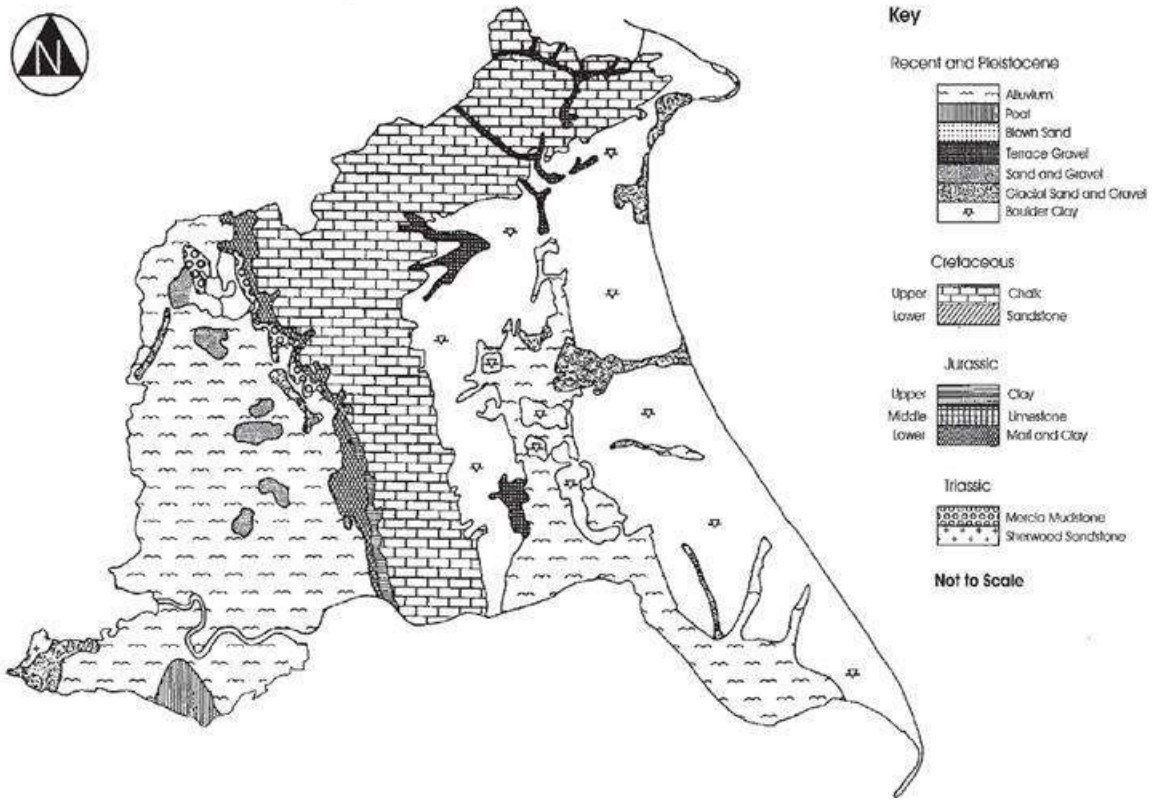
2.13 Major transport schemes have been completed which have eased freight movement. This includes the Beverley Integrated Transport Plan with a new southern relief road. Capacity improvements to the A164 (Humber Bridge to Beverley) including provision of duel carriageway sections and widening of several roundabouts.

2.14 Minerals are a finite resource and can only be worked where they naturally occur. The maintenance of a steady supply of minerals is important to this growth because it will enable the continued housing and economic growth and maintenance of the built environment and transport infrastructure. It is important that minerals are used in such a way that leaves sufficient supplies for the future, so that they play a continuing role in underpinning the growth of many sectors of the economy. The JMLP provides a framework to ensure a steady supply of minerals to meet requirements, whilst safeguarding important environmental assets.

Geology

2.15 The Plan area has significant deposits of a wide range of minerals, of which the most important are sand and gravel, chalk, clay, silica sand, salt and peat. There are also potential resources of oil, gas and coal. This section briefly describes the type, distribution and working of minerals within the area.

Figure 2.1 – Simplified Geology of the JMLP area



Solid Geology

2.16 Exposure of the solid (bedrock) geology underlying the area occurs in the upland areas of the Yorkshire Wolds. Elsewhere, extensive drift deposits (deposits of glacial origin) predominate.

2.17 Chalk of the Upper Cretaceous period underlies a significant part of the area. The chalk forms the northern extent of deposits that can be found in an arc running from southern England through East Anglia, and through the East Riding of Yorkshire, terminating in Flamborough Head. Workable chalk deposits are found in the Yorkshire Wolds.

2.18 West of the Wolds, lie two major areas underlain by much older rocks formed during the Triassic period. A band of Mercia Mudstone (formerly known as Keuper Marl) runs north to south between Stamford Bridge and Youlthorpe in the north, extending south beyond the Humber into North Lincolnshire.

2.19 The other Triassic formation comprises Sherwood Sandstone (formerly known as Bunter Sandstone). This is found in the remainder of the Plan area west of the Mercia Mudstone, and forms part of a larger deposit running parallel to, and east of, the Pennines.

2.20 Between the Triassic and Cretaceous formations lie a number of much narrower deposits formed during the Jurassic period. Together, these form a significant band running northwards from south of the Humber. As they extend north the bands narrow, with the majority terminating in the vicinity of Market Weighton. It leaves only the Lower Lias to continue in a north westerly direction following the western boundary of the Yorkshire Wolds. Other formations located within this band are, west to east, Middle Lias, Upper Lias, a significant band of Inferior Oolitic limestone lying east of Scunthorpe, Great Oolitic limestone and thin wedges of clay formations from the Middle and Upper Jurassic periods. The Trent Valley, the northern extreme of which lies within the Plan Area, mainly comprises a layer of Quaternary deposits underlain by the Mercia Mudstone described previously.

2.21 The solid geology of the Plan area also includes hydrocarbon deposits, comprising coal, oil and gas.

Drift Geology

2.22 Much of the solid geology is overlain by drift deposits which in some cases reach a depth of 30 metres. The main areas of drift are the alluvial and glacial deposits of the Vale of York, and the Holderness Plain which comprise extensive boulder clay and sand and gravel deposits. Alluvium is also found in the Trent Valley.

2.23 Parts of the area are covered by sand and/or gravel deposits. The most significant of these are glacial sands and gravels such as those found near Brandesburton and North Cave. However, not all of the deposits are economically workable.

2.24 Peat is found in large deposits in the western area of the Trent Valley and in the low lying areas in the vicinity of the River Ouse, on Goole Moors. In both cases these extensive deposits cross the East Riding boundary into Doncaster Metropolitan Borough and the North Lincolnshire Council area.

Mineral Resource Information

2.25 The British Geological Survey (BGS) was commissioned by the Government in 2003 to prepare information on the extent and nature of deposits that are of potential interest as mineral resources for all planning authorities in England. The information is contained in a series of reports and accompanying maps, available on the BGS website[2]. The information for the East Riding of Yorkshire and Hull is included in the report and map for Humberside, which also covers North Lincolnshire and North East Lincolnshire. Electronic updates of the map have been released subsequent to this.

[2] http://www.bgs.ac.uk/mineralsUK/planning/resource.html

Current Picture of the Minerals Industry

2.26 The diversity of the Plan area's geology has not only influenced the landscape and its patterns of settlement and land use, but has also resulted in the development of a wide range of quarries and mines that have exploited the underlying resources. These serve an important role in the economy, both locally and on a wider scale, in terms of their products and as employers.

2.27 The Plan area has been a significant producer of minerals for many years. Sand and gravel, chalk, and clay have been and continue to be extracted to meet society's needs. The extent of these deposits is shown in the simplified geological map (Figure 2.1).

2.28 In recent times the main aggregates produced in the area has been sharp sand and gravel (sourced from Glaciofluvial deposits), suitable for most types of concreting purposes, which is an important material for the construction industry. There are also deposits of soft sand (sourced from Glaciolacustrine deposits), suitable either as a fill material, or in limited circumstances as building sand for use in making mortar or plaster, or in asphalting.

2.29 Geologically sharp sand and gravel is a very recent deposit, dating from the end of the last ice age (c10,000 years ago). Sharp sand and gravel is predominantly found near to the coast. Soft sand is a much older deposit, dating from around 60 million years ago. In the Plan area it principally occurs to the west.

2.30 Chalk of the Upper Cretaceous period underlies a significant area. Workable chalk deposits are found in the Yorkshire Wolds. There are currently 10 active chalk quarries in the Plan area.

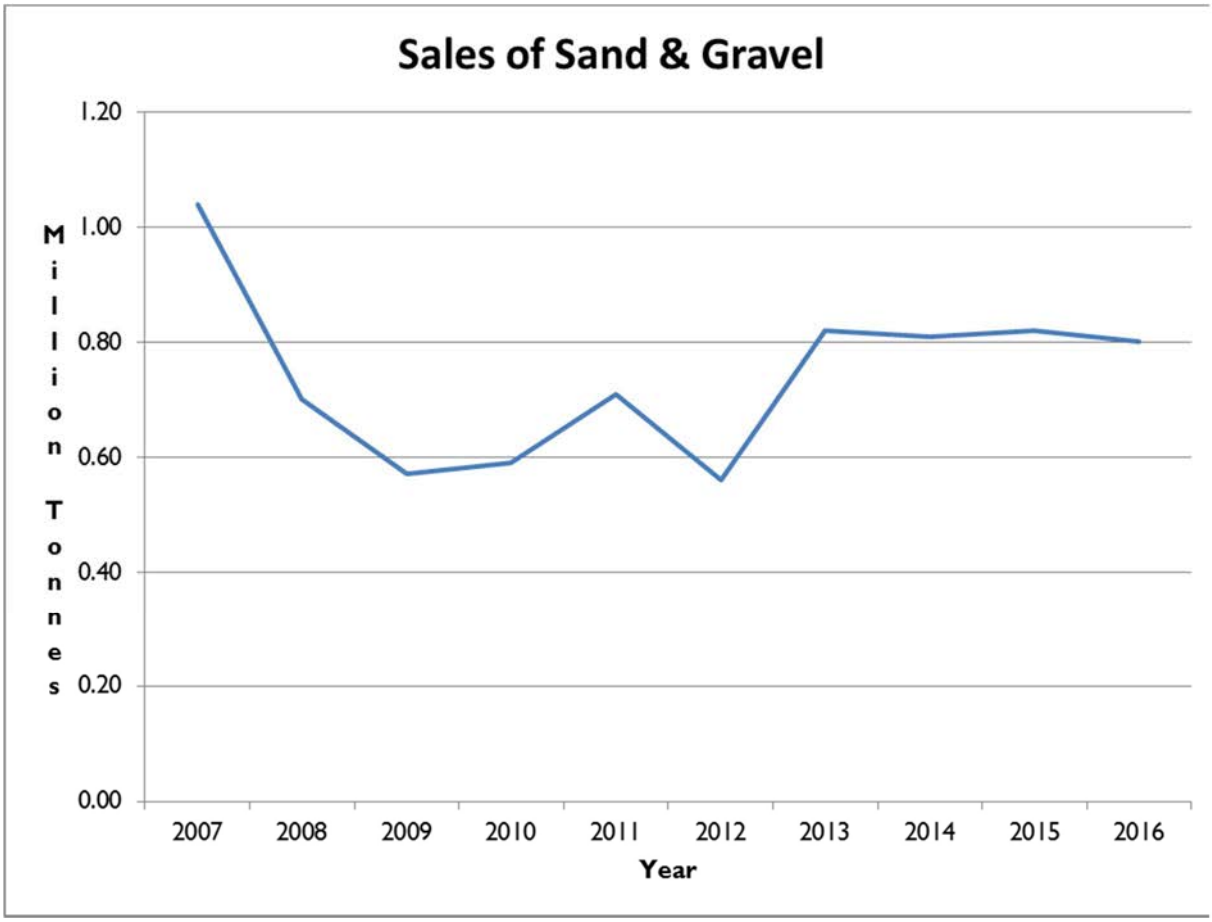
2.31 Current mineral working activity within the Plan area, including the minerals handling facilities in Hull, is described below.

Sand and Gravel

2.32 In 2016 there were six sites extracting sand and gravel. The most important areas for working in terms of the level of production are around Gransmoor, Brandesburton and North Cave.

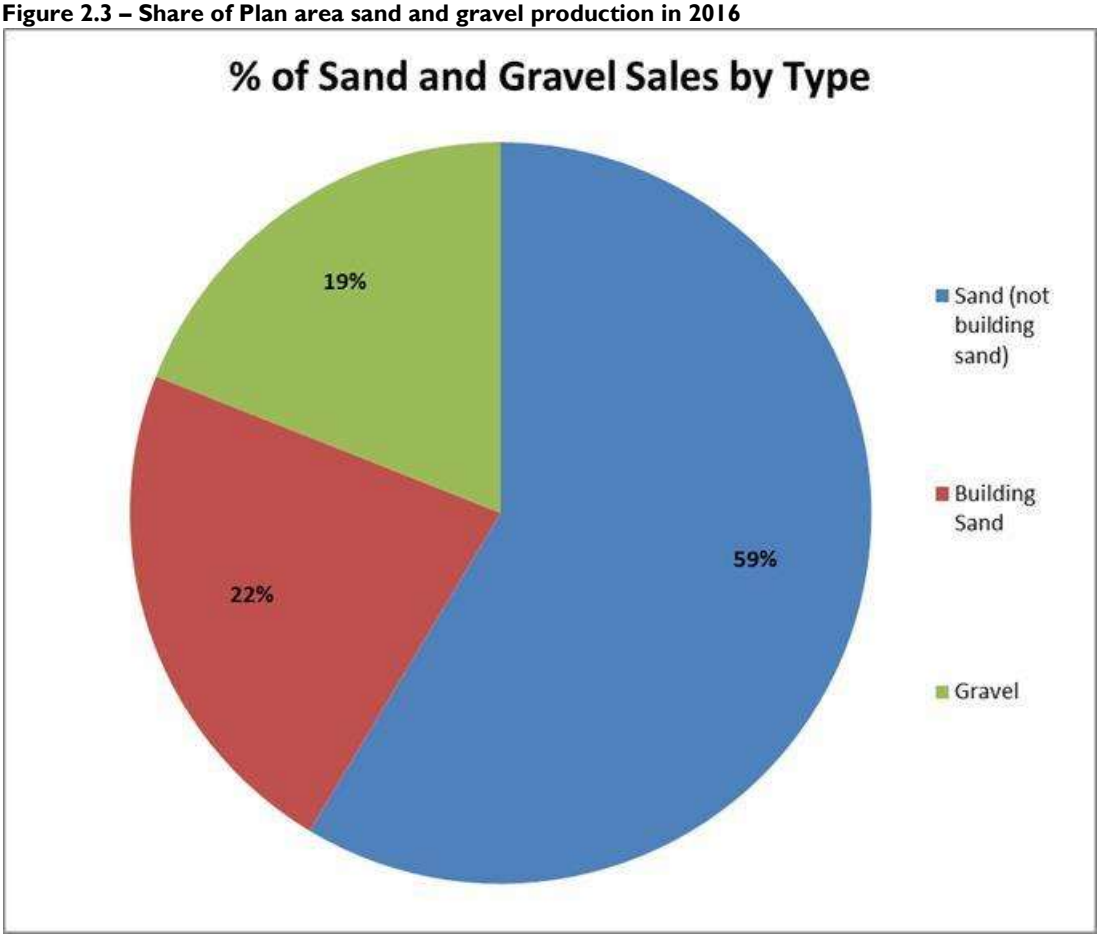
2.33 The overall level of sales of primary land won sand and gravel from 2007 to 2016 is shown in Figure 2.2. From a sales high of over 1 million tonnes in 2007, sales dipped to below 600,000 tonnes in 2009. Sales have remained relatively static averaging around 800,000 tonnes between 2013 and 2016.

Figure 2.2 – Sales of Sand and Gravel 2007-2016



2.34 In terms of the split in the sales between non-building sand (for example for use in concreting), building sand (for example used in mortar for bricklaying and fill), and gravel (for example road surfacing and concrete manufacture). The relative share of sales of these three types of materials in 2016 is shown in Figure 2.3. It can be seen that non-building sand made up the largest share of the sales in 2016 at around 60%. Gravel and building sand made up an equal share of the remaining sales.

Figure 2.3 – Share of Plan area sand and gravel production in 2016



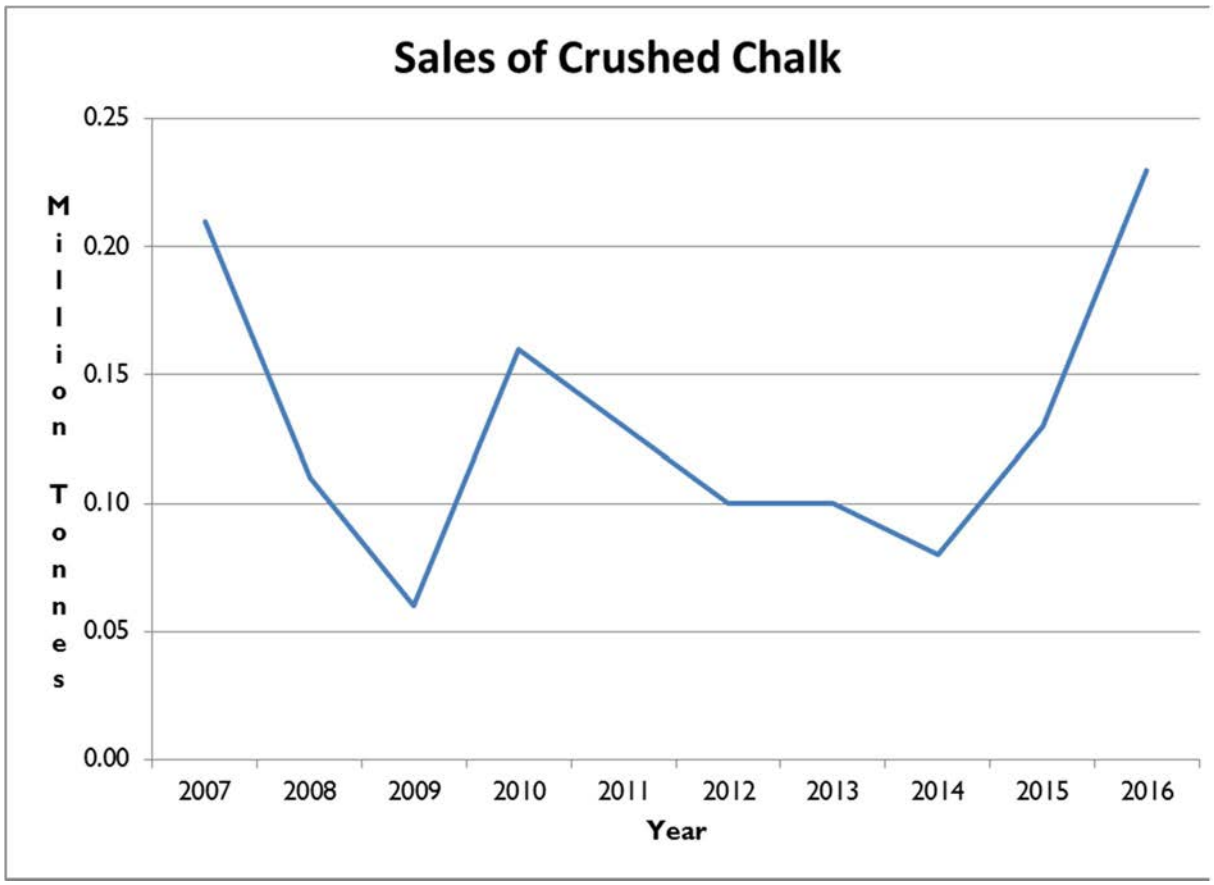
Chalk

2.35 In 2016 there were seven operational sites extracting chalk for aggregate uses within the Plan area. These sites are located in the Yorkshire Wolds, and are distributed from Riplingham and Swinescaif (South Cave), as north as Greenwick and Huggate, and Lowthorpe to the northeast of Driffield. As an aggregate, the use of much of the chalk won is limited due to its softness and susceptibility to frost. However, it is used as a bulk fill for new road schemes and in other developments where fill material is required.

2.36 In addition, there are higher quality chalk deposits worked at Lund, Melton, and Beverley where the mineral is quarried for a range of specialist uses. These include as a filler or extender in paper, in paint, adhesives, sealants and other industries.

2.37 Aggregate sales of chalk have been surveyed annually, as shown in Figure 2.4, between 2007 and 2016. Crushed rock sales fell steeply from about 350,000 tonnes per year in 2003 to around 100,000 tonnes between 2008 and 2015. Sales have increased significantly to over 200,000 tonnes in 2016.

Figure 2.4 – Plan area crushed rock production 2007-2016



Clay

2.38 Broomfleet is the main site where brick clay is extracted in the Plan area. Here the alluvial clays are used in brick and tile manufacturing at the clay works factory, which supplies bricks and tiles to a wide catchment beyond the Plan area. Planning permission was granted in 2010 for an extension to the clay extraction area at Broomfleet which is sufficient to supply the works for a further 50 years at current rates of extraction.

2.39 Elsewhere some clay is also extracted as a secondary mineral at sand and gravel quarries. This clay is used for engineering purposes, including for flood defence works along the Humber, and as a low permeability liner material for waste disposal sites. The increasing demand for clay for engineering purposes is a trend that seems likely to continue.

Peat

2.40 There is one site with planning permission for peat extraction in the Plan area, which is in the Goole Moors. Goole Moor has been the subject of a range of conservation designations reflecting its high ecological value. Following an agreement reached in April 2002 between The Scotts Company (UK) Limited (owner of the site and major peat extractor on the Moors) and Natural England, large areas of the Moors were

sold (both leasehold and freehold) to Natural England. This has enabled restrictions to peat working on the Moors to be put in place resulting in the protection and enhancement of these highly valued sites. Another site at Woodmansey is no longer active and has been developed for leisure purposes.

Marine Dredged Aggregates

2.41 The United Kingdom is second only to Japan in the production of marine aggregates. There are six main dredging areas off the coasts of England and the area off the Humber is one of the most important. The North Sea is shallow in this area, generally with a depth of less than 20m, and the sea bed comprises a mixture of gravels, sandy gravels and gravelly sands. Elsewhere there are sand banks. A number of dredging licences have been granted, and the BGS reports that there is potential for more.

2.42 The Plan area does not extend to the areas worked for marine aggregates; as it only extends to the low water mark. Instead, licences for dredging and other responsibilities are discharged by the Marine Management Organisation, which is established under the Marine and Coastal Access Act 2009. Local authority planning controls in relation to marine extraction are limited to the siting, environmental issues and some development aspects of the wharves where the minerals are unloaded. Within the Plan area these facilities are all in Hull.

2.43 Sales of marine sand have increased in recent years and this is now an important source of aggregate in the Plan area, particularly for Hull. This is discussed further within the aggregates section of the plan.

Oil and Gas

2.44 There have been a number of exploratory wells for oil and gas drilled over the last 40 years, and in the 1980s production commenced at Caythorpe west of Bridlington. The reserves here have now been worked out and electricity production is no longer supported by the weakening gas pressure at the site.

2.45 From knowledge of the solid geology it is reasonable to expect that further commercially viable deposits do exist. Much of this is, or has been in the past, covered by licences granted by the Oil and Gas Authority, which is an executive agency of the Department for Business, Energy and Industrial Strategy. The licenses confer exclusive rights to 'search and bore for and get' petroleum, effectively allowing companies to search for oil and gas. Further on-shore exploration licences have recently been awarded. In addition to on-shore and estuarine prospecting areas, there are extensive off-shore areas licensed for both exploration and production.

2.46 Imported gas is landed at a number of locations along the coast of the East Riding including a major pipeline at Easington which carries gas imported from Langeled, Norway. These pipelines are linked direct into the national pipeline grid, which is

currently being extended further inland. There are some pipelines associated with existing gas storage facilities at Atwick, Aldbrough, Easington and Caythorpe.

2.47 The oil and gas resources described above are obtained from sandstone or limestone and as such are referred to as 'conventional' sources. There are also 'unconventional' forms of gas which are obtained from other types of deposit. These include shale gas, which is a natural gas (predominantly methane) which is found in shale rock.

2.48 The process of gaining permission to extract 'unconventional' hydrocarbons, such as shale gas, are essentially the same as for conventional hydrocarbons. There are equivalent controls, involving licences, consultation with the Environment Agency and Coal Authority, planning controls, registration with the Health and Safety Executive (HSE) and permitting under the Environmental Permitting Regulations 2010.

2.49 Government policy, as set out in the NPPF, makes it clear that local planning authorities should assume pollution control regimes will operate effectively. Whilst these issues may be put before mineral planning authorities, they should not need to carry out their own assessment as they can rely on the assessment of other regulatory bodies. However, before granting planning permission the Council will need to be satisfied that these issues can or will be adequately addressed by taking advice from the relevant regulatory body.

2.50 The geology in the Plan area may be suitable for shale exploration but further work is required by the industry to establish whether this is commercially viable.

Coal

2.51 There is currently no coal working in the Plan area, but the Selby Coalfield in North Yorkshire extends right up to the East Riding of Yorkshire boundary along the River Derwent. Workable seams are known to continue under the river. There are further coal deposits under the area extending from Goole Moors in the south east to Goole in the north and Rawcliffe and Cowick in the west.

2.52 Mining of these deposits has now ceased in neighbouring authorities, but energy could still be obtained from the methane trapped in deep coal measures. The Oil and Gas Authority has awarded Petroleum, Exploration and Development Licences for an area which covers parts of Hull and East Riding of Yorkshire. These indicate that the geology may be suitable for exploration to determine whether extraction of the methane is commercially viable.

Historic Sources of Building and Roofing Stone

2.53 There are several former quarries in the Plan area which yielded building and roofing stone. This was used in the past for construction of buildings and other features, many of which are now recognised as being of historic interest. Most of these quarries ceased operating many years ago. In recognition of their potential importance in sourcing matching materials for the ongoing repair and maintenance of these buildings, English Heritage (now Historic England) commissioned the 'Strategic Stone Study'. This identifies for each county, the significant stone types used in the past, and their potential current sources.

2.54 Although none of the identified 'heritage quarries' are active, it is important to safeguard those that have not since been developed for other uses as there may be a future requirement for materials they provide.

- Boynton Quarry
- Brough Pits Quarry
- Everthorpe Quarry
- Sancton Quarry
- Brantingham
- North Newbald

Aggregate Imports and Exports

2.55 No single county or MPA area produces the profile of different types of aggregate in the exact amounts or proportions that they consume. Therefore, every area of the UK has to import and/or export aggregates. Where these movements cross a county boundary, they are tracked in the four yearly Aggregates Minerals (AM) surveys, the latest results of which are from 2014. The 2014 survey report is generally referred to as AM2014[3].

Aggregate Exports

2.56 Table 9h of AM2014 provides tonnage figures for the destinations of aggregates sold by individual MPAs or groups of MPAs. The East Riding of Yorkshire is listed with North Lincolnshire to maintain the commercial confidentiality of operators.

2.57 The table shows that of the sand and gravel sourced in the East Riding and North Lincolnshire, some 19% (119,000 tonnes) was consumed in the Humber area (East Yorkshire, North Lincolnshire, Hull, and North East Lincolnshire). It is not possible to break this figure down to show sales in the East Riding of Yorkshire area only, even though it is known that little sand and gravel crosses the Humber Bridge. Of the remaining sand and gravel sourced from this area, 72% (462,000 tonnes) was

[3] https://www.gov.uk/government/publications/aggregate-minerals-survey-for-england-and-wales-2014

exported to destinations in the rest of Yorkshire and the Humber, and 9% (58,000 tonnes) was exported to unspecified destinations elsewhere in the UK.

2.58 In terms of the crushed rock sold from East Yorkshire, the table shows that 51% was consumed in the Humber area and 49% consumed elsewhere outside of the Yorkshire and Humber Region.

2.59 Table 9h would usually show how much marine sand and gravel was landed at Hull. However, none was landed during 2014 as sand and gravel landing operations were in the process of being moved from Alexandra Dock to King George Dock allowing Siemens' offshore wind turbine manufacturing facility to move into the former.

Aggregate Imports and Total Consumption

2.60 The profile of imports and consumption of aggregates in the Humber area in 2014 is shown in Table 2.1.

Table 2.1 – Consumption of Primary Aggregates in the Humber area in 2014 (Thousand Tonnes)[4]

	Land-won sand and gravel	Marine sand and gravel	Total sand and gravel	Crushed rock	Total primary aggregates
Imports	305	0	305	700	1005
Consumption	424	0	424	724	1149
Consumption %	36.90%	0%	36.90%	63.01%	100%
Imports/Consumption %	71.93%	-	71.93%	96.69%	

Aggregate Sources

2.61 It is not possible to discern the sources of aggregate imported into the Humber area from the information in AM2014. However, the BGS has provided some further information about the sources of aggregates consumed in the Humber area in 2014 which are set out in Tables 2.2 and 2.3.

[4] AM2014 Tables 10 and 11

Table 2.2 – Sources of Sand and Gravel Consumed in the Humber area in 2014[5]

Source	Percentage of 424,000 tonnes consumed	Tonnage, where known (1,000t)
Nottinghamshire	30% - 40%	127 - 170
North Yorkshire	20% - 30%	85 - 127
East Yorkshire	20% - 30%	85 - 127
Lincolnshire	10% - 20%	42 – 85
Doncaster	Less than 1%	Less than 4
Sunderland	Less than 1%	Less than 4

2.62 Table 2.2 shows that in 2014 about a quarter of the sand and gravel consumed in the Humber area came from East Yorkshire and that about another 25% came from North Yorkshire. Of the remainder, the majority was imported from Nottinghamshire at around 35% and Lincolnshire at 15%. Given the recognition that aggregates are rarely transported across the Humber Bridge, it is unlikely that sand and gravel imported from the East Midlands area made it into the East Yorkshire area.

Table 2.3 – Sources of Crushed Rock consumed in the Humber area 2014[6]

Source	Percentage of 724,000 tonnes consumed	Tonnage, where known (1,000t)
Yorkshire Dales National Park	30% - 40%	217 - 290
Outside England and Wales	30% - 40%	217 - 290
North Yorkshire	10% - 20%	72 - 145
Derbyshire	1% - 10%	7 – 72
East Yorkshire	1% - 10%	7 – 72
Doncaster	1% - 10%	7 – 72
Numerous sources (Durham, Leeds, Northumberland National Park, Northumberland, Leicestershire, Peak District National Park, Powys, and Shropshire)	Less than 1%	Less than 7

[5] British Geological Society
[6] British Geological Society

2.63 It is clear from Table 2.3 that in 2014 about half of the crushed rock consumed in the Humber area came from the Yorkshire Dales National Park and North Yorkshire. The next most significant source was outside England and Wales, which could have included crushed rock from Scotland (Glensanda) and Norway. This was most likely landed at Hull. East Yorkshire, Doncaster and Derbyshire were the next most significant sources.

3. Vision and Objectives for Minerals Development

3.1 The vision for minerals development shapes the overall content and direction of the JMLP. It is an overarching statement which recognises the balance that must be struck in the Plan area between making provision for minerals developments to meet future requirements, whilst at the same time ensuring that such developments are socially and environmentally acceptable.

3.2 Future mineral extraction, processing and management in the Plan area must be based on the principles of sustainable development. The JMLP will strive to ensure that minerals are available at the right time and in the right locations to support levels of growth for new housing, commercial and industrial development, and essential infrastructure. The plan will seek to strike an appropriate balance between providing for future needs, conserving resources, providing local jobs, and protecting and improving the environment.

Vision for Minerals Development

Minerals development in East Riding of Yorkshire and Hull will seek to:

- respond to the needs of communities and the wider economy;
- safeguard important known locations of mineral resources;
- provide for the careful management of mineral resources;
- promote efficient use of materials;
- protect the environment and the living conditions of local communities; and
- mitigate and adapt to the expected impacts of climate change.

The supply of land-won minerals will be provided with the minimum of environmental damage, including that from transportation.

In the years to 2033, East Riding of Yorkshire will continue to supply minerals worked from its sand and gravel, chalk, and clay deposits. Mineral extraction and the restoration of quarries afterwards will be planned and undertaken in a way that maximises the contribution of minerals development to communities, the economy and the environment.

There will be an adequate and steady supply of aggregate mineral materials to meet the needs of the economy, in accordance with the Local Aggregate Assessment's findings. The spatial pattern of supply will reflect anticipated demand for the maintenance of existing development and for new development needs.

The plan will also address ongoing supply of industrial chalk and clay for existing works in accordance with National Planning Policy. Capacity for the recovery of recycled aggregates will be supported within existing active quarries where this will not increase impacts from the site or delay restoration.

The Plan will re-define the extent of potentially important known mineral deposits to be safeguarded from sterilisation by non-mineral surface development.

Capacity at rail facilities and at wharfs to meet requirements for the movement of minerals within the Plan area will be maintained.

The plan will help to facilitate the supply of local sources of building and roofing stone that have the potential to contribute towards the maintenance and enhancement of locally-distinctive buildings recognising the positive contribution of building and roofing stone to the character of a place and place-making.

Development associated with the exploration, appraisal and production of oil, gas and other energy minerals will be managed in line with the principles above.

3.3 In order to assist in the delivery of the Vision for Minerals Development and in delivering sustainable development, the following objectives provide a framework for the various policy themes and site allocations in this plan. The objectives are listed in no particular order and should be considered on an equal basis.

Joint Minerals Local Plan Objectives

1. Minimise the impact on environmental assets and local communities from all mineral working and associated activities by:
    a. identifying those sites least likely to have significant impacts upon the environment and amenities of local people; and
    b. providing clear guidance to mineral operators on making planning applications, and ensuring that minerals sites are restored to the highest standards of beneficial after use.
2. Help prevent the unnecessary sterilisation of sand and gravel, chalk, limestone, clay, silica sand and building and roofing stone mineral resources by non-mineral forms of development by refining the extent of Mineral Safeguarding Areas.
3. Maintain an adequate and steady supply of aggregates by identifying locations for extraction of aggregate minerals to maintain a landbank during and at the end of the Plan period in 2033.
4. Maintain an adequate and steady supply of aggregates by safeguarding facilities for the importation, handling, and processing of aggregates.
5. Minimise the demand for primary aggregates by encouraging the recycling of aggregate materials.
6. Maintain an adequate and steady supply of non-aggregate minerals from the Plan area, including industrial chalk and brick clay.
7. To contribute towards meeting energy needs by providing a robust local policy framework for making decisions about proposals for oil and gas extraction, storage and transportation, and for exploitation of coal, coal bed methane, and shale gas.
8. To enable the introduction of a robust monitoring system to monitor the effects of this plan.

3.4 East Riding of Yorkshire Council and Hull City Council have adopted general Local Plans in their roles as unitary authorities. These provide planning policy and guidance for other land uses such as housing, employment, the built and natural environment.

3.5 The objectives of the JMLP will be applied alongside objectives contained in the respective Local Plans for East Riding of Yorkshire and Hull.

Promoting Sustainable Development

3.6 The NPPF emphasises the importance of all minerals in supporting sustainable economic growth and people's quality of life. Sustainable development is the central pillar of the NPPF. This is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

3.7 It introduced the presumption in favour of sustainable development as a key principle in the planning system. For plan-making it means that:

- The MPAs should positively seek opportunities to meet the development needs of the area; and
- Local Plans should meet objectively assessed needs, with sufficient flexibility to adapt to rapid change.

The two exceptions to this are where:

- Any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies in the NPPF taken as a whole; or
- Specific policies in the NPPF indicate development should be restricted.

3.8 This JMLP has been written to meet the requirements of the NPPF, including the presumption in favour of sustainable development. The Plan's evidence base has been prepared in order to identify and help meet the needs of the Plan area. Policy S1 of the East Riding Local Plan also sets out how the presumption in favour of sustainable development will apply within the East Riding.

Developing Minerals Policies

3.9 The East Riding of Yorkshire has a wide range of mineral types, including aggregates, clay, building stone and industrial and energy minerals. Each mineral type comes with a different set of issues. Generally, in accordance with the NPPF, it is intended to safeguard valuable resources and maintain a sufficient supply unless this would result in unacceptable environmental impacts. Cross boundary mineral movements, recycled aggregates and marine dredged sand and gravel make an important contribution to a sustainable supply of minerals. These issues are addressed in the

following chapters, which consider the different minerals in turn and where relevant identify areas for future working.

Safeguarding

3.10 Government guidance is that minerals are a valuable but limited resource that can only be worked where they naturally occur. Safeguarding of viable or potentially viable mineral deposits from sterilisation by surface development, which would preclude their possible extraction at some future date, is an important component of sustainable development.

3.11 Mineral Safeguarding Areas (MSA) draw attention to the existence of the underlying mineral when proposals for surface development are being planned. This allows the existence of deposits of local or national importance to be adequately and effectively considered in land use planning decisions. Equivalent arrangements can be made for safeguarding rail depots and wharfs which provide capacity for handling imported minerals, most commonly aggregates, or for recycling, construction and demolition waste.

