

Draft Bradford Local Plan

Preferred Options



Minerals Background Report & Evidence Report

February 2021

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1. Introduction

- 1.1 Minerals play a vital role in society and essential to the economy. Aggregates and construction minerals are required to build homes, factories, offices and transport infrastructure, whilst other minerals are used by industry as well as in food production and agriculture. Energy minerals like oil and gas provide power and heating.
- 1.2 It is essential that Mineral Planning Authorities (MPA) like Bradford Council plan appropriately to ensure that there are a sufficient and sustainable supply of minerals to meet national, regional and local needs. However, this needs to be done in a way that protects communities and the environment.
- 1.3 A key aspect of mineral development is that working can only take place where resources occur naturally. This can result some conflict the benefits of mineral extraction and its potential impacts.
- 1.5 In the case of Bradford district, the main mineral resources are:
- Sand and gravel
 - Sandstone
 - Clay
 - Coal
- 1.5 The document reviews and updates work undertaken to support the minerals section of the Core Strategy DPD (adopted July 2017). It also expands to take into matters to be dealt with in the emerging Local Plan.

2. Minerals Policy Framework

2.1 National Minerals Policies

- 2.1.1 National minerals planning policy is set out in Section 17 of the [National Planning Policy Framework \(February 2019\)](#)¹. More detailed guidance is provided in the Minerals section of the [Planning Practice Guidance website](#) (October 2014 onwards)²
- 2.1.2 The overarching rationale behind the government's approach to minerals planning is set out in the introductory paragraph to Section 17 (paragraph 203), which confirms the government's view that:

¹ [Ministry of Housing, Communities & Local Government \(2019\), National Planning Policy Framework, MHCLG: London](#)

² [Ministry of Housing, Communities & Local Government \(2014\), Planning Practice Guidance – Online \(2014 onwards\), MHCLG: London](#)

“It is essential that there is a sufficient supply of material to provide the infrastructure, buildings, energy and goods that the country needs. Since minerals are a finite natural resource, and can only be worked where they are found, best use need to be made of them to secure their long-term conservation”

2.1.3 Guidance on the weight MPAs should attach to varying factors when assessing planning applications is set out in paragraph 205 of the NPPF, which confirms that “*great weight should be to the benefits of mineral extraction, including to the economy*”. However, it should be noted that this does apply in relation to the extraction of coal, where the policy in paragraph 211 of the NPPF applies.

2.1.4 The key considerations that should be taken into account in preparing in terms of planning policies are set out in paragraph 204. These are:

- provide for the extraction of mineral resource of local and national importance, but not identify new sites or extensions to existing sites for peat extraction;
- so far as practicable, take account of the contribution that substitute or secondary and recycled materials and minerals waste would make to the supply of materials, before considering extraction of primary materials, whilst aiming to source minerals supplies indigenously;
- safeguard mineral resources by defining Minerals Safeguarding Areas; and adopt appropriate policies in order that known locations of specific minerals resources of local and national importance are not sterilised by non-mineral development where this should be avoided (whilst not creating a presumption that resources defined will be worked);
- set out policies to encourage the prior extraction of minerals, where practicable and environmentally feasible, if it is necessary for non-mineral development to take place;
- safeguard existing, planned and potential sites for: bulk transport, handling and processing of minerals; the manufacture of concrete and concrete products; and the handling, processing and distribution of substitute, recycled and secondary aggregate material;
- set out criteria or requirements to ensure that permitted and proposed operations do not have unacceptable adverse impacts on the natural and historic environment or human health, taking to account the cumulative effects of multiple impacts from individual sites and/or a number of sites in a locality;
- when developing noise limits, recognise that some noisy short-term activities, which may otherwise be regarded as unacceptable, are unavoidable to facilitate minerals extraction; and
- ensure that worked land is reclaimed at the earliest opportunity, taking account of aviation safety, and that high quality restoration and aftercare of mineral sites takes place.

2.1.5 National Planning Practice Guidance outlines: *“Mineral planning authorities should plan for the steady and adequate supply of minerals in one or more of the following ways (in order of priority):*

- *Designating Specific Sites – where viable resources are known to exist, landowners are supportive of minerals development and the proposal is likely to be acceptable in planning terms. Such sites may also include essential operations associated with mineral extraction;*
- *Designating Preferred Areas, which are areas of known resources where planning permission might reasonably be anticipated. Such areas may also include essential operations associated with mineral extraction; and/or*
- *Designating Areas of Search – areas where knowledge of mineral resources may be less certain but within which planning permission may be granted, particularly if there is a potential shortfall in supply.’*

2.2 National Aggregates Policies

2.2.1 Paragraph 207 of the NPPF sets out national planning policy on the provision of aggregates. The principle tool which Minerals Planning Authorities (MPAs) are advised to use to plan for future aggregate provision is the preparation of a Local Aggregates Assessment (LAA), based on a rolling average of 10 years’ sales data and other relevant local information, and an assessment of all supply options (including marine dredged, secondary and recycled sources).

2.2.2 MPAs are also advised to participate in the operation of an Aggregate Working Party (AWP), comprised of both regulatory and industry representatives, and take the advice of the AWP into account during the preparation of the LAA.

2.2.3 This system replaced the previous more hierarchically based managed aggregates supply system whereby MPAs had to make provision for a sub-regional apportionment of the aggregate demand figures set out in the National and Regional Guidelines for land-won aggregate provision. These sub-regional apportionments were made through the former Regional Spatial Strategies (RSS) informed by the advice of a Regional Aggregates Working Party (RAWP). Whilst RAWPs still exist, the regional level managed aggregate provision framework no longer exists as a consequence of the current government’s planning reforms.

2.2.4 The LAA based aggregate supply management system allows for more local flexibility in terms of the factors which inform the derivation of future aggregate provision targets. However, the NPPF does maintain a reference to the National guideline figures, stating that MPAs should take account of *‘any published National and Sub National Guidelines on future provision which should be used as a guideline when planning for the future demand for and supply of aggregates’*.

2.2.5 The spatial coverage of LAAs is also more flexible, with the NPPF advising that LAAs may be prepared *‘either individually or jointly by agreement with another or other mineral planning authorities’*. MPAs are advised make provision for the aggregate supply targets set out in adopted LAAs by allocating specific sites,

preferred areas, areas of search, and/ or locational criteria within Local Plans, as appropriate.

- 2.2.6 The NPPF advises that mineral landbanks should continue to be used as an indicator of the security of aggregate minerals supplies and to indicate where additional provision is required, with the objective being to maintain a landbank amounting to at least 7 years supply for sand and gravel and at least 10 years supply for crushed rock. However, MPAs are cautioned not to stifle competition by suppressing further minerals development in situations where landbanks are bound up in very few sites.

2.3 National Building Stone Policy

- 2.3.1 The last two paragraphs of paragraph 205 of the NPPF sets out national planning policy on the provision of natural building and roofing stone advising MPAs to:
- consider how to meet any demand for small-scale extraction of building stone at, or close to, relic quarries needed for the repair of heritage assets, taking account of the need to protect designated sites; and
 - recognise the small-scale nature and impact of building and roofing stone quarries, and the need for a flexible approach to the potentially long duration of planning permissions reflecting the intermittent or low rate of working at many sites.

2.4 National Clay Policy

- 2.4.1 Although there is no specific national policy guidance on fireclay, paragraph 208 of the NPPF advises that MPAs should plan for a steady and adequate supply of industrial minerals, including clay, by:
- co-operating with neighbouring and more distant authorities to ensure an adequate supply of industrial minerals to support their likely use in industrial and manufacturing processes;
 - encouraging safeguarding or stockpiling so that important minerals available for use;
 - maintaining a stock of permitted reserves to support the level of actual and proposed investment required for new or existing plant, and the maintenance and improvement of existing plant and equipment; and
 - taking account of the need for provision of brick clay from a number of different sources to enable appropriate blends to be made.
- 2.4.2 In addition, paragraph 209 advises that MPAs should provide for coal producers to extract separately, and if necessary stockpile, fireclay so that it remains available for use.

2.5 National Coal Policy

- 2.5.1 National policy on coal extraction (NPPF paragraphs 209 and 211) highlights that MPAs should indicate any areas where coal extraction and the disposal of colliery spoilt may be acceptable, and that planning permission should not be given for the extraction unless the proposal is environmentally acceptable, or can be made so by planning conditions or obligations; or if not, it provides national, local or community benefits which clearly outweigh the likely impacts (taking all relevant matters into account, including any residual environmental impacts).
- 2.5.2 Specific guidance on considering environmental impacts and issues related to underground mining is set out the Planning Practice Guidance.

3. Evidence Base

3.1 Overview

- 3.1.1 The NPPF (paragraph 207) requires all mineral planning authorities to plan for a steady and adequate supply of aggregates by (amongst other measures):
- Preparing an annual Local Aggregate Assessment (LAA), either individually or jointly by agreement with one or more other Mineral Planning Authorities, based on a rolling average of 10 years' sales data and other relevant local information, and an assessment of all supply options (including marine dredged, secondary and recycled sources); and
 - Participating in an Aggregates Working Party (AWP) and taking the advice of the AWP into account when preparing their LAA.
- 3.1.2 The West Yorkshire partner councils (Bradford, Calderdale, Kirklees, Leeds and Wakefield) agreed in 2013 to work together to produce an annual West Yorkshire Local Aggregates Assessment (WY LAA). Since 2013 the West Yorkshire Combined Authority (WYCA) co-ordinating its production. The LAA assists the five authorities in progressing their Local Plans and in determining planning applications. In addition, it provides joint evidence for WYCA for the Strategic Economic Plan (SEP) and emerging Local Inclusive Industrial Strategy.
- 3.1.3 The LAA includes a full review of evidence in relation to the supply of and demand for crushed rock aggregates and sand and gravel within West Yorkshire. The findings of the 2012 WY LAA informed the preparation of the minerals policies set out the adopted Core Strategy (2017).
- 3.1.4 The most recent [WY LAA](#) is dated 2018³, and is based on sales and reserves date for the calendar year 2017. It was endorsed by WYCA in January 2019. The main points to note are:
- There remains a clear and continuing link between housing and aggregate sales/need;

³ [West Yorkshire Combined Authority \(2018\), West Yorkshire Local Aggregate Assessment \(2018\) \(2017 data\), WYCA: Leeds](#)

- A large proportion of the crushed rock aggregate produced in West Yorkshire is unsuitable for higher specification uses, such as concrete making and roadstone;
- West Yorkshire produces very little sand and gravel;
- West Yorkshire has a continuing high dependency upon neighbouring authorities for the majority of its construction aggregate needs. In particular, from North Yorkshire, Doncaster and high specification sandstone aggregates from the Yorkshire Dales National Park;
- There is concern regarding the continued supply of high specification aggregate from the Yorkshire Dales National Park, as the draft North Yorkshire LAA 2018 states that “potential for reserves of high quality polished stone value (PSV) aggregate in the Yorkshire Dales National Park to be significantly reduced in the mid-term”;
- There is concern regarding potential shortfalls of supply of both sand and gravel and magnesian limestone identified within the North Yorkshire LAA; and
- There remains a pressing need for a shift from the transportation of aggregates by road to other modes of transport (in particular rail).

3.1.5 The content of the LAA will not be repeated within this evidence base report and instead information is set out below which is useful in providing an understanding of the background behind the aggregates supply and demand situation within West Yorkshire and issues specifically relevant to the Bradford District.

3.2 Sand & Gravel

Yorkshire & Humber Sand & Gravel Issues

3.2.1 It was previously estimated that there was a 32 million tonne shortfall in the permitted reserves of sand and gravel in the Yorkshire and Humber region to meet the apportionments set by the Government up to 2021. To examine this issue and inform the development of a policy response the now abolished Regional Planning Body commissioned a number of reports.

3.2.2 The British Geological Society (BGS) and others were commissioned by the former Regional Planning Body to examine this issue and prepare a number of reports to assist in developing a policy response. The first report, a Phase 1 study, helped to identify the extent of sand and gravel resources within the region and how these related to environmental constraints was published in 2004. Sand and gravel deposits were identified within Bradford District in the flood plains of the Rivers Aire and Wharfe.

