

OCTOBER 2017
 (Data up to 2015)

HUMBER AREA LOCAL AGGREGATE ASSESSMENT



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EXECUTIVE SUMMARY

The requirement to produce an annual Local Aggregate Assessment (LAA) was introduced through the publication of the National Planning Policy Framework (NPPF) in March 2012.

Following publication of the NPPF, the Government issued further guidance on planning for minerals in the National Planning Practice Guidance (NPPG), incorporating previous guidance on the Managed Aggregate Supply System (MASS). This report is the second LAA that aims to meet the requirements set out in both of these documents. It is based on sales information data covering the calendar years up to 2015. Landbank data is 2015-based.

Sales and land bank information is sourced from annual surveys of aggregate producers in the Humber area (East Riding of Yorkshire, Kingston upon Hull, North East Lincolnshire & North Lincolnshire), alongside data from the Yorkshire & Humber Aggregates Working Party Annual Monitoring Reports, Local Plans, planning applications, the Crown Estate, and the Environment Agency.

Sand and Gravel

- The Humber area has 10 active sites that produce sand and/or gravel. Six are located within the East Riding of Yorkshire, whilst two are in North Lincolnshire. Two further sites in North Lincolnshire produce silica sand, primarily of non-aggregate or industrial use and these sales are not considered by this LAA.
- Sales were steady between 2006 and 2009 at around 1 million tonnes, but fell to a low point in 2010. Since 2010 they have risen again to an average of 0.9 million tonnes between 2013 and 2015.
- The average aggregate sales for sand and gravel for the most recent ten year rolling period (2006 to 2015), and three year rolling period (2013 – 2015), are 0.92 million tonnes per annum (mtpa) and 0.9 mtpa respectively.
- Reserves (as 31st December 2015) were 7.1 million tonnes, a reduction of 0.9 million tonnes compared with 2014 levels.
- Based on the average sales for the most recent ten year rolling period (0.92 mtpa), the landbank is 7.6 years which is a reduction on from the previous year's. Basing the landbank on an indicative annual Humber sand and gravel apportionment figure lowers it to 6.33 years.

Crushed Rock

- The Humber area has 15 active sites that produced either chalk or limestone. Ten are located in the East Riding of Yorkshire whilst five are situated in North Lincolnshire. Of these sites, five produce chalk for industrial (non-aggregate purposes). One site is produced chalk for aggregate and non-aggregate purposes.
- Sales were steady during the initial part of the ten year rolling period (2006 & 2007), with a decline in 2008 and 2009. Since 2009 they have increased, with very significant growth in 2014.
- The average aggregate sales for crushed rock for the most recent ten year rolling period (2006 to 2015) and three year rolling period (2013 to 2015) are 0.34 Mtpa and 0.57 Mtpa respectively.
- Reserves (as at 31st December 2015) were 13.39 million tonnes, which is an increase from those identified at the end of 2014.
- Based on the average sales for the most recent ten year rolling period (0.34 mtpa), the landbank is 39.4 years. This is a reduction from 2014 where the landbank was 44.7 years, which can, in part be attributed to the increase in sales during 2014 and 2015. The landbank is the same when basing it on an indicative annual Humber crushed rock apportionment figure.

Marine Sand & Gravel

- Landings of marine sand and gravel took place in the Humber area for the first time since 2013. Total tonnage landed was 25,561 tonnes.
- There are reserves in the Humber dredging area of 55.16 million tonnes

Recycled & Secondary Aggregates

- A number of sites in the Humber area receive construction demolition and excavation waste (CDEW) to be treated or reused to produce recycled aggregate.
- Accurate information about the quantities of recycled and secondary aggregates produced is limited and further research is needed to identify the contribution these make to the area's supply.

Consideration by the Yorkshire and Humber Aggregates Working Party

- All members were happy with the document, with the exception of W Clifford Watts Ltd and the Mineral Products Association.

SUMMARY OF FINDINGS		
	Performance in 2015	In comparison to previous year (2014)
Land won sand and gravel (million tonnes)	0.9	 0.9
Permitted reserves of sand and gravel (million tonnes)	7.1	 7.9
Sand & Gravel landbank (years) against 10 year annual average sales rate	7.6	 8.7
Marine imported sand and gravel (tonnes)	25,561	 0
Marine sand and gravel reserves (million tonnes)	55.16*	 26.32**
Land won crushed rock (million tonnes)	0.75	 0.75
Permitted reserves of crushed rock (million tonnes)	13.39	 12.95
Crushed rock landbank (years) against 10 year annual average sales rate	39.4	 44.7

* Total current primary reserves - Humber (including North East), Marine Aggregates Capability & Portfolio 2015, The Crown Estate

** Total primary reserves – Humber (including North East), Marine Aggregates Capability & Portfolio 2014, The Crown Estate

1. INTRODUCTION

- 1.1 Minerals make a vital contribution to the local and national economy and play an important part in our everyday lives. They have many uses, including the provision of material for construction and for a wide variety of industrial and commercial purposes. The planning system has to ensure that sites are available to provide sufficient minerals to supply these industries.
- 1.2 Aggregate minerals are those that are used by the construction industry, for example in road building, house construction, manufacture of concrete and railway ballast. They include limestone, sandstone and sand and gravel. It is the provision of these minerals with which this assessment is concerned.
- 1.3 The National Planning Policy Framework (NPPF) (March 2012) requires Mineral Planning Authorities to plan for a steady and adequate supply of aggregates by determining their own levels of aggregate provision. This should be set out in a Local Aggregate Assessment (LAA). The NPPF states that this should be based on a rolling average of the previous 10 years sales data and other relevant information. An assessment of all supply options should also be factored in, where appropriate. The Planning Practice Guidance on the Managed Aggregates Supply System (MASS) (March 2014 onwards) and published National and Sub National Guidelines on future provision also need to be taken into account.
- 1.4 The NPPF requires LAAs to be prepared annually. Therefore, the information set out in the LAA is recorded on an annual basis, where possible. It will help with the monitoring of patterns and trends in aggregates supply in the Humber area.
- 1.5 The Localism Act 2011 introduced the Duty to Co-operate¹. This requires planning authorities and other public sector bodies to work together on matters that are considered to have cross-boundary or cross-organisation implications. Planning for minerals is considered to fall into this bracket. Compliance with this duty is a legal requirement that will be examined by Planning Inspectors in considering local plans.

Figure 1: Yorkshire & Humber Aggregates Working Party Area

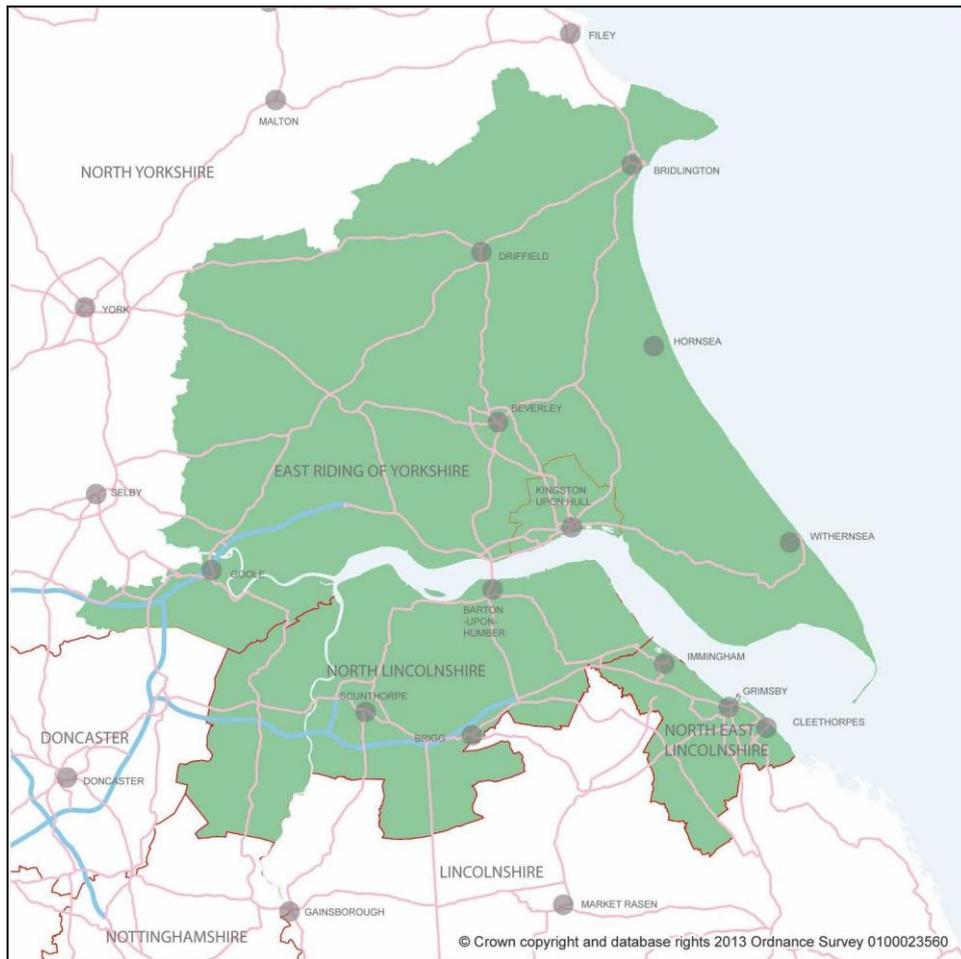


- 1.6 With this in mind, the members of the Yorkshire and Humber Aggregates Working Party (YHAWP) agreed to co-operate to produce LAAs covering the region. The approach taken to producing the LAA reflects the fact that aggregates are a strategic issue that goes beyond Mineral Planning Authority boundaries. At least four LAAs will be produced covering North Yorkshire including York, Yorkshire Dales National Park & the North York Moors National Park, South Yorkshire, West Yorkshire, and the Humber.
- 1.7 LAAs are subject to consultation with the minerals industry and other key stakeholders via the YHAWP.
- 1.8 This LAA will form part of the evidence base for the various Local Plans being prepared by the Humber mineral planning authorities and monitor aggregate supply and landbanks within the area.

- 1.9 Throughout this document, the term 'the Humber area' has been used to indicate the area covered by the four Mineral Planning Authorities grouped around the Humber Estuary, namely East Riding of Yorkshire Council, Kingston upon Hull City Council, North Lincolnshire Council and North East Lincolnshire Council.

¹ Localism Act 2011 – section 110

Figure 2: The Humber Area



- 1.7 The LAA sets out the current and future situation in the Humber area regarding aggregate supply and demand including sales data and aggregate apportionment levels to 2030 based on rolling average of ten years sales data, and other relevant local information.
- 1.8 The Mineral Planning Authorities in the Humber area do not exist in isolation. East Riding of Yorkshire Council is bordered by North Yorkshire County Council to the north and west, City of York Council to the west and Doncaster Metropolitan Borough Council (MBC) to the south-west. North Lincolnshire Council borders Doncaster MBC and Nottinghamshire County Council to the west and south-west respectively. Both North Lincolnshire and North East Lincolnshire border Lincolnshire County Council to the south. Therefore it is clear that for mineral planning, cross-border working needs to extend beyond the boundaries of the Humber area. In the preparation of this LAA, liaison has taken place with adjoining mineral planning authorities and aggregates working parties.
- 1.9 As unitary authorities, the four Humber Councils are responsible for all aspects of local government in their area, including planning for minerals. Each Authority must set out a series of planning policies to guide the location of future mineral development and determine any planning applications for mineral development.

Development Plans

- 1.10 East Riding of Yorkshire and Hull City Councils have a saved Joint Minerals Local Plan (2004). The East Riding Local Plan Strategy Document (April 2016) includes a policy on minerals safeguarding and Mineral Safeguarding Areas are shown on the Policies Map. North Lincolnshire Council has a strategic minerals policy in its adopted Core Strategy DPD (June 2011) and the saved minerals policies in the North Lincolnshire Local Plan (May 2003). North East Lincolnshire Council has the saved policies of its Local

Plan (November 2003).

1.11 The current progress for each of the Humber Mineral Planning Authorities regarding emerging mineral planning policy is as follows:

- East Riding of Yorkshire Council & Hull City Council – a Joint Minerals Plan for Hull and East Riding is being prepared. It was issued for a further round of public and stakeholder consultation on the revised preferred approach in May to July 2016. Hull City Council is also in the process of preparing a Local Plan, which is currently undergoing an examination in public. A modification to the Plan has been introduced following the hearing session, which has introduced a policy to safeguard minerals infrastructure. This was introduced at the Inspectors request and followed representation that policy was required in the interim to the Minerals DPD becoming adopted.
- North Lincolnshire Council – A strategic minerals policy is set out in the adopted Core Strategy (June 2011), whilst more detailed policies are contained with the North Lincolnshire Local Plan – Saved Policies (May 2003). Work has commenced on the prepared of a new full Local Plan to cover the period 2017 to 2036. It will encompass a full range of planning issues including minerals development An initial (Regulation 18) consultation took place between February and April 2017..
- North East Lincolnshire Council – Currently preparing a new Local Plan, which encompasses the full range of planning issues facing the Authority’s area, including minerals development. The Plan was the subject of an examination in public in April/May 2017. Following the examination a number of proposed main modifications have been published and are subject to the public consultation. A number of modifications relate to the plans’ minerals policies.

Spatial Context

1.12 The Humber area is situated around the Humber Estuary on the east coast of the United Kingdom. It consists of four Local Authority areas that are all members of the Humber Local Economic Partnership (LEP). There are also strong links with North Yorkshire and Lincolnshire. In addition, East of Riding of Yorkshire Council is a member of the York, North Yorkshire and East Riding LEP, whilst North Lincolnshire and North East Lincolnshire Councils are members of the Greater Lincolnshire LEP.

1.12 A predominately rural area, it covers an area stretching from Flamborough in the north to Kirton in Lindsey, Grimsby and Cleethorpes in the south, and Pollington in the west to Spurn Point in the east. It contains the city and major urban areas of Hull, Cleethorpes/Grimsby, and Scunthorpe, as well as numerous smaller towns and service centres including Barton upon Humber, Beverley, Bridlington, Brigg, Driffeld, Goole, Hedon, Immingham, Market Weighton, Pocklington and Withernsea.

1.13 The whole area has a combined population of 925,070² and has around 401,000 households³. The population is expected to increase to 964,054⁴ by 2032⁵. The number of households is estimated to increase by 33,000. This population growth will come hand in hand with further employment opportunities and improvements in infrastructure. As such, it is crucial that the area is able to ensure the supply of sufficient aggregate minerals to provide for the development and infrastructure. This is needed to realise these growth aims as well as to maintain existing buildings and infrastructure.

1.14 The topography of the Humber reflects its underlying geology. The narrow bands of Jurassic rock in combination with the chalk deposits have formed the upland areas of the Yorkshire Wolds and Lincolnshire Wolds and the prominent north-south ridge known as the Lincoln Edge or Cliff. This overlooks the Trent Valley and the Humberhead Levels to the west and the Lincoln Clay Vale (the Ancholme Valley) to the east. The lower slope of the scarp is formed by the Upper Lias, the middle slope comprises Northampton Sand and the Grantham Formation (Lower Estuarine Series), whilst the top of the Lincoln Edge comprises Lincolnshire Limestone. The top forms a plateau which is traversed by the

² Mid-Year Population Estimates 2015 (ONS, June 2016)

³ Household Projections for England & Local Authority Districts 2014 to 2039 – 2014 based (DCLG, May 2016)

⁴ Population Projections 2014 to 2039 (ONS)

⁵ Household Projections for England & Local Authority Districts 2014 to 2039 – 2014 based (DCLG, May 2016)

Roman road, Ermine Street. The limestone of the dip slope is locally thin and in places the underlying clays and sands occur near the surface.

- 1.15 To the north of the Humber, the eastern extents of the Vale of York form a similar plain to the Trent Valley, lying to the west of the Yorkshire Wolds. It is more heavily covered by geological drift and the underlying rock formations play no part in the surface topography.
- 1.16 The Lincolnshire Wolds and Yorkshire Wolds which continue the upland chain north of the Humber are a belt of dissected chalk uplands which are up to nine miles wide. In the central area the chalk escarpment is serrated by a number of streams, while to the south it is lower and more regular. North of the Humber, the Yorkshire Wolds form an arc that ends in the sea cliffs at Flamborough Head. It slopes steeply to the Vale of Pickering to the north, but more gently to the Vale of York to the west. The southern and eastern flanks of the Wolds gently falls to the Holderness Plain. South of the Humber, the Lincolnshire Wolds slope gently eastwards towards to Humber Estuary and the Lincolnshire Coast. To the west, they overlook the Ancholme Valley.
- 1.17 Adjacent to the Yorkshire Wolds, the Holderness Plain is undulating but becomes less so further to the south-east near Spurn Head. The eastern edge of the plain terminates in generally low sea cliffs. The cliffs are retreating from the sea at relatively swift rates, whilst Spurn Head now frequently becomes an island during high tides when the sea cuts it off from the mainland.