3.12 It is important to note that the safeguarding of mineral resources is not an indication that the resource will necessarily be worked at some time in the future. The safeguarding process is very much distinct from the identification of new locations for mineral working, which is described further below. It does not necessarily preclude other, non-mineral forms of development from taking place over or in close proximity to mineral resources or important facilities where it is deemed necessary.

3.13 However, safeguarding does provide a mechanism for ensuring that the importance of the minerals concerned can be balanced against the importance of the proposed development. Where the mineral is deemed of sufficient importance, either an alternative location needs to be found for the surface development, or, if practical, the mineral is extracted first.

3.14 East Riding Local Plan Strategy Document Policy EC6 (Protecting Mineral Resources) designates MSAs and sets out the overall approach to non-mineral development within them. The MSAs to which this policy applies are shown on the East Riding Local Plan Policies Map.

3.15 For sand and gravel, limestone, and silica sand, the safeguarding areas in the East Riding Local Plan are in line with the general extent of the resource, as shown on the British Geological Survey Map, and on significant existing operations. In the case of brick clay, crushed rock (chalk), and industrial chalk resources, the safeguarding areas are located around significant existing operations. Safeguarding areas are also identified for the general extent of the higher purity chalk and unconcealed lower quality chalk according to the British Geological Survey Map.

3.16 There are no safeguarding areas for coal, oil, and gas energy minerals. The depth of energy mineral bearing deposits in the Plan area and flexibility in the location of facilities for their extraction mean these do not need to be safeguarded.

3.17 Urban areas are excluded from the MSAs, but environmental designations, such as SSSIs, are included. The East Riding Local Plan Strategy Document recognises that, where necessary, the extent of the MSAs will be refined through the JMLP. Two main changes to the Mineral Safeguarding approach have been included through the JMLP which provide for:

- Safeguarding areas on top of areas proposed as an area of search or a preferred site minerals allocation; and
- The safeguarding of existing workings outside of a safeguarding area defined based on the general extent of the resource or a minerals allocation.

3.18 Proposed changes from the MSA shown on the adopted (2016) version of the East Riding Local Plan Policies Map can be found in Mineral Resource and Infrastructure Safeguarding Background Paper available alongside this Plan. The full extent of MSAs proposed through this Plan are shown on the Policies Map.

3.19 The JMLP also contains policies to safeguard marine and rail mineral transport facilities, and mineral infrastructure and facilities. The Mineral Resource and Infrastructure Safeguarding Background Paper contains further details on the Plan's approach.

3.20 Planning applications for non-mineral surface development within or adjacent to a MSA must address the provisions of East Riding Local Plan Strategy Document Policy EC6, which is set out below.

Figure 3.1 – Policy EC6 of the East Riding Local Plan Strategy Document

Policy EC6: Protecting mineral resources

A. Mineral Safeguarding Areas for sand and gravel, crushed rock, limestone, industrial chalk, clay and silica sand are identified on the Policies Map.

B. Within or adjacent to Mineral Safeguarding Areas, non-mineral development, which would adversely affect the viability of exploiting the underlying or adjacent deposit in the future, will only be supported where it can be demonstrated that the:

1. Underlying or adjacent mineral is of limited economic value;
2. Need for the development outweighs the need to safeguard the mineral deposit;
3. Non-mineral development can take place without preventing the mineral resource from being extracted in the future;
4. Non-mineral development is temporary in nature; or
5. The underlying or adjacent mineral deposit can be extracted prior to the non-mineral development proceeding, or prior extraction of the deposit is not possible.

3.21 Further guidance on the application of this policy is available by referring to the policy's supporting text within the Strategy Document.

3.22 This states that an assessment of the effect of the proposed development on the mineral resource beneath or adjacent to the site of the development (termed a Mineral Assessment) will normally be required. For many smaller proposals such as extensions to existing housing, this can be screened out as advised in para 7.79 of the Strategy Document. Where required, the assessment should seek to justify why the non-mineral surface development should proceed within or adjacent to a MSA. There are two levels of Mineral Assessments. The level of assessment should be decided in consultation with the MPA;

1. A site specific desk-based assessment of the existing surface and solid geological and mineral resource information. This may comprise information on the mining and quarrying history, mineral assessments and market appraisals, boreholes, site investigations, geological memoirs, technical reports, mining plans and the thickness of superficial geological deposits.

2. Analysis of the site specific information derived from Level 1 (carried out by a suitable qualified and competent person) including:

   - An estimate of the economic value (for example quantity and quality) of the mineral resource.

- Its potential for use in the forthcoming development and an assessment of whether it is feasible and viable to extract the mineral resource ahead of the development occurring to prevent unnecessary sterilisation.

- Where prior extraction can be undertaken, an explanation of how this will be carried out as part of the overall development scheme.

3.23 Further information about how the effectiveness of MSAs will be monitored is provided in Chapter 11 of the East Riding Local Plan Strategy Document in relation to Policy EC6.

Planning for the Supply of Mineral Resources

3.24 Minerals planning authorities are required to make provision for the future supply of certain minerals which occur within their areas. This includes identifying those locations where future mineral extraction is likely to be most acceptable. The NPPF provides guidance on the requirements for different types of mineral. The requirements for each mineral within the Plan area are addressed under the individual headings for these in Chapters 4 and 5 of the JMLP.

3.25 Provision for the future supply of minerals is done by defining areas for future mineral working. This can take the form of:

- **Specific Sites** where viable resources are known to exist, landowners are supportive of minerals development and the proposal is likely to be acceptable in planning terms.

- **Preferred Areas** where resources are known to exist and where planning permission might reasonably be anticipated.

- **Areas of Search** may be defined where there is less certainty about the mineral resource. These are generally broader areas within which planning permission for particular sites could be granted to meet any shortfall in supply should suitable applications be made.

3.26 Mineral site allocations have been identified through a site selection process. This sought to ensure that main settlements have access to sources of aggregate. These contribute to the supplies needed for use in maintaining existing development and building new development.

3.27 'Specific Site' allocations are not proposed through the JMLP. A lot of detailed site information and a high level of confidence is needed to identify these. However, sufficient information was not provided in any of the site nominations submitted for consideration as part of this plan. The selected sites are included in the aggregates policies in Chapter 4. Further details on site assessment and selection can be found in the Site Selection Background Paper available alongside this Plan.

3.28 It should be noted that the MPAs' role is to identify where mineral extraction is most likely to take place, and where planning permission might be anticipated. Having identified possible acceptable locations for mineral working, MPAs cannot dictate that acceptable applications are submitted to ensure the landbank remains topped up, or that the required level of production takes place. It needs to be recognised that the landbank can only be maintained if the industry comes forward with planning applications for acceptable proposals. The implementation of the Plan is therefore reliant on actions by the industry as well as by the authorities.

Minimising the Impact of Mineral Workings and Associated Development

3.29 It is recognised that extracting, processing, storing and transporting minerals can give rise to impacts on local communities and the environment. Therefore, it is necessary to ensure appropriate and adequate mitigation is in place to minimise these impacts. This would also need to recognise the positive contribution of minerals development, for example by providing needed facilities or resources, local employment and opportunities for local environmental enhancements. Development Management is the term given to the determination of planning applications, and this is the primary means whereby the impact of minerals related development is controlled.

3.30 Chapter 7 sets out a series of Development Management policies against which proposals for minerals extraction and related development will be assessed.

4. Aggregate Minerals

4.1 Aggregate minerals are defined as those used in the building and construction industries and are an essential resource for built development and other construction and infrastructure projects. This includes asphalt and other roadstone, concrete, building sand, gravels, rail ballast and fill materials.

4.2 Aggregates are derived from a variety of different sources.

- **Primary aggregates** are naturally occurring materials extracted from the ground. In the Plan area these comprise of sand and gravel, chalk, and limestone.
- **Secondary Aggregates** are derived from by-product wastes and synthetic materials. Examples are colliery spoil, furnace bottom ash and blast furnace slag.
- **Recycled aggregates** are derived from the crushing and other processing of waste materials arising from construction and demolition work.
- **Marine aggregates** include marine-dredged sand from the North Sea that is landed at Hull.

Spatial Approach for Aggregates

4.3 Aggregate minerals are a relatively low value and high bulk product that is not typically transported far except by rail or boat. They need to be widely available to the construction industry. Therefore the distribution of aggregate supply needs to reflect the existing and planned pattern of development as far as possible given geological constraints. In the Plan area the main focus for development is in and around the City of Hull and the adjacent Major Haltemprice Settlements in the East Riding. Development is also planned in each of the Principal Towns in the East Riding; Beverley, Bridlington, Driffield and Goole, and to a lesser extent a wider network of smaller Towns, Rural Service Centres and Primary Villages. The plan area also exports sand and gravel to destinations elsewhere in Yorkshire and the Humber area, and beyond.

4.4 The plan covers a wide geographical area. Therefore, the proposed spatial approach for aggregates seeks to achieve a dispersed supply and distribution pattern. It takes account of the various components of supply; primary aggregates, secondary aggregates, recycled and marine aggregates and reflects, as far as is possible, the existing settlement hierarchy and future spread of development in the Plan area. This means seeking to identify areas for mineral working within the vicinity of all major settlements in the Plan area subject to the availability of suitable geological resources and sites that landowners are willing to make available for minerals development. In addition, access to non-road forms of transporting aggregate minerals is desirable

wherever it is available. Where it is not available, then suitable access to the main highway network is required.

4.5 In the case of all minerals, including aggregates, any spatial strategy is constrained by the fact that minerals can only be worked where they naturally occur and some resources are already sterilised by other development. Therefore, the options for a spatial strategy for aggregate extraction and associated development are prescribed to a large extent by the geological distribution of aggregate resources.

4.6 The Plan area has access to supplies of marine sand and gravel as well as land won aggregates. Cross boundary mineral movements, recycled aggregates and marine dredged sand and gravel make an important contribution to a sustainable supply of minerals.

Sand and Gravel

Safeguarding

4.7 Sand and gravel deposits of potential economic interest in the Plan area are shown in Figure 4.1. They predominantly occur in the lower lying ground to the east and west of the Yorkshire Wolds. The area to the east of the Wolds contains mainly glaciofluvial deposits, which principally yield sharp sand and gravel suitable for concreting and other aggregate applications. West of the Wolds there is a larger deposit of glaciofluvial sand and gravel at Pocklington, with smaller patches further south.

4.8 In addition, the area west of the Wolds contains glaciolacustrine deposits of sand and gravel, although it becomes more patchy and dispersed further west. Glaciolacustrine deposits principally yield soft sand suitable either as a fill material, or in limited circumstances as building sand for use in making mortar or plaster, or in asphalting.

4.9 All sand and gravel deposits are of variable quality, and some are interbedded with clay, which can be used for lining landfill sites and in flood prevention works. In particular the quality of material in the glaciolacustrine deposits comprise predominantly laminated clay with only local patches of generally fine sand.

4.10 Although glaciolacustrine deposits were included on the original BGS Resource map and continue to be locally worked in specific locations, often coincidentally with clay, they are too fine grained for concreting aggregate and have lower resource potential. As a result, on a regional scale, these are no longer considered to constitute a sand and gravel resource and have been removed from the latest BGS data.

4.11 Mineral Safeguarding Areas (MSA) were included for this deposit through Policy EC6 of the East Riding Local Plan Strategy Document and are shown on the Policies Map.

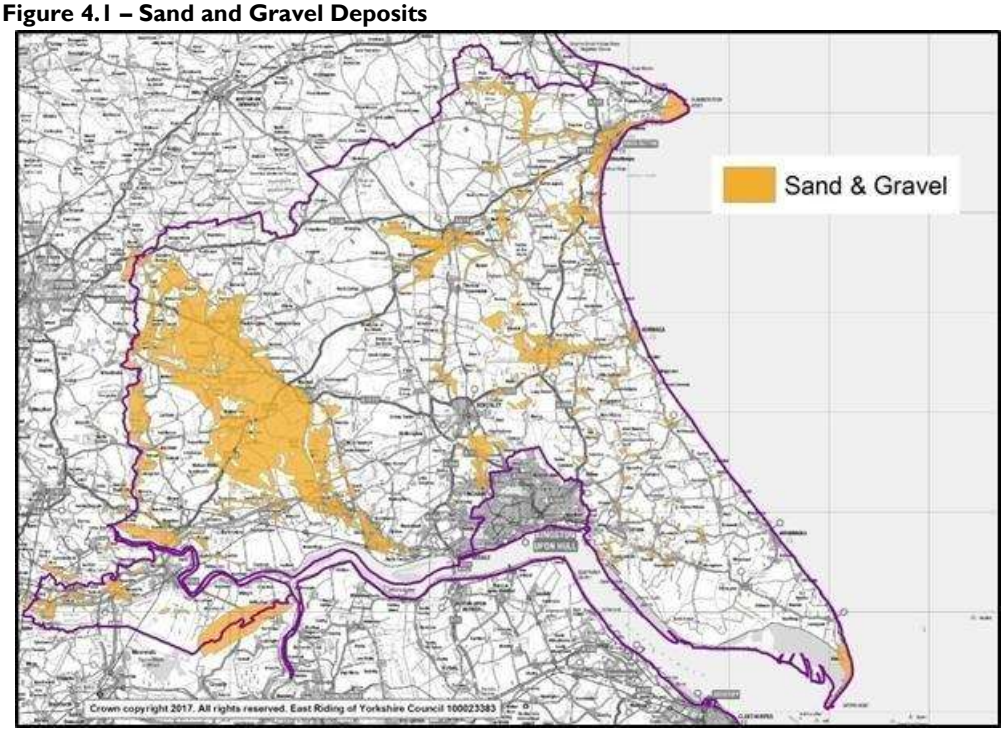
This was due to there being a number of locally important workings of the resource concentrated at North Cave and the strong, albeit localised, operator interest.

4.12 The relative remoteness of most deposits does not necessarily mean that they are not at potential risk from being sterilised by surface development. There are examples of sand and gravel deposits having been rendered unworkable. This could be due to being crossed by the route of a pipeline, or by planning permission having been granted for small scale residential or commercial development on or close to the deposit.

4.13 Most sand and gravel layers are relatively shallow, so prior extraction is feasible to a greater or lesser extent. This is particularly so as the extraction process for sand and gravel does not involve blasting and, if required, processing can be carried out away from the extraction site.

4.14 Sand and gravel extraction is noted in the National Planning Practice Guidance as being a water-compatible development[7]. Therefore it need not be excluded from taking place within areas that are at a high flood risk. The degree of prior extraction that is feasible will be restricted in these locations, although there may be opportunities to provide flood storage areas as part of restoration.

Figure 4.1 – Sand and Gravel Deposits



[7] National Planning Practice Guidance Flood Risk and Coastal Change; Paragraph 066 Table 2: Flood risk vulnerability classification (Reference ID: 7-066-20140306) and Paragraph 067 Table 3: Flood risk vulnerability and flood zone 'compatibility' (Reference ID: 7-067-20140306).

4.15 The approach to the general topic of minerals safeguarding is outlined in Chapter 3.

Sand and Gravel Supply Management

4.16 All mineral planning authorities are required to plan for an adequate and steady supply of aggregates. Landbanks are an important aspect of government policy to help ensure a continuity of supply, economic growth, and provision of infrastructure. The MPAs are required to make provision for landbanks for sand and gravel of at least seven years supply. This ensures there would be sufficient reserves with planning permission to last seven years at the anticipated annual rate of extraction identified in this Plan.

4.17 MPAs are also required to produce a Local Aggregates Assessment (LAA) on an annual basis. The LAA assesses the demand for, and supply of, aggregates based on the average of the last 10 years production/sales data. This should take into account:

- All possible supply options, including the availability or otherwise of secondary or recycled aggregates, and land-won sources.
- Any significant local infrastructure projects that are taking place, or planned, and any opportunities or constraints that might influence future aggregate production.

4.18 Joint working with other local MPAs, through an Aggregate Working Party, helps to ensure that the approaches taken remain consistent and adequate, and a supply of aggregates across the wider area is maintained.

4.19 The MPAs finalised a LAA for the Humber area jointly with North and North East Lincolnshire Councils in November 2017. This LAA was based on information up to the end of 2015.

4.20 East Riding of Yorkshire Council and Hull City Council are part of the Yorkshire and Humber Aggregate Working Party. This Party commissioned a Marine Aggregates Study that noted the Humber Bridge toll creates separate aggregate markets north and south of the Humber. This is due to the cost of a lorry making a round trip across the bridge. The implication being that there is little or no crossover in markets for primary won aggregates north and south of the Humber.

4.21 It was appropriate to split the Humber aggregate requirement for sand and gravel and crushed rock by the percentage of sales over the same rolling 10 year period (currently 2007 to 2016) from the north and south Humber banks. This is due to the market split and the LAA methodology of establishing annual aggregates requirements for the Humber area based on a rolling average of 10 years sales data.

4.22 An Aggregates Apportionment Background Paper was produced to establish the annual amount of crushed rock, and sand and gravel aggregate the JMLP should plan for. This considers the following factors:

- Aggregates sales trends over the past three years;
- Engagement with North and North East Lincolnshire Councils;
- Largely separate aggregates markets north and south of the Humber;
- Cross boundary aggregate movements;
- Links to performance of the economy;
- Links to past and proposed future housing development; and
- Links to major construction projects and infrastructure.

4.23 It uplifts the 10 year average annual sales figure resulting in a sand and gravel requirement for the JMLP of 0.81 million tonnes per annum. The calculations for the amount of sand and gravel resources that need to be identified in order to maintain supplies in the Plan area over the plan period are as shown in Table 4.1.

Table 4.1: JMLP Sand and Gravel resources requirement

Tonnage required in identified sites to maintain production at 0.81 million tonnes per annum (mtpa) throughout the plan period (0.81mt x 17 years)	13.77mt
Less permitted reserves (as at end of 2016)	6.32mt
Sub total	7.45mt
Add amount to provide for 7 year landbank at the end of the plan period (apportionment rate x 7)	5.67mt
Total resources to be found	13.12mt

4.24 The MPAs will seek to maintain their contribution to the supply of sand and gravel throughout the plan period. It needs to have regard to wider policies for the protection of local communities, the environment, and the ongoing development needs of the Plan area as defined in the respective Local Plans.

Policy AGG1: Supply of sand and gravel

A. Provision will be made for an adequate and steady supply of locally extracted sand and gravel by allocating Preferred Areas and Areas of Search sufficient to maintain a landbank of permitted sand and gravel reserves equivalent to at least 7 years' worth of supply over the period to 2033 at 0.81 million tonnes per annum.

B. During the Plan period, maintenance of the landbank will be achieved from:

1. Remaining reserves at existing permitted sites; and
2. New sand and gravel sites, including extensions to existing permitted sites, as listed in Policy AGG2.

C. Permission will be granted for the extraction of sand and gravel from new quarry sites outside the Preferred Areas and Areas of Search listed in Policy AGG2 if it can be demonstrated that:

1. There is a need to maintain the landbank that cannot be met within the identified Preferred Areas and Areas of Search; or
2. Resources would otherwise be sterilised; or
3. The proposals would result in important benefits to the environment or local communities without significantly increasing the size of the landbank; or
4. The proposal is a borrow pit; and
5. Such development would not prejudice the delivery of allocated areas.

4.25 Progress towards meeting the sand and gravel supply requirement will be monitored through the Councils' and Yorkshire and Humber Aggregates Working Party annual monitoring reports, annual updates to the Humber Area LAA, as well as through on-going Duty to Co-operate discussions.

4.26 The state of the landbank and amount of resources remaining within Preferred Areas and Areas of Search will be monitored in the MPA's annual monitoring reports. This will provide the required warning of the need to identify any additional resources to maintain the landbank in the event that the rate of extraction increases significantly beyond the current level.

4.27 Permission will be granted for extraction from completely new quarry sites only:

- If there is a need to maintain the landbank taking into account available resources within allocations in this Plan;
- Resources would otherwise be sterilised, for example if extraction is needed in advance of a permanent non-mineral development proceeding;
- Important benefits to the environment or local community would result, without significantly increasing the size of the landbank. Such benefits could

include the removal of land contamination, flood alleviation, or ecological benefits. Whether an increase in the size of the land bank is significant or not depends on the state of the landbank at the time and whether the 7 year landbank requirement has been met; or

- The proposal is for a borrow pit (see Policy AGG6).

4.28 In all instances, the permitting of a new quarry must not prejudice the delivery of allocated sites in this plan. This will be determined with reference to the size of the land bank as well as the views of operators and other consultees. Views on issues such as whether extracted material would serve the same market as material from allocated sites will be important.

Deciding Where Future Sand and Gravel Extraction Should Take Place

4.29 Provision for future supply is made through identifying locations for future working, either as Preferred Areas or Areas of Search, depending on the certainty of knowledge about the quality of the deposit, and the likelihood of extraction proceeding. The Plan seeks to ensure an appropriate split in provision, based on past trends, between sand and gravel from glaciofluvial deposits (predominantly sharp sand and gravel) and sand from the glaciolacustrine deposits (predominantly soft sand) in order to avoid shortages of particular types of aggregate. The percentage split based on 2016 sales was approximately 80% (glaciolacustrine) soft sand, and 20% (glaciofluvial) sharp sand and gravel.

4.30 Although the aggregate derived from deposits of sharp sand and gravel is different from that derived from soft sand, some quarries report sales of both types of aggregate. Therefore, it is not considered possible to calculate and maintain a separate landbank for each of these types of aggregate as suggested in the last bullet point of paragraph 145 of the NPPF[8]. In addition, the number of quarries producing predominantly soft sand is too small to enable currently acknowledged standards of confidentiality to be achieved if a separate landbank was to be introduced.

4.31 The JMLP has sought to ensure that sufficient resources are available within Preferred Areas to meet anticipated supply requirements until at least 2033. Beyond that, Areas of Search are proposed in order to provide flexibility in meeting the landbank requirement to the end of the plan period. However, there is no assumption that Preferred Areas will need to all be commenced or worked out before sites within Areas of Search are released for extraction. Sites within Areas of Search will be determined by reference to the state of the landbank at the time applications are considered.

[8] 'Calculating and maintaining separate landbanks for any aggregate materials of a specific type or quality which have a distinct and separate market'.

4.32 Within these identified areas the following policy is proposed.

Policy AGG2: Site Allocations for Sand and Gravel Extraction

A. Planning applications for the extraction of sand and gravel in the Preferred Area Allocations listed below will be supported provided the proposals meet the requirements of Development Management Policies (DM1 to DM6) and identified area site briefs set out for each site.

Sand and Gravel Preferred Areas

a. SG-A: Land off A165 Leven By-pass, Leven
b. SG-B: Land at Pollington West
c. SG-C: Brook Farm, North Cave
d. SG-D: The Outgang, North Cave
e. SG-E: Land East of B1249, Cruckley Lane, Brigham

B. Planning applications for the extraction of sand and gravel in the Areas of Search listed below will be supported provided:

1. In the case of new quarry sites, there is a need for additional sand and gravel reserves to be permitted; and
2. The proposals meet the requirements of Development Management Policies (DM1 to DM6) and identified area site briefs set out for each site.

Sand and Gravel Areas of Search

a. SG-F: Leven and Brandesburton
b. SG-G: Gransmoor Lane and Lisset

4.33 The identification of sites in Policy AGG2 follows careful site appraisal of the potential deliverability as well as environmental, amenity and economic impacts of the candidate sites. This is set out in the Site Selection Background Paper, which accompanies this plan. The results of the Sustainability Appraisal and Habitats Regulation Assessment, as well as the outcomes of public consultation exercises, have informed this process. The sites have been identified to ensure:

- A geographical distribution that broadly matches the areas of significant construction activity (major settlements); and
- The Plan area's aggregate needs are met as close to where aggregate need arises as possible.

4.34 The extent of these areas together with the site specific requirements are shown in the Identified Area Site Briefs in Appendix C.

4.35 In determining whether there is a need for further sand and gravel reserves to be permitted, the need to maintain a landbank of 7 years' worth of supply will be an issue to consider. Even if the landbank is maintained at 7 years, there is no maximum landbank and further large construction projects may come forward that require further local aggregate resources to be permitted in a timely fashion.

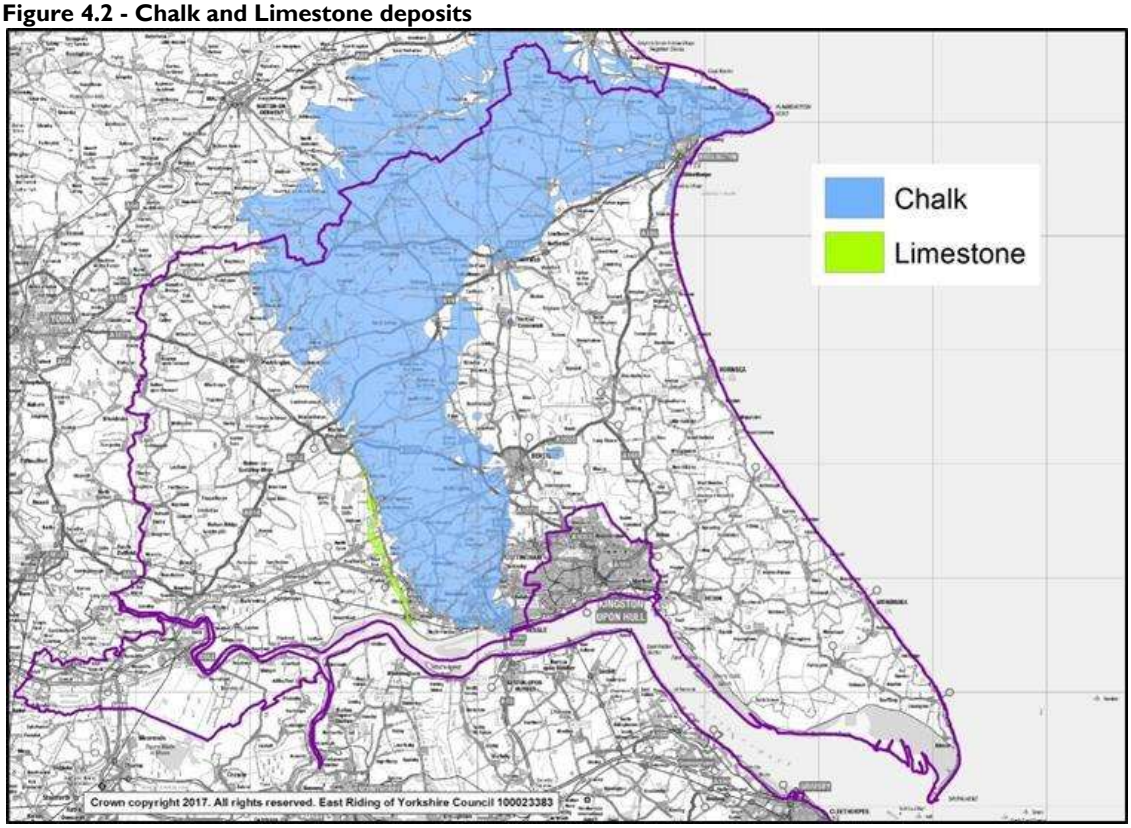
Crushed Rock

4.36 This section addresses the safeguarding and supply of chalk and limestone for aggregate purposes. The approach for industrial chalk, which isn't classed as an aggregate material, is contained in Chapter 5. Crushed rock in the Plan area consists of chalk and limestone. Generally the quality of the chalk deposits for aggregate use is poor. Small quantities are sold for low grade aggregate applications such as fill and sub base road stone. Most chalk extracted in the Plan area is used for industrial purposes, and is not subject to the aggregate provision and landbank requirements set out in the NPPF. The limestone deposit in the Plan area is of good quality, but limited in extent.

Safeguarding

4.37 Deposits of chalk and limestone are shown in Figure 4.2 below. Chalk occurs very extensively in the Plan area being the underlying mineral for the Yorkshire Wolds. The Plan area also contains Lincolnshire Limestone dating from the Middle Jurassic Period. This bed outcrops in a narrow band along the south west edge of the Wolds between the Humber River and Newbald. This deposit has been historically worked for aggregate limestone, again mainly for lower grade applications, but nevertheless interest has been expressed in the past by operators in this deposit as a potential source of crushed rock in the future. The Yorkshire Wolds area is considered to be of high landscape value and has been designated as an important landscape area in the East Riding Local Plan (Policy ENV2).

Figure 4.2 - Chalk and Limestone deposits



4.38 The approach to minerals safeguarding is outlined above in Chapter 3 and in the Mineral Resource and Infrastructure Safeguarding Background Paper available alongside this Plan.

Crushed Rock Supply Management

4.39 The NPPF requires crushed rock landbanks to be sufficient to last for at least 10 years. Provision for maintaining an adequate and steady supply of crushed rock aggregate is made in a similar way to that for sand and gravel aggregates. The Aggregates Apportionment Background Paper has established an annual amount of crushed rock the JMLP should provide for. This is based on the annual average sales from the Plan area over the 10 year period to the end of 2016. It results in a crushed rock requirement for the East Riding and Hull of 0.13 million tonnes per annum. A ten year land bank equates to 1.3 million tonnes of permitted crushed rock extraction.

4.40 The calculations for the amount of crushed rock resources that needs to be identified in order to maintain supplies from the Plan area over the plan period are as shown in Table 4.2. These show that there are already sufficient reserves in sites with planning permission within the Plan area. This supply of crushed rock would provide for a 10 year landbank throughout the whole plan period.

Table 4.2: Calculation to show the amount of Crushed Rock resources that need to be identified in the JMLP

Tonnage required in identified sites to maintain production at 0.13 million tonnes per annum (mtpa) throughout the plan period (0.13mt x 17 years)	2.21mt
Less permitted reserves (as at end of 2016)	6.59mt
Sub total	-4.38mt
Add amount to provide for 10 year landbank at the end of the plan period (0.13mt x 10)	1.3mt
Total resources to be found	0mt

4.41 Policy AGG3 only provides for the ongoing operation of the crushed rock extraction operation at Greenwick near Huggate, where the operator has submitted a land bid for the expansion of its operations.

Policy AGG3: Supply of crushed rock

A. Provision will be made for an adequate and steady supply of locally extracted crushed rock by allowing sites to come forward where necessary. A landbank of permitted crushed rock reserves equivalent to at least 10 years' worth of supply over the period to 2033 at 0.13 million tonnes per annum will be maintained.

B. During the plan period, maintenance of the landbank will be achieved from:

1. Remaining reserves at existing permitted sites; and
2. If necessary, new or extended crushed rock sites.

C. Permission will be granted for the extraction of crushed rock from a new quarry site outside the Area of Search listed in Policy AGG4 if it can be demonstrated that:

1. There is a need to maintain the landbank that cannot be met within the area of search listed in Policy AGG4; or
2. Resources would otherwise be sterilised; or
3. The proposals would result in important benefits to the environment or local communities without significantly increasing the size of the landbank; or
4. The proposal is a borrow pit; and
5. Such development would not prejudice the delivery of the identified Area of Search.

4.42 The progress towards meeting the crushed rock supply requirement will be monitored through the Councils' and Yorkshire and Humber Aggregates Working Party annual monitoring reports, annual updates to the Humber Area LAA, as well as through on-going Duty to Co-operate discussions.

4.43 The state of the landbank and amount of resources remaining within the Area of Search, will be monitored in the MPAs' annual monitoring reports. This will provide the required warning of the need to identify any additional resources to maintain the

landbank in the event that the rate of extraction increases significantly beyond the current level

4.44 Permission will be granted for extraction from completely new quarry sites only:

- If there is a need to maintain the landbank taking into account available resources within allocation in this plan;
- Resources would otherwise be sterilised, for example if extraction is needed in advance of a permanent non-mineral development proceeding;
- Important benefits to the environment or local community would result, without significantly increasing the size of the landbank. Such benefits could include the removal of land contamination, flood alleviation, or ecological benefits. Whether an increase in the size of the land bank is significant or not depends on the state of the landbank at the time and whether the a 10 year landbank requirement has been met; or
- The proposal is for a borrow pit (see Policy AGG6).

4.45 In all instances, the permitting of a new quarry must not prejudice the delivery of the allocated Area of Search in this plan. This will be determined with reference to the size of the land bank as well as the views of operators and other consultees. Views on issues such as whether extracted material would serve the same market as material from the Area of Search will be important.

Deciding Where Future Crushed Rock Extraction Should Take Place

4.46 Unlike the position with sand and gravel, there is insufficient robust information about the occurrence of viable resources of chalk suitable to supply crushed rock for aggregates. Therefore the previous JMLP 2004 identified only Areas of Search for future working for crushed rock. There is, however, also a narrow band of limestone to the west of the Wolds which is reported to yield material suitable for a wider range of purposes than chalk, although it is not a high specification aggregate in terms of its PSV[9] value. The limestone is also considered suitable for building stone.

4.47 Although the aggregate derived from this limestone has different properties to chalk, it is not considered sufficiently different to justify the calculation and maintenance of a separate landbank as suggested in the last bullet point of paragraph 145 of the NPPF[10]. In addition, it would not be possible to achieve currently acknowledged standards of confidentiality if a separate landbank was introduced.

[9] Polished Stone Value (indicates skid resistant aggregates for road surfacing)
[10] 'calculating and maintaining separate land banks for any aggregate materials of a specific type or quality which have a distinct and separate market'.

4.48 Policy AGG4 will apply within the Area of Search for crushed rock.

Policy AGG4: Area of Search for Crushed Rock

A. Planning applications for the extraction of crushed rock in the Area of Search listed below will be supported provided:

1. In the case of new quarry sites, there is a need for additional crushed rock reserves to be permitted; and
2. The proposals meet the requirements of the Development Management Policies (DM1 to DM6) and the identified area site brief set out for the Area of Search.

Crushed Rock Area of Search

a. CR-A: Greenwick Quarry, Huggate

4.49 Greenwick Quarry Area of Search is for chalk. The extent of the allocation, together with its site specific requirements, are shown in the Identified Area Site Brief in Appendix C.

4.50 The identification of the Area of Search in Policy AGG4 follows careful site appraisal of the potential deliverability, as well as environmental, amenity and economic impacts of the candidate sites. This includes the results of the Sustainability Appraisal, the Habitats Regulation Assessment, as well as the outcomes of public consultation exercises.

4.51 In determining whether there is a need for further crushed rock reserves to be permitted, the need to maintain a landbank of 10 years' worth of supply will be an issue to consider. Even if the landbank is maintained at 10 years, there is no maximum landbank and further large construction projects may come forward that require further local aggregate resources to be permitted in a timely fashion.

Extensions to existing quarries on unallocated sites

4.52 It is recognised that proposals for extensions to existing aggregate and other quarries are likely to continue to come forward as planning applications during the life of the JMLP. In some cases, these may not be on land specifically allocated as being suitable in principle for further working. Such applications may involve other types of mineral workings. This is likely to involve proposals to maintain continuity of production at an established site where current permitted reserves are near to exhaustion but further suitable resources have been identified on immediately adjacent land.

4.53 Therefore, Policy AGG5 sets out the main criteria that would be applied to any such proposals.

Policy AGG5: Extensions to existing quarries

A. Proposals for extensions to existing minerals extraction sites will be supported where it is demonstrated that it:

1. Would not compromise delivery of the overall strategy for the supply and use of minerals, including encouraging the use of alternatives to primary minerals set out in this plan; and
2. Meets the requirements of the development management policies.

4.54 The presumption in favour of sustainable development means that development should not be prevented solely because it is not specifically identified in the JMLP. This could unnecessarily prevent development which might otherwise be acceptable. Preventing development might also impact adversely on the local and wider economy and other social objectives.

4.55 However, it will be important to ensure, where proposals for extensions to existing minerals extraction sites come forward they do not compromise other important objectives of the JMLP. This includes assessing any environmental and amenity impacts against the relevant development management policies. In all cases, any reserves granted on extension sites would, where relevant, contribute towards the landbank of the mineral.

Borrow Pits

4.56 'Borrow pits' are temporary mineral workings opened locally to supply material for a specific construction project. This would normally be a large project where a substantial amount of aggregate needs to be supplied over a relatively short period. Examples are road building schemes or the construction of a reservoir, although their use in association with smaller projects is not unknown. In most cases it is preferable to open up a borrow pit close to the project site to ensure the availability of the necessary supplies and to avoid the need to import material by lorry from further afield. It also provides an opportunity to release otherwise unviable deposits. These considerations are particularly important in the Plan area where operational quarries may not be available in the immediate locality of a specific construction project.

Policy AGG6: Borrow Pits

A. Proposals for borrow pits to serve construction projects will be supported provided:

1. The site lies on or close to the project footprint so that material can be transported to its point of use without severe impact on the highway network;
2. Material from the pit is only used in connection with the specific project with which it is associated and its life is limited to that of the development project in question;
3. Extraction from the site will cause less environmental damage than would result from using material from a permitted source of supply, taking into account the availability of secondary and recycled aggregates;
4. The pit is sited and operated so as to minimise environmental damage; and
5. Provision is made for the prompt restoration of the pit following extraction, preferably using only materials from elsewhere on the construction site.

4.57 In considering proposals for borrow pits, the MPA will need to be satisfied that it represents the most suitable source of material to meet the specific demand involved, and that both working and restoration can be achieved without unacceptable environmental impacts. Restoration and aftercare proposals will be expected to be to as high a standard as for other mineral workings.

Recycled and Secondary Aggregates

4.58 Recycled aggregates consist of materials that are recovered from construction and demolition processes and from excavation waste on construction sites. These materials arise locally throughout the Plan area from construction activities wherever they take place.