3.2.3 Following on from the BGS study, a Phase 2 Study⁴ was published in late 2007. The Phase 2 Study developed and appraised spatial options for revised sub-

⁴ Land Use Consultants (2007), *Phase 2 Sand and Gravel Study for Yorkshire and Humber Appraisal of Apportionment Options*. LUC: London

regional apportionments of sand and gravel to address the shortfall in permitted reserves. The recommendation of the Phase 2 Study was that the proportion of sand and gravel supply met by sand and gravel resources located within South and West Yorkshire should be substantially increased, with a 3-fold increase in the West Yorkshire sub-regional apportionment.

3.2.4 A number of local authorities including Bradford Council raised concerns about the viability of increasing sand and gravel extraction within West Yorkshire to the levels recommended in the phase 2 report. In response to this the former RPB commissioned BGS to carry out a consultation exercise with the sand and gravel extraction industry. A report collating the views expressed by representatives of the 4 largest companies operating sand and gravel extraction sites within the Region was published in June 2009⁵.

3.2.5 In summary the findings of the report were:

- The industry estimated that the amount of potentially viable sand and gravel within West Yorkshire, is between 90 – 96% lower than was estimated in the phase II study.
- Only sites containing 1 to 1.5 million tonnes of sand and gravel (taking up 10-25ha of land) would be likely to be economically viable. Much of the potentially viable sand and gravel resource within West Yorkshire is divided by rivers, canals, railways and roads therefore there are only likely to be a very small number of viable sites.
- The Wharfe Valley is considered to have some of the largest areas of unworked high quality sand and gravel in the region; however, the industry regards it as unviable for new extraction sites due to the proximity of landscape/ environmental designations coupled with the potential for relatively strong opposition from local communities.
- The industry identified 5 to 10 potential sites for sand and gravel extraction within West Yorkshire; however, issues relating to access, environmental, hydrological, and/or planning restrictions were considered too problematic relative to the volumes and quality of reserves to merit developing any of them.

3.2.6 A final recommendation on possible revisions to the sub-regional sand and gravel allocations was to be considered by the former RPB and taken forward in the development of an Integrated Regional Strategy. However, due to change of government in 2010 resulting in the abolition of the RPBs, the revocation of the Regional Spatial Strategy and the introduction of the NPPF, this process was abandoned, removing the strategic regional element of minerals planning. MPAs must now determine their own approach to future aggregate supplies through the preparation of an LAA and their own Local Plans, albeit acting under the Duty to Co-operate.

⁵ British Geological Survey (2009), *West Yorkshire Sand & Gravel Resources: Investigating the Potential for an Increased Sub-Regional Apportionment*. BGS: Nottingham

3.2.7 It is clear that further consultation with mineral industry is required to ascertain whether this remains the case.

Regional/Sub-Regional Sand & Gravel Supply

3.2.8 Sales of sand and gravel originating from West Yorkshire have steadily declined for over 20 years, consistent with the number of operating sites and their size. Sites which have closed have not been replaced. Gravel for concreting purposes is no longer produced. Between 2015 and 2017 the West Yorkshire sand and gravel extraction industry has comprised only a single modestly sized sand and gravel extraction site in Kirklees.

3.2.9 Table 3.1 below sets out regional level sand and gravel sales data, with West and South Yorkshire amalgamated for confidentiality reasons, as presented within the [Yorkshire and Humber Aggregate Working Party Annual Monitoring Report 2018](#).

Table 3.1: Yorkshire & Humber Sand and Gravel Sales (2008 to 2017)

Sub-Region	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Aggregate Sand & Gravel Sales										
North Yorkshire	2.3	1.7	1.6	1.7	1.6	1.5	1.7	1.7	1.7	1.75
South & West Yorkshire	0.4	0.5	0.26	0.24	0.24	0.18	0.21	0.54	0.62	0.72
East Riding & North Lincolnshire	1.13	1.0	0.59	0.71	0.56	0.91	0.93	0.92	0.9	0.84
Total Yorkshire & Humber	3.83	3.2	2.45	2.65	2.4	2.59	2.83	3.16	3.22	3.31

Source: Yorkshire & Humber Aggregates Working Party – Annual Monitoring Report 2018

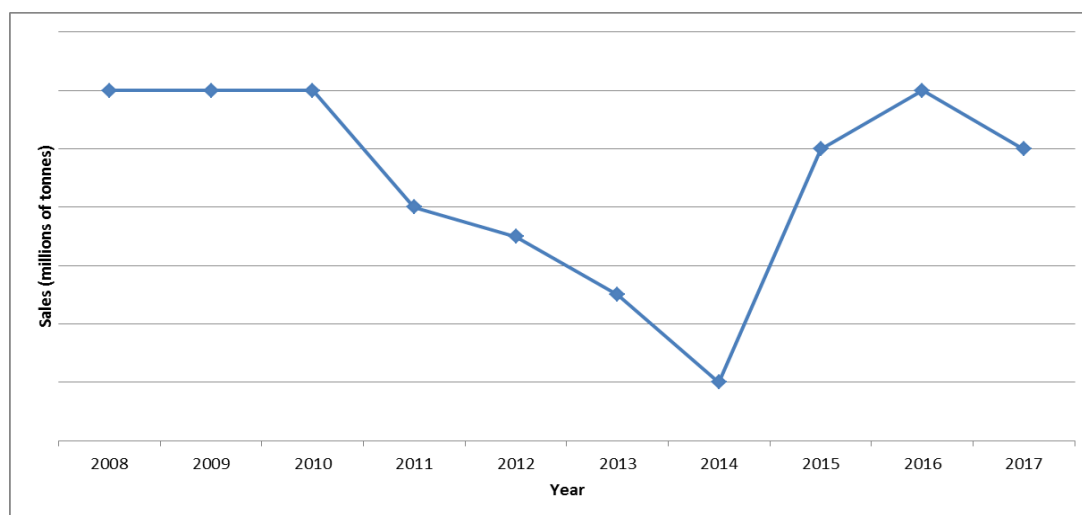
3.2.10 The first West Yorkshire LAA, calculated a 2012 West Yorkshire sand and gravel sales figure from direct operator reporting and separated out 2004 - 2011 combined sales data using a % proxy. Table 3.2 below shows the West Yorkshire figures calculated within the first LAA and includes a 2013 figure for West Yorkshire based upon direct reporting by the relevant Planning Authorities. The 2014 to 2017 figures have been used to calculate the 10 year sales average but have been obscured within the table for commercial confidentiality reasons. Figure 3.1 illustrates the ten year sales trend, with the Y Axis removed for confidentiality reasons.

Table 3.2: West Yorkshire Sand & Gravel Sales (2008 to 2017) (Million Tonnes)

	2008	2009	2010	2012	2013	2014	2015	2016	2017	Ten Year Average
Sand & Gravel Sales	0.12	0.12	0.12	0.08	0.07	0.05	-	-	-	-

Source: West Yorkshire Local Aggregate Assessment (2018)

Figure 3.1: West Yorkshire Annual Sand & Gravel Sales (2008 to 2017)



3.2.11 There a number of potential sand and gravel allocations proposed within West Yorkshire, including 6 allocation sites in Leeds (1 site) and Wakefield (5 sites) and 2 areas of search (1 each in Kirklees and Leeds). These have the potential reserves of 7.5 million tonnes; however, their release depends upon any resource being economically viable and environmentally acceptable as well as obtaining planning permission. There no allocations within Bradford or Calderdale.

3.2.12 Table 3.3 below sets out regional level sand and gravel reserves data, as presented within the [Yorkshire and Humber Aggregate Working Party Annual Monitoring Report 2018](#)⁶. It is notable that total regional sand and gravel reserves appear to have declined relatively rapidly after 2012, but began to rise again between 2014 and 2016. By 2017 the level reserves declined by around 8 million tonnes, and across each of the sub-regions.

Table 3.3: Sand & Gravel Reserves (Yorkshire & Humber) (million tonnes)

Sub-Region	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
North Yorkshire	20.02	18.4	17.98	16.24	19.1	18.63	16.9	19.5	20.5	17.43
South Yorkshire	10	5	5.7	5.79	5.67	5.95	2.29	4.2	8.78	5.60
West Yorkshire	-	0.33	0.25	0.2	0.14	0	0.88	0.99	0.77	0.67
East Riding & North Lincolnshire	-	14.4	9.3	11.1	9.7	8.1	7.9	7.06	7.62	5.73

⁶ [Yorkshire Humber Aggregates Working Party – Annual Monitoring Report 2018 \(2017 data\)](#)

Sub-Region	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total Yorkshire & Humber	30.02	38.13	33.23	33.33	34.61	32.68	27.97	31.75	37.67	29.43

Source: Yorkshire & Humber Aggregates Working Party – Annual Monitoring Report 2018

- 3.2.13 Based on the sales data, West Yorkshire’s 10-year annual average sand and gravel sales is 0.09 million tonnes, whilst reserves at the end of 2017 were 0.67 million tonnes. Based on the sales and reserves figures the sand and gravel landbank is **7 years and 5 months**.

Sand & Gravel Extraction in Bradford District

- 3.2.14 BGS data and historical records indicate that commercial sand and gravel extraction last took place within the Bradford District in the 1950’s at two sites:

- Ben Rhydding, adjacent the River Wharfe east of Ilkley: and
- Goose Eye, adjacent to Dean Beck/North Beck to the west of Keighley.

- 3.2.15 Following the closure and restoration of these sites in the 1960’s, there no further records of any commercial scale extraction of sand and gravel taking place within the district.

Potential Sand & Gravel Resources

- 3.2.16 Data on potential sand and gravel resources within the Region is provided by the British Geological Survey (BGS) through their 1:100,000 scale digital mineral resource maps⁷ (see Figure

- 3.2.17 The resource areas shown on these maps have generally been inferred from available geological information and have not been evaluated by drilling or other sampling methods. The boundaries of the inferred resources are therefore approximate and the economic viability of the resources is unproven and variable. **Error! Reference source not found.** shows the areas of potential sand and gravel resources within the District mapped by BGS.

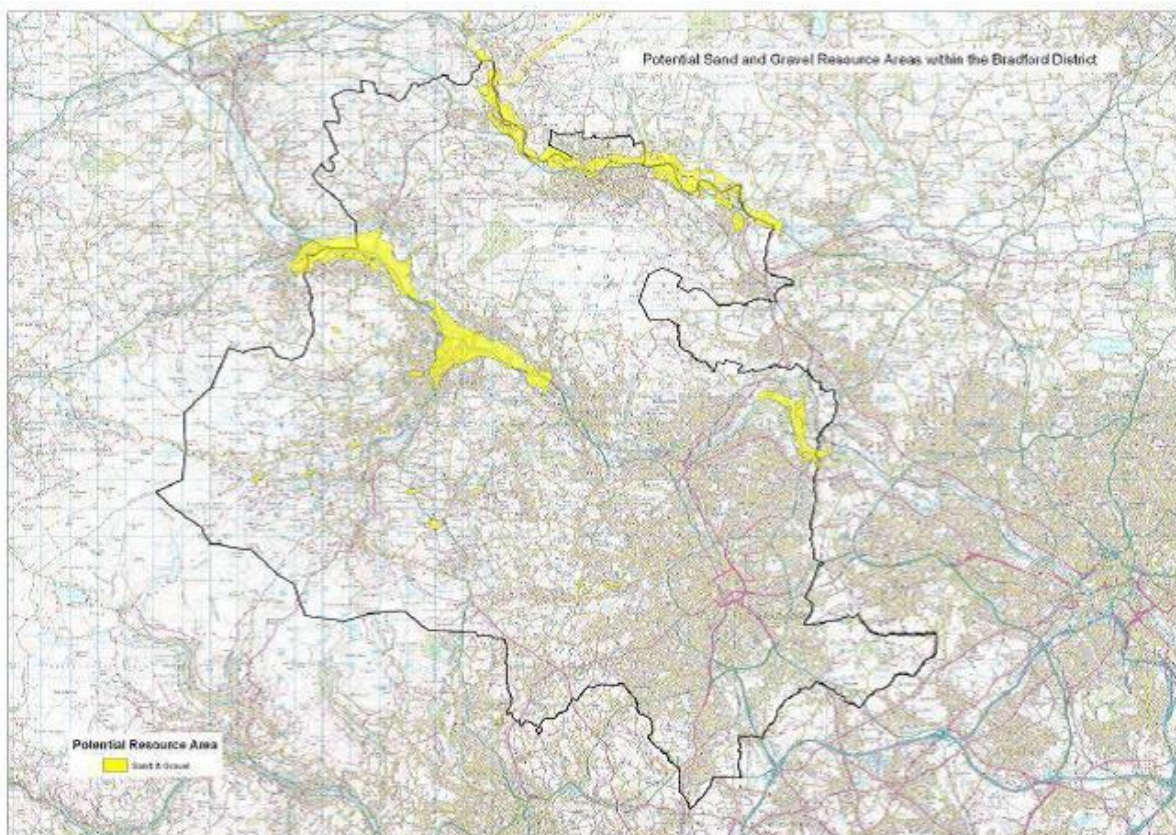
- 3.2.18 The largest potential sand and gravel resource shown within the District is an area of inferred sub-alluvial river terrace deposits located adjacent to the western stretch of the River Aire between Steeton and Crossflats and adjacent to the northernmost stretch of the River Worth at its confluence with the River Aire. However a large proportion of this potential resource appears to be heavily constrained by urban development in and around Keighley.