Environmental Constraints & Opportunities

- 1.20 The single most important consideration for minerals planning is the fact that minerals can only ever be worked where they are found. Unlike other forms of spatial planning and development management, where development can technically occur almost anywhere, minerals planning needs to be focussed squarely on those areas where mineral deposits can be found in quantities where it is economically feasible to extract them. Despite this, potential specific site, preferred area or area of search allocations for minerals development may be constrained by environmental designations and constraints that might be present. This section provides a brief overview of the environmental constraints affecting the Humber area.
- 1.21 The National Planning Practice Guidance (NPPG) on the Managed Aggregate Supply System, states that LAAs should include an analysis of environmental constraints and opportunities. The key environmental constraints are recognised to be those areas of international or national importance. By category these key designations are:

Biodiversity and Geodiversity

- Special Protection Areas (SPAs) and Special Areas of Conservation (SACs) designated in accordance with the European Wild Birds and Habitats Directive – *Humber Estuary SPA & SAC, Lower Derwent Valley SPA & SAC, River Derwent SAC, Flamborough Head & Bempton Cliffs SPA, Flamborough Head SAC, Hornsea Mere SPA, Thorne & Hatfield Moors SPA, Thorne Moors SAC, Greater Wash potential SPA*
- Ramsar sites (wetlands of international importance identified in accordance with the Ramsar Convention) – *Humber Estuary, Lower Derwent Valley*
- Sites of Special Scientific Interest (SSSIs) - *72 sites in total*
- National Nature Reserves (NNRs) – *Humberhead Peatlands, Lower Derwent Valley, Spurn & Far Ings*

Cultural Heritage

- Scheduled Monuments – *408 in total*

Landscape

- Area of Outstanding Natural Beauty – *Lincolnshire Wolds*

Coastline

- Heritage Coast – *Flamborough Head, Spurn*

1.22 In addition to these international and national environmental constraints it should be noted that the winning and working of minerals may be constrained by:

- Other environmental designations and factors relating to biodiversity and geodiversity (the incidence of protected species, local (nature conservation) sites);
- Cultural heritage assets (listed buildings, conservation areas, areas of archaeological importance, landscape character);
- The protection of other resources, such as agricultural land, groundwater,
- flood risk; and
- local amenity including impacts upon residents of settlements and recreational areas from factors such as noise, dust, blasting and vibration, traffic and visual impact.

1.23 In planning for a steady and adequate supply of aggregates the Humber authorities will need to pay due regard to the environmental constraints and designations within their individual areas. This, following further detailed examination, may limit the scope for mineral working in the future. For example, the rural areas of the Humber area contain areas that are overlain by both the key environmental constraints and other environmental designations identified above. Similarly, there are numerous settlements and heavily built up and populated areas, which will in the future provide a focus for increased housing and employment development. This could place further constraints on potential extraction in close proximity to settlements.

1.24 Minerals working is often a long term activity, but nevertheless still a temporary use which can provide positive benefits to the local environment through well-conceived restoration and after-use strategies. In particular, the restoration of mineral sites can assist in providing opportunities for:

- The enhancement and creation of features of nature conservation importance and geodiversity;
- Improving landscape character;
- The creation of community woodlands or forests;
- The provision of recreation facilities, public open space and new public rights of way;
- The mitigation of flood risk through the creation of new flood storage capacity; and
- The remediation of contaminated land or pollution or the improvement of areas previously worked.

2. GEOLOGY & AGGREGATE RESOURCES

- 2.1 As a result of its geology, the Humber area contains significant deposits of a wide range of minerals, of which the most important are sand and gravel, chalk, brick clay, silica sand and limestone. Peat is also present, and there are also potential resources of oil, gas, ironstone and coal. The British Geological Survey (BGS) provide mineral resource mapping on a county-by-county basis, including for the Humber area. This takes the form of a report⁶ and accompanying map⁷.

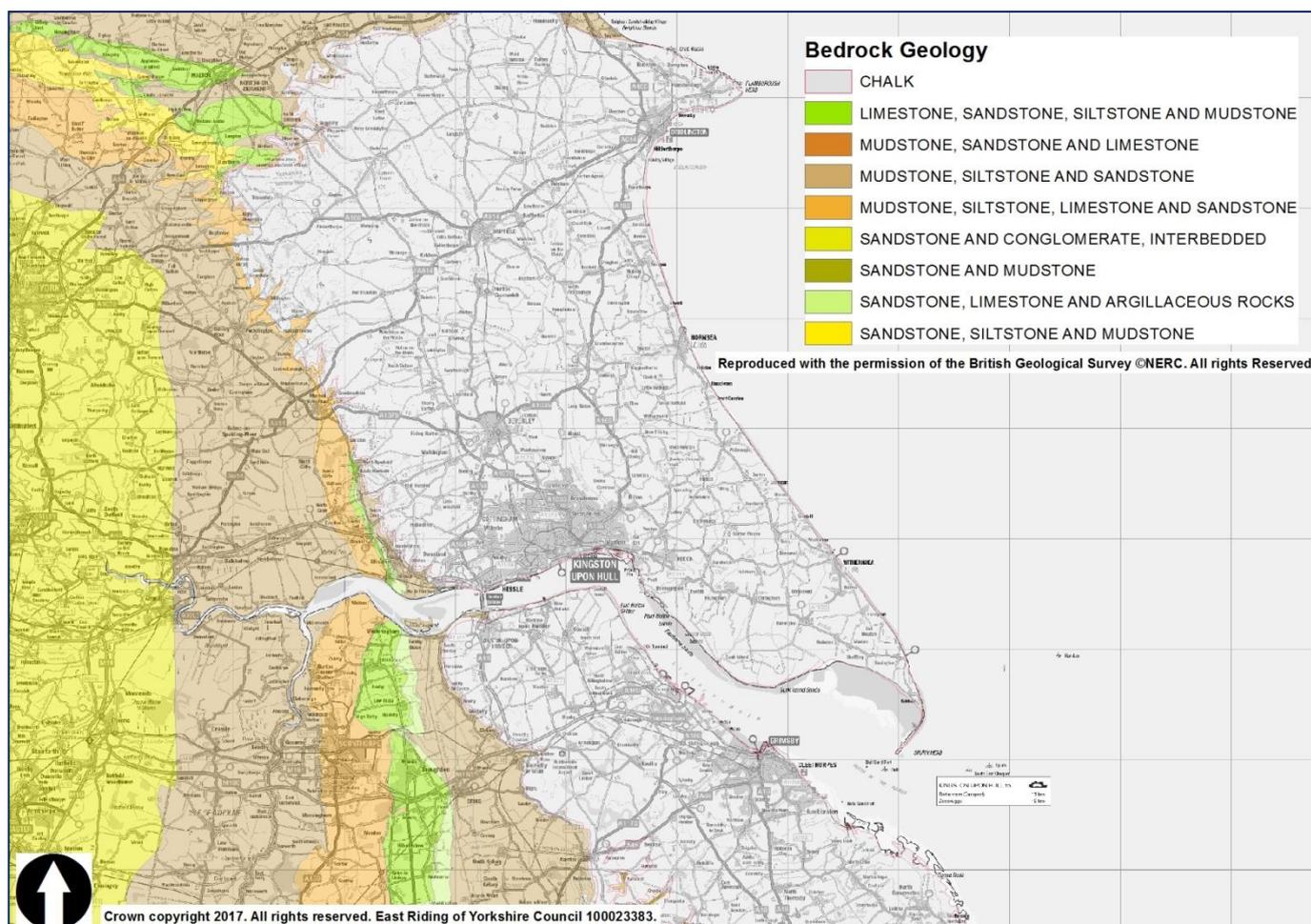
Bedrock Geology

- 2.2 Bedrock geology (see Figure 3) is a main mass of rock that makes up the Earth and is present everywhere, whether exposed in outcrops at the surface or concealed under drift deposits or water. It is this underlying geology that has shaped the Humber area's landscape and has had a significant influence in how it has developed.
- 2.3 In the Humber area, exposures of the solid geology occur in the upland areas of the Yorkshire Wolds and Lincolnshire Wolds and the Lincoln Edge Cliff around the Scunthorpe area. Elsewhere extensive drift deposits predominate. 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 the North Downs, South Downs and Chiltern Hills of southern England through East Anglia, Lincolnshire and the East Riding of Yorkshire, terminating at Flamborough Head. Within the area workable chalk deposits are found in both the Yorkshire and Lincolnshire Wolds.
- 2.4 West of the Yorkshire Wolds and the Lincoln Edge, lie two major areas underlain by much older rocks formed during the Triassic period. In the Trent Valley layers of Quaternary deposits are underlain by a band of Mercia Mudstone. This runs north to south between Stamford Bridge and Youlthorpe in the north, extending south into North Lincolnshire, Lincolnshire and Nottinghamshire. Prominent features in this area include the Isle of Axholme. The other Triassic formation comprises of Sherwood Sandstone. This is found in the remainder of the area west of the Mercia Mudstone, and forms part of a larger deposit running parallel to, and east of, the Pennines.
- 2.5 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 through North Lincolnshire into East Riding. As they extend north the bands narrow, with the majority terminating in the vicinity of Market Weighton leaving only Lower Lias to continue in a north westerly direction following the western boundary of the Yorkshire Wolds. The 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. To the north and east of Scunthorpe are outcrops of the Frodingham Ironstone.
- 2.6 The Trent Valley mainly comprises a layer of Quaternary deposits underlain by the Mercia Mudstone described previously. Similarly the Lincoln Clay Vale (the Ancholme Valley) has a heavy covering of Quaternary deposits but is itself a product of the erosion of the soft Upper Jurassic Clays.
- 2.7 The solid geology of the area also includes hydrocarbon deposits, comprising coal, oil and gas. Coal can be found under the western half of the area as extensions of the West and South Yorkshire coalfields. A number of oil and gas wells have been sunk in the Humber area over the last sixty years, with varying degrees of success. Oil is currently extracted at Crosby Warren to the north east of Scunthorpe.

6 Mineral Resource Information in Support of National, Regional & Local Planning – Humberside (comprising East Riding of Yorkshire, North Lincolnshire, North East Lincolnshire & City of Kingston upon Hull) – Commissioned Report (BGS, 2005)

7 Mineral Resource Information in Support of National, Regional & Local Planning – Humberside (comprising East Riding of Yorkshire, North Lincolnshire, North East Lincolnshire & City of Kingston upon Hull) – Mineral Resources Map (BGS, 2005)

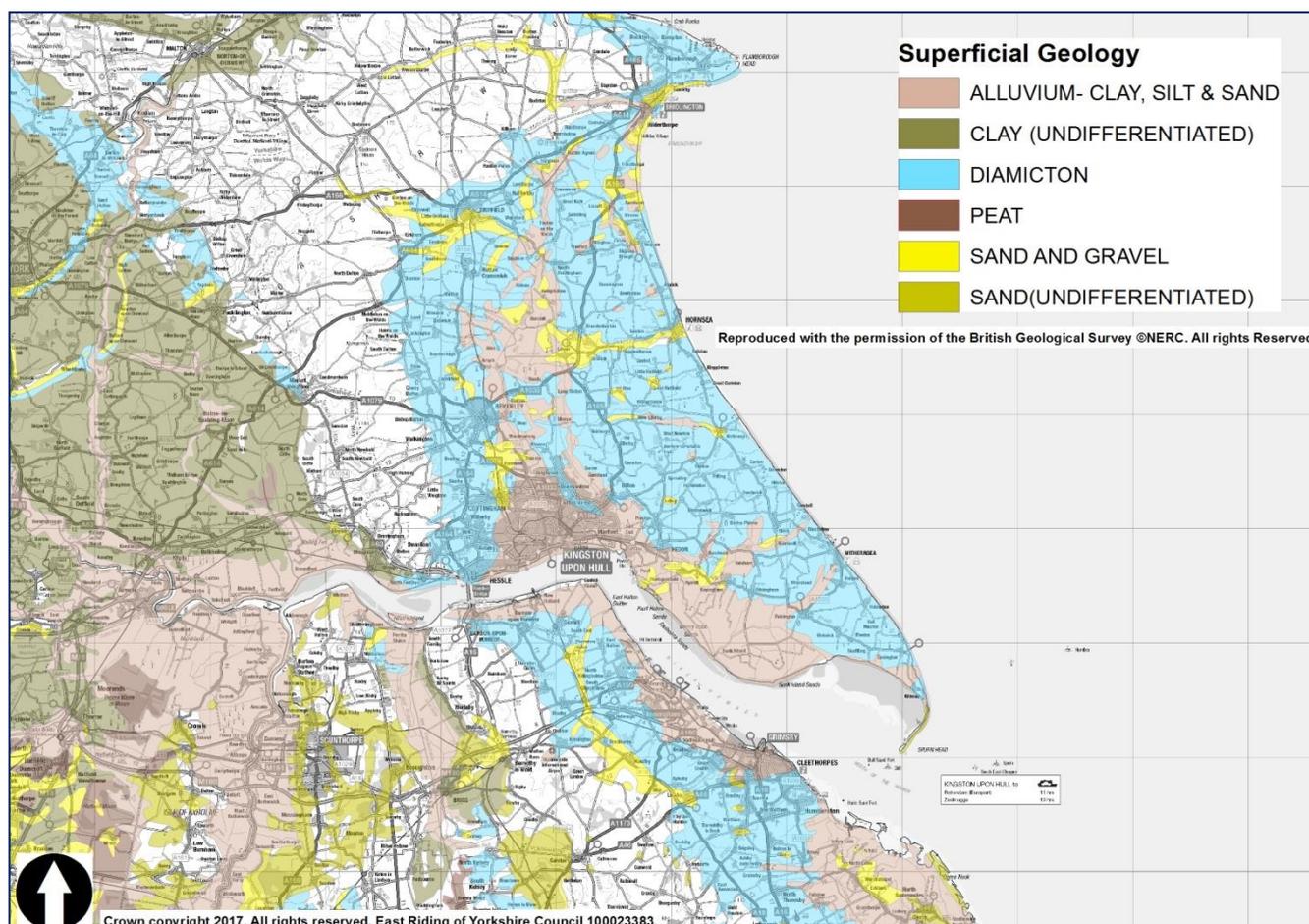
Figure 3: Bedrock Geology of the Humber Area



Superficial Geology

- 2.8 Much of the solid geology of the Humber area is overlain by superficial or drift deposits (see Figure 4) which in some cases reach a depth of 30 metres. These consist mainly of alluvium, peat, blown sands and boulder clay. 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 a band to the north and south east of Hull as well as in the Trent Valley and along the southern bank of the Humber Estuary between Grimsby and Barton upon Humber.
- 2.9 Several parts of the Humber area are covered by sand and/or gravel deposits. These include blown sand, as at Messingham and Manton, river terrace sand and gravel, and glacial sands and gravels such as those found near Brandesburton and Keyingham. Not all of the deposits within the area are economically workable.
- 2.10 Peat is found in large deposits on the western and south western edges of the Humber area to the west of the River Trent Valley and south of the River Ouse. The main deposits can be found on Goole Moors, Crowle Moors and the Isle of Axholme. In all cases these extensive deposits cross the boundaries of East Riding of Yorkshire and North Lincolnshire into the Doncaster Metropolitan Borough Council area taking in Thorne Moors and Hatfield Moors. Smaller deposits are found in the East Riding to the north of Newport/Gilberdyke in the Hotham Carrs area.

Figure 4: Superficial Geology of the Humber Area



Aggregate Resources

2.11 Aggregate minerals are defined as those used in the building and construction industries and are therefore essential to support built development and other construction and infrastructure projects. Aggregates are derived from a variety of different sources. Primary aggregates are naturally occurring materials extracted from the ground. Examples are sand and gravel, and certain forms of chalk. Aggregates can also be derived from by-product wastes and synthetic materials, and these aggregates are referred to as Secondary Aggregates. 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. A further source of aggregate that contributes to supply is marine-dredged sand from the North Sea that is landed at Hull.

Sand and Gravel

2.12 Historically, sand and gravel has been the most important aggregate resource found in the Humber area. It is principally used for a variety of building purposes including asphalt, concrete and mortar. Sand and gravel deposits in the Humber area are shown in Figure 4 above. They principally occur in the lower lying ground to east and west of the Yorkshire Wolds and Lincolnshire Wolds as well as long the Humber Estuary and river valleys.

2.13 The area to the east of the Yorkshire Wolds contains mainly glaciofluvial deposits. The deposits are fairly dispersed, with the most extensive deposits being in the Catwick/Brandesburton area, and stretching south from Bridlington. West of the Yorkshire Wolds there is a larger deposit of glaciofluvial sand and gravel in the Pocklington area, with smaller patches further south. South of the Humber, there are significant deposits in the Habrough and Laceby areas, with smaller areas found in North Lincolnshire around Winterton/Winteringham, Wrawby, Barnetby and Cadney.

- 2.14 In addition, a large part of the area west of the Yorkshire Wolds contains glaciolacustrine deposits of sand and gravel, although they become more patchy and dispersed further west. The main area of deposits occurs in the Pocklington area, running down to the Humber Estuary at North Ferriby and across into the Ancholme Valley. Blown sand deposits (silica sand) tend to be found along the lower slopes of major west facing escarpments. In particular, around the Scunthorpe and Messingham areas as well as the Isle of Axholme. Other deposits lie between Market Weighton and South Cave as well as around Elsham. River Terrace and sub-alluvial deposits are found along the valleys of the Rivers Trent, Ouse, Derwent, Ancholme, Hull and Gypsy Race as well as along the Humber Estuary.
- 2.15 All deposits are of variable quality, but the sand and gravel layers are relatively shallow, so prior extraction is feasible to a greater or lesser extent. This is particularly the case with sand and gravel as the extraction process does not involve blasting, and if required, processing can be carried out away from the extraction site. Most sand and gravel deposits are located away from the larger settlements where future development pressures will be greatest, but there are exceptions at Catwick, Brandesburton and Pocklington in East Riding.
- 2.16 In 2015 there were eleven sites extracting sand and gravel. The most important areas for working are near Gransmoor, North Cave and Brandesburton in East Riding. In North Lincolnshire, the main operations take place near Haxey and Barnetby-le Wold. Silica sand (industrial sand) working takes place near Messingham and Winteringham. Sand and gravel deposits for aggregate use are distributed sporadically across North Lincolnshire but there are only a few areas where its exploitation is economically viable.

Chalk & Limestone

- 2.17 Crushed rock in the Humber area is derived from 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 roadstone. There are small areas of higher purity chalk which is used for industrial purposes.
- 2.18 The 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 Yorkshire Wolds between the Humber Estuary and Newbald, as well as in the Scunthorpe area running south into Lincolnshire. It has been historically worked for aggregate limestone, again mainly for lower grade applications. Nevertheless interest has been expressed by operators in this deposit as a potential source of crushed rock in the future. Limestone is worked at three sites in North Lincolnshire near Kirton in Lindsey, Hibaldstow and Manton.