4.59 Secondary Aggregates are those materials suitable for aggregate use which are a by-product of another mineral extraction, or from an industrial process. They include colliery spoil, Pulverised Fuel Ash (PFA), Furnace Bottom Ash (FBA) and blast furnace slag. Arisings are obviously concentrated where coal is mined, and where large power stations or incinerators are located.

4.60 The main sources of secondary aggregates for the Plan area are the coal and power generation industries, such as PFA from Drax power station to the west, and also from the steel plant at Scunthorpe.

4.61 Recycled and secondary aggregates need to meet the technical specifications for the project under construction. There are national measures in place to address this issue and national and sub-national policy to increase the use of recycled and secondary aggregates as substitutes for primary aggregates wherever possible. The national guidelines for aggregate provision in the Yorkshire and Humberside Region

assume that some 30% of total aggregate provision will be from these sources.

4.62 In the Plan area, it remains the case that secondary and recycled aggregates have difficulty in competing with cheaper primary aggregates. Most of the primary crushed rock supplies are low quality, and comparatively cheap.

4.63 Providing suitable locations for the processing of recycled aggregates and storage of secondary aggregates is a challenging process. Processing and sorting requires a site with good transport links, with space for processing stockpiles and loading. The MPAs are producing a Joint Waste Local Plan, which will address any need for new facilities.

4.64 Existing mineral working sites may offer potential to accommodate such facilities. In considering proposals, however, it is important to pay attention to a number of related issues. This includes the possibility of prolonging the operating life of the quarry, the impact on restoration, as well as the possible impacts from intensified activity.

4.65 A location within an existing quarry can be beneficial given that there is generally an existing washing plant with silt lagoons on-site, good road access and existing screening.

4.66 Policy AGG7 seeks to balance any need for further capacity for processing recycled and secondary aggregates at existing mineral sites against quarry restoration and other environmental considerations. Proposals for processing recycled and secondary aggregates beyond the operational life of the quarry will be determined in accordance with policies in the Joint Waste Local Plan (once adopted).

Policy AGG7: Recycling and Secondary Aggregates at Existing Mineral Sites

A. Processing of recycled and secondary aggregates at existing active minerals sites will be supported where it does not:

1. Prolong or materially increase environmental impacts at the site, including from transport; and
2. Prejudice any restoration scheme.

4.67 Permissions for recycling operations within a quarry will normally be restricted to the life of the quarry. This is to avoid the situation where the recycling use:

- Conflicts with a long term restoration plan for an after use such as nature conservation or recreation; and/or
- It compromises the ability of the site to be restored in keeping with local landscape character; and/or

- Is located in a quarry that is away from the source of waste and the market; and/or
- Might be justifiable during the life of the quarry but not afterwards.

4.68 In all cases, regard will be given to the Development Management Policies in Chapter 7 and other relevant policies within the development plan for East Riding and Hull.

Imported Aggregates

4.69 The Plan area is a net importer of aggregates overall (although it is a net exporter of sand and gravel aggregate) and will continue to be. This is primarily a result of the limited range of resources present within the area, and to a lesser extent because of environmental constraints. The majority of imported aggregates are from elsewhere in the region, and these sources are dealt with below. A significant and growing source of imported aggregates is marine dredged sand and gravel and Norwegian stone, which are both landed at docks in Hull.

Marine Aggregate and other minerals

4.70 The use of marine aggregates for construction is a long standing practice in the United Kingdom and an important part of the aggregates supply chain. Marine aggregates, in the form of sand and gravel are dredged in a number of places around the UK coastline, including off the Humber Estuary, and the north eastern and eastern coasts of England. Nationally, around 13.4 million tonnes of marine dredged primary aggregates were landed at English ports and wharfs in 2016[11].

4.71 The national guidelines for aggregate provision for the period 2005 to 2020 assume that 259 million tonnes of the total aggregate supply will come from Marine Aggregates in England. The equivalent figure for the Yorkshire and Humber region is 5 million tonnes. These amounts translate to an average annual provision figure of 16.19 million tonnes for England and 0.31 million tonnes for Yorkshire and the Humber.

4.72 Marine aggregate extraction is governed by the UK Marine Policy Statement (MPS) (March 2011), East Inshore and Offshore Marine Plans (April 2014) and North East Inshore and Offshore Marine Plans. The MPS provides the framework for preparing Marine Plans and taking decisions affecting the marine environment. Marine Plans aim to manage and balance the many activities, resources and assets in the marine environment. This framework of plans overlaps with the terrestrial planning system, which is covered by the Local Plan, between the mean high and mean low tidal ranges.

4.73 The Marine Management Organisation (MMO) is responsible for implementing marine planning under the provisions of the Marine and Coastal Access Act 2009.

[11] Marine Aggregates, the Crown Estate Licences, Summary of Statistics 2016, The Crown Estate

Therefore, it will apply to the East Riding coastline, Humber Estuary, parts of the River Hull and other tidally influenced inland rivers. Marine activities can have both landward and offshore impacts.

4.74 The aggregate resources located off the Humber Estuary are thought to be extensive. Crown Estate information produced in November 2016[12] shows that there are eight licensed dredging areas in the North Sea off the Humber, with applications pending for a further four. The sand and gravel resources found in this area range from fine sands to coarse gravels.

4.75 During 2016, 1.35 million tonnes of construction aggregate was dredged off the Humber from a total permitted licensed tonnage of 4.8 million tonnes. In addition, 0.45 million tonnes was dredged for beach nourishment purposes.

4.76 In 2015, 1.32 million tonnes were dredged, with 63.2% delivered to mainland Europe, 35.2% to ports/wharves in the Humber, 1.5% to the Thames Estuary, and the rest being delivered to the South Coast[13].

4.77 Between 1999 and 2008, around 0.2 to 0.3 million tonnes per annum were landed to supply the Humber area and the wider region beyond. Whilst this dropped to 0.1 million tonnes in 2009[14], the average over the last 10 year period (2007 to 2016) was 0.11 million tonnes. The Crown Estate noted that in 2016 a total of 117,417 tonnes of marine dredged primary aggregates were landed at the River Humber wharfs[15].

4.78 Prior to 2015, the majority of landings were at the Humber Sand and Gravel facility at Alexandra Dock in Hull. Stema Shipping brings imports of crushed rock aggregates from their coastal quarries in Norway, and sand from Denmark to Queen Elizabeth Dock. A small amount of aggregate is also exported via the docks.

4.79 Sand and gravel landing and aggregate export has now moved to King George Dock, which is owned by ABP. This facility can also take bigger vessels and is large enough to land some 300,000 tonnes per annum, so that Siemens can take over the use of Alexandra Dock. The new location has the advantage of being connected to the rail network, which has the potential for improved distribution to the wider region. There may also be an opportunity to further expand the capacity of the wharf at the King George Dock in the longer term.

4.80 There are other opportunities for landing marine dredged aggregates within the Humber area. ABP also owns the port of Goole, plus there are wharfs on the River Trent near Scunthorpe, and on the River Ouse at Howdendyke (PD Ports), which

[12]Marine aggregates, Capability and Portfolio 2016, The Crown Estate, November 2016.
[13] The Area Involved – 18th Annual Report: Marine Aggregate Extraction 2015, The Crown Estate & Mineral Product Association
[14]Yorkshire & Humber Region Aggregates Working Party, Annual Reports and Aggregates Monitoring
[15] Marine Aggregates – Summary of Statistics 2016, The Crown Estate

can be accessed by similar sized vessels to Goole. The River Trent wharfs and New Holland Pier are equipped to handle mineral imports. However, it is not possible to ascertain the amount of minerals landed at these locations. It is likely that they only handle these minerals on an "as and when" basis.

4.81 Marine aggregates are increasingly being seen as an important part of the overall aggregates supply and as an alternative to primary land-won aggregates. With this in mind, the Yorkshire & Humber Aggregates Working Party commissioned a Marine Aggregates Study to assess the potential deliverability of a substantially greater supply of marine aggregate into the Yorkshire and Humber region, in substitution for an element of supply currently provided by land-won resources.

4.82 The final study was issued in January 2014[16]. It found that there:

- Is a very large marine aggregate resource of the required quality, and sufficient fleet capacity to land it.
- Are no fundamental barriers to the granting of additional licensed capacity.
- Are many wharfs available in the Humber area with the potential to land marine aggregates. However, limitations apply restricting the size of dredger that could berth, and the amount of adjacent land immediately available to develop the necessary infrastructure required to facilitate processing and/or onward transport at the scale proposed by the study.

4.83 Stakeholders considered the move towards greater use of marine aggregates will most likely take place beyond 2019 and thereafter increase with time. Economically, operators did not think the marine option was viable at the time the study was published, but the viability gap against land won aggregate was narrowing. The study made recommendations including consideration of the requirements of the NPPF for safeguarding aggregate infrastructure in emerging Local Plans.

4.84 Existing planning policy in the Humber area broadly supports increases in marine won aggregates. Policy S8 within the East Riding Local Plan safeguards existing and future port operations at Goole within the Operational Port Area from development which would conflict with this use. It also safeguards existing wharf and rail facilities on the Aire and Calder Canal, River Ouse, Humber Estuary, and elsewhere to maintain a choice of sustainable transport modes.

4.85 The NPPF advises that existing, planned and potential wharfage, as well as handling and processing facilities for the bulk transport by sea and inland waterways of minerals, should be safeguarded. There is a significant complication with the planning regime that applies at the Hull and Goole wharfs. The operators of the Port of Hull,

[16] Marine Aggregates Study Final Report January 2014 (URS)

which includes William Wright, Albert, Alexandra, King George, and Queen Elizabeth Docks, and Goole have substantial rights under the General Permitted Development Order 1995 (part 17 Class B). It enables operators to redevelop their marine wharfs for other portside activities without requiring express planning permission from the local authority. This flexibility allows a marine aggregate wharf to be developed from an existing wharf without any delays. However, it also means that (in practice) no such wharf can be safeguarded from alternative port related development in Local Plans because port related development would not require planning approval. Therefore, there is more limited scope to trigger the intervention of a safeguarding policy in connection with physical alteration to a wharf.

4.86 It should be noted that the permitted development rights are limited to that which is required directly in connection with shipping, or in connection with the embarking, disembarking, loading, discharging or transport of passengers.

4.87 There is frequently pressure for the release of infrastructure land for alternative non port related development, especially in urban areas. The NPPF provides no guidance on how a local planning authority should balance such competing interests, for example in delivery of housing supply targets while safeguarding aggregate infrastructure. Without safeguarding policies the available infrastructure could be lost before the need for it becomes more apparent or urgent.

4.88 Accordingly, because of the importance of marine sand and gravel to Hull's construction industry and the city's capacity for growth generally, Policy AGG8 is included. This safeguards the capacity to land marine aggregates within Hull's port facilities, even though it is not possible to designate a specific location where this would take place.

Policy AGG8: Safeguarding capacity for marine importation of mineral resources

A. The retention of capacity to land at least 300,000 tonnes per year of marine-won aggregates, as well as land other mineral resources, at the Port of Hull is supported. It forms an important part of having an adequate and steady supply of aggregate to the construction industry.

B. Proposals to redevelop parts of the Port of Hull used for the importation of aggregates and other mineral resources for non-port related development will only be supported if equivalent aggregate handling capacity serving the same market is provided elsewhere.

C. Marine aggregates development associated with the landing, storing and transporting of marine won or imported aggregates will be supported provided it will not:

1. Adversely impact on the Humber Estuary SPA, SAC, Ramsar site and SSSI; and
2. Have a severe impact on the local transport network; and
3. Adversely impact on the amenity or operation of existing land uses.

4.89 The Marine Study also identified a number of wharfs in the East Riding currently used for other purposes[17], but considered to have potential for use for handling aggregates. Many also have links to non-road means of transport. These wharfs are:

- New Bridge Wharf (north side of Knottingley and Goole canal, adjacent to the A614);
- Glucose Wharf (north side of Knottingley and Goole canal, west of Rawcliffe Bridge);
- Croda Wharf (north side of Knottingley and Goole canal, east of Rawcliffe Bridge);
- Linpac Wharf (north side of Knottingley and Goole canal, east of Rawcliffe Bridge);
- M.O.D Wharf (north side of Knottingley and Goole canal, east of Rawcliffe Bridge);
- Tilcon Wharf (south side of Knottingley and Goole canal, east of Goole railway bridge)
- Howendyke, River Ouse;
- Port of Goole

[17] See list on page 42 of the Marine Aggregates Study

4.90 An increased role for marine won or imported aggregates could lead to a demand for such facilities.

4.91 Part C of Policy AGG8 makes provision for any future expansion of facilities, or the intensification or expansion of these sites to enable them to handle aggregates.

4.92 Policy S8 part G of the East Riding Local Plan (2016) safeguards existing wharf facilities on the Aire and Calder Canal, River Ouse, Humber Estuary, and elsewhere to maintain a choice of sustainable transport modes. Policy 1 part 2 of the Hull Local Plan (2017) requires any proposals for new development on land in close proximity to the Port of Hull Port Area to fully assess the potential impact of the Port on the proposed use and, where necessary, provide any mitigation as part of the new development. Part 7 safeguards existing, planned, and potential infrastructure supporting the minerals industry from inappropriate development. This includes wharfage and associated storage, handling and processing facilities for the bulk transport by rail, sea or inland waterways of minerals. Part 8 states that sensitive or inappropriate development that would conflict with the use of sites identified for these purposes will be prevented.

4.93 Conventional planning control does not extend beyond the low water mark. Therefore, the impact on coastal physical processes from dredging of marine aggregates is independent of any direct influence by the MPAs. As noted above Marine aggregate extraction is governed by the UK Marine Policy Statement (MPS) (March 2011) and the adopted East Inshore and Offshore Marine Plans (April 2014). The MPAs are members of the East Coast Offshore Minerals Forum, a body of elected representatives from coastal local authorities in the region. A principal role of this group is to act as a focus for consideration of marine won aggregates in this area. The MPAs will maintain their role in this respect, and where possible seek to be involved in the marine aggregates licensing process. They will continue to seek the highest standards of environmental safeguarding and operational good practice.

Rail Borne Aggregates and Other Minerals

4.94 Rail facilities that currently handle mineral resources or have done in the past include the Melton railway sidings, the Dairycoates rail depot in Hull and Hull Docks Branch railway adjacent to Queen Elizabeth Docks[18]. The Melton sidings have handled industrial chalk in relatively small quantities and there is an aspiration to develop the capability of these sidings to include general freight capacity. The Dairycoates depot provides the main gateway for rail borne imports of hard rock to the area. In the case of the Hull Docks Branch Railway, the line handles a variety of minerals, including coal and aggregates but the principal line capacity is taken up by general freight distribution.

[18] Marine Aggregates Study pages 38 & 53

4.95 The NPPF advises that existing, planned and potential rail heads and rail links to quarries, as well as handling and processing facilities for the bulk transport by rail of minerals, should be safeguarded. Policy AGG9 safeguards the capacity of the existing rail facilities for aggregate transportation.

Policy AGG9: Safeguarding of Rail Facilities used for the Importation of Aggregates and Other Minerals

A. Proposals that would increase the capacity of the rail network to transport aggregates and other mineral resources will be supported.

B. Proposals for the redevelopment of existing rail facilities, and associated storage, handling and processing facilities as shown on the Policies Map, which would preclude their use for the importation of aggregates and other minerals, will only be supported provided that equivalent capacity is provided elsewhere in a manner which does not interrupt the supply of mineral material, including aggregates.

C. Proposals for development close to rail facilities, and associated storage, handling and processing facilities used for the importation of aggregates and other minerals, which would prejudice their operation by reason of its sensitivity to impacts on amenity arising from such use of the facilities, will not be supported.

4.96 Existing rail facilities in the Plan area used for the bulk transport of mineral resources are at Dairycoates and Hull Docks Branch Line. A rail siding at Melton used to be used as such, and could potentially be used again for this purpose. All three are shown on the Policies Map. This policy does not preclude the use of the facilities for other rail-related uses that are compatible with the importation and processing of rail-borne aggregates. Applicants seeking to develop an alternative use on a facility must however demonstrate how the equivalent capacity can be provided, and will be required to implement the replacement proposals before any existing capacity is removed.

4.97 Proposals within 250m of the safeguarded area will be regarded as 'close to the rail facilities' for the purposes of Policy AGG9C. This clause applies to any form of disturbance-sensitive development that would prejudice the operation of facilities within those boundaries.

Minerals Infrastructure and Facilities

4.98 National planning policy identifies that local planning authorities should safeguard existing, planned 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.

Policy AGG10: Safeguarding of Mineral Infrastructure and Facilities

A. Existing minerals infrastructure will be safeguarded from non-mineral development, which would adversely impact on the operation and costs associated with the infrastructure, unless it can be demonstrated that:

1. Replacement infrastructure provision of an equal or greater capacity and quality will be provided in an alternative location serving the same market(s); or
2. Sufficient infrastructure already exists in the area serving the same market(s).

B. Non-mineral development, which would adversely impact on the operation of minerals infrastructure will be required to provide suitable mitigation to reduce this impact to acceptable levels.

4.99 Policy AGG10 applies to minerals infrastructure which includes existing 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.

4.100 Non-mineral development proposed on or in close proximity to such infrastructure should not prejudice the infrastructure, or unduly add to its costs and administrative burdens, for example by limiting working hours, or requiring additional measures to preserve amenity. Non-mineral development which would impact on such infrastructure in this way will not be permitted unless the infrastructure is either replaced elsewhere or be proved not to be needed.

4.101 Where non-mineral development that would adversely impact on the operation of minerals infrastructure is approved, the applicant (or 'agent of change') will be required to provide suitable mitigation before the development has been completed to reduce this impact to acceptable levels.

4.102 This policy safeguards minerals infrastructure, including infrastructure located within existing quarries. Mineral resources, including those within existing quarries and elsewhere, are safeguarded by Policy EC6 within the East Riding Local Plan Strategy Document.

5. Non-Aggregate Minerals

5.1 Non-aggregate minerals are necessary to support industrial and manufacturing processes and other non-aggregate uses. Those that occur in sufficient quantities to be worked commercially within the Plan area are:

- Clay;
- Industrial chalk;
- Peat; and
- Silica sand.

5.2 They are generally of higher value and lesser bulk than aggregate minerals. In addition most non-aggregate minerals require greater investment in processing and tend to be supplied over a wider catchment area but in smaller quantities than aggregates. The pattern of supply is therefore governed more by the geological occurrence of the deposits and their historic utilisation.

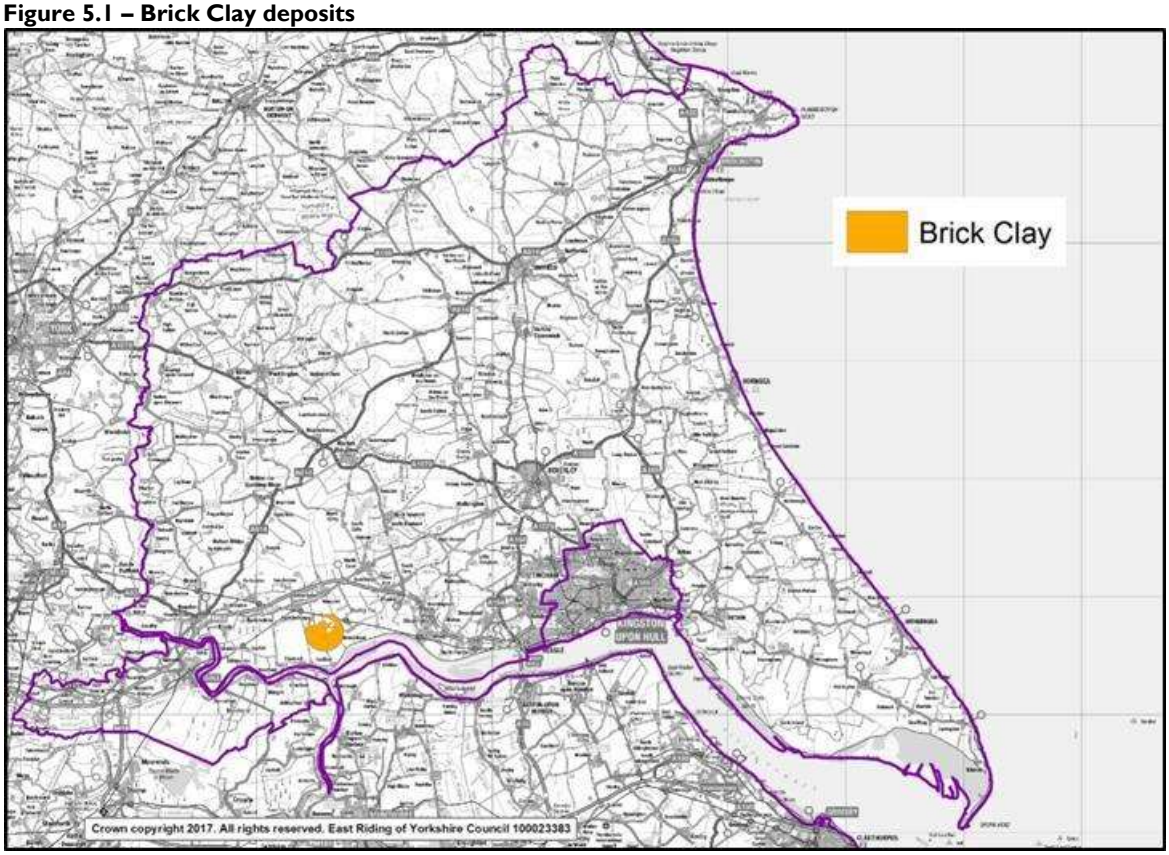
5.3 The JMLP seeks to provide continuity of supply focussing primarily on existing investment, but also making provision for further investment where this can be justified by a balance of regional need against local benefits and impacts. The exception is peat, where national priorities have already determined further supplies will not be derived from areas designated for their European nature conservation interest. Any future supply will be limited to those few remaining areas which fall outside these designated areas.

Clay

5.4 Within the Plan area there is an important deposit of brick clay at Broomfleet. This has been worked for over 100 years and is used in the manufacture of a range of roofing tiles and bricks. These products are sold to national and international markets and the factory employs almost 200 people. The extent of the deposits as shown on the Humberside Mineral Resources Map is illustrated in Figure 5.1 below.

5.5 Elsewhere in the Plan area, there is also clay found in association with sand and gravel sites including at Keyingham, and Newton on Derwent. Whilst this clay is good quality, it is more suitable for engineering of landfill sites and for flood defence works.

Figure 5.1 – Brick Clay deposits



5.6 Clay works represent considerable levels of investment in processing facilities to produce tiles and brick. They therefore require extensive reserves in order to provide long term security for the investment required.

5.7 The NPPF advises that a positive approach should be made to safeguarding deposits of brick clay of suitable quality. MPAs should also make provision for sufficient permitted reserves to support the actual and proposed investment in plant and equipment, both new and existing. The level of provision advised is the equivalent of 25 years of production.

Safeguarding of Clay

5.8 The extent of clay resources shown on the BGS Mineral Resources Map is limited to that which is in the immediate vicinity of the Broomfleet works. A Clay Safeguarding Area is defined for the Broomfleet clay works based on this.

5.9 The approach to minerals safeguarding is outlined above in Chapter 3 and in the Mineral Resource and Infrastructure Safeguarding Background Paper available alongside this Plan.

Supply of Clay

5.10 National planning policy on the supply of clay in the NPPF requires MPAs to plan for at least 25 years supply for brick clay to supply clay works. The recent planning permission to extend the existing clay works at Broomfleet provides sufficient resources to last for a further 50 years supply at current rates of extraction. There is therefore no need to identify further areas for extraction in this plan.

5.11 Any proposals to alter the extent of the permitted area or the terms of the permission, will be considered in the light of the Development Management Policies set out in Chapter 7, and the development plan generally.

5.12 Likewise, applications for the working of engineering clay at existing sand and gravel sites and elsewhere will be considered in the same way.

Industrial Chalk

5.13 Chalk is the most extensive mineral deposit in the Plan area. Whilst some chalk is used for aggregate purposes as described in Chapter 4 above, the majority of material won is from high quality deposits. This is worked for a range of specialist industrial uses, including lime production, and chalk whiting for paper and plastics. There are quarries and works for processing industrial chalk at Lund, Melton and Beverley. Industrial chalk requires considerable investment in processing facilities in order to render the chalk suitable for the specialist uses to which it is put.

5.14 Whilst there is no specific requirement to maintain a landbank for industrial chalk, national planning policy requires a steady supply for all minerals, and emphasises that longer term provision needs to be made where large scale capital investment is involved, such as is the case with the utilisation of industrial chalk.

Safeguarding

5.15 Important industrial chalk deposits are safeguarded alongside aggregate chalk deposits by the safeguarding approach for chalk.

5.16 The approach to minerals safeguarding is outlined above in Chapter 3 and in the Mineral Resource and Infrastructure Safeguarding Background Paper available alongside this Plan.

Supply of Industrial Chalk

5.17 There is no specific landbank advice in the NPPF for the supply of industrial chalk, and the supply requirements will need to be assessed separately for each plant. The aim will be to maintain a landbank of at least 15 years supply for each processing plant based on an average of the last 10 years production. It is recognised that not all chalk extracted at a site with an industrial chalk processing plant can be used for

the industrial purposes. Lesser grade chalk extracted from the quarry may only be suitable for aggregate use. The landbank calculations for both the supply of industrial chalk and crushed rock aggregates will need to take this into account.

5.18 Applications for extraction of chalk for industrial purposes will be determined in accordance with Policy NAM1 below as well as relevant policies elsewhere within the development plan.

Policy NAM1: Supply of Industrial Chalk

A. Proposals for the extraction of chalk for industrial purposes will be supported provided:

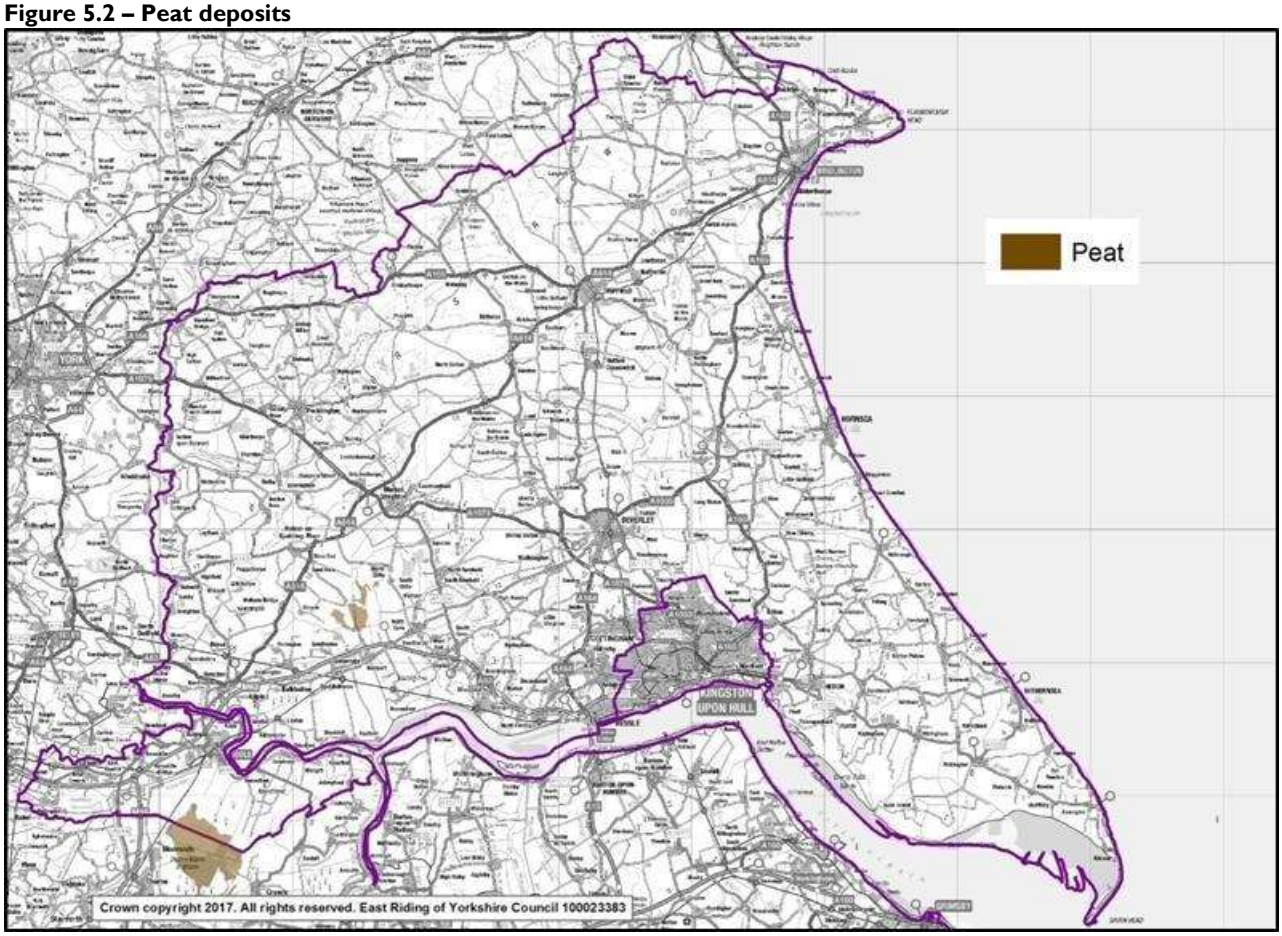
1. There is a need for the resources in order to supply an existing or proposed processing plant in the local area; and
2. The proposal would be appropriate in nature, scale, and intensity to the character of the local area.

5.19 Industrial chalk extraction and processing operations can often be of a large scale. It is therefore important proposals are compliant with development management policies within this document, and elsewhere within the Development Plan, in assessing whether proposals comply with part A2 of this policy.

Peat

5.20 The NPPF states that new or extended sites for peat extraction should not be identified. The extent of peat deposits are illustrated in Figure 5.2 below. In the south west of the Plan area, there are significant areas of peat bog at Goole Moor which provide a rich, albeit threatened, wildlife habitat. Thorne, Crowle and Goole Moors SSSI, at nearly 2000 hectares, is the largest lowland raised mire in England. Together with parts of Hatfield Moor SSSI, this has been recognised as being of European importance under the Habitats Regulations and is designated as both a Special Protection Area and Special Area of Conservation. Parts of the site, including two areas of Goole Moor, were declared a National Nature Reserve (NNR) in 1995 and are known as the Humberhead Peatlands. Peatlands are rich in archaeological material which seldom survives elsewhere; ancient boats, bodies, track ways, and organic remains which have vanished from dry sites, all endure in peat bogs. They are also a rich source of information about past environments and climate change, and can act as a 'carbon sink'.

Figure 5.2 – Peat deposits



Safeguarding

5.21 In light of National Planning Policy that no new or extended sites for peat extraction should be identified, the resource is not safeguarded.

5.22 The approach to minerals safeguarding is outlined above in Chapter 3 and in the Mineral Resource and Infrastructure Safeguarding Background Paper available alongside this Plan.

Supply of Peat

5.23 The area has been worked for peat for over 1,000 years. Following the introduction of the planning system, the working continued under planning permissions granted in the 1940s. Since that time, the traditional hand working methods for individual or small scale production were replaced by modern machine cutting and milling for horticultural purposes. This has left large areas devoid of vegetation and unable to regenerate as a peatland habitat.

5.24 In 1994, the predecessor to Natural England secured an agreement whereby further extraction has ceased over much of the permitted area. In addition, the planning consent covering the Goole Moors peat working was reviewed in 1997 under the provisions of the 1995 Environment Act. As a consequence, measures to restore and

regenerate much of the extracted peatlands through management of drainage and vegetation are now being implemented. The remaining permitted areas can only be worked on a small scale and is restricted to locations where there is 'little or no' nature conservation, archaeological or paleo-ecological interest.

5.25 In compliance with the NPPF, the policies of the JMLP with regard to peat are concerned with the management of existing permissions for extraction, rather than the allocation of sites for future working.

5.26 Peat working has already ceased in all significant parts of the resource areas and further working has been restricted to locations where there was 'little or no' nature conservation, archaeological or paleo-ecological interest. New proposals are required to demonstrate that there are no adverse impacts on any adjacent peatland habitats (including degraded sites) through the hydrological effects of peat extraction and that any proposals are subject to Habitats Regulations Assessment.

5.27 Applications for extraction of peat will be determined in accordance with Policy NAM2 as well as well as relevant policies elsewhere within the development plan.

Policy NAM2: Peat Working

A. Peat working and associated development outside the areas already with planning permission will only be supported where:

1. It can be demonstrated that the land is of insignificant nature conservation, archaeological or paleo-ecological value;
2. No adverse impacts on any adjacent peatland habitats (including degraded sites) through hydrological effects of peat extraction would result; and
3. The proposal would be appropriate in nature, scale, and intensity to the character of the local area.

B. Any proposals for future peat working will be subject to a Habitats Regulations Assessment.

5.28 Peat extraction and associated development can often be proposed in environmentally sensitive areas. It is therefore important proposals are compliant with development management policies within this document, and elsewhere within the Development Plan, in assessing whether proposals comply with part A3 of this policy.

5.29 Whether land is of insignificant nature conservation, archaeological or paleo-ecological value will be determined with reference to expert consultee responses, such as Humber Archaeology Partnership and Ecologists.

5.30 The MPAs will continue to seek the voluntary revocation of planning permissions for peat extraction. They will also review and update all planning permissions for peat extraction, in order to bring conditions up to a modern standard for operation and restoration.

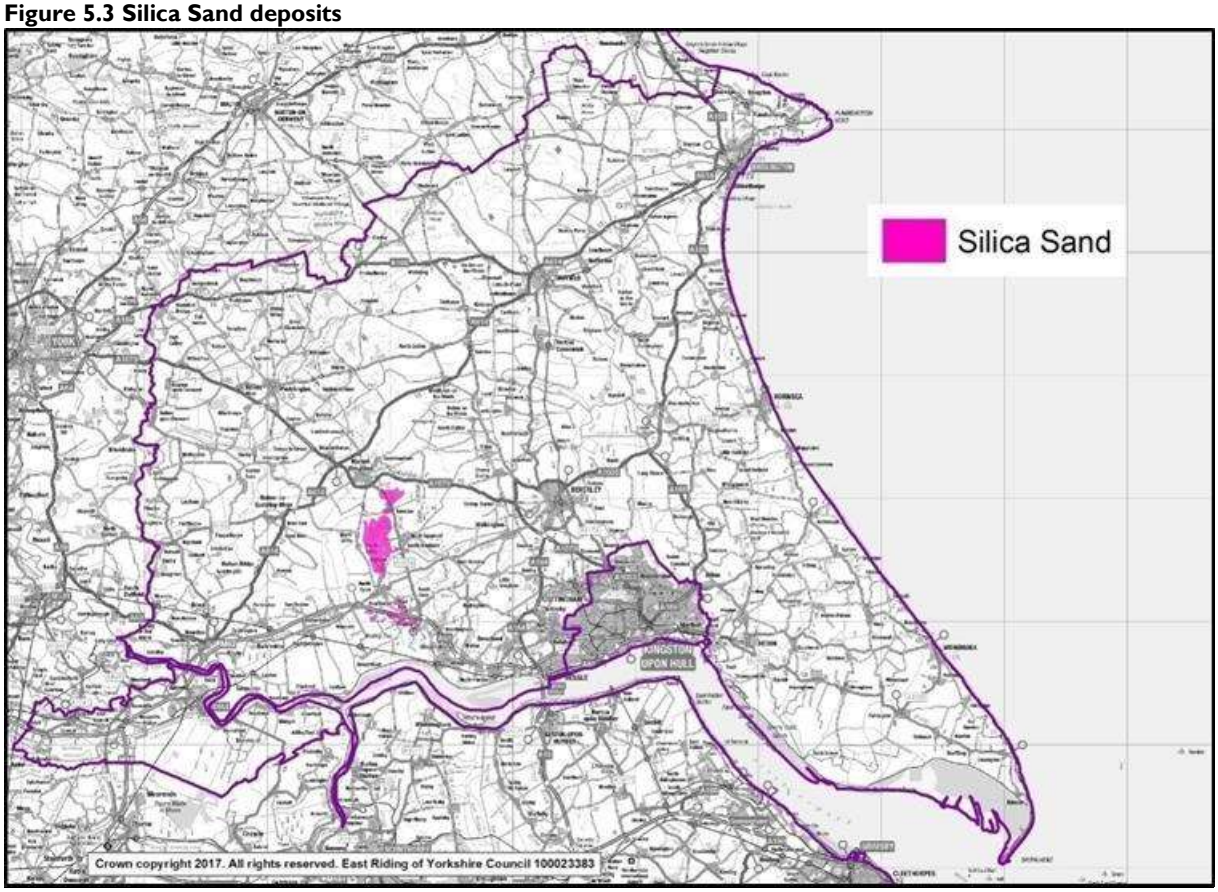
5.31 The government has recommended that no compensation will be payable when bringing permissions up to modern standards. Whilst it has stated that there are to be no blanket revocations of permissions, modifications or revocation could be necessary under the Habitats Regulations. This may be required if continued working would affect the integrity of an SPA or SAC and would be determined by a review of any permission affecting the designated site.