- 3.2.19 River terrace deposits, both exposed and sub-alluvial, are also mapped adjacent to the River Aire in the area east of Esholt; this potential resource area appears to be predominantly located within the site of the Esholt Waste Water Treatment Works and therefore is potentially less constrained by other forms of development.

⁷ [British Geological Survey, 2009. Mineral Resource Data for City of Bradford MDC 1:100,000 scale \(DiGMapGB-100\) data \[CD-Rom\], Version 1_0. BGS: Nottingham](#)

3.2.20 Inferred sub-alluvial and exposed river terrace sand and gravel deposits are also mapped by the BGS adjacent to the River Wharfe between Addingham and Burley in Wharfedale. Previous working of sand and gravel resources in this part of the Wharfe Valley has been recorded both at the Ben Rhydding gravel pits, east of Ilkley, and a site at West Hall east of Addingham (outside of the District). The resources adjacent to the Wharfe appear to be constrained by urban development at Ilkley and Addingham. The 2009 BGS industry consultation⁸ exercise found that the sand and gravel industry view the prospect of opening new extraction sites within the Wharfe Valley as being problematic, due to both the proximity of landscape/environmental designations and the potential for relatively strong opposition from local communities.

Figure 3.2: Potential Sand & Gravel Resources in Bradford District



Source: Plan produced by CBMDC: resource area derived from British Geological Survey data

3.3 Crushed Rock

Crushed Rock Issues

3.3.1 Crushed rock is essential for a wide range of aggregate and non-aggregate uses (see Table 3.4: **Sales of Crushed Rock By Product (End Use) (Yorkshire & Humber and England) (2014) (Tonnes)**). In relation to aggregate uses, its main use is

⁸ British Geological Survey, 2009. *West Yorkshire sand and gravel resources: Investigating the potential for an increased sub-regional apportionment.*

roadstone for road construction where it is either coated with bitumen in asphalt or used uncoated. Other uses include other screened and graded aggregates as well as concrete aggregate. Where it is used for concrete and roadstone applications require aggregates which conform to certain specifications in relation to water absorption, resistance to abrasion (AAV) and resistance to polishing (PSV)

3.3.2 Non-aggregate uses include building, agriculture and flux in the iron/steel manufacturing sector. The latter accounts of a significant percentage of non-aggregate use in the Yorkshire and Humber region due to the presence of industry in South Yorkshire and North Lincolnshire. Usually, this involves the use of chalk and limestone. Nationally, cement accounts for one third of non-aggregate use, whilst a further third is used in other industrial activities.

Table 3.4: Sales of Crushed Rock By Product (End Use) (Yorkshire & Humber and England) (2014) (Tonnes)

Aggregate Uses	Yorkshire & Humber		England	
	Tonnage	%	Tonnage	%
Roadstone	3,298,000	36	25,577,000	36
Rail Ballast	0	0	2,207,000	3
Concrete Aggregate	2,762,000	31	11,841,000	17
Other Screened and Graded Aggregates	1,547,000	17	16,887,000	24
Armourstone and Gabion Stone	45,000	1	628,000	1
Other Construction Uses	1,387,000	15	11,104,000	16
Undifferentiated Aggregates	0	0	2,258,000	3
Total Aggregate Uses	9,039,000	100	70,502,000	100
Non-Aggregate Uses	Tonnage	%	Tonnage	%
Building Stone	60,000	9	461,000	3
Cement	0	0	4,794,000	33
Agricultural use	172,000	27	1,238,000	8
Flux in iron and steel manufacturing	343,000	54	2,987,000	20
All Other industrial Uses	0	0	4,728,000	32
Undifferentiated Non-Aggregate Uses	0	0	380,000	3

Total Non-Aggregate Uses	637,000	90	14,588,000	100
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Source: Table A3 - Collation of the results of the 2014 Aggregate Minerals Survey for England and Wales. British Geological Survey, Department for Communities & Local Government and Welsh Government, March 2016⁹

- 3.3.3 The [BGS Minerals Planning Factsheet for Construction Aggregates \(2019\)](#)¹⁰ indicates that a reasonable gauge of the suitability of a rock for use as a construction aggregate is its water absorption characteristics with good quality aggregates generally requiring water absorption of less than 2% and concrete grade aggregate requiring less than 1%.
- 3.3.4 The properties of the principle sandstone units within Bradford District were assessed in a study reported within a [1996 BGS Technical Guide to Ground Conditions](#)¹¹ and technical data on several of the worked sandstone resources within the District is also available on the Building Research Establishment British Stone List¹². These data indicate that sandstone resources within the district have water absorption values significantly in excess of 2% which would imply they are unsuitable for higher specification uses.
- 3.3.5 The assumption that the sandstones within the District are of low economic value is substantiated by comments made in the [1996 BGS Technical Report](#) which stated that *“In general, the Carboniferous sandstones in Yorkshire are too weak and porous and susceptible to frost damage for them to be used for good quality roadstone or concrete aggregate”*¹³. This is further corroborated by a government commissioned 2004 report on high specification aggregates which states that, *“most Upper Carboniferous formations tend to possess very limited resistance to impact, crushing, abrasion and weathering, and therefore do not meet HSA [High Specification Aggregates] requirements”*¹⁴.

Regional/Sub-Regional Crushed Rock Supply

- 3.3.6 Table 3.5 below sets out regional level crushed rock aggregate sales data for the 2008-2017 period. After remaining stable for a number of years at between 1.1 and 1.2 million tonnes per annum, sales of crushed rock aggregates from West Yorkshire declined relatively substantially between 2007 and 2011, before beginning to recover in 2012. The recovery of the West Yorkshire crushed rock

⁹ [BGS, DCLG & Welsh Government \(2016\), Collation of the results of the 2014 Aggregate Minerals Survey for England and Wales. BGS: Nottingham](#)

¹⁰ [British Geological Survey \(2019\), Minerals Planning Factsheet – Construction Aggregates, BGS, Nottingham](#)

¹¹ [British Geological Survey \(1996\), A geological Background for Planning and Development in the City of Bradford Metropolitan District, Volume 2: A Technical Guide to Ground Conditions. BGS: Nottingham.](#)

¹² [Building Research Establishment – Stone List](#)

¹³ [British Geological Survey, 1996. A geological Background for Planning and Development in the City of Bradford Metropolitan District, Volume 2: A Technical Guide to Ground Conditions. BGS: Nottingham, page 37.](#)

¹⁴ Capita Symonds, 2004. *The Sustainable Use of High Specification Aggregates for Skid-Resistant Road Surfacing in England*. Capita Symonds: East Grinstead, page 4.

aggregate quarrying industry appears to have continued into 2017, with sales remaining over 1 million tonnes per annum, albeit dipping back slightly from the post-recession high achieved in 2016. Source: Yorkshire & Humber Aggregate Working Party Annual Monitoring Report 2018

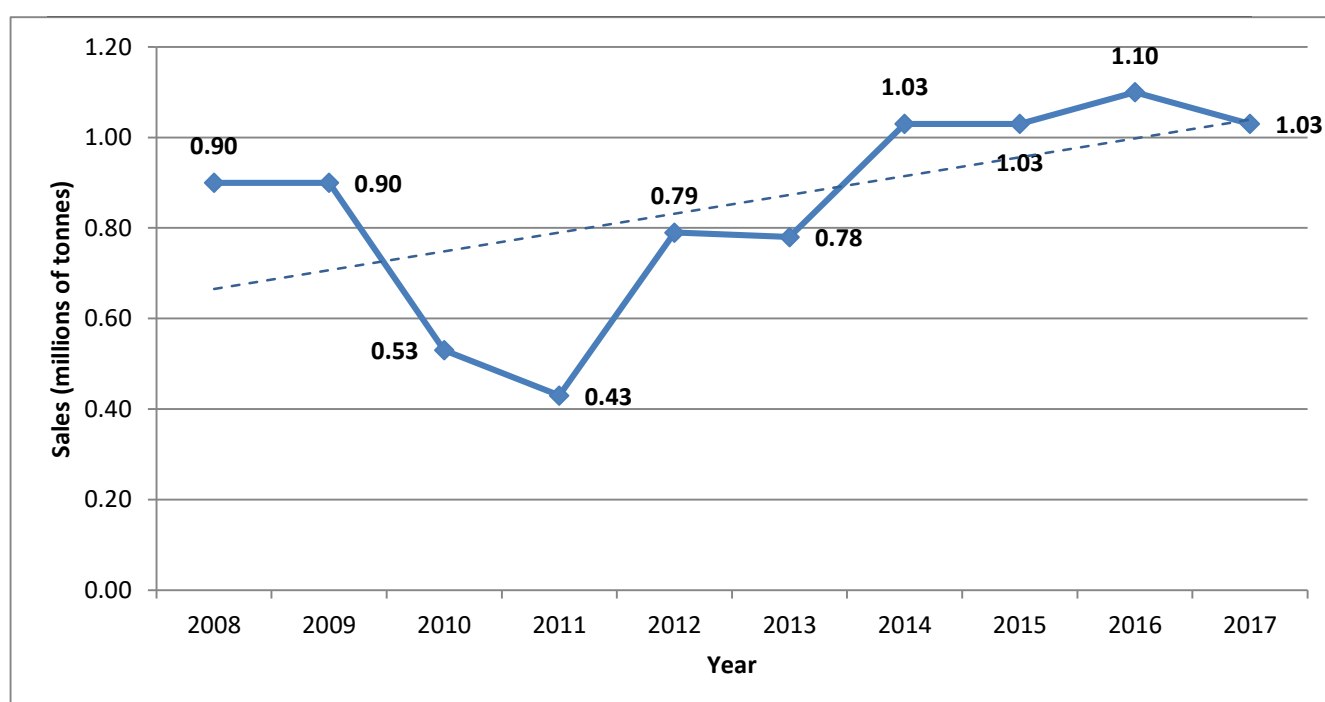
3.3.7 and Figure 3.3 provide ten year West Yorkshire sales data for the 2008-2017 period.