Ironstone

- 2.19 Most of the ironstone used in the steel industry is currently imported but significant deposits exist around Scunthorpe. There is no indication that it will be worked in the short term.

3. ASSESSMENT OF SUPPLY AND DEMAND

3.1 In planning ahead for future aggregates provision, it is essential that there is a good understanding of existing levels of supply and demand. This section provides an overview of existing aggregate sales, extraction operations, reserves and landbanks alongside details of existing apportionments. It also includes details of aggregate consumption and imports/exports. The information is based on the YHAWP annual survey of mineral operators, planning applications and YHAWP reports as well as national guidelines and other relevant information. A landbank is a number of years worth of supply of a particular mineral resource based on the amount of permitted resources divided by an annual rate of consumption, such as the 10 year average sales rate.

Sand & Gravel

3.2 Sales of sand and gravel for aggregate purposes in the Humber area for the ten year period between 2006 and 2015 are shown in Table 1. The 10 year and 3 year average sales for this period are 0.92 million and 0.9 million tonnes respectively.

2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	10 year Average	3 year Average
1.2	1.3	1.1	1.0	0.6	0.7	0.6	0.9	0.9	0.9	0.92	0.9

Source: Yorkshire & Humber Aggregate Working Party - Annual Reports; Annual Aggregate Monitoring Surveys

3.3 Sand and gravel sales have been broadly consistent over the last ten years, averaging just below 1 million tonnes per annum. Production peaked at 1.3 million tonnes in 2007. Since this point sales have decreased with the lowest points being the 0.6 million tonnes sold in 2010 and 2012. This could potentially be linked to the prevailing economic circumstances at the time.

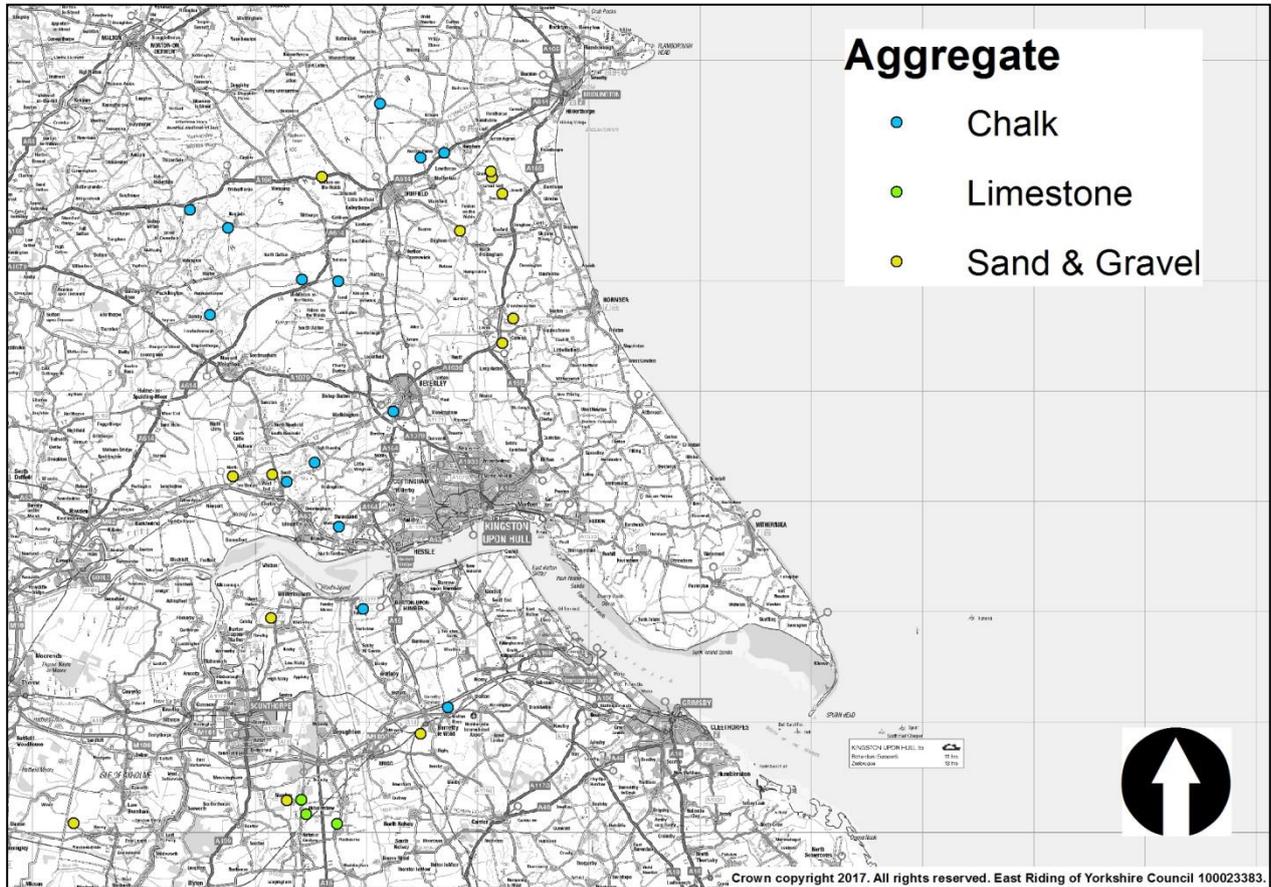
Current Supply

3.4 In 2015, the Humber area had ten active operations producing sand and gravel. There were also two inactive sites and one dormant site. Three sites are for silica sand (which is considered to be an industrial mineral). All of these are shown in both table 2 and the figure 5 below.

Quarry	Mineral Planning Authority	Operator	Status
Brandesburton	East Riding of Yorkshire	Sandsfield Gravel	Active
Garton		Clifford Watts	Active
Gransmoor		Clifford Watts	Inactive
Little Catwick		Yarrows Aggregates	Active
Brigham		Clifford Watts	Dormant
North Cave		Humberside Aggregates	Active
Park House Farm, Gransmoor		Clifford Watts	Active
Turtle Hill, Gransmoor		Clifford Watts	Active
Everthorpe		Clifford Watts (silica sand)	Inactive
Cove Farm, Haxey		North Lincolnshire	North Lincs Aggregates (sand)
Eastfield Farm, Winterton	A & F Dowson (silica sand and gravel)		Active

Kettleby Parks, Barnetby	Breedon Aggregates (sand and gravel)	Active
Messingham	Sibelco UK (silica sand)	Active

Figure 5: Chalk, Limestone, and Sand & Gravel Sites in the Humber Area



Landbanks

3.5 Government policy recommends the landbank period for sand and gravel required to be at least 7 years. Landbanks are a stock of reserves with planning permission. The estimated permitted reserves of sand and gravel in the Humber area as of 31st December 2015, amounted to 7.1 million tonnes. This gives a landbank of 7.6 years (see Table 3) based on the ten year annual sales average.

3.6 This excludes silica sand reserves. It is classed as an industrial mineral and is the subject of a separate requirement to provide at least 10 years stocks of permitted reserves at individual silica sand sites.

Table 3: Landbanks for Sand & Gravel in the Humber Area (2015)

2015 aggregate sales (Mt)	0.9
Reserves as at 31.12.2015 (Mt)	7.1
Average annual sales (2006 – 2015) (Mt) (10 years)	0.92
Average annual sales (2013 – 2015) (Mt) (3 years)	0.9
Landbank based on 10 year average sales (years)	7.6
Landbank based on 3 year average sales (years)	7.8

Crushed Rock

Sales

3.7 Sales of crushed rock for aggregate purposes in the Humber area for the ten year period between 2006 and 2015 are shown in Table 4.

2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	10 Year Average	3 Year Average
0.3	0.3	0.2	0.1	0.2	0.3	0.3	0.2	0.75	0.75	0.34	0.57

Source: Yorkshire & Humber Aggregate Working Party – Annual Reports and Annual Aggregate Monitoring Surveys

3.8 These sales figures show that production has averaged 0.34 million tonnes of crushed rock per year over the 10 year period from 2006 to 2015. Between 2006 and 2013 sales have been fairly consistent, with minor variations. In 2014 and 2015, there was an increase in sales, primarily from North Lincolnshire. This will be monitored through future surveys to ascertain whether it is a long or short term trend.

3.9 This pattern mirrors that of the whole Yorkshire and Humber region, where production between 2004 and 2008 averaged around 12 million tonnes per year. Regionally, sales in 2009 fell significantly to only 7.7mt. The fall was most evident in North Yorkshire and South Yorkshire. This slump in sales does not appear to have affected the Humber area to the same extent.

3.10 A number of quarries in the Humber area provide material for non-aggregate (mainly industrial) uses. In some cases they are adjacent to, or part of, the aggregate operations.

Current supply

3.11 In the Humber area there are currently fourteen operational crushed rock sites, most of which extract chalk. A number of these are industrial chalk sites related to different manufacturing facilities. The details of these are presented in Table 5. Figure 5 above shows the location of these sites within the area.

Quarry	Mineral Planning Authority	Operator	Aggregate	Status
Greenwick	East Riding of Yorkshire	Fenstone	Chalk	Active
Huggate		Fenstone	Chalk	Active
Langtoft		-	Chalk	Dormant
Lowthorpe		Stabler	Chalk	Active
Lund*		Minelco	Chalk	Active
Melton*		Omya	Chalk	Active
Middleton		Simpson	Chalk	Active
Nafferton Limes		-	Chalk	Inactive
Partridge Hall		Simpson	Chalk	Active
Queensgate*		Imerys	Chalk	Active
Riplingham		Stoneledge	Chalk	Active
Swinescaif*		Clifford Watts	Chalk	Active
Kirton Lindsey		North Lincolnshire	Welton Aggregates	Limestone
Manton	Brianplant		Limestone	Active
Melton Ross**	Singleton Birch		Chalk	Active

Slate House Farm		Welton Aggregates	Limestone	Active
South Ferriby*		Cemex	Chalk	Active

*Industrial chalk quarries; **Primarily industrial chalk quarry, with aggregate production

Landbanks

- 3.12 As described above, the NPPF requires landbanks to be maintained for all aggregate minerals, with the recommended landbank period for crushed rock required to be at least 10 years.
- 3.13 Estimated crushed rock reserves in the Humber area as of 31st December 2015 are around 13.39 million tonnes. This does not include substantial reserves identified as being for non-aggregate use as they are not part of the aggregates supply. Based on average annual sales over the 10 year period from 2006 to 2015, this would leave a landbank of 39.4 years for crushed rock (see Table 6).

2015 aggregate sales (Mt)	0.75
Reserves as at 31/12/2015 (Mt)	13.39
Average annual sales 2006 – 2015 (Mt)	0.34
Average annual sales 2013 – 2015 (Mt)	0.57
Landbank based on 10 year average sales (years)	39.4
Landbank based on 3 year average sales (years)	23.5

4. AGGREGATE CONSUMPTION & MOVEMENTS

4.1 Information on consumption and movement of aggregates is set out in the four yearly detailed Annual Monitoring Surveys (AMS) conducted by the Aggregate Working Parties (AWPs) and collated by British Geological Survey (BGS) on behalf of central Government. The most recent survey was carried out in 2014 (published in November 2016). Some information on consumption and aggregate movements was provided earlier to assist authorities in preparing their LAAs⁸. The previous published surveys were dated 2009 (published in May 2011) and 2005 (published May 2007). It is important to bear in mind that the four yearly national survey is separate to the annual YHAWP survey. Data from the two are not directly comparable due to differences between the overall number and individual operators responding to each.

Consumption

4.2 The 2009 AMS showed that the Humber area consumed 743,000 tonnes of sand and gravel (549,000 tonnes of land-won sand and gravel; 194,000 tonnes of marine dredged sand and gravel) and 789,000 tonnes of crushed rock. This was a reduction from the levels set out in the 2005 AMS which showed that consumption of sand and gravel was 1,683,000 tonnes (1,385,000 tonnes of land; 298,000 tonnes marine dredged) and 857,000 tonnes of crushed rock. The 2014 AMS shows that 424,000 tonnes of sand and gravel (land-won and marine-dredged combined) and 724,000 tonnes of crushed rock was consumed in the area.

4.3 All three AMS surveys showed that a percentage of the aggregates consumed in the Humber area derive from imports from other areas (see Table 7).

Table 7: Proportion of Aggregate Consumption Met By Imports (Tonnes)				
		Imports	Consumption	% of Consumption Met by Imports
Sand & Gravel	2005	908,000	1,683,000	54%
	2009	287,000	743,000	39%
	2014	305,000	424,000	72%
Crushed Rock	2005	594,000	857,000	69%
	2009	592,000	789,000	75%
	2014	700,000	724,000	97%

Source: Collated Aggregate Mineral Survey for England & Wales (2005, 2009 & 2014)

4.4 Information from 2014 AMS regarding movement of aggregates between different sub-regions has been issued to assist in preparing LAAs⁹. Table 8 (below) shows the origins of the imported aggregates consumed in the Humber area. Much of this is from neighbouring MPA areas or the wider Yorkshire & Humber Region, however some aggregate is imported from further afield, including outside of England and Wales. This may reflect existing commercial contracts, the need for materials that are not available in the Humber or overseas imports.

⁸ This takes the form of table that categorises for each destination sub-region the percentage of its total consumption received from other or "source" Mineral Planning Authorities. This is expressed as a percentage ranges in order to maintain commercial confidentiality.

⁹ as 8 above

Table 8: Source of Imported Aggregates Consumed in the Humber Area	
Source Areas	% of Humber Consumption
Sand & Gravel	
Nottinghamshire	30% to 40%
North Yorkshire	20% to 30%
Lincolnshire	10% to 20%
Doncaster	Less than 1%
Sunderland	Less than 1%
Crushed Rock	
Yorkshire Dales National Park	30% to 40%
Outside England & Wales	30% to 40%
North Yorkshire	10% to 20%
Derbyshire	1% to 10%
Doncaster	1% to 10%
Durham	Less than 1%
Leeds	Less than 1%
Northumberland National Park	Less than 1%
Northumberland	Less than 1%
Leicestershire	Less than 1%
Peak District National Park	Less than 1%
Powys	Less than 1%
Shropshire	Less than 1%

Source: Collated Aggregate Mineral Survey for England & Wales (2014) – Initial Information Release

- 4.5 As well as being consumers, the Humber provided a percentage of sand and gravel, and crushed rock consumed in other areas (see Table 9, below). Mostly these are neighbouring areas or sub-regions. The exception to this is Derbyshire and the Peak District National Park.

Table 9: Consumption of Aggregates Exported from the Humber Area		
Source	Destination Areas	% of Destination Area's Total Consumption
Sand & Gravel		
East Riding of Yorkshire	South Yorkshire	20% to 30%
	West Yorkshire	20% to 30%
	Yorkshire & Humber (Unknown Destination)	10% to 20%
	North Yorkshire, and North York Moors and Yorkshire Dales National Parks	1% to 10%
	North Wales (Unknown Destination)	Less than 1%
	Warwickshire	Less than 1%
North Lincolnshire	Lincolnshire	1% to 10%

	Unknown Destination	Less than 1%
	Derbyshire & Peak District National Park	Less than 1%
Crushed Rock		
East Riding of Yorkshire	East of England (Unknown Destination)	60% to 70%
North Lincolnshire	Lincolnshire	1% to 10%
	Nottinghamshire	1% to 10%

Source: Collated Aggregate Mineral Survey for England & Wales (2014) – Initial Information Release

Imports & Exports

- 4.6 As highlighted previously, aggregates are imported to and exported from the Humber area. The 2005 AMS, 2009 AMS and 2014 AMS includes information and analysis of the movements (imports and exports) of aggregates (see Table 10, below).

Table 10: Aggregate Imports & Exports				
		Imports	Exports	Balance
Sand & Gravel	2005	908,000	607,000	+301,000
	2009	287,000	500,000	-213,000
	2014	305,000	520,000	-215,000
Crushed Rock	2005	594,000	106,000	+488,000
	2009	592,000	(info not available)	+592,000
	2014	700,000	(info not available)	+700,000
Total	2005	1,502,000	713,000	+789,000
	2009	879,000	500,000	+379,000
	2014	1,005,000	520,000	+485,000

Source: Collation of the Results of the 2005, 2009 & 2014 Aggregate Minerals Surveys for England and Wales (DCLG, BGS & Welsh Assembly Government). Note: In balance column, a “-” prefix indicates a net export, and a “+” prefix indicates a net import

- 4.7 Based on recent information, the Humber area has been, and continues to be a net importer of aggregates.
- 4.8 The 2014 AMS shows that of the 639,000 tonnes of sand and gravel sold, 19% (119,000 tonnes) was sold within the Humber area, with 72% (462,000 tonnes) being exported to other areas within the Yorkshire & Humber region and 95 (58,000 tonnes) going elsewhere (destinations unknown).
- 4.9 In relation to crushed rock, exports have taken place. In 2009 & 2014, information was not available due to commercial confidentiality, therefore it is assumed that majority of the material extracted was used within the Humber area.
- 4.10 Annual surveys undertaken over recent years suggest that aggregates have been exported to neighbouring areas including Lincolnshire, Nottinghamshire and South Yorkshire as well as other parts of the Yorkshire and Humber region. Other destinations have included the East of England, Tyne and Wear and Scotland. See table 9 above.
- 4.11 As part of ongoing plan making process and revisions to the LAA, dialogue with other MPAs has been taking place about what these trends in imports/exports for the Humber area mean in terms of demand forecasting and assessment of future supply options.