Silica Sand

5.32 Silica sand is also known as industrial sand and contains a high proportion of silica as quartz. It is an essential raw material for the glass and foundry casting industries. It is also used in the manufacture of ceramics and chemicals, and for filtering water. Silica sand is a scarce and high value resource which means it is of national importance and serves a wider geographical market than other types of sand.

5.33 The principal silica sand deposit within the Plan area occurs close to North and South Newbald, to the west of the Wolds. There are also several smaller outlying outcrops, the largest being slightly to the North East of the village. These deposits are illustrated in Figure 5.3.

Figure 5.3 Silica Sand deposits



Safeguarding

5.34 Silica sand deposits are safeguarded in the Plan area. The approach to minerals safeguarding is outlined above in Chapter 3 and in the Mineral Resource and Infrastructure Safeguarding Background Paper available alongside this Plan.

Supply of Silica Sand

5.35 The NPPF advises that provision for an adequate and steady supply of silica sand should be made by maintaining a landbank within areas where silica sand is currently produced. The length of the landbank should be at least 10 years calculated on the basis of an average of the last 10 years production. This requirement might be extended to 15 years where significant new capital investment in plant or site development is involved.

5.36 There are no silica sand processing works in the Plan area and no indications of any future proposals to establish one. The nearest silica sand works are to the south of the Humber near Messingham in North Lincolnshire, where silica sand is processed for coloured glass manufacture, and for foundry sand and other incidental uses. Other deposits are worked nearby at Haxey for mortar sand production.

5.37 Proposals for extracting silica sand for specialist uses, should these arise, will be assessed against Policy NAM3 and other relevant policies elsewhere within the development plan.

Policy NAM3: Supply of silica sand

A. Proposals for the extraction of silica sand will be permitted where it can be demonstrated that:

1. Evidence indicates the presence of economically viable resources suitable for specialist uses; and
2. The proposal would be appropriate in nature, scale, and intensity to the character of the local area.

5.38 Evidence of economically viable resources suitable for specialist uses could include test drilling and test pits. The results must show quality and quantity of mineral is available and suitable for the proposed specialist use, such as glass making.

5.39 Silica sand extraction and processing operations can often be of a large scale. It is therefore important proposals are compliant with development management policies within this document, and elsewhere within the Development Plan, in assessing whether proposals comply with part A2 of this policy.

Building Stone

5.40 Building stone includes material used for roofing, walling, flagstones or ornamental purposes. National planning policy requires consideration as to how to meet any demand for small-scale extraction of building stone at, or close to, relic quarries needed for the repair of heritage assets. This would need to take account of the need to protect designated sites, such as Local Geological Sites and ecological assets that can occur in or around these quarries.

Safeguarding

5.41 There are no known active quarries supplying building stone in the Plan area, although historically there have been several. Former building stone quarries are concentrated along the limestone outcrop on the western side of the Wolds. Six 'Heritage Quarries' identified by Historic England's Strategic Stone Study, which have not been redeveloped for other uses are identified on the Policies Map and included within the mineral safeguarding areas.

Supply of Building Stone

5.42 The supply of building stone is important for the upkeep of traditional buildings and other heritage assets, and can be used in new development to reflect the character of its surroundings. Therefore, it is an important resource for maintaining and enhancing the overall quality of the environment in the Plan area. There are many examples of buildings in the area built from locally sourced stone. These include Flamborough Lighthouse and Burton Agnes Manor (both chalk), and the Church of All Saints in North Cave (Cave Oolite). These require high quality building stone for repair and renovation work.

5.43 It is unlikely to be viable to re-open a quarry to provide building stone for 'ad hoc' repairs to a historic building. Therefore, it is essential that policies support their limited operation on a temporary basis. Medium sized operations to work building stone might also come forward during the plan period to work larger volumes of material on a commercial basis, often in conjunction with aggregate extraction.

Policy NAM4: Building Stone

A. Proposals for the extraction of building stone will be supported where:

1. Evidence demonstrates the contribution it would make to the quality of the built and/or historic environment within the Plan area, or to meeting important requirements for building stone outside the area;
2. The proposed scale of extraction is consistent with the identified needs for the stone; and
3. The proposal would be appropriate in nature, scale, and intensity to the character of the local area.

5.44 Building stone quarries are typically relatively small in scale. As a result of the need to source stone of particular technical or aesthetic properties, they may sometimes be proposed in sensitive locations with the potential for impacts on the environment or local communities. It is therefore important that proposals can demonstrate compliance with other relevant development plan policies.

5.45 Clear evidence needs to be available to demonstrate the contribution that the stone proposed to be worked would make to the quality of the built and/or historic environment. For example, the building or monument the material will be used on will need to be set out within supporting information alongside any planning application. The scale of operation must be no larger than what is needed to fulfil the purpose of the material being extracted.

6. Energy Minerals

6.1 Energy minerals are defined as those which may be burnt to produce energy. In the context of the Plan area, they are oil, gas and coal. Peat is not included as an energy mineral.

6.2 The Energy Act 2008, alongside the Planning Act 2008 and Climate Change Act 2008, provide the legislative framework for the long term challenges of security of energy supply, recognising at the same time the important implications for climate change.

6.3 The Energy Act introduced measures to reflect the availability of new technologies (such as carbon capture), requirements for infrastructure to maintain a security of supply (such as offshore gas storage) and to ensure there is adequate protection for the environment. Many of the measures in this regard are the subject of national and international initiatives. Nevertheless there are implications for the Plan area in respects of coal, oil and gas.

6.4 The Climate Change Act introduced a new approach to managing and responding to the issues of climate change in the UK, by setting legally binding targets, creating powers to help achieve those targets, and strengthening the institutional framework. Two of the fundamental aims of the Act are to improve the UK's carbon management to help the transition towards a low-carbon economy, and to demonstrate international leadership and commitment to climate change.

6.5 There are no target requirements for energy minerals set out in the JMLP. It is government policy to allow the market to establish appropriate levels of production for coal, oil and gas. In addition, the NPPF states that MPAs should encourage underground gas and carbon storage and associated infrastructure if local geological circumstances indicate its feasibility.

6.6 The characteristics of energy minerals are broadly similar to that of non-aggregate minerals. The pattern of supply is primarily shaped by the occurrence of the resources and the availability of specialised facilities for their utilisation. Therefore, the approach to energy minerals in the Plan area seeks to contribute towards the continuity of supplies. This recognises that investment decisions are made on a wider strategic basis and that the national market focuses on where energy minerals are exploited.

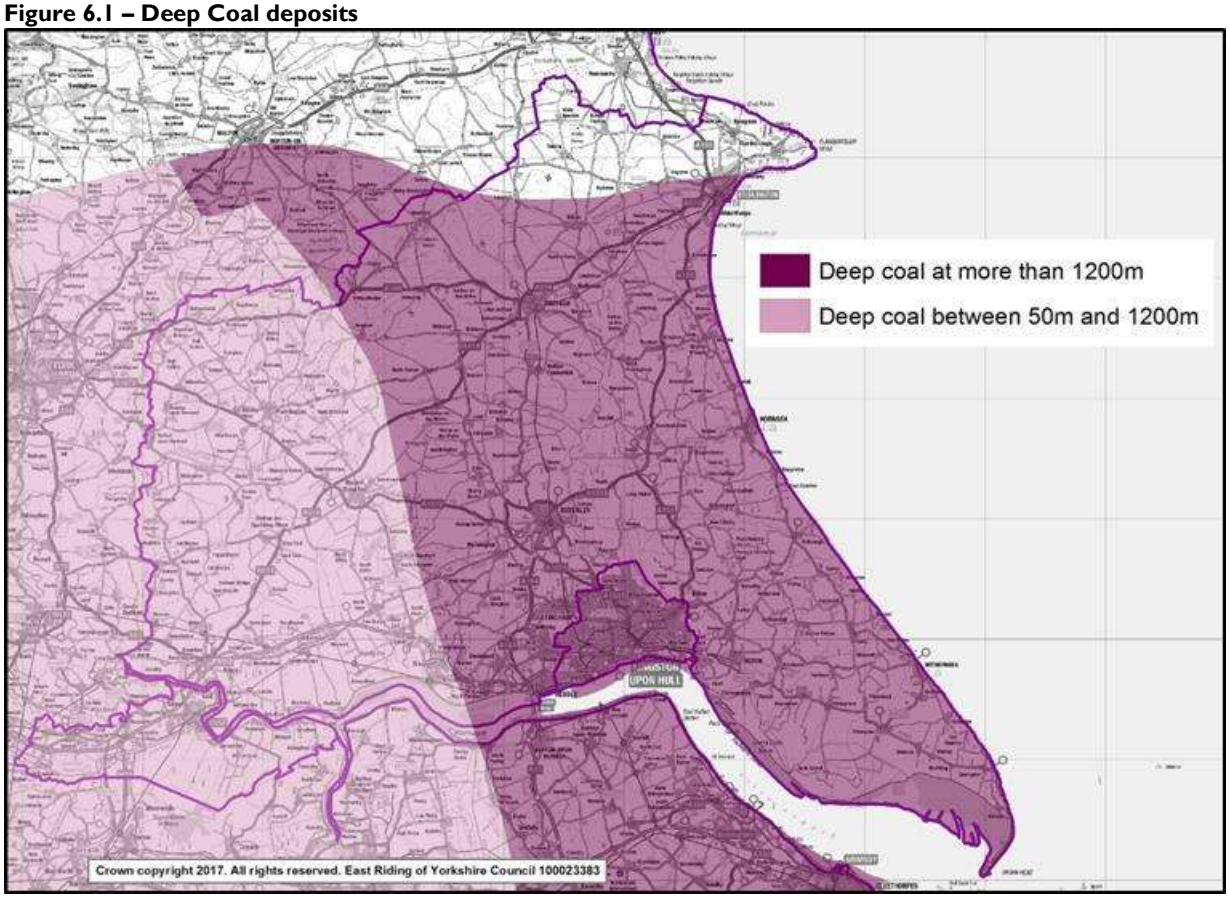
Safeguarding

6.7 Due to the depth of the deposits that bear energy minerals, and the flexibility in the location of facilities for their extraction, there is normally no need to create MSA areas for them.

Coal

6.8 The Western part of the Plan area is underlain by deep coal deposits which are at between 50 and 1200 metres in depth. Deposits are at greater than 1200 metres depth throughout most of the rest of the Plan area (see figure 6.1 below). The more shallow deposits have been worked from mines located in adjacent areas to the west within the Selby Coalfield in Selby District, North Yorkshire; and Hatfield Colliery and Thorne Colliery to the south west within Doncaster Metropolitan Borough. All three collieries have a chequered history of working and at present none are in production.

Figure 6.1 – Deep Coal deposits



6.9 Coal has historically been the largest source of electricity generation in the UK, but this began to decline in the mid-1990s with the construction of new gas-fired power stations. Between 2003 and 2014, coal consistently met around a third of demand. More recently, the share of coal has begun to fall again as cleaner technologies are used to produce electricity, but nevertheless still accounts for 22% of electricity generation in the UK.

6.10 The Energy Act (2013) aims to maintain a stable electricity supply as coal fired power stations are retired. However, the Government has stated it will not impose requirements leading to the closure of coal power stations by 2025 without assuring a secure and reliable electricity supply is maintained. Therefore, coal is still likely to have a key role in the UK's power supply in the short to medium term.[19]

6.11 The NPPF states that minerals local plans should:

- Indicate those areas where coal extraction and the disposal of colliery spoil are likely to be appropriate, subject to development management criteria being met.
- Indicate areas of restraint where coal extraction and the disposal of colliery spoil would not be appropriate, or where the coal resources must be safeguarded for future working.
- Ensure that provision for other development does not unnecessarily sterilise coal resources, nor allow development to encroach on existing mineral operations, increasing the level of environmental impact to an unacceptable level.

6.12 Deep mining can cause different problems, notably subsidence, reduction in the water table and ground water pollution. New surface development, with associated infrastructure and spoil can have more wide ranging impacts. Infrastructure also needs to be in place to transport coal from the point of extraction to where it is used for power generation.

6.13 Coal Mine Methane is released in significant quantities when coal is distressed or fractured by mining. Further gas is released throughout the life of a mine and after it has been abandoned. Not only is this an environmental hazard, because methane is one of the main greenhouse gases contributing to climate change, but it is also a potentially important energy resource. Therefore, it is important arrangements are in place to capture and utilise coal mine methane in association with any underground workings.

6.14 Any proposals for coal mining in the Plan area have the potential to create significant impacts. They must be subject to close and stringent scrutiny to ensure that all possible effects are identified and quantified. This includes requiring that appropriate design and adequate mitigation proposals are made. Any residual impacts would need to be justified in terms of the wider benefits within the approach of national energy policy, and the availability of alternative sources or means of extraction.

[19] Coal Generation in Great Britain The pathway to a low-carbon future: consultation document (November 2016), Department for Business, Energy & Industrial Strategy

6.15 Policy EM1 seeks to provide the framework for determining deep coal mining proposals. There is a lack of adequate information about coal resources. Therefore, it will not be possible to identify areas where coal working may be appropriate, or to safeguard coal resources. In assessing whether proposals include an acceptable scheme for the restoration of a site to a beneficial after use, it will be important to look at whether schemes are deliverable and viable.

6.16 In addition, East Riding Local Plan Policy EC5 provides a general framework within which proposals for the development of the energy sector will be assessed, including fossil fuel energy developments.

Policy EM1: Deep Coal Mining

A. Proposals for the extraction of coal by deep coal mining, including any surface development, will be supported provided:

1. The level and likely incidence of subsidence can be monitored and controlled to effectively minimise impact on the environment and local communities;
2. The potential for transport of coal and spoil by non-road transport has been fully explored, and where possible these modes are fully utilised;
3. Arrangements exist on-site to support the maximum practicable reuse of colliery spoil as secondary aggregate, and for the disposal of all residual spoil likely to be generated over the lifetime of the operation;
4. The potential for capture and utilisation of coal mine methane has been fully explored, and measures put in place to achieve the maximum practicable capture and use of such emissions; and
5. The impacts on nature conservation interests, heritage, the landscape, ground water, surface water drainage and flood risk, and local communities can be mitigated to an acceptable degree and are outweighed by benefits to the local economy.

6.17 Whether effects on nature conservation interests, heritage, the landscape, ground water, surface water drainage and flood risk, and local communities can be mitigated to an acceptable degree will be determined with reference to expert consultee responses, such as conservation officers and ecologists.

6.18 Deep coal mining and associated development and processing operations are invariably of a large scale. It is therefore important proposals are compliant with development management policies within this document, and elsewhere within the Development Plan.

Oil and Gas

6.19 The Government's energy policy is to have a secure and diverse supply of energy sources. However it does not consider it appropriate for planning policy to set targets for, or limits on, different technologies. Oil and gas are important mineral resources and primary sources of energy in the United Kingdom. Oil products provide around 33% of the primary energy used and significant reductions in demand are not expected over the next 10-15 years. The transport sector is the main consumer of oil and will continue to be heavily dependent on it over this period.

6.20 Onshore oil and gas has been produced in substantial quantities in the UK since the 1940s and development broadly consists of three phases - exploration, appraisal and production. Each phase requires separate consideration of its respective implications, although applications can cover more than one stage if the applicant wishes. There is no presumption in favour of consent for subsequent stages if an earlier stage is permitted nor do possible effects of a later stage, not yet applied for, constitute grounds for refusal of an earlier stage.

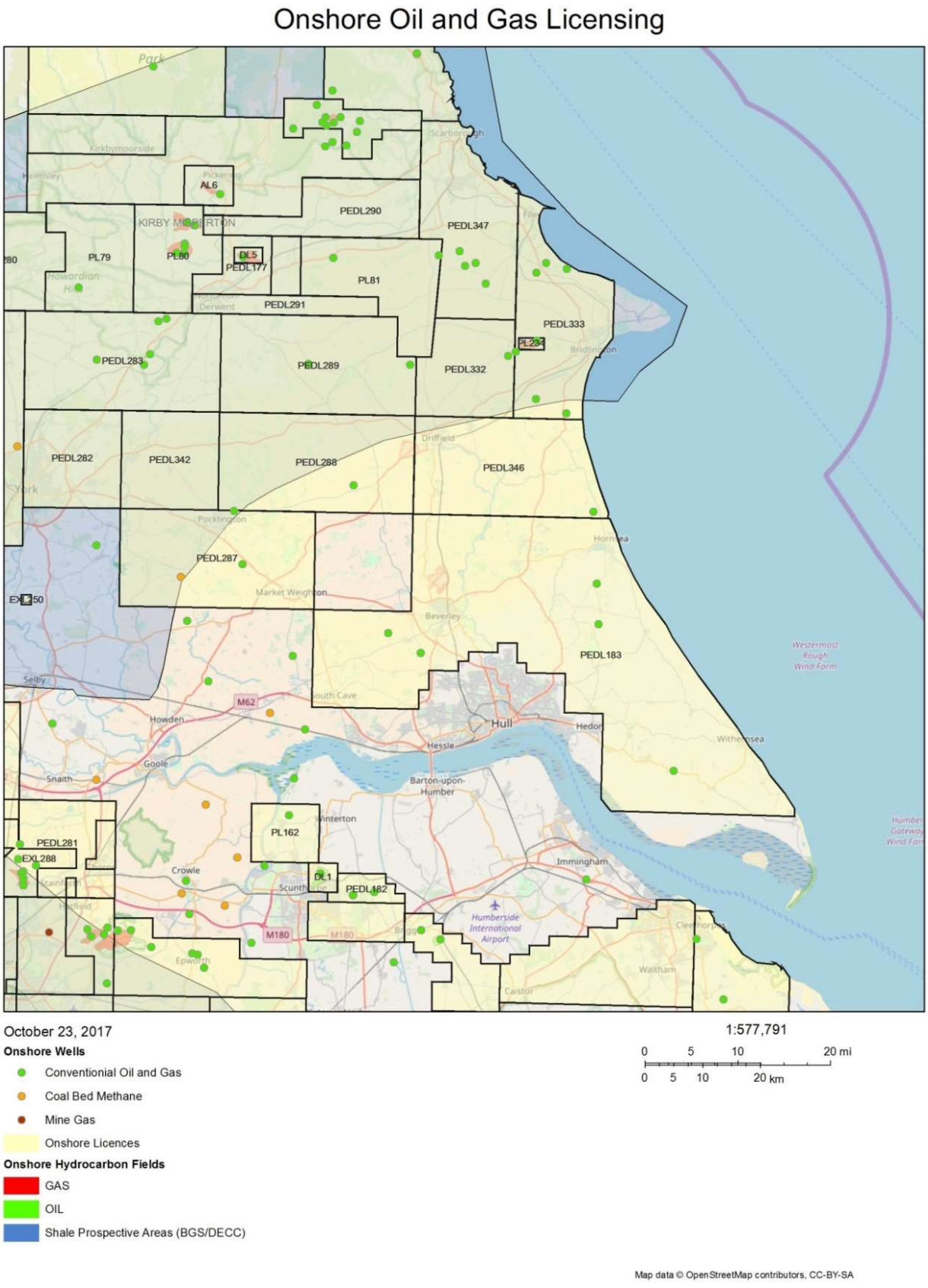
6.21 The Petroleum Act 1998 vests all rights to the nation's petroleum resources in the Crown. The Oil and Gas Authority (OGA) is a government company, with the Secretary of State for Business, Energy and Industrial Strategy the sole shareholder. Its role is to regulate, influence and promote the UK oil and gas industry to achieve its principal objective to maximising the economic recovery of UK offshore oil and gas resources.

6.22 The OGA can grant licences that confer exclusive rights to 'search and bore for and get' petroleum. These licences fall into several categories. The principal distinctions are between onshore and offshore licences, as well as between exploration (which cover exploration alone) and production (which cover both exploration and production) licenses.

6.23 Once a licence is granted, planning permission must be obtained to allow the drilling of a well, or development of an oil or gas field.

6.24 Figure 6.2 shows the position at 23 October 2017 of the onshore licence blocks that have been granted by the Government for oil and gas exploration in the East Riding and Hull area. These are also shown on the Policies Map. It is evident that this area has been geographically identified for onshore oil and gas exploration with the potential for appraisal and production following the exploration phase.

Figure 6.2 – Extent of onshore Oil and Gas Licence areas



Source: https://ogauthority.maps.arcgis.com

6.25 There have been a number of boreholes drilled in the East Riding for exploratory purposes since the 1970s. One site, at Caythorpe west of Bridlington, is in commercial production, although it has been converted to on-site generation of electricity instead of gas export to the national network, as a result of declining gas pressure. This site is soon to be shut down.

6.26 With the increasing value of fuel, further exploration with possible appraisal, production and distribution of resources during the JMLP plan period can be anticipated.

6.27 Exploration can be undertaken using a variety of techniques, but nearly always from the surface. The most common techniques are seismic surveys and exploration boreholes. A seismic survey detects the presence of geological structures with hydro-carbon potential. This may be followed by an exploration borehole. Seismic survey generally has limited environmental impact, but has the potential to cause disturbance through noise and vibration near residential areas, or when undertaken during night time. The vibration may affect particularly sensitive historic buildings.

6.28 Drilling a borehole is normally a short-term, but intensive, activity. Typically, site construction, drilling and site clearance will take up to 18 weeks of which drilling takes approximately 12 weeks depending on depth. Drilling and associated activities will cover an area of up to one hectare. The process also involves site preparation works, for example to provide access, services, drainage, and pollution control. Site infrastructure typically comprises a drilling rig (of between 20 to 50 metres in height (depending on type)) and a series of small scale temporary buildings to support the drilling operation. Drilling must be undertaken 24 hours a day, and for the duration of activity there is significant potential for impacts on the amenity of local residents.

6.29 Once completed the drilling rig is usually removed, and if nothing is found, the borehole will be capped and the site restored. If oil and gas are found then the borehole is sealed and fitted with draw-off and safety valves prior to testing of the find.

6.30 Where exploratory boreholes show that further appraisal is appropriate, more boreholes may be needed to test the extent of the geological structure involved, and additional infrastructure may be required to support the appraisal. Where possible this will utilise the existing infrastructure to minimise impact. This additional development has further potential to create adverse environmental impacts and extend the working over a wider area.

6.31 Oil and gas production wells and associated infrastructure may originate as a result of the development and upgrading of an earlier exploration or appraisal borehole site. Alternatively they may be developed on a new site following the conclusions of the appraisal stage. Pipelines up to 10 miles in extent are subject to planning

permission. Longer pipelines require authorisation from the Government under the Pipelines Act 1962 or the Planning Act 2008 although the considerations applied are the same.

6.32 The NPPF states that MPAs should include policies in their local plan that clearly distinguish between the three phases of oil and gas development, highlighting any environmental or other constraints on production or processing sites.

6.33 East Riding Local Plan Policy EC5 provides a general framework within which proposals for the development of the energy sector will be assessed, including fossil fuel energy developments. Policies EM2 to EM4 of the JMLP (see below) provide further details of the considerations to be taken into account at each stage of oil and gas development. Directional drilling and horizontal drilling are techniques that can be employed in situations where vertical drilling is not practical or might cause more disturbances. Therefore, it might be considered as a means of mitigation in overcoming environmental or other constraints to vertical drilling.

Exploration Boreholes

6.34 The development of an exploration borehole involves a range of potentially adverse environmental impacts, and planning applications must be detailed and comprehensive in their content. Subject to ensuring the protection of the environment, favourable consideration will normally be given to proposals for exploratory boreholes.

Policy EM2: Exploration Boreholes

A. Proposals for exploration boreholes will be supported provided:

1. They are located in the least environmentally sensitive part of the geological prospect as practically possible, taking into account environmental, geological and technical factors to minimise impacts on any identified asset;
2. Mitigation, including the possibility of directional drilling, is provided to ensure that they do not cause unacceptable disturbance to the occupiers of residential properties, or other land uses and their users nearby;
3. They include measures to avoid pollution of ground water, aquifers, and potable water supplies;
4. Mitigation is provided to ensure that operational processes and gas flaring, or other arrangements for the disposal of unwanted gas, do not cause unacceptable disturbance to the occupiers of residential properties, or other land uses and their users nearby;
5. Site selection takes account of impacts over the proposed lifetime of the borehole and the potential for it to be retained for long term appraisal and development; and
6. It makes full assessment and provides information to the satisfaction of the authority for mitigation of any adverse environmental impacts if the borehole is retained for long term appraisal and development.

6.35 The grant of planning permission for an exploratory borehole will not commit the MPAs to any subsequent grant of permission for appraisal or production related development. It is important proposals are compliant with development management policies within this document, and elsewhere within the Development Plan in addition to meeting the requirements of this policy.

Appraisal Boreholes

6.36 Appraisal borehole drilling is intended to test the extent of the geological structure. This stage of oil and gas development extends the working over a wider area and has further potential to create adverse environmental impacts. Consequently it is important that the likely extent of working is established and presented clearly as part of any planning application. This enables the implications of any proposal to be assessed so that the location of possible additional boreholes which may be needed can be judged.

Policy EM3: Appraisal Boreholes

A. Proposals for the drilling of appraisal boreholes will be supported provided:

1. It is required to determine the quality, extent and characteristics of the deposit;
2. They are located in the least environmentally sensitive part of the geological prospect as practically possible, taking into account environmental, geological and technical factors to minimise impacts on any identified asset;
3. Adequate mitigation, and the possibility of directional drilling, is provided to ensure that they do not cause unacceptable disturbance to the occupiers of residential properties, or other land uses and their users nearby;
4. They include measures to avoid pollution of ground water, aquifers, and potable water supplies;
5. Mitigation is provided to ensure that operational processes and gas flaring, or other arrangements for the disposal of unwanted gas, do not cause unacceptable disturbance to the occupiers of residential properties, or other land uses and their users nearby;
6. Site selection takes account impacts as a result of the proposed lifetime of the borehole, and the potential for it to be retained for long term development; and
7. It makes full assessment and provides information to the satisfaction of the authority for mitigation of any adverse environmental impacts if the borehole is retained for long term development.

6.37 It is important proposals are compliant with development management policies within this document, and elsewhere within the Development Plan in addition to meeting the requirements of this policy.

Oil and gas production and distribution

6.38 Oil and gas production wells and associated distribution infrastructure may originate as a result of the development and upgrading of an earlier exploration or appraisal borehole site. Alternatively, they may be developed on a new site following the conclusions of the appraisal stage. Where previous boreholes are developed for production purposes, the MPAs will review any previously submitted mitigation proposals. This will include, where necessary, consideration of enhanced measures that take into account their effectiveness, and the scale of the proposed development.

6.39 In all cases the full implications of the proposed development will need to be considered, including measures to mitigate potential impacts from operational processes and traffic.

Policy EM4: Oil and Gas Production and Distribution

A. Proposals for oil and gas production and distribution will be supported provided:

1. It can be demonstrated that both surface development and the routing of associated pipelines are located in the least environmentally sensitive part of the geological prospect as practically possible, taking into account environmental, geological and technical factors to minimise impacts on any identified asset;
2. Mitigation is provided to ensure that operational processes and gas flaring, or other arrangements for the disposal of unwanted gas, do not cause unacceptable disturbance to the occupiers of residential properties, or other land uses and their users nearby;
3. They include measures to avoid pollution of ground water, aquifers, and potable water supplies; and
4. Arrangements are made for the control of all traffic generated by the development, and the potential for transport of oil or gas for export by non-road transport has been fully explored, and where possible these modes are fully utilised.

6.40 It is important proposals are compliant with development management policies within this document, and elsewhere within the Development Plan in addition to meeting the requirements of this policy.

Unconventional Hydrocarbons

6.41 The oil and gas described above is obtained from sandstone or limestone and as such is referred to as 'conventional'. Unconventional hydrocarbons refer to oil and gas which is obtained from other sources, such as shale or coal seams, which act as the reservoirs.

6.42 Unconventional hydrocarbons, such as coal bed methane and shale gas, are emerging as a form of energy supply. The Government has set out that there is a national need to explore and develop shale gas and oil resources in a safe, sustainable and timely way. It is encouraging safe and environmentally sound exploration to determine this potential.

6.43 Exploratory drilling may take considerably longer for unconventional hydrocarbons, especially if there is a need for hydraulic fracturing and, in the case of coal bed methane, removing water from the coal seam.

Coal Bed Methane (CBM)

6.44 There is growing recognition of the scope for utilising Coal Bed Methane and plants are operating elsewhere in North Yorkshire, South Yorkshire, Derbyshire, Nottinghamshire, Staffordshire and South Wales.

6.45 A system of licensing is administered by the OGA for the exploration of deep unmined coal seams. Once a licence is granted, planning permission must be obtained for the drilling of a well, or development of an oil or gas field.

6.46 A significant proportion of the Plan area is covered by licences which are illustrated in Figure 6.2 above and shown on the Policies Map. The main concerns associated with the exploitation of CBM arise from the need to abstract groundwater and the disposal of water produced during well stimulation and production of gas. In addition to the licensing system mentioned above, the processes are subject to permits obtained from the Environment Agency.

6.47 Applicants are encouraged to present the long term options for the further development of a deposit in principle when applying for permission for the initial exploratory drilling. This should enable the potential longer-term environmental impacts of a development, including objections, to be understood from the outset.

Policy EM5: Coal Bed Methane

Exploration Phase

A. Proposals for the exploratory drilling for coal bed methane and appraisal of the deposit will be supported where it:

   1. Is accompanied by a description of options and impacts for the further development of the deposit if found to be commercially viable;
   2. Would be appropriate in nature, scale, and intensity to the character of the local area; and
   3. Includes measures to avoid pollution of ground water, aquifers, and potable water supplies.

B. On completion of the exploratory phase, if gas is not found in commercially viable quantities, installations should be removed and the site restored as close as practical to its previous state. Installations should be retained where they are needed to keep pumping water in order to protect production from an adjoining gas area.

Appraisal Phase:

C. Where the existence of coal bed methane is discovered, proposals to appraise, drill and test the resource will be supported provided that they are consistent with an overall scheme for the appraisal and description of the resource and meet criteria A1 to A3 above.

Commercial production:

D. Proposals for the commercial production of coal bed methane, or for the establishment of a related plant, will be determined strictly on their merits in terms of the balance of need against environmental impact, subject to meeting the requirements of the criteria A2 and A3 above.

E. All applications for coal bed methane development must be accompanied by details of how the site would be restored back to its original use once the relevant operation is completed, subject to it not being approved for further stages of exploitation. The retention of haul roads and hard standing will be permitted only where there are clear agricultural or other benefits of doing so. Schemes should provide details of the timescale for both operational activity and restoration.

6.48 It is important proposals are compliant with development management policies within this document, and elsewhere within the Development Plan in addition to meeting the requirements of this policy.

Shale Gas (Hydraulic Fracturing)

6.49 The extraction of shale gas uses a technology known as 'hydraulic fracturing'. This is the process of opening and/or extending existing narrow fractures or creating new ones (fractures are typically hairline in width) in gas or oil-bearing rock. This is done by injecting a high-pressure fluid (usually chemicals and sand suspended in water) into a wellbore. These then allow gas or oil to flow into wellbores to be captured. The Government believes shale gas development is of national importance. It expects the benefits of mineral extraction, including to the economy, to be given great weight.

6.50 Exploration in the UK is at an early stage and it is unknown whether there is potential for this activity in the Plan area or if the geology is suitable. The system of licensing described above and associated licensed areas shown in Figure 6.2 and on the Policies Map, includes provision for the exploitation of shale gas. There is potential for shale gas proposals to come forward during the plan period.

6.51 Shale gas activity has several different phases including the exploration of shale gas prospects, appraisal of any reserves and production.

6.52 Exploration and processing operations are different from conventional mineral workings. They need less land and have more flexible locational requirements compared to other minerals developments. A key difference is that relatively large quantities of water are required for the extraction process.

6.53 Exploration covers a range of activities including geological mapping, geophysical/seismic investigations and the drilling and investigation of wells and boreholes to assess prospective sites in more detail. The only way to firmly establish if shale gas is present is to drill a borehole. Hydraulic fracturing may also be required. Both of these require planning permission.

6.54 The appraisal phase may include additional seismic work, longer-term flow tests, or the drilling of further wells. As shale gas is an unconventional hydrocarbon it may also involve further hydraulic fracturing followed by flow testing to establish the strength of the resource and its potential productive life.

6.55 The production of shale gas usually involves the drilling of a number of wells. These may be sited at the same location(s) as the exploratory and/or appraisal phases, or at a new site. The most likely associated equipment required includes pipelines, processing facilities and temporary storage tanks. The production life of a gas field can be up to 20 years, although it can be longer.

6.56 Impacts from shale gas extraction may include noise and vibration. Proposals would need to demonstrate that the integrity of the geological structure will remain intact and there would be no adverse impact on ground stability during or after extraction. Of key importance will be the need to avoid any harm to the stability of the coastline.

Particular attention should also be given to potential effects on water resources to ensure that there would be no adverse impact, as well as measures for the disposal of waste water, which may contain chemicals and naturally occurring radioactive materials, produced during well stimulation and gas production.

6.57 Restoration of all shale gas sites is a key consideration. As shale gas development takes place over three phases, it is possible to require the restoration of well sites to be undertaken at the end of each phase, rather than allowing the operator to keep the site on hold before moving onto the next phase.

Policy EM6: Extraction of Shale Gas (Hydraulic Fracturing)

Exploration Phase

A. Proposals for shale gas exploration will be supported provided:

1. Environmental risks have been assessed and measures will be taken to mitigate any adverse impacts on the environment and the local amenity to acceptable levels;
2. It can be demonstrated that the proposals are located in the least environmentally sensitive part of the geological prospect as practically possible, taking into account environmental, geological and technical factors to minimise impacts on any identified asset;
3. They include measures to avoid pollution of ground water, aquifers, and potable water supplies;
4. They include measures to avoid unacceptable adverse impacts as a result of vibration and induced seismicity;
5. Mitigation is provided to ensure that operational processes and gas flaring, or other arrangements for the disposal of unwanted gas, do not cause unacceptable disturbance to the occupiers of residential properties, or other land uses and their users nearby;
6. They include measures to avoid air pollution; and
7. It can be demonstrated that arrangements can be made for the management or disposal of any returned water from the development.

Appraisal Phase

B. Where the existence of shale gas is discovered, proposals to appraise, drill and test the resource will be supported provided that they are consistent with an overall scheme for the appraisal and description of the resource and meet criteria A1 to A7 above.

Production Phase

C. The production phase of the extraction of shale gas can only take place once a full exploration and appraisal programme has been completed and the proposed

location has been shown to be the most suitable, taking into account environmental, geological and technical factors.

D. Proposals for the extraction of shale gas will only be supported provided:

1. They include adequate provision for the supply of water and disposal of waste water without unacceptable adverse impacts on surface and groundwater flows, quantity and quality;
2. They include measures to avoid pollution of ground water, aquifers, and potable water supplies;
3. They include measures to avoid unacceptable adverse impacts as a result of vibration and induced seismicity;
4. It can be demonstrated that arrangements can be made for the management or disposal of any returned water from the development;
5. Mitigation is provided to ensure that operational processes and gas flaring, or other arrangements for the disposal of unwanted gas, do not cause unacceptable disturbance to the occupiers of residential properties, or other land uses and their users nearby;
6. They will not generate unacceptable adverse impacts on the environment and local amenity;
7. Environmental risks have been assessed, and measures will be taken to mitigate any adverse impacts on the environment and the local community to acceptable levels;
8. It includes measures to avoid air pollution;
9. A full appraisal programme for the shale gas resource is included, completed to the satisfaction of the Mineral Planning Authority; and
10. A development framework for the site, incorporating or supplemented by a comprehensive economic assessment is included.

E. All applications for shale gas development must be accompanied by details of how the site would be restored back to its original use once the relevant operation is completed, subject to it not being approved for further stages of exploitation. The retention of haul roads and hard standing will be permitted only where there are clear agricultural or other benefits of doing so. Schemes should provide details of the timescale for both operational activity and restoration.

F. Where proposals for shale gas extraction coincide with areas containing other underground mineral resources, evidence must be provided to demonstrate that their potential for future exploitation will not be compromised.

6.58 The issue of whether impacts on the environment and local amenity can be mitigated to within acceptable levels will be determined with reference to expert opinion (for example the conservation team or landscape officer within the relevant MPA), as well as judgement against set guidance, such as the landscape character assessment.

6.59 Appropriate planning obligations and conditions will be sought to ensure that the proposal adheres to the JMLP.

6.60 Environmental Impact Assessment (EIA) is likely to be required in many instances as this type of development is often 'likely to have significant impacts on the environment'. An EIA will identify the likelihood of significant impacts occurring as a result of the development proposed, how these can be mitigated and consider alternative ways in which the development could be carried out. Where EIA is not required any potential environmental risks should be considered in an Environmental Statement.

6.61 In common with all types of mineral development, the MPA will refer to the Development Plan as a whole when considering any application. This includes East Riding Local Plan Policy EC5, which provides a general framework within which proposals for the development of the energy sector will be assessed, including fossil fuel energy developments. It also includes the development management policies within Section 7 of this Plan.