Table 3.5: Yorkshire & Humber Crushed Rock Sales (2008 to 2017) (Million Tonnes)

Sub-Region	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
North Yorkshire	7.7	5.3	5.51	4.45	5.53	5.65	6.49	7.04	6.67	6.68
South Yorkshire	2.2	1.4	1.1	1.05	1.14	1.27	2.25	2.4	2.6	2.01
West Yorkshire	0.9	0.9	0.53	0.43	0.79	0.78	1.03	1.03	1.10	1.03
East Riding & North Lincolnshire	0.2	0.1	0.16	0.23	0.21	0.21	0.75	0.75	0.85	0.86
Total Yorkshire & Humber	11.0	7.7	7.30	6.16	7.47	7.91	10.52	11.22	11.22	10.58

Source: Yorkshire & Humber Aggregate Working Party Annual Monitoring Report 2018

Figure 3.3: West Yorkshire Crushed Rock Sales Trend (2008 to 2017)



Source: West Yorkshire Local Aggregate Assessment (2018)

3.3.8 Minerals resources within West Yorkshire capable of producing crushed rock aggregates include the Carboniferous Sandstones found throughout a large proportion of West Yorkshire, but particularly prevalent in the administrative Districts of Bradford, Calderdale and Kirklees, and the Dolomitic (Magnesian) Limestones found in a strip running along the eastern boundaries of the Districts of both Leeds and Wakefield.

- 3.3.9 The characteristics of these resources are described further in Section 2 above; however it is worth reiterating that *“In general, the Carboniferous sandstones in Yorkshire are too weak and porous and susceptible to frost damage for them to be used for good quality roadstone or concrete aggregate”*¹⁵. Nonetheless it is possible to utilise the sand which can be produced by crushing down Carboniferous Sandstones as a building and concreting sand and to produce reconstituted stone building blocks.
- 3.3.10 As of 31 December 2017 thirty-two quarries existed within West Yorkshire which either actively produce or have in the recent past produced crushed sandstone or limestone aggregates. Crushed rock aggregate is produced in all five West Yorkshire districts, sometimes in significant quantities, but more frequently in small quantities as a by-product of building stone quarrying. At some quarry sites especially in Calderdale and Bradford the amount of aggregate product is insignificant. However relatively significant quantities of crushed sandstone aggregates are incorporated into artificial stone paving and walling products. Hawley Park, Shipley and Mosel den quarries are also known to be major suppliers to the concrete works at Southwark.
- 3.3.11 Conversely Dolomitic Limestone, which is potentially capable of producing a higher quality concrete and road stone grade aggregate, is currently only actively produced in Wakefield, at two locations adjacent to Knottingley. At Dorrington Quarry Mineral it is tucked beneath the M62 to a processing plant. This aggregate is washed to remove fines, thereby achieving a higher specification for its afteruse. The total West Yorkshire reserve of Crushed Rock Aggregate as of 31 December 2017 is estimated to have been 38.78 million tonnes.
- 3.3.12 Table 3.6 below sets out regional level crushed rock aggregate reserve data for the 2007-2016 period. Figure 3.4 provides the West Yorkshire reserve figures for the period 2006-2017. In terms of the degree of confidence which should be placed upon these figures it should be noted that in several instances, where site operators have not provided survey returns, reserves have been estimated. There is also likely to be some variation in the accuracy of operator assessments of the proportion of reserves which are to be used for building stone vs. aggregates as this may not be apparent until the stone has been won.

Table 3.6: Yorkshire & Humber Crushed Rock Reserves (2008 to 2017) (Million Tonnes)

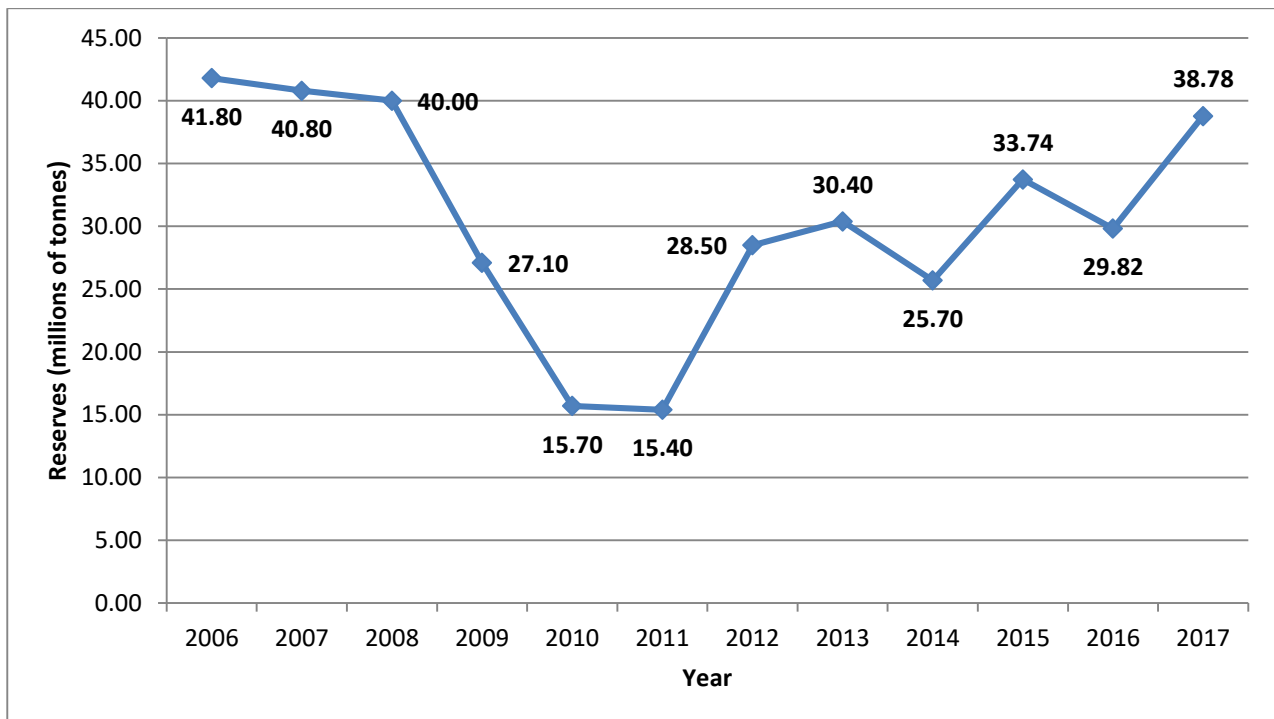
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
North Yorkshire	220.7	210.1	204.6	202.2	191.82	189.79	185.91	178.99	170.7	165.29
South Yorkshire	58.8	63.4	62.4	61.23	60.8	59.5	57.6	56.58	52.10	51.70
West Yorkshire	40	27.14	15.74	15.44	28.5	30.4	25.7	33.74	29.82	38.78
East Riding & North	-	1.7	5.6	10.78	10.88	12.7	12.95	13.39	13.09	14.45

¹⁵ British Geological Survey, 1996. *A geological Background for Planning and Development in the City of Bradford Metropolitan District, Volume 2: A Technical Guide to Ground Conditions*. BGS: Nottingham, page 37.

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Lincolnshire										
Total Yorkshire & Humber	319.5	302.34	288.34	289.65	292	292.39	282.16	282.7	265.71	270.22

Source: Yorkshire & Humber Aggregate Working Party Annual Monitoring Report 2018; West Yorkshire Local Aggregate Assessment 2018

Figure 3.4: West Yorkshire Crushed Rock Reserves (Trend) (2006 to 2017)



Source: West Yorkshire Local Aggregate Assessment 2018

3.3.13 It is also worth noting that the 2016 total sales of crushed rock aggregates from the Yorkshire and Humber Region, at 11.22 million tonnes, are 12% below the 13.25 million figure which the government estimated to be necessary to maintain adequate aggregate supplies in 2009.

3.3.14 The West Yorkshire 10-year crushed rock sales average 2008-2017 stands at 0.85 million tonnes. With reserves as of 31 December 2017 at 38.78 million tonnes the landbank of crushed rock aggregates within West Yorkshire, based on 10-year average sales levels, can therefore be calculated as being **45 years and 7 months**

3.3.15 This landbank figure represents an increase of 10 years and 11 months from the landbank figure calculated in the previous (2017) LAA, which was 34 years and 8 months. This increase can mainly be explained by an acknowledged anomaly in the 2016 data returns for one of the quarries in Leeds, with the operator very substantially underestimating reserves.

3.3.16 Notwithstanding the still very significant level of the crushed rock aggregate landbank in West Yorkshire, a substantial proportion of reserves are known to be

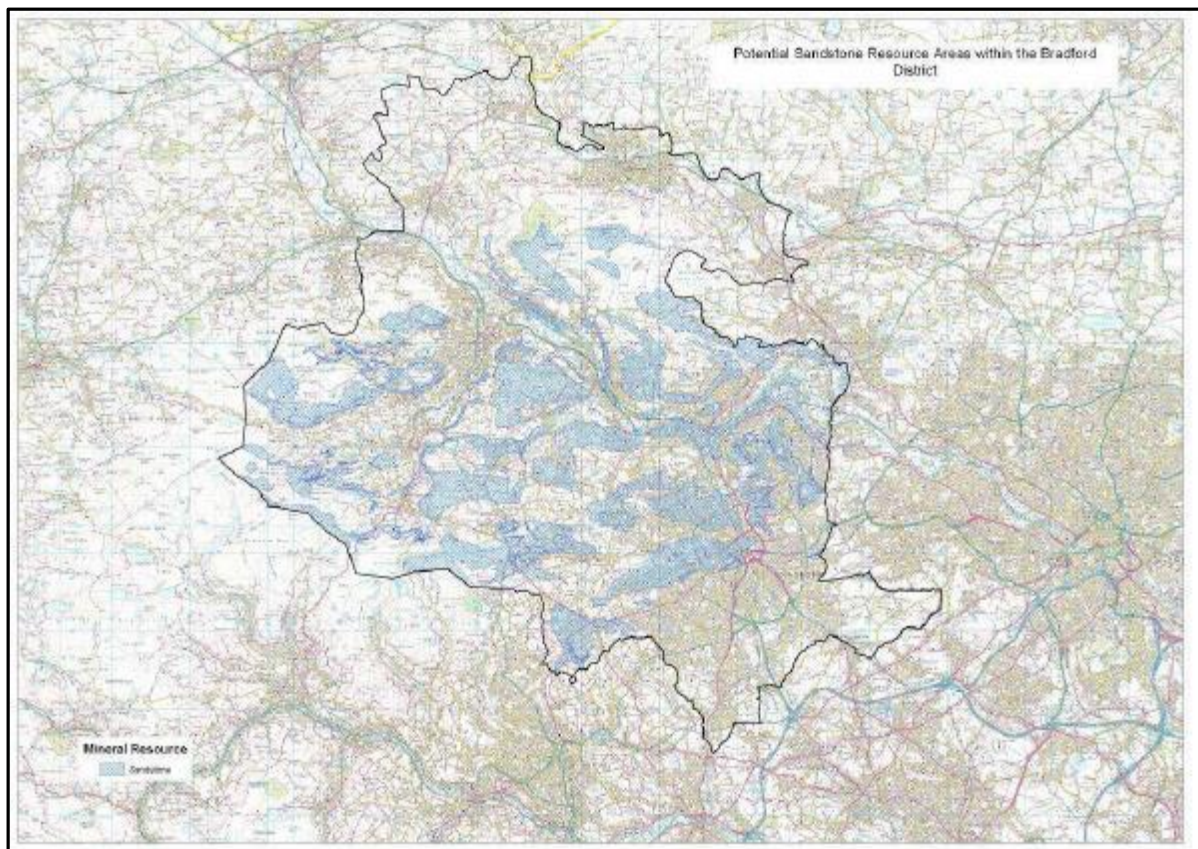
tied up in old Building Stone quarries with low intensity/intermittent working. Therefore, parts of the apparent West Yorkshire crushed rock aggregate reserve may be unlikely to yield significant quantities of aggregate in the short/ mid-term.

- 3.3.17 Furthermore, it must be acknowledged that the West Yorkshire aggregate reserve is predominated by material which is unlikely to be capable of meeting the specifications required for the two principal construction aggregate uses of concrete manufacture and road construction.