Recycled & Secondary Aggregates

- 4.12 Recycled and secondary aggregates are materials which (after some form of processing or treatment) can potentially be used to substitute for primary or land-won aggregate. It can provide a more sustainable source of aggregate for development and help to reduce the need to primary aggregate extraction. They may be derived from processing of construction, demolition and excavation waste (CDE) (recycled aggregate) or may be by-products of mineral extraction or processing, or industrial processes (secondary aggregate). Nationally, over 60 million tonnes of secondary and recycled material was produced in 2015, representing 29% of the British aggregates market¹⁰.
- 4.13 The main source of recycled aggregate tends to be construction, demolition or excavation (CDE) waste. It is thought to arise across the Humber area. It can include concrete, stone, brick, spent railway ballast and asphalt/asphalt planings (from road resurfacing). Secondary aggregate are usually by-products of other industrial processes that have not been used in construction. They include both natural and manufactured materials such as china clay, slate, flue ash and metallurgic slag.
- 4.14 Information on recycled and secondary aggregate production is variable and not considered to be completely reliable. Therefore, it is difficult to accurately assess the role that they play in aggregate supply and demand.
- 4.15 For example, in many cases CDE waste is processed on redevelopment sites using mobile plant and then either reused on site or taken direct to other construction sites for use. Collecting information from these sites is extremely difficult because of their temporary nature.
- 4.16 The Environment Agency's Waste Data Interrogator can be used to examine the amount of inert construction and demolition waste received at permitted waste facilities¹¹, Table 11 (below) sets this out. It does not necessarily represent the total amount of CDE waste arising in the area or the available resource or the amount used. The largest proportion of material that was handled or disposed of was soils, followed by concrete, bricks and gypsum waste, then waste from waste treatment.

Table 11: Composition of Construction, Demolition Waste (2015)

Basic Waste Category	SOC 1	SOC 2	SOC 3	Tonnes Received	Percentage
Inert	12-Mineral	Soils	Soils	1,064,106	57%
Inert	12-Mineral	Construction and demolition wastes	Concrete, bricks and gypsum waste	301,766	16%
Inert	12-Mineral	Waste from waste treatment	Waste from waste treatment	165,537	9%
Inert	12-Mineral	Construction and demolition wastes	Mixed construction wastes	127,276	7%
Inert	07-Non-metallic wastes	Glass wastes	Other glass wastes	70,999	4%
Inert	06-Metallic	Metal wastes, mixed ferrous and non-ferrous	Other mixed metallic wastes	57,573	3%
Inert	07-Non-metallic wastes	Wood wastes	Other wood wastes	25,109	1%
Inert	06-Metallic	Metal wastes, ferrous	Ferrous metal waste and scrap	24,405	1%
Inert	12-Mineral	Construction and	Waste	8,250	>1%

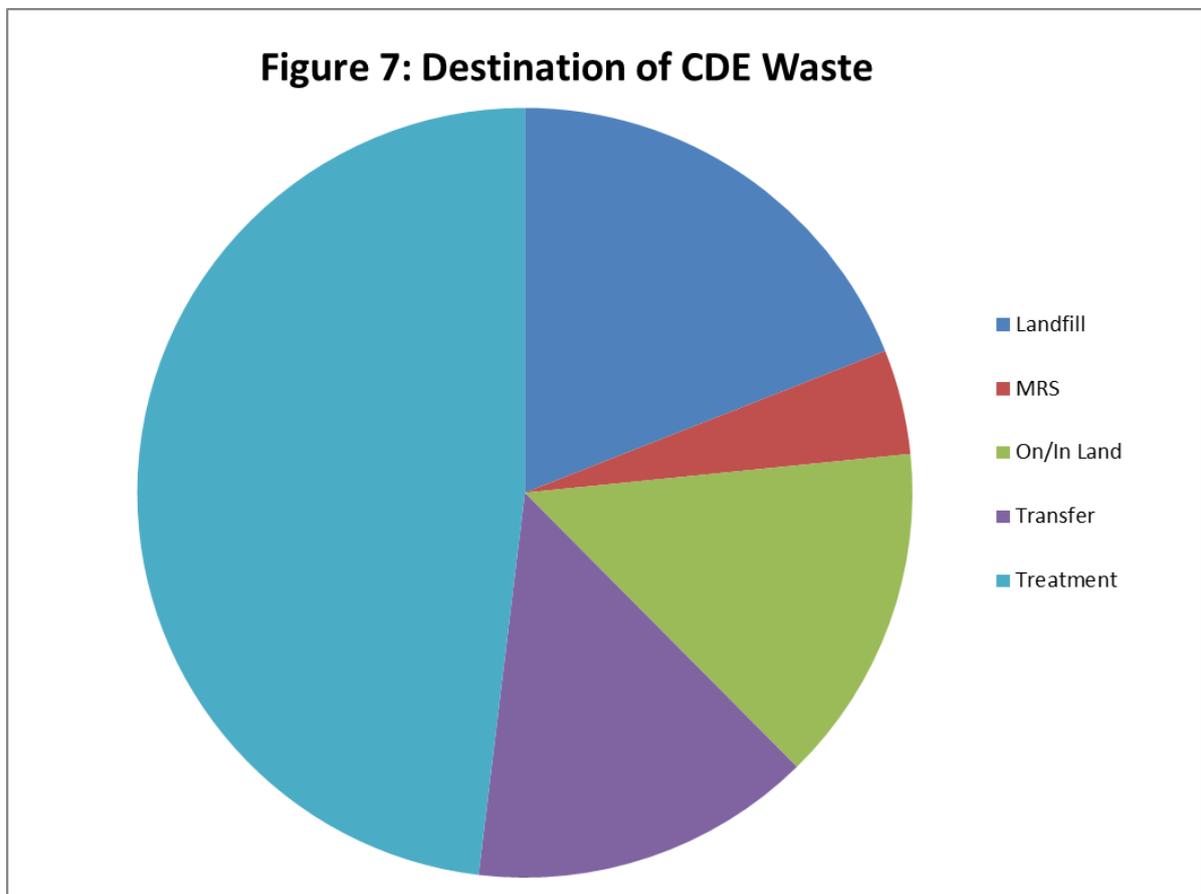
¹⁰ Mineral Production Association (2015) - http://www.mineralproducts.org/prod_agg_recy01.htm

¹¹ Sites where a permits are in place issued by the Environment Agency

		demolition wastes	hydrocarbonised road surfacing material		
Inert	12-Mineral	Naturally occurring minerals	Waste of naturally occurring minerals	3,955	>1%
Inert	06-Metallic	Metal wastes, non-ferrous	Copper waste	702	>1%
Inert	07-Non-metallic wastes	Glass wastes	Glass packaging	625	>1%
Inert	12-Mineral	Waste of naturally occurring minerals	Waste of naturally occurring minerals	489	>1%
Inert	06-Metallic	Metal wastes, non-ferrous	Other waste aluminium	293	>1%
Inert	06-Metallic	Metal wastes, non-ferrous	Other metal wastes	321	>1%
Inert	06-Metallic	Metal wastes, non-ferrous	Lead waste	89	>1%
				1,851,495	100

Source: Waste Data Interrogator (2016)

4.17 As part of understanding CDE waste, it is helpful to examine how it is managed. Figure 7 (below) sets out the type of facility where the CDE and recyclable waste was received. Most was received at treatment facilities (48%), followed by landfill facilities (19%). It should be noted that this data does give any indication of how much of the CDE waste was actually re-used as recycled or secondary aggregate.



- 4.18 The most recent national studies on secondary and recycled aggregates were undertaken by DCLG in 2005 (published 2007)¹².
- 4.19 The first of these studies estimated that East Riding, North Lincolnshire and North East Lincolnshire produced over 1.7 million tonnes of construction, demolition and excavation waste (CDEW). It was estimated that 774,327 tonnes of recycled graded and ungraded aggregate was produced in the area. This represented around 45% of all construction, demolition and excavation waste arisings.

Table 12: Sub-Regional Estimates of CDEW Recycled by Crushers and/or Screens, Used/Disposed of at Landfills, and Spread on Paragraph 9a(1) And 19a(2) Registered Exempt Sites In 2005 (Tonnes)				
East Riding, North Lincolnshire & North East Lincolnshire				
Adjusted estimate of population of recycling crushers	18			
Estimated production of recycled graded aggregate (tonnes)	407,072			
Estimated production of recycled ungraded aggregate (tonnes)	367,255			
Estimated production of recycled soil (excl topsoil) (tonnes)	71,243			
Estimated tonnage of unprocessed CDEW entering licensed landfills, and its use/fate				
	Engineering	Capping	Waste	Total
Clean hard C&D Waste	18,379	3	15,171	33,552
Contaminated hard C&D waste	180	0	1,681	1,861
Clean excavation waste	60,416	132,083	360,410	552,908
Contaminated excavation waste	1,915	0	24,950	26,864
Clean "mixed" CDEW	8,143	400	87,315	95,858
Contaminated "mixed" CDEW	29	0	10,031	10,060
Other	7,302	278	28,863	36,443
Total	96,363	132,763	528,420	757,547
Estimated weight of waste materials (mainly excavation waste) used on Paragraph 9A(1) and 19A(2) registered exempt sites (tonnes)	151,618			
Total estimated arisings of CDEW in 2005 (tonnes)	1,735,735			

Source: Reproduced from Survey of Arisings and Use of Alternatives to Primary Aggregates in England, 2005; Construction, Demolition and Excavation Waste (DCLG, 2007)

- 4.20 The second study contained data on the amount of secondary aggregates generated from various industrial and other processes. It included regional and sub-regional data on secondary aggregate generation. Table 13 (below) shows the secondary aggregates arising the Humber area.

¹² Survey of Arisings and Use of Alternatives to Primary Aggregates in England, 2005; Construction, Demolition and Excavation Waste (DCLG, 2007) & Survey of Arisings and Use of Alternatives to Primary Aggregates in England, 2005; Other Materials (DCLG, 2007)

	Total Arisings (Mt)	Not Relevant (Mt)	Aggregate Use (Mt)	Other Use (Mt)	Potentially Available (Mt)	Stockpiles (Mt)
Incinerator Bottom Ash: Waste to Energy Plants	0.01	0	0.01	0	0	0
Slag: Blast Furnace (Iron)	1	0	0.25	0.75	-	0
Slag: Basic Oxygen Furnace (Steel)	0.25	0	0.13	0	0.12	-
Waste (Container) Glass	0.03	-	-	-	-	-

Source: Survey of Arisings and Use of Alternatives to Primary Aggregates in England, 2005; Other Materials (DCLG, 2007)

- 4.21 The blast furnace slag and basic oxygen furnace slag by-products of the iron and steel industries. The 2005 survey highlighted that Scunthorpe was the sole source of both of these by-products in the Yorkshire & Humber region, producing 1 million tonnes and 0.25 million tonnes of each respectively. Only part of the total arising was used for aggregate purposes.
- 4.22 The National and Regional Guidelines for Aggregates Provision in England (2005-2020) also includes an assumption about the amount of recycled and secondary aggregate that should be provided in the Yorkshire and Humber region. It assumes that 133 million tonnes (31%) of the overall 431 million tonnes construction aggregates required in the region will be sourced from recycled or secondary aggregate.
- 4.23 As part of its annual monitoring work, the YHAWP (through mineral planning authorities) survey known producers of secondary and recycled aggregates with the aim of understanding the level of secondary and recycled aggregates produced, and how this relates to overall supply.
- 4.24 In the Humber area, the survey showed that a total of over 223,000 tonnes was produced in 2013, as can be seen in the table below. Again this not necessarily an accurate total as responses to the survey were limited. The tonnages should therefore be seen as an underestimate. It is hoped that more reliable data will be available for future editions of the LAA.

Authority	2013 Tonnage
East Riding of Yorkshire	114,850
Hull	1,000
North East Lincolnshire	57,400
North Lincolnshire	50,383
Total	223,633

Source: Survey of Secondary & Recycled Aggregate Producers (2013)

Marine Aggregates

- 4.25 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 as well as the English Channel, Bristol Channel and Irish Sea. Nationally, around 12.5 million tonnes of marine dredged primary aggregates were landed at English ports and wharves during 2015¹³.
- 4.26 The sand and gravel extracted from the seabed can be used for construction, reclamation fill or beach nourishment projects. In the construction industry its use can range from concrete making to road sub-base and fill, whilst for reclamation fill sediment is used to infill areas in ports and harbours. It can also be used to reclaim land from the sea before engineering works take place. For beach nourishment sediment is placed on beaches for coastal protection or amenity and economic enhancement
- 4.27 Marine aggregate extraction is governed by the U.K. Marine Policy Statement (MPS) (March 2011) and the adopted East Inshore and Offshore Marine Plans (April 2014). The MPS provides the framework for preparing Marine Plans and taking decisions affecting the marine environment. It contributes to the achievement of sustainable development in the United Kingdom marine area. The Marine Plans, prepared by the Marine Management Organisation (MMO) aim to manage and balance the many activities, resources and assets in the marine environment.
- 4.28 The resources located off the Humber Estuary are thought to be extensive. Crown Estate information produced in 2016 shows that there are 8 licensed dredging areas in the North Sea off the Humber. The sand and gravel resources found in this area range from fine sands to coarse gravels. 7.2 million tonnes per year can be extracted under existing licenses. 4 new dredging applications could potentially increase extraction by 2.2 million tonnes if they are approved. Current estimates suggest there are 25 years of primary marine aggregate production permitted.
- 4.29 In a similar vein to recycled and secondary aggregates, the National and Regional Guidelines for Aggregates Provision in England (2005-2020) also includes an assumption about the amount of marine dredged aggregate that should be provided in the Yorkshire and Humber region. It assumes that 5 million tonnes (1%) of the overall 431 million tonnes construction aggregates required in the region will be sourced from marine dredged aggregate.
- 4.30 During 2015, 1.32 million tonnes of construction aggregate was dredged off the Humber from a total permitted licensed tonnage of 4.7 million tonnes. In addition, around 0.2 million tonnes was dredged for use in rivers and for miscellaneous purposes, whilst 0.63 million tonnes was dredged for beach nourishment purposes. Landings of material extracted took place at ports/wharves on the River Humber (25,561 tonnes), River Tees (245,860 tonnes) and River Tyne (287,018 tonnes) as well as at Blyth (Northumberland) (37,452 tonnes)¹⁴. The remainder was landed elsewhere. In previous years this has been mainland Europe, the Thames Estuary and the south coast.
- 4.31 The majority of landings that took place on the Humber 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. With advent of Greenport Hull and the Siemens development sand and gravel landings have been moved to King George Dock (which can also take bigger vessels) and is large enough to land 2 million tonnes per year. This new location has the advantage of being connected to the rail network, which has the potential of improved distribution to the wider region.
- 4.32 There are other opportunities for landing marine dredged aggregates within the Humber area. ABP also owns the port of Goole, whilst there are wharves on the River Trent near Scunthorpe which can be accessed by similar sized vessels to Goole. The River Trent wharves and New Holland Pier are equipped to handle mineral imports. However, it is not possible to ascertain the amount of minerals landed at

¹³ Marine Aggregates – Summary of Statistics 2015, The Crown Estate

¹⁴ Marine Aggregates – Summary of Statistics 2015, The Crown Estate

these locations. It is likely that they only handle these minerals on an “as and when” basis. Anecdotal evidence suggests that no landings of marine dredged sand and gravel have taken place in North Lincolnshire.

- 4.33 The ports of Grimsby and Immingham currently do not handle marine dredged aggregates on a regular basis, other than project related short term campaigns, however the capacity is available should there be a future requirement.
- 4.34 Existing planning policy in the Humber area broadly supports the envisaged increase in marine won aggregates, however it does not identify or safeguard present or future sites for the handling of marine aggregate. Safeguarding of the capacity for handling imported and marine aggregates at existing wharves is part of government policy in the NPPF. This will need to be given due consideration as part of emerging minerals planning policy in the Humber area.
- 4.35 Marine aggregates are increasingly been seen as an important part of the overall aggregates supply and as an alternative to primary land-won aggregates. With this in mind, the YHAWP commissioned a Marine Aggregates Study¹⁵ 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.
- 4.36 This need arises as a result of:
- the increasing potential for shortfalls in the medium/long term availability of indigenous concreting sand and gravel in the region;
 - the need for more evidence on the scope of any potential for increased supply of marine aggregate, as a possible alternative source,
 - the need to help inform statutory planning processes, safeguard wharves and investment in infrastructure.
- 4.37 The final study report was issued in January 2014. It found there was a very large marine aggregate resource of the required quality, and sufficient fleet capacity to land it. No fundamental barriers to the granting of additional licensed capacity were identified. Many wharves are available in the Humber area with the potential to land marine aggregates, but limitations apply restricting the size of dredger that could berth, and the amount of land immediately available lying adjacent to the berths to develop the necessary infrastructure required to facilitate processing and/or onward transport at the scale proposed by the study.
- 4.38 Only a limited amount of infrastructure utilised for or with the potential to be utilised for the transport of marine aggregates is safeguarded. Stakeholders considered the move towards a greater utilisation of marine aggregates will most likely take place beyond 5 years and thereafter increase with time. Economically, operators did not think the marine option was viable at this point of time but the viability gap against land won aggregate was narrowing. The study noted that the Humber Bridge toll creates separate aggregate markets north and south of the Humber, due to the cost of a lorry making a round trip across the bridge. For example it is not cost effective to take marine material across the bridge (or around) but this would be circumvented if there was somewhere to land marine material on the south side. With the reduction in bridge tolls since the study was completed, this may be something that needs to be monitored.
- 4.39 The appointed consultants have made recommendations for further work that include MPAs reviewing Local Plans to consider the requirements of the National Planning Policy Framework (NPPF) for safeguarding aggregate infrastructure and a formal regional Local Authority group to collaborate on cross boundary aggregate issues (which may fall within the scope of reference for the YHAWP).

¹⁵ Marine Aggregates Study – Final Report (January 2014), URS

Minerals Infrastructure

- 4.40 In order to ensure the effective supply of aggregates, a good network of supporting infrastructure needs to be in place. This includes ready mix concrete and coating plants as well as wharves and railheads. The NPPF requires mineral planning authorities as part of their Local Plans to safeguard these facilities, where they exist or are planned. It also allows for the safeguarding of sites with potential to accommodate them¹⁶.
- 4.41 In the Humber area, there are a number of facilities which support the supply of aggregates into the local market including asphalt plants and concrete plants. Most facilities are situated at or adjacent to existing mineral extraction sites or within industrial estates/complexes.