Underground Storage of Natural Gas

6.62 The UK is becoming increasingly reliant on sources of imported gas to meet demand. Therefore, facilities are needed for the storage and transportation of imported gas.

6.63 A number of pipelines for imported gas make their landfall along the coast of East Riding, including the Langeled gas pipeline delivering gas from Norway to the UK at Easington. Salt cavern gas storage facilities are based at Atwick, Aldbrough, and Caythorpe. An extension to double the capacity of the Aldbrough site was granted planning permission in 2007. This was partially implemented making the permission extant, however the company concerned has made it clear it does not now intend to build the facility.

6.64 The pipelines themselves are not strictly classed as mineral development. However, the associated creation of storage caverns in underlying deposits of salt can be regarded as mineral development, particularly as they are so dependent on the quality of the salt deposit.

6.65 Gas storage caverns can only be created in suitably thick homogeneous salt strata, which are free of major faulting systems. The deep salt deposits under the East Riding of Yorkshire are amongst the few locations in the UK where such salt deposits occur. Sites along the coast offer the best prospect, because the salt strata thins towards the west. The strata along the coastline between Bridlington and Withernsea are considered most suitable for forming underground gas storage caverns.

6.66 Following exploration and appraisal of the salt deposits, the caverns are created through a process known as solution mining. Water is pumped down a pipe inside a well into the salt. The water dissolves the salt, creating brine which flows back up the well. This process continues until the caverns reach the planned size and disposition. Following this, the brine is slowly pushed out by injecting gas from the pipeline system.

6.67 The caverns themselves are very deep underground, typically some 1.5 to 2km below the surface.

6.68 Surface development comprises well heads, of which there may be several, processing plant and monitoring equipment. The impact of the development is greatest during construction.

6.69 Facilities close to the coast can be prone to threats from coastal erosion, which can lead to a requirement for coastal defences to be provided to safeguard the facility where there is a 'Hold the Line' policy within the Flamborough Head to Gibraltar Point Shoreline Management Plan. Where a 'No Active Intervention' policy is in place, infrastructure should be located inland, in line with guidance under Policy ENV6 within the East Riding Local Plan. The introduction of directional drilling has meant that the surface features do not need to be vertically above the storage caverns, and this provides flexibility in the siting of wellheads and gas processing plants.

6.70 The NPPF states that MPAs should encourage gas and carbon storage and associated infrastructure if local geological circumstances indicate it is feasible. When determining planning applications the MPAs should ensure that the integrity and safety of underground storage facilities are appropriate, taking into account the maintenance of gas pressure, prevention of leakage of gas and the avoidance of pollution.

Policy EM7: Underground Storage of Gas and Related Surface Development

A. The formation of caverns for the underground storage of gas and related surface development will be supported where:

1. The integrity of the geological structure and proposed works will ensure there is no possibility of gas escape or land instability;
2. Arrangements are in place to minimise the impacts of construction on the local road network;
3. Environmental risks have been considered by submission of a robust environmental risk assessment, and measures will be taken to mitigate any adverse impacts on the environment and the local community to acceptable levels;
4. It can be demonstrated that both surface development (including well heads) and the routing of associated pipelines are located in the least environmentally sensitive part of the geological prospect as practically possible, avoiding impacts to designated heritage, geological and biodiversity assets;
5. It can be demonstrated that the location of the well heads and gas processing facility do not raise any implications for coastal defence during their expected lifetime;
6. Mitigation is provided to ensure that operational processes and gas flaring, or other arrangements for the disposal of unwanted gas, do not cause unacceptable disturbance to the occupiers of residential properties, or other land uses and their users nearby; and
7. Measures are included to avoid pollution of ground water, aquifers, and potable water supplies.

6.71 The Planning Act 2008 defines underground gas caverns over 43 million cubic metres in capacity or with a flow rate of 4.5 million m^3 per day or greater as nationally significant infrastructure projects for which planning applications are to be determined by the Planning Inspectorate. Policy EM7 will apply to any proposals for underground gas storage caverns and associated surface development below these thresholds.

6.72 The issue of whether impacts on the environment and local community can be mitigated to within acceptable levels will be determined with reference to expert opinion (for example the conservation team or landscape officer within the relevant MPA), as well as judgement against set guidance, such as the landscape character assessment.

6.73 In common with all types of mineral development, the MPA will refer to the Development Plan as a whole when considering any application. This includes East Riding Local Plan Policy EC5, which provides a general framework within which proposals for the development of the energy sector will be assessed, including fossil fuel energy developments. It also includes the development management policies within Section 7 of this Plan.

7. Development Management Policies

7.1 The JMLP will be implemented through the use of development management policies that are specific to the minerals issues raised in this document. In line with the NPPF, these policies are positively worded and cover a variety of issues.

7.2 The policies set out within this chapter aim to establish the key criteria against which minerals proposals will be judged. They do not seek to unnecessarily repeat national policy, or other policies within the Development Plan for the Plan area (including the East Riding and Hull Local Plans).

7.3 It is therefore important to bear in mind that many criteria against which minerals development will be judged are contained within the East Riding Local Plan (ERLP) and Hull Local Plan (HLP). This includes:

- Traffic issues covered by ERLP Policies S8 and EC4, and HLP Policies 25, 26, 27, 28, 32, 34, 35.
- Flood risk and water quality issues covered by ERLP Policy ENV6, and HLP Policies 37, 38, 39, 40.
- Landscape issues covered by ERLP Policy ENV2.
- Biodiversity and geological conservation issues covered by ERLP Policy ENV4, and HLP Policy 44.
- Historic landscape and assets covered by ERLP Policy ENV3 and HLP Policy 16.
- Open space, recreational facilities and public rights of way covered by ERLP Policies S8 and C3 and HLP Policies 36 and 42.

<u>The Development Management Process</u>

7.4 Development Management is the general term given to the processing of planning applications and related matters, including the enforcement of planning control. Planning applications should contain justification for the development, details of how operations will be managed and any measures proposed to reduce or avoid adverse effects. The MPAs will consider all the environmental, economic and community issues which are relevant to each planning application for minerals development.

7.5 Sufficient information must be provided with planning applications so that the likely effects of the minerals development proposed, together with proposals for appropriate control or mitigation, can be considered. The type of information that should be provided in support of applications for minerals development will be published on the two authorities' respective Validation Checklists.

7.6 Applicants are encouraged to discuss their proposals with the relevant MPA before submitting a planning application. Pre-application discussions help to identify possible impacts from proposals and enable potential issues to be avoided or minimised at an early stage. Applicants will be advised if their proposals are unlikely to be acceptable. The MPA may suggest that applicants take advice from statutory bodies such as the Environment Agency, Natural England and Historic England about the need to carry out detailed assessment work.

7.7 Consultation with statutory and other bodies, such as local interest groups, will help to identify potential impacts of a proposed development, improve the quality of the planning application submission and the decision on the planning application. The separate Statements of Community Involvement (SCI) produced by the MPAs provide information on how consultation on planning applications will be carried out.

7.8 If planning permission is granted for minerals development, planning conditions and legal agreements will often be attached to regulate the operation of the development. Planning conditions can be used to agree or control specific details of a proposal (for example, a landscape and restoration scheme) or to ensure that effects on local communities and the environment are controlled and reduced (for example, specified hours of working or traffic routing).

7.9 Planning legislation and policy goes a long way towards protecting communities and the environment. However, controls are also placed on developments through other mechanisms such as European regulations and pollution control regimes set out under environmental legislation. Where adverse effects cannot be adequately controlled or prevented, planning permission will be refused.

Environmental Impact Assessment

7.10 Environmental Impact Assessment (EIA) is often required for major developments that are 'likely to have significant impacts on the environment'. An EIA will identify the likelihood of significant impacts occurring as a result of the development proposed, how these can be mitigated and consider alternative ways in which the development could be carried out.

7.11 All proposals for minerals development should be 'Screened' with the relevant MPA to determine whether or not they require an EIA. The Screening process helps to identify whether the proposal is likely to have significant environmental effects. If an EIA is required, a Scoping Request should be submitted to the MPA. This will enable an agreement to be reached on the impacts likely to be significant and how they should be addressed by the EIA. An Environmental Statement (ES) must accompany a planning application for minerals development that has been deemed EIA development. The ES should be prepared in accordance with the EIA regulations.

Habitats Regulations Assessment

7.12 Habitats Regulations Assessment (HRA) is required by law (Conservation of Habitats and Species Regulations 2010) for all plans and projects to assess their impact upon European Sites. These are Special Areas of Conservation (SAC), Special Protection Areas (SPAs) and as a matter of policy only, Ramsar sites. In the Plan area, there are six SPAs, eight SACs and two Ramsar sites..

7.13 Any HRA must first determine whether or not the plan or project would be likely to have a significant effect upon a European site. If it would have a likely significant effect then the HRA must proceed to the appropriate assessment stage to determine whether or not the plan or project would have an adverse effect upon the integrity of a European site. If it would have an adverse effect upon integrity, then the plan or project can only proceed if certain tests are met and compensation provided.

Material Considerations

7.14 Every planning application for development is determined on its merits and should be determined in accordance with the Development Plan, which includes the JMLP, unless material considerations indicate otherwise. When planning applications are determined, all relevant policies in the Development Plan will be taken into account and used as the basis for decision-making. The policies contained in the Development Plan shall be read as whole. A proposal that is in accordance with one policy may not be acceptable if it is contrary to other policies in the Plan.

7.15 The scope of material considerations can be very wide and include impacts on local communities, national planning guidance and the need for development. There are no firm rules about the range and type of material considerations or the weight which should be attached to them in individual decisions. This is because:

- Material considerations are subject to change in light of Government guidance and court judgements; and
- The Development Plan cannot explain which considerations may be material to a particular planning decision because the circumstances of each planning application may be different.

7.16 In summary, each policy in the JMLP for the East Riding of Yorkshire and Hull area should be read as if it "is subject to all other relevant policies in the Development Plan and to all other material considerations".

Monitoring & Enforcement

7.17 The effective monitoring of operational sites is important. Requirements for the monitoring of impacts such as dust and noise, may be controlled through planning conditions. However, it is important that the two MPAs act as an independent regulator to increase confidence amongst local communities. Efficient and effective monitoring and enforcement can often identify potential problems at an early stage. This can ensure these are resolved quickly and satisfactorily.

Development Management Policies

7.18 The policies set out below aim to establish a set of specific minerals related criteria against which proposals will be judged.

Impacts of minerals development

7.19 Mineral developments tend to be large scale compared to other types of development, particularly proposals concerning surface mineral extraction. This combined with the nature of mineral proposals, can give rise to particular impacts such as dust, noise and visual, which require careful management.

7.20 Policy DM1 is an 'umbrella' development management policy setting out these considerations to ensure that a mineral development is (or can be made to be) as sustainable as possible.

7.21 The other development management policies that follow are thematic and address particular considerations in greater detail.

Policy DM1: Impacts of Mineral Development

A. Mineral development will be supported where it can be demonstrated that:

1. There is a clear need for the development proposed;
2. The development would avoid harm to the environment or communities. Where harm is outweighed by the need for the development, the impacts on communities and the environment can be mitigated to within acceptable levels, both individually and cumulatively (including the impact of the factors in part B below) with other existing and proposed mineral and other forms of development; and
3. Enhancement opportunities are taken as part of development or its restoration.

B. In determining applications for minerals development, including the proposed order and method of working, the overall programme of extraction and the proposed restoration and aftercare of the site, the following must be addressed where relevant:

1. Greenhouse gas emissions reduction and resource efficiency. Proposals that reduce overall greenhouse gas emissions and improve resource efficiency during construction, operation, and restoration will be supported;
2. Noise, dust, fumes, illumination and visual intrusion;
3. Surface and groundwater pollutant emissions. Proposals that do not have an unacceptable adverse impact on water quality or achieving the targets of the Water Framework Directive will be supported;
4. Effects of climate change, including flood risk;
5. Character, quality, distinctiveness, sensitivity and capacity of the landscape and any features which contribute to these attributes;
6. Green infrastructure, biodiversity (including protected habitats and species) and geodiversity assets. Proposals that promote these, including to create carbon sinks, will be supported;
7. Historic landscape, sites or structures of existing or potential archaeological, architectural or historic interest and their settings;
8. Land stability, contamination, and soil resources;
9. Open space, public rights of way, and outdoor recreational facilities; and
10. The local economy.

7.22 In terms of demonstrating a clear need for development. In the case of aggregates this could include a low landbank against the required number of years, although there is no maximum landbank and further large construction projects may come forward that require further local aggregate resources to be permitted in a timely

fashion. For all minerals development, it could include due consideration to situations where resources are running out at a particular quarry or facility resulting in a need for further resources to prolong the investment, jobs, or production from a particular site. Further materials or products from certain sites may be needed to fulfil a particular niche, such as a borrow pit needed to provide material for a major construction project nearby, or a quarry needed to supply a particular type of building stone to help restore a heritage asset.

7.23 Policy DM1 requires the consideration of cumulative impacts arising between mineral development and other forms of development. Policies elsewhere within the Development Plan for the Plan area as well as national planning policy and guidance go into greater depth as to how particular impacts should be assessed and what impact mitigation measures may be appropriate.

7.24 Table 7.1 below sets out what policies within the Hull and East Riding Local Plans are relevant to a number of different themes.

Table 7.1: Hull and East Riding Local Plan policy themes

Theme	East Riding Local Plan Policies	Hull Local Plan Policies
Flood risk	ENV6	40
Surface and groundwater	ENV6	38 and 41
Landscape	ENV2	-
Biodiversity and geodiversity	ENV4	44
Heritage	ENV3	16
Open space	C3	42
Contaminated land	ENV6	48
Green infrastructure	ENV5	43

7.25 The processing and extraction of minerals can be an energy intensive business which produces carbon emissions. The mineral sector must make a contribution to meeting carbon reduction targets set out in the UK Low Carbon Transition Plan and the Strategy for Sustainable Construction. Mineral development must be carried out in such a way that reduces embodied and operational carbon emissions associated both with site/plant and transportation of materials and products during the life cycle of the development (construction, operation and restoration). Promotion of renewable and low carbon energy and energy efficiency are key to achieving this.

7.26 Minerals development must also be planned to avoid increased vulnerability to the range of impacts arising from climate change over the long term, in particular increased flood risk.

7.27 Well planned restoration schemes developed as part of larger landscape-wide initiatives can assist in establishing ecological networks which are more resilient and enable the movement of wildlife as it adapts to climate change.

7.28 The Water Framework Directive sets a target of aiming to achieve at least 'Good Status' in all water bodies by 2015. Water quality will be a significant planning concern if mineral workings directly or indirectly affect water bodies by having an adverse impact. For this reason development needs to be appropriately planned, designed and monitored throughout its life. Under the Pollution Control regime, the Environment Agency is responsible for regulating mineral development activities to ensure that water quality meets set standards to prevent harm to the environment or human health.

7.29 New mineral development proposals should include an assessment of how it would affect surface and/or underground water bodies and how any impacts will be mitigated. Assessments should focus on:

- Identifying where there might be impacts on water bodies;
- Options to reduce any impacts;
- Alternative development options that would avoid or reduce impacts;
- Ways of preventing deterioration of current water body status;
- Considering objectives in River Basin Management Plans (RBMP) for protected areas;
- Taking listed measures in a RBMP into account; and
- Seeking opportunities to improve water bodies.

7.30 Proposals for mineral development will only be permitted where it can be demonstrated that provision has been made to protect and, where appropriate, enhance ground and surface water.

Protecting Residential Amenity and Other Uses

7.31 Although minerals development is a temporary use of land, it is often long lived. Therefore, if quarries and associated facilities are not managed to high standards, the effects of development can last both during the operational lifetime of the development and also beyond. There are a range of possible impacts, including:

- Noise, vibration and dust from quarry traffic, mineral extraction and processing plant;
- Visual impacts from the development as a whole, including lighting; and

- Debris from the site and increased traffic movements in particular from HGVs.

7.32 These impacts can cause concern and nuisance for the residents of properties near to mineral operations. Therefore, it is important that these impacts are kept to a minimum if residential amenity and standards of living are to be maintained throughout the lifetime of the development and beyond.

Policy DM2: Protecting Residential Amenity and Other Uses

A. Minerals development will be supported provided it does not generate unacceptable adverse effects from noise, dust, vibration, odour, emissions, illumination, visual intrusion or traffic, to adjacent land uses and their users.

B. Development should provide adequate mitigation, in particular additional landscaping, screening and planting, to ensure that impacts can be controlled to within acceptable levels. Where necessary, this should be provided in advance of development.

7.33 Many impacts from minerals development are generally managed through statutory controls and procedures. The issue of whether impacts on communities can be mitigated to within acceptable levels will be determined with reference to expert opinion, such as from Highway Control or Environmental Health teams within the relevant MPA, as well as judgement against set guidance, such as the noise exposure hierarchy in PPG.

7.34 The potential impact that a mineral operation could have should be considered its design and operation so that this can be reduced. There are many ways in which quarry operators can ensure their proposals do not have an unacceptable adverse impact upon the amenities of those people residing on or using land and facilities nearby. These can involve:

- Restrictions on the operation of both the quarry and specific plant at agreed times during the day with no weekend or night working;
- The use of water bowsers on site during dry weather and sheeting of vehicles to suppress dust and debris;
- Control over the number, timing, and routing of HGV movements; and
- The creation of screening and bunds through landscape planting to help lessen the visual impacts of the development throughout the lifetime of the quarry.

7.35 Mitigation measures, such as bunds and tree screening, should be implemented pre-development and maintained throughout the lifetime of the mineral working.

7.36 The phasing of mineral extraction can be used to ensure that working closest to residential areas and other more sensitive uses is minimised. For example, this could limit development until new screen planting, or other mitigation measures, have been put in place and been given time to mature. The route that traffic uses to access the site can also play a significant role in reducing impacts on local communities. Such quarry management measures can be agreed through negotiations between the MPA and quarry operators and controlled through planning conditions and legal agreements.

7.37 Where mineral workings are proposed in close proximity to residential properties, and landscaping proposals may not be sufficient to provide adequate protection to residents, adequate separation distances (or stand-offs) can be agreed which would vary depending on the mineral activity being considered. These should ensure that mineral working on the site does not take place within a specified distance of such properties. The nature and duration of the proposed activity, potential for mineral sterilisation, types of anticipated impacts and alternative mitigation measures available, are all issues to take into consideration in developing stand-offs.

Restoration and Aftercare

7.38 The restoration of mineral sites to either their former use or a new use can usually meet one or more planning objectives such as improving biodiversity, creating public access, or leisure, recreation and community uses.

Policy DM3: Restoration and Aftercare

A. Proposals for mineral development will be supported where it can be demonstrated that an appropriate restoration scheme would follow. This should be agreed with the MPA to achieve a high standard of restoration and aftercare for an appropriate period of time that:

1. Ensures the site is restored in a manner which is sympathetic to the character, appearance and setting of the locality, and where practicable contributes to the delivery of local objectives for biodiversity and community use;
2. Is carried out at the earliest opportunity and progressive during operation of the site where possible; and
3. Sustainable over the long-term and maintains healthy soils.

B. The restoration and aftercare of minerals sites should seek to meet at least one or more of the following planning objectives:

1. The creation, improvement or re-instatement of high quality agricultural or forestry land;
2. Meet designated site conservation objectives or support existing biodiversity initiatives, and are in line with Biodiversity Action Plan priorities for that area
3. Improve the strategic network of green infrastructure;
4. The creation or improvement of geo-diversity;
5. The enhancement of landscape character and where relevant the setting of designated local landscapes;
6. The appropriate enhancement of a heritage asset especially in terms of better revealing its significance and access;
7. The provision of leisure and recreation facilities in the countryside;
8. The improvement of public access to the natural environment; and
9. Taking opportunities to reduce flood risk, in particular through the creation of flood water storage areas.

7.39 The restoration of sites should be addressed and agreed with the MPA at the outset, as part of the planning application. In assessing whether proposals include an appropriate restoration, it will be important to look at whether they are deliverable and viable. It is imperative that minerals sites are restored immediately after cessation of operations and, where possible, restoration should be progressive throughout the working of the site. This ensures that:

- Worked parts of the site can be brought back into use whilst extraction operations on other parts of the site are ongoing.
- The overall impact of the mineral working is kept to a minimum.

7.40 Proposals should include details of the timescale for both operational activity and restoration. Applicants will be expected to demonstrate that they have both the technical and financial competence to restore and maintain the site in accordance with their proposed restoration schemes. Where operators have a good track record of high quality restoration and after care, it will be important that they demonstrate this in their discussion with the MPAs and/or through the planning application.

7.41 Development proposals will be required to demonstrate that all practicable steps would be taken for soil resources to be conserved and managed in a sustainable way. Development which would disturb or damage any soils of high environmental value (e.g. peats and other soils contributing to ecological connectivity, carbon stores such as peatlands etc.) will not normally be permitted.

7.42 The implementation of well thought out restoration schemes can help address the requirements set out elsewhere in the Development Plan. This includes East Riding Local Plan Policy ENV4 and Hull Local Plan Policy 44. These seek to secure net gains in biodiversity. Restoration planting should be carried out using locally native species only, although there may be provision for creating "refuges" for rare and endangered species.

7.43 Likewise, East Riding Local Plan Policies ENV2, ENV3, and ENV5, and Hull Local Plan Policies 16 and 43, seek to enhance and preserve heritage assets, landscape, and green infrastructure.

7.44 The provision of leisure and recreational facilities should be made in line with East Riding Local Plan Policy C3 and Hull Local Plan Policy 42. This should be informed by the latest evidence on deficits and surpluses of different types of open space in different parts of the Plan area.

7.45 The British Geological Society define geodiversity as the variety of rocks, minerals, fossils, soils and natural processes forming our landscape. Restoration could provide opportunities to recognise and assess the value of geological features, collections, sites, monuments, artworks, and landscapes, as well as the application of practices for their care, maintenance and management for the long-term benefit of all.

7.46 Site restoration could also be in the form of water storage both in times of drought and during floods accompanied by the provision for habitat creation for a wide range of species. Other possible functions could include the incorporation of biological filters, such as reed beds, to clean contaminated water and other Sustainable Urban Drainage Systems functions.

7.47 Wherever the proposed means of restoration is through the part or complete infill of a minerals void using waste materials, the MPAs will have due regard to relevant policies contained within the Joint Waste Local Plan.

7.48 In all instances the restoration process should last for a length of time that allows for the proposed end use to be self-sustaining.

Best and Most Versatile Agricultural Land

7.49 East Riding of Yorkshire has a very high proportion of the best and most versatile (BMV) agricultural land. As an important local and national resource, there will be a strong presumption against a permanent loss of such land.

Policy DM4: Best & Most Versatile Agricultural Land

A. Proposals which would result in the loss of the best and most versatile agricultural land will only be supported if:

1. The loss is temporary and there would be no overall loss of soil quality following final restoration; or
2. Other beneficial after uses can be secured, which would not sterilise the soil resource; or
3. There is a need for the mineral which cannot be met in a suitable, alternative location of lower quality agricultural land.

7.50 Where it is not possible to restore land back to an agricultural use, emphasis should be placed on delivering Biodiversity Action Plan priorities, which are available to applicants through contacting the MPA's Biodiversity Officer and with conservation organisations such as Natural England, the RSPB and the Wildlife Trusts. Other uses that would not permanently sterilise the soil resource, such as forestry or certain types of leisure/tourism uses, would also be supported.

Public Rights of Way

7.51 Public paths often pass adjacent to or through areas proposed for mineral working. Where such public rights of way are affected, proper arrangements will need to be made for their formal diversion, whether on a temporary or permanent basis. The retention of rights of way is important to ensure local residents have pedestrian access to the surrounding environment.

Policy DM5: Public Rights of Way

A. Where a proposed minerals development would have an impact upon a public right of way, the applicant will be required to demonstrate how the affected route will be safeguarded to ensure that public access can continue through a temporary or permanent public path diversion.

B. All mineral proposals should assess and implement options for improving the public rights of way network.

7.52 The East Riding of Yorkshire Rights of Way Improvement Plan (ROWIP) (2008 - 2018) aims to extend the network and improve the connectivity of routes. This includes working within the planning process to secure improvements. Hull's ROWIP (2009 – 2019) includes a statement of action to improve connectivity within the network. Minerals proposals should assess and implement options that would improve the public rights of way network.

7.53 Possible improvements to the network could include enhanced connectivity for horse riders and cyclists, the provision of circular routes or linear links between current routes, or connections to places of public interest.

7.54 Any proposals involving a diversion or other alterations to a Public Right of Way would require early discussion with the MPA.

Transportation

7.55 The movement of minerals from mineral workings has the potential to cause significant impacts on the local and strategic road network. This can be through increased traffic volumes, vehicle types and sizes, and from issues such as noise and vibration, dust, debris and structural damage. As vehicles are often travelling over significant distances, impacts are not just confined to the immediate vicinity of the site but may affect roads and settlements located along mineral haulage routes.

Policy DM6: Transportation

A. Minerals development involving transportation by road will be supported where:

1. There is no practical alternative to road transport which would have a lower impact on local communities and the environment; and
2. The highway network is able to accommodate the traffic that would be generated and it would not have an unacceptable impact on the environment or local communities.

B. Where site access roads and junction improvements are required to serve a mineral site, these should use the least environmentally damaging route as far as practically possible. Any modifications to the highway network should avoid any unacceptable impacts upon highway safety or the environment.

C. Where highway improvements are required to accommodate the proposed development, these will be secured by planning conditions or legal agreements. Such improvements will normally be required to be in place before any operations commence, or in accordance with an agreed timetable for implementation.

D. The transportation of minerals on the Strategic Road Network should be minimised wherever possible and the transfer of materials by non-road based forms of transportation, such as by rail and water, should be utilised where feasible.

E. A Transport Statement or Transport Assessment will be required if significant levels of traffic are proposed. Each site should also be accompanied by a Traffic Management Plan which can be referred to in the monitoring of successful applications.

7.56 The effects of traffic generated by mineral development should be minimised, particularly impacts on local communities, the environment and the local and Strategic Road Network.

7.57 Road transport can often be the only practical form of access to mineral workings. Although other transport opportunities such as rail, water-based transportation, pipelines and conveyors exist and may be suitable for some operations within the Plan area. Proposals for mineral development which result in increased traffic levels

should demonstrate through the Traffic Management Plan that all options for transporting minerals from the proposed site have been explored. Where non-road forms of transport have been discounted, the reasons for this should be clearly demonstrated.

7.58 If non-road transport is considered not to be a realistic option, the applicant will be expected to show that measures such as traffic routing, hours of movement and considerate driving will be implemented and monitored through a Transport Management Plan (where required). This will help to minimise the environmental impacts of transporting minerals and supplement/underpin the transport related conditions attached to a planning consent.

7.59 In certain cases, where minerals proposals are otherwise acceptable, the local road network may not be sufficient to cope with the additional volume and type of vehicle movements which would be created by the proposed development. It may therefore be necessary to improve the road network through the widening of carriageways or improvement of junctions etc. Such improvements can be negotiated and agreed between the MPA, Highways Authority (the Council or Highways England) and quarry operators and can be controlled through planning conditions and obligations.

8. Monitoring and Implementation

8.1 Section 35 of the Planning and Compulsory Purchase Act 2004 (as amended by section 113 of the Localism Act 2011) requires MPAs to publish monitoring reports annually. The PPG outlines that these reports must measure the effectiveness of the Council's planning policies and report on activity relating to the duty to cooperate.

8.2 Monitoring of policies helps to check that they are up to date, reflect changing circumstances at national, sub-national and local levels, as well as contributing effectively to the delivery of sustainable development.

8.3 It is proposed that the Annual Monitoring Reports (AMR) will provide a collation of all information regarding sales and reserves of aggregates, and an assessment of how effective the policies and proposals are in meeting the objectives set out in the JMLP. The AMR will report on the extent to which the policies are being implemented and, if not, the reasons why. It will also consider the impact that policies are having on other targets set at national, sub-national or local level and whether any policies need to be replaced.

8.4 The AMRs will not revise or amend policies, but set out the steps the MPAs will take to address any issues, such as to bring forward a review of the JMLP or certain elements of it, for example if there is significant underperformance against the indicator targets set out in table 8.1 below.

Monitoring Indicators

Table 8.1 – Monitoring Indicators

Policy	Implementation actions	Indicator Target	Lead roles	Support roles
AGG1: Supply of Sand and Gravel	Survey annual sales of sand and gravel and remaining reserves. Calculate landbank accordingly	At least a 7 year landbank of reserves	Minerals Planning Authority	Mineral operators
AGG2: Site Allocations for Sand and Gravel Extraction	Decisions on planning applications for extraction of sand and gravel within the allocations	All decisions in line with policy/no appeals allowed	Minerals Planning Authority, Mineral operators	Planning Inspectorate
AGG3: Supply of Crushed Rock	Survey annual sales of crushed rock and remaining reserves. Calculate landbank accordingly	At least a 10 year landbank of reserves	Minerals Planning Authority	Mineral operators
AGG4: Area of Search for Crushed Rock	Decisions on planning applications for extraction of crushed rock within the allocation	All decisions in line with policy/no appeals allowed	Minerals Planning Authority, Mineral Operators	Planning Inspectorate
AGG5: Extensions to existing quarries	Decisions on planning applications for extending existing quarries (both aggregate and non-aggregate operations)	All decisions in line with policy/no appeals allowed	Minerals Planning Authority, Mineral Operators	Planning Inspectorate

Policy	Implementation actions	Indicator Target	Lead roles	Support roles
AGG6: Borrow pits	Relevant planning applications for borrow pits approved/refused	All decisions in line with policy/no appeals allowed	Minerals Planning Authority, Mineral Operators	Planning Inspectorate
AGG7: Recycling and Secondary Aggregates at Existing Mineral Sites	Decisions on planning applications for processing of recycled or secondary aggregate approved/refused in mineral sites	All decisions in line with policy/no appeals allowed	Minerals Planning Authority, Mineral operators, Secondary and Recycled Aggregates Operators	Planning Inspectorate
AGG8: Safeguarding capacity for marine importation of mineral resources	Decisions on planning applications for development likely to affect existing capacity for importation of aggregates at Hull docks, and marine aggregate landing statistics	No net loss of capacity either by retention of existing or by equivalent replacement	Local Planning Authority, Wharf operators. Marine Aggregate Operators	Planning Inspectorate
AGG9: Safeguarding of Rail Facilities used for the Importation of Aggregates and Other Minerals	Decisions on planning applications for development likely to affect existing capacity for importation of aggregates at Rail Depots.	No net loss of capacity either by retention of existing or by equivalent replacement	Minerals Planning Authority, rail depot operators	Planning Inspectorate

Policy	Implementation actions	Indicator Target	Lead roles	Support roles
AGG10: Safeguarding of Mineral Infrastructure and Facilities	Decisions on planning applications for development likely to affect mineral infrastructure and facilities	All decisions in line with policy/no appeals allowed	Local Planning Authority	Planning Inspectorate
NAM1: Supply of Industrial Chalk	Relevant planning applications approved/refused. Monitor industrial chalk landbank for each plant.	All decisions in line with policy/no appeals allowed. At least 15 years supply for each processing plant based on an average of the last 10 years' sales.	Minerals Planning Authority, Mineral operators	Planning Inspectorate
NAM2: Peat Working	Relevant planning applications approved/refused	All decisions in line with policy/no appeals allowed	Minerals Planning Authority	Planning Inspectorate
NAM3: Silica Sand	Relevant planning applications approved/refused	All decisions in line with policy/no appeals allowed	Minerals Planning Authority, Mineral operators	Planning Inspectorate

Policy	Implementation actions	Indicator Target	Lead roles	Support roles
NAM4: Building Stone	Relevant planning applications approved/refused	All decisions in line with policy/no appeals allowed	Minerals Planning Authority, Mineral operators	Planning Inspectorate
EM1: Deep Coal Mining	Relevant planning applications approved/refused	All decisions in line with policy/no appeals allowed	Minerals Planning Authority, Mineral operators	Planning Inspectorate
EM2: Exploration Boreholes	Relevant planning applications approved/refused	All decisions in line with policy/no appeals allowed	Minerals Planning Authority, Mineral operators	Planning Inspectorate
EM3: Appraisal Boreholes	Relevant planning applications approved/refused	All decisions in line with policy/no appeals allowed	Minerals Planning Authority, Mineral operators	Planning Inspectorate
EM4: Oil and Gas Production and Distribution	Relevant planning applications approved/refused	All decisions in line with policy/no appeals allowed	Minerals Planning Authority, Mineral operators	Planning Inspectorate
EM5: Coal Bed Methane	Relevant planning applications approved/refused	All decisions in line with policy/no appeals allowed	Minerals Planning Authority, Mineral operators	Planning Inspectorate

Policy	Implementation actions	Indicator Target	Lead roles	Support roles
EM6: Extraction of Shale Gas (Hydraulic Fracturing)	Relevant planning applications approved/refused	All decisions in line with policy/no appeals allowed	Minerals Planning Authority, Mineral operators	Planning Inspectorate
EM7: Underground Storage of Gas and Related Surface Development	Relevant planning applications approved/refused	All decisions in line with policy/no appeals allowed	Minerals Planning Authority, Mineral operators	Planning Inspectorate
DM1: Impacts of Mineral Development	Relevant planning applications approved/refused	All decisions in line with policy/no appeals allowed	Minerals Planning Authority, Mineral operators	Planning Inspectorate
DM2: Protecting Residential Amenity and Other Uses	Relevant planning applications approved/refused	All decisions in line with policy/no appeals allowed	Minerals Planning Authority, Mineral operators	Planning Inspectorate
DM3: Restoration and Aftercare	Relevant planning applications approved/refused	All decisions in line with policy/no appeals allowed	Minerals Planning Authority, Mineral operators	Planning Inspectorate
DM4: Best & Most Versatile Agricultural Land	Relevant planning applications approved/refused	All decisions in line with policy/no appeals allowed	Minerals Planning Authority, Mineral operators	Planning Inspectorate

Policy	Implementation actions	Indicator Target	Lead roles	Support roles
DM5: Public Rights of Way	Relevant planning applications approved/refused	All decisions in line with policy/no appeals allowed	Minerals Planning Authority, Mineral operators	Planning Inspectorate
DM6: Transportation	Relevant planning applications approved/refused	All decisions in line with policy/no appeals allowed	Minerals Planning Authority, Mineral operators	Planning Inspectorate

Implementation

8.5 The implementation of policies in this plan will involve the MPAs working in partnership with a number of agencies. This includes statutory consultees, government departments, other local authorities, local communities and the minerals industry. It will focus on applying the principles of sustainable use of resources and the highest environmental standards of mineral extraction.

Appendix A: Existing operational mineral extraction sites

Existing operational mineral extraction sites

Quarry	Operator	Mineral
Turtle Hill, Gransmoor	W Clifford Watts	Sand and Gravel
Gransmoor	W Clifford Watts	Sand and Gravel
Brandesburton	Sandsfield Gravel	Sand and Gravel
North Cave	Breedon Southern Ltd	Sand and Gravel
Park House Farm, Gembling/Burton Agnes	W Clifford Watts	Sand and Gravel
Little Catwick	Yarrows Aggregates	Sand and Gravel
Newton upon Derwent	Aggregate Recycling UK Ltd	Sand and Gravel
Garton	W Clifford Watts	Sand and Gravel
Bracken Quarry, Lund	LKAB Minerals	Chalk (Industrial)
Riplingham	Stoneledge	Chalk (Aggregate)
Huggate	Fenstone	Chalk (Aggregate)
Greenwick, near Huggate	Fenstone	Chalk (Aggregate)
Partridge Hall, Burnby	Ashcourt	Chalk (Aggregate)
Riplingham	Stoneledge	Chalk (Aggregate)
Swinescaif, South Cave	Clifford Watts	Chalk (Aggregate)
Lowthorpe, Ruston Parva	Bob Stabler and Sons	Chalk (Aggregate)
Middleton	Ashcourt	Chalk (Aggregate)
Melton	Omya	Chalk (Industrial)
Queensgate, Beverley	Imerys	Chalk (Industrial)
Broomfleet	Wienerburger Ltd	Clay
Caythorpe well site	Independent Energy	Gas

Appendix B: Planning policies to be replaced

The JMLP replaces the following planning policies contained in the Joint Minerals Local Plan for Kingston upon Hull and the East Riding of Yorkshire (January 2004).

Joint Minerals Local Plan for Kingston upon Hull & the East Riding of Yorkshire (January 2004)
This Plan replaced all of the saved policies within the JMLP (2004): DC1, DC2. DC3, DC4, DC4a, DC4b, DC5, DC6, DC7, DC8, DC9, DC10, DC11, DC12a, DC12b, DC13, DC14, DC15, DC16, DC17, DC19, DC20, DC21, DC22, DC23, DC24, DC25, AGG1, AGG2, AGG3, AGG3A, AGG4, AGG5, AGG6, AGG7, AGG8, AGG9, AGG10, NAM1, NAM2, EM1, EM2, EM3, EM4, EM5

Appendix C: Identified Site Briefs and Allocation Plans

This Appendix contains Identified Site Briefs for each of the allocated minerals sites. These Briefs set out the key site specific information relating to potential constraints, opportunities and issues which need to be addressed at the planning application stage. The information in the Briefs should not be treated as exhaustive. They are based on an assessment of the sites at the time this plan was written and therefore if circumstances change or new information becomes available prior to sites coming forward through a planning application, this will also need to be taken into account.