Crushed Rock Resources in Bradford

- 3.3.18 Data on sandstone resources within the region potentially viable for aggregate production are provided by the BGS through their 1:100,000 scale digital mineral resource map¹⁶.
- 3.3.19 The BGS data show extensive potential sandstone resources located in numerous distinct pockets in a central band across the District; see Figure 3.5 below. The central band of sandstone resources extends north from Queensbury and Bradford City Centre up to Morton Moor, to the north of Riddlesden/East Morton. The only parts of the District shown not to contain any pockets of sandstone resources are the south-eastern corner and the far rural north of the District.

Figure 3.5: Potential Sandstone Resource Areas within Bradford District



¹⁶ [British Geological Survey, 2009. Mineral Resource Data for City of Bradford MDC 1:100,000 scale \(DiGMapGB-100\) data \[CD-Rom\], Version 1.0. BGS: Nottingham](#)

3.4 Sandstone/Building Stones

Symonds Report

- 3.4.1 In March 2004, the government published a report by the Symonds Group on the planning issues relevant to the supply of natural stone building materials, a document which became known as the Symonds Report. The report was the culmination of a research project, utilising survey work, analysis of published statistics and case studies, which looked into the issues affecting the supply of building and roofing stone in England and Wales. Demand was discussed but not quantified, due to the variability and unpredictability of building stone markets.
- 3.4.2 The Symonds Report found that the majority of quarries are relatively small scale, under 3 hectares in area, with relatively low output, producing less than 2,000m³ of building stone products per annum, and are often only worked intermittently. However, the majority of production is concentrated within a small number of larger and more intensive operations.
- 3.4.3 The report highlighted the significance of carboniferous sandstones in terms of building and roofing stone production, which account for both the largest number of individual quarries and the highest level of output. The importance of Yorkshire, in terms of the supply of carboniferous sandstones, commonly known as Yorkstone, is particularly noted.
- 3.4.4 The supply data analysis indicated that there was a generally slowly rising trend in building and roofing stone production in England and Wales in the period from 1992 to 2001. Subsequent BGS Minerals Yearbooks appear to indicate that this general rise in building and roofing stone production continued until 2005. However, it fell during 2006 and 2007, although began to rise between 2008 and 2010 to a high point of over 2 million tonnes. 2011 saw steep drop, with a further rise in 2012 to over 1 million tonnes. It has since fluctuated between 900,000 tonnes and just over 1 million tonnes
- 3.4.5 The Symonds Report noted that most successful building stone quarries tend to concentrate on the production of blockstone and/ or naturally riven flagstones, and that roofing stone production appears to have declined as a consequence of a number of factors including:
- the bedding characteristics of the resources which continue to be worked;
 - the incompatibility of roofing stone production with modern quarrying techniques;
 - the relatively low and unsteady demand for roofing stone.
- 3.4.6 The report highlighted that the proportion of building and roofing stone demand being met by imports increased dramatically over the period between 1992 and 2001; with imports being 14% greater than domestic production in 1992 but 200%

greater by 2001. Imports are stated to be the perceived biggest threat to the UK building stone industry. In particular sandstone from India and China is noted to be competing directly with materials such as Yorkstone paving at less than half the price. However, the data for building and roofing stone imports quoted in the Symonds Report should be treated with caution.

- 3.4.7 The most recent BGS Minerals Data¹⁷ indicates that a total of 4,072,665 tonnes of worked and unworked building and dimension stone were imported into the UK in 2018, including 422,809 tonnes of unworked sandstone and 278,317 tonnes of worked paving and flagstones. The figure for the domestic production of sandstone building and dimension stone within Great Britain in 2014 was 286,000 tonnes, with total building and dimension stone production from all types of minerals at 1,030,000 tonnes.
- 3.4.8 Because the figures for imports include Northern Ireland and the production figures only account for Great Britain they are not directly comparable, however it is clear that imports exceed domestic production. In terms of sandstone an unrecorded proportion of the worked flag and paving stones imported into the UK are composed of sandstone. If half of the worked paving and flag stone is assumed to be sandstone (around 70,980 tonnes) and Northern Ireland is assumed to account for 20% of UK imports, then the total figure for sandstone imports to Great Britain would be round 238,000 tonnes, which was 83% of domestic production in 2014.
- 3.4.9 The Symonds Report concludes that the widespread use of artificial and imported materials, where local sources of building or roofing stones are either no longer available or unable to win competitive contracts, provides evidence that demand for building and roofing stone in England and Wales is “*potentially somewhat greater than the current supply from indigenous sources*”. However, it is acknowledged that the ‘unfulfilled’ element of demand cannot easily be quantified.

Local Distinctiveness & Protection of Heritage

- 3.4.10 The need for materials for the repair, alteration or extension of historic and culturally important buildings within the district, such as listed buildings and many buildings within Conservation Areas, is less significant than new build in terms of sales but of key importance in terms of the maintenance of the character of the traditional built environment of Bradford.
- 3.4.11 To inform the development of minerals policies in the Core Strategy, the Council’s Design and Conservation Team produced a report discussing the relationship between the built heritage of the district and the availability of minerals resources¹⁸. The report notes that the character of the settlements within Bradford and the ‘sense of place’ of the inhabitants is primarily derived from the use of local building

¹⁷ [British Geological Survey \(2019\), United Kingdom Minerals Yearbook 2019. BGS: Nottingham](#)

¹⁸ Ackroyd, J. 2008. *Identifying Mineral Resources in the Bradford District – Local Distinctiveness and Protection of Heritage*. (Unpublished)

stone materials and that the use of artificial stone, brick or contrasting materials can dilute local character and result in the loss of a sense of place.

- 3.4.12 The report goes on to note that there are only a limited number of operational quarries supplying building stone with appropriate aesthetic characteristics for use within the District. The scarcity of supply of coarse grained 'gritstone' walling, suitable for use in settlements to the north of the district, and stone slate roofing are particularly highlighted. Concerns are raised that the natural stone materials currently imported from outside the district can have subtly different aesthetic characteristics to local stone, in terms of colour, texture and course thickness. The report concludes that there is a clear need for greater availability of local stone for local use, and that particular emphasis should be placed on increasing supplies of roofing stone.

Historic Buildings & Monuments

- 3.4.13 As part of preparing the evidence base to support the minerals policies within the adopted Core Strategy (2017), enquiries were made with Historic England and the West Yorkshire Archaeological Advisory Service (WYAS) to establish if any records exist of specific quarries within the District which may be important in supplying materials for the repair and maintenance of historic sites and monuments. Historic England indicated, at the time, that they cannot currently provide any assistance in identifying such sites. WYAS likewise indicated that they did not hold any records of sites within Bradford which have provided material for the repair of historic sites or monuments. Further engagement will take place with both bodies as part of work to support the emerging Local Plan.
- 3.4.14 The BGS have produced a *Strategic Stone Study - A Building Stone Atlas of West & South Yorkshire* funded by English Heritage (now Historic England), published in March 2012¹⁹. This document provides an overview of the historic importance of building stone quarrying for West Yorkshire, the main rock units which have been quarried and the way in which the use of building materials from these specific rock units have helped form the character of the historic built environment within the sub-region. This document helps to highlight the significance of building stone to Bradford's past and the importance of preserving supplies of historically used building materials to allow the quality and character of the District's built heritage to be maintained for future generations.

Building Stone Resources & Supply

- 3.4.15 The suitability of sandstone deposits for use in the production of building, paving or roofing stones depends on a multitude of factors including the spacing of bedding planes and joints, fracturing, strength, texture and colour. There can often be significant variation in 1 or more of these factors over relatively short vertical or horizontal distances across a bed of sandstone and therefore predicting the viability

¹⁹ [British Geological Survey \(2012\), Strategic Stone Study – A Building Stone Atlas of West & South Yorkshire. BGS: Nottingham](#)

of potential sandstone resources for the production of natural stone building materials is problematic. As a consequence of the difficulties of identifying and estimating new reserves there tends to be a strong general preference among the building stone industry to extend existing quarries or re-open disused quarries rather than open new greenfield sites.

- 3.4.16 The general sandstone resource areas which have been identified by the British Geological Survey are relatively indiscriminate, accounting for a substantial proportion of the land area of the District, see Figure 3.5 above. It is therefore currently not possible to identify the location of those sandstone resources which have the necessary characteristics to make them suitable for building, proofing or paving stone production, other than through site investigation or reference to existing quarry exposures.
- 3.4.17 Building stones, and in particular flagstones, produced within the District are thought to be sold both locally and throughout the UK for both new paving and building schemes and projects relating to the restoration or improvement of historic buildings and sites.
- 3.4.18 The only current evidence on the spatial extent of markets for the building stones produced within the District is available from the local stone producers themselves. Quarry operators within the District advertise that their sandstone products have been recently used in projects at nationally significant sites such as Saltaire World Heritage Site, York Minster and Buckingham Palace. Therefore, the available evidence indicates the supply of natural stone products from the District has implications of more than local significance.
- 3.4.19 The need for natural stone building materials within the district is integrally linked to housing, built heritage and design policy objectives set out elsewhere in the Local Plan. The most significant element of building, roofing and paving stone demand is from new build projects, including new housing developments and public realm projects.
- 3.4.20 The Local Plan will set out targets for housing provision within the Bradford District over the plan period. Depending upon the location of the housing and the design policies adopted by the Council, a certain proportion of the building materials required to construct these new houses will comprise natural sandstone products such as architectural masonry. Likewise, design objectives are likely to require natural Elland Flag paving and decorative/monumental stone for a certain proportion of public realm projects.
- 3.4.21 It is difficult to quantify this need for stone to deliver other policies within the Local Plan. However, it is evident that the sustainable delivery of housing, design and public realm policies is linked to the maintenance of sufficient supplies of local natural stone building materials over the plan period.
- 3.4.22 The consequence of a failure to supply demand for building, roofing and paving stone from local sandstone resources could be the haulage of natural stone building

materials over long distances, with a consequent increase in environmental costs, or compromising design objectives through the use of inappropriate materials.

3.5 Coal & Clay

Clay

- 3.5.1 Bradford District has historically been an important supplier of fireclays, which are a type of sedimentary mudstone occurring as seathearts beneath coal seams. Fireclays were traditionally valued as a raw material for manufacturing refractories for lining furnaces.
- 3.5.2 Nationally demand from refractory manufacturers has diminished and fireclay is now more commonly used for manufacturing high quality buff coloured facing bricks. However, until recently demand has continued for the extraction of the fireclay resources located to the west of the city of Bradford and east of Halifax, for the production of specialist refractory products for the glass industry. The fireclay resources suitable for this specialist use are associated with the Halifax Hard Bed coal seam which occurs within the western part of the coal measures resources present within the District. The particular highly siliceous properties of this fireclay are specifically mentioned within the BGS Minerals Planning Factsheet on Fireclay (2006).
- 3.5.3 In the past fireclay workings were widespread to the south of the District around the settlements of Denholme, Queensbury, Thornton, Tong and the south of the City of Bradford. However most of these sites appear to have ceased operating by the 1960s/1970s and the most recent fireclay production statistics (from 2003) indicate that the total annual output of fireclay across West Yorkshire was only 10,000 tonnes. A small-scale fireclay extraction site continued to operate within the District until 2006 at a site 2km east of Denholme, supplying the refractory business referred to above. In April 2011 a dormant fireclay extraction site located within the District was reactivated. However, the clays being extracted from this site are being blended with other clays for the production of high specification bricks and are not being used for refractory purposes.
- 3.5.4 There is very little evidence of a current economic demand in for the fireclay resources present within the District. In terms of the specialist demand for the highly siliceous fireclays present within the western part of the District for refractory products, the only refractory business which has utilised these resources in recent times has indicated that they do not intend to open any further sites within the District following the closure of the site east of Denholme. The BGS [Minerals Planning Factsheet on fireclay](#) advises that future opportunities for fireclay recovery is likely to be dependent upon the extraction of other minerals, primarily coal²⁰.
- 3.5.5 In contrast there has recently been renewed extraction of brick clay within the District at a site on Soil Hill, south of Denholme. The Council understands that clays

²⁰ [British Geological Survey \(2009\), Minerals Planning Factsheet – Fireclay. BGS: Nottingham](#)

from this site are being used to supply a brickwork in Lancashire for the production of high specification engineering bricks. Another site on Soil Hill has also, until recently, supplied low permeability engineering clays for use in landfill engineering. However, although there is clearly the potential for clays found within the District to be commercially extracted for a variety of purposes, this demand appears to be relatively small scale and sporadic and it is impossible to predict whether any continued industrial demand for clays extracted within the District will be sustained into the future.