Table 15: Minerals Infrastructure

Asphalt Plants

- Fridaythorpe, Huggate (Cemex)
- Grimsby, Gilbey Road (Cemex)
- Hull, Dairycoates (Tarmac)
- Newton upon Derwent- Back O' Newton (Aggregates Recycling Ltd)
- Santon, Dawes Lane (Scunthorpe) (Tarmac) – also processes slag for use as dry stone and cement replacer

Concrete Plants

- Brandesburton- Catwick Lane (Sandsfield Ready Mix Ltd)
- Beverley- Swinemoor Lane (Sandsfield Ready Mix Ltd)
- Bridlington - Pinfold Lane (Hanson)
- Driffield - Kellythorpe Industrial (Cemex); Park Farm Quarry, Gransmoor (W.C. Watts)
- Elsham Wold Industrial Estate (Breedon Aggregates)
- Goole – Dutch Riverside (Breedon Group); Seavy Road (Cemex)
- Grimsby - Alexandra Dock South (Tarmac)
- Albert Dock (Hull Readymix Concrete); Queen Elizabeth Dock (Edgar Readymix); Dairycoates (Tarmac); Foster Street (Sandsfield Sand and Gravel Co Ltd); Foster Street (Ashcourt Group); Hotham Street (Breedon Group); Freightliner Road (W Clifford Watts); King George Dock (Titan Cement)
- Immingham - Kiln Lane (Cemex); Manby Road (Tarmac)
- Pocklington- Lancaster Road (Breedon); Hereford Road Pocklington Industrial Estate (Contech UK)
- Scunthorpe - East Common Lane (Cemex); Warren Road (Tarmac)
- South Cave - Station Yard (W.C. Watts)

Cement Plants

- South Ferriby (Cemex)

Other

- Depot/Transfer Station, Stoneferry Rd (Biffa Group).
- Aggregate landing/storage facility, Queen Elizabeth Dock (Mike Wakefield Tippers)
- Recycled Aggregate Processing Plant, Leven By-Pass, Leven (Yarrows Aggregates),

Source: Company Websites and Secondary and Recycled Aggregate Survey

- 4.42 There is currently one operational railhead for mineral transport in the Humber. The Dairycoates Terminal in Hull is operated by Tarmac as a receiving terminal for aggregates from elsewhere in the region and beyond. A further receiving and unloading terminal was operated by Omya Ltd (and its predecessors) at Melton. It has been out of use for a number of years, although the connection to the Hull to Selby railway line remains intact.
- 4.43 As mentioned in the section on marine aggregates, the area has a number of ports and wharves along the Humber Estuary as well as on the Rivers Trent, Hull and Ouse that could offer potential to land or

¹⁶ National Planning Policy Framework (March 2012) – paragraph 143.

tranship marine won and imported aggregates. Currently, the only facility for this is at King George Dock, Hull.

5. TOTAL AGGREGATE SUPPLY

5.1 As discussed in previous sections, the sales of aggregates in the Humber area comes from a number of sources: land won sand and gravel and crushed rock, recycled and secondary aggregates and imported sand and gravel and crushed rock.

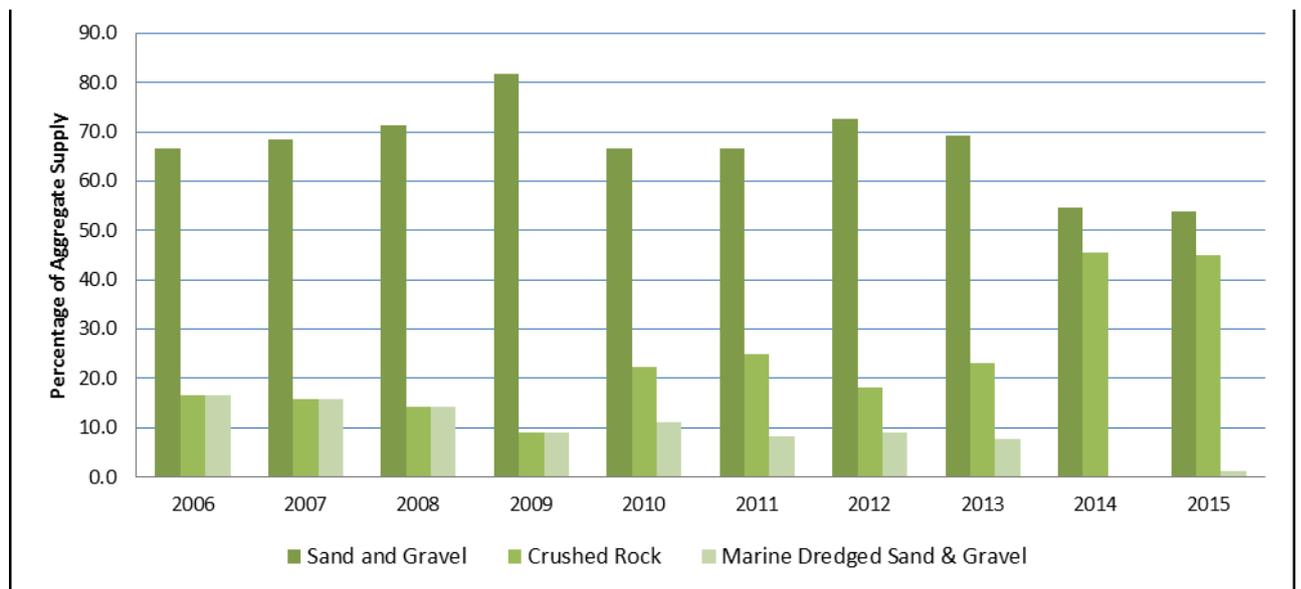
5.2 Table 16 presents the total sales for crushed rock and sand and gravel in Humber area over a ten year period. It shows that on average sand and gravel production is greater than crushed rock.

Table 16: Total Aggregate Sales in the Humber Area 2006 – 2015											
Aggregate (Mt)	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Average 2006-15
Sand & Gravel	1.2	1.3	1.0	0.9	0.6	0.9	0.8	0.8	0.9	0.9	0.93
Crushed Rock	0.3	0.3	0.2	0.1	0.2	0.3	0.3	0.2	0.75	0.75	0.34
Marine	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.1*	0.0	0.02	0.13
Total	1.8	1.9	1.4	1.1	0.9	1.3	1.2	1.1	1.65	1.67	1.40

*Marine aggregates figure for 2013 is an estimate due to lack of data availability

5.3 Figure 8 compares the proportion of total sales that sand and gravel, crushed rock and marine dredged sand and gravel represent. Land won sand and gravel is the largest component, with sales of crushed rock representing between 10% and 25% and marine dredged sand and gravel making up the balance.

Figure 8: Comparison of Proportion of Total Humber Aggregate Sales by Crushed Rock, Land Won Sand and Gravel, and Marine Dredged Sand and Gravel



Source: Aggregate Mineral Survey; Regional Aggregates Working Party Reports

6. FUTURE AGGREGATE SUPPLY AND DEMAND

6.1 Planning for future supply of aggregates has traditionally been a top down activity, managed by Government through the Managed Aggregate Supply System (MASS), and the production of national and regional guidelines for aggregate supply. Changes to the planning system have re-focused aggregate supply to a more bottom up approach. However, the main principles of MASS are retained within a reformed planning system along with national and regional guidelines on aggregates provision in England. They recognise that aggregates are a national strategic resource, but consider that the need to ensure a steady and adequate supply of aggregate minerals should be devolved to the local level. This is set out in the NPPF.

Managed Aggregate Supply System (MASS)

6.2 MASS recognises that most of the aggregate supply is extracted on land and as such there is often a geographical imbalance between where minerals occur and where they are needed. The concept behind MASS is that those areas which have adequate aggregate resources make an appropriate contribution to national as well as local supply, while making due allowance for the need to reduce environmental damage to an acceptable level. However, resource-poor areas are expected to make some contribution to meeting local and national needs where that can be done sustainably.

6.3 Given that quarries take many years to plan and bring into production, MASS has provided the mechanism to deliver long term planning for the supply of aggregates, based on sound evidence. It has also served to proactively manage the rate of primary extraction, by placing added emphasis on the need to meet demand from other sources – including secondary and recycled materials and marine dredged aggregates.

6.4 MASS works through national, sub-national and local partners working together to deliver a steady and adequate supply of aggregates, at the following levels:

- locally, mineral planning authorities are expected to prepare Local Aggregate Assessments, to assess the demand for and supply of aggregates;
- sub-nationally, mineral planning authorities belong to and are supported by Aggregate Working Parties, who produce fit-for-purpose and comprehensive data on aggregates covering specific geographical areas; and
- nationally, the National Aggregate Co-ordinating Group monitors the overall provision of aggregates in England.

6.5 A key additional tool which underpins the working of the MASS is the aggregate landbank, a monitoring tool which is the main basis for the Mineral Planning Authority to consider whether to review the local plan¹⁷.

National and Regional Guidelines

6.6 As part of MASS, guidelines for aggregates supply in England have been published by DCLG and over recent years have provided a basis for the identification of future requirements for aggregate minerals at the national and regional levels.

6.7 The most recent guidelines were published in June 2009 and cover the period from 2005 to 2020. They replaced the previous version issued in 2003, which covered the period 2001-2016. The 2003 figures provided the basis for the last set of sub-regional apportionments contained in the former Yorkshire & Humber Regional Spatial Strategy. However, 2009 figures were not apportioned to each sub-region.

¹⁷ <http://planningguidance.planningportal.gov.uk/blog/guidance/minerals/planning-for-aggregate-minerals/the-managed-aggregate-supply-system/>

- 6.8 The advent of the NPPF and Localism means individual MPAs are now left to determine their own sub-regional aggregates apportionments, in cooperation with the YHAWP members and other relevant MPAs and Aggregate Working Parties, in line with National Policy.

National Planning Policy Framework (NPPF)

- 6.9 The NPPF requires each MPA to calculate their aggregate supply requirements on the basis of average aggregate sales over a ten year rolling period and other local information. Previously a 'historic shares' approach to apportionment at the sub-regional level was used where a nationally prescribed regional apportionment figure was sub-divided.
- 6.10 Based on the sales information set out in Tables 1 and 4, the average level of sales over a 10 year period (2006 to 2015) in the Humber area are 0.92 million tonnes for sand and gravel, and 0.34 million tonnes for crushed rock.

Approaches to Identifying Future Requirement

- 6.11 Calculating the potential scale of future requirements for aggregates can be undertaken via a number of approaches. Whichever approach is adopted should be in line with national policy and guidance, be relatively straightforward to calculate and result in a forecast supply that is realistic which in turn is capable of being monitored through the LAA and Local Plan monitoring work.
- 6.12 Using historic average sales, in this case sales over the previous 10 years, as a means of identifying future aggregate requirements has some drawbacks. It can be viewed as backward looking and does not anticipate any changes in the patterns of aggregates supply as a result of future economic trends. Also it does not take account of any emerging environmental issues or constraints. The main advantage is its simplicity and transparency. Furthermore it is supported in principle by national planning policy and guidance. The 10 year average sales data provides a benchmark against which the implications of local factors can be assessed.

Other Factors to Take Into Account:

- 6.13 As well as the ten year average based aggregate provision figures national policy and guidance advises mineral planning authorities to consider other relevant factors that could influence the level of demand for aggregates. These include requirements from neighbouring areas, population and housing growth, and other proposed major development or infrastructure projects.

Cross Boundary Aggregate Movements

- 6.14 Minerals need to be moved around the country to meet requirements in areas where supply is limited or constrained.
- 6.15 In Yorkshire and Humber, there are concerns about the long term supply of concreting sand in the South and West Yorkshire, in particular in the Doncaster and Leeds areas. As a result it is likely that sand will have to be imported into these areas from other parts of the region or elsewhere. This could potentially have an impact on the level of sand and gravel that will need to be extracted in the Humber area, above and beyond what is already exported.
- 6.16 Information from North Yorkshire suggests that it is not expected that any increased call on reserves from the Humber area to supply its needs would be required. This is subject to the conclusion of preparing the new Minerals and Waste Joint Local Plan for the City of York, North York Moors National Park, and North Yorkshire County Council.
- 6.17 In order to plan appropriately to meet requirements of the authorities concerned, discussions take place in order to ascertain the level of demand for aggregates in their areas and the likely amount needed from the Humber area as well as when this supply would be needed. A review of current and emerging information relating to linkages between the Humber and its neighbouring LAA areas has been undertaken to gain an understanding of any cross-boundary requirements.

Doncaster & Rotherham LAA Area

- 6.18 The latest LAA (2016) assesses possible sources of supply from neighbouring areas including East Riding of Yorkshire and North Lincolnshire. The proximity to the Doncaster area (within 30 miles) of active sand and gravel/silica sand sites within East Riding of Yorkshire and North Lincolnshire (North Cave, Cove Farm and Eastfield Farm) is highlighted. It is considered that material from these could potentially assist in meeting supply to the Doncaster area. Although, it is considered that these sites would be unlikely to supply the Rotherham area.
- 6.19 AM2014 shows that 20% to 30% of South Yorkshire's sand and gravel consumption (amounting to 152,000 to 228,000 tonnes) came from the Humber in 2014 and all of this was from the East Riding. It amounts to between 36% and 54% of the Humber's primary aggregate sand and gravel sales, which is a very significant proportion. AM2014 shows that only less than 1%, amounting to less than 4,240 tonnes, of the sand and gravel consumed within the Humber area was from Doncaster.
- 6.20 In terms of crushed rock, AM2014 shows that none of South Yorkshire's crushed rock consumption was met from the Humber area, however 1% to 10% of the Humber area's consumption of crushed rock, amounting to 7,240 to 72,400 tonnes, was supplied from Doncaster MB Council's area.

Nottingham & Nottinghamshire LAA Area

- 6.21 The latest LAA (2016) highlights that the sand and gravel from the Nottinghamshire area has traditionally been supplied into the Yorkshire and Humber region, in particular to the Doncaster and Rotherham area. However, no mention has been made about imports and exports to/from the Humber area.
- 6.22 AM2014 does not record any contribution from the Humber to Nottinghamshire's sand and gravel supply, though it shows that between 30% and 40% of the sand and gravel consumed within the Humber area was from Nottinghamshire in 2014. This amounts to between 127,200 and 169,600 tonnes.
- 6.23 AM2014 shows that 1% to 10% of Nottinghamshire's crushed rock consumption (amounting to 12,640 to 126,400 tonnes) came from the Humber in 2014 and all of this was from North Lincolnshire's area. None of the crushed rock consumed within the Humber area was sourced from Nottinghamshire.

Lincolnshire LAA Area

- 6.24 The LAA (2013) does not make specific references to supply being met by imports from the Humber area. However, it notes that 7.7% of sand and gravel exported from the county goes to the Yorkshire & Humber region. No particular destinations are mentioned.
- 6.25 AM2014 shows that 1% to 10% of Lincolnshire's sand and gravel consumption (amounting to 9,890 to 98,900 tonnes) came from the Humber in 2014 and all of this was from North Lincolnshire's area. Between 10% and 20% of the sand and gravel consumed within the Humber area was from Lincolnshire in 2014. This amounts to between 42,400 and 84,800 tonnes.
- 6.26 AM2014 shows that 1% to 10% of Lincolnshire's crushed rock consumption (amounting to 8,190 to 81,900 tonnes) came from the Humber in 2014 and all of this was from North Lincolnshire's area. None of the crushed rock consumed within the Humber area was sourced from Lincolnshire.

West Yorkshire LAA Area

- 6.27 The West Yorkshire LAA (2016) recognises that significant amounts of sand and gravel travel into West Yorkshire from the East Riding. It acknowledges that continuity of the area's supply is far more dependent on cooperating with neighbouring MPAs than managing supply in West Yorkshire itself. It notes that under the Duty to Incorporate, the West Yorkshire authorities will need to seek agreement with East Riding of Yorkshire Council to ensure that it is continuing to include in its plan, the exportation of aggregates to West Yorkshire. A draft updated West Yorkshire LAA (2017) reaffirms this approach.
- 6.28 AM2014 shows that 20% to 30% of West Yorkshire's sand and gravel consumption (amounting to 140,400 to 210,600 tonnes) came from the Humber in 2014 and all of this was from East Riding of

Yorkshire's area. It amounts to between 22% and 33% of the Humber's primary aggregate sand and gravel sales, which is a very significant proportion. West Yorkshire made no contribution to the Humber's sand and gravel consumption.

- 6.29 None of the crushed rock consumed within the West Yorkshire area was sourced from the Humber. Under 1% (under 7240 tonnes) of the Humber's crushed rock consumption was supplied from West Yorkshire, and all of this was from Leeds City Council's area.

North Yorkshire LAA Area

- 6.30 The North Yorkshire LAA (2016) recognises that sand and gravel is imported to the North Yorkshire area from East Riding of Yorkshire. It represents between 5% and 7% of the sand and gravel consumed within the area.
- 6.31 AM2014 shows between 84,800 tonnes and 127,200 tonnes (20% and 30% of the Humber's consumption) of sand and gravel was supplied from North Yorkshire in 2014. It shows that 1% to 10% of North Yorkshire's sand and gravel consumption (amounting to 11,250 to 112,500 tonnes) came from the Humber in 2014 and all of this was from East Riding of Yorkshire's area.
- 6.32 None of the crushed rock consumed within the North Yorkshire area was sourced from the Humber. Between 40% and 60% of the Humber's crushed rock consumption (amounting to between 289,600 and 434,400 tonnes) came from the North Yorkshire area in 2014 and between 10% and 20% was from the North Yorkshire County Council area and between 30% and 40% from the Yorkshire Dales National Park area.
- 6.33 Engagement with the Yorkshire Dales National Park Authority has identified that a significant amount of Carboniferous Limestone comes from Swinden Quarry via rail to Hull, and Immingham. The quarry has an existing planning permission till the end of 2030 and a current application to deepen the site and extend its life to 2039 has been submitted. There are therefore no reasons why there would be any issues with continuing supply from this source until at least 2030.