As a result of the issues set out in the Briefs, and depending on the precise nature of the development proposed, mitigation measures may be required in order to prevent adverse impacts occurring or, if adverse impacts are unavoidable and it is considered that they are an acceptable part of the development, compensation measures may be required to address the harm caused. Mitigation and compensation measures will form part of the discussions with applicants, which it is recommended take place at the pre-application stage.

The Briefs set out the matters to be taken into account in relation to each site as well as restoration objectives and priorities. Planning applications relating to allocated sites must be accompanied by a full scheme of working and sufficient information to demonstrate that the proposals accord with the relevant policies of this Plan as well as the East Riding and Hull Local Plans. For all allocated sites this must include:

- Air Quality Assessment;
- Ecological Survey;
- Flood Risk Assessment;
- Hydrogeological Risk Assessment
- Assessment of any Impacts from Changes to the Groundwater Levels (from Watering and Dewatering), including those on the Natural and Historic Environment);
- Landscape and Visual Impact Assessment;
- Noise Assessment;
- Transport Statement; and
- Tree Survey.

In addition, assessments, and where necessary, full details of mitigation measures will be required to address all of the site specific issues identified in the Identified Site Briefs.

It is strongly recommended that prior to the submission of any planning application for the allocated minerals sites, the applicant enters into discussions with East Riding of Yorkshire Council and that an Environmental Impact Assessment screening opinion is requested from the Council. This will assess whether the proposed development falls within the requirements of the Town and Country Planning (Environmental Impact Assessment) Regulations 2011 as development which must be accompanied by an Environmental Statement. If the proposed development is determined to require an Environmental Statement, it is recommended that

prior to submission of the application a scoping opinion is requested from the Council. This will establish what issues need to be addressed in any Environmental Statement and develop the issues cited in the Identified Site Briefs, taking into account any further information which becomes available between the adoption of this plan and the planning application being submitted.

IDENTIFIED AREA SITE BRIEF – SG-A

PREFERRED AREA

Leven By-pass, Leven, East Yorkshire

Location and Use	The site lies east of the A165 approximately 125m south west of Catwick and 800m south east of Leven. It contains the existing Little Catwick sand and gravel quarry, and the remainder of the site is primarily flat low lying Grade 2 and 3 agricultural land. The site excludes but encircles a wooded area named Bowlams Fox Covert south of the existing quarry.
Site Area	130ha
Deposit	Sand and Gravel
Potential Yield	In excess of 3,000,000 tonnes (marketable reserve) Estimated annual yield 100,000 tonnes per annum
Planning History	3/303-297/95 the extraction of sand and gravel and associated development on land at Little Catwick, Brandesburton. 07/00003/STPLF Erection of a building for use as a bagging plant and office, storage and purposes ancillary to use of land as a quarry (also see 07/20547/AMPLAN and 07/31990/CONDET). 07/00343/STPLF Continued use of land for the operation of aggregate recycling plant (also see 07/32185/CONDET). 07/00344/STPLF Use of land for the operation of a concrete batching plant. 08/02608/PLF Erection of office and toilet building. 10/01703/STVARE Variation of Condition 2 of planning permission 303-297, to allow the quarry to be worked until 2024. 12/02507/STPLF Erection of a building, containing CHP unit, drying floor and control room, an anaerobic digester, a feeder hopper, a silage clamp, a bio-gas store, digestate store and a sub-surface slurry tank, for the purposes of producing renewable energy in the form of electricity (also see 13/40063/NONMAT). 14/00471/EIASCR EIA Screening Opinion for 90,000tpa AD plant to produce 5MW. 14/03025/EIASCO Scoping request for proposed 5.1MW anaerobic digester. 15/00219/STPLF Continued use of land for the operation of aggregate recycling plant (see also 16/01318/CM Variation of Condition 3 (opening hours) of planning permission 15/00219/STPLF to increase opening hours from 0700 to 1800 Mondays to Fridays and 0800 to 1300 Saturdays to enable the site to operate up to 24 hours a day, 7 days a week).

16/00721/CM Erection of extension to existing bagging plant building, erection of a 2 storey office building, installation of 2 weigh bridges and associated wheel wash, parking and turning circle (AMENDED DRAINAGE INFORMATION).

Planning Policies The site is located within a Mineral Safeguarding Area under Policy EC6 (Protecting mineral resources) of the East Riding Local Plan.

Site Planning Requirements

The following information provides further details on the Preferred Area, highlighting any potential issues for the development of the allocation.

A. Human health and amenity

The nearest residential properties are located within the north eastern edge of the Preferred Area, these are; Willowcroft Farm and The Old Hall Lakeview. Other properties are located within 200m of the site at Catwick and along Riston Road.

It will be necessary to incorporate mitigation measures, such as dust and noise suppression, into proposals to respect the residential amenity of these dwellings.

B. Biodiversity

Hornsea Mere Special Protection Area (SPA) is 5km east of the site. A Habitats Regulation Assessment will be required to assess any impacts on this designation. Hornsea Mere is also a designated Site of Special Scientific Interest (SSSI). There are no Local Wildlife Sites (LWS) within the site. Three LWS are within 2km, the closest being New Drain candidate LWS which is less than 700m to the north.

Appropriate mitigation measures to protect the designations will need to be taken where required.

There are three designated Local Geological Sites (LGS) within 3km of the nominated site; Routh Quarry LGS (1.4km to the west), Brandesburton Gravel Pit LGS (1.8km to the north) and Seaton LGS (2.7km to the north east).

C. Landscape and Visual Impacts

The site is located within Landscape Character Area 19D, Central Holderness Open Farmland. This landscape is intensively farmed, has a gently undulating topography and is very open with few trees overall. The Character Area surrounds two areas of high quality parkland at Rise and Burton Constable. It is important that minerals development does not detrimentally impact the view and setting of parkland and prominent church buildings on the skyline.

Large, flat, arable fields are predominant in the area and the removal of hedgerows and trees has resulted in a loss of landscape structure. Proposals must ensure sufficient screening is provided to mitigate any adverse effects identified.

In the Character Area, vertical features and large scale farm buildings are dominant and detract

from landscape character. Other detractors, such as industrial buildings, pylons and masts, are well spread throughout the area and do not seriously harm the landscape, which is assessed to be of ordinary to good quality.

The nature of sand and gravel extraction, which results in relatively shallow working of material and localised, lowering of the topography, means that visual impacts are expected to be minimal. Proposals should look to retain tall plant and equipment within the existing Little Catwick Quarry. If plant equipment is to be moved, it must be well screened and not detract from the landscape character or the setting of Catwick Conservation Area.

A Landscape and Visual Impact Assessment will be required to support any planning application for minerals development. Proposals would need to consider additional sufficient screening to mitigate any adverse impacts identified. Working areas should be progressive to minimise the exposed area at any one time and reduce visual impacts.

D. Archaeology and Cultural Heritage

The site lies within 250m of the Catwick Conservation Area and 1.5km of Leven and Long Riston Conservation Areas. The Catwick Conservation Area Appraisal states that its special historic character and appearance has been retained due to a lack of intensive development. However, there has been a history of small scale quarrying of sand and gravel in the area, which has been present in Catwick since before the 1850s.

There are no Listed Buildings or Scheduled Monuments within the site. The closest Listed Buildings are White Cross and White Cross Cottage (both Grade II) located less than 400m from the south western corner. There are four Listed Buildings in the village of Catwick; Grade II* Church of St Michael, Grade II Boundary Wall and Norman Gate at the Old Rectory Garden, Grade II Catwick House and Grade II Stable Block to Catwick House. Other nearby Listed Buildings are located within and around Leven Conservation Area.

The Historic Environment Record identifies a number of undesignated heritage assets within the site. These include; visible cropmarks representing a Bronze Age to Romano British settlement, ditches (one ring ditch) and a rectangular enclosure. A Post Medieval Hall House (1540 – 1899 AD) is located in the north eastern corner of the site. Willow Croft Farm in the north eastern boundary of the site is located on Riston Road and contains an undesignated Post Medieval (1800 – 1899 AD) barn, cart shed and horse engine house. A full and detailed archaeological investigation and evaluation will be required, and an appropriate mitigation strategy, including appropriate post-excavation analysis and publication, agreed with the mineral planning authority.

Proposals will need to demonstrate that the elements contributing to the significance of these assets, including their setting, will not be harmed by minerals development in the Preferred Area. An appropriate archaeological evaluation will need to be undertaken.

E. Access and the Impact on the Local Highways

The A165 strategic highway defines the western boundary of the site giving access to Little Catwick Quarry. Riston Road lies to the east which connects to both the A1035 and A165. It is expected that the site would use the existing access to Little Catwick Quarry.

A Transport Statement/Transport Assessment will be required, depending on the size of the development, this must cover; the vehicular access, visibility splays, routes to and from the

quarry, vehicle numbers per day and mitigation works (passing places, localised widening and junction improvements etc.).

Facilities must be provided within the site for:

- Loading and off-loading of vehicles;
- Manoeuvring spaces so that vehicles can enter and leave in a forward gear;
- Parking for staff; and
- Layover space for heavy goods vehicles so that they are not waiting on the adjacent public highway.

Wheel cleaning facilities will be required and the provision of a road sweeper to cater for detritus on the adjacent public highway (mud, dust etc.).

A survey of the existing public highway (extent to be determined by ERYC Streetscene) should be carried out prior to commencement of any mineral extraction to determine the structural integrity of the carriageway to cope with the increased HGV activity. A construction traffic management plan may be required.

Proposals on this site will be assessed on an individual basis by Highways England. Where there is potential for a cumulative impact, this should be taken into consideration. A Traffic management plan will also be required. This should include a review of alternative modes to road based transportation, which could potentially minimise the number of trips associated with the transportation of minerals on Highways England Strategic Road Network. It should also look at ways to minimise the number of HGV movements associated to the site during the network peak hours.

A public right of way (PROW) bisects the site in the north and follows the western boundary. Proposals will need to ensure a diverted route is provided if the existing PROW is disturbed or made inaccessible due to minerals development.

F. Flooding and Hydrological Issues

A portion of the site is within Flood Risk Zones 2 and 3. A sequential approach should be adopted to ensure that the most vulnerable and sensitive parts of the operation are located in those areas least vulnerable to flood risk.

The site does not lie within a Groundwater Source Protection Zone. However it is located on a secondary 'A' Aquifer which overlies a Principal Aquifer.

Bowlams Dike bisects the site south of the existing quarry. Temporary or permanent works within 8m of the watercourse would require the prior written consent of the Beverley and North Holderness Internal Drainage Board. For other watercourses, a permit may be required from the Lead Local Flood Authority (East Riding of Yorkshire Council).

Any quarry dewatering activities must not affect the surface water environment. Quarrying should take place at the site without disturbance to or adverse impact on the water resource.

Sand and gravel working is classified as a water compatible development, but should be designed and constructed to:

- Remain operational and safe for users in times of flood;
- Result in no net loss of floodplain storage; and
- Not impede water flows and not increase flood risk elsewhere.

G. Other Issues

Preferred Area SG-A lies within an Area of Search (SG-F). Due to the large extent of the AOS, phasing/direction of proposed working within the AOS has not been considered at this stage. Proposals should indicate how the Preferred Area would be worked progressively with restoration taking place on completion of specific phases of working within both allocations, where relevant.

Indicative Working Proposals

It is likely that the site would be progressively worked as an extension of the adjacent existing quarry, utilising the existing processing plant. At any one time, it is expected that one phase of the site will be prepared by soil stripping, one phase will be worked for sand and gravel, while another phase is restored.

Material would be processed on site using the existing recycled aggregate processing plant at Little Catwick Quarry. If plant equipment is to be moved, it should be sufficiently screened to protect the setting of the nearby Conservation Area.

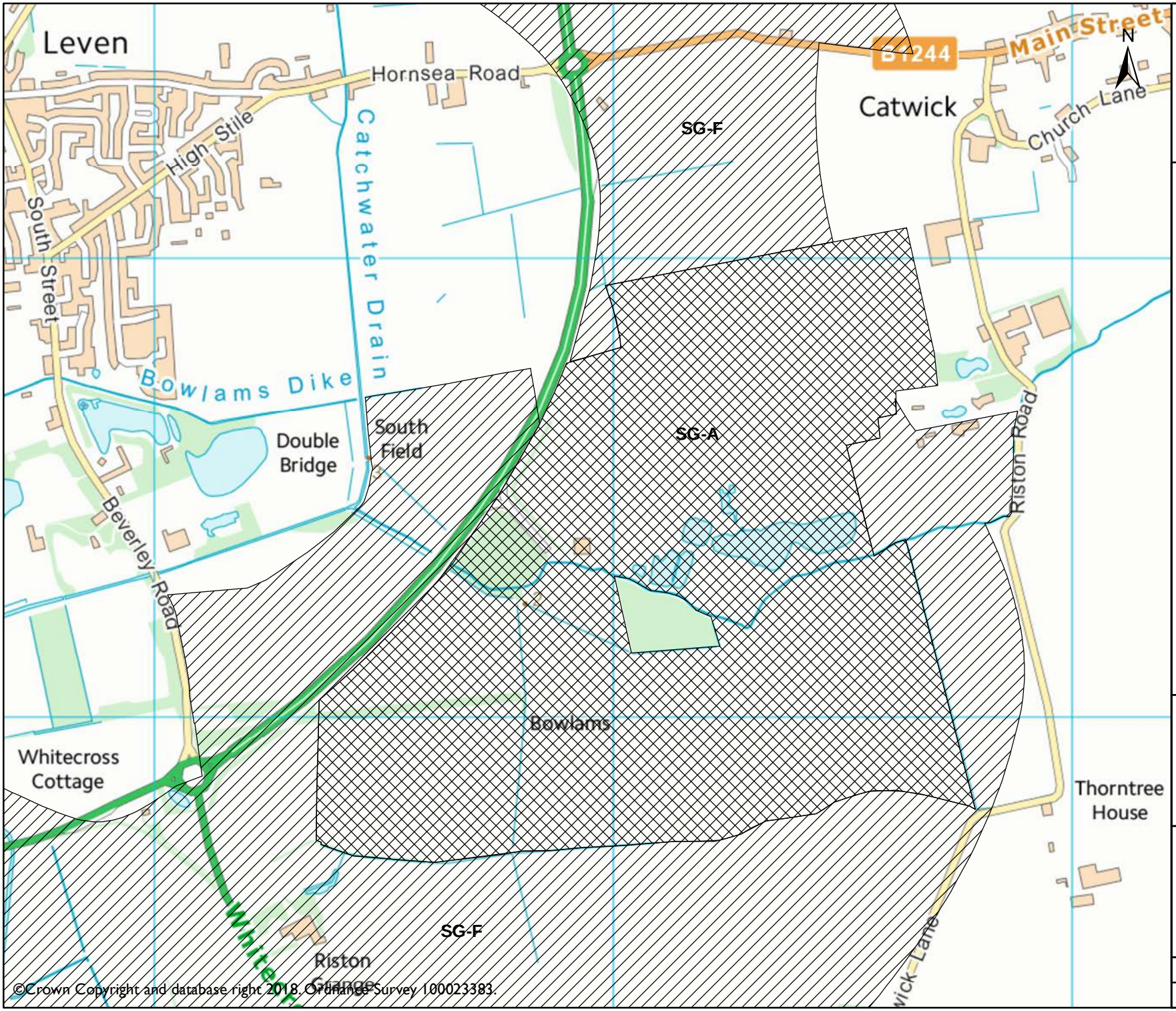
Restoration and After-Use Aims and Requirements

If there is any hydraulic connection between the underlying superficial and bedrock Aquifers and the site, the Environment Agency is likely to object to it being developed as landfill as part of the restoration plan.

Evidence suggests the site contains best and most versatile (BMV) agricultural land. Once resources are exhausted, proposals should consider restoring the site back to its original use or a land use of a similar quality.

The site could be restored to a mixture of agricultural and water based recreation land uses. Opportunities for nature conservation should be pursued and the potential to create habitat linkages with existing green infrastructure corridors.

As the site is located in Flood Zones 2 and 3, the restoration could have a flood alleviation purpose as well.



EAST RIDING OF YORKSHIRE COUNCIL

Hull City Council

Legend

- Sand and Gravel Area of Search
- Sand and Gravel Preferred Area

Project

East Riding of Yorkshire & Kingston Upon Hull Joint Minerals Local Plan

Title

SG-A
Sand and Gravel Preferred Area Land off A165 Leven By-pass, Leven

Scale	Date	Drawn
1:11,000	21/03/2018	CCole

IDENTIFIED AREA SITE BRIEF – SG-B

PREFERRED AREA

Land at Pollington West

Location and Use	The site is located to the northwest of Pollington Village, south of Heck and Pollington Lane. It comprises the partially extracted Pollington Block Work Sand Pit and the partially extracted and in-filled Pollington Quarry. A former Airfield and works are located to the north, a partially extracted and in-filled quarry to the east, with agricultural land to the south and a former works on the western boundary. The agricultural land in the locality is predominantly Grade 3, but the site is essentially brownfield.
Site Area	11.4ha
Deposit	Sand and Gravel
Potential Yield	1.13 million tonnes (marketable reserve) Estimated annual yield 100,000 tonnes per annum This would result in operations lasting circa 11.5 years, with subsequent final restoration.
Planning History	The site has been partially extracted for sand and gravel. Planning permission was granted on 27th January 1948 for the surface mineral workings and inert waste disposal.
Planning Policies	The site is located within a Mineral Safeguarding Area under Policy EC6 (Protecting mineral resources) and the Robin Hood Airport Strategic Aviation Consultation Zone under Policy EC5 (Supporting the energy sector) of the East Riding Local Plan.

Site Planning Requirements

The following information provides further details on the Preferred Area, highlighting any potential issues for its development.

A. Human health and amenity

Pollington Hall is 140m to the south of the site. There are numerous properties within 200 metres of the site within Pollington Village.

It will be necessary to incorporate mitigation, such as dust suppression measures, into proposals in order to respect the residential amenity of these dwellings. The site already benefits from having earth bund screening to the south and south east which should be retained.

B. Biodiversity

A candidate Local Wildlife Site (LWS) Sand Quarry, Pollington is located adjacent to the site on its eastern boundary.

The closest Site of Special Scientific Interest (SSSI) is Went Ings Meadows SSSI located 4km away.

It will be necessary to demonstrate that mineral extraction proposals do not adversely affect any of these designated sites or that any impacts can be adequately mitigated.

C. Landscape and Visual Impacts

The site lies within Character Area 8C: M62 Corridor Hook to Pollington. Quarrying goes on in the eastern end of this character area and there may be future pressure to expand activities. At present the impact of quarrying is localised. The Landscape Character Assessment (2005) sets out that the landscape character should be enhanced by reinstating features lost by development, such as trees and hedgerows. This will help to integrate development with its surroundings and screen it from view. An existing earth bund to the south and south east of the site provides partial screening.

A number of detractors and the fragmentation of the landscape have affected the quality of this landscape. It has been assessed to be ordinary overall with areas of poor quality around sites such as this, where the landscape is affected by commercial industrial development.

Although fragmented, the landscape retains elements of its rural character in many places. Minerals development that will result in further fragmentation of characteristics and features, for example through the loss of hedgerows and trees, will adversely affect its character further. As a self-contained site, minerals development should avoid further fragmentation.

A Landscape and Visual Impact Assessment will be required to support any planning application for minerals development. Proposals will need to consider additional sufficient screening to mitigate any adverse impacts identified. Working areas should be progressive to minimise the exposed area at any one time and reduce visual impacts.

D. Archaeology and Cultural Heritage

The site has been extensively quarried in the past so an appropriate archaeological evaluation may not be needed to support further proposals for minerals development.

There are two Grade II Listed Buildings within 210m of the southern boundary of the Preferred Area (Pollington Hall and Dovehouse Farmhouse).

Development proposals within the Preferred Area will need to demonstrate that the elements which contribute to the significance of these assets, including their setting, will not be harmed.

E. Access and the Impact on the Local Highways

The site has unmade access points onto Heck and Pollington Lane however access to the site is to be confirmed.

There are no Public Rights of Way within or surrounding the site.

A Transport Statement/Transport Assessment will be required, depending on the size of the

development, this must cover; the vehicular access, visibility splays, routes to and from the quarry, vehicle numbers per day and mitigation works (passing places, localised widening and junction improvements etc.).

Facilities must be provided within the site for:

- Loading and off-loading of vehicles;
- Manoeuvring spaces so that vehicles can enter and leave in a forward gear;
- Parking for staff; and
- Layover space for heavy goods vehicles so that they are not waiting on the adjacent public highway.

Wheel cleaning facilities will be required and the provision of a road sweeper to cater for detritus on the adjacent public highway (mud, dust etc.).

A survey of the existing public highway (extent to be determined by ERYC Streetscene) should be carried out prior to commencement of any mineral extraction to determine the structural integrity of the carriageway to cope with the increased HGV activity. A construction traffic management plan may be required.

Proposals on this site will be assessed on an individual basis by Highways England. Where there is potential for a cumulative impact, this should be taken into consideration. A Traffic management plan will also be required. This should include a review of alternative modes to road based transportation, which could potentially minimise the number of trips associated with the transportation of minerals on Highways England Strategic Road Network. It should also look at ways to minimise the number of HGV movements associated to the site during the network peak hours.

F. Flooding and Hydrological Issues

The site is located within Flood Zone 1 and the Aire and Calder Navigation is located to the south.

A surface and ground water strategy should ensure no pollution of watercourses or exacerbation of surface water flooding. Drainage from new development must not increase flood risk either on site or elsewhere.

The site is located on a Principal Aquifer and within a Groundwater Source Protection Zones 2 and 3. It will have to be demonstrated that quarrying proposals will not cause physical disturbance of the Aquifer below. Any quarry dewatering activities must not affect the surface water environment or the resources available for groundwater abstractors. Quarrying should take place at the site without disturbance to or adverse impact on the water resource.

Sand and gravel working is classified as a water compatible development, but should be designed and constructed to:

- Remain operational and safe for users in times of flood;
- Result in no net loss of floodplain storage; and
- Not impede water flows and not increase flood risk elsewhere.

Indicative Working Proposals

It is envisaged the site will be worked in phases, with each phase of works being approximately 1.9ha in size. The development will be coupled with progressive restoration of the site with the completion of each phase. This will limit the time period individual areas of the site are outside of restoration. There will be additional small scale operational areas consisting of ancillary buildings (for example site offices, weighbridge), mineral processing/storage areas and site access arrangements.

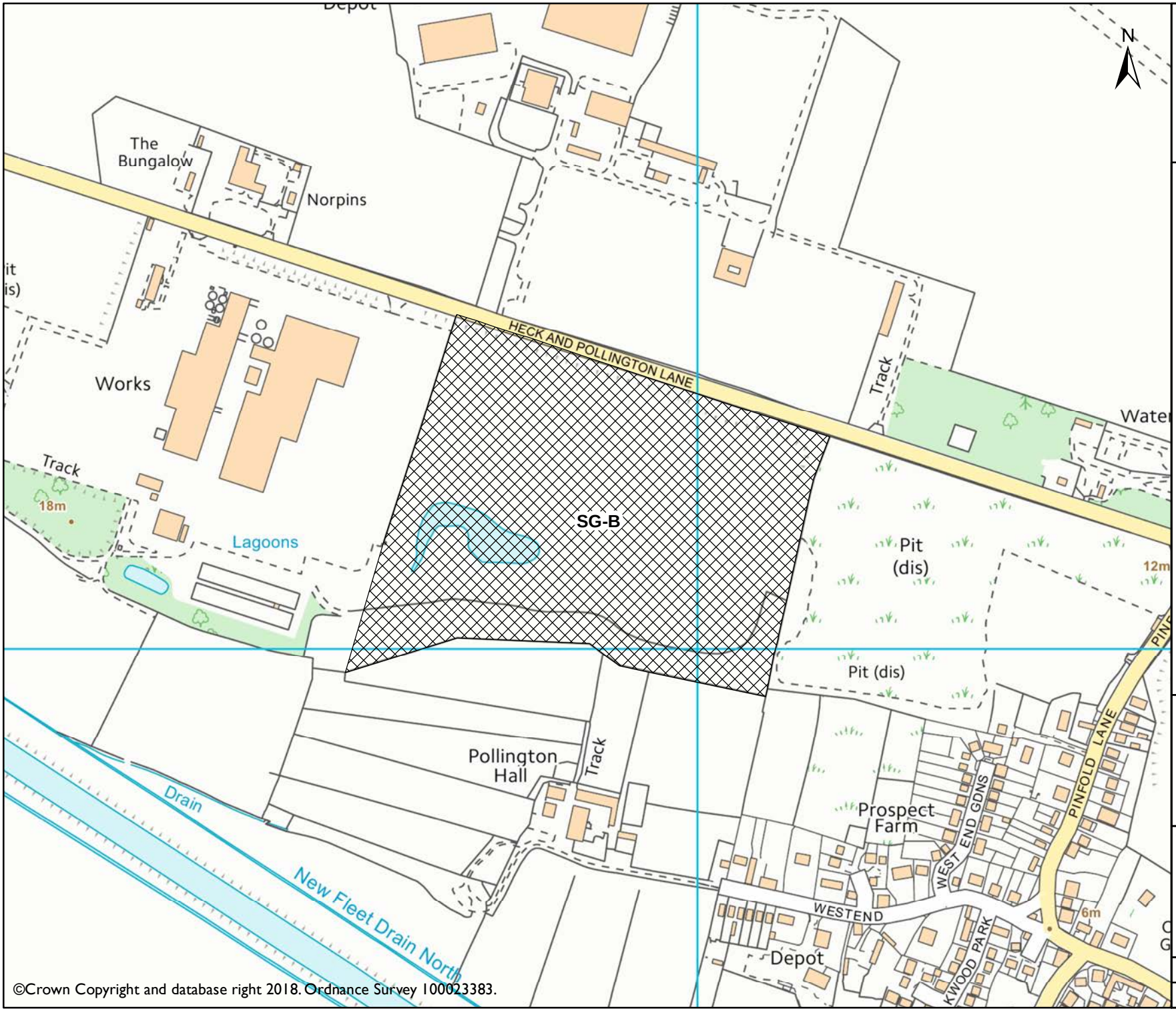
Site-specific environmental studies will be needed as part of the planning process to establish sensitive environmental aspects and mitigation requirements (including extraction depths and methods of working) during development. Based on the likely technical environmental studies to be commissioned, the main best practice operational elements and mitigation measures envisaged would incorporate:

- Dust suppression techniques;
- Noise suppression (through selection of appropriate technology and working methods);
- Vehicle routing and transport controls; and
- Surface water and groundwater control and protection.

The potential use of aggregates recycling and use of inert waste to restore the site would be subject to both planning controls and Environment Agency requirements (via an Environmental Permit, where necessary).

Restoration and After-Use Aims and Requirements

A suitable restoration scheme and landform will be agreed for the site. Advanced landscaping would be incorporated into the proposals, as required, to limit any potentially significant adverse landscape or visual impacts. Restoration should bring about long-term beneficial effects in terms of improved landscape condition and wildlife habitats. Opportunities for nature conservation should be pursued and the potential to create habitat linkages with existing green infrastructure corridors. It will need to take account of the very sensitive groundwater setting. The Environment Agency is likely to object to the site being developed as landfill as part of the restoration plan should there be hydraulic connection between it and the superficial and bedrock aquifers.



EAST RIDING OF YORKSHIRE COUNCIL

Hull City Council

Legend

Sand and Gravel Preferred Area

Project

East Riding of Yorkshire & Kingston Upon Hull Joint Minerals Local Plan

Title

SG-B
Sand and Gravel Preferred Area
Land at Pollington West

Scale	Date	Drawn
1:5,000	21/03/2018	CCole

IDENTIFIED AREA SITE BRIEF – SG-C

PREFERRED AREA

Land around Brook Farm, North Cave

Location and Use	The site lies to the north of the B1230 approximately 1.1km from North Cave and 3.2km from South Cave. It is primarily flat low lying Grade 3 agricultural land.
Site Area	35ha
Deposit	Sand and Gravel
Potential Yield	Up to 2.2 million tonnes (marketable reserve) Estimated annual yield 500,000 tonnes per annum
Planning History	No mineral planning applications previously on the site.
Planning Policies	The site is located within a Mineral Safeguarding Area under Policy EC6 (Protecting mineral resources), north of the Strategic Aviation Consultation Zone under Policy EC5 (Supporting the energy sector) and west of an Important Landscape Area boundary under Policy ENV2 (Promoting a high quality landscape) of the East Riding Local Plan. It is also located within the North Cave designated Neighbourhood Area.

Site Planning Requirements

The following information provides further details on the Preferred Area, highlighting any potential issues for the development of the allocation.

A. Human health and amenity

The site surrounds Brook Farm farmhouse. Further residential properties are located adjacent to the site along Breck Lane, these are: Plantation Farm, The Warren and Cottage Farm (multiple properties).

It will be necessary to incorporate mitigation, such as dust suppression measures, into proposals to respect the residential amenity of these dwellings.

B. Biodiversity

The Humber Estuary is 7.2 km distance from the site and is designated as a Special Protection Area, Special Area of Conservation and Ramsar site. It will be necessary to demonstrate that mineral extraction proposals do not adversely affect the Sites of Special Scientific Interest (SSSI) located within the vicinity of the site; the closest being South Cliffe Common south SSSI (2.0km) and South Cliffe Common north SSSI (3.4km).

There is one East Yorkshire Local Wildlife Site (LWS) within 1km of the site (North Cave Wetlands, 0.7km). Whilst it is necessary to ensure development does not impact upon this site, long term restoration of the allocation to nature conservation uses should ultimately be of benefit to the LWS.

A precautionary approach should be taken that recognises the uncertainties in the precise details and timing of any planning applications. All specific proposals for mineral development on the allocation should be rigorously assessed for any potential impacts on the natural environment, in line with East Riding Local Plan Policy ENV4.

C. Landscape and Visual Impacts

The site lies within Landscape Character Area 8B: M62 Corridor Gilberdyke to South Cave. Quarrying goes on in the eastern end of this character area and there may be future pressure to expand these activities, which at present, have a localised impact.

This is a fragmented landscape that retains elements of its rural character in many places. Mineral development that will result in the further fragmentation of characteristics and features, for example the loss of hedgerows and trees, change in settlement pattern and uncharacteristic use of materials and scale, will adversely affect character.

The number of detractors and its fragmentation have affected the quality of this landscape, which is assessed to be ordinary overall with areas of poor quality where it is affected by commercial industrial development. The landscape area is assessed to have high sensitivity to development that would result in increased coalescence of the appearance of industrial development in the landscape.

Evidence suggests the site contains best and most versatile (BMV) agricultural land. Proposals within the site should consider restoring the site back to its original use or a land use of a similar quality.

A Landscape and Visual Impact Assessment will be required to support any planning application for minerals development. Proposals would need to consider sufficient additional screening to mitigate any adverse impacts identified. Working areas should be progressive to minimise the exposed area at any one time and reduce visual impacts.

D. Archaeology and Cultural Heritage

This site lies within a major archaeological landscape, dating back to the prehistoric and Romano-British periods. Aerial photographs show an extensive pattern of crop-marks representing curvilinear and rectilinear enclosures, with associated droveways and possible palaeo-channels running across both the site's eastern and southern extents. The Historic Environment Record identifies three undesignated heritage assets located within the site. These are; Skelfleet drainage channel that was changed to improve efficiency in the mid-17th century; early Iron Age to Roman (800BC – 409AD) cropmarks; and the site of an excavated late Iron Age and Romano-British settlement consisting of a ditch, hut circle, pit and road. A full and detailed archaeological investigation and evaluation will be required, and an appropriate mitigation strategy (including appropriate post-excavation analysis and publication) agreed with the MPA.

The site is located 1.2km outside of North Cave Conservation Area. The nearest Listed Building is South Carr Farmhouse and Barn (Grade II) located approximately 1.1km north west of the site. There are a number of Listed Buildings within the village of North Cave. There is one Grade I Listed Building (Church of All Saints) and four Grade II* Listed Buildings within 5km of the site. The nearest Scheduled Monument is a moated site 170m north of Wholsea Farm, which is located 3.2km north west of the allocation.

Development proposals within the Preferred Area will need to demonstrate that the

elements which contribute to the significance of these assets, including their setting, will not be harmed.

E. Access and the Impact on the Local Highways

The site has an access direct onto the B1230. However, it is expected that the site would be accessed via the existing adjacent quarry. It has an access onto Crosslands Lane which links to the B1230 and provides direct access to the M62/A63. This arrangement is preferable to the intensification of use of the existing access directly onto the B1230 from the site.

A Transport Statement/Transport Assessment will be required. Depending on the size of the development, this must cover; the vehicular access, visibility splays, routes to and from the quarry, vehicle numbers per day and mitigation works (passing places, localised widening and junction improvements etc.).

Facilities must be provided within the site for:

- Loading and off-loading of vehicles;
- Manoeuvring spaces so that vehicles can enter and leave in a forward gear;
- Parking for staff; and
- Layover space for heavy goods vehicles so that they are not waiting on the adjacent public highway.

Wheel cleaning facilities will be required and the provision of a road sweeper to cater for detritus on the adjacent public highway (mud, dust etc.).

A survey of the existing public highway (extent to be determined by ERYC Streetscene) should be carried out prior to commencement of any mineral extraction to determine the structural integrity of the carriageway to cope with the increased HGV activity. A construction traffic management plan may be required.

Proposals on this site will be assessed on an individual basis by Highways England. Where there is potential for a cumulative impact, this should be taken into consideration. A Traffic management plan will also be required. This should include a review of alternative modes to road based transportation, which could potentially minimise the number of trips associated with the transportation of minerals on Highways England Strategic Road Network. It should also look at ways to minimise the number of HGV movements associated to the site during the network peak hours.

F. Flooding and Hydrological Issues

The northwest part of the site is within Flood Zone 3. A sequential approach should be adopted to ensure that the most vulnerable and sensitive parts of the operation are located in those areas least vulnerable to flood risk.

The site does not lie within a Groundwater Source Protection Zone, but is located on a secondary 'A' Aquifer. There are also a number of groundwater abstractions located within the immediate area for spray irrigation.

Skelfleet Drain is adjacent to the western boundary and a number of smaller drains cross the site. Temporary or permanent works within 8m of Skelfleet Drain will require the prior written consent of the Ouse and Humber Drainage Board.

Quarry dewatering activities must not affect the surface water environment or the resources available for groundwater abstractors. Quarrying should take place at the site without disturbance to or adverse impact on the water resource.

Sand and gravel working is classified as a water compatible development, but should be designed and constructed to:

- Remain operational and safe for users in times of flood;
- Result in no net loss of floodplain storage; and
- Not impede water flows and not increase flood risk elsewhere.

Indicative Working Proposals

It is likely that the site would be progressively worked as an extension of the adjacent existing quarry, utilising the existing processing plant. At any one time, it is expected that one phase of the site will be prepared by soil stripping, one phase will be worked for sand and gravel while another phase is restored.

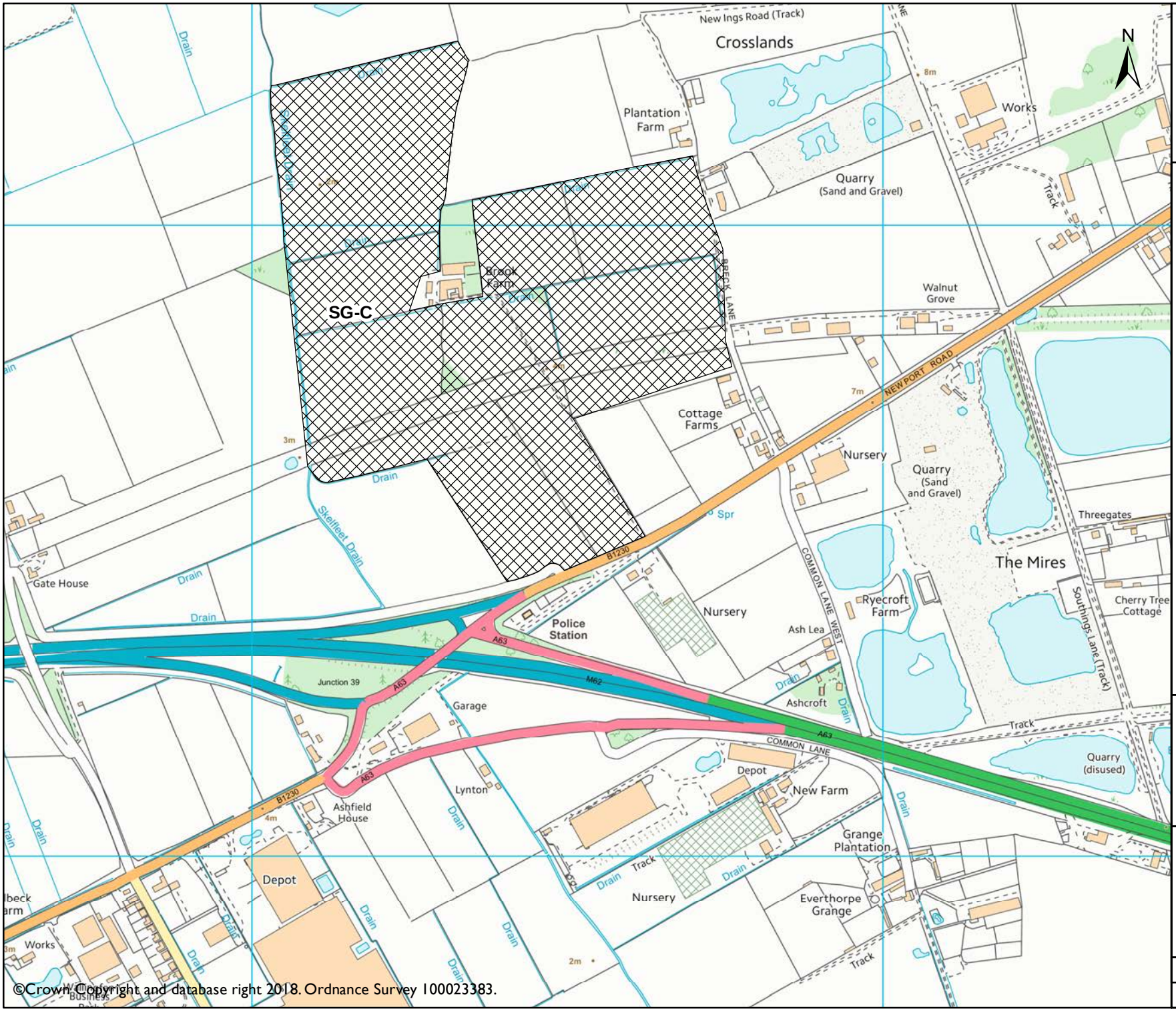
To address potential cumulative impacts, the site should be worked in series, rather than at the same time as the Outgang, SG-D, which is also identified as a Preferred Area.