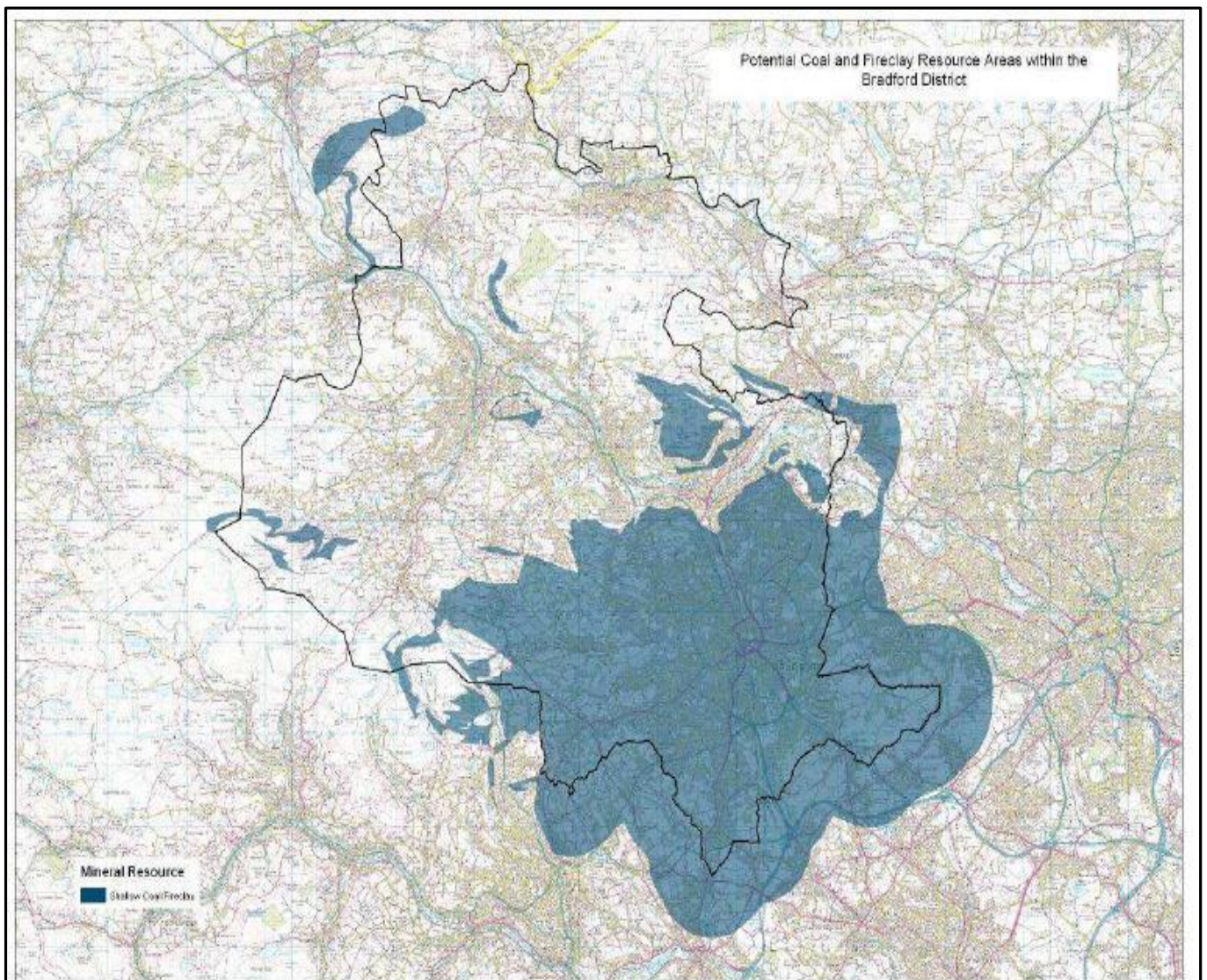
- 3.5.6 In terms of evidence of the geographical spread of clay resources within the District, the BGS have not defined any distinct clay resource area. However fireclays only tend to occur as seatearths beneath coal seams and therefore the shallow coal resource areas defined by the BGS can be used as a general indicator of the parts of the District within which fireclays are likely to be located, see Figure 3.7 below.
- 3.5.7 The suitability of clay for a specific purpose is highly dependent upon the particular fireclay seam's quality, purity and composition and therefore it cannot be assumed that all fireclays within the shallow coal resource area are of economic value. There is no available geological evidence to identify just those parts of the District which contain clays of economic value.

Coal

- 3.5.8 There has been widespread historic deep mining of coal within the District; however opencast mining has been relatively limited and confined to the far east of the District in the area of open land surrounding Tong. There are currently no active deep or opencast coal mines within the district, whilst there is no evidence to suggest any economic interest in mining of the coal resources present within the District. Further views will be ascertained as part of the on-going engagement on the Local Plan.
- 3.5.9 However, a 2006 BGS report on minerals planning within West Yorkshire advised that "*prospects for opencast coal remain*".
- 3.5.10 The District's coal resource comprises the north-westernmost part of the East Pennine Coalfield (the BGS indicate that the calorific value and rank of the coalfield broadly increases eastwards and categorise much of the coal within the District as a secondary rather than primary resource) and it is known that very extensive mining activity has taken place within the District in the last two centuries.
- 3.5.11 The methodology report supporting the 2006 BGS coal resource mapping exercise identified primary, secondary and tertiary coal resource areas. Primary areas were stated to constitute the main target for opencast coal extraction, comprising a relatively closely spaced succession of variable but generally thick coals resource areas. Secondary coal resource areas are described as containing coals which are generally thinner and less concentrated in vertical and areal distribution and therefore generally less viable for large scale opencast mining.

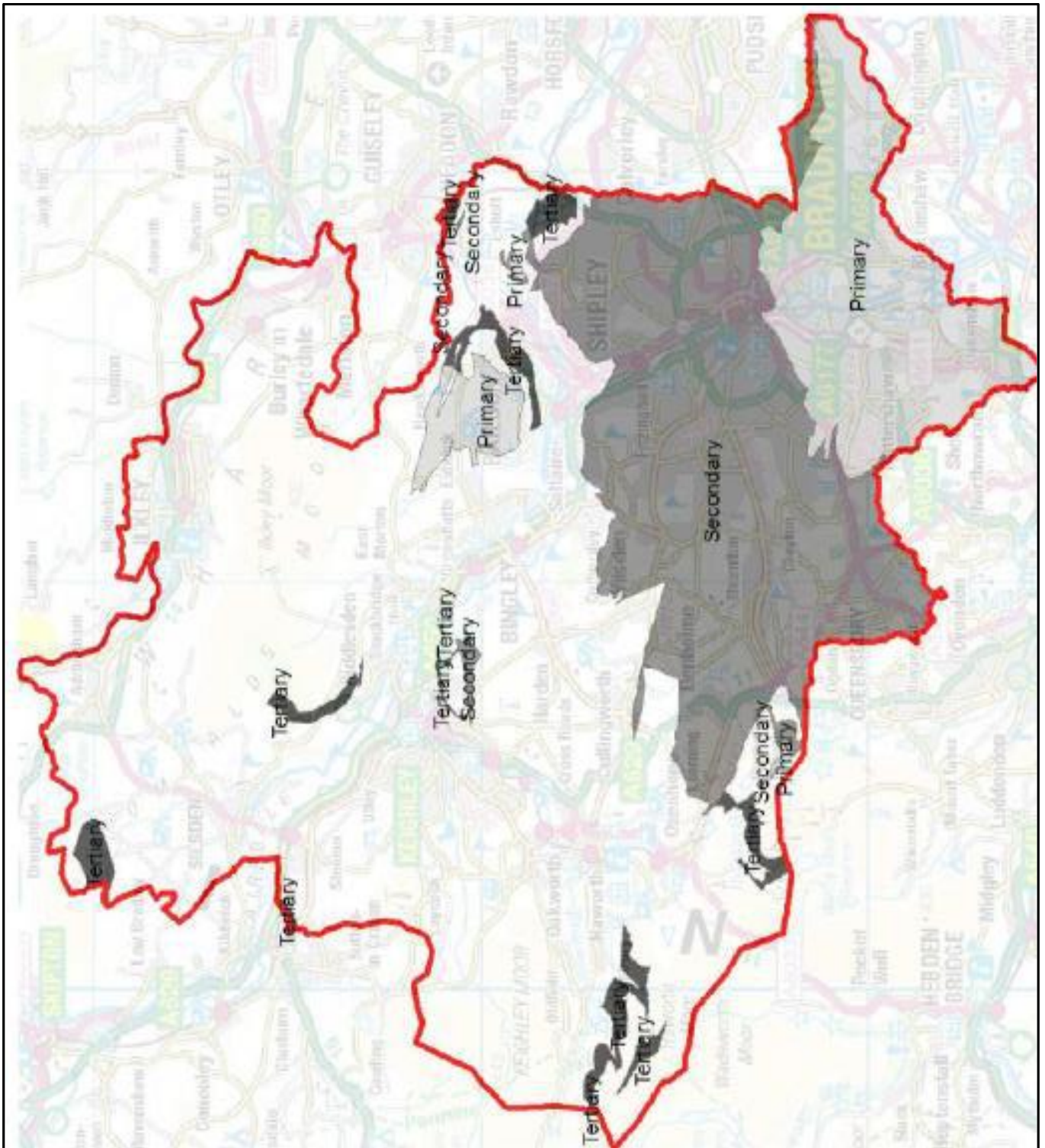
- 3.5.12 The 2006 BGS resource appraisal methodology report identified the base of the primary coal resource within the West Yorkshire Coalfield as being the Better Bed Band Coal with the remainder of the underlying coal measures formation identified as a secondary resource. The BGS bedrock geology map of the District indicates the Better Bed only occurs within the south-eastern part of the Elland Flag series present within the District.
- 3.5.13 The BGS have provided a coal resource map which differentiates between the parts of the coal resource present within the district which are thought to constitute primary, secondary and tertiary coal beds. This map corroborates the assumption that it is primarily only the southern and eastern part of the coalfield identified by the Coal Authority constitutes a primary coal resource, as defined by the BGS. Figure 3.6 below shows the full extent of the theoretical coalfield within the District undifferentiated according to quality. Figure 3.7 shows the coal resource differentiated into Primary, Secondary and Tertiary resource areas.