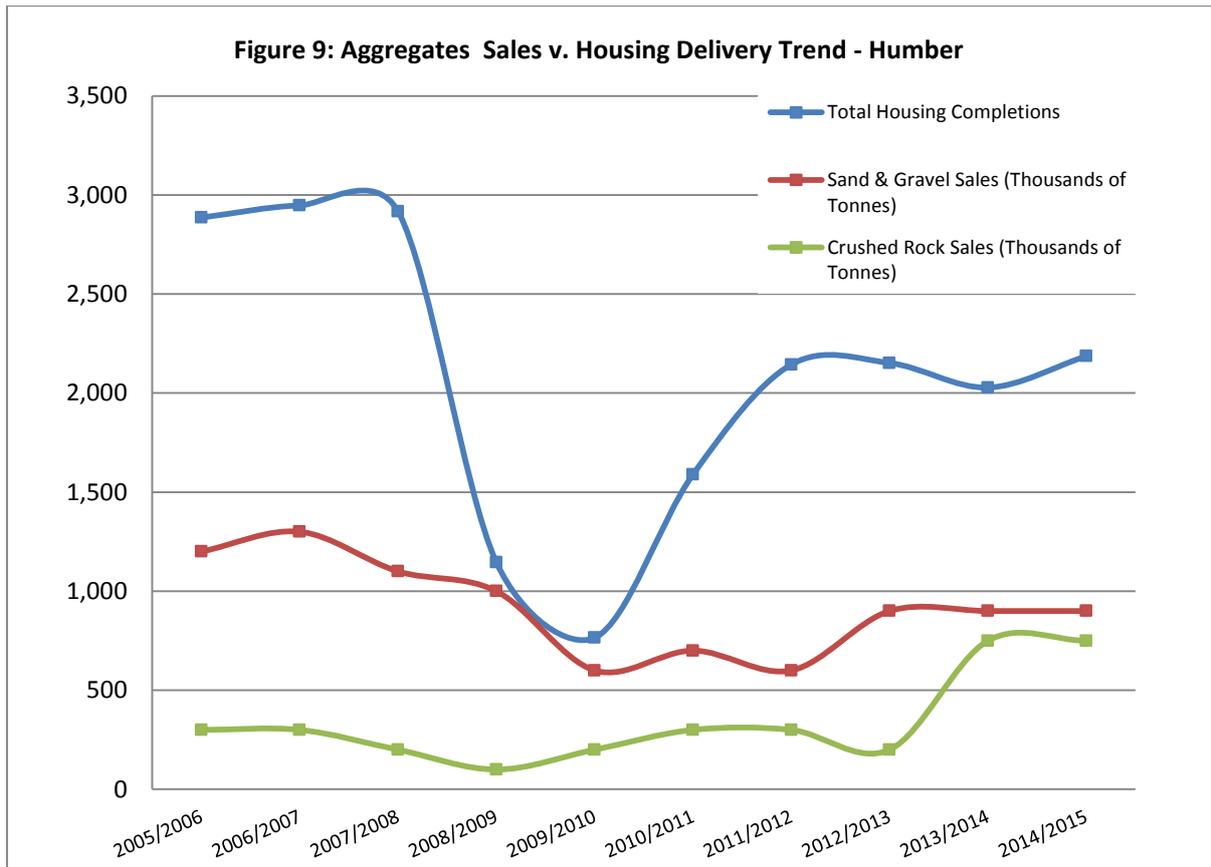
Population Forecasts

- 6.34 The population of the Humber area is expected to grow by around 4% between 2014 and 2030¹⁸. However it is difficult to make a direct comparison between this and increased demand for aggregates.

Future House Building

- 6.35 Future house building is likely to require a significant amount of aggregates over the life time of each of the Humber authorities' plans. Based on adopted and emerging development plans, a total of around 54,180 new dwellings (3,612 dwellings per annum) will be delivered across the Humber area up to 2032.

¹⁸ Source: Subnational Population Projections for Local Authorities in England: Table 2



6.36 Figure 9 (above) shows that there has been a degree of consistency between aggregate sales and the level of housing delivery across the Humber area, in particular for sand and gravel. However, the exact nature of the relationship is difficult to establish for the following reasons:

- not all aggregates are used for house building;
- Some aggregates produced in the Humber area are exported elsewhere;
- Some of the Humber's aggregate consumption is supplied from elsewhere

Major Developments/Infrastructure Projects

6.37 The Humber area will see a number of major developments and one-off infrastructure projects over the coming years, all of which will have an important role in helping to support the local economy and housing growth. These have the potential to increase demand for aggregates.

6.38 **Able Marine Energy Park** – this major project will involve the development of 245ha of land on the South Humber Gateway for the manufacturing and assembly of off-shore wind turbines with extensive areas of storage for the component parts of off-shore wind turbines. It will involve the construction of a 1.3km long quay that will extend into the Humber Estuary to allow operators to load turbines onto ships to be taken to their destinations off the East Coast. This project is the largest of its type in the country and will be a major job creator.

6.39 The 1.3km quay will be constructed from a steel pile wall. The space between this wall and the existing flood defences will be filled with sea or estuary dredged material to bring the levels up to the proposed finished level of the quay. The upper sections of fill, approximately 1 metre, will comprise imported stone that will provide a drained heavy duty pavement suitable for operation plan which will include tracked cranes and self-propelled mobile transporters. For the manufacturing area of the site, it is expected that 2 million m³ of fill will need to be imported onto the site over a period of around two

years. Ground raising and levelling will take place. Details of where this would come from and the type of material area not available¹⁹.

- 6.40 **Able Logistics Park** – this project, which has received planning consent, involves the development of 454ha of land for facilities to support the growth of the South Humber Gateway. It includes the creation of transport depots, warehousing and external storage areas, together with offices, a business park and a motel. There will be road and rail links to Immingham Port and the Humber Sea Terminal and a large part of the site will also provide landscaping and provision of areas for wildlife and ecology.
- 6.41 **Lincolnshire Lakes** – this development is one the area’s largest regeneration projects. Lincolnshire Lakes is one of the major projects, alongside the Able Marine Energy Park, that will transform North Lincolnshire as a place to live, to work and invest in. The vision is to create six high quality, sustainable village communities containing a total of 6,000 new homes on land between the western edge of Scunthorpe and the River Trent, set within an attractive waterside environment with major opportunities for leisure, sport and recreation. It will also provide an ideal setting for new businesses with the creation of new high quality employment space within a business park. All new development will meet the highest environmental standards.
- 6.42 Using the BGS “rule of thumb”, building the 6,000 new homes would require a total of 360,000 tonnes of aggregates. If infrastructure is included this could mean 2.4 million tonnes being needed. As previously mentioned, it has not been possible break these tonnages down into sand and gravel, and crushed rock requirements.
- 6.43 **A63 Castle Street** – this major project proposes to improve a 1.5km stretch of the A63 at Castle Street, which runs through the southern section of Hull city centre. It is one of the busiest sections of road in East Yorkshire and provides an important link between the M62 and the Port of Hull. The project aims to relieve congestion, improve access to the Port of Hull, improve road safety and reduce the barrier between Hull city centre and tourism/recreational facilities around Hull Marina.
- 6.44 The proposal involves lowering the road into cutting at the Mytongate Junction, with a new split level junction being created, widening the eastbound side of the existing road with three lanes, construction of new foot bridges at key points to allow better pedestrian access from the city centre to the marina, as well as closing off some access points on safety grounds with new ones being provided. Information on the amount of aggregates required is not available.
- 6.45 **Phases 2 and 3 of the Brough Relief road** - the construction of Phase 3 of the Brough Relief Road will provide a connection between Phase 2 (bridging the railway) to the north and Saltgrounds Road/Skillings Lane to the west adjacent to the BAE Systems premises. Phase 2, which incorporates the bridge over the Hull – Selby railway, has the benefit of planning permission and is under construction. The Relief Road, when complete, will provide a through link from BAE Systems through the site towards Welton Road and onward to the A63 further north thereby reducing traffic along Welton Road through the centre of Brough.
- 6.46 In relation to its construction, it was assumed that aggregates for the bridge embankment will be virgin material (non-recycled) sourced from a local quarry. Construction works will require approximately 68,000m³ of fill (28,000m³ north of the railway, 40,000m³ south of the railway). This will comprise General Granular Fill (Class 1) or cohesive material (Class 2) for the embankment and Selected Granular Fill (Class 6F) for capping²⁰.
- 6.47 There are also a number of flood mitigation schemes taking place or scheduled to occur in East Riding area. However, it is unlikely that they will require any significant amount of aggregate minerals.

¹⁹ Able Marine Energy Park (AMEP) – Local Impact Report, NLC (2012): Section 2.9 - <http://infrastructure.planningportal.gov.uk/wp-content/uploads/projects/TR030001/2.%20PostSubmission/Representations/LIR%20and%20SoCG/LIR-001%20Local%20Impact%20Report%20by%20North%20Lincolnshire%20Council.pdf>

²⁰ Brough Relief Road Phase 2 – Environment Statement – Volume 2 – Main Text : Section 11 – Materials & Waste (White Young Green/Pell Frischmann, November 2010) - <http://www.eastriding.gov.uk/padocs/DOCS/D5C448BEC2E11DFB2EE0019994E345E.pdf>

Potential Future Requirements

- 6.48 A range of methods could be used to help identify the potential scale of future requirements for aggregate. It is considered that any method used should be compatible with national policy and guidance, be relatively straightforward to calculate and lead to a realistic forecast capable of being monitored.
- 6.49 It is necessary for a Humber aggregates apportionment to be devised based on the best available evidence. The Humber MPAs have agreed that this is best carried based upon separate approaches for the East Riding/Hull and North Lincolnshire/North East Lincolnshire areas. This approach recognises:
- The largely separate aggregate markets with varying characteristics (such as aggregate export destinations) north and south of the Humber, due to the cost of a lorry making a round trip across the Humber Bridge; and
 - Joint working between East Riding of Yorkshire and Hull City Councils on their Joint Minerals Local Plan
- 6.50 As part of work on the East Riding and Hull Joint Minerals Local Plan, an aggregates apportionment background paper has been produced that should be read alongside this LAA. It discusses the range of issues outlined above, then establishes an annual amount of primary crushed rock, and sand and gravel the Joint Minerals Local Plan should plan for as follows:
- Crushed Rock - 0.13 million tonnes per annum
 - Sand and Gravel - 0.80 million tonnes per annum
- 6.51 In the case of crushed rock this has been based on the latest annual average sales over a 10 year period. For sand and gravel it is based on annual average sales over the latest three year period, which uplifts the apportionment from the lower ten year sales average to factor in latest trends and make an allowance for an increase in housebuilding.
- 6.52 A similar background paper will be produced for the south Humber area by North Lincolnshire and North East Lincolnshire Councils in due course alongside the new North Lincolnshire Local Plan. Until this is produced it is assumed that future aggregates requirements should be based upon the latest annual average sales over a 10 year period for both crushed rock and sand and gravel. This creates **indicative apportionments** for the south Humber area as follows:
- Crushed Rock - 0.18 million tonnes per annum
 - Sand and Gravel - 0.22 million tonnes per annum
- 6.53 For the purposes of assessing the future aggregate requirements of the area, the proposed aggregates apportionments for the 'north bank' have been aggregated with the indicative apportionments for the 'south bank' to form the following indicative Humber apportionments:
- Crushed Rock - 0.31 million tonnes per annum
 - Sand and Gravel - 1.02 million tonnes per annum
- 6.54 Table 17 below uses these indicative apportionments to establish indicative aggregates requirements for the Humber over the 15 year period to 2030, potential shortfalls or surpluses over the same period against current reserves, and current land banks.

Table 17: Indicative Aggregates Requirements & Shortfalls in the Humber Area (to 2030)

	Sand & Gravel	Crushed Rock
Indicative Annual Humber Aggregates Apportionment (Million Tonnes)	1.02	0.31
Total indicative requirement to 2016 to 2030, based on indicative apportionment x 15 years (Million Tonnes)	15.3	4.65
Current Reserves (Million Tonnes)	7.1	13.39
Potential Surplus/Shortfall (million tonnes)	-8.2	8.74
Land Bank based on indicative apportionment (years)	6.96	43.19

Note: In Potential Surplus/Shortfall row, a “-” prefix indicates a shortfall, and a “+” prefix indicates a surplus.

7 CONCLUSION

- 7.1 It is essential that a steady and adequate supply of aggregates is maintained to support growth and development in the Humber area. In accordance with national policy and guidance on aggregate supply and planning to meet future demand, 10-year sales averages and current aggregate apportionments for the Humber area have been considered, alongside other relevant local factors such as supply/demand requirements from neighbouring areas, future house building and major development and infrastructure projects.
- 7.2 The average aggregate sales for primary **sand and gravel** for the most recent ten year rolling period (2006 – 2015) is 0.93 million tonnes per annum and most recent three year rolling period (2013 – 2015) is 0.9 million tonnes per annum. There are sufficient permitted reserves at 7.1 million tonnes (as of 31/12/2015), to maintain the government recommended seven year land bank based on the 10 year annual average sales rate. On this basis the current land bank is 7.6 years. Basing the land bank on an indicative annual Humber aggregates apportionment lowers it to a figure of 6.96 years, which is slightly below the recommended land bank. This will be something, which will be need to be monitored more formally as the indicative Humber apportionment becomes enshrined within the Humber Authorities' Local Plans.
- 7.3 The average aggregate sales for primary **crushed rock** for the most recent ten year rolling period (2006 – 2015) is 0.34 million tonnes per annum and most recent three year rolling period (2013 – 2015) is 0.57 million tonnes per annum. 2014 and 2015 has seen an increase in crushed rock sales, compared with previous levels. Monitoring via future editions of the LAA is needed to establish whether or not this is a long term trend. There are significant permitted reserves (for aggregate purposes), 13.39 million tonnes (as of 31/12/2015) to maintain the government recommended ten year land bank based on the 10 year annual average sales rate. On this basis the current land bank is 39.4 years. Given the indicative annual Humber aggregates apportionment is also based on the most recent ten year rolling period the results are very similar, but not exactly the same as the north Humber apportionment takes account of 2016 data, whereas the south Humber apportionment uses data to 2015.
- 7.4 A number of sites in the Humber area receive and/or produce recycled aggregates through treatment of construction, demolition and excavation waste, whilst there are others that produce secondary aggregates as a by-product of industrial processes. However, a reliable indication of overall recycled aggregate production is not available. Therefore an accurate assessment of the contribution secondary and recycled aggregates make towards overall supply cannot be arrived at this stage. The capture of consistent and reliable data on secondary and recycled aggregate production will be the subject of future LAAs.
- 7.5 Aggregates move in and out of the Humber area. Under Duty to Co-operate, the Humber MPAs are working to better understand these movements and whether they are likely continue into the future. As the Humber authorities continue to develop their minerals planning policies engagement with neighbouring authorities and mineral operators will continue to take place.
- 7.6 There are a range of factors that may influence the demand for aggregates including major development and infrastructure projects (a number of which are occurring the Humber area), and house building rates. Further assessment of these has been carried out in producing an Aggregates Apportionment Background Paper in support of the East Riding and Hull Joint minerals Local Plan. These have been considered in establishing the annual apportionments for crushed rock and sand and gravel the plan should provide for. These have also been incorporated into the indicative annual Humber aggregates apportionment figures referred to above.
- 7.7 All of these factors will be investigated in due course as part of an appropriate aggregates apportionment approach for North and North East Lincolnshire, to be developed as part of the new North Lincolnshire Local Plan.

Monitoring and Reviewing the Local Aggregates Assessment

- 7.8 LAAs should be undertaken on an annual basis. As such the contents of this document will be kept under review. This will be done as part of the annual monitoring process for the YHAWP and existing and emerging Local Plans for the area.
- 7.9 Aggregates sales, uses and reserves data will be collected by each MPA in order to feed into subsequent LAAs, and check there are sufficient land banks to meet the requirements of the NPPF and local aggregate needs.

Consideration by the Yorkshire and Humber Aggregates Working Party

- 7.10 Consultation with the YHAWP took place between 10th July, 2017 and 7th August, 2017. The draft document was tabled at the Working Party's meeting of the 12th July, 2017. A final version of the document was tabled for approval at the 18th October, 2017 meeting of the Working Party. All members were happy with the document with the exception of W Clifford Watts Ltd and the Mineral Products Association. Malcolm Ratcliff requested the YHAWP record that the Authorities and Industry have given different opinions and do not agree.