Restoration and After-Use Aims and Requirements

Restoration schemes should consider restoring the land back to its previous high quality agricultural use. Opportunities for nature conservation should also be pursued and the potential to create habitat linkages with existing green infrastructure corridors.

This site is within the Cliffe Heathlands Local Biodiversity Priority Area, as identified in the adopted East Riding of Yorkshire Biodiversity Action Plan (ERYBAP). Therefore, at least part of the site should be restored to reflect the objectives for this area as set out in the ERYBAP. It should also be compatible with the ongoing restoration of Dryham Lane Quarry, in conjunction with the Yorkshire Wildlife Trust, as part of the North Cave Wetlands development. As some of the site lies within Flood Zone 3, the restoration could be designed to have a flood alleviation function.

Due to the underlying secondary 'A' Aquifer and presence of groundwater abstractions located within the immediate area for spray irrigation, the Environment Agency is likely to object to the site being developed as landfill as part of the restoration plan should there be a hydraulic connection between it and the superficial and bedrock aquifers.



EAST RIDING OF YORKSHIRE COUNCIL

Hull City Council

Legend

Sand and Gravel Preferred Area

Project

East Riding of Yorkshire & Kingston Upon Hull Joint Minerals Local Plan

Title

SG-C
Sand and Gravel Preferred Area
Brook Farm, North Cave.

Scale	Date	Drawn
1:8,000	21/03/2018	CCole

IDENTIFIED AREA SITE BRIEF – SG-D

PREFERRED AREA

The Outgang, North Cave

Location and Use	The site lies to the north of the A63 approximately 825m from North Cave and 1.5km from South Cave. It is primarily flat low lying Grade 3 agricultural land, although the eastern part is Grade 2.
Site Area	22ha
Deposit	Sand and Gravel
Potential Yield	Up to 850,000 tonnes (marketable reserve) Estimated annual yield 500,000 tpa
Planning History	EIA Scoping Opinion request (ref: 17/01608/EIASCO) for the extension to the consented sand, gravel and clay extraction areas. Land north and south of Dryham Farm, and east and west of Crosslands Lane to the north of Newport Road, North Cave.
Planning Policies	The site is located within a Mineral Safeguarding Area under Policy EC6 (Protecting mineral resources), the Strategic Aviation Consultation Zone under Policy EC5 (Supporting the energy sector) and west of an Important Landscape Area boundary under Policy ENV2 (Promoting a high quality landscape) of the East Riding Local Plan. It is also located within the North Cave designated Neighbourhood Area.

Site Planning Requirements

The following information provides further details on the Preferred Area, highlighting any potential issues for the development of the allocation.

A. Human health and amenity

The nearest residential property is Trawlams Farm on the southern side of the A63. Other residential properties and farmsteads are situated approximately 70m to the north and east of the site. Larger groupings of dwellings are located in Everthorpe 300m east of the site.

It will be necessary to incorporate mitigation measures into proposals, such as dust suppression techniques, to protect the amenity of nearby residents.

B. Biodiversity

The Humber Estuary is 3.8km from the site and is designated as a Special Protection Area, Special Area of Conservation and Ramsar site. A Habitats Regulation Assessment will be required to assess any impacts on these designations.

The Humber Estuary is also a designated Site of Special Scientific Interest (SSSI). It will be necessary to demonstrate that mineral extraction proposals do not adversely affect SSSIs located within the vicinity of the site, the closest being Everthorpe Quarry (2.5km) and

Drewton Lane Pits (3km).

A precautionary approach should be taken that recognises the uncertainties in the precise details and timing of any planning applications. All specific proposals for mineral development on the allocation should be rigorously assessed for any potential impacts on the natural environment, in line with East Riding Local Plan Policy ENV4.

C. Landscape and Visual Impacts

The allocation is located within Landscape Character Area 8B, defined as M62 corridor Gilberdyke to North Cave. Quarrying is common in this area and the impact of minerals development is localised. The site is located approximately 800m west of the Wolds Important Landscape Area.

This is a fragmented landscape that retains elements of its rural character in many places. Minerals development that results in further fragmentation and the loss of hedgerows and trees, will adversely affect character further. There are a number of detractors, which alongside the fragmentation of the landscape have affected its quality. This is assessed to be ordinary overall with areas of poor quality where the landscape is affected by commercial industrial development. The landscape type has a high sensitivity to development that would result in increased coalescence of the appearance of industrial development in the landscape.

Evidence suggests the site contains best and most versatile (BMV) agricultural land. Proposals within the site should consider restoring the site back to its original use or a land use of a similar quality.

A Landscape and Visual Impact Assessment will be required to support any planning application for minerals development. Proposals would need to consider additional sufficient screening to mitigate any adverse impacts identified. Working areas should be progressive to minimise the exposed area at any one time and reduce visual impacts.

D. Archaeology and Cultural Heritage

The site is located less than 900m south of North Cave Conservation Area and 1.7km west of South Cave Conservation Area. Both Conservation Areas are not visible from the site due to the presence of mature tree lines and hedgerows. The nearest Listed Building is the Grade II listed Gate Piers to Everthorpe Hall on Sand Lane, which are located at the entryway to HM Prison Wolds. The Grade I listed Church of All Saints in North Cave is located 1.5km to the north east.

This site lies within a major archaeological landscape, dating back to the prehistoric and Romano-British periods. The types of soils in this area are not as conducive to aerial photography as those on the Wolds. Nevertheless, aerial photographs taken by Historic England have identified a number of ladder settlements, trackways and early field systems in the immediate area. These include linear field boundaries and probable settlements in the fields on the eastern side of the area.

A programme of archaeological investigation and evaluation will be required, and an appropriate mitigation strategy (including appropriate post-excavation analysis and publication) agreed with the MPA, to support minerals development within the site. Proposals will need to demonstrate that the elements which contribute to the significance of heritage assets, including their setting, will not be harmed.

E. Access and the Impact on the Local Highways

The site would be accessed via the existing sand and gravel quarry to the north west of the site from South Ings Lane, which connects to the B1230.

A Transport Statement/Transport Assessment will be required, depending on the size of the development, this must cover; the vehicular access, visibility splays, routes to and from the quarry, vehicle numbers per day and mitigation works (passing places, localised widening and junction improvements etc.).

Facilities must be provided within the site for:

- Loading and off-loading of vehicles;
- Manoeuvring spaces so that vehicles can enter and leave in a forward gear;
- Parking for staff; and
- Layover space for heavy goods vehicles so that they are not waiting on the adjacent public highway.

Wheel cleaning facilities will be required and the provision of a road sweeper to cater for detritus on the adjacent public highway (mud, dust etc.).

A survey of the existing public highway (extent to be determined by ERYC Streetscene) should be carried out prior to commencement of any mineral extraction to determine the structural integrity of the carriageway to cope with the increased HGV activity. A construction traffic management plan may be required.

Proposals on this site will be assessed on an individual basis by Highways England. Where there is potential for a cumulative impact, this should be taken into consideration. A Traffic management plan will also be required. This should include a review of alternative modes to road based transportation, which could potentially minimise the number of trips associated with the transportation of minerals on Highways England Strategic Road Network. It should also look at ways to minimise the number of HGV movements associated to the site during the network peak hours.

F. Flooding and Hydrological Issues

A large portion of the site lies within Flood Zones 2 and 3. A sequential approach should be adopted to ensure that the most vulnerable and sensitive parts of the operation are located in those areas least vulnerable to flood risk.

The site does not lie within a Groundwater Source Protection Zone. However, it is located on a secondary 'A' Aquifer. There is also a number of groundwater abstractions located within the immediate area for spray irrigation.

Mires Beck (a 'main' river managed by the Environment Agency) runs adjacent to the eastern boundary of the site. An environmental permit will be required from the Environment Agency for temporary or permanent works within 8m of this watercourse. Water Furs and South Ings Drain cross the site from north to south and a smaller drain joins it within the site. There is a small pond on the southern boundary of the site.

Any quarry dewatering activities must not affect the surface water environment or the resources available for groundwater abstractors. Quarrying should take place at the site without disturbance to or adverse impact on the water resource.

Sand and gravel working is classified as a water compatible development, but should be designed and constructed to:

- Remain operational and safe for users in times of flood;
- Result in no net loss of floodplain storage; and
- Not impede water flows and not increase flood risk elsewhere.

Indicative Working Proposals

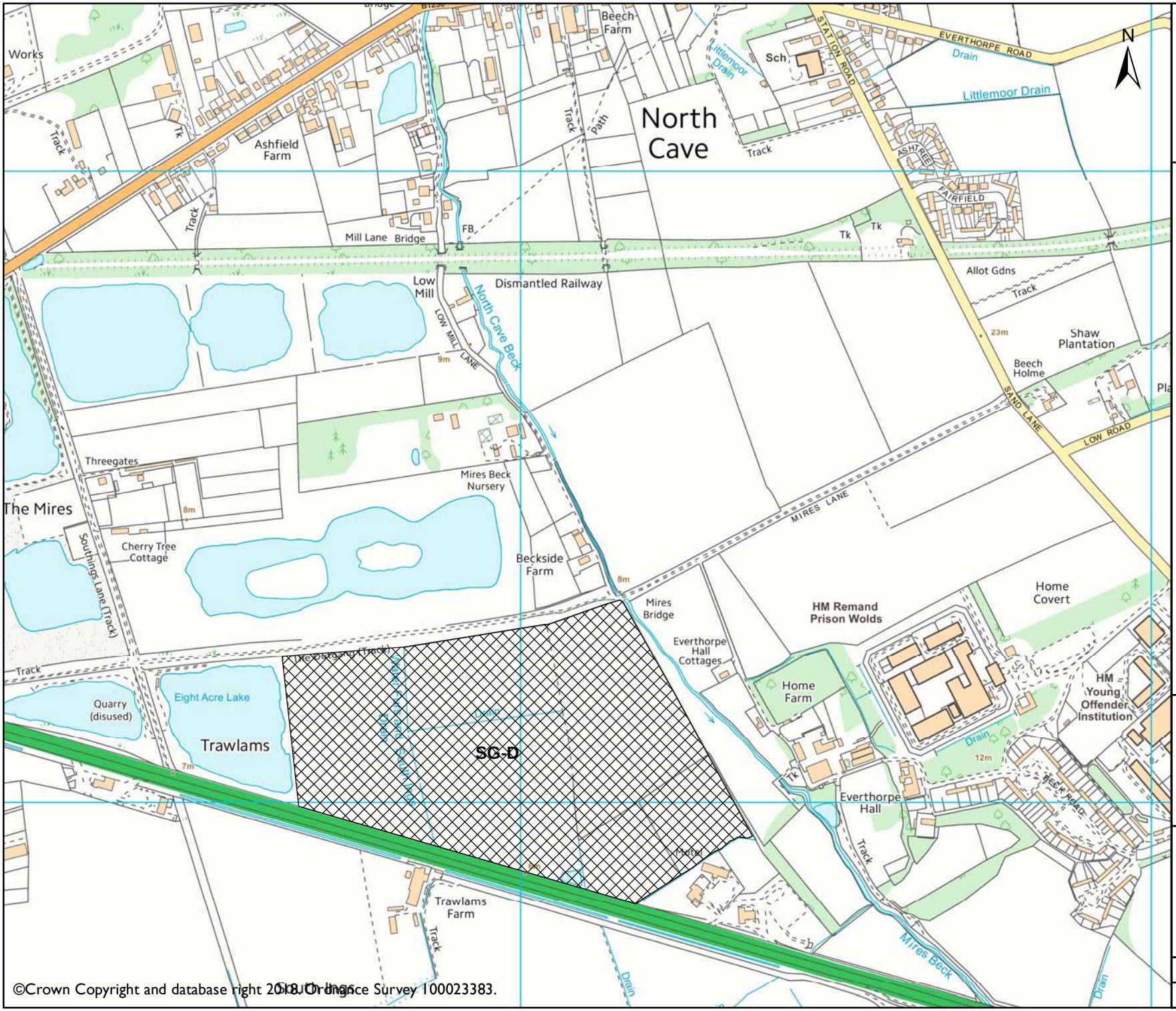
Mineral working will be phased progressively to reduce visual and landscape impacts. At any one time one phase would be prepared by soil stripping, while one phase is being worked for sand and gravel and another restored. Material would be removed from the site for processing at the existing processing area at Crosslands Lane/Dryham Lane.

To address potential cumulative impacts, the site should be worked in series, rather than at the same time as land around Brook Farm, SG-C, which is also identified as a Preferred Area.

Restoration and After-Use Aims and Requirements

Due to the underlying Aquifers, after the quarrying is complete the Environment Agency is likely to object to this site being developed as landfill as part of the restoration plan, should there be a hydraulic connection between the superficial and bedrock Aquifers, and the site.

Restoration schemes should consider restoring the land back to its previous high quality agricultural land use. Opportunities for nature conservation should be pursued and the potential to create habitat linkages with existing green infrastructure corridors. This site is within the South Wolds Local Biodiversity Priority Area as identified in the adopted East Riding of Yorkshire Biodiversity Action Plan. Therefore, at least part of the site should be restored to wetland habitats for nature conservation. As the site is within Flood Zones 2 and 3, restoration could be designed to have a flood alleviation function as well.



EAST RIDING OF YORKSHIRE COUNCIL

Hull City Council

Legend

Sand and Gravel Preferred Area

Project

East Riding of Yorkshire & Kingston Upon Hull Joint Minerals Local Plan

Title

SG-D
Sand and Gravel Preferred Area
The Outgang, North Cave.

Scale	Date	Drawn
1:8,000	21/03/2018	CCole

IDENTIFIED AREA SITE BRIEF – SG-E

PREFERRED AREA

LAND EAST OF B1249, CRUCKLEY LANE, BRIGHAM

Location and Use	The site is located approximately 0.9km to the north east of Brigham, 1km south west of Foston on the Wolds and 1.3km to the north west of North Frodingham. It is in two portions, north and south of Cruckley Lane; the northern portion lies adjacent to the eastern boundary of Brigham Quarry. The surrounding land use is predominantly farmland. The topography of the area is low lying with gentle undulations. The westernmost part of the site lies adjacent to Brigham Straight and is open to view. Remaining parts are less open, due to either the topography or by screening from the existing Brigham Quarry.
Site Area	19.9ha
Deposit	Soft Sand (the mineral available is the same as at Brigham Quarry, namely building and tarmac sand, rather than for concreting).
Potential Yield	0.75 million tonnes (marketable reserve) Estimated annual yield 75,000 tonnes per annum
Planning History	M37A - after strong local objections, an application by the former Driffield Urban District Council to tip refuse on the southern parcel of SG9 (south of Cruckley Lane), went to Public Inquiry. The Minister confirmed the compulsory purchase order and granted permission for the use of the site as a refuse tip, in 1965. M37B - Construction of a means of vehicular access, in accordance with the plans submitted, approved 23 September 1965. 1/M37E/86 - Access improvements, the construction of hardstanding and the erection of a garage in connection with the construction of a temporary civic amenity facility, approved 14 November 1986.
Planning Policies	The site is located within a Mineral Safeguarding Area under Policy EC6 (Protecting mineral resources) and a Functional Floodplain/Flood Storage Area under Policy ENV6 (Managing environmental hazards) of the East Riding Local Plan.

Site Planning Requirements

The following information provides further details on the Preferred Area, highlighting any potential issues for the development of the allocation.

A. Human health and amenity

There are settlements to the east, south and south west of the site, close to the existing quarry. The nearest properties are Little Grange at Grange Farm located approximately 25m to the west on the B1249 and Cruckley Farm located approximately 200m to the east. It will

be necessary to incorporate mitigation, such as dust suppression measures, into any proposal in order to preserve the residential amenity of these dwellings.

A public footpath crosses the northern portion of the site. This will have to be rerouted away from mineral workings to ensure it can still be used by members of the public.

B. Biodiversity and Geodiversity

The nearest Site of Special Scientific Interest (SSSI) is the River Hull Headwaters SSSI (0.3km).

Brigham Quarry is designated as a Local Geological Site (LGS) and is located adjacent to the site.

It will be necessary to demonstrate that any mineral extraction proposals do not adversely affect any designated sites, which may mean appropriate mitigation measures will be needed. No de-watering activities are necessary to work the resource meaning there is a reduced potential for quarrying to have hydraulic impacts on nearby SSSIs.

A precautionary approach should be taken that recognises the uncertainties in the precise details and timing of any planning applications. All specific proposals for mineral development on the allocation should be rigorously assessed on their potential impacts on the natural environment including the River Hull Headwaters SSSI, in line with East Riding Local Plan Policy ENV4.

C. Landscape and Visual Impacts

The site is located within the Landscape Character Area 18A, which is defined as Low Lying Drained Farmland in the River Hull Corridor. This is assessed to have medium sensitivity to sand and gravel extraction which is characteristic of the area to the south east of Brandesburton. The quality of the landscape is good overall with areas of high quality linked to the upper reaches of the River Hull Headwaters (northern end of Character Area 18A).

Effects of gravel extraction in this Character Area can be seen and has resulted in the development of uncharacteristic recreation sites, such as caravan parks. This has had an impact on the rural character of the intensively farmed landscape. However, caravan sites do tend to be less visible in the landscape and do not appear to have extensive visual envelopes. It must be ensured that future restoration schemes do not further detrimentally impact the visual character of this area.

Evidence suggests the site contains best and most versatile (BMV) agricultural land. Proposals within the Preferred Area should consider protecting this land and locating minerals development outside of high quality areas. Where unavoidable, proposals must ensure that best and most versatile agricultural land is restored back to its original use or a land use of a similar quality.

A Landscape and Visual Impact Assessment will be required to support any planning application for minerals development. Proposals would need to consider sufficient additional screening and appropriate restoration schemes to mitigate any adverse impacts identified. The northern portion of the site is partially screened by the existing Brigham Quarry. Working areas should be progressive to minimise the exposed area at any one time to reduce visual impacts.

D. Archaeology and Cultural Heritage

There are known crop-marks to the west of the site and also some within the allocation just south of Cruckley Lane, which clearly indicates the potential for past human activity in this area. An appropriate archaeological evaluation will be needed to support proposals for minerals development within the site. A mitigation strategy, including post-excavation analysis and publication, will need to be agreed with the mineral planning authority.

The closest Scheduled Monument is the site of the deserted village of Rotsea, approximately 3km to the south west.

There are three Listed Buildings within 1km of the Preferred Area of which two are Grade II; Mill Farmhouse (0.6km) and Church End Farmhouse (0.8km), and one is Grade II*; Church of St Elgin (0.8km). Three other Grade II and one Grade II* Listed Buildings are within 2km of the site.

Foston on the Wolds Conservation Area is 400m away from the Preferred Area and contains some of the Listed Buildings referred to above, in particular the Grade II* Listed Church of St Andrew. Although trees obscure views towards the buildings within the Conservation Area to a large extent from the allocation, additional tree planting will be required along the eastern and southern boundaries of the site to ensure any potential impacts upon the character and appearance of the Conservation Area are minimised.

Development proposals within the Preferred Area will need to demonstrate that the elements which contribute to the significance of these assets, including their setting, will not be harmed.

Plant and equipment associated with future quarrying operations should avoid competing with the Church of St Elgin for dominance in the skyline. Such equipment should be stored within the existing worked out portion of the quarry to the west or on lower land to the east of the allocation.

E. Access and the Impact on the Local Highways

The area is proposed as an extension to Brigham Quarry, which is currently accessed from the B1249 which forms the western boundary. There is also access from a public footpath running through the north of the Preferred Area.

Brigham Quarry has an existing access located on a series of bends on the B1249. It is anticipated that this could be used for the land to the north of Cruckley Lane. However, there may be a requirement to upgrade this access.

A Transport Statement/Transport Assessment will be required, depending on the size of the development. This must cover; the vehicular access, visibility splays, routes to and from the quarry, vehicle numbers per day and mitigation works (such as passing places, localised widening and junction improvements).

Facilities must be provided within the site for:

- Loading and off-loading of vehicles;
- Manoeuvring spaces so that vehicles can enter and leave in a forward gear;
- Parking for staff; and
- Layover space for heavy goods vehicles so that they are not waiting on the adjacent public highway.

Wheel cleaning facilities will be required, as well as the provision of a road sweeper to cater

for detritus on the adjacent public highway (for example mud and dust).

A construction Traffic management plan may be required.

A survey of the existing public highway (extent to be determined by the Council's Streetscene service) should be carried out prior to commencement of any mineral extraction to determine the structural integrity of the carriageway to cope with the increased HGV activity.

A Traffic management plan may be required, which could potentially minimise the number of trips associated with the transportation of minerals on the Road Network. The Plan should also look at ways to minimise the number of HGV movements associated to the site during peak hours.

F. Flooding and Hydrological Issues

The site is intersected by Flood Zones 2 and 3, but does not overlie a Groundwater Source Protection Zone. A sequential approach would need to be adopted to ensure that the most vulnerable and sensitive parts of the site are located in those areas least vulnerable to flood risk.

The eastern site boundary is adjacent to a designated Main River (White Dike) which leads into the River Hull Headwaters SSSI. However, surface water is drained either via Nafferton Drain which forms the northern boundary of the site or an unnamed drain to the South flowing away from the Dike, and does not interact with the SSSI. An unnamed drain also crosses the northern portion of the site leading to Nafferton Drain. Development proposals should ensure watercourses are not adversely impacted. The disposal of surface water flows would have to be controlled in such a manner as to not adversely flow. Quarrying should take place at the site without disturbance to or adverse impact on the water resource.

An environmental permit will be required from the Environment Agency for temporary or permanent works within 8m of White Dike. The Preferred Area is located on a Secondary 'A' Aquifer. It is possible that in certain areas, this Aquifer may be in hydraulic connectivity with the underlying Principal Aquifer.

Sand and gravel working is classified as a water compatible development, but should be designed and constructed to:

- Remain operational and safe for users in times of flood;
- Result in no net loss of floodplain storage; and
- Not impede water flows and not increase flood risk elsewhere.

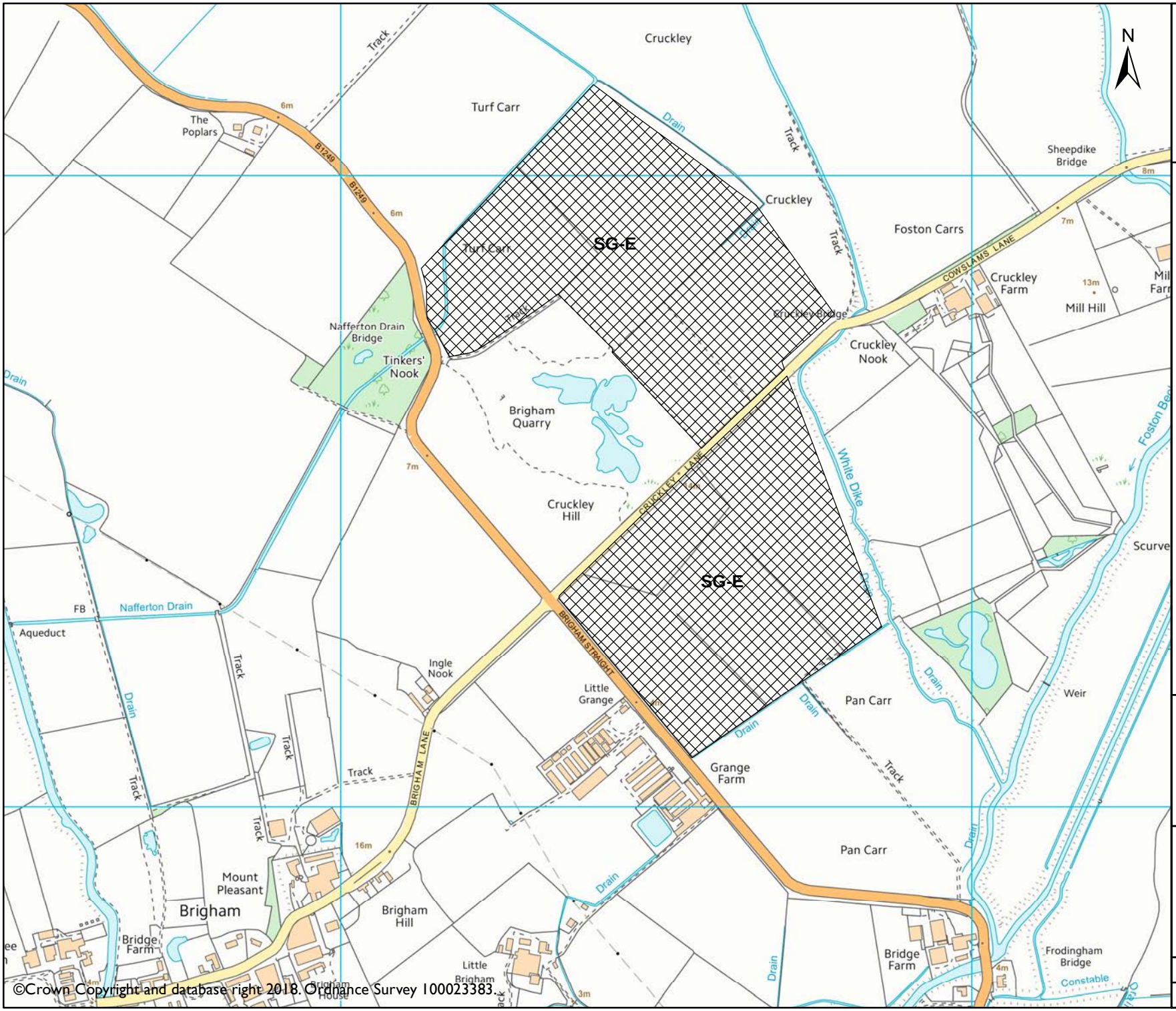
Indicative Working Proposals

The site will be worked progressively. The largest amount of ground to be worked at any one time will be approximately 2.6 ha. As was the case with the existing adjacent quarry, no dewatering activities are required to work the resource in the allocation.

Restoration and After-Use Aims and Requirements

Proposed restoration of the site will be to a combination of tourism, with lakes and wooded areas, and agricultural land. Opportunities for nature conservation should be pursued and the potential to create habitat linkages with existing green infrastructure corridors. Potential benefits exist in relation to restoration to nature conservation as the site lies within the River Hull Biodiversity Priority Area. Therefore, it would be a candidate site for restoration to wetland nature conservation after use. As parts of the area are also within Flood Zones 2 and 3, the restoration could be designed to have a flood alleviation function.

Due to the Aquifers present, the Environment Agency is likely to object to this site being developed for landfill as part of the restoration plan, unless it can be demonstrated there is no hydraulic connection between the two Aquifers.



EAST RIDING OF YORKSHIRE COUNCIL

Hull City Council

Legend

Sand and Gravel Preferred Area

Project

East Riding of Yorkshire & Kingston Upon Hull Joint Minerals Local Plan

Title

SG-E
Sand and Gravel Preferred Area
Land East of B1249,
Cruckley Lane, Brigham.

Scale	Date	Drawn
1:8,000	21/03/2018	CCole

IDENTIFIED AREA SITE BRIEF – SG-F

AREA OF SEARCH

LEVEN AND BRANDESBURTON

Location and Use The Area of Search (AOS) covers a large area of agricultural land, including several roads and dwellings, plus operating and former quarries in the vicinity of Brandesburton and Leven villages. The main settlements near to the AOS are Brandesburton, Leven and Seaton.

Site Area 1,604ha (not all of the area would be worked; stand-offs to settlements, wooded areas and watercourses will be retained).

Deposit Sand and Gravel

Potential Yield It is not appropriate to identify a total available tonnage or anticipated rate of supply to assign to this extensive AOS.

Planning History The AOS contains a number of existing and former mineral workings. It is too extensive to list all relevant planning history, however active quarries within the AOS and their planning history are listed below:

- Little Catwick Quarry (Yarrows Aggregates):

See SG18 Site Brief for full planning history.

- Brandesburton Quarry (Sandsfield Gravel Co Ltd):

90/80909/PLF Catwick Grange – Leven, modification of planning consent (for winning of sand/gravel and landfilling with industrial waste) to include landfilling with commercial waste

99/02857/PLF Extraction of sand and gravel deposits, landfill and restoration (see also 08/00967/STVARE and 12/30464/CONDET)

03/05700/STVAR Continued use of a ready mixed concrete batching plant (renewal of planning permission 5/N215U/93) (see also 15/00004/STPLF)

04/04752/STPLF Extension of the existing waste recycling and reduction station including erection of a building.

08/01216/STPLF erection of a building to house Renewable Energy Generation Plant (see also 08/31071/CONDET, 08/31343/CONDET and 09/20194/AMPLAN)

11/00040/STPLF Retention of two lime silos, two oil tanks, one standby generator and footpath and erection of one ash skip enclosure and one waste skip enclosure

12/02055/STPLF Extension to sand and gravel extraction operations (see also 12/30466/CONDET)

14/00851/CLE Certificate of Lawfulness for continued use of land for windrow composting of green wastes

15/01004/PLF Change of use from a quarry and mixed mortar site

(Class B1 and B2) to an industrial yard (Class B1, B2 and B8) including erection of a building for vehicle/plant maintenance and offices (see also 15/30314/CONDET)

16/01122/CM Change of use of existing Biomass Plant to a Waste Transfer Station (see also 15/00005/STPLF)

16/03441/EIASCO Scoping opinion - Continued and uninterrupted operations of mineral extraction and landfilling of non-hazardous waste past the current cessation date in 2018 and to move the mineral extraction and landfilling boundary by about 40m along the Northern edge of the site to bring in line with the Sandsfield ownership boundary.

Planning Policies The site is located within a Mineral Safeguarding Area under Policy EC6 (Protecting mineral resources), a Functional Floodplain/Flood Storage Area under Policy ENV6 (Managing environmental hazards) and designated Local Wildlife Sites (LWS) and Local Geological Sites (LGS) are located within the AOS under Policy ENV4 (Conserving and enhancing biodiversity and geodiversity) of the East Riding Local Plan.

Site Planning Requirements

The following information provides further details on the extensive Area of Search, highlighting any potential issues for the development of the allocation.

A. Human health and amenity

There are numerous dwellings within 1km of the AOS and several within it. The A1035 road passes through and several Public Rights of Way (PROW) run across the site.

It will be necessary to exclude residential properties from mineral proposals and incorporate mitigation measures, such as noise and dust suppression, in order to respect the residential amenity of nearby dwellings and users of PROW.

B. Biodiversity

Sites of Special Scientific Interest (SSSI) nearby are Hornsea Mere SSSI (2km) and Leven Canal SSSI (0.0 km). Hornsea Mere is also a Special Protection Area (SPA). It will be necessary to demonstrate that mineral extraction proposals do not adversely affect any designations located within the vicinity of the site.

There are five Local Wildlife Sites (LWS) within 1km of the AOS. Three of these are located within or overlapping the site. These are; New Drain candidate LWS, Catwick and Brandesburton Pits candidate LWS (comprising two discreet sites) and Low Farm, Routh LWS.

Brandesburton Gravel Pits LGS and Routh Quarry LGS fall within the proposed AOS. Seaton LGS lies adjacent to the site boundary.

Appropriate mitigation measures to protect these designations will need to be taken where required.

The closest SSSI to the allocation is Leven Canal, which is designated for its community of

wetland plants. There is a low risk of local groundwater levels being depressed during dewatering associated with sand and gravel extraction to the west of the allocation around the Level Canal SSSI. Further investigation of this risk to the hydrology of Leven Canal SSSI is needed and provision made for any mitigation required prior to planning permission being granted. This should be in line with East Riding Local Plan Policy ENV4.

C. Landscape and Visual Impacts

The AOS extends into four Landscape Character Areas; Character Area 18B Quarry Farmland, Character Area 18C Catfoss Dyke, Character Area 19C North Holderness Open Farmland and Character Area 19D Central Holderness Open Farmland.

Vertical features and large scale farm buildings are dominant and detract from landscape character within these character areas. Other detractors, such as industrial development at Carnaby, pylons and communication masts, are spread throughout the area, but overall do not seriously harm the quality of the landscape which is assessed to be ordinary to good, with pockets of high quality at Burton Constable and Rise. Proposals must ensure that vertical features such as plant and equipment do not detrimentally impact the landscape view and character. Appropriate placement of equipment, operations and screening should be considered.

New proposals for recreation facilities may impact detrimentally on the rural character of the landscape. The area is assessed to have medium sensitivity to this type of development overall. Restoration schemes that do not detrimentally impact the landscape character should be considered.

Evidence suggests the site contains best and most versatile (BMV) agricultural land. Proposals within the AOS should consider protecting this land and locating minerals development outside of high quality areas. Where unavoidable, proposals must ensure that best and most versatile agricultural land is restored back to its original use or a land use of a similar quality. Mineral extraction is characteristic of the area south and east of Brandesburton. Restoration schemes have introduced water bodies to the area that have contributed to recreation and ecology.

A Landscape and Visual Impact Assessment will be required to support any planning application for minerals development. Proposals would need to consider additional sufficient screening to mitigate any adverse impacts identified. Working areas should be progressive to minimise the exposed area at any one time and reduce visual impacts.

D. Archaeology and Cultural Heritage

This very large area includes a number of existing quarry sites and some older working areas. However, it also includes substantial areas which have not been subject to quarrying in recent years, and where there is still a large number of surviving archaeological deposits. The date range of archaeology within the site ranges from the Upper Palaeolithic (at Brandesburton) to medieval moated sites and rural settlements (for example the earthworks near Catfoss Hall). This includes sites of major regional significance, such as the defended hill-top enclosure at The Yarrows and the Middle Bronze Age urn cemetery at Catfoss.

Seaton Conservation Area overlaps the boundary of the AOS in the east. The site is also close to Long Riston, Leven, Brandesburton, Catwick and Sigglesthorne Conservation Areas.

There are two Grade II Listed Buildings within the site. These are Manor Farmhouse and Catfoss Hall located west of Seaton in the eastern section of the site. A number of other Listed Buildings lie in close proximity in surrounding villages. This includes the Grade II* Church of St Michael in Catwick, which is located less than 500m from the site boundary.

The nearest Scheduled Monuments are Hayholme moated site (250m west of the AOS boundary) and Market Cross in Brandesburton. There are no Scheduled Monuments within the site.

Proposals will need to demonstrate the elements which contribute to the significance of these heritage assets, including their setting, will not be harmed by minerals development. In addition, a full and detailed archaeological evaluation will be required for proposals which come forward for development.

E. Access and the Impact on the Local Highways

The main roads within the site the A165 and A1035. Due to its size and uncertainty of where proposals may come forward, access details cannot be provided at present.

A Transport Statement/Transport Assessment will be required, depending on the size of the development, this must cover; the vehicular access, visibility splays, routes to and from the quarry, vehicle numbers per day and mitigation works (passing places, localised widening and junction improvements etc.).

Facilities must be provided within the site for:

- Loading and off-loading of vehicles;
- Manoeuvring spaces so that vehicles can enter and leave in a forward gear;
- Parking for staff; and
- Layover space for heavy goods vehicles so that they are not waiting on the adjacent public highway.

Wheel cleaning facilities will be required and the provision of a road sweeper to cater for detritus on the adjacent public highway (mud, dust etc.).

A survey of the existing public highway (extent to be determined by ERYC Streetscene) should be carried out prior to commencement of any mineral extraction to determine the structural integrity of the carriageway to cope with the increased HGV activity. A construction traffic management plan may be required.