Figure 3.6: Potential Coal & Fireclay Resource Areas within Bradford District



Source: Plan produced by CBMDC. Resource area derived from Coal Authority data

Figure 3.7: Potential Coal Resources in Bradford District



Coal Safeguarding

3.5.14 As part of developing the adopted Core Strategy policy approach, the Coal Authority raised concerns regarding the setting thresholds (1 hectare) for which the coal safeguarding policy would apply. They suggested that it should apply to smaller sites as well where prior extraction would be encouraged. However, to respond to the

Coal Authority’s concerns that opportunities may be missed for prior extraction on minor development sites the minerals safeguarding policy set out in the Core Strategy included strong policy support for proposals for the prior extraction of coal. Therefore, if a viable coal resource is discovered on a minor development site during the plan period, there will be a positive policy environment which will allow the developer to extract this coal resource as part of site preparation work. This policy, of encouraging, rather than requiring, minor developers to consider prior extraction, was considered to be proportionate and in line with the government’s stated objective of not overburdening investment in business with the combined requirements of planning policy expectations

4. Current Minerals Supply Situation Within Bradford

4.1.1 The principal mineral resource commercially extracted within the District is sandstone, the primary use of which is for the production of building, roofing and paving stones. Crushed sandstone aggregates are also produced at many sites utilising either permitted reserves considered to be unsuitable to produce building, roofing or paving stones, or stone wasted during the working and dressing of such products. However, no quarries within the District have the primary purpose of commercial aggregate production. A clay deposit, suitable for brick clay purposes, is currently worked at one site to the south of Denholme. Currently no commercial coal or sand and gravel extraction takes place within the District. The site are set out in Table 4.1 (below)

Table 4.1: Active Mineral Extraction Sites in Bradford District

Site	Grid Ref	Mineral	Geological Formation	Site Area (ha)
Bank Top Quarry	SE 091 374	Sandstone	Millstone Grit – Rough Rock (Yeadonian)	13
Bolton Woods Quarry	SE 162 364	Sandstone	Coal Measures – Elland Flag (Langsettian)	25
Branshaw Quarry	SE 032 401	Sandstone	Millstone Grit – Woodhouse Grit (Marsdenian)	5.8
Hainworth Shaw Quarry	SE 067 389	Sandstone	Millstone Grit – Rough Rock Flags (Yeadonian)	7.9
Naylor Hill Quarry	SE 040 364	Sandstone	Millstone Grit – Woodhouse Grit (Marsdenian)	5.4
Apperley Lane Quarry	SE 198 391	Sandstone	Millstone Grit – Rough Rock Flags (Yeadonian)	0.17

Site	Grid Ref	Mineral	Geological Formation	Site Area (ha)
Ten Yards Lane Quarry	SE 081 340	Sandstone	Coal Measures – Elland Flag (Langsettian)	5.6
Far Shay Fireclay Pit	SE 079 316	Brick Clay	Coal Measures - Mudstone & Siltstone with 36 Yard Coal Outcrop	3.9

4.1.2 Table 2 above identifies the active extraction sites currently located within the District. Currently active sites comprise 7 sandstone quarries and 1 clay extraction site. Four of the sandstone quarries are thought to only be intermittently active with very low output. Those with significant output all primarily produce blocks of stone which are sawn into a variety of building stone products including walling stone, lintels, cills, sawn paving and kerb stones. There are also a number of quarries that are closed or are currently inactive (see Table 6.1).

4.1.3 The production of hand riven flags and stone slate roofing is thought to have declined substantially. Reserves appear to be close to exhaustion at the majority of sites with only one quarry thought to possess remaining reserves of over 1 million tonnes of sandstone.

4.1.4 In addition to the active extraction sites 9 dormant minerals extraction sites are located within the District²¹, 4 fireclay extraction sites and 5 sandstone quarries; however it appears that a number of these dormant sites may now be unworkable due to subsequent sterilising development. The remaining dormant sites are as set out in Table 4.2 below:

Table 4.2: Dormant Mineral Sites in Bradford District

Site	Permission Date	Permission Ref	Grid Ref	Type of Mineral	Notes
Ambler Thorn Fireclay Works	09.05.1952	QS/21	SE 090 293	Not specified (Fireclay opencast & underground)	-
Bankfield Quarry	23.05.1951	KE/845A	SE 030 369	Sandstone	Site used as car park in centre of Haworth
Braithwaite Edge Quarry	09.11.1954 22.07.1965	KE/1666 KE/5607	SE 040 420	Stone	Previously used for landfill purposes. Now being developed for a cemetery

²¹ A dormant site is a minerals extraction site which was registered as dormant under the review of mineral planning permissions brought about by the Environment Act 1995. Dormant sites cannot re-open until a modern set of planning conditions has first been approved by the Mineral Planning Authority.

Site	Permission Date	Permission Ref	Grid Ref	Type of Mineral	Notes
Dimples Quarry	11.06.1951	KE/845B	SE 025 573	Sandstone	Site located within Penistone Hill Country Park to west of Haworth. Identified as a Local Geological Site (LGS) and is within a Local Wildlife Site (LWS). It was infilled and landscaped in the 1970s ²² .
Hollin House Farm	04.01.1967	30514	SE 236 311	Not specified (Fireclay mine)	-
Land north of Corporal Lane	14.10.1952	OS/198	SE 106 290	Fireclay (opencast)	Agricultural land using for animal grazing and crop growing.
Penistone Quarry	20.09.1966 10.03.1969	KE/5998 KE/7083	SE 024 366	Stone Flags	Site located within Penistone Hill Country Park to west of Haworth. Identified as within a Local Wildlife Site (LWS). Worked until 1960s
South Sun Side	05.02.1970	DH/654/A	SE 068 317	Fireclay and associated minerals (opencast)	-
West End Quarries	22.10.1964	KE/5232	SE 022 364	Not specified (sandstone)	Site located within Penistone Hill Country Park to west of Haworth. Identified as within a Local Wildlife Site (LWS). Worked until 1960s.

4.1.5 The majority of sites are located west of the City of Bradford around the settlements of Bingley, Cullingworth, Wilsden, Thornton, Denholme and Oxenhope. However, several 'urban quarries' are located within the City of Bradford itself.

5. Mineral Safeguarding Areas

5.1 Overview

²² [West Yorkshire Geology Trust \(2013\), *Rocks and Landscapes of Penistone Hill, Haworth*. WYGT: Huddersfield](#)

- 5.1.1 As minerals are a non-renewable resource that make a vital contribution to the economy and can only be extracted where they are found, it is important to safeguard mineral resources from non-mineral development to ensure they are not needlessly sterilised. This is done through the use of Mineral Safeguarding Areas (MSAs), which are defined through the Local Plan.
- 5.1.2 Sterilisation means that the mineral can no longer be worked, or extracted. Examples of sterilisation would be if a building was built on top of the resource, or close to it, meaning that it would be unlikely and impractical to extract minerals after development has taken place. This means that mineral resources should be taken into consideration when determining planning applications for non-minerals development.
- 5.1.3 It must be noted that inclusion in an MSA does not mean that there will be a presumption that the mineral will be worked. Any proposals would have to be in accordance with all other relevant development plan policies and other material considerations.

5.2 Policy Context

- 5.2.1 National policy on safeguarding is set out in the [NPPF \(February 2019\)](#)²³ which states that MPAs should identify Mineral Safeguarding Areas (MSA) and adopt appropriate policies in their local plans. In addition, plans should seek to safeguard existing, planned and potential minerals-related infrastructure. This may include assets such as concrete batching plants, railway sidings or wharves.
- 5.2.2 The NPPF recommends that a systematic approach to the identification of MSAs is adopted which:
- uses the best available information on the location of all mineral resources in the authority area. This may include use of British Geological Survey (BGS) maps as well as industry sources;
 - consults with the minerals industry, other local authorities (especially district authorities in two-tier areas), local communities and other relevant interests to define Minerals Safeguarding Areas;
 - sets out Minerals Safeguarding Areas on the policies map that accompanies the Local Plan and define Mineral Consultation Areas; and
 - adopts clear development management policies which set out how proposals for non-minerals development in Minerals Safeguarding Areas will be handled, and what action applicants for development should take to address the risk of losing the ability to extract the resource. This may include policies that encourage the prior extraction of minerals, where practicable, if it is necessary for non-mineral development to take place in Minerals Safeguarding Areas and to prevent the unnecessary sterilisation of minerals.

²³ [Ministry of Housing, Communities & Local Government \(2019\), National Planning Policy Framework \(February 2019\); MHCLG: London – Paragraph 204](#)

- 5.2.3 The issue of defining an MSA in the urban area is clarified to explain that this should be done where necessary, for example, beneath large regeneration projects in brownfield land areas.
- 5.2.4 Further guidance on defining MSAs is provided in the on-line National Planning Policy Guidance, whilst a detailed methodology is set out in the British Geological Survey (BGS) document [Minerals Safeguarding in England: Good Practice Advice](#)²⁴ published in September 2011.
- 5.2.5 The BGS good practice advice complements the NPPF by supporting and facilitating MPAs in their implementation of national policy with respect to the safeguarding and the prior extraction of minerals. It provides independent advice and a step by step (7 step) methodology on how to define MSAs to prevent the needless sterilisation of minerals, as required by the NPPF. It advises that in most cases MSAs should cover the full extent of mineral resources considered to be of economic importance and that they should also cover urban areas under which mineral resources lie.

Safeguarding Approach

- 5.2.6 The current policy approach to mineral safeguarding in Bradford District is set out in Policy EN12 of the adopted Core Strategy DPD (2017). It seeks to ensure that sandstone, coal, and sand and gravel resources within the District are safeguarded from sterilisation by other forms of development via the designation of Mineral Safeguarding Areas (MSAs). These are to be defined on the Policies Map that will accompany the emerging Local Plan and based on the Minerals Safeguarding Plan (currently shown in the Core Strategy DPD – Appendix 13).
- 5.2.7 The MSAs will be based on the mineral resource information set out in BGS mapping. As part of the policy development, it was considered inappropriate to include a buffer around each resource area, due to the fact that these resources were relatively abundant and development land and economic viability were relatively constrained. However, one exception was for active minerals workings which were to be safeguarded with a 500m buffer (this will be shown on the Policies Map. Practically speaking it was not envisaged that there would be any situations in which it was appropriate to refuse an application for a non-minerals development due to proximal sterilisation of an unworked and unproved part of a relatively abundant resource.
- 5.2.8 Initial versions of the policy also sought to exclude urban areas from MSAs. However, evidence was submitted during the preparation of the Core Strategy to suggesting that it was viable for prior extraction of minerals within an urban setting, the policy was amended.
- 5.2.9 As part of the emerging Local Plan, it is proposed to retain the safeguarding policy in its current form – new policy reference EN13. The Policies Map will show the MSAs for sand and gravel, sandstone and coal.

²⁴ [British Geological Survey \(2011\). Minerals Safeguarding in England: Good Practice Advice. BGS: Nottingham](#)

6. Mineral Site Allocations

6.1 Overview

6.1.1 Another of the key roles of local plans is to ensure that sufficient mineral extraction sites are identified in order to help meet future needs and to safeguard existing operational and permitted quarries.

6.2 Existing Approach

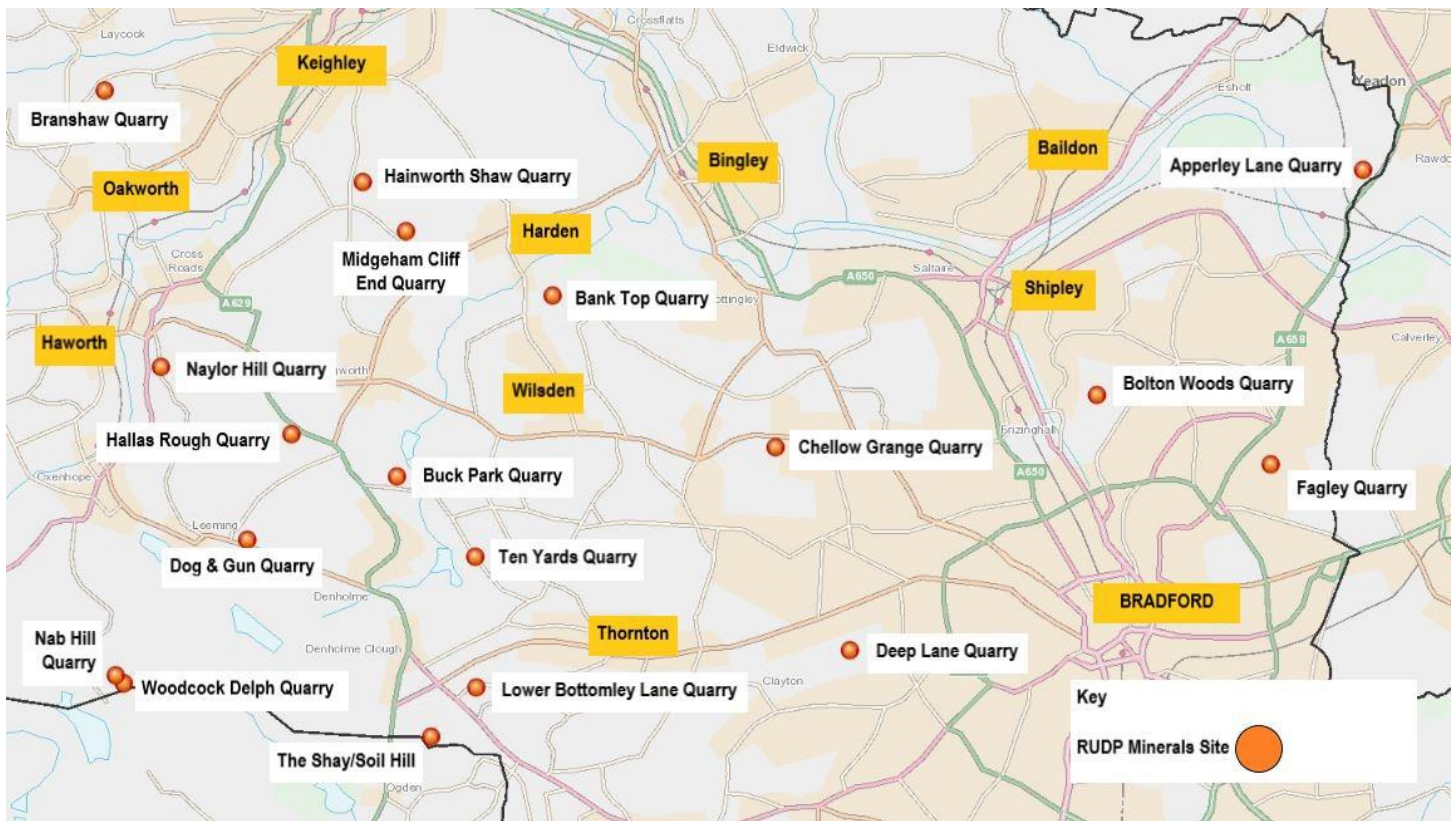
6.2.1 A total eighteen sites are identified in the Bradford Replacement Unitary Development Plan (2005) as existing/operational mineral extraction sites. The majority of these are sandstone quarries.