8 REFERENCES

- British Geological Survey & Office of the Deputy Prime Minister (2004), *Mineral Matters 7 - Minerals In Our Lives*, BGS, Keyworth/ODPM, London
- British Geological Survey & Office of the Deputy Prime Minister (2005), *Mineral Resource Information in Support of National, Regional and Local Planning – Humberside (comprising East Riding of Yorkshire, North Lincolnshire, North East Lincolnshire and City of Kingston upon Hull)*, BGS, Keyworth
- British Geological Survey, Department for Communities & Local Government & Welsh Assembly Government (2017), *Collation of the Results of the 2005 Aggregate Minerals Survey for England and Wales (May 2007)*, TSO, London
- British Geological Survey, Department for Communities & Local Government & Welsh Assembly Government (2011), *Collation of the Results of the 2009 Aggregate Minerals Survey for England and Wales (May 2011)*, TSO, London
- British Geological Survey, Department for Communities & Local Government & Welsh Assembly Government (2011), *Collation of the Results of the 2014 Aggregate Minerals Survey for England and Wales (October 2016)*, TSO, London
- Crown Estate (2012), *Marine Aggregates - The Crown Estate Licences: Summary of Statistics 2012*, CE, London
- Crown Estate & Mineral Product Association (2013), *The Area Involved – 15th Annual Report: Marine Aggregate Extraction 2012*, CE/BMPA, London
- Department for Communities & Local Government (2007), *Survey of Arisings and Use of Alternatives to Primary Aggregates in England, 2005; Construction, Demolition and Excavation Waste*, DCLG, London
- Department for Communities & Local Government (2007), *Survey of Arisings and Use of Alternatives to Primary Aggregates in England, 2005; Other Materials*, DCLG, London
- Department for Communities & Local Government (2008), *Yorkshire & Humber Plan – Regional Spatial Strategy to 2026*, TSO, London
- Department for Communities & Local Government (2009), *National and Regional Guidelines for Aggregates Provision in England 2005-2020*, TSO, London
- Department for Communities & Local Government (2010), *Household Projections (2008 to 2033) in England*, DCLG, London
- Department for Communities & Local Government (2012), *National Planning Policy Framework (March 2012)*, DCLG, London
- Department for Communities & Local Government (2014), *National Planning Practice Guidance (April 2014 onwards)*, DCLG, London
- Department for Communities & Local Government (2014), *Mineral Extraction in Great Britain in 2012*,
- Highways Agency/Jacobs (2013), *A160/A180 Port of Immingham Improvement - Environmental Statement – Volume 1: Chapter 11 – Materials (December 2013)*, Jacobs
- Mineral Product Association (2008), *MPA Aggregates Information Sheet – Recycled Aggregates and the WRAP Quality Protocol*, MPA, London
- North Lincolnshire Council (2012), *Able Marine Energy Park (AMEP) – Local Impact Report*, NLC, Scunthorpe
- Office of the Deputy Prime (2003), *National and Regional Guidelines for Aggregates Provision in England 2001-2006*, TSO, London

Office for National Statistics (2012), *Sub-national Population Projections, 2010-based Projections*, ONS, London

Office for National Statistics (2012), *Census 2011*, ONS, London

URS Scott Wilson (2011), *Green Port Hull – Environment Statement: Section 2 - The Proposed Development & Need and Alternatives (November 2011)*, URS Scott Wilson

URS (2014), *Marine Aggregates Study – Final Report*, URS, Chesterfield

White Young Green/Pell Frischmann (2010), *Brough Relief Road Phase 2 – Environment Statement – Volume 2 – Main Text : Section 11 – Materials & Waste*, WYG/PF

Yorkshire & Humber Aggregates Working Party (2002 to 2015), *Annual Reports & Annual Aggregates Monitoring*

9. GLOSSARY

Aggregate – Sand and gravel, crushed rock and other bulk materials used in the construction industry for purposes such as the making of concrete, mortar, asphalt or for roadstone, drainage or bulk filling.

Aggregate Working Party (AWP) – The AWP is a technical working group with membership drawn from mineral planning authorities, the minerals industry and the Department for Communities & Local Government (DCLG). The Humber authorities are members of the Yorkshire & Humber AWP.

Alluvium - Loose, unconsolidated soil or sediments, eroded, deposited, and reshaped by water in some form in a non-marine setting. Alluvium is typically made up of a variety of materials, including fine particles of silt and clay and larger particles of sand and gravel. When this loose alluvial material is deposited or cemented into a lithological unit, or lithified, it would be called an alluvial deposit.

Basic Oxygen Slag – By-product of the steel making industry from works using basic oxygen furnaces.

Bedrock Geology (formerly known as 'solid' geology by BGS) - Is a term used for the main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water. The bedrock has formed over vast lengths of geological time ranging from ancient and highly altered rocks of the Proterozoic, some 2500 million years ago, or older, up to the relatively young Pliocene, 2.6 million years ago.

Blast Furnace Slag – By-product of the iron making industry, where blast furnaces are used to make iron.

Blown Sands - Loose sand covering other mineral deposits which has been deposited as a result of wind.

Boulder Clay - A deposit of clay, often full of boulders, which is formed in and beneath glaciers and ice-sheets wherever they are found, but is in a special sense the typical deposit of the Glacial Period in northern Europe and North America. Boulder clay is variously known as till or ground moraine.

Brick Clay - Term used to describe clay and shale used in the manufacture of structural clay products such as bricks, pavers, clay tiles for roofing and cladding and vitrified clay pipes.

British Geological Survey (BGS) – Founded in 1835, the BGS is the world's oldest national geological survey and the United Kingdom's centre for earth science information and expertise. The BGS is responsible for advising the UK government on all aspects of geoscience as well as providing impartial geological advice to industry, academia and the public.

Chalk - A soft, white, porous sedimentary rock, a form of limestone composed of the mineral calcite. Occurs extensively in southern and eastern England, and is a key component in the manufacture of cement and lime.

Colliery Spoil - Waste material from the coal mining industry, previously deposited in spoil heaps at colliery sites.

Construction, Demolition & Excavation Waste (CDEW) - Waste generated during construction and demolition processes which includes masonry, wood and rubble. CDEW is by far the largest waste stream by weight, although significant proportions are currently recycled. This can be used as a secondary aggregate.

Cretaceous - The geological period and system dating from 145.5 to 65.5 million years ago.

Crown Estate – Are responsible for managing a wide ranging property portfolio on behalf of the Crown, including much of the seabed around the United Kingdom. They are responsible for licensing areas for dredging of marine aggregates.

Crushed Rock – Hard rock, such as limestone, which has been quarried, fragmented and graded for use as aggregate.

Department for Communities & Local Government (DCLG) - The government department responsible for local government, housing, planning, regeneration, social exclusion and neighbourhood renewal. It works with

other government departments, local councils, businesses, the voluntary sector, and communities themselves, to help create sustainable communities.

Duty to Co-operate – Local Planning Authorities are expected to address strategic issues in conjunction with neighbouring authorities (who are considering the same issues). It is a requirement of the Localism Act 2011.

Electric Arc Furnace Slag – A by-product of the steel making industry from works using electric arc furnaces

Furnace Bottom Ash – The ‘coarse’ ash fraction produced in the furnaces of coal fired power stations when pulverised coal is fed into the boilers and burnt at high temperatures and pressures. Used in road construction.

Glacial Sand & Gravel – Sand and gravel deposited by glaciers or ice sheets when they have retreated.

Ironstone - Fine-grained, heavy and compact sedimentary rock. Its main components are the carbonate or oxide of iron, clay and/or sand. Traditionally the source of iron ore for the British iron industry resulting in the establishment of the iron and steel industries in Scunthorpe. Outcrops of Frodingham Ironstone occur to the east of Scunthorpe.

Jurassic - The geological period and system dating from 196.6 to 145.5 million years ago.

Landbank – A landbank is the sum in tonnes of all permitted reserves for which valid planning permissions are extant, this includes non-working sites but excludes dormant sites and “inactive sites”. They are a monitoring tool to provide MPA’s with early warning of possible disruption to the provision of an adequate and steady supply of land-won aggregate in their area.

Lias; Upper, Middle & Lower - The Lias Group (or Lias) is a lithostratigraphic unit (a sequence of rock strata) found in a large area of western Europe, including the British Isles, the North Sea, the low countries and northern Germany. It consists of marine limestones, shales, marls and clays often divided into Lower, Middle and Upper subgroups. Within the Humber area, it consists mainly of limestone.

Licensed Dredging Area – Areas allocated under the sea where dredging is allowed to take place with the permission of the Marine Management Organisation.

Limestone - A sedimentary rock composed largely of the minerals calcite and/or aragonite, which are different crystal forms of calcium carbonate. Used in the construction of buildings as well as the production of lime, mortar and cement.

Local Aggregate Assessment (LAA) – A report prepared by one or several Minerals Planning Authority(ities) which assesses the demand for and supply of aggregates now and in the future.

Managed Aggregate Supply System (MASS) – The system used by Government to ensure that there is a steady and adequate supply of aggregate minerals to meet national and local requirements.

Marine Dredged Sand & Gravel – Sand and gravel dredged from the sea.

Mercia Mudstones - Formerly known as Keuper Marl: Characterised by a sequence of brown, red-brown, calcareous clays and mudstones, with occasional beds of impersistent green siltstone and fine-grained sandstone.

Minerals Planning Authority (MPA) – The Local Authority responsible for the control of mineral extraction and waste management development, through forward planning, determining planning applications, monitoring and enforcement.

National Planning Policy Framework (NPPF) – Introduced in March 2012, the NPPF is a result of the Government’s wish to streamline and simplify the planning system in England. It sets out the Government’s planning policies for England and how these are expected to be applied. It replaced Planning Policy Statements, Planning Policy Guidance, Minerals Policy Statements, Minerals Policy Guidance and a number of other

Circulars and Letters to Chief Planning Officers. It is a material consideration in determining planning applications and must be taken into account when preparing local and neighbourhood plans.

Oolitic; Inferior & Greater – Groups of rocks dating from the middle Jurassic period consisting mainly of limestone. A band of these run north to south through the Humber area, adjacent to the Yorkshire Wolds and Lincolnshire Wolds from Market Weighton in the north to the boundary with Lincolnshire.

Peat - Made up of partially decaying vegetation, plant matter, trees and occasionally animal remains. It forms in wetland bog or marshland areas where decay is inhibited by the acidic and anaerobic conditions. It is soft in character and any water can be forced out when put under pressure. It is used primarily in horticulture to improve soils, and can also be used as fuel.

Pulverised Fuel Ash (PFA) - A by-product of pulverised fuel (typically coal) fired power stations. The fuel is pulverised into a fine powder, mixed with heated air and burned. The resultant ash is used as engineering fill and as a component for concrete.

Quaternary - The most recent of the three periods of the Cenozoic Era in the geologic time scale. This period runs for around 2.6 million years ago to the present.

Recycled Aggregate – Can be sourced from construction and demolition waste, highway maintenance waste and excavation and utility operations and then be reused as aggregate.

Regional Spatial Strategy (RSS) – A regional level of strategic planning with which local authority plans were required to be broadly consistent. The RSS for the Yorkshire and Humber region was revoked by the Government in February 2013.

Sand & Gravel – Rock which nature has already broken into fragments mostly by weathering and by erosion during the ice age.

Secondary Aggregate – Derived from a range of materials which may be used as aggregate, including blast furnace slag.

Sherwood Sandstone - The Sherwood Sandstone Group is a Triassic lithostratigraphic group (a sequence of rock strata) which is widespread in Britain, especially in the English Midlands. The name is derived from Sherwood Forest in Nottinghamshire which is underlain by rocks of this age. It runs southwards from north-east England, through the Vale of York into Nottinghamshire.

Silica Sand - Silica sand is a mineral of national importance as it contains a high proportion of silica in the form of quartz and relatively low levels of impurities compared with sands used as construction aggregates. It is used mainly as raw material for the glass and foundry casting industries but can have a wide range of other uses including ceramics and chemicals manufacture, firing and drying.

Sub-Regional Apportionment – The splitting of regional supply guidelines for aggregate minerals between local planning authorities or sub-regions.

Superficial Deposits - Formerly known as 'drift' deposits, these are the youngest geological deposits formed during the most recent period of geological time, the Quaternary, which extends back about 2.6 million years from the present. They rest on older deposits or rocks referred to as bedrock.

Triassic – The geological period and system that dating from about 250 to 200 million years ago.

Yorkshire & Humber Plan – See Regional Spatial Strategy (RSS).

APPENDIX 1: YHAWP Consultation responses to a draft version of this LAA and draft East Riding and Hull Aggregates Apportionment Background Paper (July 2017), the Councils' response, and any amendments to the documents as a result.

Consultation with the YHAWP took place between 10th July, 2017, and 7th August, 2017.

Respondent	Comments	Councils' Response and Amendments
Mark North, Mineral Products Association	<p>Concerned that you may be placing undue confidence in the potential supply of aggregates from the Yorkshire Dales National Park, which appears to be declining. Additionally demand for these traditional areas of crushed rock supply is increasing in other areas as well and there is a danger on the assumption of future supply as there may be productive capacity issues. This is perhaps a matter for discussion at AWP as it is a regional issue.</p>	<p>The supply of crushed rock aggregate from Yorkshire Dales National Park to the East Riding and Hull relates to Swinden Quarry. Carboniferous Limestone travels by rail from here to Hull. Consultation as part of the LAA with the National Park Authority has established that the quarry has an existing permission lasting until the end of 2030. There is also a current application pending to deepen the quarry and extend its life to 2039. There is therefore no reason to believe there would be any issues of supply from here at least until 2030 and probably beyond.</p>
	<p>Pleased that you recognise that there is a link between housing completions and use of sand and gravel. However, your stated view that there is no accepted methodology for linking sand and gravel consumption is not correct we believe. You make reference to the North Yorkshire methodology which is yet to be examined at EIP. However, the same methodology is used in the West Yorkshire and all bar one of the North East mineral planning authorities. Our understanding is that these authorities are using this methodology in recognition that relying on recession averages for sand and gravel consumption for demand planning is an error. It is suggested that this LAA should use the North Yorkshire methodology to forecast future aggregates need.</p>	<p>Looking at the approach of the North East Planning Authorities. County Durham, Northumberland and Tyne and Wear LAA grew their 10 year aggregate sales averages by around 10%. This was based on uplifting 15% (percentage of construction activity that house building is responsible for according to the Construction Products Association) of the 10 year aggregates sales average by the percentage difference in current and planned future house building rates in the region.</p> <p>The Tees Valley (Darlington Borough, Hartlepool Borough, Middlesbrough Council, Redcar & Cleveland Borough, and Stockton-on-Tees Borough) LAA uses a similar methodology resulting in growing aggregate sales by around 6%.</p> <p>Applying the uplift</p>

		<p>methodology of the North East Planning Authorities to the East Riding/Hull results in an uplift of the sand and gravel sales average by 8.8%. This is compared to the uplift actually proposed in the East Riding and Hull Aggregates Apportionment Background Paper of 8.1%.</p> <p>Therefore if the MPA is advocating the use of such a methodology then the resulting uplift is very much similar to that already proposed for sand and gravel in the East Riding and Hull Joint Minerals Local Plan.</p> <p>It is incorrect to suggest the same North Yorkshire methodology is being used in the North East. A fundamental difference is the assumption of what percentage of sand and gravel is used in housing construction activity. North and West Yorks LAAs assume 50%. The North East Authorities assume 15%.</p> <p>If the 50% assumption were to be applied to the East Riding/Hull then the uplift for sand and gravel would amount to around 29.4% against the 10 year sales average. This would result in an apportionment that is higher than the 10 year annual average sales for the whole of the Humber area, which is clearly not appropriate.</p> <p>The differing views on what percentage of sand and gravel is used in housing construction activity is symptomatic of uncertainty and doubt over the accuracy of such an assumption. However the 15% figure does have some basis as it was cited in a Construction Products Association Press Release of Monday 14 April 2014, which suggests it would be the more appropriate figure to use.</p>
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	<p>Also attach separate comments from MPA member W Clifford Watts Ltd. Who have done an analysis of the numbers presented part based on local knowledge.</p>	<p>As the Aggregates Apportionment Background Paper already suggests. There is no robust and accepted methodology for directly linking demand for aggregates with house building or the economy of the area as a means of projecting aggregate demand into the future. An approach of using a past average trend in aggregate sales as an apportionment remains appropriate and has been tested at various Minerals Plan examinations.</p> <p>These comments as well as the Councils' response and any resulting changes to the LAA and East Riding and Hull Aggregates Apportionment Background Paper can be found below.</p>																																																																																
<p>Malcolm Ratcliff, Charis Consultancy Ltd on behalf of W C Watts Ltd</p>	<p>We have carried out an analysis on the sales and consumption figures in the LAA and have found some discrepancies. Some of these may be due to rounding errors or variations between local and national surveys, but we present our interpretation below for comparison with the LAA and AM figures.</p> <table border="1" data-bbox="363 1196 1002 1975"> <thead> <tr> <th colspan="2">Aggregates use in Humber Area</th> <th>2005</th> <th>2009</th> <th>2014</th> </tr> </thead> <tbody> <tr> <td colspan="2">Sand & Gravel ktpa</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Sales (LAA)</td> <td></td> <td>1100</td> <td>1000</td> <td>900</td> </tr> <tr> <td>Imports (AM)</td> <td></td> <td>908</td> <td>287</td> <td>305</td> </tr> <tr> <td>Exports (AM)</td> <td></td> <td>607</td> <td>500</td> <td>520</td> </tr> <tr> <td>Marine (AWP)</td> <td></td> <td>300</td> <td>92</td> <td>0</td> </tr> <tr> <td>Consumption LAA & AM</td> <td></td> <td>1683</td> <td>743</td> <td>424</td> </tr> <tr> <td>Consumption Watts</td> <td></td> <td>1701</td> <td>902</td> <td>685</td> </tr> <tr> <td colspan="2">Crushed Rock ktpa</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Sales (LAA)</td> <td></td> <td>400</td> <td>100</td> <td>750</td> </tr> <tr> <td>Imports (AM)</td> <td></td> <td>594</td> <td>592</td> <td>700</td> </tr> <tr> <td>Exports (AM)</td> <td></td> <td>106</td> <td>0</td> <td>0</td> </tr> <tr> <td>Consumption LAA & AM</td> <td></td> <td>857</td> <td>789</td> <td>724</td> </tr> <tr> <td>Consumption Watts</td> <td></td> <td>888</td> <td>692</td> <td>1450</td> </tr> <tr> <td colspan="2">LAA /AM total</td> <td>2540</td> <td>1532</td> <td>1148</td> </tr> <tr> <td colspan="2">Watts total</td> <td>2589</td> <td>1594</td> <td>2135</td> </tr> </tbody> </table> <p>The Watts' figures were derived by taking sales figures</p>	Aggregates use in Humber Area		2005	2009	2014	Sand & Gravel ktpa					Sales (LAA)		1100	1000	900	Imports (AM)		908	287	305	Exports (AM)		607	500	520	Marine (AWP)		300	92	0	Consumption LAA & AM		1683	743	424	Consumption Watts		1701	902	685	Crushed Rock ktpa					Sales (LAA)		400	100	750	Imports (AM)		594	592	700	Exports (AM)		106	0	0	Consumption LAA & AM		857	789	724	Consumption Watts		888	692	1450	LAA /AM total		2540	1532	1148	Watts total		2589	1594	2135	<p>The discrepancies highlighted within the table are a product of differences between: the overall number and individual operators responding to each different survey. These differences mean that aggregates working party data (which informs the LAA) cannot be directly compared with National Aggregates Survey data. This will be highlighted in both the LAA and the East Riding and Hull Aggregates Apportionment Background paper.</p> <p>The LAA and Background Paper do not establish their own consumption, import, and export figures for the Humber and so relies on figures within National Aggregates Survey instead.</p>
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	<p>adding imports and marine and subtracting exports to arrive at consumption (e.g. $1100+908+300-607=1701$).</p> <p>There are discrepancies in all three years but the largest ones are for 2014. For crushed rock we cannot reconcile the figures for consumption in Table 7 with the data on sales of crushed rock in Table 4. Although we realise that you cannot change the AM figures we ask that you caveat the information presented to mention the anomaly and to provide the correct figure.</p> <p>Similarly, for sand and gravel in 2014, the AM survey has a sales figure of 639 ktpa compared with the LAA figure of 900 ktpa which is responsible for the difference of 261 ktpa in the consumption figures. We therefore think you should treat the AM14 consumption figures with caution as we do not believe they are correct.</p>	
	<p>Moreover, we are also unclear whether these figures include marine sand and gravel. RAWP figures would suggest that in 2005 300ktpa of marine aggs were landed in the Humber, and in 2009 this was 115 ktpa. In 2014 no landings were recorded. If these figures are added in above, they increase consumption for the earlier years significantly.</p> <p>We believe this is important since the alternative figures show clearly a distinct fall in the consumption of sand and gravel between 2005 and 2014 mirrored by an increase in the consumption of crushed rock. We believe that the fall in sand and gravel consumption is not just an aspect of the recession, but also of the fact that the resources are becoming constrained and there are more calls on exporting local material. This is evidenced in the composition of concrete produced in the area (at least north of the Humber). The majority of concrete plants use a mixture of sand and crushed rock (e.g. Goole, Hull, and Driffield). We believe this may be true of plants south of the river as well. Sand and gravel however, is used by this company at its plants, and by Hanson at Bridlington (imported from North Yorkshire). It may also apply at the plant at Elsham too.</p>	<p>The Humber sand and gravel consumption figures in table 7 of the LAA are taken from National Minerals Survey data and does include marine sand and gravel.</p> <p>No aggregate sand and gravel was landed at Hull in 2014 (due to the redevelopment of Alexandra Dock for the Greenport development). It would therefore be misleading to interpret the 2014 consumption figure for the Humber as being a downward trend.</p> <p>Sales of crushed rock have remained relatively constant in the Humber area up to 2014 (and in the East Riding area up to 2016). This was followed by a dramatic increase in sales from North Lincolnshire from 2014 and a more moderate rise in sales from the East Riding in 2016. It is too early to say what has caused these rises in sales (particularly for the East Riding). It is not necessarily indicative of a shortage of sand and gravel in the area however. Sales of primary sand and gravel across the Humber have remained relatively constant throughout the same period. If supplies were increasingly constrained, one would expect to see a fall in sales.</p>
	<p>We agree with the LAA analysis of reserves and</p>	<p>Comments noted.</p>