Proposals on this site will be assessed on an individual basis by Highways England. Where there is potential for a cumulative impact, this should be taken into consideration. A Traffic management plan will also be required. This should include a review of alternative modes to road based transportation, which could potentially minimise the number of trips associated with the transportation of minerals on Highways England Strategic Road Network. It should also look at ways to minimise the number of HGV movements associated to the site during the network peak hours.

A number of public rights of way (PROW), footpaths and bridleways, are located within the site. Proposals must ensure that PROW are protected from minerals development or rerouted if necessary.

F. Flooding and Hydrological Issues

The River Hull is located to the west and there are a number of watercourses and water bodies within the site. The site is intersected by Flood Zones 2 and 3.

If this area were to be worked in the future, a sequential approach should be adopted to ensure that the most vulnerable and sensitive parts of the site are located in those areas at lowest flood risk.

The site is located on a secondary 'A' Aquifer. It is possible that in certain areas this aquifer may be in hydraulic connectivity with the underlying Principal Aquifer.

Any quarry dewatering activities must not affect the surface water environment or the resources available for groundwater abstractors. Quarrying should take place at the site without disturbance to or adverse impact on the water resource.

Temporary or permanent works within 8m of Bowlams Dyke, Monk Dyke, and New Drain crossing the site would require the prior written consent of the Environment Agency.

Temporary or permanent works within 8m of Stoneley Goat Dike, Tributary of Stoneley Goat Dike, Leven Cross Drain, Jackson and Sampson Low Ground, Leven Canal Side Drain, Burshill and Barff Branch Drain, Starr Carr Dike, Starr Carr South Branch, Mill Dam Beck, Stream Dike, Burshill and Barff and Hall Farm Drain crossing the site would require the prior written consent of the Beverley and North Holderness Internal Drainage Board. For other watercourses, a permit may be required from the Lead Local Flood Authority (East Riding of Yorkshire Council).

Sand and gravel working is classified as a water compatible development, but should be designed and constructed to:

- Remain operational and safe for users in times of flood;
- Result in no net loss of floodplain storage; and
- Not impede water flows and not increase flood risk elsewhere.

G. Other Issues

Transco High Pressure, Intermediate Pressure and Low Pressure Gas Mains pass through the area. A National Grid feeder gas pipeline crosses the far eastern side of the site.

A pumping station on West Street, Leven is included within the AOS. Proposals within close proximity to the pumping station must further investigate the presence of pipes within the application site.

As the amount of mineral resource is unknown, further ground investigation must be undertaken to determine the viability of any proposal for mineral extraction.

There are both existing and historic landfills located within the defined area. Groundwater abstractions are also located in the area. Proposals for quarrying (and associated) activities must not affect any of these sites.

Indicative Working Proposals

The Preferred Area SG-A is located within this Area of Search. The phasing and direction of mineral proposals within the AOS are not known at this stage. However, proposals should show how the site would be worked progressively with restoration taking place on completion of specific phases.

Restoration and After-Use Aims and Requirements

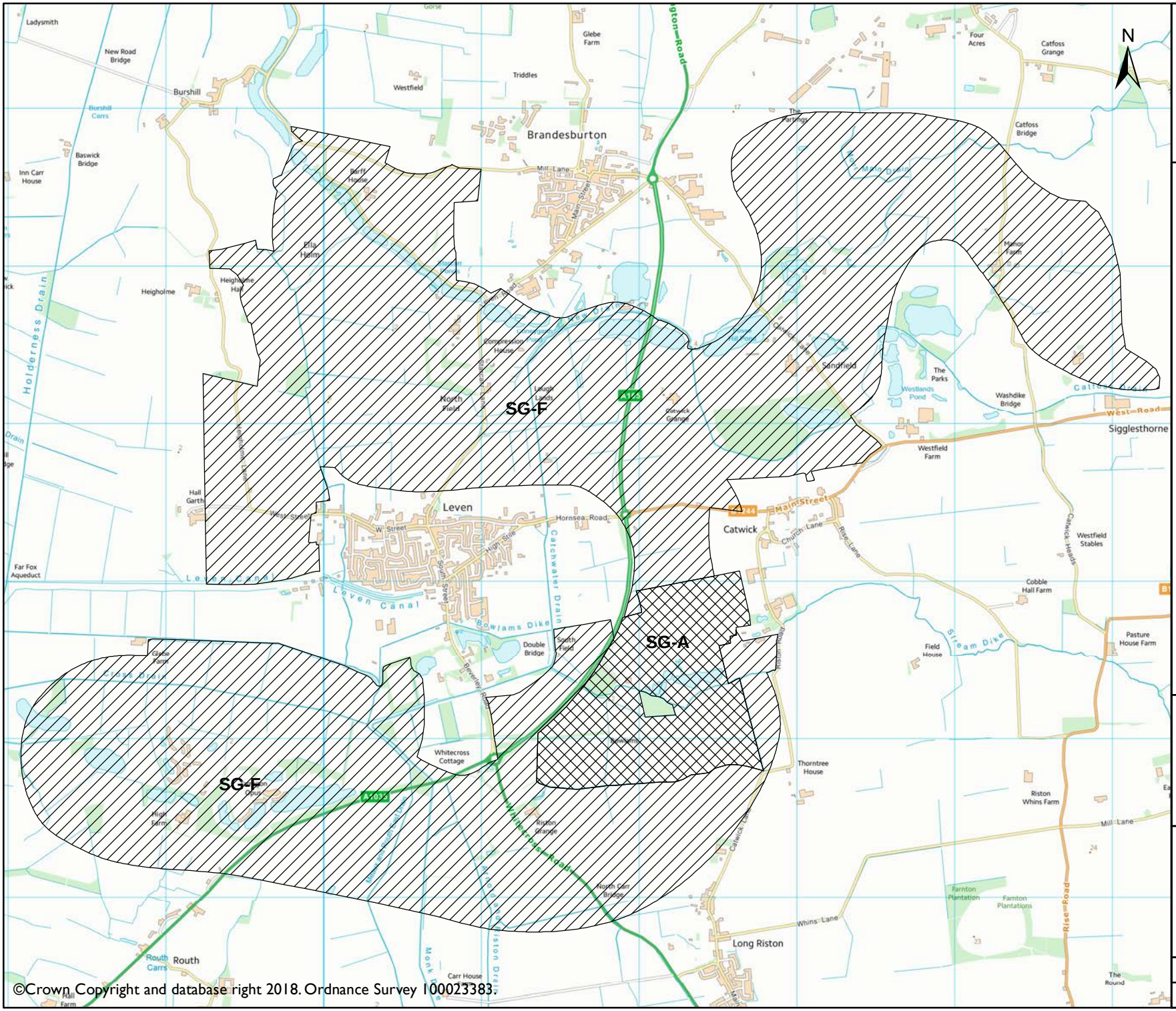
Due to the underlying Aquifers, the Environment Agency is likely to object to this site being developed as landfill as part of the restoration plan.

Restoration should be progressive and careful account taken of the long term impact on the landscape. Opportunities for nature conservation should be pursued and the potential to create habitat linkages with existing green infrastructure corridors. Parts of the AOS are within the Brandesburton and River Hull Biodiversity Priority Areas, as identified in the East Riding of Yorkshire Biodiversity Action Plan (ERYBAP). Therefore, at least part of the site should be restored to reflect the objectives for this area as set out in the ERYBAP.

The allocation contains best and most versatile agricultural land. Should these parts of the site be worked, appropriate restoration schemes will be required that restore the site back to its original agricultural land use and quality.

As the site is within Flood Zones 2 and 3 the restoration could be designed to have a flood alleviation function.

After uses for sites within the AOS located closely to the Water Sports Centre could be to further develop and/or enlarge the established facility.



EAST RIDING OF YORKSHIRE COUNCIL

Hull City Council

Legend

- Sand and Gravel Area of Search
- Sand and Gravel Preferred Area

Project

East Riding of Yorkshire & Kingston Upon Hull Joint Minerals Local Plan

Title

SG-F
Sand and Gravel Area of Search
Leven and Brandesburton.

Scale	Date	Drawn
1:32,000	21/03/2018	CCole

IDENTIFIED AREA SITE BRIEF – SG-G

AREA OF SEARCH

Gransmoor Lane and Lisset

Location and Use	The Area of Search (AOS) extends from between Fraisthorpe and Barmston in the east covering the village of Gransmoor, to Great Kelk in the west. It includes a number of existing and historic mineral operations. The site is low lying and gently undulating which includes areas of Grades 2 and 3 agricultural land. Land uses within the site are varied due to the large site area and includes agricultural and residential land, as well as two existing quarries and a wind farm.
Site Area	1,999ha (not all of the area would be worked; stand-offs to settlements, wooded areas and watercourses will be retained).
Deposit	Sand and Gravel
Potential Yield	It is not appropriate to identify a total available tonnage or anticipated rate of supply to assign to this AOS.
Planning History	The AOS contains a number of existing and former mineral workings. The AOS is too extensive to list all relevant planning history. However, the planning history for Gransmoor Quarry, Park House Farm Quarry, Turtle Hill Quarry and Barf Hill Quarry are listed below: 06/05618/STPLFE Erection of a 12 turbine wind farm, permanent 80m anemometer mast, control building and parking area, and improved junction to A165 Disused Airfield Access Roads, Lissett. 07/04264/STPLFE Land south west of Turtle Hill Farm, Burton Agnes, Extension to sand and gravel quarry with restoration to a lake with wetland, woodland and grassland habitats together with agriculture. 11/02567/EIASCO Scoping Opinion no.90 - Proposed Erection of 4 No. 125 metre blade tip high wind turbines. 15/00084/EIASCO EIA Scoping Opinion Request - regarding the extension of Gransmoor Quarry into 4.18ha of agricultural land to the south of the existing quarry. 17/02860/CM Variation of Condition 22 (Hours of operation) of planning permission 1/M2963A/90 (Extraction of sand and gravel) to amend operating hours commencement from 07.30hrs to 07.00hrs 17/03380/CM Erection of a building for storage of machinery. Nationally Significant Infrastructure Project – Carbon Capture Scheme pipeline runs through the area which would sterilise approximately 50m strip either side of the pipeline.
Planning Policies	The site is located within a Mineral Safeguarding Area under Policy EC6 (Protecting mineral resources) and designated Local Wildlife Sites (LWS) and a Local Geological Site (LGS) are located within the AOS under Policy ENV4 (Conserving and enhancing biodiversity and geodiversity) of the East Riding Local Plan.

Site Planning Requirements

The following information provides further details on the Area of Search, highlighting any potential issues for the development of the allocation.

A. Human health and amenity

This AOS encompasses, or is immediately adjacent to, a number of properties, including; Park House, Gransmoor Low House, Turtle Hill Farm, Hill Farm, Gransmoor Lodge and High Stonehills. There are many other properties close to its boundary, including those within the settlements of Great Kelk, Little Kelk, Lissett, Fraisthorpe and Barmston.

Several Public Rights of Way (PROW) are located within and around the site, and Gembling Primary School is within 1km of the AOS boundary.

It will be necessary to exclude residential properties from mineral proposals and incorporate mitigation, such as noise and dust suppression measures, in order to respect the amenity of the nearby dwellings, school and users of the PROW.

B. Biodiversity

The River Hull Headwaters Site of Special Scientific Interest (SSSI) is located within 1km of the western boundary of the site, and Skipsea Bail Mere SSSI is located 2.5km to the south east.

Barf Hill Wood candidate Local Wildlife Site (LWS) and Little Kelk Wetland LWS are located within the AOS. There are also three LWS within 500m of the site; Little Kelk Verge LWS to the north, Little Kelk Grassland candidate LWS and Gembling Common LWS to the west.

The inactive Gransmoor Quarry is a designated Local Geological Site (LGS) and falls within the nominated AOS. There are two further LGS within 1.5km of the site; Skipsea Drain and Barmston Mere.

Natural England and the Joint Nature Conservation Committee are consulting on a proposal to designate the Greater Wash area (located off the eastern coast of England) as a marine Special Protection Area for the conservation of wild birds. At this stage the site is considered a potential Special Protection Area (pSPA) and should be taken into consideration when assessing minerals sites as a fully designated European site subject to protection under the EU Habitats Directive. The eastern boundary of the nominated site is located 1.8km from the pSPA.

In addition, there are some non-designated features within the AOS, including scattered woodland and a network of watercourses.

It will be necessary to demonstrate that mineral extraction proposals do not adversely affect the designated sites within and in close proximity to the AOS. Appropriate mitigation measures will need to be taken where required.

A precautionary approach should be taken that recognises the uncertainties in the precise details and timing of any planning applications. All specific proposals for mineral development on the allocation should be rigorously assessed for any potential impacts on the natural environment including the River Hull Headwaters SSSI, in line with East Riding Local Plan

Policy ENV4.

C. Landscape and Visual Impacts

The AOS falls within three Landscape Character Areas as defined by the Landscape Character Assessment (2005). To the west the site falls within 18E Kelk Beck Farmland, Holderness, while the central portion of the site falls within 19C North Holderness Open Farmland and the far eastern portion falls within 20C Bridlington to Hornsea Coast, Holderness.

Uncharacteristic recreation sites are the result of sand and gravel quarry restoration in character area 18E. The area has medium sensitivity to minerals extraction and restoration development. Minerals development is not characteristic within character area 19C where the majority of the area is intensively farmed providing a very open landscape with minimum tree cover. Landscape Character Area 20C is a coastal landscape with numerous recreational facilities and caravan sites. This area is also largely devoid of trees and presents an open, arable landscape between coastal settlements.

This low lying generally open landscape has a tranquil character that is sensitive to change as a result of built development. Proposals must ensure that mineral operations do not detrimentally impact the open landscape views and character. Appropriate screening (such as bunds and vegetation) and phasing of working should be considered to reduce visual impact.

New proposals for recreation facilities such as caravan parks, as restoration uses, may impact detrimentally on the rural character of the area. The area is assessed to have medium sensitivity to this type of development overall. Restoration schemes that do not detrimentally impact the landscape character should be considered.

Proposals within the AOS should also consider protecting best and most versatile agricultural land and locating minerals development outside of these high quality areas. Where unavoidable, proposals must ensure that high quality agricultural land is restored back to its original use or a land use of a similar quality.

A Landscape and Visual Impact Assessment will be required to support any planning application for minerals development. Proposals would need to consider additional sufficient screening to mitigate any adverse impacts identified. Working areas should be progressive to minimise the exposed area at any one time and reduce visual impacts.

D. Archaeology and Cultural Heritage

There are no Conservation Areas within the AOS. The nearest are at Foston on the Wolds (1.6km south west of the site) and at Burton Agnes (2.3km north of the site).

There is one Scheduled Monument in close proximity to the site, Wharram Hill Embankment Cross to the north. Minerals proposals within the site should avoid any impact on this monument and its setting. Given the extensive nature of this allocated site this should easily be achievable.

There are no Listed Buildings within the AOS, however the surrounding area is rich in heritage assets. The nearest Listed Buildings are located within the settlements of Barmston, Fraisthorpe and Lissett. These include the Grade I Church of All Saints and Grade II* Old Hall located 700m south of the AOS in the village of Barmston.

The existing quarry at Gransmoor has been shown to contain in situ archaeological deposits

of Upper Palaeolithic date. These are exceptionally rare, this far north. In addition to these, the wider identified area includes other heritage assets which are of regional significance (for example a Lake Village, several Iron Age square barrows, and a rare and unusual Iron Age metal working site).

Mineral proposals would need to avoid harm to the heritage assets within and close to the AOS. This should ensure that the elements which contribute to the significance and setting of the assets are safeguarded. An appropriate archaeological evaluation will be needed to support proposals.

E. Access and the Impact on the Local Highways

The AOS encompasses a number of roads, including Gransmoor Road, Gransmoor Lane and Kelk Lane, and the A165 defines the eastern boundary. Due to its size and uncertainty of where proposals may come forward, access details cannot be provided at present.

A Transport Statement/Transport Assessment will be required, depending on the size of the development, this must cover; the vehicular access, visibility splays, routes to and from the quarry, vehicle numbers per day and mitigation works (passing places, localised widening and junction improvements etc.).

Facilities must be provided within the site for:

- Loading and off-loading of vehicles;
- Manoeuvring spaces so that vehicles can enter and leave in a forward gear;
- Parking for staff; and
- Layover space for heavy goods vehicles so that they are not waiting on the adjacent public highway.

Wheel cleaning facilities will be required and the provision of a road sweeper to cater for detritus on the adjacent public highway (mud, dust etc.).

A survey of the existing public highway (extent to be determined by ERYC Streetscene) should be carried out prior to commencement of any mineral extraction to determine the structural integrity of the carriageway to cope with the increased HGV activity. A construction traffic management plan may be required.

Proposals on this site will be assessed on an individual basis by Highways England. Where there is potential for a cumulative impact, this should be taken into consideration. A Traffic management plan will also be required. This should include a review of alternative modes to road based transportation, which could potentially minimise the number of trips associated with the transportation of minerals on Highways England Strategic Road Network. It should also look at ways to minimise the number of HGV movements associated to the site during the network peak hours.

F. Flooding and Hydrological Issues

Some parts of the AOS lie within Flood Zones 2 and 3. Proposals should adopt a sequential approach to ensure that the most vulnerable and sensitive parts of the development are located in those areas at lowest flood risk.

A number of drains run through the AOS, notably Gransmoor Drain, Burton Drain and Yew Dike. In addition there are multiple unnamed drains within the site. An environmental permit

will be required from Beverley and North Holderness Internal Drainage Board for temporary or permanent works within 8m of Gransmoor Drain, Nutholmes Dyke, Burton Drain, Stonehills Drain, Earles Dyke, and Demming Drain. For other watercourses, a permit may be required from the Lead Local Flood Authority (East Riding of Yorkshire Council).

Any quarrying activities, including dewatering, activities must not disturb, adversely affect the surface water environment or the resources available for groundwater abstractors. Quarrying should take place at the site without disturbance to or adverse impact on the water resource.

Sand and gravel working is classified as a water compatible development, but should be designed and constructed to:

- Remain operational and safe for users in times of flood;
- Result in no net loss of floodplain storage; and
- Not impede water flows and not increase flood risk elsewhere.

G. Other Issues

A National Grid feeder gas pipeline crosses the Area of Search north - south. In addition, the permission for a Carbon Capture Scheme pipeline runs through the area. It would be 75km long, up to 24" (about 600mm) in diameter and buried at least 1.2 metres below the ground. The carbon dioxide would be transported in liquid form at a pressure of 150barg.

The installation and presence of the pipeline will impact on the scope for extraction of minerals. It will require stand-off distances to be maintained between it and the nearest extraction area. These distances will need to be determined by detailed geological assessments of working methods and the need to maintain stability to the pipeline.

Further parts of the AOS are temporarily sterilised by wind turbines, which are subject to a 25 year temporary planning permission. The relative importance of the continuation of the wind farm against the underlying mineral should be assessed when the temporary planning permission for the wind turbines expires. This should be taken into account in any decision to extend the period for the wind turbines to remain on site.

There are both existing authorised and historic landfills located within the defined area. Therefore any proposed quarrying (and associated) activities must not affect these sites.

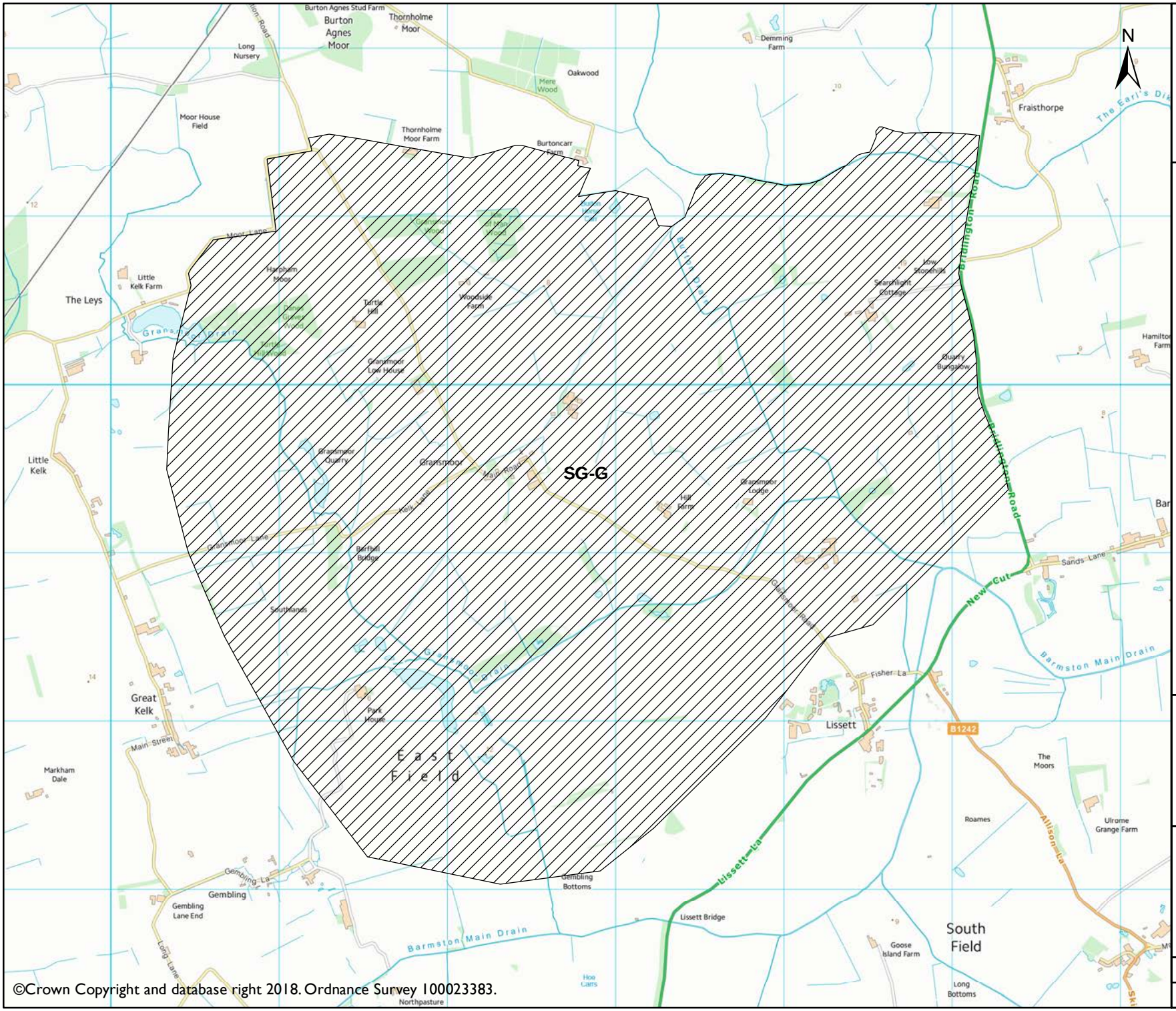
Indicative Working Proposals

The phasing and direction of mineral proposals within the AOS are not known at this stage. However, proposals should show how the site would be worked progressively with restoration taking place on completion of specific phases.

Restoration and After-Use Aims and Requirements

Restoration proposals should have regard to the landscape character.

Opportunities for nature conservation should be pursued and the potential to create habitat linkages with existing green infrastructure corridors. As parts of the AOS are within Flood Zones 2 and 3, the restoration could be designed to have a flood alleviation function.



EAST RIDING OF YORKSHIRE COUNCIL

Hull City Council

Legend

Sand and Gravel Area of Search

Project

East Riding of Yorkshire & Kingston Upon Hull Joint Minerals Local Plan

Title

SG-G
Sand and Gravel Area of Search
Gransmoor Lane and Lissett.

Scale	Date	Drawn
1:30,000	21/03/2018	CCole

IDENTIFIED AREA SITE BRIEF – CR-A

AREA OF SEARCH

GREENWICK QUARRY, HUGGATE

Location and Use	The AOS is situated a short distance from the A166 in an upland agricultural setting. The agricultural land is Grade 3 and 4. Greenwick Quarry is an operational quarry that lies within the AOS.
Site Area	72.4ha
Deposit	Chalk
Potential Yield	It is not appropriate to identify a total available tonnage or anticipated rate of supply to assign to this AOS.
Planning History	Part of the site has been worked for chalk extraction and contains the active Greenwick Quarry: 87/41102/PLF - Construction of a road stone coating plant and installation of septic tank at approx. 2.7 acres of land. 93/40175/PSM - Continued use of land for the siting of a roadstone coating plant. 95/41217/PLF Extension to quarry at land adjacent to Greenwick Quarry. 98/20946/PLF Determination of new conditions at Huggate Quarry. 99/03724/PLF Proposed aggregate recycling plant (Fridaythorpe coated stone plant). 02/02190/STIRE - Application for determination of new conditions (Environment Act 1995).
Planning Policies	The site is located within a Mineral Safeguarding Area under Policy EC6 (Protecting mineral resources) and Wolds Important Landscape Area under Policy ENV2 (Promoting a high quality landscape) of the East Riding Local Plan.

Site Planning Requirements

The following information provides further details on the Area of Search, highlighting any potential issues for the development of the allocation.

A. Human health and amenity

There are no residential properties within the AOS. The nearest residential property is Greenwick Lodge located 50m from the western boundary of the AOS. Wayrham Farm, High Callis Wold, Cold Skin Farm, East Greenwick Farm and High College Farm are located within 1km of the site.

It will be necessary to incorporate mitigation measures, such as dust and noise suppression measures, into mineral proposals in order to respect the residential amenity of these dwellings.

B. Biodiversity

There are no Sites of Special Scientific Interest (SSSI) or other designated nature Conservation Areas within the AOS. The Millington Wood and Pastures SSSI lies adjacent to the AOS on its eastern boundary. Bishop Wilton Deep Dale SSSI and Thixen Dale and Long Dale SSSI are located within 1km of the site.

Part of Millington Wood and Pastures SSSI is of both geological and biological interest and covers an exceptionally fine system of deeply incised dry valleys in the chalk karst of the Yorkshire Wolds. Dry valleys are a major feature of the chalk karst, and this system is the finest in England being deeply cut, branching, undisturbed and complete in a small area. Head deposits and slope morphologies are well preserved and there is a complex of springs at the valley foot. Much of the valley system is occupied by unimproved chalk grassland exhibiting a range of community types on the varying slopes and aspects. Tor grass Brachypodium pinnatum is dominant over much of the site, although this is generally held in check by grazing, and is accompanied by finer grasses. Common grassland herbs are widespread. Greenwick Dale and parts of Tun Dale and Scoar Dale, included for geological reasons, have been afforested.

Applications on those parts of the site adjacent to Millington Wood and Pastures SSSI will need to ensure that there are no significant impacts on the SSSI or encroachment onto it. This could include measures to prevent dust and other material escaping from the site, by using vegetation or other methods of containing, collecting or suppressing any movement of material.

There is one Local Wildlife Site (LWS) within 1km of the site, Wayrham LWS located north of the A166.

It will be necessary to demonstrate that mineral extraction proposals do not adversely affect the designated sites within and in close proximity to the AOS. Appropriate mitigation measures will need to be taken where required.

A precautionary approach should be taken that recognises the uncertainties in the precise details and timing of any planning applications. All specific proposals for mineral development on the allocation should be rigorously assessed for any potential impacts on the natural environment, in line with East Riding Local Plan Policy ENV4.

C. Landscape and Visual Impacts

The AOS falls within the Wolds Important Landscape Area designated by Policy ENV2 of the East Riding Local Plan. Proposals will require a detailed Landscape and Visual Impact Assessment to assess the potential impact of minerals development on landscape character.

It is also located within Landscape Character Area 10G, West Wolds Edge Elevated Farmland, bordering Character Area 10D, Millington Pasture as defined in the East Riding Landscape Character Assessment (2005). This is a diverse and attractive landscape character type that has many features of interest. Stunning views from higher elevations in the dales contribute to the quality of this landscape.

Building style and layout respects landform and landscape pattern. Vernacular materials blend with the local landscape. The dales provide interest with buildings and parkland contributing to character and providing features in the landscape in contrast to the featureless character of the elevated Wold landscape. There are very few detractors. Roads, telegraph poles and communications masts are present but not prominent. Overall this is a complex, attractive and beautiful landscape that is assessed to be of high landscape quality.

Small scale quarrying for chalk is characteristic of the Wolds. However, large scale developments do affect the rural and tranquil character of the area. This character type has the capacity to accommodate small scale quarrying activities without substantial detrimental impact on landscape character.

This landscape is sensitive to development that would detract from, or result in the loss of, key characteristics, such as woodland cover or a change in landform (i.e. where earthworks would be required either cutting or embanking).

Evidence suggests the site contains best and most versatile agricultural land. Proposals should consider locating minerals development outside of these high quality areas. Where unavoidable, proposals must ensure that high quality agricultural land is restored back to its original use or a land use of a similar quality.

Proposals will need to consider additional sufficient screening to mitigate any adverse impacts identified. Working areas should be progressive to minimise the exposed area at any one time and reduce visual impacts.

D. Archaeology and Cultural Heritage

The site is located in an extremely important archaeological landscape that contains extensive systems of linear boundary dykes and barrows dating back to the Bronze Age and Neolithic Period. To the west of the AOS is a section of linear boundary dyke on Millington Lings which is a Scheduled Monument. A line of earthworks continues across the site. However, these are not designated and have been subject to extensive plough damage meaning they are only visible as crop marks. There are also two round barrows within 150m of the western boundary of this area; one barrow located northeast of Greenwick Lodge and another east of Callis Wold Farm. There are no Listed Buildings within the AOS, or within 1km.

Proposals will need to demonstrate the elements which contribute to the significance and setting of these heritage assets will not be harmed by minerals development. In addition, extensive archaeological investigation will be needed as part of the supporting information of any planning application for excavating aggregates on the site. This should include a programme of archaeological works, including archaeological evaluation comprising geophysical survey and trial trenching.

Planning applications should propose additional vegetative screening to protect the setting of the surrounding Scheduled Monuments. Plant and machinery should not become prominent features in the landscape. To minimise any negative visual impact, they should be located within an existing quarry bottom so as not to protrude above the valley sides.

E. Access and the Impact on the Local Highways

Access to the AOS can be gained via the existing access to Greenwick Quarry that leads onto a minor road to the south of the A166.

A Transport Statement/Transport Assessment will be required, depending on the size of the development, this must cover; the vehicular access, visibility splays, routes to and from the quarry, vehicle numbers per day and mitigation works (passing places, localised widening and junction improvements etc.). HGV traffic should avoid travelling through Huggate to respect the amenity and safety of residents and tranquil landscape of the Wolds village.

Facilities must be provided within the site for:

- Loading and off-loading of vehicles;
- Manoeuvring spaces so that vehicles can enter and leave in a forward gear;
- Parking for staff; and
- Layover space for heavy goods vehicles so that they are not waiting on the adjacent public highway.

Wheel cleaning facilities will be required and the provision of a road sweeper to cater for detritus on the adjacent public highway (mud, dust etc.).

A survey of the existing public highway (extent to be determined by ERYC Streetscene) should be carried out prior to commencement of any mineral extraction to determine the structural integrity of the carriageway to cope with the increased HGV activity. A construction traffic management plan may be required.

Proposals on this site will be assessed on an individual basis by Highways England. Where there is potential for a cumulative impact, this should be taken into consideration. A Traffic management plan will also be required. This should include a review of alternative modes to road based transportation, which could potentially minimise the number of trips associated with the transportation of minerals on Highways England Strategic Road Network. It should also look at ways to minimise the number of HGV movements associated to the site during the network peak hours.

F. Chalkland Way PROW is located 300m away to the east of the AOS. Flooding and Hydrological Issues

The AOS lies within Flood Zone 1. A Principal Aquifer underlies the site and provides a public drinking water supply to a nearby village. The nearest watercourses are more than 3km to the west and northwest.

Any quarry dewatering activities must not affect the surface water environment or the resources available for groundwater abstractors. Quarrying should take place at the site without disturbance to or adverse impact on the water resource.

Sand and gravel working is classified as a water compatible development, but should be designed and constructed to:

- Remain operational and safe for users in times of flood;
- Result in no net loss of floodplain storage; and
- Not impede water flows and not increase flood risk elsewhere.

G. Other Issues

Chalkland Way public right of way sits 300m away from the eastern side of the AOS. Public access also exists on a farm track immediately adjacent to the southern side of the AOS.

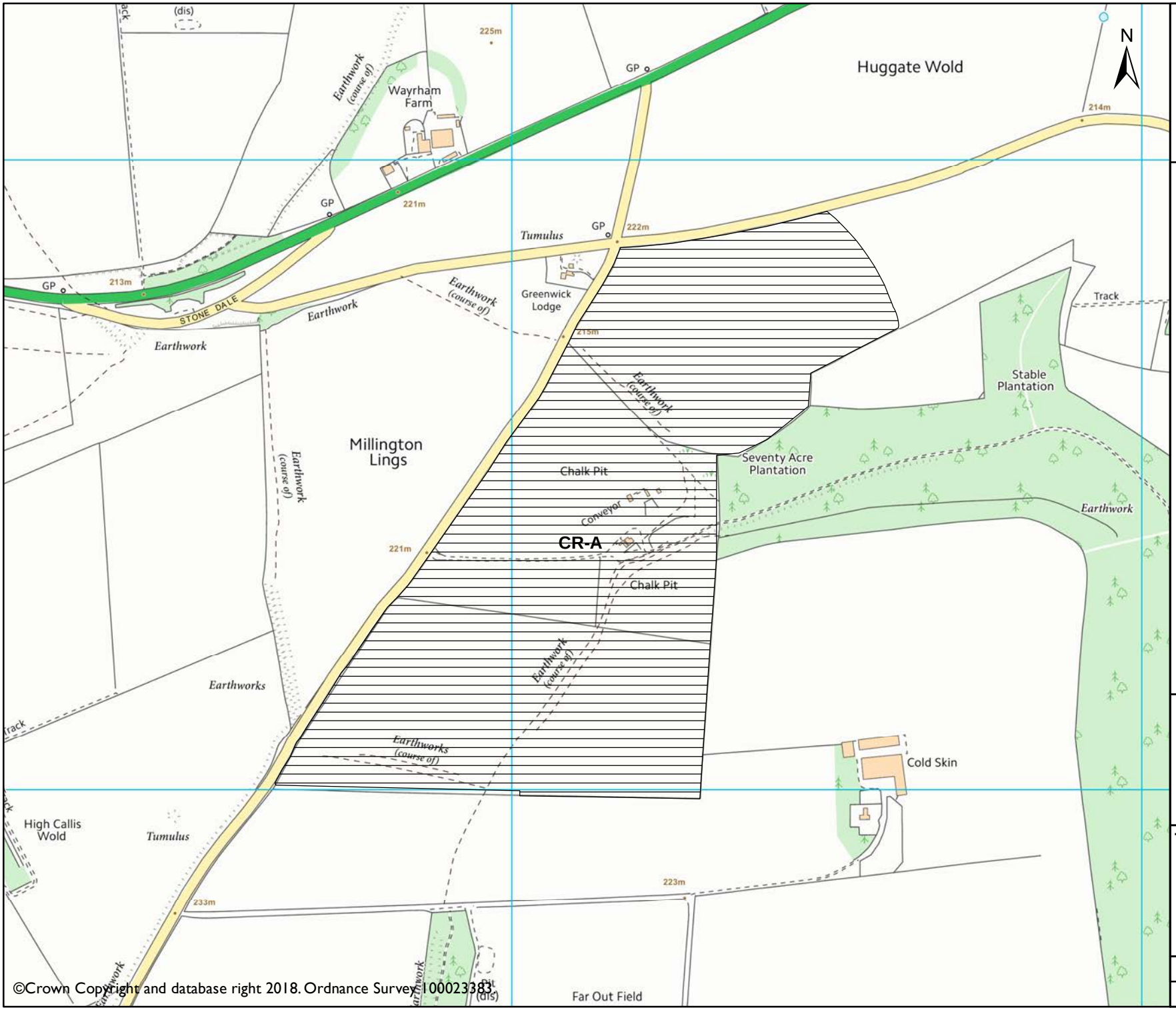
Indicative Working Proposals

If part of the AOS is developed for mineral extraction, the site should be worked in conjunction with the existing Greenwick Quarry and worked progressively using the existing processing facilities at the Quarry.

Restoration and After-Use Aims and Requirements

After the quarrying is complete the Environment Agency is likely to object to the site being developed as a landfill as part of the restoration plan.

Restoration schemes should examine the potential to enhance the proposed area for wildlife by creating further habitat corridors to link areas of wildlife importance. These could act to provide better links between the two nearest parts of Millington Wood SSSI south and east of the site. Opportunities for nature conservation should be pursued and the potential to create linkages with existing green infrastructure corridors. This site is within the West Wolds Priority Landscape Scale Project Area as identified in the adopted East Riding of Yorkshire Biodiversity Action Plan (ERYBAP). Therefore, at least part of the site should be restored to reflect the objectives for this area as set out in the ERYBAP.



EAST RIDING OF YORKSHIRE COUNCIL

Hull City Council

Legend

Crushed Rock Area of Search

Project

East Riding of Yorkshire & Kingston Upon Hull Joint Minerals Local Plan

Title

CR-A
Crushed Rock Area of Search
Greenwick Quarry, Huggate.

Scale	Date	Drawn
1:8,000	21/03/2018	CCole

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