Table 6.1: Existing Mineral Extraction Sites (RUDP 2005)

RUDP Reference	Site Name	Mineral	Status	End Date
BW/BR1.1	Deep Lane Quarry, Clayton	Sandstone	Inactive. Extraction Ceased	2021
BW/NR1.2	Lower Bottomley Lane Quarry (also known as Cragg Lane Quarry), Thornton	Sandstone	Closed	2042
BW/NR1.3	Chellow Grange Quarry, Thornton	Sandstone	Under development for residential use	-
BW/NR1.4	The Shay, Soil Hill, Denholme	Clay	Operational/Under restoration	2030
BN/NR1.1 & S/NR1.2	Bolton Woods Quarry, Bradford	Sandstone	Operational. Has outline planning permission for residential development	2042
BN/NR1.2	Fagley Quarry, Bradford	Sandstone	Closed. Has planning permission for residential development	2042
BN/NR1.3	Apperley Lane Quarry (also known as Rawdon Quarry)	Sandstone	Operational	31.12.2032
K/NR1.1	Branshaw Quarry, Oakworth	Sandstone	Operational	2042
K/NR1.2	Hainworth Shaw Quarry, Hainworth Shaw, Keighley	Sandstone	Operational	21.02.2042
K/NR1.3	Nab Hill Quarry,	Sandstone	Closed	-

RUDP Reference	Site Name	Mineral	Status	End Date
	Oxenhope			
K/NR1.4	Woodcock Delph Quarry, Oxenhope	Sandstone	Closed	-
K/NR1.5	Naylor Hill Quarry, Oxenhope	Sandstone	Operational	30.04.2040
S/NR1.1	Bank Top Quarry, Wilsden	Sandstone	Operational	01.12.2039
S/NR1.3	Buck Park Quarry, Denholme	Sandstone	Inactive. Currently no extant planning permission. However, there are potential some resources available.	-
S/NR1.4	Hallas Rough Quarry, Cullingworth	Sandstone	Aggregate recycling, infilling and then restoration. The waste use is temporary	To be restored by August 2028
S/NR1.5	Midgeham Cliffe End Quarry, Harden	Sandstone	Aggregate recycling, infilling and then restoration. The waste use is temporary	To be restored by October 2023
S/NR1.6	Dog & Gun Quarry, Denholme	Clay	Closed	-
S/NR1.7	Ten Yards Quarry, Thornton	Sandstone	Operational	2022

Figure 6.1: Replacement Unitary Development Plan Mineral Sites



6.3 Future Approach

6.3.1 A part of the consultation exercise on Issues and Options version of the Allocations DPD in 2016, two proposals were received for future mineral site allocations and safeguarding areas. Both proposals represented extensions to existing quarries. A third proposal was received outside this period, which sought to safeguard/identify an area of search adjacent to an existing quarry.

6.3.2 These proposals were:

- Deep Lane Quarry – Potential allocation and safeguarding area
- Naylor Hill Quarry – Potential allocation and safeguarding area
- Bank Top Quarry – Potential area of search.

6.3.3 Since receipt of the Naylor Hill site, the quarry has received planning permission to deepen and expand to allow its continued operation. The area covered by the permission reflects the proposed area within the Call for Sites submission from 2016. As such, this is a committed site and will be protected within the Local Plan.

6.3.4 An assessment of each of these proposals, together with a recommendation for the Local Plan, is set out in Appendix 2.

7. Minerals Area of Search

7.1 Overview

- 7.1.1 Areas of Search are a selection of geographical boundaries within the plan which seek to establish a broad envelope within which various areas of land contain crushed rock aggregates and sand and gravel. Historically Bradford has not contributed toward the sand and gravel provision in West Yorkshire and it has limited resources within the District.
- 7.1.2 The use of Areas of Search for new minerals produced in consultation with the industry, allows the identification of areas within which future workings may take place. It does not mean that planning permission will automatically be granted for the whole areas, as many factors will have to be examined in detail at the application stage, including the staged release of land. It does indicate that within these areas there is a reasonable confidence that economic minerals exist, and the areas of search have a function of protecting those resources from sterilisation.

7.2 Current Policy Approach in Bradford

- 7.2.1 Areas of search for minerals were set out in the Bradford Replacement Unitary Development (RUDP (May 2005) and shown on the accompanying Proposals Map. They were established under Policy NR5, which was saved following the adoption of the Core Strategy DPD in July 2017.
- 7.2.2 The purpose of the 'Area of Search' is to assist the industry and public in identifying where the mineral resources and main planning constraints are thereby providing an indication as to where new mineral working may be located. There is not a presumption that planning permission will be granted within the 'Area of Search'.
- 7.2.3 In order to identify these areas geological and mineral resource information was overlain with three criteria to ensure that the main constraints on the working of the reserves were taken into account. The following criteria were used:
- 250 metre from Special Protection Area, Site of Special Scientific Interest (SSSI), Area of Outstanding Natural Beauty (AONB) and National Park;
 - 250 metre buffer zone from urban areas; and
 - within 500 metre of primary road network.
- 7.2.4 This resulted in the following 13 Areas of Search being defined in the RUDP and shown on the accompanying Proposals Map.

Table 7.1: Mineral Areas of Search in Bradford District (as defined in the RUDP, 2005)

RUDP Policy Reference	Area of Search Name	Mineral
BN/NR5.1	Little London	Sandstone
BN/NR5.2	Apperley Bridge	Sand & Gravel
BN/NR5.3	Hollins Hill	Sandstone

RUDP Policy Reference	Area of Search Name	Mineral
BS/NR5.1	Mountain, Queensbury	Sandstone
S/NR5.1	Denholme Gate	Sandstone
K/NR5.1	Aire Valley	Sand & Gravel
K/NR5.2	East Morton	Sand & Gravel
K/NR5.3	Marley	Sand & Gravel
K/NR5.4	Hainworth	Sandstone
K/NR5.5	Haworth	Sandstone
K/NR5.6	Oxenhope	Sandstone
S/NR5.3	Cullingworth	Sandstone

7.3 Future Approach

- 7.3.1 Current planning policy relating to minerals is set out in Section 5.5 of the Bradford Local Plan: Core Strategy DPD (July 2017). These seek to ensure that the district provides sufficient minerals to meet local, regional and national requirements and sets out the criteria for determining proposals for mineral development.
- 7.3.2 Adopted Core Strategy Policies EN10(E) and EN11(E), and their supporting/implementation text states that areas of search will be identified in the Allocations DPD for sandstone quarries and future sand and gravel extraction sites. Both policies set out criteria to be used in helping to define areas of search as well as assess proposals for the sites that come forward. These criteria are:
1. Locations within the resource areas identified by the British Geological Survey (This can be based on the BGS mineral resource and geological mapping);
 2. Locations outside of areas where the natural environment is protected under national and international statutory designations (Special Protection Areas; Special Areas of Conservation; Sites of Special Scientific Interest; National Nature Reserves);
 3. Locations outside of areas where further minerals extraction activities would be likely to lead to the loss or significant deterioration of any irreplaceable habitats, or to the permanent disruption of a significant ecological network;
 4. Locations outside of urban areas, except for open land adjacent to existing urban quarries (for sandstone only). Urban areas will be defined by the settlement boundary (this is co-terminus with the inner boundary of the Green Belt).
- 7.3.3 Further technical work will be undertaken in order to identify future Areas of Search as part of the development of the publication draft version of the Bradford Local Plan. The starting point will be the existing Areas of Search set out in the

Replacement Unitary Development Plan (RUDP) (May 2005) and the criteria outlined in paragraph 7.3.2 (above). Consultation will also play an important role.

8. Consultation with Industry & Partners

- 8.1.1 Consultation with minerals industry and other partners will take place as part of the Local Plan's development. Where appropriate, details will be summarised and reported within subsequent editions of this document.
- 8.1.2 The key issues that will need to be addressed include:
1. Sand & Gravel – does the previous assessment regarding the viability of sand and gravel extraction in the district still apply?
 2. Evidence – does the industry have any further evidence identify mineral resources in the District, and their longer term prospects? This may include identification of new sites for mineral extraction.
 3. Defining Mineral Safeguarding Areas and Areas of Search – have the most appropriate safeguarding areas been identified and is the proposed approach to areas of search appropriate?

9. Conclusions

9.1 Requirements for the Local Plan

- 9.1.1 As part of the scoping work for the CSPR, it was determined that the existing mineral policies did not need to be reviewed, as they are in general conformity with the National Planning Policy Framework (2019).
- 9.1.2 At that point, it was considered that the only updates at present would be factually for the supporting text/reasoned justifications. For example, this may have included inserted updated sales and landbank data into the chapter, based on the most recent Local Aggregate Assessment and Aggregates Working Party monitoring, as well as to correct references to section/paragraphs in the NPPF.
- 9.1.3 However, as work has progressed towards creating a single Local Plan for the district, it was considered appropriate to review/update the existing minerals policies to ensure that they are up to date. It is proposed to retain the majority of the existing policy wording, albeit some of the policies being split into separate ones. In addition, three new policies will be introduced – one covering strategic planning for minerals, one covering minerals allocations and another covering restoration and aftercare of minerals. Accordingly, the proposed policies list will be:
- Strategic Planning for Minerals - new policy;
 - Minerals Supply and Landbanks - retains existing Core Strategy policies EN10 (A to D) and EN11 (A to C);
 - Minerals Allocations - new policy;

- Minerals Safeguarding - retains existing Core Strategy policy EN12;
- Mineral Areas of Search - retains existing Core Strategy policy EN10(E) and EN11(E);
- Managing Minerals Development – retains most of policy wording from Core Strategy policy EN9 with some updates;
- Mineral Site Restoration and Aftercare - new policy;
- Energy Minerals – retains policy wording from Core Strategy EN11(C & D).

9.1.4 In addition to the proposed policies, outlined above, additional research and mapping work include:

1. Identifying and safeguarding existing operational and/or permitted mineral extraction sites within Bradford district including 500m buffer around these sites (in relation to the minerals allocations policy).
2. Identifying future site allocations and/or areas of search adjacent to existing/permitted mineral extraction sites (related to the minerals allocations policy).

9.1.5 Further technical work, as outlined in paragraph 7.3.3 (above) will be undertaken to identify Areas of Search for future mineral extraction (Sandstone; Sand & Gravel).

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