	<p>landbanks.</p> <p>The Humber Area clearly suffers from resource issues for the highest quality of sand and gravel and we recognise that it may not be possible to increase the supply of the highest quality materials in the future due to the difficulty in finding new sites. W Clifford Watts controls the best quality reserves within East Riding, which we believe the LAA needs to acknowledge along with the limited potential for future supplies of this material.</p>	<p>There is insufficient evidence available to make that assertion within the LAA. Especially without further engagement with other operators.</p>
	<p>We do not agree with your assessment of future demand for sand and gravel, or your assessment of supply of crushed rock.</p> <p>Dealing with crushed rock first, we believe you have over-estimated the potential supply of aggregates from the Yorks Dales National Park, which is declining fast and Swinden will close by 2026. There is potential to replace this material in North Yorkshire, but further caution is required because demand for crushed rock from these large sites is increasing everywhere. If growth in the use of rock continues as it has recently it is likely that at some stage there will be a capacity limitation. This should be discussed regionally since if all mpas are relying on crushed rock to substitute for sand and gravel then the supply may not be sufficient for all. Furthermore, we believe you are wrong about statements relating to marine aggregates. These are more expensive to use than crushed rock and it is likely that if the supply pattern remains the same, then there will be further substitution of crushed rock for sand and gravel, not less. Marine sources are likely to be more competitive in the long term, but we do not see this happening in the short term.</p>	<p>Consultation as part of the LAA with the National Park Authority has established that Swinden Quarry has an existing permission lasting until the end of 2030. There is also a current application pending to deepen the quarry and extend its life to 2039. There is therefore no reason to believe there would be any issues of supply from here at least until 2030 and probably beyond.</p> <p>As stated above. Sales of crushed rock have remained relatively constant in the Humber area up to 2014. It is too early to say what has caused recent rises in sales (particularly for the East Riding). It is not necessarily indicative of substitution of sand and gravel with crushed rock in the area. Sales of primary sand and gravel across the Humber have remained relatively constant throughout the same period, when supplies are relatively unconstrained. One would expect to see a fall in sales if existing supplies were not suitable and crushed rock was increasingly being used in substitution.</p> <p>The statements relating to marine aggregates were informed by a specific marine aggregates study commissioned by Leeds City Council on behalf of the YHAWP. A broad range of stakeholders, including industry representatives contributed towards the study.</p>
	<p>You say there is a link between housing completions and use of sand and gravel and we would agree. The situation is complicated by the use of crushed rock in concrete and</p>	<p>The link between housing completions and use of sand and gravel is acknowledged and</p>

	<p>cross boundary movements as you say, but there is still a 0.70 correlation coefficient between sand and gravel use and housing completions, which is significant at the 95% confidence level. This can be easily checked by use of the CORREL function in Excel. This correlation strengthens when marine aggregates are included. This means that you have been overcautious in your assessment and that you may project future sand and gravel use in line with movements in housing completion trends, with confidence. Thus you are wrong that there is no ‘...robust and accepted methodology for directly linking demand for aggregates with housebuilding...’ You mention the North Yorkshire methodology and although this has yet to be examined, it has to our knowledge not attracted any objections. The same methodology is also used by the whole of the North East mpas bar Teesside, and by the five West Yorkshire mpas, so it cannot be described as anomalous. It has been specifically adopted by those authorities to reflect aspirations for growth and in acknowledgment that relying on recessionary averages to project future demand is dangerously flawed.</p> <p>We believe you should use either the North Yorkshire methodology or one of your own to forecast future aggregate needs.</p>	<p>discussed in the paper.</p> <p>Looking at the approach of the North East Planning Authorities. County Durham, Northumberland and Tyne and Wear LAA grew their 10 year aggregate sales averages by around 10%.</p> <p>This was based on calculating what 15% of the 10 year annual aggregates sales average tonnage is. 15% is the percentage of construction activity that house building is responsible for according to the Construction Products Association. The percentage difference in current and planned future house building rates in the region was then established. This was then used to growth 15% of the 10 year average sales. The resulting figure was then added back onto 85% of the 10 year average sales.</p> <p>The Tees Valley (Darlington Borough, Hartlepool Borough, Middlesbrough Council, Redcar & Cleveland Borough, and Stockton-on-Tees Borough) LAA uses a similar methodology resulting in growing aggregate sales by around 6%.</p> <p>Applying the uplift methodology of the North East Planning Authorities to the East Riding/Hull results in an uplift of the sand and gravel sales average by 8.8%. This is compared to the uplift actually proposed in the Hull/East Riding Aggregates Apportionment Background Paper of 8.1%.</p> <p>Therefore if W C Watts Ltd is advocating the use of such a methodology then the resulting uplift (of the 10 year sales average) is very much similar to that already proposed for sand and gravel in the East Riding</p>
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		<p>and Hull Joint Minerals Local Plan.</p> <p>It is incorrect to suggest the same North Yorkshire methodology is being used in the North East. A fundamental difference is the assumption of what percentage of sand and gravel is used in housing construction activity. North and West Yorks LAAs assume 50%. The North East Authorities assume 15%.</p> <p>If the 50% assumption were to be applied to the East Riding/Hull then the uplift for sand and gravel would amount to around 29.4% against the 10 year sales average.</p> <p>The differing views on what percentage of sand and gravel is used in housing construction activity is symptomatic of uncertainty and doubt over the accuracy of such an assumption. However the 15% figure does have some basis as it was cited in a Construction Products Association Press Release of Monday 14 April 2014, which suggests it would be the more appropriate figure to use out of the two.</p> <p>As the East Riding and Hull Aggregates Apportionment Background Paper already suggests. There is no robust and accepted methodology for directly linking demand for aggregates with house building or the economy of the area as a means of projecting aggregate demand into the future. An approach of using a past average trend in aggregate sales as an apportionment remains appropriate and has been tested as such at various Minerals Plan examinations.</p> <p>Far from relying on recessionary averages to project future demand, the background paper</p>
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		<p>proposes an annual sand and gravel apportionment figure which is higher than pre-recession levels.</p> <p>The latest evidence of linkages between housing growth and demand for aggregates will be kept under review as part of ongoing development of Local Plans and further reviews of the LAA.</p>																																
	<p>We also struggle to accept your analysis in para 5.4 of the Apportionment Paper which asserts that the best figure to use is the 3 year average. This is not the advice of NPPF or PPG which was specifically worded to stop esoteric experiments in averages. You should start with the 10 year average and then use other local information to adjust it, not arbitrarily pick an average that you feel comfortable with. The three year average is an indicator of recent trends which might suggest a review of local plan allocations. It is not meant to be used as a predictor of future demand.</p> <p>We find the information given in Table 1 to be opaque in that the base data is not shown so the calculations cannot be checked. However, we have compared the figures presented with the figures for the six years cited obtained from the RAWP Annual Reports for 2004 and 2008 for the sub-region.</p> <p>EXTRACTED FROM Y&H AMR TABLE 3 - SAND AND GRAVEL AGGREGATE AND NON-AGGREGATE SALES 2002-2007 (million tonnes)</p> <table border="1" data-bbox="338 1294 1002 1624"> <thead> <tr> <th></th> <th>2002</th> <th>2003</th> <th>2004</th> <th>2005</th> <th>2006</th> <th>2007</th> <th>Average</th> </tr> </thead> <tbody> <tr> <td>East Riding & North Lincs</td> <td>0.8</td> <td>1.0</td> <td>1.1</td> <td>1.1</td> <td>1.2</td> <td>1.3</td> <td>1.083</td> </tr> <tr> <td>Marine Aggs</td> <td>0.2</td> <td>0.3</td> <td>0.4</td> <td>0.3</td> <td>0.3</td> <td>0.3</td> <td>0.300</td> </tr> <tr> <td>Total</td> <td>1.0</td> <td>1.3</td> <td>1.5</td> <td>1.4</td> <td>1.5</td> <td>1.5</td> <td>1.366</td> </tr> </tbody> </table>		2002	2003	2004	2005	2006	2007	Average	East Riding & North Lincs	0.8	1.0	1.1	1.1	1.2	1.3	1.083	Marine Aggs	0.2	0.3	0.4	0.3	0.3	0.3	0.300	Total	1.0	1.3	1.5	1.4	1.5	1.5	1.366	<p>NPPG promotes a forecast of the demand for aggregates based on both the rolling average of 10-years sales data and other relevant local information (Paragraph: 062 Reference ID: 27-062-20140306).</p> <p>It clarifies that other relevant local information includes average sales over the last 3 years in particular to identify the general trend of demand as part of the consideration of whether it might be appropriate to increase supply (Paragraph: 064 Reference ID: 27-064-20140306).</p> <p>The use of the last three years sales average as an apportionment figure has not been arbitrarily picked. It is clear that a range of local information (such as housebuilding and the economy) and alternative methodologies have informed the use of this figure. The outcome of the East Riding and Hull aggregates apportionment background paper is consistent with national planning policy and guidance.</p> <p>Data for each individual year is not shown in the table for commercial confidentiality reasons given it could be used to disaggregate a North Lincolnshire figure from the Humber figure for each given year.</p> <p>There was an information</p>
	2002	2003	2004	2005	2006	2007	Average																											
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	<p>It is clear that the pre-recession average for the Humber Area was much higher than you claim if marine aggregates are included as they should be, and that it was a rising market with year on year increases. Because virtually all marine aggregates are used in concrete and in an urban setting, used within just a few miles of landing, the marine landed at Hull should be included in the figures. This means that using your figures for East Riding averages, the total use of sand and gravel from both sources was of the order of 1.05 Million tonnes pa (0.75 + 0.30). Thus we would profoundly disagree that applying a factor to reflect future planned construction ‘...would not appear</p>																																	

	<p>to be supported by existing evidence set out in this background paper.'</p>	<p>release of the 24/11/2016 from the YHAWP secretary to members containing details of consumption of marine sand and gravel for aggregate use in 2014 identifying for each-sub-region the principal supplying Mineral Planning Authorities. Whilst no marine sand and gravel was landed at Hull during 2014, it is possible to see from the data that sand and gravel landed elsewhere is not necessarily used 'within a few miles of landing'. For example, significant proportions of marine sand and gravel landed at South Tyneside makes its way to Durham, Tyne & Wear, and North Yorks.</p> <p>It is also important to bear in mind there are no constraints on either the permitted supply of sand and gravel or landing capacity from reserves off the Yorkshire Coast. The supply of marine aggregate can therefore fluctuate in line with demand as it has done in the past.</p> <p>Given this, and also the plan's role in setting an annual apportionment figure for primary aggregate production it is the average primary aggregate sales figures which is important to inform this exercise.</p>
	<p>We also wondered where you obtained the figure of sand and gravel consumed in Humber sourced from East Riding in 2014 of 106,000 tonnes. This figure seems far too low. The total official consumption in the Humber area was 424,000 tonnes, but as we have observed this appears to be under-reported (according to figures from ERYC surveys) and the correct figure should be 685,000 tonnes.</p>	<p>The figure is derived from a National Survey information release via the YHAWP of 1/8/16. The information states that 20% to 30% of the total sand and gravel consumption of the Humber is derived from East Riding. Assuming the 25% mid point gives you 106,000 tonnes.</p> <p>As highlighted above there are discrepancies between YHAWP survey information and National Aggregates Survey information. This is due to differences between the overall number and individual</p>

		<p>operators responding to each different survey. These differences mean that the two sets of data are not directly comparable.</p>
	<p>However, we believe that it would be easier to apply a 25% uplift to the total sales figures on the reasonable assumption that planned growth in importing areas is also set to rise by at least as much as it is in the East Riding. This would suggest an apportionment of 0.94 Million tonnes pa (0.75 x 1.25). We also do not agree that less material will be exported in the future. Planned growth in importing areas is also set to grow and if it takes place locally it is also likely to be a wider phenomenon.</p> <p>We believe this approach is confirmed by looking at pre-recession figures for housing completions in 2006/7 for the Humber which were about 3,000 and comparing them with current levels of completions which are about 2,000 (50% difference). Sand and gravel sales (including marine) in 2006 were 1.5 Million tonnes. Now they are 0.9 Million tonnes. If future housing completions are to rise by about 50% this would see a return to 2006/7 levels of house building and an implied sand and gravel sales figure of about 1.5 Million tonnes across the Humber area. If this were so, the ERYC provision level we have suggested might be understated (we acknowledge that some of this might be obtained from renewed imports of marine aggregates into Hull).</p>	<p>As stated in the East Riding and Hull Aggregates Apportionment Background Paper, such an assumption suggested remains untested at examination and doesn't have a firm evidential basis. The apportionment approach suggested has a basis based upon past trends, during both pre-recession and recent trends, and in light of considering a range of other relevant local information.</p>
	<p>We are surprised that you should speak of forecasts as 'speculation'. We observe that as professional planners forecasting should be second nature to local government officers. We also observe that even with waste forecasting where data is also notoriously absent or heavily qualified, a way has been found to forecast future waste arisings that is accepted even though this is not robustly supported by evidence either. At least with aggregates we benefit from annual surveys.</p>	<p>Neither the LAA nor East Riding and Hull Aggregates Apportionment Background Paper describe forecasts as speculation.</p>
	<p>We believe there is an unwarranted caution among mpas that refuses to see the statistical connection between housing construction and sand and gravel sales, ignores the planned growth inherent in Local Plans and is reluctant to see significant increases in sand and gravel provision but to adopt a 'wait and see' strategy. This is a recipe for a continued decline in sand and gravel provision, which when it has happened, is very difficult to reverse.</p>	<p>Comments noted. The reasons for the approach taken are set out both in the Hull and East Riding Aggregates Apportionment Background Paper and in the responses to other comments above.</p>

	<p>We are very concerned as a company that the Local Plan should not under-provide even if it is difficult to find Preferred Areas. We have no doubt that business will increase substantially, which is why the company has invested in a new concrete plant in Hull to expand its coverage of the sub region and with the best quality reserves in the sub region, is looking afresh at its supply strategy.</p> <p>We believe that the evidence does suggest that a substantial increase in provision is justified, and that the local provision level for sand and gravel should rise to at least 0.93 Million tonnes. It is undesirable to keep relying on rock substitution for sand and gravel and to look for greater marine imports, although we have no doubt this will happen in the long term.</p> <p>We therefore ask you to look again at your apportionment methodology and the link between housing completions and sand and gravel consumption.</p>	<p>Comments noted. The reasons for the approach taken are set out both in the East Riding and Hull Aggregates Apportionment Background Paper and in the responses to other comments above.</p>
<p>Helen McCluskie, Doncaster Metropolitan Borough Council</p>	<p>No comments to make on the LAA or the additional aggregates apportionment paper. The information regarding Doncaster and Rotherham's monitoring data is fairly represented in the document.</p>	<p>Comments noted.</p>